



Commonwealth of Virginia
Virginia Information Technologies Agency

NEXT GENERATION SOFTWARE ANALYTICS

Optional Use Contract

Date: December 30, 2015

Contract #: VA-150915-QLA

Authorized User: Authorized User (AU): All public bodies, including VITA, as defined by §2.2-4301 and referenced by §2.2-4304 of the *Code of Virginia*. Also includes private institutions of higher education chartered in Virginia and granted tax-exempt status under §501(c)(3) of the Internal Revenue Code. A list of the private institutions eligible to use this contract can be found at: <http://www.cicv.org/Our-Colleges/Profiles.aspx>.

Contractor: Qlarion Inc.
12007 Sunrise Valley Drive
Suite 420
Reston, VA 20191

FIN: 54-2056164

Contact Person: Michael Donofrio
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Pricing: Exhibit B

Term: September 15, 2015 – September 14, 2018

Payment: Net 30 days

For Additional Information, Please Contact:

Contract Information:

Supply Chain Management
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NOTES: Individual Commonwealth of Virginia employees are not authorized to purchase equipment or services for their personal use from this Contract.

For updates, please visit our Website at <http://vita2.virginia.gov/procurement/contracts.cfm>

VIRGINIA INFORMATION TECHNOLOGIES AGENCY (VITA): Prior review and approval by VITA for purchases in excess of \$100,000.00 is required for State Agencies and Institutions only.



Information Technology Solution Contract

between

The Virginia Information Technologies Agency

on behalf of

The Commonwealth of Virginia

and

Qlarion, Inc.

**INFORMATION TECHNOLOGY SOLUTION CONTRACT
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INFORMATION TECHNOLOGY SOLUTION CONTRACT

THIS INFORMATION TECHNOLOGY Solution CONTRACT (“Contract”) is entered into by and between the Virginia Information Technologies Agency (VITA) pursuant to §2.2-2012 of the Code of Virginia and on behalf of the Commonwealth of Virginia (hereinafter referred to as “VITA”), and Qlarion, Inc. (“Supplier”), a corporation headquartered at 12007 Sunrise Valley Drive, suite 420, Reston, VA 20191 to be effective as of September 15, 2015 (“Effective Date”).

1. PURPOSE AND SCOPE

This Contract sets forth the terms and conditions under which Supplier shall provide Next generation software analytics to the Authorized Users. This includes next-generation analytics, supporting tools, the services needed to deploy and tune these tools, and training services. These tool sets include Business Intelligence (BI), predictive, prescriptive, statistical analytics, simulation, data visualization, data quality, data governance, unstructured data, Hadoop, MapReduce, Community Center and SAP HANNA.

2. DEFINITIONS

A. Acceptance

Successful delivery and performance by the Supplier of its contractual commitments at the location(s) designated in the applicable Statement of Work or order, including completed and successful Acceptance testing in conformance with the Requirements as determined by the Authorized User in the applicable Statement of Work or order.

B. Agent

Any third party independent agent of any Authorized User.

C. Authorized Users

D. Except for telecommunications contracts, means all public bodies, including VITA, as defined by §2.2-4301 and referenced by §2.2-4304 of the Code of Virginia. Authorized Users shall include private institutions of higher education that are listed at:

<http://www.cicv.org/Our-Colleges/Profiles.aspx>. Business Day/Hour

Normal operating hours for the Commonwealth of Virginia: Monday-Friday, 8 a.m.-5 p.m. Eastern Standard/Daylight Time, unless otherwise specified on the applicable order or Statement of Work, excluding Commonwealth-designated holidays.

E. Component

Software or Deliverable delivered by Supplier under this Contract, including under all orders or Statements of Work.

F. Computer Virus

Any malicious code, program, or other internal component (e.g., computer virus, computer worm, computer time bomb, or similar component), which could damage, destroy, alter or disrupt any computer program, firmware, or hardware or which could, in any manner, reveal, damage, destroy, alter or disrupt any data or other information accessed through or processed by such software in any manner.

G. Confidential Information

Any confidential or proprietary information of a Party that is disclosed in any manner, including oral or written, graphic, machine readable or other tangible form, to any other Party in connection with or as a result of discussions related to this Contract or any order or SOW issued hereunder, and which at the time of disclosure either (i) is marked as being “Confidential” or “Proprietary”, (ii) is otherwise reasonably identifiable as the confidential or proprietary information of the disclosing Party, or (iii) under the circumstances of disclosure should reasonably be considered as confidential or proprietary information of the disclosing Party or (iv) is identifiable or should be reasonably considered as protected health information; (v) any personally identifiable information, including information about VITA’s employees, contractors, and customers, that is protected by statute or other applicable law.

H. Deliverable

The tangible embodiment of the work performed or Services, Maintenance Services, Licensed Services, Solution, Component, Software, plans, reports, data, Product, Supplier Product and Updates provided by the Supplier in fulfilling its obligations under the Contract or as identified in the applicable Statement of Work or order, including the development or creation of Work Product, if Work Product is authorized under the Contract.

I. (reserved)**J. Documentation**

Those materials (including user manuals, training materials, guides, product descriptions, technical manuals, product specifications, supporting materials and Updates) detailing the information and instructions needed in order to allow any Authorized User and its Agents or Application Users to make productive use of the Application, Software, Solution, Component, Product, Service, Licensed Services or Deliverable, and to implement and develop self-sufficiency with regard to the Application, Software, Solution, Component, Product, Service, Licensed Services or Deliverable, provided by Supplier in fulfilling its obligations under the Contract or as may be specified in any Statement of Work or order issued hereunder.

K. Electronic Self-Help

Any use of electronic means to exercise Supplier's license termination rights, if allowable pursuant to the Contract, upon breach or cancellation, termination or expiration of this Contract or any Statement of Work or order placed hereunder.

L. Health Record

"Health record" means any written, printed or electronically recorded material maintained by a health care entity in the course of providing health services to an individual concerning the individual and the services provided. "Health record" also includes the substance of any communication made by an individual to a health care entity in confidence during or in connection with the provision of health services or information otherwise acquired by the health care entity about an individual in confidence and in connection with the provision of health services to the individual. (§ 32.1-127.1:03, Code of Virginia)

M. (reserved)**N. Maintenance Level**

The defined parameters of Maintenance Services, including the times during which and time-frames in which Supplier shall respond to a request for Maintenance Services. The available Maintenance Levels shall be as defined in Exhibit H hereto or as defined in any Statement of Work or order issued hereunder. The actual Maintenance Level for a unit of Software or Product shall be set forth in the executed order or Statement of Work for Maintenance of that Software or Product referencing this Contract.

O. Maintenance Services (or "Maintenance" or "Software Maintenance")

If authorized by the Contract, means those services, preventive and remedial, provided or performed by Supplier under the Contract or for an Authorized User in order to ensure continued operation of the Software or Product, including Software Updates. Maintenance Services shall include support services. Software Maintenance Services may include the development of Work Product, if so authorized in the Contract.

P. Party

Supplier, VITA or any Authorized User.

Q. Protected Health Information

Protected health information means individually identifiable health information that is (i) transmitted in electronic media, (ii) maintained in electronic media, or (iii) transmitted or maintained in any other form or medium. Protected health information excludes individually identifiable health information in (a) education records covered by the Family Educational Rights

and Privacy Act (20 U.S.C. § 1232g); (b) records of any student who is 18 years of age or older, or is attending a postsecondary school, that are made or maintained by a physician, psychiatrist, psychologist, or other recognized professional or paraprofessional acting in his professional or paraprofessional capacity, or assisting in that capacity, and that are made, maintained, or used only in connection with the provision of treatment to the student and are not available to anyone other than persons providing such treatment, except that such records may be personally reviewed by a physician or other appropriate professional of the student's choice; and (c) employment records held, in its role as employer, by a health plan, health care clearinghouse, or health care provider that transmits health information in electronic form. (§ 37.2-1032, Code of Virginia)

R. Receipt

An Authorized User or its Agent has physically received or has unfettered access to any Deliverable at the correct "ship-to" location.

S. Requirements

The functional, performance, operational, compatibility, Acceptance testing criteria and other parameters and characteristics of the Product, Software, Solution, Component, Service(s), Application and Licensed Services and Deliverables, as authorized by the Contract and/or as set forth in Exhibit A and/or the applicable Statement of Work or order and such other parameters, characteristics, or performance standards that may be agreed upon in writing by the Parties.

T. Services

Any work performed or service provided by Supplier in fulfilling its obligations under the Contract or, as applicable, any Statement of Work or order issued under the Contract, including design, and development of software and modifications, software updates, solution, products, implementation, installation, maintenance, support, testing, training, or other provision to the Authorized User of any Deliverable described in the applicable Statement of Work or order, as authorized by the Contract scope. As permitted by the scope of the Contract, may include the discovery, creation, or development of Work Product, if any. If Work Product is authorized, refer to definition for Work Product. This definition does not include Licensed Services.

U. Software

If Software is authorized under the Contract, means the programs and code provided by Supplier under the Contract or any order or SOW issued hereunder as a component(s) of any Deliverable or Component of any Solution, and any subsequent modification of such programs and code, excluding Work Product. For COTS (boxed) software, means the programs and code, and any subsequent releases, provided by Supplier under this Contract as set forth in Exhibit B or as described on Supplier's US and International price lists in effect at time of Authorized User's placement of order or Statement of Work. For Software Maintenance contracts Software also includes the programs and code provided by Supplier under the Contract or any order or SOW issued hereunder in the form of Software Updates.

V. Software Publisher

If Software is authorized under the Contract, means the licensor of the Software, other than Supplier, provided by Supplier under this Contract.

W. Solution

The Supplier's contractually committed technical approach for solving a technology business objective and associated Requirements as defined and authorized by the scope of the Contract or any order or Statement of Work issued under the Contract. Solution means all Supplier and Supplier's third-party providers' Components making up the Solution, including but not limited to Software, Product, configuration design, implementation, Supplier-developed interfaces, Services and Work Product.

X. Statement of Work (SOW)

The document template attached as Exhibit D (describing the deliverables, due dates, assignment duration and payment obligations for a specific project, engagement, or assignment

that Supplier commits to provide to an Authorized User), which, upon signing by both Parties, shall be deemed a part of the Contract.

Y. Supplier

Means the Supplier and any of its Affiliates (i.e., an entity that controls, is controlled by, or is under common control with Supplier).

Z. Update

As applicable, any update, modification or new release of the Software, System Software, Application, Documentation or Supplier Product that Supplier makes generally available to its customers at no additional cost. Software Updates include patches, fixes, upgrades, enhancements, improvements, or access mode, including without limitation additional capabilities to or otherwise improve the functionality, increase the speed, efficiency, or base operation of the Software.

AA. Work Product

Inventions, combinations, machines, methods, formulae, techniques, processes, improvements, software designs, computer programs, strategies, specific computer-related know-how, data and original works of authorship (collectively, the "Work Product") discovered, created, or developed by Supplier, or jointly by Supplier and an Authorized User(s) in the performance of this Contract. Work Product shall not include configuration of software.

3. TERM AND TERMINATION

A. Contract Term

This Contract is effective and legally binding as of the Effective Date and, unless terminated as provided for in this section, shall continue to be effective and legally binding for a period of three (3) years. VITA, in its sole discretion, may extend this Contract for up to two (2) additional one (1) year periods after the expiration of the initial three (3) year period. VITA will issue a written notification to the Supplier stating the extension period thirty (30) days prior to the expiration of any current term. In addition, performance of an order or SOW issued during the term of this Contract may survive the expiration of the term of this Contract, in which case all contractual terms and conditions required for the operation of such order or SOW shall remain in full force and effect until all of Supplier's obligations pursuant to such order or SOW have met the final Acceptance criteria of the applicable Authorized User.

B. Termination for Convenience

VITA may terminate this Contract, in whole or in part, or any order or SOW issued hereunder, in whole or in part, or an Authorized User may terminate an order or SOW, in whole or in part, upon not less than thirty (30) days prior written notice at any time for any reason.

C. Termination for Breach or Default

VITA shall have the right to terminate this Contract, in whole or in part, or any order or SOW issued hereunder, in whole or in part, or an Authorized User may terminate an order or SOW, in whole or in part, for breach and/or default of Supplier. Supplier shall be deemed in breach and/or default in the event that Supplier fails to meet any material obligation set forth in this Contract or in any order or SOW issued hereunder.

If VITA deems the Supplier to be in breach and/or default, VITA shall provide Supplier with notice of breach and/or default and allow Supplier fifteen (15) days to cure the breach and/or default. If Supplier fails to cure the breach as noted, VITA may immediately terminate this Contract or any order or SOW issued hereunder, in whole or in part. If an Authorized User deems the Supplier to be in breach and/or default of an order or SOW, such Authorized User shall provide Supplier with notice of breach and/or default and allow Supplier fifteen (15) days to cure the breach and/or default. If Supplier fails to cure the breach and/or default as noted, such Authorized User may immediately terminate its order or SOW, in whole or in part. Any such termination shall be deemed a Termination for Breach or Termination for Default. In addition, if Supplier is found by a court of competent jurisdiction to be in violation of or to have violated 31 USC 1352 or if Supplier becomes a party excluded from Federal Procurement and Nonprocurement Programs, VITA may

immediately terminate this Contract, in whole or in part, for breach, and VITA shall provide written notice to Supplier of such termination. Supplier shall provide prompt written notice to VITA if Supplier is charged with violation of 31 USC 1352 or if federal debarment proceedings are instituted against Supplier.

D. Termination for Non-Appropriation of Funds

All payment obligations from public bodies under this Contract are subject to the availability of legislative appropriations at the federal, state, or local level, for this purpose. In the event of non-appropriation of funds, irrespective of the source of funds, for the items under this Contract, VITA may terminate this Contract, in whole or in part, or any order or SOW, in whole or in part, or an Authorized User may terminate an order or SOW, in whole or in part, for those goods or services for which funds have not been appropriated. Written notice will be provided to the Supplier as soon as possible after legislative action is completed.

E. Effect of Termination

Upon termination, neither the Commonwealth, nor VITA, nor any Authorized User shall have any future liability except for Deliverables accepted by the Authorized User or Services, including as applicable, Licensed Services and Maintenance Services, rendered by Supplier and accepted by the Authorized User prior to the termination date.

In the event of a Termination for Breach or Termination for Default, Supplier shall accept return of any Deliverable that was not accepted by the Authorized User(s), and Supplier shall refund any monies paid by any Authorized User for such Deliverable, and all costs of de-installation and return of Deliverables shall be borne by Supplier.

F. Termination by Supplier

Termination by Supplier will not be considered.

G. Transition of Services

Prior to or upon expiration or termination of this Contract and at the request of VITA, Supplier shall provide all assistance as VITA or an Authorized User may reasonably require to transition the Supplier's contractual obligations, or any portion thereof, as requested by VITA or the Authorized User, to any other supplier with whom VITA or such Authorized User contracts for provision of same. This obligation may extend beyond expiration or termination of the Contract for a period not to exceed six (6) months. In the event of a termination for breach and/or default of Supplier, Supplier shall provide such assistance at no charge or fee to VITA or any Authorized User; otherwise, Supplier shall provide such assistance at the hourly rate or a charge agreed upon by Supplier and VITA or an Authorized User.

H. Contract Kick-Off Meeting

Within 30 days of Contract award, Supplier may be required to attend a contract orientation meeting, along with the VITA contract manager/administrator, the VITA and/or other agency project manager(s) or authorized representative(s), technical leads, VITA representatives for SWaM and Sales/IFA reporting, as applicable, and any other significant stakeholders who have a part in the successful performance of this Contract. The purpose of this meeting will be to review all contractual obligations for both parties, all administrative and reporting requirements, and to discuss any other relationship, responsibility, communication and performance criteria set forth in the Contract. The Supplier may be required to have its assigned account manager as specified in Section 6.0 and a representative from its contracts department in attendance. The time and location of this meeting will be coordinated with Supplier and other meeting participants by the VITA contract manager.

I. Contract Closeout

Prior to the contract's expiration date, Supplier may be provided contract close out documentation and shall complete, sign and return to VITA Supply Chain Management within 30 days of receipt. This documentation may include, but not be limited to: Patent/Royalty Certificate, Tangible Property/Asset Certificate, Escrow Certificate, SWaM Reports Completion Certificate, other required Small Business (SWaM) Procurement Plan compliance/variance and non-SWaM spend documentation as described in the Reporting section of this Contract, Sales Reports/IFA

Payments Completion Certificate, and Final Payment Certificate. Supplier is required to process these as requested to ensure completion of close-out administration and to maintain a positive performance reputation with the Commonwealth of Virginia. Any closeout documentation not received within 30 days of Supplier's receipt of the Commonwealth's request will be documented in the contract file as Supplier non-compliance. Supplier's non-compliance may affect any pending payments due the Supplier, including final payment, until the documentation is returned.

4. SUPPLIER PERSONNEL

A. Selection and Management of Supplier Personnel

Supplier shall take such steps as may be necessary to ensure that all Supplier personnel performing under this Contract are competent and knowledgeable of the contractual arrangements and the applicable order or SOW between Authorized User and Supplier. Supplier shall be solely responsible for the conduct of its employees, agents, and subcontractors, including all acts and omissions of such employees, agents, and subcontractors, and shall ensure that such employees and subcontractors comply with the appropriate Authorized User's site security, information security and personnel conduct rules, as well as applicable federal, state and local laws, including export regulations. Authorized User reserves the right to require the immediate removal from such Authorized User's premises of any employee, subcontractor or agent of Supplier whom such Authorized User believes has failed to comply with the above or whose conduct or behavior is unacceptable or unprofessional or results in a security or safety breach.

B. Supplier Personnel Supervision

Supplier acknowledges that Supplier or any of its agents, contractors, or subcontractors, is and shall be the employer of Supplier personnel, and shall have sole responsibility to supervise, counsel, discipline, review, evaluate, set the pay rates of, provide (to the extent required by law) health care and other benefits for, and terminate the employment of Supplier personnel. Neither VITA nor an Authorized User shall have any such responsibilities for Supplier or subcontractor personnel.

C. Key Personnel

An order or SOW may designate certain of Supplier's personnel as Key Personnel or Project Managers. Supplier's obligations with respect to Key Personnel and Project Managers shall be described in the applicable order or SOW. Failure of Supplier to perform in accordance with such obligations may be deemed a default of this Contract or of the applicable order or SOW.

D. Subcontractors

Supplier shall not use subcontractors to perform its contractual obligations under the Contract or any order or SOW issued thereunder unless specifically authorized in writing to do so by the Authorized User. If an order or SOW issued pursuant to this Contract is supported in whole or in part with federal funds, Supplier shall not subcontract to any subcontractor that is a party excluded from Federal Procurement and Nonprocurement Programs. In no event shall Supplier subcontract to any subcontractor which is debarred by the Commonwealth of Virginia or which owes back taxes to the Commonwealth and has not made arrangements with the Commonwealth for payment of such back taxes.

If Supplier subcontracts the provision of any performance obligation under this Contract to any other party, Supplier will (i) act as prime contractor and shall be the sole point of contact with regard to all obligations under this Contract, and (ii) hereby represents and warrants that any authorized subcontractors shall perform in accordance with the warranties set forth in this Contract.

5. NEW TECHNOLOGY

A. Access to New Technology

Supplier will bring to VITA's attention any new products or services within the scope of the Contract that it believes will be of interest to VITA and will work to develop proposals for the provision of any such products or services as VITA requests.

B. New Service Offerings Not Available from Supplier

If new or replacement product or service offerings become available to VITA under the scope of the Contract, and cannot be competitively provided by the Supplier, VITA may purchase such new or replacement products or services from a third party, and Supplier will reasonably assist VITA to migrate to such products or services, if VITA elects to use such new or replacement product or service offerings.

If VITA elects to acquire new products or services as described in the above paragraph and such services replace existing Supplier-provided services, discount tiers and any commitments (as applicable per the Contract) will be reduced to reflect reductions in purchases of the replaced products or services.

6. SOFTWARE LICENSE

If Authorized User is a state agency, board, commission, or other quasi-political entity of the Commonwealth of Virginia or other body referenced in Title 2.2 of the Code of Virginia, the license shall be held by the Commonwealth. If Authorized User is a locality, municipality, school, school system, college, university, local board, local commission, or local quasi-political entity, the license shall be held by that public body. If Authorized User is a private institution of higher education which is listed at: <http://www.cicv.org/Our-Colleges/Profiles.aspx>, the license shall be held by that private institution.

A. License Grant

Any Software provided by Supplier shall be part of its Solution. Such Software that is licensed directly from the Software Publisher through an end user licensing agreement (EULA) shall be subject to the License Agreement Addendum (LAA), both of which are attached hereto as Exhibit F. Supplier shall have sole responsibility for ensuring that any such Software Publisher executes the LAA. The Software Publisher's EULA, along with the LAA executed by Software Publisher shall be added to Exhibit F for reference, but shall not become a part of this Contract.

Nothing contained herein shall be construed to restrict or limit the rights of the Commonwealth or any Authorized User to use any technical data, which the Commonwealth or such Authorized User may already possess or acquire under proper authorization from other sources.

Compliance with the terms and conditions of any license granted pursuant to this Contract is solely the responsibility of the Authorized User which purchased such license or for which such license was purchased and not the responsibility of VITA, unless VITA purchased such license on its own behalf.

B. License Type

All licenses granted, regardless of the type, include all uses set forth above. License type may vary by Software product and shall be set forth in Exhibit B and identified on any order or SOW issued pursuant to this Contract.

[option C1 - Designated CPU License]

The license(s) granted under this Section authorizes use of the Software only on the number of CPU(s) listed in the applicable order or SOW. An Authorized User may transfer the Software to a different machine to the extent that the license price for such new CPU(s) is equivalent to the CPU(s) initially licensed. If the licensed CPU is inoperative because of (i) malfunction, (ii) performance of maintenance, or (iii) modification to the licensed CPU, or (iv) because the Software is being transferred to another CPU, such Authorized User may use the Software on a replacement CPU as long as required by the mentioned conditions.

[option C2 - Concurrent User License]

The license(s) granted under this Section authorizes use of the Software on any system based on the total number of Concurrent Users. The number of "Concurrent Users" is defined as the maximum number of concurrent Sessions connected at a given point in time. A "Session" is defined as an active user executing the Software. The Authorized User shall specify an initial number of Concurrent User licenses in its initial order or SOW pursuant to this Contract. An

Authorized User may increase the number of Concurrent User licenses upon issuing an order or SOW for additional Concurrent User licenses. The license fee for additional Concurrent User licenses and payment of the license fee is set forth on Exhibit B.

C. No Subsequent, Unilateral Modification of Terms by Supplier (“Shrink Wrap”)

Notwithstanding any other provision or other unilateral license terms which may be issued by Supplier after the Effective Date of this Contract, and irrespective of whether any such provisions have been proposed prior to or after the issuance of an order for a Solution, the components of which are licensed under this Contract, or the fact that such other agreement may be affixed to or accompany Software upon delivery (“shrink wrap”), the terms and conditions set forth herein shall supersede and govern licensing and delivery of all products and services hereunder.

7. RIGHTS TO WORK PRODUCT

If Authorized User is a state agency, board, commission, or other quasi-political entity of the Commonwealth of Virginia or other body referenced in Title 2.2 of the Code of Virginia, any license to pre-existing work shall be held by, and all rights in, title to, and ownership of Work Product shall vest with the Commonwealth. If Authorized User is a locality, municipality, school, school system, college, university, local board, local commission, or local quasi-political entity, any license to pre-existing work shall be held by, and all rights in, title to, and ownership of Work Product shall vest with that public body. If Authorized User is a private institution of higher education which is listed at: <http://www.cicv.org/Our-Colleges/Profiles.aspx>, any license to pre-existing work shall be held by, and all rights in, title to, and ownership of Work Product shall vest with that private institution.

A. Work Product

VITA and Supplier each acknowledge that performance of this Contract may result in Work Product. The Parties shall document all Work Product specifications and such specifications shall be made an incorporated exhibit to this Contract. Supplier agrees that it shall promptly and fully disclose to the Commonwealth or the Authorized User any and all Work Product generated, conceived, reduced to practice or learned by Supplier or any of its employees, either solely or jointly with others, during the term or performance of this Contract, which in any way relates to the business of the Commonwealth, VITA or any Authorized User. Supplier further agrees that neither Supplier nor Supplier's employees, contractors, agents or subcontractors, nor any party claiming through Supplier or Supplier's employees, shall, other than in the performance of this Contract, make use of or disclose to others any proprietary information relating to the Work Product. All Services performed hereunder shall include delivery of all source and object code and all executables and documentation for all Work Product. Supplier shall at no time deny access to the Work Product, regardless of form, by the Commonwealth or the Authorized User.

B. Ownership

Supplier agrees that, whether or not the Services are considered “works made for hire” or an employment to invent, all Work Product discovered, created or developed under this Contract shall be and remain the sole property of the Commonwealth and its assigns or the Authorized User and its assigns. Except as specifically set forth in writing and signed by both VITA and Supplier, or Authorized User and Supplier, Supplier agrees that the Commonwealth or the Authorized User shall have all rights with respect to any Work Product discovered, created or developed under this Contract without regard to the origin of the Work Product.

If and to the extent that Supplier may, under applicable law, be entitled to claim any ownership interest in the Work Product, Supplier hereby irrevocably transfers, grants, conveys, assigns and relinquishes exclusively to the Commonwealth or the Authorized User any and all right, title and interest it now has or may hereafter acquire in and to the Work Product under patent, copyright, trade secret and trademark law in perpetuity or for the longest period otherwise permitted by law. If any moral rights are created, Supplier waives such rights in the Work Product. Supplier further agrees as to the Work Product to assist the Commonwealth or the Authorized User in every reasonable way to obtain and, from time to time, enforce patents, copyrights, trade secrets and other rights and protection relating to the Work Product, and to that end, Supplier and its employees shall execute all documents for use in applying for and obtaining such patents, copyrights, and other rights and protection, and in protecting trade secrets, with respect to such

Work Product, as the Commonwealth or the Authorized User may reasonably request, together with any assignments thereof to the Commonwealth or the Authorized User or entities designated by the Commonwealth or the Authorized User.

C. Pre-existing Work

If and to the extent that any pre-existing rights are embodied or reflected in the Work Product, Supplier hereby grants to the Commonwealth or the Authorized User the irrevocable, perpetual, non-exclusive, worldwide, royalty-free right and license to (i) use, execute, reproduce, display, perform, distribute copies of and prepare derivative works based upon such pre-existing rights and any derivative works thereof and (ii) authorize others to do any or all of the foregoing.

D. Return of Materials

Upon termination of this Contract or in the event Authorized User terminates any order or SOW issued hereunder, Supplier shall immediately return to VITA or the appropriate Authorized User all copies, in whatever form, of any and all Confidential Information, Work Product and other properties provided by VITA or such Authorized User, which are in Supplier's possession, custody or control.

8. GENERAL WARRANTY

Supplier warrants and represents to VITA that Supplier will fulfill its contractual obligations and meet all needed requirements as described in Exhibit A as follows:

A. Ownership

Supplier has the right to perform and provide all contractual obligations and provide all needed services and products without violating or infringing any law, rule, regulation, copyright, patent, trade secret or other proprietary right of any third party.

B. Limited Warranty

During the warranty period of ninety (90) days, or as specified in the applicable order or SOW, Supplier warrants that the Services, Solution, Solution Components, Deliverables, Product, Software, Updates, as authorized and provided by Supplier under this Contract, shall meet or exceed the Requirements. Supplier shall correct, at no additional cost to any Authorized User, all errors identified during the warranty period that result in supplier's failure to meet the Requirement or its contractual obligations.

C. Component Warranty

For any Software or Deliverable ("Component"), the applicable warranty period shall be the period from written acceptance of the Component until final acceptance of the Solution, or as specified in the applicable order or SOW.

D. Interoperability Warranty

Supplier warrants that each Component, regardless of the origin of the Component, delivered under this Contract or pursuant to an order or SOW shall be interoperable with other Components so as to meet or exceed the performance specified in the Requirements and the applicable order or SOW.

E. Performance Warranty

Supplier warrants and represents the following with respect to Performance:

- i. All contractual obligations shall be performed with care, skill and diligence, consistent with or above applicable professional standards currently recognized in Supplier's profession, and Supplier shall be responsible for the professional quality, technical accuracy, completeness and coordination of all plans, information, specifications, Deliverables and Services furnished under this Contract;
- ii. All contractual obligations pursuant to a particular Request for Proposal ("RFP") or Invitation for Bid ("IFB"), quote, or Request for Quote (RFQ), and any associated Deliverables shall be fit for the particular purposes specified by VITA in the RFP/IFB and in this Contract and, if applicable, by the Authorized User requesting such quote or issuing such RFQ, and Supplier is possessed of superior knowledge with respect to its contractual obligations and is aware that all Authorized Users are relying on Supplier's skill and judgment in providing its contractual obligations;

F. Documentation and Deliverables

Supplier warrants the following as applicable to the Contract:

- i. The Solution or Software is pursuant to a particular Request for Proposal ("RFP") or Invitation for Bid ("IFB"), quote, or Request for Quote (RFQ), and therefore such Solution or Software shall be fit for the particular purposes specified by VITA in the RFP/IFB and in this Contract, and if applicable, by the Authorized User requesting such quote or issuing such RFQ. Further, Supplier is possessed of superior knowledge with respect to the Solution of Software and is aware that all Authorized Users are relying on Supplier's skill and judgment in providing the Solution or Software;
- ii. If the RFP/IFB or RFQ specified or if Exhibit A or Supplier's quote specifies the hardware equipment an Authorized User shall use to run the Solution, then Supplier warrants the Solution, and any subsequent Solution Component Software release, is compatible with and shall perform well with such hardware equipment;
- iii. The Solution provided hereunder includes Component Software at the current release level unless an Authorized User specifies an older version in its order or SOW;
- iv. No corrections, work arounds or future Software or Solution Component Software releases provided by Supplier under the warranty provisions or under maintenance shall degrade the Solution, cause any other warranty to be breached, or require an Authorized User to acquire additional hardware equipment or software;
- v. Supplier warrants that the Documentation and all modifications or amendments thereto which Supplier is required to provide under this Contract shall be sufficient in detail and content to allow a user/programmer to understand fully the Solution or Solution Component or to load/use/operate the Software without reference to any other materials or information.

G. Malicious Code

Supplier has used its best efforts through quality assurance procedures to ensure that there are no Computer Viruses or undocumented features in any Solution, Solution Component, Deliverables, Product, Software, System Software, Update, Application and/or Licensed Service, as obligated and provided by Supplier under the order or SOW, at the time of delivery to the Authorized User. Supplier warrants that the Solution, Solution Components, Deliverables, Product, Software, System Software, Update, Application and/or Licensed Services, as obligated and provided by Supplier under the order or SOW does not contain any embedded device or code (e.g., time bomb) that is intended to obstruct or prevent any Authorized User's use of the Solution, Solution Components, Deliverables, Product, Software, System Software, Application and/or Licensed Service.

Notwithstanding any rights granted under this Contract or at law, Supplier hereby waives under any and all circumstances any right it may have or may hereafter have to exercise Electronic Self-Help. Supplier agrees that an Authorized User may pursue all remedies provided under law in the event of a breach or threatened breach of this Section, including injunctive or other equitable relief.

H. Open Source

Supplier will notify all Authorized Users if the Solution, Solution Components, Deliverables, Product, Software, Updates, Application and/or Licensed Services, as obligated and provided by Supplier, contains any Open Source code and identify the specific Open Source License that applies to any embedded code dependent on Open Source code, provided by Supplier under this Contract.

I. Supplier's Viability

Supplier warrants that it has the financial capacity to perform and continue to perform its obligations under this Contract; that Supplier has no constructive or actual knowledge of a potential legal proceeding being brought against Supplier that could materially adversely affect performance of this Contract; and that entering into this Contract is not prohibited by any contract, or order by any court of competent jurisdiction.

J. Supplier's Past Experience

Supplier warrants that it has met similar contractual obligations and fulfilled the Requirements as set forth in Exhibit A and in this Contract, in similar or greater complexity, to other customers without significant problems due to Supplier's performance and without causing a contractual breach or default claim by any customer.

THE OBLIGATIONS OF SUPPLIER UNDER THIS GENERAL WARRANTY SECTION ARE MATERIAL. SUPPLIER MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY CONCERNING MERCHANTABILITY OR FITNESS FOR ANY OTHER PARTICULAR PURPOSE.

9. DELIVERY AND INSTALLATION**A. Scheduling**

Supplier shall deliver the Solution, including any Component parts, and complete performance of Services according to the delivery dates set forth on the appropriate order or SOW.

Supplier shall make available all appropriate and/or related Documentation at the time of delivery of the relevant Component of the Solution. Any Solution Component delivered without the appropriate and required Documentation shall be considered "shipped short" until the applicable documentation has been received.

B. Deployment of Solution**1. Supplier Deployment of Solution**

The Solution fee includes initial deployment of the complete Solution. Supplier is required to deploy the Solution in accordance with the deployment schedule set forth on the order or SOW. Deployment shall include the installation of any Software Component and, if agreed, any hardware Component, of the Solution. Supplier shall conduct its standard appropriate diagnostic evaluation at the Authorized User's user site to determine that the Solution is properly deployed and fully ready for productive use, and shall supply such Authorized User with a copy of the results of the diagnostic evaluation promptly after completion of deployment.

Supplier agrees that failure to deploy the Solution in accordance with the delivery schedule in the applicable order or SOW shall constitute a material breach of this Contract resulting in damages to such Authorized User. As an estimate of the damages such Authorized User shall suffer, Supplier agrees to credit such Authorized User an amount equal to one percent (1%) of the total Solution fee, for each day after the scheduled deployment date that the Solution has not been deployed for a period of thirty (30) days following the agreed upon delivery date. If the delay lasts longer than thirty (30) days, such Authorized User may immediately cancel the order or SOW and collect damages for each day of that period of late delivery. Such Authorized User reserves any and all other remedies available at law or in equity for delays lasting longer than thirty (30) days or for non-deployment.

2. Authorized User Installation of Software

If the Solution includes Software which may be installed by an Authorized User and such Authorized User elects to install the Software itself, the Software shall be deemed to be installed when all programs, program libraries and user interfaces are copied to and initialized on the appropriate equipment as executable by having the ordering Authorized User invoke the primary function of each major Component of the Software or when Acceptance criteria as specified in the Authorized User's order or SOW have been met. Authorized User shall provide to Supplier written notice of Acceptance upon completion of installation and successful Acceptance testing. Supplier shall proceed with full deployment of the Solution concurrently with or after Authorized User's installation of the Software, as agreed between the Authorized User and Supplier in the order or SOW.

C. Documentation of Software Configuration

If the Solution includes configuration of Software by Supplier, Supplier shall provide to the appropriate Authorized User documentation containing a description of the configuration. Such

documentation shall be sufficiently detailed such that any appropriately trained employee or Agent of any Authorized User may reconstruct the configuration of the Software.

10. ACCEPTANCE

A. Software and Deliverable Acceptance Criteria

Software and Deliverables shall be deemed accepted when the Authorized User determines that such Software and Deliverables successfully operate in accordance with the Requirements and applicable order or SOW. At a minimum, Acceptance Criteria for Software and Deliverables, and for the Solution as a whole, shall ensure that all of the functionality described in the Requirements set forth in Exhibit A and required by the Authorized User in the applicable order or SOW has been delivered to the Authorized User. Acceptance of any one Deliverable shall not imply Authorized User's concurrence that the Deliverable will function properly with or within the Solution. Supplier shall be responsible for ensuring that all Deliverables function properly within the Solution. Should a previously Accepted Deliverable require further modification in order to work properly with or within the Solution, Supplier shall be responsible for all costs associated with such modification. Such Authorized User agrees to commence Acceptance testing within five (5) days, or within such other period as set forth in the applicable order or SOW, after receipt of the Software or Deliverable. Acceptance testing will be no longer than fifteen (15) days, or such other period as may be agreed in writing between Authorized User and Supplier, for the first instance of each product type set forth in Exhibit B. Supplier agrees to provide to such Authorized User such assistance and advice as such Authorized User may reasonably require, at no additional cost, during such Acceptance testing, other than pre-approved travel expenses for time and materials type orders or SOWs or for fixed price type orders or SOWs in which travel expenses were expressly excluded from the total price of the order or SOW. Any such travel expenses must be pre-approved by the Authorized User and shall be reimbursable by such Authorized User at the then-current per diem amounts as published by the Virginia Department of Accounts (<http://www.doa.virginia.gov>), or a successor URL(s)). If the Authorized User is a private institution chartered in Virginia and and granted tax-exempt status under §501(c)(3) of the Internal Revenue Code, such private institution may have its own per diem amounts applicable to Supplier's pre-approved travel expenses. Authorized User shall provide to Supplier written notice of Acceptance upon completion of successful Acceptance testing. Should Authorized User fail to provide Supplier written notice of successful or unsuccessful Acceptance testing within five (5) days following the Acceptance testing period, the Service shall be deemed Accepted.

B. Software and Deliverable Cure Period

Supplier shall correct any non-conformities identified during Acceptance testing and re-submit such non-conforming Software or Deliverable for re-testing within fifteen (15) days of receipt of the appropriate Authorized User's written notice of non-conformance, or as otherwise agreed between such Authorized User and Supplier in the applicable order or SOW. Should Supplier fail to cure the non-conformity or deliver Software or a Deliverable which meets the Requirements, such Authorized User may, in its sole discretion: (i) reject the Software or Deliverable in its entirety and recover amounts previously paid hereunder; (ii) issue a "partial Acceptance" of the Software or Deliverable with an equitable adjustment in the price to account for such deficiency; or (iii) conditionally accept the applicable Software or Deliverable while reserving its right to revoke Acceptance if timely correction is not forthcoming. Failure of the Software or a Deliverable to meet, in all material respects, the Requirements after the second set of acceptance tests shall constitute a default by Supplier. In the event of such default, the Authorized User may, at its sole discretion, terminate its order or SOW, in whole or in part, for the Solution to be provided thereunder by Supplier.

C. Solution Acceptance Criteria

Solution shall be deemed accepted when the Authorized User determines that such Solution successfully operates in accordance with the Requirements. Such Authorized User agrees to commence Acceptance testing within five (5) days after deployment of the Solution. Acceptance testing will be completed within fifteen (15) days, or such other period as may be agreed in writing between Authorized User and Supplier, after deployment of the Solution. Supplier agrees to

provide to such Authorized User such assistance and advice as such Authorized User may reasonably require, at no additional cost, during such Acceptance testing, other than pre-approved travel expenses for time and materials type orders or SOWs or for fixed price type orders or SOWs in which travel expenses were expressly excluded from the total price of the order or SOW. Any such travel expenses must be pre-approved by the Authorized User and shall be reimbursable by such Authorized User at the then-current per diem amounts as published by the Virginia Department of Accounts <http://www.doa.virginia.gov>, or a successor URL(s)). If the Authorized User is a private institution chartered in Virginia and and granted tax-exempt status under §501(c)(3) of the Internal Revenue Code, such private institution may have its own per diem amounts applicable to Supplier's pre-approved travel expenses. Authorized User shall provide to Supplier written notice of Acceptance upon completion of successful Acceptance testing. Should Authorized User fail to provide Supplier written notice of successful or unsuccessful Acceptance testing within five (5) days following the Acceptance testing period, the Service shall be deemed Accepted.

D. Solution Cure Period

Supplier shall correct any non-conformities identified hereunder and shall thereafter re-submit such previously non-conforming Solution or Component products or Services for re-testing within fifteen (15) business days of receipt of written notice of non-conformance to Supplier, or as otherwise agreed between the Authorized User and Supplier. Should Supplier fail to deliver a Solution which meets the Requirements, such Authorized User may, in its sole discretion: (i) reject the Solution in its entirety and recover amounts previously paid hereunder; (ii) issue a "partial Acceptance" of the Solution with an equitable adjustment in the price to account for such deficiency; or (iii) conditionally accept the applicable Solution while reserving its right to revoke Acceptance if timely correction is not forthcoming. Failure of the Solution to meet, in all material respects, the specifications and performance standards after the second set of acceptance tests shall constitute a default by Supplier. In the event of such default, the Authorized User may, at its sole discretion, terminate its order or SOW, in whole or in part, for the Solution to be provided hereunder by Supplier.

11. WARRANTY AND MAINTENANCE SERVICES

At any time during the Warranty or Maintenance Period, as applicable, Supplier shall provide the following warranty or maintenance services (including unlimited telephonic support and all necessary travel and labor) to maintain the Solution in accordance with the Requirements. During the Warranty Period, such services shall be performed without additional charge to any Authorized User. During the Maintenance Period, charges shall be in accordance with this Section and Exhibit B.

A. Known Defects

Promptly notify all Authorized Users in writing of any defects or malfunctions in the Solution or Documentation of which it learns from any source, correct any such defects or malfunctions or provide a work around until corrected, within five (5) days of Supplier's knowledge of such defect or malfunction and provide all Authorized Users with corrected copies of same.

B. New Releases

Provide to all Authorized Users no later than the first day of general release, copies of the Software and Documentation revised to reflect any enhancements, including all new releases, upgrades, and access modes, to the Software made by Supplier, including, without limitation, modifications to the Software which can increase the speed, efficiency or base of operation of the Software or add additional capabilities to or otherwise improve the functionality of the Software.

C. Coverage

D. See Exhibit HService Levels

E. See Exhibit HSoftware Evolution

Should Supplier or Software Publisher merge or splinter the Software previously provided to any Authorized User, such action on the part of Supplier or Software Publisher shall not in any way result in any Authorized User being charged additional license or support fees in order to receive enhancements, releases, upgrade or support for the Software.

If Supplier or Software Publisher reduces or replaces functionality contained in a licensed Software product and provides the same or substantially similar functionality as or within a separate or renamed Software product, then the Commonwealth or the Authorized User shall be entitled to license such Software product at no additional license or maintenance fee, and subject to the terms and conditions herein.

If Supplier or Software Publisher releases an option, future Software product or other release that has substantially the same functionality as the Software products provided under this Contract, and Software Publisher and/or Supplier ceases to provide maintenance for the older Software product, then Supplier shall offer the Commonwealth or the Authorized User the option to exchange licenses for such replacement Software product or function at no additional charge.

F. Escalation Procedures

See Exhibit H

G. Remedies

If Supplier is unable to make the Solution or any Component thereof conform, in all material respects to the order or SOW issued by the Authorized User, within thirty (30) days following notification by an Authorized User, Supplier shall, at such Authorized User's request, accept return of the tangible Solution Components, and (a) during the Warranty Period, return all monies paid by such Authorized User for the returned Solution Components and Documentation or (b) during any subsequent Maintenance Period, return all monies paid by such Authorized User for the returned Solution Components and Documentation, pro-rated using the straight-line method for an estimated Solution life cycle of seven (7) years. Authorized User shall discontinue use of any Solution Component Software or product.

H. Solution Support Services (Maintenance) and Renewal Options

Sixty (60) days prior to the expiration of the Warranty Period, Supplier shall notify the Authorized User in writing of such expiration, and the Authorized User, at its sole discretion, may order from Supplier Solution support Services ("Maintenance Services"), including new Software releases, updates and upgrades, for a period of one (1) year ("Maintenance Period") and for an annual fee as described in Exhibit B. Supplier shall notify the Authorized User sixty (60) days prior to the expiration of the Maintenance Period, and the Authorized User, at its sole discretion, may renew Maintenance Services for an additional one (1) year period. The annual fee for Maintenance Services shall not exceed the fee charged for the preceding year's Maintenance Services by more than three percent (3%), or the annual change in CPI, as defined in the Fees and Charges section, in effect at the time, whichever is less. Supplier warrants that it shall make Support Services available for all the Solution components listed in Exhibit B for a period of at least five (5) years from the expiration of the initial Warranty Period of any Solution provided to an Authorized User pursuant to this Contract. Cancellation of Maintenance Services by an Authorized User shall not affect this Contract or the grant of any license by Supplier.

12. FEES, ORDERING AND PAYMENT PROCEDURE

A. Fees and Charges

As consideration for the Supplier's performance obligations and any additional products and services provided hereunder to an Authorized User in accordance with the scope of this Contract and the Requirements, as authorized by Exhibit A, and per the Authorized User's order or SOW, an Authorized User shall pay Supplier the fee(s) set forth on Exhibit B, which lists any and all fees and charges. The fees and any associated discounts shall be applicable throughout the term of this Contract; provided, however, that in the event the fees or discounts apply for any period less than the entire term, Supplier agrees that it shall not increase the fees more than once during any twelve (12) month period, commencing at the end of year one (1). No such increase shall exceed the lesser of three percent (3%) or the annual increase in the Consumer Price Index for All Urban Consumers (CPI-U), U.S. City Average, All Items, Not Seasonally Adjusted, as published by the Bureau of Labor Statistics of the Department of Labor (<http://www.bls.gov/cpi/home.htm>), for the effective date of the increase compared with the same index one (1) year prior. Any such change in price shall be submitted in writing to VITA and to the Authorized User if such change impacts

any SOW or order and in accordance with the above and shall not become effective for sixty (60) days thereafter. Supplier agrees to offer price reductions to ensure compliance with the Competitive Pricing Section.

B. Ordering

Notwithstanding all Authorized User's rights to license or purchase Supplier's products or services under this Contract, an Authorized User is under no obligation to purchase or license from Supplier any of Supplier's products or services. This Contract is optional use and non-exclusive, and all Authorized Users may, at their sole discretion, purchase, license or otherwise receive benefits from third party suppliers of products and services similar to, or in competition with, the products and services provided by Supplier.

Supplier is required to accept any order or placed by an Authorized User through the eVA electronic procurement website portal (<http://www.eva.virginia.gov/>). eVA is the Commonwealth of Virginia's e-procurement system. State agencies, as defined in §2.2-2006 of the Code of Virginia, shall order through eVA. All other Authorized Users are encouraged to order through eVA, but may order through the following means:

- i. Purchase Order (PO): An official PO form issued by an Authorized User.
- ii. Any other order/payment charge or credit card process, such as AMEX, MASTERCARD, or VISA under contract for use by an Authorized User.

This ordering authority is limited to issuing orders or SOWs for the contractual offerings and Requirements available under the scope of this Contract. Under no circumstances shall any Authorized User have the authority to modify this Contract. An order or SOW from an Authorized User may contain additional terms and conditions; however, to the extent that the terms and conditions of the Authorized User's order or SOW are inconsistent with the terms and conditions of this Contract, the terms of this Contract shall supersede.

Notwithstanding the foregoing, Supplier shall not accept any order or SOW from an Authorized User if such order or SOW is to be funded, in whole or in part, by federal funds and if, at the time the order or SOW is placed, Supplier is not eligible to be the recipient of federal funds as may be noted on any of the Lists of Parties Excluded from Federal Procurement and Nonprocurement Programs.

ALL CONTRACTUAL OBLIGATIONS UNDER THIS CONTRACT IN CONNECTION WITH AN ORDER OR SOW PLACED BY ANY AUTHORIZED USER ARE THE SOLE OBLIGATION OF SUCH AUTHORIZED USER AND NOT THE RESPONSIBILITY OF VITA UNLESS SUCH AUTHORIZED USER IS VITA.

C. Reproduction Rights for Supplier-Provided Software

At an Authorized User's request, Supplier shall provide the Authorized User with a reproducible diskette or CD of Software and Updates. Such Authorized User shall be responsible for making copies and distributing the Software and Updates as required. Within thirty (30) days of the end of each calendar quarter, such Authorized User shall provide to Supplier a report of the net number of additional copies of the Software and/or Updates deployed during the quarter. Supplier shall invoice such Authorized User for the net number of new licenses reported as deployed.

D. Reimbursement of Expenses

If allowable pursuant to an Authorized User's Statement of Work, such Authorized User shall pay, or reimburse Supplier, for all reasonable and actual travel-related expenses for greater than thirty (30) miles from portal to portal incurred by Supplier during the relevant period; provided, however, that such Authorized User shall only be liable to pay for Supplier's travel-related expenses, including transportation, meals, lodging and incidental expenses, that have been authorized by such Authorized User in advance in the Statement of Work and which will be reimbursable by such Authorized User at the then-current per diem amounts as published by the Virginia Department of Accounts (<http://www.doa.virginia.gov/>, or a successor URL(s)). Authorized Users

who are not public bodies may have their own per diem amounts applicable to Supplier's pre-approved travel expenses.

All reimbursed expenses will be billed to the Authorized User on a pass-through basis without any markup by Supplier. At Authorized User's request, Supplier shall provide copies of receipts for all travel expenses over US\$30.00.

E. Demonstration and/or Evaluation

If the Supplier's contractual obligations include the provision of a Solution, an Application and Licensed Services, or Software-as-a-Service, at the request of any Authorized User, Supplier shall perform a demonstration of its Solution, or its Application and Licensed Services or Software-as-a Service at such Authorized User's location and at no charge.

If the Supplier's contractual obligations include the provision of Software, the Supplier shall make available to any Authorized User the Software for evaluation purposes at no charge. The evaluation period will be determined by the complexity of testing but will be a period not less than thirty (30) days. Each new project is entitled to an evaluation copy regardless of whether an Authorized User has previously purchased the Software.

F. Statement of Work

An SOW, the template provided in Exhibit D, shall be required for any orders placed by an Authorized User pursuant to this Contract. Supplier shall perform any and all contractual obligations at the times and locations set forth in the applicable SOW and at the rates set forth in Exhibit B herein. Unless VITA issues a written authorization for a time and materials type SOW, any SOW shall be of a fixed price type but may, with the written approval of VITA, contain a cost-reimbursable line item(s) for pre-approved travel expenses. In furtherance of compliance, invoicing, and auditing requirements, for time and materials type SOWs, Supplier personnel shall maintain daily time records of hours and tasks performed, which shall be submitted or made available for inspection by the Authorized User upon forty-eight (48) hours advance written notice.

Any change to an SOW must be described in a written change request (template provided as Exhibit E). Either Party to an SOW may issue a change request that will be subject to written approval of the other Party before it becomes part of this Contract. In no event shall any SOW or any modification thereto require the Supplier to provide any products or services that are beyond the scope of this Contract as such scope is defined in Exhibit A hereto.

G. Supplier Quote and Request for Quote

Should an Authorized User determine that a competitive process is required to ensure it receives the best value for its needed solution, product and/or services under this contract, such Authorized User may, at its sole discretion, on a case-by-case basis and upon approval by VITA, use a Request for Quote (RFQ) process to obtain identical or similar solutions, products and/or services to those provided by Supplier pursuant to this Contract. The RFQ process is typically used when an Authorized User requires a complete solution that may be fulfilled by Products and Services herein, but whose complexity or size may result in economies that could not be passed on to the Authorized User within the confines of the established contract catalog discount pricing. When an RFQ is used, the project timing and requirements will be clearly outlined in the RFQ document. In some situations, the Authorized User may not identify the exact specifications required. If that is the case, the RFQ respondents will be given the opportunity to identify and propose their recommended specifications.

Supplier shall respond to the RFQ by providing a quote, which shall include (a) a detailed description of each product or service proposed, including such product and services components, at the Exhibit B line item level, (b) the quantity of each such component, (c) the contract price, (d) any additional percentage discount offered, and (e) an extended price. If requested by the Authorized User, Supplier's quote shall also include a proposal describing the approach Supplier plans to take in developing, implementing, and maintaining its offering for the Authorized User. Should Supplier be unable to respond to the RFQ due, for example, to resource constraints, Supplier shall notify Authorized User in writing of its inability to perform the work

requested by such Authorized User, and provide the reasons for such inability to perform, prior to the due date for the submission of quotes in response to the RFQ.

H. Invoice Procedures

Supplier shall remit each invoice to the "bill-to" address provided with the order promptly after all Supplier's performance obligations have been accepted and in accordance with the milestone payment schedule, if any, in the applicable order or SOW. Payment for any support services, as authorized in the Contract and the Authorized User's applicable order or SOW, shall be annually in arrears unless otherwise stated herein, or in any order or SOW referencing this Contract. No invoice shall include any costs other than those identified in the executed order or SOW, which costs shall be in accordance with Exhibit B. Without limiting the foregoing, all shipping costs are the Supplier's responsibility except to the extent such charges are identified in Exhibit B, or as noted in any executed order or SOW referencing this Contract. Invoices issued by the Supplier shall identify at a minimum:

- i. Dates/periods that invoice covers, including any service or subscription periods, as applicable.
- ii. Line item description of the Deliverable(s), Product(s), Software, Hardware, Services, Solution and Solution Components, Maintenance Services, and/or Licensed Services, as applicable to this Contract, including components thereof or service type, and, if applicable, the project milestone.
- iii. Quantity, charge and extended pricing for each line item
- iv. Applicable order and/or SOW date
- v. This Contract number and the applicable order number and/or SOW number
- vi. Supplier's Federal Employer Identification Number (FEIN)

Any terms included on Supplier's invoice shall have no force or effect and will in no way bind VITA or any Authorized User.

I. Purchase Payment Terms

Supplier is responsible for the accuracy of its billing information. Supplier agrees not to issue invoices hereunder until all Supplier's performance obligations have been accepted and in accordance with the milestone payment schedule, if any, in the applicable order or SOW, or until after services have been rendered. Charges for Deliverables, components or services accepted more than ninety (90) days prior to receipt of a valid invoice may not be paid. Should Supplier repeatedly over bill Authorized User, Authorized User may assess a one percent (1%) charge for the amount over-billed for each month that such over-billing continues.

13. REPORTING

Supplier is required to submit to VITA the following monthly reports:

- i. Report of Sales; and
- ii. Small Business Procurement and Subcontracting Report

These reports must be submitted using the instructions and further detailed requirements and templates found at the following URL: <http://www.vita.virginia.gov/scm/default.aspx?id=97>

Suppliers are encouraged to review the site periodically for updates on Supplier reporting requirements and methods.

In conjunction with the requirements in the Invoice Procedures section of this Contract, Supplier shall provide to VITA within 30 days of the date of expiration of the contract an accompanying statement certifying that Supplier has fully complied with the Contract's Small Business (SWaM) Procurement Plan, and if Supplier has not fully complied, provide a written explanation of any variances between such Plan and the actual participation. The Supplier's compliance confirmation and/or written explanation of variance shall be maintained by VITA, in the contract file.

Failure by Supplier to comply with its contractually obligated Small Business (SWaM) Procurement Plan may prohibit or delay any renewals of the Contract. Also, Supplier's failure to comply with its

Small Business (SWaM) Procurement Plan or to explain any variance between the proposed Plan and actual SWaM subcontracting spend may result in the withholding of any final payment due Supplier.

Failure to comply with all reporting requirements may result in default of the Contract.

14. STATUS MEETINGS

The account team will be prepared to conduct monthly stewardship meetings with VITA to provide a broad review of all services, projects and ongoing operations. Supplier should also be prepared to conduct semi-annual meetings/presentations to discuss new products and services and their potential benefit to VITA.

15. STEERING COMMITTEE

In order to facilitate mutually beneficial contractual relationships with suppliers, VITA has procedures for establishing a steering committee ("Steering Committee"), consisting of senior management personnel, including personnel involved in the contractual relationship, from VITA and Supplier.

Roles of the Steering Committee include but are not be limited to a) identifying potential issues which may arise during the performance of a contract, b) discussing and assigning roles and responsibilities, c) establishing methods for quickly resolving potential disputes, d) setting rules for communication and decision making, e) monitoring and measuring the business relationship between the parties, and f) acting as a final decision board for escalated problems.

A meeting of the Steering Committee is intended to be a forum for brainstorming and sharing ideas, emphasizing respect, cooperation, and access, with the end goal of developing relationships to avoid conflict. A facilitator may, but is not required to, conduct a meeting of the Steering Committee.

A Steering Committee for this Contract will be formed at VITA's option. Meetings may be held at any time during the Contract term, should VITA, at its sole discretion, determine that a meeting(s) would be beneficial to the contractual relationship, and Supplier agrees to participate in such meeting(s). In addition, Supplier may at any time submit a written request to VITA for a meeting of the Steering Committee, which VITA will not unreasonably deny.

Supplier shall ensure the availability of the appropriate personnel to meet with the VITA contract management team. Additional Steering Committee meetings involving representatives from VITA, the Supplier, and an Authorized User may be required prior to or during performance on any specific SOW issued pursuant to this Contract.

16. RESERVED

17. TRAINING AND DOCUMENTATION

A. Training

In addition to any online tutorial training Supplier may make available, Supplier's fee, unless expressly excluded, includes all costs for any and all training as agreed upon for the training of one (1) Authorized User trainer per order or SOW on the use and operation of the Deliverable provided to Authorized User, to allow full benefit of the applicable Deliverable to Authorized User, including instruction in any necessary conversion, manipulation or movement of such Authorized User's data. Supplier shall provide personnel sufficiently experienced and qualified to conduct such training at a time and location mutually agreeable to Supplier and Authorized User. Available additional and optional training, and applicable pricing and discounts, are described in Exhibit B.

B. Documentation

Supplier shall deliver to Authorized User three (3), or such number as agreed upon between the parties under an order or SOW, complete hard copies or electronic media of Documentation applicable to Supplier's Deliverable provided to Authorized User, as requested by such Authorized User. Should Supplier revise or replace the Documentation, or should Documentation

be modified to reflect Updates, Supplier shall deliver to the Authorized User such updated or replacement Documentation, in the same quantity and media format as originally requested by such Authorized User, or as agreed upon between the parties. Any Authorized User shall have the right, as part of any license grant, to make as many additional copies of the Documentation, in whole or in part, for its own use as required. This Documentation shall include, but not be limited to, overview descriptions of all major functions, detailed step-by-step installation and operating procedures for each screen and activity, and technical reference manuals. Such Documentation shall be revised to reflect any modifications, fixes or updates made by Supplier. Any Authorized User shall have the right, as part of the license granted by Supplier, at its own discretion, to take all or portions of the Documentation, modify or completely customize it in support of the authorized use of the licensed application or software and may duplicate such Documentation and include it in such Authorized User's document or platform. All Authorized Users shall continue to include Supplier's copyright notice.

18. AUTHORIZED USER SELF-SUFFICIENCY

Prior to or at any time during Supplier's performance of an order or SOW issued pursuant to this Contract, an Authorized User may require that Supplier provide to Authorized User a detailed plan to develop Authorized User self-sufficiency and to transition operation and management to Authorized User or its Agent, which Agent may be VITA, or an agent of VITA, or a third party provider under contract with Authorized User. At Authorized User's request and pursuant to an order or SOW for Supplier's Services issued hereunder, Supplier shall provide all assistance reasonably required by Authorized User to develop Authorized User's self-sufficiency in operating and managing the Solution, Software, Products and/or Services that Supplier provided to Authorized User under the applicable order or SOW. During and/or after the transition period, Authorized User may, at its sole discretion, elect to order or continue Maintenance Services from Supplier, if authorized under the scope of the Contract, for any of the Software or hardware Product, components or Solution Components delivered to Authorized User by Supplier.

19. COMPETITIVE PRICING

Supplier warrants and agrees that each of the charges, economic or product terms or warranties granted pursuant to this Contract are comparable to or better than the equivalent charge, economic or product term or warranty being offered to any commercial or government customer of Supplier. If Supplier enters into any arrangements with another customer of Supplier or with an Authorized User to provide the products and services, available under this Contract, under more favorable prices, as the prices may be indicated on Supplier's current U.S. and International price list or comparable document, then this Contract shall be deemed amended as of the date of such other arrangements to incorporate those more favorable prices, and Supplier shall immediately notify VITA of such change.

20. ESCROW AGREEMENT

Supplier shall maintain copies of all Software source code and related technical and user Documentation, in English, in an escrow account, and shall maintain with escrow agent the executed agreement attached hereto as Exhibit C (Escrow Agreement). VITA acknowledges that, prior to the Effective Date of this Contract, Supplier delivered to VITA and VITA received a copy of the executed Escrow Agreement naming the Commonwealth of Virginia as a third party beneficiary. VITA has reviewed Escrow Agreement to ensure that such Escrow Agreement does not impose upon the Commonwealth any requirements other than administrative responsibilities necessary for the operation of the Escrow Agreement. If events give rise to a need for the escrow agent to release escrowed materials to the Commonwealth, the Commonwealth's sole responsibility shall be to request the release of such materials from the escrow agent. Supplier agrees to notify VITA in writing not less than thirty (30) calendar days prior to termination or any modification of Escrow Agreement. Supplier warrants that the information and materials to be kept in escrow in a media safe environment for the benefit of the Commonwealth are specifically identified and listed in Attachment A to the Escrow Agreement and include the most current version used by all Authorized Users of:

- i. the source code for the Software and all future release versions,

- ii. identification of the development/support technology stack, including but not limited to, every software tool, driver, script, app, etc. with versions and details needed to develop, test, support all phases of the SDLC for all tiers of the Software as used in the Authorized User's solution or operating environment,
- iii. all Documentation related thereto as well as all necessary and available information, proprietary information must be in English,
- iv. technical Documentation must be in English and shall enable VITA, any Authorized User, or an Agent of VITA or any Authorized User to create, maintain and/or enhance the Software without the aid of Supplier or any other person or reference to any other materials, maintenance tools (test programs and program specifications), or proprietary or third party system utilities (compiler and assembler descriptions); descriptions of the system/program generation; and descriptions of any Supplier tools required to enable VITA and all Authorized Users to continue to use the Software, and
- v. all Documentation must be provided in unprotected MS Word and other commonly used formats that can be updated.

Supplier warrants that all items, including future versions, deposited in escrow for VITA or an Authorized User shall be verified by the Escrow Agent within 30 days after deposit to validate the completeness, accuracy and functionality of the Supplier's escrow deposits. The verification process to be performed by the Escrow Agent for the original deposit and subsequent deposits shall be detailed in the Escrow Agreement and a detailed report of all tests of such verification shall be submitted in writing to VITA or the Authorized User within 10 business days of completion. To perform such verification, Escrow Agent shall conduct a verification process that includes but is not be limited to:

- i. File List Test - To ensure the deposited items are catalogued and confirm they are readable and virus free, and if encrypted, that the Escrow Agent has the decryption keys on deposit.
- ii. Inventory and Analysis Test – To provide a complete audit and inventory of the deposit including analysis of deposited media to verify the presence of build instructions, to identify all of materials necessary to recreate the original development environment and to confirm the presence of all build instructions, file classification tables, database schema and listings.
- iii. Compile Test – To validate whether the development environment can be recreated from the deposited documentation and files; to identify third-party libraries, to recreate the Supplier's development environment; to compile source files and modules, to recreate executable code and to prepare a complete list of any hardware or software configurations.
- iv. Binary Comparison Test – To test the functionality of the compiled deposit materials by comparing the files built in compile testing to the licensed, executable file running at VITA's or Authorized User's site.
- v. Full Usability Test – To confirm the source code placed in escrow will be fully functional in the event of a release and to perform a relevant series of tests to ensure that replicated software runs properly in the required VITA or Authorized User environment.
- vi. Final Operability Test – To perform a final demonstration of the functioning software.
- vii. Fault Remedy – To collaborate with Supplier on fixing any faults discovered during the testing, to obtain corrected escrow items and to re-perform any verification tests as necessary until all tests are successful, with written detailed reports to VITA or the Authorized User.

Supplier warrants that the Escrow Agreement provides for, among other items, the release of the list of items on Attachment A of the Escrow Agreement upon the happening of certain events, including, but not limited to, Supplier's failure to carry out its support and maintenance obligations imposed by this Contract for a period of sixty (60) days, Supplier's breach or default under this Contract, Supplier's bankruptcy, Supplier's failure to continue to do business in the ordinary course. Supplier agrees to pay all expenses associated with establishing and maintaining the escrow account and the contents mentioned above.

Subject to the information and materials listed on Attachment A of the Escrow Agreement being released to the Commonwealth pursuant to the terms of the Escrow Agreement, Supplier hereby grants to the Commonwealth a royalty-free, perpetual, irrevocable license, that permits disclosure to a third party support-vendor of a complete and accurate copy of then-current source code for the Software licensed hereunder, along with all related documentation.

Any Authorized User which is not a state agency, board, commission, or other quasi-political entity of the Commonwealth of Virginia or other body referenced in Title 2.2 of the Code of Virginia may require Supplier to execute an additional escrow agreement subject to the same requirements and binding Supplier to the same obligations as described above but naming such Authorized User as the beneficiary of the escrow agreement. Subject to the information and materials listed in such escrow agreement being released to such Authorized User, Supplier hereby grants to such Authorized User a royalty-free, perpetual, irrevocable license, that permits disclosure to a third party support-vendor of a complete and accurate copy of then-current source code for the Software licensed to such Authorized User, along with all related documentation.

21. CONFIDENTIALITY

A. Treatment and Protection

Each Party shall (i) hold in strict confidence all Confidential Information of any other Party, (ii) use the Confidential Information solely to perform or to exercise its rights under this Contract, and (iii) not transfer, display, convey or otherwise disclose or make available all or any part of such Confidential Information to any third-party. However, an Authorized User may disclose the Confidential Information as delivered by Supplier to subcontractors, contractors or agents of such Authorized User that are bound by non-disclosure contracts with such Authorized User. Each Party shall take the same measures to protect against the disclosure or use of the Confidential Information as it takes to protect its own proprietary or confidential information (but in no event shall such measures be less than reasonable care).

B. Exclusions

The term "Confidential Information" shall not include information that is:

- i. in the public domain through no fault of the receiving Party or of any other person or entity that is similarly contractually or otherwise obligated;
- ii. obtained independently from a third-party without an obligation of confidentiality to the disclosing Party and without breach of this Contract;
- iii. developed independently by the receiving Party without reference to the Confidential Information of the other Party; or
- iv. required to be disclosed under The Virginia Freedom of Information Act (§§2.2-3700 et seq. of the Code of Virginia) or similar laws or pursuant to a court order.

C. Return or Destruction

Upon the termination or expiration of this Contract or upon the earlier request of the disclosing Authorized User, Supplier shall (i) at its own expense, (a) promptly return to the disclosing Authorized User all tangible Confidential Information (and all copies thereof except the record required by law) of the disclosing Authorized User, or (b) upon written request from the disclosing Authorized User, destroy such Confidential Information and provide the disclosing Authorized User with written certification of such destruction, and (ii) cease all further use of the Authorized User's Confidential Information, whether in tangible or intangible form.

VITA or the Authorized User shall retain and dispose of Supplier's Confidential Information in accordance with the Commonwealth of Virginia's records retention policies or, if Authorized User is not subject to such policies, in accordance with such Authorized User's own records retention policies.

D. Confidentiality Statement

All Supplier personnel, contractors, agents, and subcontractors performing Services pursuant to this Contract shall be required to sign a confidentiality statement or non-disclosure agreement.

Any violation of such statement or agreement shall be deemed a breach of this Contract and may result in termination of the Contract or any order or SOW issued hereunder.

E. Health Insurance Portability and Accountability Act

Supplier agrees to comply with all applicable provisions of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) and, as applicable to the performance of this Contract or to any SOW or order issued hereunder. Supplier shall:

- i. Not use or further disclose protected health information (PHI) other than as permitted or required by the terms of this Contract or any SOW or order issued hereunder or as required by law;
- ii. Use appropriate safeguards to prevent use or disclosure of PHI other than as permitted by this Contract or any SOW or order issued hereunder;
- iii. Report to VITA or Authorized User, as applicable, any use or disclosure of PHI not provided for by this Contract or the applicable SOW or order;
- iv. Mitigate, to the extent practicable, any harmful effect that is known to the Supplier of a use or disclosure of PHI by the Supplier or its employees, agents or subcontractors in violation of the requirements of this Contract or the applicable SOW or order;
- v. Impose the same requirements and restrictions contained in this provision on its employees, subcontractors and agents performing on this Contract or a SOW or order issued hereunder;
- vi. Provide access to PHI contained in its records to VITA or the requesting Authorized User, in the time and manner designated by VITA or the requesting Authorized User, or at the request of VITA or an Authorized User, to an individual in order to meet HIPAA access;
- vii. Make available PHI in its records to VITA or an Authorized User for amendment and incorporate any amendments to PHI in its records at VITA's or an Authorized User's request; (end of HIPAA additional language)

All Supplier documents now or later comprising the Contract may be released in their entirety under the Virginia Freedom of Information Act, and Supplier agrees that any confidentiality or similar stamps or legends that are attached to any future documents or information may be ignored to the extent they claim confidentiality beyond that permitted herein.

22. INDEMNIFICATION AND LIABILITY

A. Indemnification

Supplier agrees to indemnify, defend and hold harmless the Commonwealth, VITA, any Authorized User, their officers, directors, agents and employees (collectively, "Commonwealth's Indemnified Parties") from and against any and all losses, damages, claims, demands, proceedings, suits and actions, including any related liabilities, obligations, losses, damages, assessments, fines, penalties (whether criminal or civil), judgments, settlements, expenses (including attorneys' and accountants' fees and disbursements) and costs (each, a "Claim" and collectively, "Claims"), incurred by, borne by or asserted against any of Commonwealth's Indemnified Parties to the extent such Claims in any way relate to, arise out of or result from: (i) any intentional or willful conduct or negligence of any employee, agent, or subcontractor of Supplier, (ii) any act or omission of any employee, agent, or subcontractor of Supplier, (iii) breach of any representation, warranty or covenant of Supplier contained herein, (iv) any defect in the Supplier-provided products or services, or (v) any actual or alleged infringement or misappropriation of any third party's intellectual property rights by any of the Supplier-provided products or services. Selection and approval of counsel and approval of any settlement shall be accomplished in accordance with all applicable laws, rules and regulations. For state agencies the applicable laws include §§ 2.2-510 and 2.2-514 of the Code of Virginia. In all cases involving the Commonwealth or state agencies, the selection and approval of counsel and approval of any settlement shall be satisfactory to the Commonwealth. In the event of a settlement between Supplier and a private institution of higher education who is an Authorized User of this contract, such settlement shall be satisfactory to that institution.

In the event that a Claim is commenced against any of Commonwealth's Indemnified Parties alleging that use of the Supplier-provided products or services, including any components thereof, or that the Supplier's performance or delivery of any product or service under this Contract infringes any third party's intellectual property rights and Supplier is of the opinion that the allegations in such Claim in whole or in part are not covered by this indemnification provision, Supplier shall immediately notify VITA and the affected Authorized User(s) in writing, via certified mail, specifying to what extent Supplier believes it is obligated to defend and indemnify under the terms and conditions of this Contract. Supplier shall in such event protect the interests of the Commonwealth's Indemnified Parties and secure a continuance to permit VITA and the affected Authorized User(s) to appear and defend their interests in cooperation with Supplier as is appropriate, including any jurisdictional defenses VITA or the affected Authorized User(s) may have.

In the event of a Claim pursuant to any actual or alleged infringement or misappropriation of any third party's intellectual property rights by any of the Supplier-provided Deliverables, Products, Software, Services, Solution, including Solution Components, Application and Licensed Services, as applicable, or Supplier's performance, and in addition to all other obligations of Supplier in this Section, Supplier shall at its expense, either (a) procure for all Authorized Users the right to continue use of such infringing Deliverables, Products, Software, Services, Solution, including Solution Components, Application and Licensed Services, as applicable, or any component thereof; or (b) replace or modify such infringing Deliverables, Products, Software, Services, Solution, including Solution Components, Application and Licensed Services, as applicable, or any component thereof, with non-infringing Deliverables, Products, Software, Services, Solution or Solution Component(s), Application and Licensed Services, as applicable, satisfactory to VITA. And in addition, Supplier shall provide any Authorized User with a comparable temporary replacement products and/or services or reimburse VITA or any Authorized User for the reasonable costs incurred by VITA or such Authorized User in obtaining an alternative product or service, in the event such Authorized User cannot use the affected Deliverable, Product, Software, Services, Solution or Solution Component(s), Application and Licensed Services, as applicable, or any component thereof. If Supplier cannot accomplish any of the foregoing within a reasonable time and at commercially reasonable rates, then Supplier shall accept the return of the infringing Deliverables, Products, Software, Services, Solution, Solution Component, Application and Licensed Services, as applicable, or any component thereof, along with any other components rendered unusable by any Authorized User as a result of the infringing component, and refund the price paid to Supplier for such components.

B. Liability

Except for liability with respect to (i) any intentional or willful misconduct or negligence of any employee, agent, or subcontractor of Supplier, (ii) any act or omission of any employee, agent, or subcontractor of Supplier, (iii) claims for bodily injury, including death, and real and tangible property damage, (iv) Supplier's indemnification obligations, (v) Supplier's confidentiality obligations, (vi) Supplier's security compliance obligations, and (vii) Supplier's data privacy and security obligations as specified under this Contract, Supplier's liability shall be limited to twice the aggregate value of the delivered and accepted Deliverables, Products, Software, Services, Solution, including Solution Components, Application and Licensed Services, as applicable, provided by Supplier to all Authorized Users under this Contract. Supplier agrees that it is fully responsible for all acts and omissions of its employees, agents, and subcontractors, including their gross negligence or willful misconduct. The limitation shall apply on a per-incident basis, it being understood that multiple losses stemming from the same root cause constitute a single incident.

FOR ALL OTHER CONTRACTUAL CLAIMS, IN NO EVENT WILL ANY PARTY BE LIABLE TO ANY OTHER PARTY FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL OR PUNITIVE DAMAGES, INCLUDING (WITHOUT LIMITATION) LOSS OF PROFIT, INCOME OR SAVINGS, EVEN IF ADVISED OF THE POSSIBILITY THEREOF, EXCEPT WHEN SUCH DAMAGES ARE CAUSED BY THE GROSS NEGLIGENCE OR WILLFUL MISCONDUCT OF THE PARTY, ITS EMPLOYEES, AGENTS OR SUBCONTRACTORS.

23. INSURANCE

In addition to the insurance coverage required by law as referenced in the Incorporated Contractual Provisions section of this Contract, Supplier shall carry:

Errors and omissions insurance coverage in the amount of \$2,000,000 per occurrence.

24. SECURITY COMPLIANCE

Supplier agrees to comply with all provisions of the then-current Commonwealth of Virginia security procedures, published by the Virginia Information Technologies Agency (VITA) and which may be found at: (<http://www.vita.virginia.gov/library/default.aspx?id=537#securityPSGs>) or a successor URL(s), as are pertinent to Supplier's operation. Supplier further agrees to comply with all provisions of the relevant Authorized User's then-current security procedures as are pertinent to Supplier's operation and which have been supplied to Supplier by such Authorized User. Supplier shall also comply with all applicable federal, state and local laws and regulations. For any individual Authorized User location, security procedures may include but not be limited to: background checks, records verification, photographing, and fingerprinting of Supplier's employees or agents. Supplier may, at any time, be required to execute and complete, for each individual Supplier employee or agent, additional forms which may include non-disclosure agreements to be signed by Supplier's employees or agents acknowledging that all Authorized User information with which such employees and agents come into contact while at the Authorized User site is confidential and proprietary. Any unauthorized release of proprietary or Personal information by the Supplier or an employee or agent of Supplier shall constitute a breach of its obligations under this Section and the Contract. Supplier shall immediately notify VITA and Authorized User, if applicable, of any Breach of Unencrypted and Unredacted Personal Information, as those terms are defined in Virginia Code 18.2-186.6, and other personal identifying information, such as insurance data or date of birth, provided by VITA or Authorized User to Supplier. Supplier shall provide VITA the opportunity to participate in the investigation of the Breach and to exercise control over reporting the unauthorized disclosure, to the extent permitted by law. Supplier shall indemnify, defend, and hold the Commonwealth, VITA, the Authorized User, their officers, directors, employees and agents harmless from and against any and all fines, penalties (whether criminal or civil), judgments, damages and assessments, including reasonable expenses suffered by, accrued against, or charged to or recoverable from the Commonwealth, VITA, the Authorized User, their officers, directors, agents or employees, on account of the failure of Supplier to perform its obligations pursuant this Section.

25. IMPORT/EXPORT

In addition to compliance by Supplier with all export laws and regulations, VITA requires that any data deemed "restricted" or "sensitive" by either federal or state authorities, must only be collected, developed, analyzed, or otherwise used or obtained by persons or entities working within the boundaries of the United States.

26. BANKRUPTCY

If Supplier becomes insolvent, takes any step leading to its cessation as a going concern, fails to pay its debts as they become due, or ceases business operations continuously for longer than fifteen (15) business days, then VITA may immediately terminate this Contract, and an Authorized User may terminate an order or SOW, on notice to Supplier unless Supplier immediately gives VITA or such Authorized User adequate assurance of the future performance of this Contract or the applicable order or SOW. If bankruptcy proceedings are commenced with respect to Supplier, and if this Contract has not otherwise terminated, then VITA may suspend all further performance of this Contract until Supplier assumes this Contract and provides adequate assurance of performance thereof or rejects this Contract pursuant to Section 365 of the Bankruptcy Code or any similar or successor provision, it being agreed by VITA and Supplier that this is an executory contract. Any such suspension of further performance by VITA or Authorized User pending Supplier's assumption

or rejection shall not be a breach of this Contract, and shall not affect the rights of VITA or any Authorized User to pursue or enforce any of its rights under this Contract or otherwise.

27. GENERAL PROVISIONS

A. Relationship Between VITA and Authorized User and Supplier

Supplier has no authority to contract for VITA or any Authorized User or in any way to bind, to commit VITA or any Authorized User to any agreement of any kind, or to assume any liabilities of any nature in the name of or on behalf of VITA or any Authorized User. Under no circumstances shall Supplier, or any of its employees, hold itself out as or be considered an agent or an employee of VITA or any Authorized User, and neither VITA nor any Authorized User shall have any duty to provide or maintain any insurance or other employee benefits on behalf of Supplier or its employees. Supplier represents and warrants that it is an independent contractor for purposes of federal, state and local employment taxes and agrees that neither VITA nor any Authorized User is responsible to collect or withhold any federal, state or local employment taxes, including, but not limited to, income tax withholding and social security contributions, for Supplier. Any and all taxes, interest or penalties, (including, but not limited to, any federal, state or local withholding or employment taxes, and any penalties related to health care or employee benefits laws) that are imposed, assessed or levied as a result of this Contract or Services performed pursuant to this Contract shall be paid or withheld by Supplier or, if assessed against and paid by VITA or any Authorized User, shall be reimbursed by Supplier upon demand by VITA or such Authorized User.

B. Incorporated Contractual Provisions

The then-current contractual provisions at the following URL are mandatory contractual provisions, required by law or by VITA, and that are hereby incorporated by reference: http://www.vita.virginia.gov/uploadedfiles/VITA_Main_Public/scm/StatutorilyMandatedTsandCs.pdf

The contractual claims provision §2.2-4363 of the Code of Virginia and the required eVA provisions at http://www.vita.virginia.gov/uploadedfiles/VITA_Main_Public/scm/eVATsandCs.pdf are also incorporated by reference.

The then-current terms and conditions in documents posted to the aforementioned URLs are subject to change pursuant to action by the legislature of the Commonwealth of Virginia, change in VITA policy, or the adoption of revised eVA business requirements. If a change is made to the terms and conditions, a new effective date will be noted in the document title. Supplier is advised to check the URLs periodically.

C. Compliance with the Federal Lobbying Act

Supplier's signed certification of compliance with 31 USC 1352 (entitled "Limitation on use of appropriated funds to influence certain Federal Contracting and financial transactions") or by the regulations issued from time to time thereunder (together, the "Lobbying Act") is incorporated as an exhibit to this Contract.

D. Governing Law

This Contract shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia without regard to that body of law controlling choice of law. Any and all litigation shall be brought in the circuit courts of the Commonwealth of Virginia. The English language version of this Contract prevails when interpreting this Contract. The United Nations Convention on Contracts for the International Sale of Goods and all other laws and international treaties or conventions relating to the sale of goods are expressly disclaimed. UCITA shall apply to this Contract only to the extent required by §59.1-501.15 of the Code of Virginia.

E. Dispute Resolution

In accordance with §2.2-4363 of the Code of Virginia, Contractual claims, whether for money or other relief, shall be submitted in writing to the public body from whom the relief is sought no later than sixty (60) days after final payment; however, written notice of the Supplier's intention to file such claim must be given to such public body at the time of the occurrence or beginning of the

work upon which the claim is based. Pendency of claims shall not delay payment of amounts agreed due in the final payment. The relevant public body shall render a final decision in writing within thirty (30) days after its receipt of the Supplier's written claim.

The Supplier may not invoke any available administrative procedure under §2.2-4365 of the Code of Virginia nor institute legal action prior to receipt of the decision of the relevant public body on the claim, unless that public body fails to render its decision within thirty (30) days. The decision of the relevant public body shall be final and conclusive unless the Supplier, within six (6) months of the date of the final decision on the claim, invokes appropriate action under §2.2-4364, Code of Virginia or the administrative procedure authorized by §2.2-4365, Code of Virginia.

Upon request from the public body from whom the relief is sought, Supplier agrees to submit any and all contractual disputes arising from this Contract to such public body's alternative dispute resolution (ADR) procedures, if any. Supplier may invoke such public body's ADR procedures, if any, at any time and concurrently with any other statutory remedies prescribed by the Code of Virginia.

In the event of any breach by a public body or a private institution, Supplier's remedies shall be limited to claims for damages and Prompt Payment Act interest and, if available and warranted, equitable relief, all such claims to be processed pursuant to this Section. In no event shall Supplier's remedies include the right to terminate any license or support services hereunder.

F. Advertising and Use of Proprietary Marks

Supplier shall not use the name of VITA or any Authorized User or refer to VITA or any Authorized User, directly or indirectly, in any press release or formal advertisement without receiving prior written consent of VITA or such Authorized User. In no event may Supplier use a proprietary mark of VITA or an Authorized User without receiving the prior written consent of VITA or the Authorized User.

G. Notices

Any notice required or permitted to be given under this Contract shall be in writing and shall be deemed to have been sufficiently given if delivered in person, or if deposited in the U.S. mails, postage prepaid, for mailing by registered, certified mail, or overnight courier service addressed to:

- i. To VITA and to Supplier, if Supplier is incorporated in the Commonwealth of Virginia, to the addresses shown on the signature page.
- ii. To Supplier, if Supplier is incorporated outside the Commonwealth of Virginia, to the Registered Agent registered with the Virginia State Corporation Commission.

Pursuant to Title 13.1 of the Code of Virginia, VITA or Supplier may change its address for notice purposes by giving the other notice of such change in accordance with this Section.

Administrative contract renewals, modifications or non-claim related notices are excluded from the above requirement. Such written and/or executed contract administration actions may be processed by the assigned VITA and Supplier points of contact for this Contract and may be given in person, via U.S. mail, courier service or electronically.

H. No Waiver

Any failure to enforce any terms of this Contract shall not constitute a waiver.

I. Assignment

This Contract shall be binding upon and shall inure to the benefit of the permitted successors and assigns of VITA and Supplier. Supplier may not assign, subcontract, delegate or otherwise convey this Contract or any of its rights and obligations hereunder, to any entity without the prior written consent of VITA, and any such attempted assignment or subcontracting without consent shall be void. VITA may assign this Contract to any entity, so long as the assignee agrees in writing to be bound by the all the terms and conditions of this Contract.

If any law limits the right of VITA or Supplier to prohibit assignment or nonconsensual assignments, the effective date of the assignment shall be thirty (30) days after the Supplier gives

VITA prompt written notice of the assignment, signed by authorized representatives of both the Supplier and the assignee. Any payments made prior to receipt of such notification shall not be covered by this assignment.

J. Captions

The captions are for convenience and in no way define, limit or enlarge the scope of this Contract or any of its Sections.

K. Severability

Invalidity of any term of this Contract, in whole or in part, shall not affect the validity of any other term. VITA and Supplier further agree that in the event such provision is an essential part of this Contract, they shall immediately begin negotiations for a suitable replacement provision.

L. Survival

Any provisions of this Contract regarding Software License, Rights To Work Product, Warranty, Escrow, Confidentiality, Content Privacy and Security, Liability, Indemnification, and the General Provisions shall survive the expiration or termination of this Contract.

M. Force Majeure

No Party shall be responsible for failure to meet its obligations under this Contract if the failure arises from causes beyond the control and without the fault or negligence of the non-performing Party. If any performance date under this Contract is postponed or extended pursuant to this section for longer than thirty (30) calendar days, VITA, by written notice given during the postponement or extension, may terminate Supplier's right to render further performance after the effective date of termination without liability for that termination, and in addition an Authorized User may terminate any order or SOW affected by such postponement or delay.

N. Remedies

The remedies set forth in this Contract are intended to be cumulative. In addition to any specific remedy, VITA and all Authorized Users reserve any and all other remedies that may be available at law or in equity.

O. Right to Audit

VITA reserves the right to audit those Supplier records that relate to the Contract or any SOWs or orders issued there under. VITA's right to audit shall be limited as follows:

- i. Three (3) years from end date of the Contract;
- ii. Performed at Supplier's premises, during normal business hours at mutually agreed upon times; and
- iii. Excludes access to Supplier cost information. In no event shall Supplier have the right to audit, or require to have audited, VITA or any Authorized User.

P. Offers of Employment

During the first twelve (12) months of the Contract, should Supplier hire an employee of any Authorized User who has substantially worked on any project covered by this Contract without prior written consent, the Supplier shall be billed for fifty percent (50%) of the employee's annual salary in effect at the time of termination.

Q. Contract Administration

Supplier agrees that at all times during the term of this Contract an account executive, at Supplier's senior management level, shall be assigned and available to VITA. Supplier reserves the right to change such account executive upon reasonable advance written notice to VITA.

R. Entire Contract

The following Exhibits, including all subparts thereof, are attached to this Contract and are made a part of this Contract for all purposes:

Exhibit A - Requirements

Exhibit B - Options List; Fees, Service Charges, and Payment Schedule

Exhibit C - Escrow Agreement

- Exhibit D - Statement of Work (SOW) Template
- Exhibit E - Change Order Template
- Exhibit F - End User Licensing Agreement (for reference only)
- Exhibit G - Certification Regarding Lobbying
- Exhibit H - Service Levels

This Contract, its Exhibits, and any prior non-disclosure agreement constitute the entire agreement between VITA and Supplier and supersede any and all previous representations, understandings, discussions or agreements between VITA and Supplier as to the subject matter hereof. Any and all terms and conditions contained in, incorporated into, or referenced by the Supplier's Proposal shall be deemed invalid. The provisions of the Virginia Department of General Services, Division of Purchases and Supply Vendor's Manual shall not apply to this Contract or any order issued hereunder. This Contract may only be amended by an instrument in writing signed by VITA and Supplier. In the event of a conflict, the following order of precedence shall apply: this Contract document, Exhibit A, any individual SOW, Exhibit B, Exhibit H.

An Authorized User and Supplier may enter into an ordering agreement pursuant to this Contract. To the extent that such ordering agreement, or any order or SOW issued hereunder, include any terms and conditions inconsistent with the terms and conditions of this Contract, such terms and conditions shall be of no force and effect.

VITA and Supplier each acknowledge that it has had the opportunity to review this Contract and to obtain appropriate legal review if it so chose.

Executed as of the last date set forth below by the undersigned authorized representatives of VITA and Supplier.

VITA

By: Nelson P. Moe

(Signature)

Name: Nelson P. Moe

(Print)

Title: CIO

Date: 11-19-2015

Address for Notice:

11751 Meadowville Lane
Chester, VA 23836

Attention: **Supplier Contact**

By: Jacob Rittner

(Signature)

Name: Jacob Rittner

(Print)

Title: President & CEO

Date: 10/13/2015

Address for Notice:

12007 Sunrise Valley Dr, Ste 420
Reston, VA 20191

Attention: Contract Administrator



**EXHIBIT A REQUIREMENTS
CONTRACT NUMBER VA-150915-QLA
BETWEEN
VIRGINIA INFORMATION TECHNOLOGIES AGENCY
AND
QLARION, INC.**

Exhibit A is hereby incorporated into and made an integral part of Contract Number VA-150915-QLA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Qlarion, Inc. (“Supplier”). In the event of any discrepancy between this Exhibit A and the Contract, the provisions of the Contract shall control.

A. Product Specifications & Standards

	Requirements	A	B
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<p>1</p>	<p>Does your solution comply with all current COV ITRM Policies and Standards, as applicable, found at: http://www.vita.virginia.gov/library/default.aspx?id=537.</p> <p>If proposed solution does not, please provide details that specify the Standard/Policy and how Supplier's solution does not comply.</p>	<p>Yes</p>	<p>Upon review of the ITRM Policies and Standards, Qlarion has determined our solution complies where applicable.</p>
<p>2</p>	<p>Do your proposed interfaces to Commonwealth systems comply with or have approved exceptions to all applicable Commonwealth Data Standards as found at http://www.vita.virginia.gov/oversight/default.aspx?id=10344</p> <p>If not, please explain.</p>	<p>Yes</p>	<p>Given the nature of analytics technology and the robust, mature nature of the SAP BusinessObjects and Hortonworks platforms, we can comply with the Commonwealth Data Standards.</p>

<p>3</p>	<p>Does your solution provide effective, interactive control and use with nonvisual means and provide 508 Compliance in accordance with the following standard regarding IT Accessibility and 508 Compliance:</p> <p>http://www.vita.virginia.gov/uploadedFiles/Library/AccessibilityStandard_GOV103-00_Eff_11-04-05.pdf (Refer to www.section508.gov and www.access-board.gov for further information)</p> <p>If yes, please describe how this functionality is achieved and include a completed Voluntary Product Accessibility Template (VPAT) with your proposal: <i>(The VPAT template is located in APPENDIX C of the Accessibility Standard (GOV103-00)).</i></p> <p>If no, does your solution provide alternate accessibility functionality? Please describe.</p>	<p>Yes</p>	<p>All of our solutions that are end user facing (e.g., BI report) provide 508 compliance. The components of our solution that are not end-user interfaces (e.g., backend routine) do not demand 508 compliance.</p> <p>The SAP 508 VPAT can be found in Appendix E.</p> <p>For Hortonworks HDP, it is back-end platform technology that is a component of a larger solution with 508 compliant interfaces with accessibility features. (e.g. Web dashboards).</p>
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B. General

	Requirements	A	B
1	Selected vendors, if asked, will need to perform a selected vendor proposed pilot within one year of contract award. Does your Solution	Yes	The Qlarion sets of solutions for analytics are based on world leading technology and full functionality is

	Requirements	A	B
	meet this requirement?		ready today.
2	There will be no cost to the Commonwealth or the participating agencies for the use of tools or Supplier resources utilized during this evaluation and pilot(s). Does your Solution meet this requirement?	Yes	Qlarion partners with our clients and invests in situations such as this to demonstrate our thought leadership and value in the analytics space. Our team's technology partners, SAP and Hortonworks, will also support pilots as requested.
3	Vendors selected for pilots will need to work with any agency providing data to support that pilot to develop a mutually agreed upon document before a pilot can commence. That agreement needs to address exactly how the vendor intends to analyze any agency data and all of the controls and associated roles that will be applied to that data. Does your Solution meet this requirement?	Yes	Qlarion fully supports scoping and documenting the pilot and associated requirements beforehand. That documentation will be based on our IMAGINE™ Methodology and will include the approach, measures, business value, and roles and responsibilities of Qlarion and the client agency.
4	All applicable state and federal laws concerning the protection of this data must be complied with. Does your Solution meet this requirement?	Yes	Our proposed technology is the most installed analytics platform in the world. As such, today it works with HIPAA, PII, sensitive, and classified data.
5	All Commonwealth data utilized during pilots must remain at the hosting agency. No Commonwealth data is to be analyzed offsite, copied, transformed to obscure Commonwealth's ownership, or transmitted in	Yes	Our proposed solution does not require any offsite usage of data. All data analyzed or used in general during the pilot(s) will remain on site.

	Requirements	A	B
	any way without formal agency approval. Does your Solution meet this requirement?		
6	Pilots are to be performed on dedicated devices (laptops) sup by VITA or on vendor supplied appliances. Vendor provided appliances will need an approved plan (by VITA & participating agencies) for protecting and deleting Commonwealth data. Does your Solution meet this requirement?	Yes	The Qlarion solution works on a variety of leading platforms, including Windows, UNIX and Linux, and therefore we expect to be able to work with VITA supplied hardware for the pilot. Should we be required to supply the hardware, we will do so and work with VITA on an approved a plan to protect the data.
7	<ul style="list-style-type: none"> • VITA supplied laptops and vendor supplied appliances must be under full control of the pilot hosting agency for the duration of the pilot. Vendor will have no administrative rights to VITA supplied laptop. Agency or VITA staff will load any required software. • Pilot should be accomplished with the minimum amount of Commonwealth data as possible/practical • The agency may require that the analytic methods be demonstrated to agency staff by the vendor on agency provided test data and any analysis of actual agency data would only be performed by agency staff • Vendor access to agency data may require vendor staff to attend specific training provided 	Yes	<p>Qlarion consultants will coordinate appropriately with the agency or VITA staff as needed to install and configure any software necessary for the pilot on VITA or vendor supplied appliances.</p> <p>Pilots will be designed to accomplish their intended business objective with as minimal Commonwealth data as reasonable.</p> <p>Qlarion will work with agencies to design an approach that effectively protects the agency data and the insights that it produces. In addition, Qlarion’s analytics consultants will leverage their functional skillsets to train agency</p>

	Requirements	A	B
	<p>by the agency.</p> <p>Does your Solution meet these requirements?</p>		<p>staff on approaches and methods to conduct the analysis of their data.</p> <p>Qlarion will attend any pertinent training to understand or have access to the data needed for the pilot.</p>
8	<p>Suppliers will provide subject matter experts as need to support the pilots. Does your Solution meet this requirement?</p>	Yes	<p>Qlarion's experienced analytics technical and functional consultants will support the pilot to ensure it delivers proof of business value of the Qlarion solution. If necessary, SAP and Hortonworks can supply specific product experts to supplement the team.</p>
9	<p>Does your Solution safeguard sensitive data? If yes, explain how.</p>	Yes	<p>There are multiple manners to safeguard sensitive data. First is to secure user-level access at the database level, second is to secure it at the metadata level by user or user group, and finally we can alias the data through the data quality or ETL processes to obscure sensitive data.</p>
10	<p>Does your solution have mechanisms that will prevent one entity from viewing another entity's data if applicable if the toolset was deployed on a shared platform? If yes, explain how they work.</p>	Yes	<p>Similar to how we secure sensitive data, we can allow access to only certain users or user groups based on database and/or metadata level permissions. If a user logs in</p>

	Requirements	A	B
			without the appropriate permissions tied to their group or user, they will not see any data outside of their permission group.
11	Does your solution have the ability to extract data from multiple existing analytic tool sets (Cognos, SAS, BusinessObjects, MicroStrategy, Microsoft Analytics, etc.)? If so, please list.	Yes	The Qlarion solution includes Data Services as the Data Quality tool. Data Services is also a leader per Gartner for the extraction, transformation, and loading (ETL) of data. Being a leading ETL tool, SAP Data Services can connect to nearly any data set on any database or other platform (e.g., IBM DB2, Microsoft SQL Server, Oracle, Sybase, Teradata, etc.). When attempting to access data from another BI environment, Qlarion recommends using an ETL tool to connect to and extract the underlying data mart supporting the reporting tier. Once that data is accessible by SAP or Hortonworks, they can treat it as a source and report on it.
12	Supplier staff will submit to background checks conducted and paid for by the Commonwealth. Does your Solution meet this requirement?	Yes	Qlarion will submit all staff to the appropriate background checks. In fact, all of our employees and contractors have background checks done by Qlarion. In 2014, the Department of Defense granted

	Requirements	A	B
			a Secret facility clearance to Qlarion.
13	Agencies may need expertise/resources in utilizing these next-generation analytics tools to address business needs. Role examples include: Data Scientists, Data Analysts, Data Hygienists, Data Explorers, Data Visualizers, Does your Solution have the ability to provide these types of resources? If so, what roles can you provide?	Yes	Qlarion's business is solely focused on data analytics within the public sector. As such our cadre of consultants are experienced in all aspects of data analysis and insight to include: Data Scientists, Data Analysts, Analytics Developers, Data Hygienists, Data Integration Analysts, Data Stewards, Business Analysts, Data Explorers, and Data Visualizers.

One Unified Business Intelligence Suite

C-1 Business Intelligence

SAP, Qlarion's vendor partner for Business Intelligence (BI), provides a complete end-to-end analytics solution for the Commonwealth. With over 65,000 customers using its BI tools,



SAP is the #1 market leader in business analytics. The SAP BusinessObjects BI platform is a flexible and scalable information infrastructure designed to help its customers more easily discover and share insights for better business decisions.

Business Benefits:

- Better-informed participants making better decisions with simpler, personalized access to information
- Faster deployment and optimized use of IT infrastructure and resources with one unified BI infrastructure
- Tighter integration with your existing IT infrastructure
- Reduced IT workload with simplified maintenance and administration options
- Better use of IT resources by enabling business users with self-service

Figure 1: SAP BusinessObjects BI Suite

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>The SAP BusinessObjects Business Intelligence (BI) Suite consists of the following applications.</p> <ul style="list-style-type: none"> • SAP Crystal Reports software for enterprise reporting to create highly formatted reports, connected to virtually any data source • SAP BusinessObjects Web Intelligence software for self-service information access and interactive analysis • SAP BusinessObjects Dashboards software for interactive dashboards and point-and-click visualizations • SAP BusinessObjects Explorer software for immediate insight into vast amounts of data • SAP BusinessObjects Analysis software, edition for OLAP, for accessing advanced analytics of online analytical processing (OLAP) content • SAP BusinessObjects Live Office software for integrating BI within the Microsoft Office environment • SAP BusinessObjects Mobile software for remote access to information from any mobile device • SAP BusinessObjects BI platform for a flexible and

			<p>scalable information infrastructure</p> <ul style="list-style-type: none"> • SAP BusinessObjects Integration software for connectivity to SAP, Oracle, JD Edwards, PeopleSoft, and Siebel applications <p>For more details on the SAP BusinessObjects BI Suite please see Appendix F.</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>The SAP BusinessObjects BI platform can accommodate everything from small, nimble departmental deployments to global implementations required by Fortune 500 companies. It lays the foundation for fast, modular use, reducing deployment and maintenance costs. Automated functionality and tools streamline the BI deployment so IT departments can focus on other tasks. The platform reduces the total cost of ownership by supporting modern 64-bit architectures and virtualization environments.</p> <p>The SAP BusinessObjects BI Suite can be deployed on commodity x86 server hardware either on premise or in the Cloud. SAP has reference hardware architectures for all the major hardware vendors and this can also be run in the public or via a private cloud. Databases supported include DB2, SQL Server, Oracle, MySQL, SAP HANA, Sybase, and others. Operating systems supported include Windows, Linux, AIX, Solaris, and others.</p> <p>For more details on the platforms available, please see Appendix G.</p>
3	Explain licensing options for the tools you have included in this category	n/a	<p>SAP Business Intelligence Suite allows for two types of licensing.</p> <ul style="list-style-type: none"> • User: Each user gets a license to create edit and share results on local machine. • Concurrent Sessions: Each user gets a license to create edit and share results on a server account.

4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Yes	<p>SAP Business Intelligence Suite allows for three deployment and sharing methods.</p> <ul style="list-style-type: none"> • Desktop: User can publish and share with other Desktop users across a common SAP server. • Server: Admin or power users can publish and share reports with any desktop users by providing access to published reports or dashboards to licensed desktop users. • Cloud: User can publish and share live connections virtually with anyone by sharing a URL link. <i>(This option is not being priced for this proposal, but is available if needed in the future)</i>
5	Do you provide training on your solution? If yes, please explain the options.	Yes	<p>Qlarion has extensive is experience in working with client to tailor training for a wide range of DW/BI tools including the SAP BusinessObjects BI Suite. Qlarion delivered training can be provided in tool usage, installations, best practices, operations and testing. SAP also provides a wide-variety of training for the SAP BusinessObjects BI Suite that can be delivered in multiple formats including individual/ one-on-one, virtual, classroom and online.</p> <p>At CMS we conducted training for over 500 National Data Warehouse users who were spread out nationwide. We conducted the training in person and online to achieve this goal and utilized tailored training material and workshop assignments to engage the users.</p> <p>For more details on specific classes available, please see Appendix H.</p>
6	Do you provide installation (including configuration) services for these tool components above?	Yes	<p>Qlarion will install all server instances. We will provide desktop users the option to install SAP BusinessObjects BI Suite on their own and provide them with software needed and instructions to install, or work with the Commonwealth to identify all users and create a plan to travel to different user locations across the commonwealth and install SAP BusinessObjects. We have</p>

			experience installing and training people to install; the choice will be left for the Commonwealth and its users.
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Yes	<p>Qlarion provides our clients with the entire information management lifecycle of services ranging from strategy to implementation and deployment. The delivery of this range of services is guided by our IMAGINE™ Methodology, which provides over 400 detailed steps involved in implementation, operations, and maintenance of a BI system along with templates and relevant examples gained from over 75 successful BI projects. IMAGINE™ is based on industry best practices and our lessons learned, and is designed largely around the System Development Lifecycle (SDLC).</p> <p>Qlarion’s work has spanned all of the top BI and data management technologies to generate a deep set of knowledge in the areas of importance to the Commonwealth in this solicitation. We have become trusted partners for both implementation and innovation with software vendors including SAP.</p>
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Qlarion has partnered with dozens of Public Sector agencies to provide results-focused business intelligence solutions. One example of this is with the City of Boston. Boston uses SAP BusinessObjects to connect disparate data from various departments to enable analytics driven decision making to improve livability, increase transparency, strengthen constituent engagement, and drive commerce throughout the city. Business users are able to see critical information at the fingertips and make decisions in real-time. IT users benefit from the ease of administration of a single unified architecture.</p> <p>SAP BusinessObjects is used by nearly every State government in the US including major installations in Indiana, Maryland, Colorado, Texas and California. SAP BusinessObjects is also used by major US Cities such as New York City, Los Angeles,</p>

		<p>Chicago, Boston, Phoenix, San Diego, Denver, Philadelphia, Houston, Portland, Kansas City, Detroit, Baltimore, Milwaukee, Indianapolis, Atlanta, and San Jose. Major US Counties that use SAP BusinessObjects include Maricopa County Arizona (Phoenix), Montgomery County (MD), LA County, Alameda County (Oakland), Oakland County (Detroit), San Mateo County (San Jose), Sacramento County, Hillsborough County (Tampa), and Pinellas County (St. Petersburg).</p> <p>Within Virginia, there are five agencies that use SAP BusinessObjects today, the Department of Taxation, Department of Health, Alcoholic Beverage Control, State Police, Department of Corrections, and VDOT. In particular, VDOT has made a significant investment in SAP BusinessObjects and intends to continue their strategic investment in SAP products in the future. Other major SAP BusinessObjects customers in Virginia include Fairfax County, City of Newport News, City Alexandria, Chesterfield County, and both the City and County of Roanoke.</p>
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C-2 Predictive and Prescriptive Analytics

Predictive and Prescriptive analysis are the next natural level of analysis when agencies have a mature BI platform in place. With the SAP software, adding capabilities such as **SAP InfiniteInsight** allow users of SAP's Business Intelligence and Data Visualization tools to transition seamlessly between reporting, dashboarding and forward analysis into Data Mining and Statistical Analysis. The seamless integration does not compromise the tools BI or predictive capabilities; it simply enables the user to extend the analysis from one level into another. At Qlarion we promote the idea of merging the two domains, visual analytics and predictive analysis when using SAP. As a result the analyst is transformed into a data scientist capable of producing higher impact visualizations and dashboards.

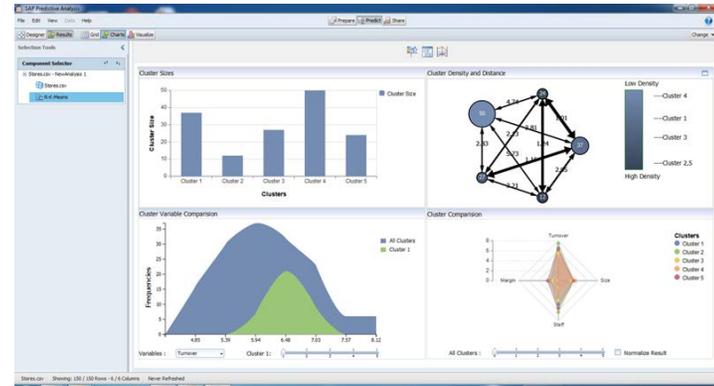


Figure 2: Analysis Using SAP InfiniteInsight

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>With traditional predictive analytics, you can expect to spend a great deal of time on activities that are manual, repetitive, and prone to human error. SAP InfiniteInsight has changed all that – automating most of the effort so that users can gain unprecedented customer insight and make forward-looking decisions with ease.</p> <ul style="list-style-type: none"> • Make predictive analytics accessible to a broad spectrum of users in real operational environments Automate data prep, predictive modeling, and deployment tasks • Build sophisticated predictive models in minutes or hours, not weeks or months • Scale for petabytes of Big Data and gain rapid insight from thousands of variables • Embed predictive analytics into your business apps,

			<p>processes, information</p> <p>For more details on the SAP InfiniteInsight please see Appendix F.</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>SAP InfiniteInsight can be deployed on commodity x86 server hardware either on premise or in the Cloud. SAP has reference hardware architectures for all the major hardware vendors and this can also be run in the public or via a private cloud. Databases supported include DB2, SQL Server, Oracle, MySQL, SAP HANA, Sybase, and others. Operating systems supported include Windows, Linux, AIX, Solaris, and others.</p> <p>For more details on the platforms available, please see Appendix G.</p>
3	Explain licensing options for the tools you have included in this category	n/a	<p>SAP InfiniteInsight combines two types of licensing metrics. SAP InfiniteInsight Modeler is licensed by user. All other components, such as the Engine, Social add-on and Recommendation component, are licensed by core.</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Yes	<p>SAP InfiniteInsight allows for two deployment and sharing methods.</p> <ul style="list-style-type: none"> • Desktop: User can publish and share with other Desktop users across a common SAP server. • Server: Admin or power users can publish and share reports with any desktop users by providing access to published reports or dashboards to licensed desktop users.
5	Do you provide training on your solution? If yes, please explain the	Yes	<p>Qlarion has extensive experience in client training across wide range of DW/BI tools including SAP InfiniteInsight. SAP courses as well as individualized client</p>

	options.		<p>training can be provided in tool usage, installations, best practices, operations and testing. Multiple training formats are available, including individual, group E-Learning, classroom and online.</p> <p>SAP predictive tutorials cover functional topics in SAP InfiniteInsight such as:</p> <ul style="list-style-type: none"> • Creating Recommendation • Creating social analysis • Create a classification / regression model • Create a time series analysis • Create a clustering model • Create association rules • Create a data manipulation • Perform a text analysis <p>For more details on specific classes available, please see Appendix H.</p>
6	Do you provide installation (including configuration) services for these tool components above?	Yes	<p>Qlarion will install all server instances. We will provide desktop users the option to install SAP InfiniteInsight on their own and provide them with software needed and instructions to install, or work with VITA to identify all users and create a plan to travel to different user locations across the commonwealth and install SAP desktop. We have experience installing and training people to install, the choice will be left for VITA and VITA users.</p>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on	Yes	<p>Our team is composed of many senior data experts with experience in many BI and Data Visualization tools. A tool such a SAP InfiniteInsight is very powerful but only as powerful as the understanding of the basics of predictive Analytics and the quality of the data. At Qlarion we utilize a unique approach called IMAGINE™ to design and implement a successful deployment. Key components of</p>

	<p>these tools to meet a business need)</p>		<p>IMAGINE™ that applies to predictive analysis are data identification and data manipulation. We help users analyze the data, identify the key variables, utilize various statistical algorithms each tailored to a different objective, and finally helping analyst publish their findings and share them. Our implementation approach is to work hand in hand with users to insure that they have the adequate support needed to perform advanced analysis. Users will also be trained in using R, which is integrated in the SAP InfiniteInsight and has unlimited custom analysis capabilities.</p>
<p>8</p>	<p>For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.</p>	<p>Yes</p>	<p>For the business, SAP InfiniteInsight put more power back into the hands of the business user where they could use the automation and prebuilt statistical functions to simplify and speed up their analyses. To do predictive analyses still requires a well-educated business user with some understanding of general statistics and a few days of training in the tool. For the IT staff, it is more of an administrative capability similar to one required by a traditional BI tool.</p> <p>SAP InfiniteInsight has helped Sutter Health systems go beyond reporting and dashboarding to optimize insight across their patient population. With SAP InfiniteInsight, the Sutter has:</p> <ul style="list-style-type: none"> • Predictive models that require just a week, rather than months, to update. • Balanced between systematic and flexible exploration of data across patient demographics using predictive models. <p>SAP InfiniteInsight has led Covenant Transport to streamline their trucking operations by optimizing loads and routes that resulted in lower costs and more efficient service.</p>

C-3 Statistical Analytics

Qlarion is not responding to this requirement.

C-4 Data Visualization

SAP's Data Visualization tool, **SAP Lumira**, enables business users to access, transform, and visualize data of any size in a repeatable and self-service manner. The tool emphasizes a simple user-friendly interface and creates very captivating visualizations, which allow users to swiftly analyze data without the need for scripting.

SAP Lumira's drag-and-drop interface is easy to use, and with a few clicks data from multiple sources can be gathered, combined, and visualized. After the tool is installed and system access is setup, training is really not needed, but some basics by someone who knows the tool can be helpful.

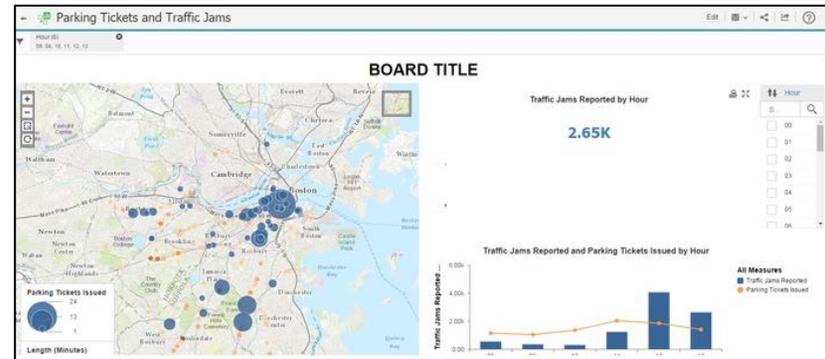


Figure 3: Analyzing Traffic with SAP Lumira

Naturally the visual options are the real reason why you might want to start using SAP Lumira. This is where the tool excels. It has many more graphical features than most of its industry competitors, and complex graphing with 3-dimensions, heat, and bubble charts are standard. Also included is the capability to easily create map-based charts using geolocational data to view your information by country, state, county, city, etc. with the ability to drill down by clicking within the map.

SAP Lumira also provides the ability to add text, images, shapes, pictograms, and input controls via simple drag-and-drop functionality. The extremely clean and highly intuitive interface makes creating visually pleasing and informative charts easy for end-users, regardless of experience level. A powerful element within SAP Lumira is the Infographic. This can be utilized to create highly visual, non-interactive narratives, such as newsletters, which can be effortlessly absorbed by the viewer at a glance.

Requirements	A	B
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1	Identify the components of your analytics tool set that fit this category	n/a	<p>SAP Lumira is a data visualization and story creation tool. Multiple data sources can be connected to create datasets that can be enhanced with measures, hierarchies, calculations, and customized columns. A wide range of editing tools allows you to manipulate, edit, format, and streamline your data before you start to create graphical visualizations. Users can visualize their data using a range of chart and table types. By grouping charts together on presentation style dashboards you can create a visual narrative to describe your data.</p> <p>For more details on the SAP Lumira please see Appendix F.</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>SAP Lumira Server can be deployed on commodity x86 server hardware either on premise or in the Cloud. SAP has reference hardware architectures for all the major hardware vendors and this can also be run in the public or via a private cloud. Databases supported include DB2, SQL Server, Oracle, MySQL, SAP HANA, Sybase, and others. Operating systems supported include Windows, Linux, AIX, Solaris, and others.</p> <p>SAP Lumira can also be installed locally and can operate on either remote or local data. The charts built on these datasets can be printed or distributed by email. Your stories (or visualizations) can be published to the SAP Lumira Cloud, SAP Lumira Server, and the SAP Business Intelligence platform. Your datasets can be published to SAP HANA, SAP Explorer, SAP Lumira Cloud, SAP Lumira Server, and SAP Business Intelligence.</p> <p>For more details on the platforms available, please see Appendix G.</p>
3	Explain licensing options for the tools	n/a	<p>SAP Lumira is licensed by User: Each user gets a license to create, edit, and share reports, visualizations and</p>

	you have included in this category		dashboards.
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Yes	<p>SAP Lumira allows for three deployment and sharing methods.</p> <ul style="list-style-type: none"> - Desktop: User can publish and share with other Desktop users across a common SAP server. <p>Server: Admin or power users can publish and share reports with any desktop users by providing access to published reports or dashboards to licensed desktop users.</p> <p>Cloud: User can publish and share live connections virtually with anyone by sharing a URL link. <i>(this option is not being priced for the proposal but is available if needed in the future)</i></p>
5	Do you provide training on your solution? If yes, please explain the options.	Yes	<p>Qlarion has extensive experience in client training across wide range of DW/BI tools. SAP courses as well as individualized client training can be provided in tool usage, installations, best practices, operations and testing. Multiple training formats are available, including individual, group E-Learning, classroom and online.</p> <p>In addition to customized training that Qlarion can deliver that is specific to the Commonwealth's need and data, SAP also offers multiple demos and tutorials that can aid new users while learning the new tool.</p> <p>For more details on specific classes available, please see Appendix H.</p>
6	Do you provide installation (including configuration) services for these tool	Yes	<p>Qlarion will install all server instances. We will provide desktop users the option to install SAP Lumira on their own and provide them with software needed and instructions to install, or work with VITA to identify all users and create a</p>

	components above?		plan to travel to different user locations across the commonwealth and install SAP desktop. We have experience installing and training people to install, the choice will be left for VITA and VITA users.
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Yes	Our team is composed of many senior data experts with experience implementing many BI and Data Visualization tools. A tool such a SAP Lumira is very powerful, but only as powerful as the underlying design and implementation process. Qlarion utilizes a unique approach, our IMAGINE™ Methodology to design and implement a successful deployment. Key to our Data Visualization implementations is the IMAGINE™'s Agile approach. In this approach, the team analyzes the user needs, identifies the problems behind the needs, creates multileveled stories each tailored to a different level of detail and thus audience, and finally grabs the feedback and keep on fine-tuning. Our implementation approach is an ongoing approach, with each cycle new problems are solved and solutions become more mature.
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>SAP Lumira's focus on ease of use ensures that business users do not need to wait on IT to create visualizations. IT can work on larger implementations and push results to business users, trouble shoot or review business users' designs and facilitate visualization sharing. This parallel and loosely dependent relationship between IT and Business allows Business Users the freedom to explore and create needed visualizations while allowing IT the ability to enhance, edit and maintain data access and quality behind the scenes.</p> <p>SAP Lumira has been utilized at State of Indiana, City of Boston, the NFL, Daimler Corporation, and many others.</p>

			<p>These visualizations have made operational and strategic data more readily available and accessible via informative visualizations. Government examples include the State of Indiana using SAP Lumira to help visualize patterns in infant mortality and design strategies to reduce the rate of infant mortality in the future. The City of Boston used SAP Lumira to build a social media sentiment analysis that enabled them to see citizen sentiment on a heat map.</p>
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C-5 Data Quality

Data Quality is an increasingly important component in the data management lifecycle. Data is becoming bigger, more complex and coming from more and more sources at an exponential rate. Success in handling these rapidly changing hurdles lie, in part, in having a data quality tool that helps standardize, correct, match, consolidate and enhance your data. The sum benefits to employing a data quality tool manifests in money savings, time savings and improved decision-making.

Qlarion’s proposed data quality tool, **SAP Data Services**, has ranked as a Leader in the "Gartner Magic Quadrant for Data Quality Tools" for seven consecutive years. The software helps customers analyze, cleanse, and match any data type, such as person, supplier, product, or material data – structured or unstructured – to achieve highly accurate and complete information anywhere in the enterprise. Built on web services, the software provides a flexible solution that can be used within a wide variety of applications, platforms, and databases – including SAP, third-party, or proprietary software.

	Requirements	A	B
1	Identify the components of your analytics tool set that fit this category	n/a	<p>SAP Data Services’ data quality components consists of:</p> <ul style="list-style-type: none"> • <i>Address Cleanse</i> - Parses, standardizes, corrects, and enhances address data. • <i>Data Cleanse</i> - Parses, standardizes, corrects, and enhances customer and operational data

			<ul style="list-style-type: none"> • <i>Geocoding</i> - Uses geographic coordinates, addresses, and point-of-interest (POI) data to append address, latitude and longitude, census, and other information to your records. • <i>Match</i> - Identifies duplicate records at multiple levels within a single pass for individuals, households, or corporations within multiple tables or databases and consolidates them into a single source. <p>Additionally, SAP Information Steward, included as part of Data Services, provides data quality capabilities as well which include: Data Profiling that improves information trustworthiness and reduce the risk of propagating bad data, Root Cause and Impact Analysis to determine the origin of data quality problems and how they impact downstream processes or information assets, Validation Rule Management to define data validation rules against data sources and apply rules continuously to monitor data quality, and Development of cleansing packages to create and reuse the rules, and patterns that comprise data cleansing packages.</p> <p>Finally, dictionaries and address standardization databases can be used to supplement the Data Services software by providing reference records to cleanse and match address data, for example. Some examples include:</p> <ul style="list-style-type: none"> • United States National Directory • Geocoding for US by TomTom <p>For more details on the SAP Data Services and Information Steward please see Appendix F.</p>
2	Identify platforms for deployment (cloud, Intel,	n/a	The SAP Data Services Data Quality toolset can be deployed on commodity x86 server hardware either on premise or in the Cloud. SAP has reference hardware architectures for all

	appliance, OSs, database versions etc.) for the tools you have included in this category		<p>the major hardware vendors and this can also be run in the public or via a private cloud. Databases supported include DB2, SQL Server, Oracle, MySQL, SAP HANA, Sybase, and others. Operating systems supported include Windows, Linux, AIX, Solaris, and others.</p> <p>For more details on specific platform information, please see Appendix G.</p>
3	Explain licensing options for the tools you have included in this category	n/a	<p>SAP Data Services offers several editions licensed by the core:</p> <ul style="list-style-type: none"> • SAP Data Services, enterprise edition • SAP Data Services, workgroup edition • SAP Data Quality Management <p>SAP Information Steward is included in all SAP Data Services editions.</p> <p>Dictionaries and address standardization databases are typically licensed by the server and require an annual subscription. Some examples include:</p> <ul style="list-style-type: none"> • United States National Directory • Geocoding for US by TomTom
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Yes	<p>Developers can integrate SAP Data Services into your organization's other technology systems by using web services, Java, or .NET application. End users can access, create, edit, and interact with Data Services projects and reports using specialized tools and applications that include:</p> <ul style="list-style-type: none"> • SAP Data Services Designer • SAP Data Services Workbench • SAP Data Services Management Console programming interfaces (APIs). <p>SAP Information Steward inherits the scalable architecture from both SAP BusinessObjects Business Intelligence (BI)</p>

			<p>platform and SAP Data Services. This architecture allows deployment of server components from the following applications:</p> <ul style="list-style-type: none"> • SAP BusinessObjects BI platform • SAP Data Services • SAP Information Steward <p>The server components are located on different machines for flexibility, reliability, scalability, and better performance.</p>
5	Do you provide training on your solution? If yes, please explain the options.	Yes	<p>Qlarion has extensive is experience in client training across wide range of DW/BI tools including SAP. SAP training can be provided in tool usage, installations, best practices, operations and testing. Multiple formats are available, including individual / one-on-one, virtual, classroom and online. Data Quality training would provide users and developers an education on the full lifecycle of Data quality, including data profiling and assessments, identity resolution, implementation of business rules for cleansing, address standardization and enhancement and geocoding; reject / error handling /monitoring and data stewardship involvement. SAP provides tool specific training for SAP Data Quality.</p> <p>For more details on specific classes available, please see Appendix H.</p>
6	Do you provide installation (including configuration) services for these tool components above?	Yes	<p>Qlarion has an experienced staff of experts in SAP Data Services product installations. Throughout its history, Qlarion has provided services around similar installations to numerous customers.</p>

7	<p>Do you provide implementation services for the above tool components? (Working with an agency to deploy a solution based on these tools to meet a business need)</p>	Yes	<p>The Qlarion consultants possess expertise implementing data quality for government agencies. To deliver on a data quality project, the Qlarion consultants utilize our IMAGINE™ Methodology to design and implement a successful deployment. Key to our Data Visualization implementations is the IMAGINE™'s Agile approach. This approach within Data Quality generally includes:</p> <ul style="list-style-type: none"> • Identify parties affected by data issues and stakeholders • Profile the Data Sources for uniqueness, completeness, cardinality, etc. • Review and validate results with Business Stakeholder • Define the Data Quality issues • Define the Correction methodology (e.g., fix in place) • Implement Solutions • Review Exceptions • Monitor quality via Scorecards and metrics
8	<p>For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.</p>	n/a	<p>Data Quality tools can significantly enhance an agency's business objectives, whether its address cleansing and standardization which can improve Intelligence agencies ability to match location information across multiple sources when locating potential threats, better collect tax revenue and contact those who owe, and more accurate census data that can facilitate decision making regarding emergency preparedness and disaster recovery.</p> <p>Several Government agencies both in the US and abroad use SAP Data Services for their data quality improvement. The public Hunter Water Corporation utilize the SAP Data Services Platform to cleanse and match their address and customer data to provide more accurate billing and services.</p>

			<p>The Queensland Motorways responsible for bridge and toll roads leverage SAP Data Services for improving their data sets and resulting services.</p> <p>While the technical staff performed most of the development to create the data quality routines and processes, the business needs to play an active role to ensure that they set the appropriate rules and thresholds then participate in the validation and testing. With a well-designed rules engine, the data is categorized and handled appropriately so that the right records are cleansed, excepted, or left alone. Through a mature process, the business will learn how to improve data quality in their processes and source systems.</p>
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C-6 Data Governance

An analytics ecosystem’s effectiveness is directly tied to the quality of its data. Outside of the traditional data quality are the other functions that guide the governance of that data to ensure the data related processes and rules are followed and result in reliable, accurate, and clearly defined data. This functionality is also important at the metadata layer to control the business definitions, reporting objects, and aggregations so they meet the collective needs and understanding of all relevant business users in an enterprise.

Qlarion proposes **SAP Information Steward** to support the Commonwealth’s Data Governance function. Information Steward is a tool used to maintain enterprise data governance through profiling, business rule driven validation, and continuous monitoring of the master data and metadata records. The tool provides a means to instantiate quality control and quality assurance measures to attain reliable, accurate, and clearly defined data and metadata.

	Requirements	A	B
1	Identify the components of your analytics tool set	n/a	For Data Governance, SAP Information Steward is a tool which facilitates profile, validate and monitor tasks in relation to data governance processes and metadata

	that fit this category		<p>management. SAP Information Steward can help you understand and continuously analyze the trustworthiness and quality of enterprise information. Use it to monitor how well data adheres to governance rules and to identify quality trends through functions driven by industry-leading dashboards.</p> <p>Using a role-based user interface, users can also collaborate on data management tasks such as:</p> <ul style="list-style-type: none"> • Running what-if analyses of data-related costs • Establishing rules and standards • Monitoring and sharing metrics <p>With full visibility into data quality, business users in your organization can see how their data measures up against information governance rules and standards.</p> <p>For more details on the SAP Information Steward please see Appendix F.</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>Servers/services for these modules may be installed on cloud, virtual or onsite platforms. These modules are compatible with common OSs such as Windows/Unix. These modules are also compatible with common databases platforms such as Microsoft SQL-Server, Oracle, and Linux.</p> <p>For more details on specific platform information, please see Appendix G.</p>
3	Explain licensing options for the tools you have included in this category	n/a	<p>SAP Information Steward is licensed based on number of production server cores. SAP Information Steward is included with SAP Data Services.</p>
4	Does your Solution allow for your tool sets to be deployed in order to support	Yes	<p>The solution can be architected to be instantiated on servers, accessible throughout the Commonwealth's intranet should that be the design and security preference. This would allow connection to multiple</p>

	shared use among Commonwealth agencies? Explain how.		sources and access by users from multiple agencies.
5	Do you provide training on your solution? If yes, please explain the options.	Yes	<p>Training is available through remote or onsite 3-5 day classroom sessions or else through an engagement with a Qlarion expert on site for a predetermined amount of time required.</p> <p>In addition to customized training that Qlarion can deliver that is specific to the Commonwealth's need and data, SAP also offers on-line courses that are detailed in Appendix H.</p>
6	Do you provide installation (including configuration) services for these tool components above?	Yes	<p>Qlarion consultants will lead or assist your staff (i.e. Network, Application Admins) during installation activities.</p> <p>Installing and configuring the Information Steward software follows the IMAGINE™ best practices that take into account the requirements, user group profiles, data sources, data profiles, data volume and growth, hardware, and other factors.</p>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Yes	Qlarion consultants have the expertise to manage and deliver an SAP Information Steward implementation engagement based upon client specification. To deliver the work, the team will partner with the client business and IT shops throughout the data governance engagement, engaging multiple departments if appropriate. The IMAGINE™ Methodology plus its templates and artifacts, as appropriate, will guide the implementation.
8	For your Solution, provide examples of	n/a	SAP Information Steward has been used to implement programs focused on profiling, validating and monitoring

	<p>how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.</p>		<p>customers' data such as at City of Boston. In addition information modeling was used at same customer site in order to foster 'one version of the truth' and to keep technical and functional workers on the same page. Other clients where SAP Information Steward was successfully used in this manner included Memorial Care Health Services in California, and American Water Works in New Jersey.</p> <p>While the technical staff performed the modeling for SAP Information Steward, the business must still play an active role so that their business definitions and responsibilities in the data governance are implemented according to their rules. The business is also responsible for testing and validation since they are the end user.</p>
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C-7 Big Data

Big Data and associated big data technologies came about to address problems in traditional data systems, separate stove-piped systems. These systems become difficult to scale as the volume of data grows and integration challenges increase.

Hortonworks Data Platform (HDP) uses core technologies, such as Apache Hadoop, to address the challenges of integrating these legacy systems with new types of data.

Hortonworks has helped many public and private organizations adopt and implement a Hadoop strategy. While Hortonworks has helped many learn about Hadoop technology, they have also learned a lot about data and how the broad enterprise can adopt and use Hadoop to create big data value.

While every organization is different their big data is often very similar. Hadoop, as a critical piece of a next generation modern data architecture, is collecting massive amounts of data across social media activity, clickstream data, web logs, financial transactions, videos, and machine/sensor data from equipment in the field.

These “new” data sources all share the common big data characteristics of volume (size), velocity (speed) and variety (type) and

were sometimes thought of as low to medium value or even ‘exhaust data’: too expensive to store and analyze. And it is these types of data that is turning the conversation from “data analytics” to “big data analytics”: because so much insight can be gleaned for constituent value.

Hortonworks has the added capability of tight integration with the SAP BusinessObjects Suite to allow for a single, class-leading solution for the Commonwealth where analytics and Hadoop are needed. Figure 4 shows the high-level integration of the two platforms.

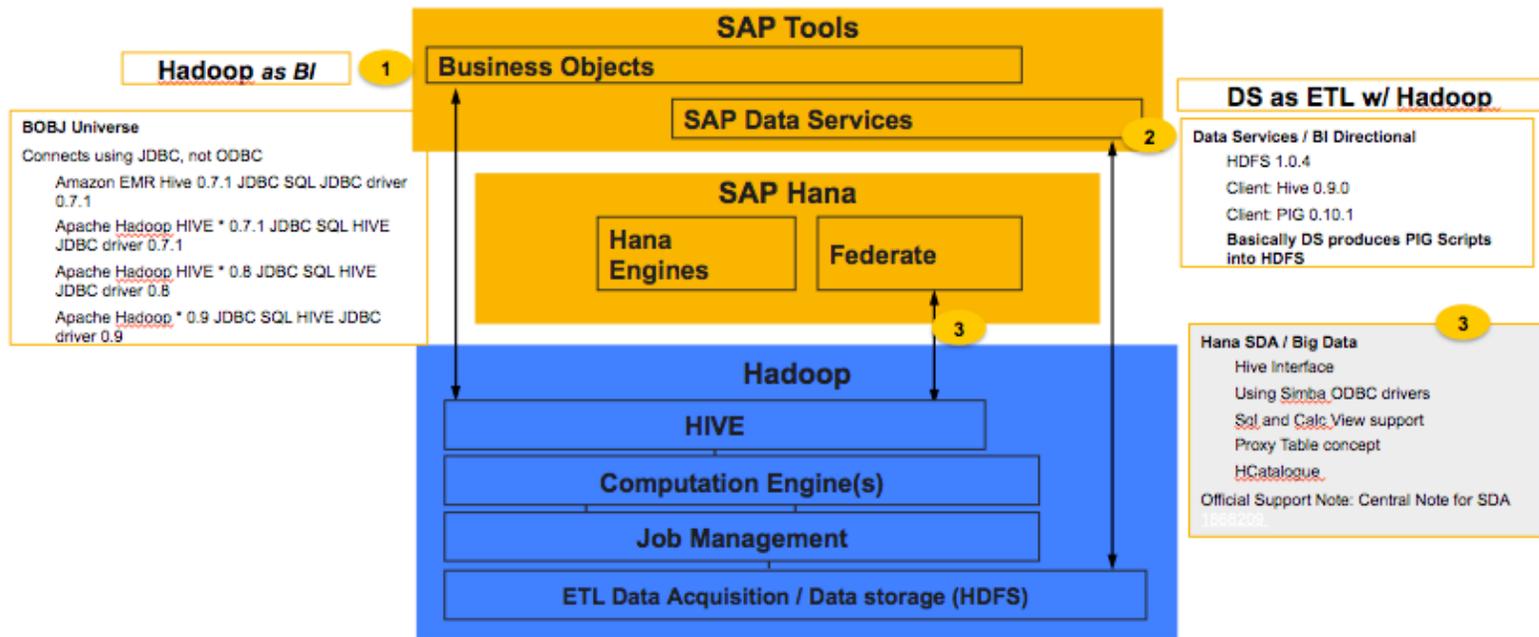


Figure 4: The SAP Integration with Hadoop via Hortonworks

	Requirements	A	B
1	Identify the components of your analytics tool set that	n/a	Hortonworks Data Platform (HDP) is built around a core set of open source technologies that provide a framework for

	fit this category.		<p>distributed storage and processing of large sets of data on commodity hardware. Hadoop enables businesses to quickly gain insight from massive amounts of structured and unstructured data. Numerous Apache Software Foundation projects make up the services required by an enterprise to deploy, integrate and work with Hadoop. Each project has been developed to deliver an explicit function and each has its own community of developers and individual release cycles.</p> <p>To gain insight into these massive volumes of structured and unstructured data, analytics can be developed in various areas native to the Hadoop stack such as Apache Pig for scriptable data exploration, SQL queries using Apache HIVE, Real-time analytics using Apache Storm and machine learning and in memory processing via Apache Spark. These tools are utilized by Yahoo, eBay, and LinkedIn to name a few.</p> <p>For more details on the HDP please see Appendix F.</p>
2	Identify platforms for deployment (cloud, Intel, appliance, Oss, database versions, etc.) for the tools you have included in this category.	n/a	The Hortonworks Data Platform can be deployed on commodity x86 server hardware either on premise or in the Cloud. We have reference hardware architectures for all the major hardware vendors and this can also be run in the Cloud via Microsoft Azure or Amazon or via a private cloud.
3	Explain licensing options for the tools you have included in this category	n/a	HDP is 100% Open Source released under the Apache Software License, making it free for use. Hortonworks offers annual subscriptions for Enterprise class product support that is 24x7, 365 days a year based on a node count for the Hadoop cluster. This includes phone and web access to our support engineers who can address any issues you have with the Hadoop stack. Our Hadoop product support also includes self-paced online training of all aspects of the Hadoop environment.

4	Does your Solution allow for your tool sets to be deployed in order to support shared use among commonwealth agencies? Explain how.	Yes	There are no limitations on the use of technologies in the HDP stack based on number, location, or organizational alignment of users. Any tool within the HDP stack can be utilized across agencies with no additional licensing required.
5	Do you provide training on your solution? If yes, please explain the options.	Yes	<p>Hortonworks offers a 3-tiered approach to training - all with the intention of driving customer self-sufficiency across the Hadoop stack. Included in EVERY support subscription is "Self-Paced, Online Training" - this offers a selection of the courses below available at no cost to the named support contacts for each customer. There is no limit to the number of courses, nor the number of times that a course may be taken through the online portal.</p> <p>In addition to our online training, we offer courses in both the Public and Private settings. Public/Private courses are offered in a 50/50 Lab/Lecture environment. They include an instructor as well. These courses provide hands-on use of the tools at the direction of a certified Hortonworks Instructor. The Lab portion of the course allows students to come full circle on the content they learned through reading/lecture.</p> <p>Hortonworks University, the driver behind these training offerings owns the only Intellectual Property that Hortonworks has, our training materials. With our vast experience of Hadoop at the engineering level, through our experience deploying/supporting over 300 customers - we have created these materials to drive success in the organizations we work with. Our training offerings drive additional value for organizations around the maturation of existing skill-sets to be successful on Hadoop. Most of our students go on to get a full Hortonworks certification.</p> <p>For more details on specific classes available, please see Appendix H.</p>

6	Do you provide installation (including configuration) services for these tool components above?	Yes	Qlarion provides installation and configuration services for any technologies in the HDP stack along with architecture, design, tuning, and use case implementation.
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Yes	Qlarion offers services to quickly get your HDP cluster up and running. Services includes architecting and designing the HDP infrastructure; installation, provisioning and tuning of the HDP cluster; and implementation services to enable initial use cases using technologies within the HDP stack based on business needs.
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>HDP can be used in a variety of methods to make data more quickly accessible through off-loading ETL routines, enriching data, or doing an active archive. For IT teams, the uses of HDP helped to cut costs and speed up performance while also lessening the demands for additional storage. The business is able to have faster access to larger data sets.</p> <p>At the US Department of Labor, the agency had to deliver a very time sensitive labor report that merged hundreds of millions of rows from over 30 comma-separated files in 9 days. Time was critical and in the initial POC, one files processing time dropped from 18 hours to 1 hour buying them the time they needed.</p>

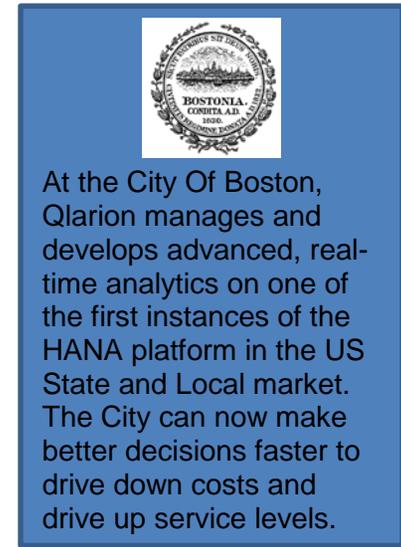
C-8 Other

While the other categories of tools described in the prior sections will provide a rich set of analytics capabilities that can be leveraged by the Commonwealth, there a few components that Qlarion believes will be valuable in executing the vision for Next Generation Analytics. These include the **Qlarion Community Center** Solution, **SAP HANA** database, and **SAP Master Data Management (MDM)**.

The Qlarion Community Center™ (QCC) solution is the culmination of the years of experience addressing the common business problems that State, County and Municipal governments face. Community Center™ integrates information through pre-built data integration routines to connect to common State and Local data sources such as CRM, Public Safety Permitting, Financials, Asset Management, and Human Capital Management. Our proven, centralized data model supports a series pre-packaged analytics modules for business areas commonly managed by State and Local governments. QCC supports the deployment of a quick, proven analytics solution tailored for State and Local agencies all built on the SAP BusinessObjects Suite.

SAP HANA is a game-changing, real-time platform for analytics and applications. While simplifying the IT stack, it provides powerful features like: significant processing speed, the ability to handle big data, predictive capabilities and text mining capabilities. In the new age of the data scientist, internet of things, and predictive analytics it is important to have fast, adaptable appliances designed for the analysis and processing associated with these activities.

The final technology we are proposing is SAP Master Data Management (MDM). In large analytical environments, end users can utilize dozens of data sets, but for effective analysis it important to be able to establish a trusted “single version of the truth” across of the scores of data sources. An MDM solution cleanses, normalizes, and enriches the integrated data to improve business decisions, process efficiency, and accuracy of analysis.



Qlarion Community Center

	Requirements	A	B
1	Identify the	n/a	QCC is a prebuilt, customizable analytics solution tailored for state

	components of your analytics tool set that fit this category		and local governments. QCC contains several modules that align with common business cases such as public safety, permitting, and CRM. Built using the SAP BusinessObjects Suite and Data Services, a QCC module delivers a quick deployment analytics solution that provides the data quality, integration, data model, semantic layer, reports, and data visualizations. These modules can be built all at once or pieced together over time.
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	QCC can be deployed across any of the platforms that the SAP BusinessObjects Suite can be deployed on. A complete table of the platforms for the SAP BusinessObjects Suite is provided in Appendix G. For more details on specific platform information, please see Appendix G.
3	Explain licensing options for the tools you have included in this category	n/a	QCC is licensed by individual module. Within the module, it includes the designs for the starter data model, the designs for the ETL mappings from staging to targets, the semantic layer designs, plus the front-end analytics designs. The services to implement are contracted separately. Available QCC modules include Public Safety, Permits and Licensing, Economic Development, Basic Citizen Services, Asset Management, Storm Management, Safer Streets, and Neighborhood Development.
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain	Yes	Similar to a traditional BI implementation, the QCC data warehouse and analytics can be accessed by any licensed user with the appropriate access and permission to log onto the application via their Internet browser. The integrated nature of the QCC environment encourages cross-departmental collaboration.

	how.		
5	Do you provide training on your solution? If yes, please explain the options.	Yes	<p>Qlarion has extensive experience in client training across a wide range of DW/BI tools. SAP courses as well as individualized client training can be provided in tool usage, installations, best practices, operations and testing. Multiple training formats are available, including individual, group E-Learning, classroom and online.</p> <p>Qlarion has tailored training on QCC. This training includes both the technical use of QCC and functional approaches and best practices on how to extract the most business value from the module. Users can also enroll in one or more of the many course options that SAP offers and are listed in Appendix H.</p>
6	Do you provide installation (including configuration) services for these tool components above?	Yes	<p>Qlarion has the expertise and experience with the installation and configuration of analytics software and databases, plus being a close partner and reseller of SAP, we have access to senior technical resources should they be needed.</p> <p>QCC installation and configuration is identical to the installation and configuration of the SAP BusinessObjects Suite. As such, Qlarion will install all server instances. We will provide desktop users the option to install SAP BusinessObjects BI Suite on their own and provide them with software needed and instructions to install, or work with the Commonwealth to identify all users and create a plan to travel to different user locations across the commonwealth and install SAP BusinessObjects.</p>
7	Do you provide implementation services for the above tool components? (working with an agency to deploy a	Yes	<p>Qlarion's focus on delivering analytics in the public sector keeps our staff up-to-date on the latest technologies. Where possible we have helped to enable the client's technical staff to allow them to eventually be self-sufficient.</p> <p>Qlarion developed the QCC solution and our consultants are all well versed in its implementation. We will coordinate with the appropriate technical and business staff to work through the</p>

	solution based on these tools to meet a business need)		customization requirements, design updates, development, testing, and deployment. The implementation and associated documentation updates will be done accordingly with the IMAGINE™ Methodology.
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Supporting the public sector since 2006 has taught us a lot about the business of government and we have built that into QCC. Our top customer and development partner of Qlarion Community Center is the City of Boston. At the City, the analytics and data model serve as the core for their enterprise business intelligence across over a dozen data sets and users spread across the City's many departments. It is used for real-time operational information, strategic decisions, and performance management.</p> <p>The business user has a series of reports that they can run, modify, have delivered regularly, or create simply in the ad-hoc environment. They also have dashboards with analysis paths created to help them quickly find the answer they are most likely seeking. It is a very user friendly environment that the average business user is up and running after a few hours of training. Should they desire more complex reports or create schema-level objects, they can take more extensive training. The IT staff help to develop more complex analytics and administer the environment.</p>

SAP HANA

	Requirements	A	B
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1	Identify the components of your analytics tool set that fit this category	n/a	<p>SAP HANA is an in-memory appliance that merges the capabilities of a database and an application platform. This combination of capabilities on an in-memory platform translates to a powerful and unique platform that supports:</p> <ul style="list-style-type: none"> • Extremely high-speed analytics processing • Text analysis • Spatial processing • Predictive analysis • Real-time analytics • Smart applications to analyze the Internet of things <p>IT complexity is reduced through HANA's open architecture and simplification of traditional IT layers and networking. This creates a 10-30% reduction in total cost of ownership through this consolidation of resources.</p> <p>For more details on the SAP HANA please see Appendix F.</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>SAP HANA can be deployed across majority of the leading databases and operating systems. A complete table is provided in Appendix G.</p>
3	Explain licensing options for the tools you have included in this category	n/a	<p>SAP HANA is an in memory analytics appliance so it is licensed based on the GB size of the memory. It should be noted that HANA user experience on average a 9:1 compression ratio over a traditional database, so the number of GBs/TBs required is significantly less than when scoping with a traditional relational database.</p>

4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Yes	Being an advanced platform for running analytics, HANA can host multiple data sets and applications that can be securely accessed from multiple agencies. The data itself can be secured based on roles or individual users and accessed through the required authentication that can be delivered in multiple methods.
5	Do you provide training on your solution? If yes, please explain the options.	Yes	<p>Qlarion has extensive experience in client training across a wide range of DW/BI tools. SAP courses as well as individualized client training can be provided in tool usage, installations, best practices, operations and testing. Multiple training formats are available, including individual, group E-Learning, classroom and online.</p> <p>In addition to customized training that Qlarion can deliver that is specific to the Commonwealth's need and data, SAP also offers three series of courses covering the different aspects of HANA including modeling, administrating, development, provisioning and more tailored for different use cases and user groups. For more details on specific classes available, please see Appendix H.</p>
6	Do you provide installation (including configuration) services for these tool components above?	Yes	<p>Qlarion has the expertise and experience with the installation and configuration of analytics software and databases, plus being a close partner and reseller of SAP, we have access to senior technical resources should they be needed.</p> <p>The installation of SAP HANA will be done in collaboration with the appropriate Commonwealth data center representative. Working with the end users, Qlarion will define the near and longer term uses for the HANA database. The appliance will then be configured based on the planned uses to ensure maximum performance.</p>

7	Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)	Yes	<p>Qlarion's focus on delivering analytics in the public sector keeps our staff up-to-date on the latest technologies such SAP HANA. Where possible we have helped to enable the client's technical staff to allow them to eventually be self-sufficient.</p> <p>SAP HANA provides a wealth of capabilities from BI to predictive analysis. Our staff has worked with the HANA appliance for over two years in Government projects where it has been used for a variety of needs from custom mapping to deploying BI in a real-time operational use. SAP HANA served as the catalyst to enable a tool already owned by the organization to answer a new and challenging business need.</p>
8	For your Solution, provide examples of how the tools were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.	n/a	<p>Qlarion has been an analytics service provider since 2001 and supporting the public sector since 2006. In 2012 we started work on the one of the first installations of SAP HANA in the state and local market at the City of Boston. In Boston, SAP HANA was used for real-time snow operations, task force dashboards querying 10+ million rows of data instantly, custom GIS heat maps, and their enterprise analytics. At the State of Indiana, SAP HANA is used to run their enterprise-wide analytics center that combines large data sets from across the state agencies for analysis. SAP HANA is a more technical, back-end applications where its use case might be defined by the business, but the implementations were completed by trained IT staff.</p>

SAP Master Data Management

	Requirements	A	B
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1	Identify the components of your analytics tool set that fit this category	n/a	<p>The SAP MDM solution enables an enterprise to centrally create, change, and distribute master data. This leads to improved business information while delivering reliable and consistent master data across platforms for analytics or even transactional system use. The result is consistent definition, authorization, and replication of key master data entities.</p> <p>For more details on the SAP MDM please see Appendix F.</p>
2	Identify platforms for deployment (cloud, Intel, appliance, OSs, database versions etc.) for the tools you have included in this category	n/a	<p>The SAP MDM product can be deployed across majority of the leading databases and operating systems. A complete table is provided in Appendix G.</p>
3	Explain licensing options for the tools you have included in this category	n/a	<p>SAP MDM is a tool that sits across multiple sources and manages master data objects. As such it is licensed in blocks of master data objects it manages. It is important to note that all non-production SAP environments do not require licensing.</p>
4	Does your Solution allow for your tool sets to be deployed in order to support shared use among Commonwealth agencies? Explain how.	Yes	<p>The very nature of MDM is to connect multiple data sets together for more effective insights. This tool however sits “behind the scenes” and the access would be dependent on the data sharing arrangements between agencies or the permissions of the front-end applications accessing the MDM repository.</p>
5	Do you provide training on your	Yes	<p>Qlarion has extensive experience in client training across a wide range of DW/BI tools. SAP courses as well as individualized client</p>

	<p>solution? If yes, please explain the options.</p>		<p>training can be provided in tool usage, installations, best practices, operations and testing. Multiple training formats are available, including individual, group E-Learning, classroom and online.</p> <p>In addition to customized training that Qlarion can deliver that is specific to the Commonwealth's need and data, SAP also offers on-line courses (e.g., MDM101) and virtual classroom courses such as MDM Configuration. For more details on specific classes available, please see Appendix H.</p>
6	<p>Do you provide installation (including configuration) services for these tool components above?</p>	Yes	<p>Qlarion has the expertise and experience with the installation and configuration of analytics software and databases, plus being a close partner and reseller of SAP, we have access to senior technical resources should they be needed.</p> <p>Installing and configuring the MDM software follows the IMAGINE™ best practices that take into account the requirements, user group profiles, data sources, data profiles, data volume and growth, hardware, and other factors.</p>
7	<p>Do you provide implementation services for the above tool components? (working with an agency to deploy a solution based on these tools to meet a business need)</p>	Yes	<p>Qlarion's focus on delivering analytics in the public sector keeps our staff up-to-date on advanced tools such as MDM. Where possible we have helped to enable the client's technical staff to allow them to eventually be self-sufficient.</p> <p>Implementing MDM is challenging due to the complexity of the problem that is being solved. Qlarion provides the experts needed to overcome this tough data-related challenge and produce the "Golden Record". Using the IMAGINE™ Methodology the project starts with identifying and prioritizing the greatest data pain points, working with the business on requirements, designing the MDM solution, and iteratively developing and validating the solution.</p>
8	<p>For your Solution, provide examples of how the tools</p>	n/a	<p>SAP Master Data Management is a powerful tool to connect multiple, diverse datasets and create a unified, single record. It requires skilled and well-trained technical resources to be</p>

	<p>were used by both business and IT users and the level of training and skill required by each. Include what entity used the tools. If possible, use government related examples.</p>		<p>successful. Usually, a decent sized project will require at least one highly experienced MDM expert. However, the business owners of the data sources must participate to help the technical staff understand each data set and how the data will be used.</p> <p>SAP Master Data Management has been used to manage the data for the US Recovery Accountability and Transparency Board that provides the oversight of Federal Funds. The diversity and complexity of their data and the need to analyze data at single master record was critical and accomplished.</p>
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D. Pilots

Pilot 1: Cost Savings and Revenue Enhancement

Analytics for the public sector are most frequently used for generating cost savings and revenue enhancement by providing a deeper level of insight and transparency into agency planning, operations, and management. While other benefits of these improvement can lead to increased customer service, better decisions, and more efficiencies, these times of fiscal responsibility require focus on the financial return on investments in the form of cost savings and revenue enhancements.

Qlarion believes and has proven that demonstrable business value can be delivered in a short time, even within the constraints of a pilot. In fact, we have a program called Q60 that we offer to our customers that delivers a production-ready pilot along with a plan forward and an estimated ROI for the project all in under 60 days. Our delivery philosophy hinges on showing incremental value quickly and steadily throughout an implementation so a pilot is a good first step. This also provides time for us as the supplier to prove our value to the end users.

Qlarion is not aware of all of the use cases to create costs savings or revenue enhancement, but for this type of pilot we will use our Snow Operations analytics as an example. This would appear to be a relevant example since Virginia owns the country's fourth largest snow removal budget on an average year at over \$150 million. Qlarion's experience in leveraging analytics to provide tighter and active management of a snowstorm response with other clients has demonstrated a 5-10% cost avoidance with this solution which would be up to \$15M annual recurring savings for Virginia. Using the snow equipment's real-time GPS

location, equipment activity data, call center data, and route assignment information, we provide an up-to-the minute operational picture of what assets are actually needed where, are they doing what they should be doing, are they in the correct locations, what areas need to be reprioritized, and how each truck or contractor company performed.

	Requirements	A	B
1	Describe your suggested approach (include Supplier resources necessary to complete the pilot and their general qualifications)	n/a	<p>For executing the pilot, we would follow the Q60 program derived from our IMAGINE™ Methodology. The team to execute the pilot would include a data architect responsible for and experienced in data sourcing, integration, modeling and testing. The analytics developer would be responsible for and experienced in gathering the functional and technical requirements, analytics design, metadata creation, analytics development and testing.</p> <p>To deliver the Snow Operations pilot, or a similar one our approach would be as follows:</p> <ul style="list-style-type: none"> • Work with agency to understand business need and tie to pilot objectives • Analyze data and map business processes • Lock down final scope • Coordinate to ensure infrastructure and software installed and configured • Update on our existing data models or create a new one • Customize and develop the analytics • Perform System and Unit Test • Develop and document business case including ROI • Demonstrate the tool and system

			<ul style="list-style-type: none"> • Obtain feedback and determine next steps
2	What next-generation analytics tool set components would be utilized to perform the pilot?	n/a	For the pilot, we would suggest using SAP BusinessObjects BI Suite, and if needed SAP Data Services. This tool set would support the creation of a focused data mart, some reports, and data visualizations. Should the client want to conduct some data discovery, we can also use SAP BusinessObjects Explorer.
3	What platform would be used?	n/a	Given Virginia's preference to use their provided equipment, we could build the pilot on one of many SAP BusinessObjects compatible platforms such as a Windows-based Microsoft SQL-Server.
4	Where have you done something similar before? Please provide references that may be contacted concerning this use.	n/a	<p>Two good examples of similar pilots would be at the City of Boston and the National Institutes of Health (NIH).</p> <p>At the City of Boston when their analytics practice was in its infancy, proof of value was key. Our first piloted solution called Problem Properties that delivered completed insight into property-based statistics to help city resources proactively target addresses in the city. The second analytics game-changer for the city was called SnowCop. This solution, like this proposed pilot, gave the city a complete, near real-time operational insight into their snow operations plus public and emergency needs. Dashboards, reports, and maps provide interactive insight to the district clerks.</p> <p>Qlarion's unique approach to delivering these pilots enabled Boston to prove the value early and then scale up to save over an estimated \$5 million per year.</p>

			<p>At National Institutes of Health (NIH), Qlarion partnered with our client at the Clinical Center (CC) to develop a 5-week pilot to demonstrate the value of a mature analytics environment. Their existing executive platform experienced performance issues, maintenance challenges, and unneeded complexity that choked the analysts' capabilities. Working closely with the business users and IT leadership, we collaboratively designed the pilot and rebuilt the existing BI platform using best practices and updated technologies that do not exist in their environment today. This short-term project demonstrated in their environment and data what analytical capabilities and functionality could be possible.</p> <p>For further information, please contact Matt Mayrl for the City of Boston and Rachael Schacherer for NIH. Their contact information is listed in the references section of the Supplier Profile.</p>
5	How long would the pilot take?	n/a	Assuming we had nearly immediate access to the data and infrastructure, we would be able to complete the pilot in 60-90 days.
6	Given a go-ahead, how long would it take to start the pilot?	n/a	Two to three weeks notice would ensure we would have the right resources available and committed to start the pilot.
7	Which agencies or types of businesses would need to participate and what is the projected agency commitment (what kind of	n/a	For our pilots, we need engagement from both the appropriate supporting IT group and agency's business side. Since our consultants are also business savvy we only require limited time from business. We need participation in a kick-off meeting, one 2-4 hour requirements workshop per user group, requirements validation session, iterative design reviews, basic

	resources and for how long)?		testing, and finally general access for questions along the way. Collectively, this requires on average 12-15 hours per participant. In addition, it is important that agency leadership directly supports the pilot to ensure full engagement from their staff. From the technical staff we often need support to help access data, administer the equipment, possibly install software if we do not have the right access, and of course answer questions.
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Pilot 2: Efficacy

Qlarion is not responding the Efficacy Pilot component of the RFP.

Pilot 3: Predictive Analytics

Predictive Analytics for the public sector can be used for a variety of application where likely outcomes or scenarios can be better understood by the application of data science. While traditional business intelligence looks at what happened or possibly why it happened, predictive analytics focuses on the future based on the past. In the public sector, this can be applied in a variety of situations that can lead to incremental business value (i.e., improved services, cost avoidance, etc.) in a short time period and then expanded to a broader, higher-impact solution.

For our pilot, Qlarion would demonstrate potential cost savings by leveraging historical data to provide a clear prediction of how critical factors can allow forecasting costs and volumes of services in the future. Furthermore, when transposing the predictive model with a what-if interchangeable variable, we could allow users the power to re-simulate the predictions based on factor values of choice. The result is dynamic prescription toolset, which focuses on showing possible decisions that can be simulated in real time along with the fiscal impact of these decisions on the future budget.

	Requirements	A	B
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<p>1</p>	<p>Describe your suggested approach (include Supplier resources necessary to complete the pilot and their general qualifications)</p>	<p>n/a</p>	<p>Our approach to Predictive Analytics (PA) is to use the historical data within a system to inform us about the expected behavior of various measures such as cost, spending, water levels, accident numbers, or any quantitative values. The goal of our PA approach is to be:</p> <ul style="list-style-type: none"> ▪ Self service ▪ Easy-to-use, instant access to enterprise data in summary views ▪ Allows for the consolidation of data from multiple, diverse data sources and types ▪ Succinctly displays relevant and meaningful data. ▪ Allows for performing high-level analysis without extensive R scripting skills. <p>In this pilot, we would demonstrate how to predict the savings generated by switching users from one service to another service, in a multi-service environment. For instance, an agency that provides information to providers via phone, email correspondence, web, IVR. With historical data of the amount of traffic generated from each channel, and the cost associated with each instance of communication we can on one hand predict the future cost projections of offering the same services and provide interactive What-If visuals that allow executive users to experiment with the various impact delivered by small changes in channel traffic volumes. The result is to provide the executive with options, ideas, and prescribed steps for action. Our approach would utilize cluster analysis in conjunction with logistic regression analysis that are built into SAP InfiniteInsight software. The What-If analysis will be based on the predictive analysis results where the weight of factors depends on user input, thus providing adequate prescription analysis to act upon.</p>
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			The team to execute the pilot would include a data scientist who will conduct the data analysis and a data architect who will prep the data and deploy the results.
2	What next-generation analytics tool set components would be utilized to perform the pilot?	n/a	For the pilot, we would suggest using SAP InfiniteInsight. SAP InfiniteInsight tool is an extension of the SAP Lumira code line. It includes all the functionality of SAP Lumira (e.g., data acquisition, manipulation, formulas, visualization tools, and metadata enrichment) with the addition of the Predict pane, which is a second data analysis tab that appears. The Predict pane holds all the Predictive Analysis functionality, and includes predictive algorithms, results visualization analytics, and model management tools.
3	What platform would be used?	n/a	Given Virginia's preference to use their provided equipment, we could build the pilot on one of many SAP InfiniteInsight compatible platforms such as a Windows-based Microsoft SQL-Server.
4	Where have you done something similar before? Please provide references that may be contacted concerning this use.	n/a	At the Centers for Medicare and Medicaid Services (CMS), Qlarion implemented a predictive analysis model that was integrated into the 1800 Medicare Executive Dashboard. The dashboard had a What-If and a dynamic predictive component that enabled users to predict the next 5 years of Medicare communication costs and volumes. Our what-if implementation served as the bases of a prescription analysis toolkit, for instance it helped CMS simulate the impact of moving 1% of Phone Services to the Web; which demonstrated near \$70M potential savings over the next 5 years for CMS. For further information, please contact Raghu Akkapeddi for CMS. His contact information is listed in the

			references section of the Supplier Profile.
5	How long would the pilot take?	n/a	<p>8 weeks, the predictive modeling process consists of the following steps:</p> <ul style="list-style-type: none"> • Step 1. Identify goals for the predictive model (1 Week) • Step 2. Select an appropriate modeling tool (1 Week) • Step 3. Perform exploratory data analysis and investigate the available data (2 Weeks) • Step 4. Develop the model (including selecting a predictive algorithm and predictor variables to include in the model and evaluating model fit and accuracy) (2 Weeks) • Step 5. Implement the selected model (2 Weeks)
6	Given a go-ahead, how long would it take to start the pilot?	n/a	Two to three weeks notice would ensure we will have the right resources available and committed to start the pilot.
7	Which agencies or types of businesses would need to participate and what is the projected agency commitment (what kind of resources and for how long)?	n/a	For our pilots, we need engagement from both the appropriate supporting IT group and agency's business side. In this case, any agency that provides a single service using multiple methods with various costs. For instance, Department of Criminal Justice Services, Department of Motor Vehicles, Virginia Department of Transportation, or Department of Planning and Budget. From the participating resource we would need access to a few years' worth of data broken by a few dimensions such as time, type of service and cost of

			<p>service.</p> <p>Since our analysts are also business savvy we only require limited time from business. We need participation in a kick-off meeting, one 2-4 hour requirements workshop per user group, requirements validation session, iterative design reviews, basic testing, and finally general access for questions along the way. Collectively, this requires on average 12-15 hours per participant. From the technical staff we often need support to help access data, administer the equipment, possibly install software if we do not have the right access, and of course answer questions.</p>
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Pilot 4: Unstructured Data

Unstructured Text Analysis for the public sector can be brought to bear on a number of potential use cases. For example, agencies and organizations that respond to Virginia Freedom of Information Act requests could use Unstructured Text Analysis on the Hortonworks Data Platform to respond more quickly and with increased specificity to these requests. Using HDP, a pilot system can be built that ingests and stores agency emails and/or electronic records in the form of files from shared drives and content management systems. These records can then be made searchable via keywords as well as groupings of documents by topics automatically generated from unstructured text analysis. Cost savings will be realized by a combination of decreased storage cost of HDFS and increased speed and accuracy of query results achieved by using Apache Solr on the Hortonworks platform.

Success is predicated on our Customers' success. In order to facilitate this, there is a rapid path to customer success based on experience drawn from hundreds of Hortonworks customers worldwide. This path includes architecture guidance, hardware and cloud deployment options, and a convenient way to purchase the support, services, and training to help the customer be successful, the HDP Jumpstart. The pilot would demonstrate an end-to-end ingest/store/search model for a target email dataset.

	Requirements	A	B
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1	Describe your suggested approach (include Supplier resources necessary to complete the pilot and their general qualifications)	n/a	<p>Unstructured Text Analysis for the public sector can be brought to bear on a number of potential use cases. Agencies and organization that respond to Virginia Freedom of Information Act requests could use Unstructured Text Analysis on the Hortonworks Data Platform to respond more quickly and with reasonable specificity to these requests. Using HDP, a pilot system can be built that ingests and stores agency emails, electronic records in the form of files from shared drives and content management systems. These records can then be made searchable via keywords as well as groupings of documents by topics automatically generated from unstructured text analysis.</p> <p>Understanding the meaning and context of unstructured data through natural language processing can be achieved with technologies in the Hortonworks Data Platform. Hadoop was originally created to store and process the content of the entire World Wide Web at places like Yahoo and Google. For unstructured data processing, pipelines will need to be built for each data source (e.g. Documents, emails) to extract text and pertinent metadata for further processing. The processing power of Hadoop can be used to rapidly analyze new data as it is ingested as well as re-process the entire collection features are identified. Additional technologies available in HDP can be used to implement Machine Learning algorithms to perform sentiment analysis, topic clustering, automated filtering and categorization, etc. Further, all of the unstructured data can be indexed and made searchable.</p>
2	What next-generation analytics tool set components would	n/a	<p>Hortonworks Data Platform is built around a core set of open source technologies that provide a framework for distributed storage and processing of large sets of data on commodity hardware. Hadoop enables businesses to quickly gain insight</p>

	be utilized to perform the pilot?		<p>from massive amounts of structured and unstructured data. Numerous Apache Software Foundation projects make up the services required by an enterprise to deploy, integrate and work with Hadoop. Each project has been developed to deliver an explicit function and each has its own community of developers and individual release cycles.</p> <p>To gain insight into unstructured data, Apache Hadoop will be used to store and process the unstructured data collections. Apache Mahout or Apache Spark with MLlib running under YARN will be used to perform sentiment analysis, topic clustering, and automated filtering. Apache Solr will be used to index the content and make it searchable via web applications.</p>
3	What platform would be used?	n/a	<p>HDP provides the broadest range of deployment options for Hadoop. HDP can be deployed in any commodity server environment, on-premise or in-cloud. It is the most portable Hadoop distribution, allowing you to easily and reliably migrate from one deployment type to another. Whether on-premise or in-cloud, HDP is supported on any of the following Operating Systems:</p> <ul style="list-style-type: none"> 64-bit Red Hat Enterprise Linux (RHEL) 5 or 6 64-bit CentOS 5 or 6 64-bit Oracle Linux 5 or 6 64-bit SUSE Linux Enterprise Server (SLES) 11, SP1 Windows Server 2012 (64-bit) Windows Server 2008 R2 (64-bit)
4	Where have you done something similar before?	n/a	<p>Many large customers are using HDP to process unstructured content including Yahoo and Ebay among others. For example, Yahoo is using HDP store web pages</p>

	Please provide references that may be contacted concerning this use.		from the internet, email from their Yahoo mail service, and web logs from their news sites. Once the unstructured data is stored in HDP, it can be processed to determine what topics, stories, and current events are important to users of their websites.
5	How long would the pilot take?	n/a	Once the Commonwealth agency business sponsor has been identified, the pilot would take a total of 10 weeks. The high-level steps would be as follows: <ul style="list-style-type: none"> • Detailed Pilot Use Case Planning - 1 week • Acquisition of pilot hardware – 2 weeks • Acquisition of sample dataset – 2 weeks • Cluster setup – 1 week • Search, indexing and NLP enrichment of a dataset on HDP – 2 weeks • Demos and polishing – 1 week • Use Case Final Demonstration and Outbrief - 1 week
6	Given a go-ahead, how long would it take to start the pilot?	n/a	It will take 1 month to identify and allocate resources to staff the Pilot. During this time initial planning activities can occur.
7	Which agencies or types of businesses would need to participate and what is the projected agency commitment (what kind of resources and for how long)?	n/a	An agency business sponsor will be required to identify candidate datasets. An agency IT point of contact will be required to identify candidate hardware and act as a point of escalation for any IT-related issues. Our resources will perform the implementation of HDP software and Pilot search, indexing and NLP enrichment of the datasets. An agency business sponsor will be required to validate pilot results.

APPENDIX F

Product Descriptions

SAP® BusinessObjects™ BI Suite

The SAP® BusinessObjects™ Business Intelligence (BI) suite lets organizations make a positive difference through effective decisions and execution by providing intelligent information to the right people – from the CEO to analysts to staff to suppliers and partners.

It helps ensure that everyone within an organization will have immediate access to the reliable business information they need to do their jobs. With comprehensive BI software from the suite, people throughout the enterprise can access, format, analyze, explore, and share information across the organization with minimal dependence on IT resources and developers.

Key Functions and Features

- SAP Crystal Reports® software for enterprise reporting to create highly formatted reports, connected to virtually any data source
- SAP BusinessObjects Web Intelligence® software for self-service information access and interactive analysis
- SAP BusinessObjects Dashboards software for interactive dashboards and point-and-click visualizations
- SAP BusinessObjects Explorer® software for immediate insight into vast amounts of data
- SAP BusinessObjects Analysis software, edition for OLAP, for accessing advanced analytics of online analytical processing (OLAP) content
- SAP BusinessObjects Live Office software for integrating BI within the Microsoft Office environment
- SAP BusinessObjects Mobile software for remote access to information from any mobile device
- SAP BusinessObjects BI platform for a flexible and scalable information infrastructure
- SAP BusinessObjects Integration software for connectivity to SAP, Oracle, JD Edwards, PeopleSoft, and Siebel applications

SAP® Infinitelnsight

These powerful solutions help uncover trends and patterns from Big Data, existing data sources and legacy systems and anticipate business changes. They work in tandem with the SAP HANA® platform and the SAP® BusinessObjects™ BI platform to drive better business outcomes.

Key Functions and Features

- Automate data prep, predictive modeling, and deployment tasks
- Scale to petabytes of data and gain rapid insight from thousands of variables
- In-database scoring and enterprise-class integration
- Automatically retrain models as often as needed
- Identify social influencers for viral marketing programs
- Stunning, advanced visualization capabilities that help users discover hidden trends
- Rich predictive analysis library and integration with the R open source language
- Support for a variety of data sources including SAS, SPSS, and others
- Ability to generate scoring code for SAS, SPSS and more
- Ability to deploy stand-alone or with SAP HANA and SAP BusinessObjects BI platform for a comprehensive Big Data analytics solution
- Easy to understand business and executive summary reports

SAP® Lumira

SAP® Lumira software helps you tap into your data – big and small – and discover answers. Fast data manipulation and engaging visualizations allow you to combine and analyze data from a variety of sources and quickly gain unique insights.

Key Functions and Features

- Self-service data acquisition of enterprise and personal sources
- Data enrichment with time and geographic hierarchies
- Point-and-click data manipulation – no scripting required

- Visualizations to convey and share qualitative and quantitative knowledge
- Direct connectivity to the SAP HANA® platform

SAP® Data Services

With SAP Data Services, you can improve data quality for better decision making and business operations. Use the software to correct data issues as they arise, prevent quality issues before they occur, and automatically fix data redundancies, inconsistencies, and errors within any application.

Key Features and Functions:

- Parse, standardize, and correct data from any source, domain, or type
- Validate data according to business rules and requirements
- Enrich data with internal or external data sources to fill gaps within data you already have
- Match and consolidate data by embedding data duplication checks directly into workflows or applications
- Perform data quality checks anytime, in real time, on data sets before analyzing, moving, or integrating data

SAP® Information Steward

SAP Information Steward features a role-based user interface that enables your business users and data stewards to monitor data quality in real time and see how your data measures up to current information governance rules and standards.

Key Features and Functions:

- Members of information governance teams can work together without having to share reports through spreadsheets or import data across applications.
- Executives, managers, and IT experts can view and share information about governance and data quality metrics and track progress toward quality goals.
- Data issues can be addressed proactively to prevent bad data from entering business processes or applications, and alerts go out when data quality falls below a set standard.

- Business users gain continuous insight about data quality so they can determine whether data is fit to use for different purposes

Hortonworks Data Platform

Architected, developed, and built completely in the open, Hortonworks Data Platform (HDP) provides an enterprise ready data platform that enables organizations to adopt a Modern Data Architecture.

With YARN as its architectural center it provides a data platform for multi-workload data processing across an array of processing methods - from batch through interactive to real-time, supported by key capabilities required of an enterprise data platform -- spanning Governance, Security and Operations.

Apache Pig allows Apache Hadoop users to write complex MapReduce transformations using a simple scripting language called Pig Latin. Pig translates the Pig Latin script into MapReduce so that it can be executed within YARN for access to a single dataset stored in the Hadoop Distributed File System (HDFS).

Apache Hive is considered the defacto standard for interactive SQL queries over petabytes of data in Hadoop. Hive easily integrates with other critical data center technologies using a familiar JDBC interface.

Apache Storm is a distributed real-time computation system for processing large volumes of high-velocity data. Storm on YARN is powerful for scenarios requiring real-time analytics, machine learning and continuous monitoring of operations. Some of specific new business opportunities include: real-time customer service management, data monetization, operational dashboards, or cyber security analytics and threat detection.

Apache Spark is a fast and general-purpose cluster computing system. It provides high-level APIs in Java, Scala and Python, and an optimized engine that supports general execution graphs. It also supports a rich set of higher-level tools including Spark SQL for SQL and structured data processing and MLlib for machine learning.

SAP® Master Data Management

Centrally govern your master data based on a collaborative workflow process that seamlessly integrates business rules and subject matter domain expertise. Keep master data consistent and accurate across the enterprise to better perform key activities such as financial consolidation, new product introduction, or supplier onboarding.

Key Features and Functions:

- Centrally maintain financial, supplier, customer, material and other master data for consistency across the enterprise
- Benefit from a verifiable audit trail of when, why, and by whom master data is changed
- Use prebuilt workflows and user interfaces on top of proven data models
- Apply, reuse, and integrate existing business logic and infrastructure to validate data
- Replicate master data to SAP and non-SAP systems

SAP HANA®

The SAP HANA® platform powers a new class of real-time analytics and applications in addition to existing SAP® solutions. Its unique in-memory database instantly analyzes huge volumes of data as it's created, without complex layers of data management and storage. You get answers to questions you could never ask – or never thought to ask – before, and you can run high-performance applications that make business processes faster and leaner.

Key Features and Functions:

- In-memory data platform built on a next-generation massively parallel data processing architecture
- Faster execution and increased efficiency to adjust to changes in the business
- One source of the truth with easy integration of all data
- Real-time visibility into the in-the-moment business situation
- Game-changing innovation with new applications and business models and an open ecosystem
- Support for immediate analysis of data in minutes rather than days on any combination of deep and wide data

APPENDIX G

Appendix G - Deployment Options for the Proposed Solutions

Section 1C-1: **Business Intelligence**
 SAP Business Objects BI Suite
Proposed Solution: Suite
Deployment Options: On-Premise or Cloud

Supported Databases	Supported Operating Systems	
Oracle 10.2	Platform	Supported Versions
Oracle 11.2	Windows	Windows Server 2012 R2
Microsoft SQL Server 2012		Windows Server 2012 x64
Microsoft SQL Server 2008		Windows Server 2008 R2 x64
Microsoft SQL Server 2005	AIX	Windows Server 2003 R2 x64
IBM DB2 9.5, 9.7, 10.1, 10.5		AIX Version 7.1
DB2 for IBM i 7.1	Solaris	AIX Version 6.1
IBM DB2 for z/OS, Versions 8, 9, and 10		Version 10 on SPARC
SAP Adaptive Server Enterprise (ASE)		Version 11 on SPARC
SAP HANA (for MDM-SRM only)	Linux	SUSE Linux Enterprise Server 11 on x86_64
		Red Hat Enterprise Linux 5 on x86_64
		Red Hat Enterprise Linux 6* on x86_64

Section 1C-2:
Proposed Solution: SAP Predictive Analytics
 On-Premise, Desktop, or
Deployment Options: Cloud

Predictive and Prescriptive Analytics

Supported Databases

Oracle 10.2
Oracle 11.2
Microsoft SQL Server 2012
Microsoft SQL Server 2008
Microsoft SQL Server 2005
IBM DB2 9.5, 9.7, 10.1, 10.5 DB2 for IBM i 7.1
IBM DB2 for z/OS, Versions 8, 9, and 10
SAP Adaptive Server Enterprise (ASE)
SAP HANA (for MDM-SRM only)

Supported Operating Systems

Platform	Supported Versions
Windows Server	Windows Server 2008 R2 x64
Windows Desktop	Windows 7 64-bit Windows 7 32-bit Windows 8 64-bit
AIX	AIX Version 7.1 on Power Systems
Solaris	Version 11 on SPARC
Linux	Red Hat Enterprise Linux 6 64-bit

Section 1C-4:

Proposed Solution:

Data Visualization

SAP Lumira

On-Premise, Desktop, or

Cloud

Deployment Options:

Supported Databases

Not applicable

Supported Operating Systems

Platform	Supported Versions
Windows Server	Windows Server 2008/x64
Windows Desktop	Windows 7 SP1 64-bit
	Windows 7 SP1 32-bit
	Windows 8 64-bit

Section 1C-5:

Proposed Solution:

Data Quality

SAP Data Services 4.2

Supported Databases

DB2 FOR LUW 10.1 64-BIT
 DB2 FOR LUW 10.5 64-BIT
 DB2 FOR LUW 9.1 64-BIT
 DB2 FOR LUW 9.5 64-BIT
 DB2 FOR LUW 9.7 64-BIT
 MS SQL SERVER 2000
 MS SQL SERVER 2005
 MS SQL SERVER 2008
 MYSQL DATABASE SERVER
 5.1.37
 MYSQL DATABASE SERVER
 5.5.16
 ORACLE 10.2 64-BIT
 ORACLE 11.1
 ORACLE 11.2 64-BIT

 ORACLE 12.1 64-BIT

 SAP HANA DATABASE 1.00

 SYBASE ASE 15.5

 SYBASE ASE SERVER 15.7

 SYBASE SQL ANYWHERE 12.0
 SYBASE SQL ANYWHERE
 SERVER16.0

Supported Operating Systems

Platform	Supported Versions
AIX	AIX 6.1
	AIX 7.1
Linux	LINUX REDHAT EL5/X86_64 64BIT
	LINUX REDHAT EL6/X86_64 64BIT
	LINUX SUSE SLES11/X86_64 64BIT
Solaris	SOLARIS/SPARC 10
	SOLARIS/SPARC 11
Windows	WINDOWS SERVER 2008/X64 64BIT
	WINDOWS SERVER 2012/X64 64BIT
	WINDOWS SRV 2008 R2/X64 64BIT
	Version 10 on SPARC
	Version 11 on SPARC
	SUSE Linux Enterprise Server 10 on x86_64
	SUSE Linux Enterprise Server 11 on x86_64
Linux	Red Hat Enterprise Linux 5 on x86_64
	Red Hat Enterprise Linux 6* on x86_64
	Red Hat Enterprise Linux 5 on IBM Power Systems
	Red Hat Enterprise Linux 5 on IA64
	Version 7.1

Section 1C-6:

Proposed Solution:

Deployment Options:

Data Governance

SAP Information Steward

Supported Databases

Oracle 10.2
Oracle 11.2
Microsoft SQL Server 2012
Microsoft SQL Server 2008
Microsoft SQL Server 2005
IBM DB2 9.5, 9.7, 10.1, 10.5
DB2 for IBM i 7.1
IBM DB2 for z/OS, Versions 8, 9, and 10
SAP Adaptive Server Enterprise (ASE)
SAP HANA (for MDM-SRM only)

Supported Operating Systems

Platform	Supported Versions
Windows	Windows Server 2012 R2
	Windows Server 2012 x64
	Windows Server 2008 R2 x64
	Windows Server 2003 R2 x64
AIX	AIX Version 7.1
	AIX Version 6.1
Solaris	Version 10 on SPARC
	Version 11 on SPARC
Linux	SUSE Linux Enterprise Server 11 on x86_64
	Red Hat Enterprise Linux 5 on x86_64
	Red Hat Enterprise Linux 6* on x86_64

Section 1C-8:

Proposed Solution:

Deployment Options:

Other

Qlarion Community Center

On-Premise or Cloud

Supported Databases

Oracle 10.2
Oracle 11.2
Microsoft SQL Server 2012
Microsoft SQL Server 2008
Microsoft SQL Server 2005
IBM DB2 9.5, 9.7, 10.1, 10.5
DB2 for IBM i 7.1
IBM DB2 for z/OS, Versions 8, 9, and 10
SAP Adaptive Server Enterprise (ASE)
SAP HANA (for MDM-SRM only)

Supported Operating Systems

Platform	Supported Versions
Windows	Windows Server 2012 R2
	Windows Server 2012 x64
	Windows Server 2008 R2 x64
	Windows Server 2003 R2 x64
AIX	AIX Version 7.1
	AIX Version 6.1
Solaris	Version 10 on SPARC
	Version 11 on SPARC
Linux	SUSE Linux Enterprise Server 11 on x86_64
	Red Hat Enterprise Linux 5 on x86_64
	Red Hat Enterprise Linux 6* on x86_64

Section 1C-8:

Proposed Solution:

Deployment Options:

Other
SAP HANA

Supported Databases

Not applicable

Supported Operating Systems

Platform

Supported Versions

Linux	SUSE Linux Enterprise Server 11 SP1
	SUSE Linux Enterprise Server 11 SP2
	SUSE Linux Enterprise Server for SAP 11 SP1
	SUSE Linux Enterprise Server for SAP 11 SP2
	SUSE Linux Enterprise Server for SAP 11 SP3
	Red Hat Enterprise Linux 6.5 for SAP HANA

Section 1C-8:

Other

SAP Master Data

Proposed Solution:

Management

Deployment Options:

Supported Databases

Oracle 10.2
 Oracle 11.2
 Microsoft SQL Server 2012
 Microsoft SQL Server 2008
 Microsoft SQL Server 2005
 IBM DB2 9.5, 9.7, 10.1, 10.5
 DB2 for IBM i 7.1
 IBM DB2 for z/OS, Versions 8, 9, and 10
 MaxDB 7.7, 7.8
 SAP Adaptive Server Enterprise (ASE)
 SAP HANA (for MDM-SRM only)

Supported Operating Systems

Platform	Supported Versions
	Windows Server 2012 x64
Windows	Windows Server 2008 R2 x64 Windows Server 2003 R2 x64
AIX	AIX Version 7.1 on Power Systems AIX Version 6.1 on Power Systems AIX 5L Version 5.3 on Power Systems
HP-UX	Version 11.31 on IA64 Version 11.31 on PA-RISC Version 10 on x64
Solaris	Version 11 on x64 Version 10 on SPARC Version 11 on SPARC
Linux	SUSE Linux Enterprise Server 10 on x86_64 SUSE Linux Enterprise Server 11 on x86_64 Red Hat Enterprise Linux 5 on x86_64 Red Hat Enterprise Linux 6* on x86_64 Red Hat Enterprise Linux 5 on IBM Power Systems Red Hat Enterprise Linux 5 on IA64
IBM i	Version 7.1

APPENDIX H

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Business Intelligence	BOW310	Web Intelligence: Report Design I	Introducing Web Intelligence Creating Web Intelligence Documents with Queries Restricting Data Returned by a Query Designing Web Intelligence Documents Enhancing the Presentation of Data in Documents Formatting Web Intelligence Documents Calculating Data with Formulas and Variables Using Multiple Data Sources Analyzing Data Managing and Sharing Web Intelligence Documents	Classroom, Virtual Classroom	2 days
Business Intelligence	BOW320	Web Intelligence: Report Design II	Reviewing Web Intelligence core report design Working with advanced query techniques Working with calculation contexts Creating formulas with character and date string functions Using If logic Working with additional reporting techniques Creating hyperlinks	Classroom, Virtual Classroom	1 day

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Business Intelligence	BOCE10	SAP Crystal Reports for Enterprise	<p>SAP Crystal Reports for Enterprise is a powerful, dynamic, actionable reporting solution that helps you design, explore, visualize, and deliver reports via the web or embedded in enterprise applications. This two-day instructor led course is designed to give you comprehensive skills and in-depth knowledge to plan and create reports that will help you analyze and interpret data. As a business benefit, you will find that this course is an in-depth approach to the entire report creation cycle from planning a report prototype to distribution a report.</p> <p>Fundamentals of planning and creating a report Introduction to data selection, data organization and formatting Basics of creating formulas and applying conditional reporting Introduction to exporting and distribution of reports</p>	Classroom, Virtual Classroom	2 days
Business Intelligence	BOC320	Crystal Reports: Report Processing	<p>Overview of the Repository and Repository data sources Fundamentals of managing reports Knowledge to create advance formulas Knowledge to apply variables and arrays Knowledge to create report templates and build specialized reports</p>	Classroom, Virtual Classroom	3 days
Business Intelligence	BOX310	Dashboards 4.0: Core	<p>Create engaging and interactive dashboards. Connect your dashboard to live data to make business decisions based on up to the minute data. Share your dashboard in multiple environments.</p>	Classroom, Virtual Classroom	2 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Business Intelligence	BOID10	Information Design Tool I	<p>What is the information design tool?</p> <p>Work with Projects</p> <p>Create a local project</p> <p>About shared projects</p> <p>Create a local project and retrieving a published Universe</p> <p>Create the data foundation</p> <p>Create a database connection</p> <p>Create a data foundation</p> <p>Define joins in a data foundation</p> <p>Create a business layer</p> <p>Create folders and objects</p> <p>Create measure objects</p> <p>Resolve Loops Use aliases</p> <p>Resolve Loops Use contexts</p> <p>Define data restrictions</p> <p>Work with LOVs</p> <p>Use Parameters restrict data</p> <p>Use @functions also Aggregate Awareness</p> <p>Create Derived Tables and Index Awareness</p> <p>Maintain universes</p> <p>Deploy and manage and maintain universes</p> <p>Document universes</p>	Classroom, Virtual Classroom	3 days
Business Intelligence	BOE310	BI Platform: Admin and Security	<p>What is SAP BusinessObjects Business Intelligence platform</p> <p>Managing content and objects in SAP BusinessObjects Business Intelligence platform</p> <p>Securing users and groups in SAP BusinessObjects Business Intelligence platform</p> <p>Managing applications security</p> <p>Distributing content using scheduling and alerting</p> <p>Publishing and Publications</p>	Classroom, Virtual Classroom	2 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Business Intelligence	BOE320	BI Platform: Admin Servers	SAP BusinessObjects Business Intelligence Platform Installation and Configuration Server Administration and Management Managing the Web Application Servers Managing the Central Management Server Databases Managing the Adaptive Servers Managing the Crystal Reports Servers Managing the Web Intelligence Servers Managing the Dashboard Servers Managing the Connection Server Managing the Explorer Servers Managing the Event Servers Troubleshooting SAP BusinessObjects Business Intelligence Platform	Classroom, Virtual Classroom	3 days
Business Intelligence	BOE330	BI Platform: Designing and Deploying a Solution	Reviewing Architecture, Administration, and Security in SAP BusinessObjects BI platform Identifying Requirements Ensuring Availability of your SAP BusinessObjects BI Solutions Performance, Scalability and Sizing Deploying a System Content Management	Classroom	4 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Predictive Analysis	TZPAN	SAP Predictive Analysis	<p>What is data mining? What is predictive analytics?</p> <p>Overview of SAP Predictive Analysis solutions and their use cases</p> <p>Introduction to SAP Predictive Analysis, demonstrations</p> <p>Exercises on SAP Predictive Analysis</p> <p>The predictive analysis project</p> <p>Data manipulation: data handling, modification, filtering</p> <p>Overview of typical data mining tasks and supporting algorithms within SAP Predictive Analytics</p> <p>Model accuracy and model generalization</p> <p>Predict with SAP Predictive Analysis and HANA PAL with exercises</p> <p>Model creation, viewing, exporting and importing</p> <p>Extension of Predictive Analysis using R programs with exercises</p> <p>SAP Predictive Analytics roadmap</p> <p>Predictive Analysis – the Bigger Picture</p> <p>Do's and Dont's in Predictive Analytics – Analytics Best Practice</p>	Classroom, Virtual Classroom	3 days
Predictive Analysis	OPA107	OKP SAP Predictive Analysis	<p>Overview</p> <p>Configuration</p> <p>Solution Architecture</p> <p>Predictive Analysis</p>	E-Learning	6.5 hours
Predictive Analysis	OII70	OKP SAP Infinite Insight 7.0	<p>New Features</p> <p>SAP Infinite Insight 7.0 Overview</p>	E-Learning	1 hour

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Data Visualization	WNALUM	SAP Lumira	Intro: SAP Lumira and its place in the analysis environment Part 1 – Data Import, Preparation, Manipulation Data import options Measures and dimensions Semantic enrichments Data manipulation using predefined tools and formulas Integrating data from multiple sources Part 2 – Data Discovery and Visualization Which chart type to use when Navigating through data in a visual way using charts Advanced chart features for multidimensional data Creating your own data Part 3 – Sharing options and next steps Data storytelling Sharing options Lumira cloud	Classroom, Virtual Classroom	1 day
Data Quality	BOQ305	Data Quality XI 3.0: Core Concepts	Working with Data Quality Transforms Cleansing Address Data Cleansing Name, Firm, and Product Data Matching and Consolidating Records	E-Learning	960 Min
Data Quality	ODQM4S	OKP SAP BusinessObjects Data Quality Management, version for SAP Solutions 4.0	Data Quality Management for SAP Architecture Installing Data Quality Management for SAP Configuring Data Quality Management for SAP Break Key Troubleshooting Data Quality Management for SAP	E-Learning	6.5 hours

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Data Quality	7E+07	OKP SAP BusinessObjects Data Services 4.0	Data Services Platform Overview Architecture, Installation, and Deployment New Security Model SAP Extractor Enhanced SAP Integration Other New Features and Functionality Data Quality Global Address Cleanse US Regulatory Address Cleanse Geocoder Match Text Analysis Overview Basic Entity Extraction Dictionary Extraction Rule Extraction Combining Text Data Processing	E-Learning	N/A

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Data Quality	BOI305	Data Integrator XI 3.0: Core Concepts	Using Data Integrator Transforms Describe the Data Integrator transforms Use the Pivot transform Use the Hierarchy Flattening transform Describe performance optimization Use the Data Transfer transform Use the XML Pipeline transform Capturing Changes in Data Describe the options for updating changes to data Explain the purpose of Changed Data Capture (CDC) Explain the roles of surrogate keys in managing changes to data Use and define the differences between source-based and target- based CDC	E-Learning	8 hrs
Data Quality	DS10E	SAP Data Services: Platform and Transforms	Defining Data Services Defining Source and Target Metadata Creating Batch Jobs Troubleshooting Batch Jobs Using Functions, Scripts, and Variables Using Platform Transforms Setting Up Error Handling Capturing Changes in Data Using Text Data Processing Using Data Service (Integrator) Platform Transforms	Classroom	720 minutes

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Data Quality	BODS15	SAP Business Objects Data Integration 4.0	Describing Data Services Examining data acquisition and process chains Creating batch jobs for data integration Troubleshooting batch jobs Using functions, scripts and variables Using Platform Transforms Setting up error handling Capturing change in data Using the data integrator platform transforms	Classroom	720 minutes
Data Quality	TZIM4M	Data Migration with SAP Data Services	Introduction to SAP Data Migration Rapid Data Migration Content in Detail Architecture, Deployment, and Installation SAP Information Steward for Data Assessment Migration of Customer Data I SAP BusinessObjects Business Intelligence for Data Migration Migration of Customer Data II Data Quality Management and Data Migration Extending the Migration Content for Data Migration	Classroom	2 days
Data Governance	OIS42	OKP SAP Information Steward 4.2	Overview Data Quality Advisor Sybase PowerDesigner Integration Data Quality Financial Impact Analysis Match Review Other IS Enhancements	E-Learning	12 hrs

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Data Governance	TZIM4I	SAP Information Steward	Information Steward Vision & Positioning Information Steward Overview & Highlights Information Steward Architecture, Installation, and Deployment Validation Rules (Create, bind, execute rules, view rule results) DQ Scorecard (Create, bind, execute rules, view scorecard) Creating Information Steward Views and Working with File Formats Metadata management and Metapedia Information Steward Administration (Task management, utilities, user management) Performance and Scalability considerations Cleansing Package Builder Overview Using Cleansing Package Builder (Explore the Task Screen, wizard, design mode, advance mode & publishing)	Classroom	2 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Big Data	-	HDP Developer: Java	Describe Hadoop 2.X and the Hadoop Distributed File System Describe the YARN framework Develop and run a Java MapReduce application on YARN Use combiners and in-map aggregation Write a custom partitioner to avoid data skew on reducers Perform a secondary sort Recognize use cases for built-in input and output formats Write a custom MapReduce input and output format Optimize a MapReduce job Configure MapReduce to optimize mappers and reducers Develop a custom RawComparator class Distribute files as LocalResources Describe and perform join techniques in Hadoop Perform unit tests using the UnitMR API Describe the basic architecture of HBase Write an HBase MapReduce application List use cases for Pig and Hive Write a simple Pig script to explore and transform big data Write a Pig UDF (User-Defined Function) in Java Write a Hive UDF in Java Use JobControl class to create a MapReduce workflow Use Oozie to define and schedule workflows	-	4 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Big Data	-	HDP Developer: Apache Pig and Hive	<p>Describe Hadoop, YARN and use cases for Hadoop</p> <p>Describe Hadoop ecosystem tools and frameworks</p> <p>Describe the HDFS architecture</p> <p>Use the Hadoop client to input data into HDFS</p> <p>Transfer data between Hadoop and a relational database</p> <p>Explain YARN and MapReduce architectures</p> <p>Run a MapReduce job on YARN</p> <p>Use Pig to explore and transform data in HDFS</p> <p>Use Hive to explore Understand how Hive tables are defined and implemented and analyze data sets</p> <p>Use the new Hive windowing functions</p> <p>Explain and use the various Hive file formats</p> <p>Create and populate a Hive table that uses ORC file formats</p> <p>Use Hive to run SQL-like queries to perform data analysis</p> <p>Use Hive to join datasets using a variety of techniques, including Map-side joins and Sort-Merge-Bucket joins</p> <p>Write efficient Hive queries</p> <p>Create ngrams and context ngrams using Hive</p> <p>Perform data analytics like quantiles and page rank on Big Data using the DataFu Pig library</p> <p>Explain the uses and purpose of HCatalog</p> <p>Use HCatalog with Pig and Hive</p> <p>Define a workflow using Oozie</p> <p>Schedule a recurring workflow using the Oozie Coordinator</p>	-	4 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Big Data	-	HDP Developer: Windows	<p>Describe Hadoop and Hadoop and YARN</p> <p>Describe the Hadoop ecosystem</p> <p>List Components & deployment options for HDP onWindows</p> <p>Describe the HDFS architecture</p> <p>Use the Hadoop client to input data into HDFS</p> <p>Transfer data between Hadoop and Microsoft SQL Server</p> <p>Describe the MapReduce and YARN architecture</p> <p>Run a MapReduce job on YARN</p> <p>Write a Pig script</p> <p>Define advanced Pig relations</p> <p>Use Pig to apply structure to unstructured Big Data</p> <p>Invoke a Pig User-Defined Function</p> <p>Use Pig to organize and analyze Big Data</p> <p>Describe how Hive tables are defined and implemented</p> <p>Use Hive windowing functions</p> <p>Define and use Hive file formats</p> <p>Create Hive tables that use the ORC file format</p> <p>Use Hive to run SQL-like queries to perform data analysis</p> <p>Use Hive to join datasets</p> <p>Create ngrams and context ngrams using Hive</p> <p>Perform data analytics</p> <p>Use HCatalog with Pig and Hive</p> <p>Install and configure HiveODBC Driver for Windows</p> <p>Import data from Hadoop into Microsoft Excel</p> <p>Define a workflow using Oozie</p>	-	4 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Big Data	-	HDP Developer: Custom YARN Applications	Describe the YARN architecture Describe the YARN application lifecycle Write a YARN client application Run a YARN application on a Hadoop cluster Monitor the status of a running YARN application View the aggregated logs of a YARN application Configure a ContainerLaunchContext Use a LocalResource to share application files across a cluster Write a YARN ApplicationMaster Describe the differences between synchronous and asynchronous ApplicationMasters Allocate Containers in a cluster Launch Containers on NodeManagers Write a custom Container to perform specific business logic Explain the job schedulers of the ResourceManager Define queues for the Capacity Scheduler	-	2 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Big Data	-	HDP Operations: Install and Manage with Apache Ambari	<p>Describe various tools and frameworks in the Hadoop 2.0ecosystem</p> <p>Describe the Hadoop Distributed File System (HDFS)architecture</p> <p>Install and configure an HDP 2.0 cluster</p> <p>Use Ambari to monitor and manage a cluster</p> <p>Describe how files are written to and stored in HDFS</p> <p>Perform a file system check using command line and browser-based tools</p> <p>Configure the replication factor of a file</p> <p>Mount HDFS to a local filesystem using the NFS Gateway</p> <p>Deploy and configure YARN on a cluster</p> <p>Configure and troubleshoot MapReduce jobs</p> <p>Describe how YARN jobs are scheduled</p> <p>Configure the capacity and fair schedulers of theResourceManager</p> <p>Use WebHDFS to access a cluster over HTTP</p> <p>Configure a Hiveserver</p> <p>Describe how Hive tables are created and populated</p> <p>Use Sqoop to transfer data between Hadoop and a relational database</p> <p>Use Flume to ingest streaming data into HDFS</p> <p>Deploy and run an Oozie workflow</p> <p>Commission and decommission worker nodes</p> <p>Configure a cluster to be rack-aware</p> <p>Implement and configure NameNode HA</p> <p>Secure a Hadoop cluster</p>	-	4 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Big Data	-	HDP Operations: Migrating to the Hortonworks Data Platform	Install and configure an HDP 2.x cluster Use Ambari to monitor and manage a cluster Mount HDFS to a local filesystem using the NFS Gateway Configure Hive for Tez Use Ambari to configure the schedulers of theResourceManager Commission and decommission worker nodes using Ambari Use Falcon to define and process data pipelines Take snapshots using the HDFS snapshot feature Implement and configure NameNode HA using Ambari Secure an HDP cluster using Ambari Setup a Knox gateway	-	2 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Big Data	-	HDP Analyst: Data Science	<p>Recognize use cases for data science</p> <p>Describe the architecture of Hadoop and YARN</p> <p>Describe supervised and unsupervised learning differences</p> <p>List the six machine learning tasks</p> <p>Use Mahout to run a machine learning algorithm on Hadoop</p> <p>Use Pig to transform and prepare data on Hadoop</p> <p>Write a Python script</p> <p>Use NumPy to analyze big data</p> <p>Use the data structure classes in the pandas library</p> <p>Write a Python script that invokes SciPy machine learning</p> <p>Describe options for running Python code on a Hadoop cluster</p> <p>Write a Pig User-Defined Function in Python</p> <p>Use Pig streaming on Hadoop with a Python script</p> <p>Write a Python script that invokes scikit-learn</p> <p>Use the k-nearest neighbor algorithm to predict values</p> <p>Run a machine learning algorithm on a distributed data set</p> <p>Describe use cases for Natural Language Processing (NLP)</p> <p>Perform sentence segmentation on a large body of text</p> <p>Perform part-of-speech tagging</p> <p>Use the Natural Language Toolkit (NLTK)</p> <p>Describe the components of a Spark application</p> <p>Write a Spark application in Python</p> <p>Run machine learning algorithms using Spark MLlib</p>	-	3 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Big Data	-	HDP Analyst: Apache HBase	Describe the components and core concepts of HBase Select appropriate RowKeys and Column Families Describe the function of components in the HBase Architecture Choose appropriate BlockSize Use BloomFilters Optimize HBase Access	-	2 days
Other	HA100	SAP HANA - Introduction	Key concepts of SAP HANA Working with SAP HANA Studio Architecture of SAP in-memory computing Modeling with SAP HANA Attribute Views Analytic Views Calculation Views Overview of data provisioning in SAP HANA with the following tools: Flat file upload SAP BusinessObjects Data Services SAP Landscape Transformation Replication Server SAP Replication Server SAP Direct Extractor Connection Smart Data Access Smart Data Integration / Smart Data Quality Smart Data Streaming SAP HANA Interfaces to BI client tools, including: SAP BusinessObjects Analysis for Office SAP Design Studio SAP Lumira	Classroom or Virtual Classroom	2 days
Other	HA300	SAP HANA – Implementation	Approaching SAP HANA modeling Using Graphic Modeling Tools	Classroom or Virtual	3 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
		and Modeling	Using SQL Modeling Tools Other Modeling Features, including Currency Conversion Decision Tables Geospatial Data Using Text Search and Analysis Managing modeling content Security and Authorizations	Classroom	
Other	HA200	SAP HANA – Operations and Administration	SAP HANA Landscape SAP HANA Architecture Installation Scale-Out Post-Installation Administrative Tools for SAP HANA Troubleshooting Performance analysis Operations Monitoring Backup & Recovery High Availability & Disaster Tolerance Security User Maintenance and Authorization Multitenant Database Containers	Classroom or Virtual Classroom	5 days
Other	HA 450	Application Development for SAP HANA	Tools for SAP HANA Application Development Introduction to JavaScript User interface: introduction to SAPUI5 Development Database design: introduction to Core Data Services Services: introduction to ODATA The Analytical layer: introduction to Modeling Server-side scripting: Introduction to SQLScript Server-side scripting: Introduction to XS JavaScript	Classroom	3 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
Other	HA350	SAP HANA – Data Provisioning	Trigger-based replication with SAP Landscape Transformation (SLT SP06) Data provisioning using SAP Data Services (DS) SAP HANA Direct Extractor Connection (DXC) Connecting SAP HANA to other databases using SAP HANA Smart Data Access SAP Replication Server (SRS)	Classroom or Virtual Classroom	2 days
Other	MDM101	Master Data Management – Global Data Synchronization	Overview of the Global Data Synchronization (GDS) Process Installation procedure for GDS Console Architecture of GDS Data import to GDS Data maintenance on GDS System configuration	E-Learning	6 days
Other	MDM050	SAP NetWeaver MDM - Overview	SAP NetWeaver MDM architecture Data Management in SAP NetWeaver MDM SAP NetWeaver MDM Data Manager modes Taxonomy and Attributes Matching Mode Validations Workflow Basic repository management with SAP NetWeaver MDM Console Basic import process with SAP NetWeaver MDM Import Manager Master Data Consolidation Master Data Harmonisation (including distribution with SAP NetWeaver MDM Syndicator) Central Master Data Management Introduction to the business scenarios Global Data Synchronisation, Customer Data Integration, and Rich Product Content Management Security and Auditing Print Publishing	Classroom or Virtual Classroom	5 days

<u>Response Section</u>	<u>Course Code</u>	<u>Course Title</u>	<u>Course Content</u>	<u>Delivery Method</u>	<u>Duration</u>
			SAP NetWeaver Integration Specifically covering Portal and BW		
Other	MDM100	Master Data Management Configuration	Solution Overview and Architecture Explaining the IT scenarios involving MDM MDM Architecture in Detail MDM Console Administering MDM and auxiliary servers Administering MDM repositories MDM Repository Table Types Advanced MDM Repository Field Types Advanced Multi-Lingual Configuration MDM Data Manager Data Manager Advanced Functions MDM Expression Editor MDM Data Manager Workflow MDM Import Manager advanced functions MDM Syndicator advanced functions SAP NetWeaver Integration Portal Integration BI Integration XI Integration ERP Integration MDM APIs Business Objects Data Services Web Services	Classroom or Virtual Classroom	5 days



EXHIBIT B PRICING
CONTRACT NUMBER VA-150915-QLA
BETWEEN
VIRGINIA INFORMATION TECHNOLOGIES AGENCY
AND
QLARION, INC.

Exhibit B is hereby incorporated into and made an integral part of Contract Number VA-150915-QLA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Qlarion, Inc. (“Supplier”). In the event of any discrepancy between this Exhibit B and the Contract, the provisions of the Contract shall control.

Software Price List

Requirement	Technology	In Blocks of	Metrics	VITA Price
Business Intelligence	SAP BusinessObjects BI Suite (user)	1	Users	2,096.74
	SAP BusinessObjects BI Suite (CS)	10	Concurrent sessions	67,095.60
Predictive/Prescriptive Analytics	SAP InfiniteInsight Modeler	1	Users	43,758.00
	SAP InfiniteInsight Engine	1	Cores	5,469.75
	SAP InfiniteInsight Social	1	Cores	5,469.75
	SAP InfiniteInsight Recommendation	1	Cores	5,469.75

Requirement	Technology	In Blocks of	Metrics	VITA Price
Statistical Analytics	Not Proposing			
Data Visualization	SAP Lumira	1	Users	1,039.25
Data Quality	SAP Data Services, enterprise edition	1	Cores	68,371.88
	SAP Data Services, workgroup edition	1	Cores	54,697.50
	SAP Data Services	1	Cores	68,371.88
	SAP Data Quality Management	1	Cores	45,581.25
	United States National Directory (1 server)	1	Annual subscriptions	3,646.50
	United States National Directory (2-3 servers)	1	Annual subscriptions	4,862.24
	United States National Directory (unlimited servers)	1	Annual subscriptions	7,293.00
	Geocoding for US by TomTom (1-2 servers)	1	Annual subscriptions	9,723.76
	Geocoding for US by TomTom (unlimited servers)	1	Annual subscriptions	81,033.25
Data Governance	SAP Information Steward	1	Cores	68,371.88
	SAP Inform. Stew. Multi-Source Intgr. by MITI Add-on	1	Flat fee	112,439.06
Hadoop	HDP Enterprise Subscription -- 4 Nodes or 50TB Raw Storage -- 24x7 Sev 1 Response -- 1 Year		Annual subscriptions	10,098.00
	HDP Enterprise Plus Subscription -- 4 Nodes or 50TB Raw Storage -- 24x7 Sev 1 Response -- 1 Year		Annual subscriptions	18,176.40
	HDP Enterprise Premier Subscription -- 4 Nodes or 50TB Raw Storage -- 24x7 with 1/4 Designated Support Engineer -- 1 Year (min of 25 SKUs required)		Annual subscriptions	25,245.00
	HDP Search Support, 4 Nodes -- 24x7 Sev 1 Response -- 1 Year		Annual subscriptions	4,039.20
	Additional HDP Support Contact -- 24x7 Sev 1 Response -- 1 Year		Annual subscriptions	10,098.00
	HDP Enterprise Premier Support -- Additional 1/4 Designated Support Engineer		Annual subscriptions	151,470.00
	HDP Enterprise to Enterprise Plus Subscription Upgrade -- 4 Nodes or 50TB Raw Storage -- 24x7 Sev 1 Response 1 Year		Annual subscriptions	18,176.40
	HDP Enterprise to Enterprise Premier Subscription Upgrade -- 4 Nodes or 50TB Raw Storage -- min of 25 SKUs required -- 24x7 with 1/4 Designated Support Engineer -- 1 Year		Annual subscriptions	25,245.00

Requirement	Technology	In Blocks of	Metrics	VITA Price
	HDP Enterprise Plus to Enterprise Premier Subscription Upgrade -- 4 Nodes or 50TB Raw Storage -- min of 25 SKUs required -- 24x7 with 1/4 Designated Support Engineer -- 1 Year		Annual subscriptions	25,245.00
	HDP Enterprise Subscription Renewal -- 4 Nodes or 50TB Raw Storage -- 24x7 Sev 1 Response -- 1 Year		Annual subscriptions	10,098.00
	HDP Enterprise Plus Subscription Renewal -- 4 Nodes or 50TB Raw Storage -- 24x7 Sev 1 Response -- 1 Year		Annual subscriptions	18,176.40
	HDP Enterprise Premium Subscription Renewal -- 4 Nodes or 50TB Raw Storage -- min of 25 SKUs required -- 24x7 Sev 1 Response -- 1 Year		Annual subscriptions	25,245.00
	HDP Search Support Renewal, 4 Nodes -- 24x7 Sev 1 Response -- 1 Year		Annual subscriptions	4,039.20
	Additional HDP Support Contact Renewal -- 24x7 Sev 1 Response -- 1 Year		Annual subscriptions	10,098.00
	HDP Enterprise Premier Support Renewal -- Additional 1/4 Designated Support Engineer		Annual subscriptions	151,470.00
Other Advanced Analytics Master Data Management	SAP NetWeaver Master Data Management, business partner data	5,000	Master data objects	82,046.25
	SAP NetWeaver Master Data Management, consumer data	75,000	Master data objects	82,046.25
	SAP NetWeaver Master Data Management, product and other data	10,000	Master data objects	82,046.25
	SAP NetWeaver Master Data Management, printing and PCM	1	Master data objects	8.75
	SAP NetWeaver Master Data Management, global data synchronization	1	Master data objects	5.83
	SAP Enterprise Master Data Management	5,000	Master data objects	109,395.00
	SAP Enterprise Master Data Management, information stewardship option	5,000	Master data objects	27,348.75
Other Advanced Analytics Qlarion Community Center	Qlarion Community Center Module	1	Module	150,000.00
Other Advanced Analytics SAP HANA	SAP HANA, Platform Edition, up to 10 units	64	GB of memory	115,193.55
	SAP HANA, Platform Edition, 11-20 units	64	GB of memory	107,993.95
	SAP HANA, Platform Edition, 21 to 50 units	64	GB of memory	95,757.64
	SAP HANA, Platform Edition, 51 to 100 units	64	GB of memory	71,998.23

Requirement	Technology	In Blocks of	Metrics	VITA Price
	SAP HANA, Platform Edition, 101 to 150 units	64	GB of memory	57,598.58
	SAP HANA, Platform Edition, 151 to 200 units	64	GB of memory	50,398.76
	SAP HANA, Platform Edition, 201 to 250 units	64	GB of memory	43,198.93
	SAP HANA, Platform Edition, 251 to 300 units	64	GB of memory	39,599.02
	SAP HANA, Platform Edition, 301 to 500 units	64	GB of memory	35,999.11
	SAP HANA, Platform Edition, 501 to 750 units	64	GB of memory	32,399.20
	SAP HANA, Platform Edition, 751 to 1000 units	64	GB of memory	28,799.29
	SAP HANA, Platform Edition, 1001 to 1500 units	64	GB of memory	25,199.38
	SAP HANA, Platform Edition, above 1500 units	64	GB of memory	21,599.47
	SAP HANA, Enterprise Edition, up to 10 units	64	GB of memory	143,991.94
	SAP HANA, Enterprise Edition, 11-20 units	64	GB of memory	134,992.44
	SAP HANA, Enterprise Edition, 21 to 50 units	64	GB of memory	119,693.30
	SAP HANA, Enterprise Edition, 51 to 100 units	64	GB of memory	89,994.96
	SAP HANA, Enterprise Edition, 101 to 150 units	64	GB of memory	71,995.97
	SAP HANA, Enterprise Edition, 151 to 200 units	64	GB of memory	62,996.47
	SAP HANA, Enterprise Edition, 201 to 250 units	64	GB of memory	53,996.98
	SAP HANA, Enterprise Edition, 251 to 300 units	64	GB of memory	49,497.23
	SAP HANA, Enterprise Edition, 301 to 500 units	64	GB of memory	44,997.48
	SAP HANA, Enterprise Edition, 501 to 750 units	64	GB of memory	40,497.73
	SAP HANA, Enterprise Edition, 751 to 1000 units	64	GB of memory	35,997.98
	SAP HANA, Enterprise Edition, 1001 to 1500 units	64	GB of memory	31,498.24
	SAP HANA, Enterprise Edition, above 1500 units	64	GB of memory	26,998.49

Requirement	Technology	In Blocks of	Metrics	VITA Price
	SAP HANA, Base edition, up to 10 units	64	GB of memory	35,997.98
	SAP HANA, Base edition, 11-20 units	64	GB of memory	33,748.11
	SAP HANA, Base edition, 21 to 50 units	64	GB of memory	29,923.32
	SAP HANA, Base edition, 51 to 100 units	64	GB of memory	22,498.74
	SAP HANA, Base edition, 101 to 150 units	64	GB of memory	17,998.99
	SAP HANA, Base edition, 151 to 200 units	64	GB of memory	15,749.12
	SAP HANA, Base edition, 201 to 250 units	64	GB of memory	13,499.24
	SAP HANA, Base edition, 251 to 300 units	64	GB of memory	12,374.31
	SAP HANA, Base edition, 301 to 500 units	64	GB of memory	11,249.37
	SAP HANA, Base edition, 501 to 750 units	64	GB of memory	10,134.43
	SAP HANA, Base edition, 751 to 1000 units	64	GB of memory	8,999.50
	SAP HANA, Base edition, 1001 to 1500 units	64	GB of memory	7,874.56
	SAP HANA, Base edition, above 1500 units	64	GB of memory	6,749.62
	SAP HANA Predictive Option, up to 10 units	64	GB of memory	22,498.74
	SAP HANA Predictive Option, 11-20 units	64	GB of memory	21,103.82
	SAP HANA Predictive Option, 21 to 50 units	64	GB of memory	18,718.95
	SAP HANA Predictive Option, 51 to 100 units	64	GB of memory	14,061.71
	SAP HANA Predictive Option, 101 to 150 units	64	GB of memory	11,249.37
	SAP HANA Predictive Option, 151 to 200 units	64	GB of memory	9,899.45
	SAP HANA Predictive Option, 201 to 250 units	64	GB of memory	8,437.03
	SAP HANA Predictive Option, 251 to 300 units	64	GB of memory	7,739.57
	SAP HANA Predictive Option, 301 to 500 units	64	GB of memory	7,042.11

Requirement	Technology	In Blocks of	Metrics	VITA Price
	SAP HANA Predictive Option, 501 to 750 units	64	GB of memory	6,344.64
	SAP HANA Predictive Option, 751 to 1000 units	64	GB of memory	5,624.69
	SAP HANA Predictive Option, 1001 to 1500 units	64	GB of memory	4,949.72
	SAP HANA Predictive Option, above 1500 units	64	GB of memory	4,229.76
	SAP HANA Spatial Option, up to 10 units	64	GB of memory	22,498.74
	SAP HANA Spatial Option, 11-20 units	64	GB of memory	21,103.82
	SAP HANA Spatial Option, 21 to 50 units	64	GB of memory	18,718.95
	SAP HANA Spatial Option, 51 to 100 units	64	GB of memory	14,061.71
	SAP HANA Spatial Option, 101 to 150 units	64	GB of memory	11,249.37
	SAP HANA Spatial Option, 151 to 200 units	64	GB of memory	9,899.45
	SAP HANA Spatial Option, 201 to 250 units	64	GB of memory	8,437.03
	SAP HANA Spatial Option, 251 to 300 units	64	GB of memory	7,739.57
	SAP HANA Spatial Option, 301 to 500 units	64	GB of memory	7,042.11
	SAP HANA Spatial Option, 501 to 750 units	64	GB of memory	6,344.64
	SAP HANA Spatial Option, 751 to 1000 units	64	GB of memory	5,624.69
	SAP HANA Spatial Option, 1001 to 1500 units	64	GB of memory	4,949.72
	SAP HANA Spatial Option, above 1500 units	64	GB of memory	4,229.76
	SAP HANA Advanced Data Processing Option, up to 10 units	64	GB of memory	22,498.74
	SAP HANA Advanced Data Processing Option, 11-20 units	64	GB of memory	21,103.82
	SAP HANA Advanced Data Processing Option, 21 to 50 units	64	GB of memory	18,718.95
	SAP HANA Advanced Data Processing Option, 51 to 100 units	64	GB of memory	14,061.71
	SAP HANA Advanced Data Processing Option, 101 to 150 units	64	GB of memory	11,249.37

Requirement	Technology	In Blocks of	Metrics	VITA Price
	SAP HANA Advanced Data Processing Option, 151 to 200 units	64	GB of memory	9,899.45
	SAP HANA Advanced Data Processing Option, 201 to 250 units	64	GB of memory	8,437.03
	SAP HANA Advanced Data Processing Option, 251 to 300 units	64	GB of memory	7,739.57
	SAP HANA Advanced Data Processing Option, 301 to 500 units	64	GB of memory	7,042.11
	SAP HANA Advanced Data Processing Option, 501 to 750 units	64	GB of memory	6,344.64
	SAP HANA Advanced Data Processing Option, 751 to 1000 units	64	GB of memory	5,624.69
	SAP HANA Advanced Data Processing Option, 1001 to 1500 units	64	GB of memory	4,949.72
	SAP HANA Advanced Data Processing Option, above 1500 units	64	GB of memory	4,229.76
	SAP HANA Smart Data Tiering Option, up to 40 units	256	Gigabytes	5,610.00
	SAP HANA Smart Data Tiering Option, 41 to 80 units	256	Gigabytes	488.00
	SAP HANA Smart Data Tiering Option, 81 to 200 units	256	Gigabytes	3,927.00
	SAP HANA Smart Data Tiering Option, 201 to 400 units	256	Gigabytes	3,366.00
	SAP HANA Smart Data Tiering Option, above 400 units	256	Gigabytes	2,805.00
	SAP HANA Smart Data Warehousing Option, up to 10 units	64	GB of memory	22,440.00
	SAP HANA Smart Data Warehousing Option, 11-20 units	64	GB of memory	16,830.00
	SAP HANA Smart Data Warehousing Option, 21 to 50 units	64	GB of memory	14,025.00
	SAP HANA Smart Data Warehousing Option, 51 to 100 units	64	GB of memory	11,220.00
	SAP HANA Smart Data Warehousing Option, above 100 units	64	GB of memory	8,415.00
	SAP HANA Real-time Replication Option, up to 10 units	1	Cores	8,999.50
	SAP HANA Real-time Replication Option, 11-20 units	1	Cores	7,199.60
	SAP HANA Real-time Replication Option, 21 to 50 units	1	Cores	5,399.70
	SAP HANA Real-time Replication Option, 51 to 100 units	1	Cores	4,499.75

Requirement	Technology	In Blocks of	Metrics	VITA Price
	SAP HANA Real-time Replication Option, above 100 units	1	Cores	3,599.80
	SAP HANA Enterprise Information Management Option, up to 10 units	64	GB of memory	33,660.00
	SAP HANA Enterprise Information Management Option, 11-20 units	64	GB of memory	30,294.00
	SAP HANA Enterprise Information Management Option, 21 to 50 units	64	GB of memory	20,196.00
	SAP HANA Enterprise Information Management Option, above 50 units	64	GB of memory	16,830.00
	SAP HANA Smart Data Streaming Option, up to 10 units	64	GB of memory	28,050.00
	SAP HANA Smart Data Streaming Option, 11-20 units	64	GB of memory	26,310.90
	SAP HANA Smart Data Streaming Option, 21 to 50 units	64	GB of memory	23,337.60
	SAP HANA Smart Data Streaming Option, 51 to 100 units	64	GB of memory	17,531.25
	SAP HANA Smart Data Streaming Option, 101 to 150 units	64	GB of memory	14,025.00
	SAP HANA Smart Data Streaming Option, 151 to 200 units	64	GB of memory	12,342.00
	SAP HANA Smart Data Streaming Option, 201 to 250 units	64	GB of memory	10,518.75
	SAP HANA Smart Data Streaming Option, 251 to 300 units	64	GB of memory	9,649.20
	SAP HANA Smart Data Streaming Option, 301 to 500 units	64	GB of memory	8,779.65
	SAP HANA Smart Data Streaming Option, 501 to 750 units	64	GB of memory	7,910.10
	SAP HANA Smart Data Streaming Option, 751 to 1000 units	64	GB of memory	7,012.50
	SAP HANA Smart Data Streaming Option, 1001 to 1500 units	64	GB of memory	6,171.00
	SAP HANA Smart Data Streaming Option, above 1500 units	64	GB of memory	5,273.40
	SAP HANA Predictive Recommendation Option, up to 10 units	64	GB of memory	22,498.74
	SAP HANA Predictive Recommendation Option, 11-20 units	64	GB of memory	21,103.82
	SAP HANA Predictive Recommendation Option, 21 to 50 units	64	GB of memory	18,718.95
	SAP HANA Predictive Recommendation Option, 51 to 100 units	64	GB of memory	14,061.71

Requirement	Technology	In Blocks of	Metrics	VITA Price
	SAP HANA Predictive Recommendation Option, 101 to 150 units	64	GB of memory	11,249.37
	SAP HANA Predictive Recommendation Option, 151 to 200 units	64	GB of memory	9,899.45
	SAP HANA Predictive Recommendation Option, 201 to 250 units	64	GB of memory	8,437.03
	SAP HANA Predictive Recommendation Option, 251 to 300 units	64	GB of memory	7,739.57
	SAP HANA Predictive Recommendation Option, 301 to 500 units	64	GB of memory	7,042.11
	SAP HANA Predictive Recommendation Option, 501 to 750 units	64	GB of memory	6,344.64
	SAP HANA Predictive Recommendation Option, 751 to 1000 units	64	GB of memory	5,624.69
	SAP HANA Predictive Recommendation Option, 1001 to 1500 units	64	GB of memory	4,949.72
	SAP HANA Predictive Recommendation Option, above 1500 units	64	GB of memory	4,229.76
	SAP HANA Predictive Social Option, up to 10 units	64	GB of memory	22,498.74
	SAP HANA Predictive Social Option, 11-20 units	64	GB of memory	21,103.82
	SAP HANA Predictive Social Option, 21 to 50 units	64	GB of memory	18,718.95
	SAP HANA Predictive Social Option, 51 to 100 units	64	GB of memory	14,061.71
	SAP HANA Predictive Social Option, 101 to 150 units	64	GB of memory	11,249.37
	SAP HANA Predictive Social Option, 151 to 200 units	64	GB of memory	9,899.45
	SAP HANA Predictive Social Option, 201 to 250 units	64	GB of memory	8,437.03
	SAP HANA Predictive Social Option, 251 to 300 units	64	GB of memory	7,739.57
	SAP HANA Predictive Social Option, 301 to 500 units	64	GB of memory	7,042.11
	SAP HANA Predictive Social Option, 501 to 750 units	64	GB of memory	6,344.64
	SAP HANA Predictive Social Option, 751 to 1000 units	64	GB of memory	5,624.69
	SAP HANA Predictive Social Option, 1001 to 1500 units	64	GB of memory	4,949.72
	SAP HANA Predictive Social Option, above 1500 units	64	GB of memory	4,229.76

Requirement	Technology	In Blocks of	Metrics	VITA Price
	SAP HANA Operational Process Intelligence Option, up to 10 units	64	GB of memory	28,050.00
	SAP HANA Operational Process Intelligence Option, 11-50 units	64	GB of memory	22,440.00
	SAP HANA Operational Process Intelligence Option, 51 to 250 units	64	GB of memory	11,220.00
	SAP HANA Operational Process Intelligence Option, 251 to 1000 units	64	GB of memory	8,415.00
	SAP HANA Operational Process Intelligence Option, above 1000 units	64	GB of memory	5,610.00

Support/Maintenance (SAP)

Item	In Blocks of	Metrics	SAP Price/Sale Unit
SAP Standard Support	0	Contract price	19%
SAP Enterprise Support	0	Contract price	22%

Total Volume Discount for SAP Licenses

****Not Applicable for SAP HANA**

Total License Price Range	Volume Discount
\$0 - \$150,000	Already Discounted VITA Price
\$150,000 - \$500,000	Additional 5% off VITA Price
\$500,000 - \$1,000,000	Additional 15% off VITA Price
\$1,000,000 plus	Please Inquire

Software Metrics Descriptions

Annual subscriptions are periodic recurring fees that are payable every calendar or fiscal year for the right to use software or services during that calendar or fiscal year. This fee is payable each calendar or fiscal year whether or not the software or service has been used during that year.

Concurrent sessions are the aggregated numbers of sessions accessing the licensed Software at any one time. A session refers to the time between logon and logoff or time out where a unique user, application or platform accesses the licensed Software either directly or indirectly via a custom application. The number of sessions accessing each Deployment of a licensed Software product may not exceed the Licensed Level for the number of Concurrent Sessions assigned to that Deployment for such licensed Software product. The aggregate number of Concurrent Sessions assigned to all Deployments may not exceed the Licensed Level of Concurrent Sessions. There is no license limit on number of processors or servers used. Licensee may not utilize any program or system to cache or queue report requests. SAP Business Objects BI users accessing any Deployment using a Concurrent Session license may be entered into the SAP NetWeaver BW system for the purposes of maintaining security.

Cores are the number of cores in CPUs that are available for use by the licensed software. The number of Core licenses must be an integer. When counting physical Cores, each Core of a physical CPU that runs at least parts of the licensed software, including those that are temporarily assigned or scheduled to cover peak processing, is considered and counted. When counting virtual Core's, each virtual Core that runs at least parts of the licensed software, including those that are temporarily assigned or scheduled to cover peak processing, is counted. If the licensed Software will run in a pure virtual environment, physical Cores will not be counted. For purposes of clarification, "Core" as defined in this metric definition is different from "core" as referenced in the metric definition for any Software licensed on a CPU basis (if any), and therefore is not applicable in that context.

Users are individuals who Use the SAP Software. For SAP Business Objects Business Intelligence (BI), Users are also known as Named User License (NUL). Each individual end user must be specifically identified as the sole holder of a NUL. The sharing of the NUL by more than one individual is expressly prohibited. In addition, NUL(s) may not be transferred from one individual to another unless the original end user no longer requires, and is no longer permitted, access to the licensed Software. There is no license limit on how many individuals are working concurrently with the Software. There is no license limit on number of processors or servers used. Named Users are identified at logon and do not consume a Concurrent Session license. Concurrent Session licenses and NULs can be purchased in combination for a Deployment. Licensee may not utilize any program or system to cache or queue report requests. SAP Business Objects BI users may be entered into the SAP NetWeaver BW system for the purposes of maintaining security. This metric does not replace the overall SAP Named User licensing requirement.

Non-Production Licenses

Please note: for all SAP products, non-production licenses are included at no cost. When comparing prices to other vendors it is important to include all costs for their non-production licenses as these can add significant cost to the project.

Consulting Services Rates

Labor Category	Base Year Hourly Rate	Year 2	Year 3	Year 4	Year 5
Executive Manager	162.12	165.36	168.67	172.04	175.48
Project Manager	138.14	140.90	143.72	146.60	149.53
Team Lead	128.10	130.66	133.27	135.94	138.66
Expert Consultant	134.29	136.98	139.72	142.51	145.36
Senior Consultant	118.57	120.94	123.36	125.83	128.34
Consultant 2	102.30	104.34	106.43	108.56	110.73
Consultant 1	90.17	91.97	93.81	95.69	97.60
Functional Analyst 2	82.13	83.77	85.45	87.16	88.90
Functional Analyst 1	75.16	76.66	78.20	79.76	81.36
Support Analyst	60.11	61.31	62.54	63.79	65.06

Labor Category Descriptions

Executive Manager

Minimal/General Experience: Ten (10) plus years of experience in project management. This level is responsible for identifying other client areas that may benefit from the solutions provided.

Functional Responsibility: An Executive Manager provides strong executive level management and direction. An Executive Manager has served in this position for several years and possesses a broad understanding of the client's industry. An Executive Manager not only brings a thorough understanding of the client's industry, but also has an extensive tool set of skills to solve the client's problems. An Executive Manager knows the client's industry, and helps the client visualize where they need to be in their particular industry. This position serves in an advisory capacity, providing members of the project team and the client organization a level of quality review to help guide the project to remain on schedule and within budget.

An Executive Manager provides management and technical review, industry insight, issue resolution, and employs proven problem-solving techniques, directs critical decision making.

Minimum Educational Requirements: B.A. or B.S. in Engineering, Mathematics, Computer Science, Operations Research, Economics, Finance, Business.

Project Manager

Minimal/General Experience: Five (5) years of experience managing, directing, and implementing information technology projects. Project Managers have experience managing personnel from various functional areas, both technical and non-technical, including both in-house personnel and outside contractors. Over 3 years of experience managing or leading Business Intelligence Projects.

Functional Responsibility: A Project Manager serves as the overall leader responsible for successful execution of project objectives. The Project Manager works closely with the Program Manager (if any), the Government's Contracting Officer's Representative (COR), other government management personnel, and customer agency representatives. The PM has overall responsibility for project/task planning, determination of costs, assigning/scheduling resources, and ensuring a high quality of work. This work includes the selection/motivation/evaluation of team members, definition of budgets and schedules, monitoring of schedules and budgets, and keeping the project on track. The PM is responsible for clear and efficient communication with all levels of Government management personnel (e.g. CIOs), other contract personnel, technical stakeholders (e.g. Data Warehousing Managers, IT personnel), and customer agency representatives (e.g. system users).

Minimum Educational Requirements: B.A. or B.S. in Engineering, Mathematics, Computer Science, Operations Research, Economics, Finance, Business.

Team Lead

Minimal/General Experience: Five (5) plus years of experience in program design on standard systems, as well as system analysis, business modeling and consulting methodologies. Familiar with a variety of technologies, particularly Database and Web. Over 2 years of experience managing or leading Business Intelligence Projects.

Functional Responsibility: Performs day-to-day management of assigned delivery order projects that involve teams of data processing and other information system and management professionals who have previously been involved in analyzing, designing, integrating, testing, documenting, converting, extending, and implementing information systems. Demonstrates proven skills in functional and technical areas addressed by the delivery order to be managed. Organizes, directs, and coordinates the planning and production of all activities associated with assigned delivery order projects.

Minimum Educational Requirements: B.A. or B.S. in Engineering, Mathematics, Computer Science, Operations Research, Economics, Finance, Business.

Expert Consultant

Minimal/General Experience: Seven (7) plus years of relevant experience management consulting, systems integration or systems development. Has an in depth knowledge of program design on standard systems, as well as system analysis, business modeling and consulting methodologies. Familiar with a variety of technologies, particularly Business Intelligence, Database and Web.

Functional Responsibility: Plans the activities and resource requirements of assigned phases of an engagement(s) which impact a segment of the client's business; focuses on the delivery of engagement results to the client; may require involvement in several engagements simultaneously and the coordination of other consultants involved in a specific project phase.

Minimum Educational Requirements: B.A. or B.S. in Engineering, Mathematics, Computer Science, Operations Research, Economics, Finance, Business.

Senior Consultant

Minimal/General Experience: Five (5) to seven (7) years of experience in Business Intelligence tools and Data Warehousing concepts and Windows applications.

Functional Responsibility: A Senior Consultant provides analytical and program support, and is focused on high performance work. A Senior Consultant has served in this position for at least 18 months. A Consultant also completes assigned engagement tasks within the project scope and budget, while meeting deliverable requirements. Serves as a key analytical resource on engagement team. Assumes responsibility for conducting relevant research, distilling data, and creating reports. Actively engages consulting tools and methodologies to meet project objectives and complete program management activities. Maintains responsibility for quality assurance practices and fostering completion and accuracy of system documentation. A Consultant may also participate in organizational assessments, and performance measures and indicators.

Minimum Educational Requirements: B.A. or B.S. in Engineering, Mathematics, Computer Science, Operations Research, Economics, Finance, Business.

Consultant 2

Minimal/General Experience: Three (3) to four (4) years of experience in Business Intelligence tools and Data Warehousing concepts and Windows applications.

Functional Responsibility: A Consultant provides analytical and program support, and is focused on high performance work. A consultant typically contributes to the functional and technical specifications for development of a discrete project deliverable of moderate complexity. A Consultant also completes assigned engagement tasks within the project scope and budget, while meeting deliverable requirements. Serves as a key analytical resource on engagement team. Assumes responsibility for conducting relevant research, distilling data, and creating reports. Actively engages consulting tools and methodologies to meet project objectives and complete program management activities. Maintains responsibility for quality assurance practices and fostering completion and accuracy of system documentation. A Consultant may also participate in organizational assessments, and performance measures and indicators.

Minimum Educational Requirements: B.A. or B.S. in Engineering, Mathematics, Computer Science, Operations Research, Economics, Finance, Business.

Consultant 1

Minimal/General Experience: One (1) to two (2) years of experience in Business Intelligence tools and Data Warehousing concepts and Windows applications.

Functional Responsibility: A Consultant provides analytical and program support, and is focused on high performance work. A consultant typically contributes to the functional and technical specifications for development of a discrete project deliverable of moderate complexity. A Consultant also completes assigned engagement tasks within the project scope and budget, while meeting deliverable requirements. Serves as a key analytical resource on engagement team. Assumes responsibility for conducting relevant research, distilling data, and creating reports. Actively engages consulting tools and methodologies to meet project objectives and complete program management activities. Maintains responsibility for quality assurance practices and fostering completion and accuracy of system documentation. A Consultant may also participate in organizational assessments, and performance measures and indicators.

Minimum Educational Requirements: B.A. or B.S. in Engineering, Mathematics, Computer Science, Operations Research, Economics, Finance, Business.

Functional Analyst 2

Minimal/General Experience: Two (2) to Three (3) years of experience in Information Technology or management consulting.

Functional Responsibility: A Functional Analyst provides analytical and program support of an analytics project, and is focused on the functional and quality assurance aspects. A Functional Analyst typically contributes to the functional specifications and documentation of a discrete project deliverable of mild complexity. A Functional Analyst also completes assigned engagement tasks within the project scope and budget, while meeting deliverable requirements. Serves as a key functional and quality assurance resource on engagement team. Assumes responsibility for developing test approaches, drafting and executing test scripts, plus supporting the technical consultants as needed. Actively engages consulting tools and methodologies to meet project objectives and complete project assignments. Maintains responsibility for quality assurance practices and fostering completion and accuracy of system documentation.

Minimum Educational Requirements: B.A. or B.S. in Engineering, Mathematics, Computer Science, Operations Research, Economics, Finance, Business.

Functional Analyst 1

Minimal/General Experience: Up to two (2) years of experience in Information Technology or management consulting.

Functional Responsibility: A Functional Analyst provides analytical and program support of an analytics project, and is focused on the functional and quality assurance aspects. A Functional Analyst typically contributes to the functional specifications and documentation of a discrete project deliverable of mild complexity. A Functional Analyst also completes assigned engagement tasks within the project scope and budget, while meeting deliverable requirements. Serves as a key functional and quality assurance resource on engagement team. Assumes responsibility for developing test approaches, drafting and executing test scripts, plus supporting the technical consultants as needed. Actively engages consulting tools and methodologies to meet project objectives and complete project assignments. Maintains responsibility for quality assurance practices and fostering completion and accuracy of system documentation.

Minimum Educational Requirements: B.A. or B.S. in Engineering, Mathematics, Computer Science, Operations Research, Economics, Finance, Business.

Support Analyst

Minimal/General Experience: One (1) to two (2) years of experience in Business Intelligence tools and Data Warehousing concepts and Windows applications.

Functional Responsibility: A Support Analyst provides programmatic support designed to enable the broader delivery team. A Support Analyst typically contributes to the drafting of deliverables and project documentation such as status reports, meeting notes, and other communications. A Support Analyst also completes assigned engagement tasks within the project scope and budget, while meeting deliverable requirements. Actively engages consulting tools and methodologies to meet project objectives and complete program management activities.

Minimum Educational Requirements: B.A. or B.S. or Associates Degree



EXHIBIT C ESCROW
CONTRACT NUMBER VA-150915-QLA
BETWEEN
VIRGINIA INFORMATION TECHNOLOGIES AGENCY
AND
QLARION, INC.

Exhibit C is hereby incorporated into and made an integral part of Contract Number VA-150915-QLA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Qlarion, Inc. (“Supplier”).

In the event of any discrepancy between this Exhibit C and the Contract, the provisions of the Contract shall control.



**EXHIBIT D SOW TEMPLATE
CONTRACT NUMBER VA-150915-QLA
BETWEEN
VIRGINIA INFORMATION TECHNOLOGIES AGENCY
AND
QLARION, INC.**

Exhibit D is hereby incorporated into and made an integral part of Contract Number VA-150915-QLA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Qlarion, Inc. (“Supplier”).

In the event of any discrepancy between this Exhibit D and the Contract, the provisions of the Contract shall control.

**EXHIBIT D-~~X~~ STATEMENT OF WORK (SOW) TEMPLATE
BETWEEN (NAME OF AUTHORIZED USER) AND QLARION, INC.**

ISSUED UNDER

**CONTRACT NUMBER VA-150915-QLA
BETWEEN
VIRGINIA INFORMATION TECHNOLOGIES AGENCY
AND
QLARION, INC.**

Exhibit D-~~X~~, between (Name of Agency/Institution) and Qlarion, Inc. (“Supplier”) is hereby incorporated into and made an integral part of Contract Number VA-150915-QLA (“Contract”) between the Virginia Information Technologies Agency (“VITA”) on behalf of the Commonwealth of Virginia and Supplier.

In the event of any discrepancy between this Exhibit D-~~X~~ and the Contract, the provisions of the Contract shall control.

Any Service, Licensed Services, Solution or Software provided under this SOW must comply with all COVA Security and Enterprise Architecture ITRM policies, standards and guidelines located at: <http://www.vita.virginia.gov/library/default.aspx?id=537> and all COVA Enterprise Architecture Data Standards and requirements located at: <http://www.vita.virginia.gov/oversight/default.aspx?id=10344>.

If Authorized User is a State Agency and determines any area of non-compliance with the ITRM PSGs at the above links in the Service, Licensed Services, Solution or Software to be provided by Supplier under this SOW, such Authorized User’s Project Manager must obtain written waiver from VITA in accordance

with the waiver process prior to placing any related order or authorizing Supplier to commence any work. Agency should collaborate with their designated Customer Account Manager to obtain such waiver.

*[Note to Template Users: Instructions for using this template to draft a Statement of Work are in gray highlight and **italics**. These instructions should be deleted after the appropriate text has been added to the Statement of Work. Contractual language is **not italicized** and should remain in the document. Text that is highlighted in **blue** is variable based on the nature of the project.]*

STATEMENT OF WORK

This Statement of Work (SOW) is issued by the **(Name of Agency/Institution)**, hereinafter referred to as "Authorized User" under the provisions of the Contract. The objective of the project described in this SOW is for the Supplier to provide the Authorized User with **a Solution ("Solution") or Services ("Services") or Software ("Software") or Hardware and Maintenance or Licensed Application Services** for **Authorized User Project Name**. *(Customize the last sentence to state what you are getting from the Supplier, based on the VITA Contract language, and with your project name.)*

1. PERIOD OF PERFORMANCE

The work authorized in this SOW will occur within **XX (XX) months** of execution of this Statement of Work. This includes **delivery, installation, implementation, integration, testing and acceptance all of products and services** necessary to implement the Authorized User's **Solution, training, and any support, other than on-going maintenance services**. The period of performance for **maintenance services shall be one (1) year after implementation or end of Warranty Period and may be extended for additional one (1) year periods**, pursuant to and unless otherwise specified in the Contract. *(Customize this section to match what you are getting from the Supplier, based on the allowable scope of the VITA Contract and your project's specific needs within that allowable scope.)*

2. PLACE OF PERFORMANCE

(Assign performance locations to major milestones or any other project granularity, depending on your transparency and governance needs, if needed.)

Tasks associated with this project will be performed at **the Authorized User's location(s) in City/State, at Supplier's location(s) in City/State**, or other locations as required by the effort.

3. PROJECT DEFINITIONS

Provide project unique definitions so that all stakeholders have the same understanding. Ensure these do not conflict with the Contract definition.)

All definitions of the Contract shall apply to and take precedence over this SOW. Authorized User's specific project definitions are listed below:

4. PROJECT SCOPE

(Provide a description of the scope of your project and carve out what is NOT in the scope of your project. Remember that it must fit within the VITA Contract scope.)

A. General Description of the Project Scope

B. Project Boundaries

5. AUTHORIZED USER'S SPECIFIC REQUIREMENTS

(Provide information about your project's and your agency's specific requirements for this particular project including, but not limited to the following subsections):

- A. Authorized User-Specific Requirements
- B. Special Considerations for Implementing Technology at Authorized User's Location(s)
- C. Other Project Characteristics to Insure Success

6. CURRENT SITUATION

(Provide enough background information to clearly state the current situation to Supplier so that Supplier cannot come back during performance claiming any unknowns or surprises. Some example subsections are provided below. You may collapse/expand as you feel is necessary to provide adequate information and detail.)

- A. Background of Authorized User's Business Situation
- B. Current Architecture and Operating System
- C. Current Work Flow/Business Flow and Processes
- D. Current Legacy Systems
- E. Current System Dependencies
- F. Current Infrastructure (Limitations, Restrictions)
- G. Usage/Audience Information

7. PRODUCTS AND SERVICES TO SUPPORT THE PROJECT REQUIREMENTS (AND/OR SOLUTION)

A. Required Products (or Solution Components)

(List the products, or if your project is for a Solution, the Solution components, (hardware, software, etc.) provided by Supplier that will be used to support your project requirements. Identify any special configuration requirements, and describe the system infrastructure to be provided by the Authorized User. Provide an overview that reflects how the system will be deployed within the Authorized User's environment. You are urged to refer to the VITA Contract for allowable scope and other guidance in drafting language for this section.)

B. Required Services

(List the services (e.g., requirements development, Solution design, configuration, interface design, data conversion, installation, implementation, testing, training, risk assessment, performance assessment, support and maintenance) that will be provided by Supplier in the performance of your project. You are urged to refer to the VITA Contract for the definition of Services and for the allowable scope in drafting language for this section. You will notice subsections "C" and "D" below offer areas for expanded detail on training, support and maintenance services. You may add other subsections in which you wish to expand the information/details/requirements for other service areas as well. It is likely some of this detail will be a combination of your known needs and the Supplier's proposal. In all cases the provisions should include all negotiated commitments by both parties, even if you reference by incorporation the Supplier's proposal in any subsection.)

C. Training Requirements and/or Authorized User Self-Sufficiency/Knowledge Transfer

(Provide an overview and details of training services to be provided for your project and any special requirements for specific knowledge transfer to support successful implementation of the Solution. If the intent is for the Authorized User to become self-sufficient in operating or maintaining the Solution, determine the type of training necessary, and develop a training plan, for such user self-sufficiency. Describe how the Supplier will complete knowledge transfer in the event this Statement of Work is not completed due to actions of Supplier or the non-appropriation of funds for completion affecting the Authorized User. You may refer to the VITA Contract for guidance on the allowable scope for this.

D. Support and Maintenance Requirements

(Document the level of support, as available under the Contract, required by your project to operate and maintain the Solution. This may include conversion support, legacy system integration, transition

assistance, Solution maintenance (including maintenance level), or other specialized consulting to facilitate delivery or use of the Solution.

E. Personnel Requirements

(Provide any supplier personnel qualifications, requirements, licenses, certifications or restrictions including project manager, key personnel, subcontractors, etc., but ensure they do not conflict with the VITA Contract terms.)

F. Transition Phase-In/Phase-Out Requirements

(Describe any specific requirements for orientation or phasing in and/or phasing out of the project with the Supplier. Be specific on what the project needs and expected results are, the duration and other pertinent detail, but ensure they do not conflict with the VITA Contract provision(s) regarding Transition of Services or with any other training requirements in the SOW.)

8. TOTAL PROJECT PRICE

The total Fixed Price for this Project shall not exceed \$US XXX.

Supplier's invoices shall show retainage of [redacted]. Following completion of Solution implementation, Supplier shall submit a final invoice to the Authorized User, for the final milestone payment amount shown in the table in section 9 below, plus the total amount retained by the Authorized User. If travel expenses are not included in the fixed price of the Solution, such expenses shall be reimbursed in accordance with Commonwealth of Virginia travel policies as published by the Virginia Department of Accounts (<http://www.doa.virginia.gov>). In order to be reimbursed for travel expenses, Supplier must submit an estimate of such expenses to Authorized User for approval prior to incurring such expenses.

(Sections 9 through 11 should be used or deleted depending on the project's complexity, risk and need for governance. For a simple project you may only need the section 10 table, but for a more complex project, or a major IT project, you may need a combination of or all of the tables for check and balance and redundancy.)

9. PROJECT DELIVERABLES

(Provide a list of Supplier's deliverable expectations. The table is to be customized for the Authorized User's project. You may want to categorize deliverables for each phase or major milestone of the project and then categorize other interim deliverables and/or performance and status reports under one of them or under an Administrative or Project Management section.)

The following deliverables are to be provided by Supplier under this SOW. Subsequent sections may include further detail on the content requirements for some deliverables.

No.	Title	Due Date	Format Required (i.e., electronic/hard copy/CD/DVD)	Distribution Recipients	Review Complete Due Date	Final Due Date
	Project Plan					
	Design Plan					
	Implementation Plan					
	Data Conversion Plan					
	Risk Assessment Plan					
	Test Plan					

Training Plan					
Performance Plan					
Contingency Plan					
Disaster Recovery Plan					
Cutover Plan					
Change Management Plan					
Transition Plan					
Monthly Status Reports					
Quarterly Performance /SLA Reports					
Training Manual					
Final Solution Submission Letter					
Final Acceptance Letter					

10. MILESTONES, DELIVERABLES, PAYMENT SCHEDULE, AND HOLDBACKS

(This table should include the project’s milestone events, associated deliverables, when due, milestone payments, any retainage amount to be held until final acceptance and the net payment you promise to pay for each completed and accepted milestone event. This table includes sample data only and must be customized for your project needs.)

The following table identifies milestone events and deliverables, the associated schedule, any associated payments, any retainage amounts, and net payments.

Milestone Event	Associated Milestone Deliverable(s)	Schedule	Payment	Retainage	Net Payment
Project kick-off meeting	---	-----	---	---	---
-----	-----	-----	---	---	---
-----	-----	-----	-----	-----	-----
	-----	-----			
-----		-----			
-----		-----	-----	-----	-----
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-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	--	-----
Final Acceptance		-----	--	--	-----

11. EVENTS AND TASKS FOR EACH MILESTONE

(If needed, provide a table of detailed project events and tasks to be accomplished to deliver the required milestones and deliverables for the complete Solution. Reference each with the relevant milestone. A Work Breakdown Structure can be used as shown in the table below or at the very least a Project Plan should have this granularity. The Supplier's proposal should be tailored to the level of detail desired by the Authorized User's business owner/project manager for project governance.)

The following table identifies project milestone events and deliverables in a Work Breakdown Structure format.

WBS No.	Milestone	Milestone Event	Milestone Task	Interim Task Deliverables	Duration
1.0					
1.1					
1.1.1					
1.1.2					
1.2					

12. ACCEPTANCE CRITERIA

(This section should reflect the mutually agreed upon UAT and Acceptance Criteria specific to this engagement. Please read the VITA contract definitions for the definitions or Requirements and Acceptance. Ensure the language in this section does not conflict with the VITA Contract language.)

Acceptance Criteria for this Solution will be based on a User Acceptance Test (UAT) designed by Supplier and accepted by the Authorized User. The UAT will ensure that all of the requirements and functionality required for the Solution have been successfully delivered. Supplier will provide the Authorized User with a detailed test plan and acceptance check list based on the mutually agreed upon UAT Plan. This UAT Plan check-list is incorporated into this SOW in Exhibit B-X.

Each deliverable created under this Statement of Work will be delivered to the Authorized User with a Deliverable Acceptance Receipt. This receipt will describe the deliverable and provide the Authorized User's Project Manager with space to indicate if the deliverable is accepted, rejected, or conditionally accepted. Conditionally Accepted deliverables will contain a list of deficiencies that need to be corrected in order for the deliverable to be accepted by the Project Manager. The Project Manager will have ten (10) days from receipt of the deliverable to provide Supplier with the signed Acceptance Receipt unless an alternative schedule is mutually agreed to between Supplier and the Authorized User in advance.

13. PROJECT ASSUMPTIONS AND PROJECT ROLES AND RESPONSIBILITIES

(This section contains areas to address project assumptions by both the Supplier and the Authorized User and to assign project-specific roles and responsibilities between the parties. Make sure that all assumptions are included to alleviate surprises during the project. Ensure that all primary and secondary (as needed) roles and responsibilities are included. You will tailor the Responsibility Matrix table below to fit your project's needs.)

A. Project Assumptions

The following assumptions are specific to this project:

B. Project Roles and Responsibilities

The following roles and responsibilities have been defined for this project:

(Sample Responsibility Matrix)

Responsibility Matrix	Supplier	Authorized User
Infrastructure – Preparing the system infrastructure that meets the		√

recommended configuration defined in Section 2B herein		
Server Hardware		√
Server Operating		√
Server Network Connectivity		√
Relational Database Management Software (Installation and Implementation)		√
Server Modules – Installation and Implementation	√	
PC Workstations – Hardware, Operating System, Network Connectivity		√
PC Workstations – Client Software		√
Application Installation on PC Workstations	√	
Wireless Network Access Points	√	
Cabling, Electric and User Network Connectivity from Access Points		√
Wireless Mobile Computing Products – Scanners, printers	√	
Project Planning and Management	√	√
Requirements Analysis	√	√
Application Design and Implementation	√	
Product Installation, Implementation and Testing	√	
Conversion Support	√	
Conversion Support -- Subject Matter Expertise		√
Documentation	√	
Training	√	
Product Maintenance and Support	√	
Problem Tracking	√	√
Troubleshooting – IT Infrastructure		√
Troubleshooting – Solution	√	

14. COMMONWEALTH AND SUPPLIER-FURNISHED MATERIALS, EQUIPMENT, FACILITIES AND PROPERTY

(In this section, provide details of any materials, equipment, facilities and property to be provided by your Agency or the Supplier in performance of this project. If none, so state so that the requirements are clear. If delivery of any of these is critical to the schedule, you may want to identify such delivery with hard due dates tied to “business days after project start” or “days after [event/milestone](#).” Be sure to specify the delivery and point of contact information.)

A. PROVIDED BY THE COMMONWEALTH

B. PROVIDED BY THE SUPPLIER

15. SECURITY REQUIREMENTS

(Provide (or reference as an Attachment) Authorized User’s security requirements.)

For any individual Authorized User location, security procedures may include but not be limited to: background checks, records verification, photographing, and fingerprinting of Supplier’s employees or agents. Supplier may, at any time, be required to execute and complete, for each individual Supplier employee or agent, additional forms which may include non-disclosure agreements to be signed by Supplier’s employees or agents acknowledging that all Authorized User information with which such employees and agents come into contact while at the Authorized User site is confidential and proprietary. Any unauthorized release of proprietary information by the Supplier or an employee or agent of Supplier shall constitute a breach of the Contract.

Supplier shall comply with all requirements in the Security Compliance section of the Contract

16. REQUIRED STANDARDS, CERTIFICATIONS AND SPECIFICATIONS

In addition to any standards and specifications included in the Contract, Supplier shall follow the standards and specifications listed below during performance of this effort.

(List any specific Commonwealth, VITA, Federal, engineering, trade/industry or professional standards, certifications and specifications that Supplier is required to follow or possess in performing this work. The first bullet includes a link to COVA-required standards for all Commonwealth technology projects. The rest are examples only and highlighted to reflect this. If you need an exception of any COVA-required standard, please follow the process located at this link: <http://www.vita.virginia.gov/oversight/default.aspx?id=10344> and select the Data Standards Guidance bulleted link. Your AITR can assist you.)

- COV ITRM Policies and Standards: <http://www.vita.virginia.gov/library/default.aspx?id=537>
- IEEE 802®
- HIPAA
- SAS 70 Type II

17. U.S. ENVIRONMENTAL PROTECTION AGENCY'S AND DEPARTMENT OF ENERGY'S ENERGY STAR GUIDELINES RISK MANAGEMENT

(Risk is a function of the probability of an event occurring and the impact of the negative effects if it does occur. Negative effects include schedule delay, increased costs, failure of dependent legacy system interoperability, other project dependencies that don't align with this project's schedule, and poor quality of deliverables. Depending on the level of risk of this project, as assessed by your Project Manager and/or Steering Committee, this section may contain any or all of the following components, at a level of detail commensurate with the level of risk. Remember to add them to the Deliverables table.)

C. Initial Risk Assessment

Authorized User and Supplier shall each provide an initial assessment from their point of view.

D. Risk Management Strategy

(The list below is taken from VITA PMD template discussing what should go into a Risk Management Strategy. Don't forget to consider and plan for any budget contingencies to accommodate potential risks that are identified.)

1. **Risk Identification Process:** The processes for risk identification.
2. **Risk Evaluation and Prioritization:** How risks are evaluated and prioritized.
3. **Risk Mitigation Options:** Describe the risk mitigation options. They must be realistic and available to the project team.
4. **Risk Plan Maintenance:** Describe how the risk plan is maintained during the project lifecycle.
5. **Risk Management Responsibilities:** Identify all project team members with specific risk management responsibilities. (e.g., an individual responsible for updating the plan or an individual assigned as a manager).

E. Risk Management Plan

(Include a description of frequency and form of reviews, project team responsibilities, steering and oversight committee responsibilities and documentation. Be sure to add all deliverables associated with risk strategizing and planning to the list of Deliverables.)

18. DISASTER RECOVERY

Planning for disaster recovery for your project is paramount to ensure continuity of service. The criticalness and complexity of your project, including its workflow into other dependent systems of the Commonwealth or federal systems, will help you determine if you require a simple contingency plan or a full-blow contingency plan that follows the Commonwealth’s ITRM Guideline SEC508-00 found at this link:

http://www.vita.virginia.gov/uploadedFiles/Library/ContingencyPlanningGuideline04_18_2007.pdf

It is advisable that you visit the link before making your decision on how you need to address contingency planning and related deliverables in this SOW; as well as, how this will impact your planned budget. A likely deliverable for this section would be a Continuity of Operations Plan. You may choose to include the above link in your final SOW to describe what the Plan will entail. The same link includes the following processes, which you may choose to list in your final requirements for this section, to be performed by your team, the Supplier or both and/or a steering committee if your project warrants such oversight and approval:

- Development of the IT components of the Continuity of Operations Plan (COOP)
- Development and exercise of the IT Disaster Recovery Plan (IT DRP) within the COOP
- Development and exercise of the IT System Backup and Restoration Plan

19. PERFORMANCE BOND

(If your project is sizeable, complex and/or critical, and the VITA Contract does not already provide for a performance bond, you may want the Supplier to provide one. The VITA Contract may include an Errors and Omissions insurance requirement, which would cover the Supplier’s liability for any breach of the Contract or this SOW. Be sure to read the Contract for this information. However, if you feel that this project warrants further performance incentive due to the project or the Supplier’s viability, you may include the following language in this section.)

[Redacted]

20. OTHER TECHNICAL/FUNCTIONAL REQUIREMENTS

(Provide any other unique project technical and functional requirements and expectations in sufficient detail in this section. Ensure they do not conflict with existing requirements in the VITA Contract. Several examples are listed.)

F. [Redacted]

G. [Redacted]

H. [Redacted]

I. [Redacted]

21. REPORTING

(The following are examples of reporting requirements which may be included in your SOW depending on the project’s need for governance. In an effort to help VITA monitor Supplier performance, it is strongly recommended that the SOW include “Supplier Performance Assessments”. These assessments may be performed at the Project Manager’s discretion and are not mandated by VITA.)

A. Weekly/Bi-weekly Status Update.

The weekly/bi-weekly status report, to be submitted by Supplier to the Authorized User, should include: accomplishments to date as compared to the project plan; any changes in tasks, resources or schedule with new target dates, if necessary; all open issues or questions regarding the project; action plan for addressing open issues or questions and potential impacts on the project; risk management reporting.

B. Supplier Performance Self-Assessment.

Within thirty (30) days of execution of the project start, the Supplier and the Authorized User will agree on Supplier performance self-assessment criteria. Supplier shall prepare a monthly self-assessment to report on such criteria. Supplier shall submit its self-assessment to the Authorized User who will have five (5) days to respond to Supplier with any comments. If the Authorized User agrees with Supplier's self-assessment, such Authorized User will sign the self-assessment and submit a copy to the VITA Supplier Relationship Manager.

C. Performance Auditing

(If you have included service level requirements in the above section entitled, Other Technical/Functional Requirements, you will want to include a requirement here for your ability to audit the results of the Supplier's fulfillment of all requirements, Likewise, you may want to include your validation audit of the Supplier's performance reporting under this Reporting section. It is important, however, that you read the VITA contract prior to developing this section's content so that conflicts are avoided. Suggested language is provided below, but must be customized for your project.)

_____ (If none, you may add your escalation procedure in this section.)

D. Supplier Performance Assessments

(You may want to develop assessments of the Supplier's performance and disseminate such assessments to other Authorized Users of the VITA Contract. Prior to dissemination of such assessments, Supplier will have an opportunity to respond to the assessments, and independent verification of the assessment may be utilized in the case of disagreement.)

22. CHANGE MANAGEMENT

(Changes to the baseline SOW must be documented for proper project oversight. Depending on your project, you may need to manage and capture changes to configuration, incidents, deliverables, schedule, price or other factors your team designates as critical. Any price changes must be done in compliance with the Code of Virginia, § 2.2-4309. Modification of the contract, found at this link: <http://leg1.state.va.us/cgi-bin/legp504.exe?000+coh+2.2-4309+500825>. Changes to the scope of this SOW must stay within the boundaries of the scope of the VITA Contract.

For complex and/or major projects, it is recommended that you use the VITA PMD processes and templates located at: <http://www.vita.virginia.gov/oversight/projects/default.aspx?id=567>. Administrative or non-technical/functional changes (deliverables, schedule, point of contact, reporting, etc.) should extrapolate the affected sections of this SOW in a "from/to" format and be placed in a numbered modification letter referencing this SOW and date, with a new effective date. The VITA Contract may include a template for your use or you may obtain one from the VITA Contract's Point of Contact. It is very important that changes do not conflict with, but do comply with, the VITA Contract, which takes precedence. The following language may be included in this section, but additional language is needed to list any technical/functional change management areas specific to this SOW; i.e., configuration, incident, work flow, or any others of a technical/functional nature.)

All changes to this SOW must comply with the Contract. Price changes must comply with the Code of Virginia, § 2.2-4309. Modification of the contract, found at this link: <http://leg1.state.va.us/cgi-bin/legp504.exe?000+coh+2.2-4309+500825>

All changes to this SOW shall be in written form and fully executed between the Authorized User's and the Supplier's authorized representatives. For administrative changes, the parties agree to use the change template, attached to this SOW. For technical/functional change management requirements, listed below, the parties agree to follow the processes and use the templates provided at this link: <http://www.vita.virginia.gov/oversight/projects/default.aspx?id=567>

23. POINT OF CONTACT

For the duration of this project, the following project managers shall serve as the points of contact for day-to-day communication:

Authorized User: _____

Supplier: _____

By signing below, both parties agree to the terms of this Exhibit.

Supplier:

Authorized User:

(Name of Supplier)

(Name of Agency/Institution)

By: _____

By: _____

(Signature)

(Signature)

Name: _____

Name: _____

(Print)

(Print)

Title: _____

Title: _____

Date: _____

Date: _____



**EXHIBIT E CHANGE ORDER TEMPLATE
CONTRACT NUMBER VA-150915-QLA
BETWEEN
VIRGINIA INFORMATION TECHNOLOGIES AGENCY
AND
QLARION, INC.**

Exhibit E is hereby incorporated into and made an integral part of Contract Number VA-150915-QLA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Qlarion, Inc. (“Supplier”).

In the event of any discrepancy between this Exhibit E and the Contract, the provisions of the Contract shall control.

This Change Order No. **XXX** hereby modifies and is made an integral part of Statement of Work **D-X** (“SOW”), between **NAME OF AGENCY/INSTITUTION** (“Authorized User”) and Qlarion, Inc. (“Supplier”), which was issued under Contract Number VA-150915-QLA (“Contract”) between the Virginia Information Technologies Agency (“VITA”) and Supplier, on behalf of the Commonwealth of Virginia and its Authorized Users.

[Note: Instructions for using this template to draft a Change Order are in gray. These instructions should be deleted after the appropriate text has been added to the Change Order. Contractual language is not in gray and should remain in the document. Text that is highlighted in blue is contractual language that is variable based on the nature of the project and in final form should not be highlighted. Agency/Institution should remove the first two lines of the heading, which pertain to this template as an Exhibit to the VITA Contract and remove the Exhibit reference from the header.]

CHANGE ORDER

This is Change Order No. **XXX** to a SOW issued by **Authorized User** to Supplier under which Supplier is to provide the Authorized User with a **Authorized User Project Name Solution (“Solution”)**.

The following item(s) is/are hereby modified as follows: *[Note: Include only the sections of the SOW that are being changed. Do not include sections not being modified. Changes should be clearly identified as “From” (copy/paste from current SOW section) and “To” (fully describe the change(s) to the referenced section). Here is an example, using SOW section 1.]*

1. PERIOD OF PERFORMANCE

[Redacted]

This Change Order No. **XXX** is issued pursuant to and, upon execution, shall become incorporated in the SOW, which is incorporated in the Contract. In the event of conflict, the following order of precedence shall apply:

- i). The Contract
- ii). Statement of Work E-X, as amended by this and previous Change Orders, with the more current Change Orders superseding older Change Orders.

The foregoing is the complete and final expression of the agreement between the parties to modify the SOW and cannot be modified, except by a writing signed by duly authorized representatives of both parties hereto.

ALL OTHER TERMS AND CONDITIONS OF THE REFERENCED SOW REMAIN UNCHANGED.

By signing below, the authorized parties agree to the terms of this Change Order No. XXX, effective (INSERT EFFECTIVE DATE).

Supplier
By: _____
(Signature)
Name: _____
(Print)
Title: _____
Date: _____

Authorized User
By: _____
(Signature)
Name: _____
(Print)
Title: _____
Date: _____



EXHIBIT F END USER LICENSE AGREEMENT
CONTRACT NUMBER VA-150915-QLA
BETWEEN
VIRGINIA INFORMATION TECHNOLOGIES AGENCY
AND
QLARION, INC.

(SAP- CARAHSOFT 3-8-2012 FINAL)
SOFTWARE LICENSE AND SUPPORT
AGREEMENT General Terms and Conditions
("GTC")

1. **DEFINITIONS.**

1.1 **"Add-on"** means any development using SAP API's that adds new and independent functionality, but does not modify existing SAP functionality.

1.2 **"Agreement"** means these GTCs, any Order Form referencing these GTCs, and the Use Terms and Schedules referenced by these GTCs and/or such Order Forms. All such components are integral to the agreement, and collectively are referred to herein as the "Agreement".

1.3 **"API"** means SAP's application programming interfaces, as well as other SAP code that allow other software products to communicate with or call on SAP Software (for example, SAP Enterprise Services, BAPIs, Idocs, RFCs and ABAP or other user exits) provided under this Agreement.

1.4 **"Affiliate"** mean any legal entity in the Territory in which the Licensee, directly or indirectly, holds more than fifty percent (50%) of the shares or voting rights. Any such legal entity shall be considered an Affiliate for only such time as such equity interest is maintained.

1.5 **"Business Partner"** means a legal entity that requires access to the Software in connection with Licensee's internal business operations, such as customers, distributors and/or suppliers of Licensee.

1.6 **"Confidential Information"** means, with respect to SAP, all information which SAP protects against unrestricted disclosure to others, including but not limited to: (a) the Software and Documentation and other SAP Materials, including without limitation the following information regarding the Software: (i) computer software (object and source codes), programming techniques and programming concepts, methods of processing, system designs embodied in the Software; (ii) benchmark results, manuals, program listings, data structures, flow charts, logic diagrams, functional specifications, file formats; and (iii) discoveries, inventions, concepts, designs, flow charts, documentation, product specifications, application program interface specifications, techniques and processes relating to the Software; (b) the research and development or investigations of SAP; (c) product offerings, content partners, product pricing, product availability, technical drawings, algorithms, processes, ideas, techniques, formulas, data, schematics, trade secrets, know-how, improvements, marketing plans, forecasts and strategies; and (d) any information about or concerning any third party (which information was provided to SAP subject to an applicable confidentiality obligation to such third party). With respect to Licensee, "Confidential Information" means all information which Licensee protects against unrestricted disclosure to others and which (i) if in tangible form, Licensee clearly identifies as confidential or proprietary at the time of disclosure; and (ii) if in intangible form (including disclosure made orally or visually), Licensee identifies as confidential at the time of disclosure, summarizes the Confidential Information in writing, and delivers such summary within thirty (30) calendar days of any such disclosure.

1.7 **"Documentation"** means SAP's documentation which is delivered or made available to Licensee with the Software under this Agreement.

1.8 **"Intellectual Property Rights"** means patents of any type, design rights, utility models or other similar invention rights, copyrights, mask work rights, trade secret or confidentiality rights, trademarks, trade names and service marks and any other intangible property rights, including applications and registrations for any of the foregoing, in any country, arising under statutory or common law or by contract and whether or not perfected, now existing or hereafter filed, issued, or acquired.

1.9 **"Modification"** means (i) a change to the delivered source code or metadata; or (ii) any development, other than a change to the delivered source code or metadata, that customizes, enhances, or changes existing functionality of the Software including, but not limited to, the creation of any new application program interfaces, alternative user interfaces or the extension of SAP data

structures; or (iii) any other change to the Software (other than an Add-on) utilizing or incorporating any SAP Materials (defined below).

1.10 "Professional Services Schedule" means the terms and conditions governing SAP's delivery of professional services, attached hereto and made a part hereof.

1.11 "SAP Materials" means any software, programs, tools, systems, data, or other materials made available by Carahsoft to Licensee in the course of the performance under this Agreement including, but not limited to, the Software and Documentation, as well as any information, materials or feedback provided by Licensee to SAP relating to the Software and Documentation.

1.12 "SAP Support" means SAP's then-current SAP support offering specified in the applicable Order Forms and made available to Licensee as stated in the applicable SAP Support Schedule incorporated into the Agreement (also available at www.sap.com/company/legal/index.epx) as of the effective date of the first Software Order Form issued under these GTCs. Such SAP Support Schedule is incorporated herein by reference. For the avoidance of doubt, such SAP Support Schedule shall apply to all Order Forms issued under these GTCs unless otherwise agreed by the parties.

General Terms and Conditions enUS.v.5-2011

1.13 "Software" means (i) any and all software products licensed to Licensee under this Agreement as specified in Software Order Forms hereto, all as developed by or for SAP, SAP AG, Business Objects Software Limited and/or any of their affiliated companies and delivered to Licensee hereunder; (ii) any new releases thereof made available through unrestricted shipment pursuant to the respective support agreement and (iii) any complete or partial copies of any of the foregoing.

1.14 "Software Order Form" means the order form for the Software and related SAP Support ordered by Licensee thereunder, including information on Software, SAP Support, fees, and other information necessary for the delivery of such items to Licensee. The Software Order Form does not include fees for professional services, which shall be billed under separate statements of work in accord with the Professional Services Schedule.

1.15 "Territory" means the world except for those countries prohibited by United States' export laws, and further subject to Section 12.4 of the GTC.

1.16 "Third Party Software" means (i) any and all software products and content licensed to Licensee under this Agreement as specified in Software Order Forms hereto, all as developed by companies other than SAP, SAP AG, Business Objects Software Limited and/or any of their affiliated companies and delivered to Licensee hereunder; (ii) any new releases thereof made available through unrestricted shipment pursuant to the respective SAP Support Schedule and (iii) any complete or partial copies of any of the foregoing.

1.17 "Use" means to activate the processing capabilities of the Software, load, execute, access, employ the Software, or display information resulting from such capabilities.

1.18 "Use Terms" means, with regard to Software specified in a Software Order Form, metric definitions and product-specific terms described in the Agreement or applicable Order Form.

2. LICENSE GRANT.

2.1 License.

2.1.1 Subject to Licensee's compliance with all the terms and conditions of this Agreement, Carahsoft grants to Licensee a non-exclusive, perpetual (except for subscription based or term licenses) license to Use the Software, Documentation, and other SAP Materials at specified site(s) within the Territory to run Licensee's and its Affiliates' internal business operations (including customer back-up and passive disaster recovery) and to provide internal training and testing for such internal business operations and as further set forth in the Software Order Form, unless terminated in accordance with Section 5 herein. This license does not permit Licensee (without being limited specifically to such restrictions) to: (i) use the SAP Materials to provide services to third parties (e.g., business process outsourcing, service bureau applications or third party training) other than to Affiliates (subject to Section 2.2); (ii) lease, loan, resell, sublicense or otherwise distribute the SAP Materials, other than distribution to Affiliates (subject to Section 2.2); (iii) make any Use of or perform any acts with respect to the SAP Materials other than as expressly permitted in accordance with the terms of this Agreement; or (iv) use Software components other than those specifically identified in the Software Order Form, even if it is also technically possible for Licensee to access other Software components. Business Partners may Use the Software only through screen access and solely in conjunction with Licensee's Use and may not Use the Software to run any of Business Partners' business operations.

2.1.2 Licensee agrees to install the Software only on information technology devices (e.g., hard disks or central processing units) identified by Licensee pursuant to this Agreement and that has been previously approved by Carahsoft in writing or otherwise officially made known to the public as appropriate for Use or interoperation with the Software (the "Designated Unit"). Licensee must hold the required licenses as stated herein and in the applicable Order Forms, for any individuals that Use the Software, including employees or agents of Affiliates and Business Partners. Use may occur by way of an interface delivered with or as a part of the Software, a Licensee or third-party interface, or another intermediary system.

2.1.3 The terms and conditions of this Agreement relative to "Software" apply to Third Party Software except as otherwise stated in the Software Use Rights Schedule, a Schedule, an Order Form, or an Amendment.

2.2 Affiliate Use. Affiliates' Use of the Software, Documentation and other SAP Materials to run their internal business operations as permitted under Section 2.1.1 is subject to the following: (i) the Affiliate agrees to be bound by the terms herein in the form of Schedule A ("Affiliate Use Agreement") attached hereto; and (ii) a breach of such Affiliate Use Agreement by Affiliate shall be considered a breach by Licensee hereunder. If Licensee has an affiliate or subsidiary with a separate agreement for SAP software licenses and/or support services with SAP AG, any SAP AG affiliate (including SAP) or any other distributor of SAP software, the Software shall not be Used to run such affiliate's or subsidiary's business operations and such affiliate or subsidiary shall not receive any support services under this Agreement even if such separate agreement has expired or is terminated, unless otherwise agreed to in writing by the parties.

2.3 Outsourcing Services. With Carahsoft's prior written consent, Licensee may permit services providers to access the Software solely for the purpose of providing facility, implementation, systems, application management or disaster recovery services to Licensee in connection with the business of Licensee for which the Software is herein licensed provided: (i) Licensee and such services provider execute a written agreement that includes provisions requiring such services provider's compliance with the terms of this Agreement prior to such access, including without limitation non-disclosure of SAP Confidential Information; (ii) Licensee shall hold the required licenses as stated in the Use Terms for all employees of such services provider authorized to access the Software; (iii) such services provider shall be permitted to Use the Software solely to install and configure the Software in accordance with the business of Licensee as set forth herein (or in the case of a disaster recovery vendor, to provide disaster recovery services only); (iv) under no circumstances may such services provider Use the Software to operate or provide processing services to Licensee or any other party, or in connection with such services provider's own business operations; (v) Licensee shall be responsible for any additional Software, migration tools, or third party software needed to effect such transition. Upon Carahsoft request, Licensee

shall provide written confirmation to Carahsoft that items (i)-(iv) are fulfilled.

3. VERIFICATION. Carahsoft shall be permitted to audit (at least once annually and in accordance with SAP standard procedures, which may include on-site and/or remote audit) the usage of the SAP Materials, provided that Carahsoft abides by applicable facility access and security requirements. Licensee shall cooperate reasonably in the conduct of such audits. In the event an audit reveals that (i) Licensee underpaid license fees and/or SAP Support fees to Carahsoft and/or (ii) that Licensee has Used the Software in excess of the license quantities or levels stated in the Software Order Form, Carahsoft may be entitled to recover such underpaid fees and/or for such excess usage based on SAP List of Prices and Conditions Software and Support governing use in effect at the time of the audit. Carahsoft reserves all rights at law with respect to both Licensee's underpayment of License fees or SAP Support fees and usage in excess of the license quantities or levels.

4. PRICE, PAYMENT, AND DELIVERY.

4.1 Fees. Licensee shall pay to the named reseller on behalf of Carahsoft license fees for the Software and fees for SAP Support on the terms in Software Order Forms hereto. Fees for consulting services will be paid as set forth in the GSA Pricelist.

4.2 Delivery of the Software and SAP Support. Carahsoft will deliver the Software and SAP Support by making it available for electronic download through the SAP ServiceMarketplace (<http://service.sap.com/swdc>) to Licensee. Risk of loss passes at the time of such electronic delivery. Licensee agrees not to request any physical delivery of Software or SAP Support and should it occur that any such delivery will be rejected by Licensee.

5. TERM.

5.1 Term. This Agreement and the license granted hereunder shall become effective as of the date first set forth in the first Software Order Form issued under these GTCs, and shall continue in effect thereafter unless this Agreement is terminated upon the earliest to occur of the following: (i) thirty days after Licensee gives Carahsoft written notice of Licensee's direction to terminate this Agreement, for any reason, but only after payment of all license and SAP Support fees then due and owing; or (ii) immediately after Carahsoft prevails on any FAR 52.233-1-related claim submitted to Licensee's Contracting Officer for Licensee's material breach of any provision of the Agreement. For the avoidance of any doubt, termination of the Agreement shall strictly apply to all licenses under the Agreement, its appendices, schedules, addenda and order documents and any partial termination of the Agreement by Licensee shall not be permitted in respect of any part of the Agreement, its appendices, schedules, addenda, order documents.

5.2 End of Term Duties. Upon any termination hereunder, Licensee and its Affiliates shall immediately cease Use of all SAP Materials and Confidential Information. Within thirty (30) days after any termination, Licensee shall irretrievably destroy or upon Carahsoft's request deliver to Carahsoft all copies of the SAP Materials and Confidential Information in every form, except to the extent it is legally required to keep it for a longer period in which case such return or destruction shall occur at the end of such period. Licensee must certify to Carahsoft in writing that it has satisfied its obligations under this Section 5.2. Licensee agrees to certify in writing to Carahsoft that it and each of its Affiliates has performed the foregoing. Sections 3, 4, 5.2, 6, 7.2, 8, 9, 10, 12.4, 12.5, 12.6 and 12.8 shall survive such termination. In the event of any termination hereunder, Licensee shall not be entitled to any refund of any payments made by Licensee. Termination shall not relieve Licensee from its obligation to pay fees that remain unpaid.

6. INTELLECTUAL PROPERTY RIGHTS.

6.1 Reservation of Rights. The SAP Materials, and all Intellectual Property Rights embodied in the foregoing, shall be the sole and exclusive property of SAP, SAP AG (the parent company of SAP) or its or their licensors, subject to any rights expressly granted to Licensee in Section 2 and 6.3 herein. Except for the rights set forth in Section 6.3 herein, Licensee is not permitted to modify or otherwise make derivative works of the Software. Any such unauthorized works developed by Licensee, and any Intellectual Property Rights embodied therein, shall be the sole and exclusive property of SAP or SAP AG.

6.2 Protection of Rights. Licensee shall not copy, translate, disassemble, or decompile, nor create or attempt to create the source code from the object code of the Software in any manner. Reverse engineering of the Software and other SAP Materials is prohibited. Licensee is permitted to back up data in accordance with good information technology practice and for this purpose to create the necessary backup copies of the Software. Backup copies on transportable discs or other data media must be marked as backup copies and bear the same copyright and authorship notice as the original discs or other data media. Licensee must not change or remove SAP's copyright and authorship notices.

6.3 Modifications/Add-ons.

6.3.1 Conditioned on Licensee's compliance with the terms and conditions of this Agreement, Licensee may make Modifications and/or Add-ons to the Software in furtherance of its permitted Use under this Agreement, and shall be permitted to use Modifications and Add-ons with the Software in accordance with the License grant to the Software set forth in Section 2.1.1(a) herein. Licensee shall comply with SAP's registration procedure prior to making Modifications or Add-ons. All Modifications and all rights associated therewith shall be the exclusive property of SAP and SAP AG. All Add-ons developed by SAP (either independently or jointly with Licensee) and all rights associated therewith shall be the exclusive property of SAP and SAP AG. Licensee agrees to execute those documents reasonably necessary to secure SAP's rights in the foregoing. All Add-ons developed by or on behalf of Licensee without SAP's participation ("Licensee Add-on"), and all rights associated therewith, shall be the exclusive property of Licensee subject to SAP's rights in and to the Software; provided, Licensee shall not commercialize, market, distribute, license, sublicense, transfer, assign or otherwise alienate any such Licensee Add-ons. SAP retains the right to independently develop its own Modifications or Add-ons to the Software, and Licensee agrees not to take any action that would limit SAP's sale, assignment, licensing or use of its own Software or Modifications or Add-ons thereto.

6.3.2 Any Modification developed by or on behalf of Licensee without SAP's participation or Licensee Add-on must not (and subject to other limitations set forth herein): enable the bypassing or circumventing any of the restrictions set forth in this Agreement and/or provide Licensee with access to the Software to which Licensee is not directly licensed; nor permit mass data extraction from Software to any non-SAP software, including use, modification saving or other processing of data in the non-SAP software; nor

unreasonably impair, degrade or reduce the performance or security of the Software; nor render or provide any information concerning Carahsoft software license terms, Software, or any other information related to SAP products.

6.3.3 Licensee covenants, on behalf of itself and its successors and assigns, not to assert against SAP or its affiliated companies, or their resellers, distributors, suppliers, commercial partners and customers, any rights in any Modifications developed by or on behalf of Licensee without SAP participation or Licensee Add-ons, or any other functionality of the SAP Software accessed by such Modification developed by or on behalf of Licensee without SAP participation or Licensee Add-on.

7. PERFORMANCE WARRANTY.

7.1 Warranty. Carahsoft warrants that the Software will substantially conform to the specifications contained in the Documentation for six months following delivery. The warranty shall not apply: (i) if the Software is not used in accordance with the Documentation; or (ii) if the defect is caused by a Modification or Add-on (other than a Modification or Add-on made by SAP and which is provided through SAP Support or under warranty), Licensee or third-party software. Carahsoft does not warrant that the Software will operate uninterrupted or that it will be free from minor defects or errors that do not materially affect such performance, or that the applications contained in the Software are designed to meet all of Licensee's business requirements. Provided Licensee notifies Carahsoft in writing with a specific description of the Software's nonconformance within the warranty period and Carahsoft validates the existence of such nonconformance, Carahsoft will, at its option: a) repair or replace the nonconforming Software, or b) refund the license fees paid for the applicable nonconforming Software in exchange for a return of such nonconforming Software. This is Licensee's sole and exclusive remedy under this warranty.

7.2 Express Disclaimer. Carahsoft AND ITS LICENSORS DISCLAIM ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE EXCEPT TO THE EXTENT THAT ANY WARRANTIES IMPLIED BY LAW CANNOT BE VALIDLY WAIVED. This disclaimer does not apply to any warranties expressly provided in a Carahsoft contract with the U.S. Government.

8. INDEMNIFICATION.

8.1 Infringement and Defense of Licensee. Carahsoft shall defend Licensee against claims brought against Licensee in the Territory by any third party alleging that Licensee's Use of the Software, in accordance with the terms and conditions of this Agreement, constitutes a direct infringement or misappropriation of a patent claim(s), copyright or trade secret rights, and Carahsoft will pay damages finally awarded against Licensee (or the amount of any settlement Carahsoft enters into) with respect to such claims. This obligation of Carahsoft shall not apply if the alleged infringement or misappropriation results from Use of the Software in conjunction with any other software, an apparatus other than a Designated Unit, failure to use an update promptly provided by Carahsoft if such infringement or misappropriation could have been avoided by use of the update, or unlicensed activities. This obligation of Carahsoft also shall not apply if Licensee fails to timely notify Carahsoft in writing of any such claim and fails to cooperate in the defense and any settlement of any such claim. Licensee shall cooperate fully in the defense of such claim and may appear, at its own expense, through counsel reasonably acceptable to Carahsoft. Carahsoft expressly reserves the right to cease such defense of any claim(s) in the event the Software is no longer alleged to infringe or misappropriate, or is held not to infringe or misappropriate, the third party's rights. Carahsoft may settle or mitigate damages arising from any claim or potential claim, by substituting alternative substantially equivalent non-infringing programs and supporting documentation for the Software. Licensee shall not undertake any action in response to any infringement or misappropriation, or alleged infringement or misappropriation of the Software that is prejudicial to Carahsoft's rights.

8.2 THE PROVISIONS OF THIS SECTION 8 STATE THE SOLE, EXCLUSIVE, AND ENTIRE LIABILITY OF Carahsoft AND ITS LICENSORS TO LICENSEE, AND IS LICENSEE'S SOLE REMEDY, WITH RESPECT TO THE INFRINGEMENT OR MISAPPROPRIATION OF THIRD-PARTY INTELLECTUAL PROPERTY RIGHTS. The provisions of this Section 8 shall not impair nor prejudice the rights of the United States in accordance with 28 U.S.C. 1498.

9. LIMITATIONS OF LIABILITY.

9.1 Not Responsible. Carahsoft and its licensors will not be responsible under this Agreement (i) if the Software is not used in accordance with the Documentation; or (ii) if the defect or liability is caused by Licensee, a Modification or Add-on (other than a Modification or Add-on made by SAP which is provided through SAP Support or under warranty), or third-party software. Carahsoft AND ITS LICENSORS SHALL NOT BE LIABLE FOR ANY CLAIMS OR DAMAGES ARISING FROM INHERENTLY DANGEROUS USE OF THE SOFTWARE AND/OR THIRD-PARTY SOFTWARE LICENSED HEREUNDER.

9.2 Exclusion of Damages: Limitation of Liability. ANYTHING TO THE CONTRARY HEREIN NOTWITHSTANDING, EXCEPT FOR DAMAGES RESULTING FROM UNAUTHORIZED USE OR DISCLOSURE OF CONFIDENTIAL INFORMATION OR DEATH OR PERSONAL INJURY ARISING FROM EITHER PARTY'S GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, UNDER NO CIRCUMSTANCES AND REGARDLESS OF THE NATURE OF ANY CLAIM SHALL Carahsoft, ITS LICENSORS OR LICENSEE BE LIABLE TO EACH OTHER OR ANY OTHER PERSON OR ENTITY FOR AN AMOUNT OF DAMAGES IN EXCESS OF THE PAID LICENSE FEES FOR THE SOFTWARE DIRECTLY CAUSING THE DAMAGES OR BE LIABLE IN ANY AMOUNT FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES, LOSS OF GOOD WILL OR BUSINESS PROFITS, WORK STOPPAGE, DATA LOSS, COMPUTER FAILURE OR MALFUNCTION, ATTORNEYS' FEES, COURT COSTS, INTEREST OR EXEMPLARY OR PUNITIVE DAMAGES. The provisions of this Agreement allocate the risks between Carahsoft and Licensee. The license fees reflect this allocation of risk and the limitations of liability herein.

9.3 The provisions of this Section 9 shall not impair the U.S. Government's right to recover for fraud or crimes arising out of or related to this contract under any federal fraud statute, including the False Claims Act (31 USC 3729 to 3733).

10. CONFIDENTIALITY.

10.1. Use of Confidential Information. Confidential Information shall not be reproduced in any form except as required to accomplish the intent of this Agreement. Any reproduction of any Confidential Information of the other shall remain the property of the disclosing party and shall contain any and all confidential or proprietary notices or legends which appear on the original. With respect to the Confidential Information of the other, each party : (a) shall take all Reasonable Steps (defined below) to keep all Confidential Information strictly confidential; and (b) shall not disclose any Confidential Information of the other to any person other than its bona fide individuals whose access is necessary to enable it to exercise its rights hereunder. As used herein "Reasonable Steps" means those steps the receiving party takes to protect its own similar proprietary and confidential information, which shall not be less than a reasonable standard of care. Confidential Information of either party disclosed prior to execution of this Agreement shall be subject to the protections afforded hereunder.

10.2. Exceptions. The above restrictions on the use or disclosure of the Confidential Information shall not apply to any Confidential Information that: (a) is independently developed by the receiving party without reference to the disclosing party's Confidential Information, or is lawfully received free of restriction from a third party having the right to furnish such Confidential Information; (b) has become generally available to the public without breach of this Agreement by the receiving party; (c) at the time of disclosure, was known to the receiving party free of restriction; (d) the release is required under applicable law or Court order; or (e) the disclosing party agrees in writing is free of such restrictions.

10.3. Publicity. Neither party shall use the name of the other party in publicity, advertising, or similar activity, without the prior written consent of the other, except that Licensee agrees that Carahsoft may use Licensee's name in customer listings.

11. ASSIGNMENT. Neither party may, without the other party's prior written consent, assign, delegate, pledge, or otherwise transfer this Agreement, or any of its rights or obligations under this Agreement, or the SAP Materials or SAP Confidential Information, to any party, whether voluntarily or by operation of law, including by way of sale of assets, merger or consolidation.

12. GENERAL PROVISIONS.

12.1. Severability. It is the intent of the parties that in case any one or more of the provisions contained in this Agreement shall be held to be invalid or unenforceable in any respect, such invalidity or unenforceability shall not affect the other provisions of this Agreement, and this Agreement shall be construed as if such invalid or unenforceable provision had never been contained herein.

12.2. No Waiver. If either party should waive any breach of any provision of this Agreement, it shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision hereof.

12.3. Counterparts. This Agreement may be signed in two counterparts, each of which shall be deemed an original and which shall together constitute one Agreement.

12.4. Regulatory Matters. The Software, Documentation and SAP Materials are subject to the export control laws of various countries, including without limit the laws of the United States and Germany. Licensee agrees that it will not submit the Software, Documentation or other SAP Materials to any government agency for licensing consideration or other regulatory approval without the prior written consent of Carahsoft, and will not export the Software, Documentation and SAP Materials to countries, persons or entities prohibited by such laws. Licensee shall also be responsible for complying with all applicable governmental regulations of the country where Licensee is registered, and any foreign countries with respect to the use of the Software, Documentation or other SAP Materials by Licensee and/or its Affiliates.

12.5. Governing Law; Limitations Period. This Agreement and any claims arising out of or relating to this Agreement and its subject matter shall be governed by and construed under the laws of the US federal government without reference to its conflicts of law principles. In the event of any conflicts between foreign law, rules, and regulations, and United States law, rules, and regulations, United States law, rules, and regulations shall prevail and govern. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement. The Uniform Computer Information Transactions Act as enacted shall not apply. Licensee must initiate a cause of action for any claim(s) arising out of or relating to this Agreement and its subject matter within one (1) year from the date when Licensee knew, or should have known after reasonable investigation, of the facts giving rise to the claim(s).

12.6. Notices. All notices or reports which are required or may be given pursuant to this Agreement shall be in writing and shall be deemed duly given when delivered to the respective executive offices of Carahsoft and Licensee at the addresses first set forth in any Software Order Form. Where in this section 12.6 or elsewhere in this Agreement written form is required, that requirement can be met by facsimile transmission, exchange of letters or other written form.

12.7. Force Majeure. Any delay or nonperformance of any provision of this Agreement (other than for the payment of amounts due hereunder) caused by conditions beyond the reasonable control of the performing party shall not constitute a breach of this Agreement, and the time for performance of such provision, if any, shall be deemed to be extended for a period equal to the duration of the conditions preventing performance.

12.8. Entire Agreement. This Agreement constitutes the complete and exclusive statement of the agreement between Carahsoft and Licensee with respect to SAP software license and support, and all previous representations, discussions, and writings are merged in, and superseded by this Agreement and the parties disclaim any reliance on any such representations, discussions and writings. This Agreement may be modified only by a writing signed by both parties. This Agreement shall prevail over any additional, conflicting, or inconsistent terms and conditions which may appear on any purchase order or other document furnished by Licensee to Carahsoft. This Agreement shall prevail over any additional, conflicting or inconsistent terms and conditions which may appear in any clickwrap end user agreement included in the Software. Signatures sent by electronic means (facsimile or scanned and sent via e-mail) shall be deemed original signatures. This Agreement does not create any partnership, joint venture or principal and agent relationship.

12.9 Hierarchy. The following order of precedence shall be applied in the event of conflict or inconsistency between provisions of the components of this Agreement, exclusive of the U.S. Government contract to which it may be included: (i) the Software Order Form; (ii) the Schedules; (iii) the Use Terms; and (iv) the GTC.

Carahsoft Technology Corporation

Licensee

By:

By:

Title:

Title:

Date:

Date:

LICENSE AGREEMENT ADDENDUM

The Virginia Information Technologies Agency (hereinafter referred to as "VITA"), pursuant to §2.2-2012 of the Code of Virginia and on behalf of the Commonwealth of Virginia, and Carahsoft ("Supplier"), a business incorporated in Maryland, F.E.I.N. 52-2189693, having its principal place of business at 1860 Michael Faraday Drive Suite 100 Reston, Virginia 20190, are this day entering into a contract and, for their mutual convenience, the parties are using the standard form contract (SAP-Carahsoft "EULA") provided by Supplier. This addendum, duly executed by the parties, is attached to and hereby made a part of Supplier's standard form contract and together shall govern the use of any and all SAP Software licensed by the Commonwealth under this agreement whether or not specifically referenced in the order document.

Supplier represents and warrants that it is a corporation authorized to do in Virginia the business provided for in this contract. If Supplier is not a U.S.-based entity, Supplier maintains a registered agent and a certification of authority to do business in Virginia.

This contract is executed by VITA on behalf of all public bodies, including VITA, as defined by §2.2-4301 and referenced by §2.2-4304 of the Code of Virginia, and private institutions of higher education which are listed at: <http://www.cicv.org/Our-Colleges/Profiles.aspx>, and hereinafter referred to as "Authorized Users."

If Authorized User is a state agency, board, commission, or other quasi-political entity of the Commonwealth of Virginia or other body referenced in Title 2.2 of the Code of Virginia, any license granted by Supplier shall be held by the Commonwealth. If Authorized User is a locality, municipality, school, school system, college, university, local board, local commission, or local quasi-political entity, such license shall be held by that public body. If Authorized User is a private institution of higher education listed at: <http://www.cicv.org/Our-Colleges/Profiles.aspx>, the license shall be held by that private institution.

As used herein, the term "contract" shall mean the Supplier's standard form contract and any and all exhibits and attachments thereto. The term(s) "Customer," "You," and/or "you," as used in the contract, shall mean, as applicable, VITA, the Commonwealth, any Authorized User, or any of their officers, directors, agents or employees.

Supplier's standard form contract is, with the exceptions noted herein, acceptable to VITA. Nonetheless, because certain standard clauses that may appear in, or be incorporated by reference into, Supplier's standard form contract cannot be accepted by VITA, and in consideration of the convenience of using that form, and this form, without the necessity of specifically negotiating a separate contract document, the parties hereto specifically agree that, notwithstanding any provisions appearing in the attached Supplier's standard form contract, none of the following shall have any effect or be enforceable against VITA, the Commonwealth, any Authorized User, or any of their officers, directors, employees or agents:

1. Requiring the application of the law of any state other than the Commonwealth of Virginia of the United States of America in interpreting or enforcing the contract or requiring or permitting that any dispute under the contract be resolved in any court other than a circuit court of the Commonwealth of Virginia;
2. Requiring any total or partial compensation or payment for lost profit or liquidated damages by VITA, the Commonwealth, any Authorized User, or their officers, directors, employees or agents if the contract is terminated before its ordinary period;
3. Imposing any interest charge(s) contrary to that specified by §2.2-4347 et seq. of the Code of Virginia;
4. Requiring the Commonwealth, VITA, or any Authorized User to maintain any type of insurance either for the benefit of the Commonwealth, VITA, or such Authorized User or for Supplier's benefit;

5. Granting Supplier a security interest in property of the Commonwealth, any Authorized User, or any of their officers, directors, employees or agents;
6. Requiring the Commonwealth, VITA, any Authorized User, or any of their officers, directors, employees or agents to indemnify or to hold harmless Supplier for any act or omission;
7. Limiting or adding to the time period within which claims can be made or actions can be brought (Reference *Code of Virginia* §8.01 et seq.);
8. Limiting selection and approval of counsel and approval of any settlement in any claim arising under the contract and in which the Commonwealth, VITA, any Authorized User, or any of their officers, directors, employees or agents is a named party;
9. Binding the Commonwealth, VITA, any Authorized User, or any of their officers, directors, employees or agents to any arbitration or to the decision of any arbitration board, commission, panel or other entity;
10. Obligating the Commonwealth, VITA, any Authorized User, or any of their officers, directors, employees or agents to pay costs of collection or attorney's fees;
11. Requiring any dispute resolution procedure(s) other than those in accordance with §2.2-4363 et seq. of the Code of Virginia;
12. Permitting Supplier to access any Commonwealth or Authorized User records or data, except pursuant to court order;
13. Permitting Supplier to use any information provided by the Commonwealth or any Authorized User except for Supplier's own internal administrative purposes;
14. Requiring the Commonwealth, VITA, or any Authorized User to limit its rights or waive its remedies at law or in equity, including the right to a trial by jury; and
15. Bestowing any right or incurring any obligation that is beyond the duly granted authority of the undersigned representative of VITA to bestow or incur on behalf of the Commonwealth of Virginia..
16. Establishing a presumption of severe or irreparable harm to Supplier by the actions or inactions of VITA or any Authorized User;
17. Limiting the liability of Supplier for property damage or personal injury;
18. Permitting Supplier to assign, subcontract, delegate or otherwise convey the contract, or any of its rights and obligations thereunder, to any entity without the prior written consent of VITA except as follows: Supplier may assign all or any of its rights and obligations to a third party as a result of a merger or acquisition or sale of all or substantially all of its assets to such third party provided assignee agrees in writing to be bound by the terms and conditions set forth in the contract and provided such third party is a U.S.-based entity or maintains a registered agent and a certification of authority to do business in Virginia, or to an affiliate of Supplier, provided Supplier remains liable for affiliate's compliance with the terms and conditions set forth in this Contract;
19. Not complying with the contractual provisions at the following URL, which are mandatory provisions, required by law or by VITA, that are hereby incorporated by reference:
<http://www.vita.virginia.gov/uploadedFiles/SCM/StatutorilyMandatedTsandCs.pdf>
 The terms and conditions in documents posted to the aforereferenced URL are subject to change pursuant to action by the legislature of the Commonwealth of Virginia or a change in VITA policy. If a change is made to the terms and conditions, a new effective date will be noted in the document title. Supplier is advised to check the URL periodically;
20. Not complying with the contractual claims provision §2.2-4363 of the Code of Virginia which is also incorporated by reference;
21. Enforcing the United Nations Convention on Contracts for the International Sale of Goods and all other laws and international treaties or conventions relating to the sale of goods. They are expressly disclaimed. UCITA shall apply to this contract only to the extent required by §59.1-501.15 of the Code of Virginia;
22. Not complying with all applicable federal, state, and local laws, regulations, and ordinances;
23. Requiring that the Commonwealth waive its sovereign immunity or its immunity under the Eleventh Amendment;

24. Requiring that the Commonwealth, which is tax exempt, be responsible for payment of any taxes, duties, or penalties;
25. Requiring or construing that any provision in this contract conveys any rights or interest in Commonwealth or Authorized User data to Supplier;
26. Requiring the use of foreign currency. The currency which shall be used for this contract is United States Dollars. Any claim which may arise hereunder shall be settled in United States Dollars;
27. Obligating the Commonwealth beyond approved and appropriated funding. All payment obligations from public bodies under this contract are subject to the availability of federal, state, and/or local appropriations for this purpose. In the event of non-appropriation of funds for the items under this contract, VITA may terminate, in whole or in part, this contract or any order, for those goods or services for which funds have not been appropriated. This may extend to the renewal of maintenance services for only some of the licenses granted by Supplier. Written notice will be provided to the Supplier as soon as possible after legislative action is completed. There shall be no time limit for termination due to termination for lack of appropriations;
28. Permitting unilateral modification of the contract by Supplier;
29. Permitting termination by Supplier of the contract or the licenses granted thereunder, or permitting suspension of services by Supplier, except pursuant to an order from a court of competent jurisdiction;
30. Requiring or stating that the terms of the Supplier's standard form contract shall prevail over the terms of this addendum in the event of conflict;
31. Renewing or extending the contract beyond the initial term or automatically continuing the contract period from term to term;
32. Requiring that the contract be "accepted" or endorsed by the home office or by any other officer subsequent to execution by an official of VITA before the contract is considered in effect;
33. Delaying the acceptance of the contract or its effective date beyond the date of execution;
34. Defining "perpetual" license rights to have any meaning other than license rights that exist in perpetuity unless otherwise terminated in accordance with the applicable provisions of the contract;
35. Permitting modification or replacement of the contract pursuant to any new release, update or upgrade of Software or subsequent renewal of maintenance. If Supplier provides to any Authorized User an update or upgrade subject to additional payment, such Authorized User shall have the right to reject such update or upgrade;
36. Requiring purchase of a new release, update, or upgrade of Software or subsequent renewal of maintenance in order for the Commonwealth, VITA, or any Authorized User to receive or maintain the benefits of Supplier's indemnification of the Commonwealth, VITA, or such Authorized User against any claims of infringement on any third-party intellectual property rights;
37. Prohibiting the Commonwealth, VITA, or any Authorized User from transferring or assigning to any entity the contract or any license to Software pursuant to the contract;
38. Granting Supplier or an agent of Supplier the right to audit or examine the books, records, or accounts of VITA or any Authorized User;

The parties further agree as follows:

39. Supplier warrants that it is the owner of the Software or otherwise has the right to grant to all Authorized Users the license to use the Software granted hereunder without violating or infringing any law, rule, regulation, copyright, patent, trade secret or other proprietary right of any third party.
40. Supplier agrees to indemnify, defend and hold harmless the Commonwealth, VITA, any Authorized User, their officers, directors, agents and employees ("Commonwealth's Indemnified Parties") from and against any and all third party claims, demands, proceedings, suits and actions, including any related liabilities, obligations, losses, damages, fines, judgments, settlements, expenses (including attorneys' and accountants' fees and disbursements) and costs (each, a "Claim" and collectively, "Claims"), incurred by, borne by or asserted against any of Commonwealth's Indemnified Parties to the extent such Claims in any way relate to, arise out of or result from: (i) any intentional or willful

conduct or negligence of any employee or subcontractor of Supplier, (ii) any act or omission of any employee or subcontractor of Supplier, (iii) breach of any representation, warranty or covenant of Supplier contained herein, (iv) any defect in the Software, or (v) any actual or alleged infringement or misappropriation of any third party's intellectual property rights by any of the Software. Selection and approval of counsel and approval of any settlement shall be accomplished in accordance with all applicable laws, rules and regulations. For state agencies the applicable laws include §§ 2.2-510 and 2.2-514 of the Code of Virginia. In all cases the selection and approval of counsel and approval of any settlement shall be satisfactory to VITA or the Authorized User against whom the claim has been asserted.

- 41. Any Authorized User may rely on independent contractors, acting on behalf of such Authorized User, to perform functions requiring the use of and access to the Supplier's Software. Nothing in the Supplier's standard form contract shall limit such third parties' from using or accessing the Software in order to perform such functions. If any invention, work of authorship, or confidential information is developed exclusively by an employee, consultant, contractor, or subcontractor of an Authorized User during the performance of Services by Supplier, Supplier shall have no ownership claim to such invention, work of authorship, or confidential information.
- 42. Any travel expenses incurred by Supplier in the course of performing the services must be pre-approved by the appropriate Authorized User and shall be reimbursed at the then-current per diem rates published by the Virginia Department of Accounts.
- 43. An Authorized User may require that Supplier personnel submit to a criminal background check prior to performance of any services under this contract.
- 44. Carahsoft and its licensors will not be responsible under this License Agreement Addendum (i) if the Software is not used in accordance with the Documentation as Accepted in the applicable Statement of Work; or (ii) if the defect or liability is solely caused by Licensee, a Modification or Add-on (other than a Modification or Add-on made by SAP), or third-party software.

This contract, consisting of this VITA addendum and the Supplier's standard form contract, constitute the entire agreement between the parties and may not be waived or modified except by written agreement between the parties.

This contract has been reviewed by staff of VITA. Its substantive terms are appropriate to the needs of VITA.

IN WITNESS WHEREOF, the parties have caused this contract to be duly executed as of the last date set forth below by the undersigned authorized representatives of the parties, intending thereby to be legally bound.

VITA

By: _____ By: _____
(Signature) (Signature)

Name: _____ Name: _____
(Print) (Print)

Title: _____ Title: _____

Date: _____ Date: _____



**EXHIBIT G LOBBYING CERTIFICATION
CONTRACT NUMBER VA-150915-QLA
BETWEEN
VIRGINIA INFORMATION TECHNOLOGIES AGENCY
AND
QLARION, INC.**

Exhibit G is hereby incorporated into and made an integral part of Contract Number VA-150915-QLA ("Contract") between the Virginia Information Technologies Agency ("VITA" or "Commonwealth" or "State") and Qlarion, Inc. ("Supplier").

In the event of any discrepancy between this Exhibit G and the Contract, the provisions of the Contract shall control.

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief, that:

No Federal appropriated funds have been paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee or an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal Contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal Contract, grant, loan, or cooperative agreement.

If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal Contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The undersigned shall require that the language of this certification be included in the award documents for all sub awards at all tiers (including subcontracts, sub grants, and Contracts under grants, loans and cooperative agreements) and that all sub recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Signature:

A handwritten signature in black ink, appearing to read 'Jan Ritz', is written over a horizontal line.

Printed Name: Jacob Bittner

Organization: Qlaria, Inc.

Date: 10/13/15



EXHIBIT H Service Level Agreement
CONTRACT NUMBER VA-150915-QLA
BETWEEN
VIRGINIA INFORMATION TECHNOLOGIES AGENCY
AND
QLARION, INC.

Exhibit H is hereby incorporated into and made an integral part of Contract Number VA-150915-QLA (“Contract”) between the Virginia Information Technologies Agency (“VITA” or “Commonwealth” or “State”) and Qlarion, Inc. (“Supplier”).

In the event of any discrepancy between this Exhibit H and the Contract, the provisions of the Contract shall control.

Qlarion Professional Service Level Agreements (SLAs)

The following service level agreements (SLAs) are for both professional services and software. The software SLAs are different for SAP and Hortonworks.

Professional Services SLAs:

Indicator: Delivery timeliness	
Objective:	On-time delivery of work products and services
Description:	All Qlarion project deliverables should be provided in accordance with agreed upon schedule
Target:	All deliverables provided on time
Scoring Criteria	
Excellent (Score = 3)	All deliverables provided on time
Acceptable (Score = 2)	One deliverable was no later than 5 days after due date
Below Target (Score = 1)	Multiple deliverables were late and/or more than 5 days after agreed upon date

Indicator: On-time production support	
Objective:	On time delivery and timeliness in closing tickets
Description:	Qlarion will be required to address tickets within defined Service Levels
Target:	95% at each severity level
Scoring Criteria	
Excellent (Score = 3)	95% at each severity level
Acceptable (Score = 2)	90% at each severity level
Below Target (Score = 1)	Below 90% at each severity level

Indicator: Quality of Fixes	
Objective:	Quality of fixes and ticket resolution
Description:	A fix should not break existing code. A ticket traced back to a

	previously submitted fix through casual analysis, will be a failure case
Target:	95% are not traced back to previous ticket
Scoring Criteria	
Excellent (Score = 3)	95% are not traced back to previous ticket
Acceptable (Score = 2)	90% are not traced back to previous ticket
Below Target (Score = 1)	Below 90% are not traced back to previous ticket

Indicator: Delivery of Enhancements	
Objective:	On time delivery of enhancements
Description:	Team Qlarion will be required to deliver enhancements on time that meet the requirements as written
Target:	95%
Scoring Criteria	
Excellent (Score = 3)	95%
Acceptable (Score = 2)	90%
Below Target (Score = 1)	Below 90%

Indicator: Backlog Management	
Objective:	Efficiency in managing assigned ticket queue
Description:	Backlog Management Index will be calculated as: (# of tickets closed in a fiscal period) / (# of open tickets at start of the fiscal period + # of tickets assigned in that period)
Target:	95%
Scoring Criteria	
Excellent (Score = 3)	95%
Acceptable (Score = 2)	90%
Below Target (Score = 1)	Below 90%

SAP Software Service Level Agreements (SLAs)

SUPPORT DEFINITIONS

1. GENERAL DEFINITIONS

- 1.1 "Action Plan" shall mean a document or report created for the Joint Customer by the Party that is processing an Incident to describe the progress of a Corrective Action for an Incident including (i) description of next steps to be taken, by SAP, Company, Joint Customer or Joint Customer's partners, (ii) results of actions taken to date, and (iii) date and time of next status update and a schedule of future activities to reach an Incident Remedy.
- 1.2 "Corrective Action" shall mean an action which will provide Joint Customer with (i) Incident Remedy or at least with (ii) an Action Plan for the Parties involved in the Incident Remedy process.
- 1.3 "De-Escalation Taskforce" shall mean a joint support team staffed by both SAP and Company to provide on-site support at a Joint Customer location in response to an Escalated Situation and where an Incident Remedy Action cannot be provided by remote Support Services.
- 1.4 "Escalated Situation" shall mean any highly critical situation of the Joint Customer that has very serious consequences for normal business transactions for the Joint Customer provided both parties of this Appendix agree that the resolution of such situation requires additional attention by one or both Parties.
- 1.5 "Local Office Hours" shall mean - as applicable - Company's or SAP's applicable regular working hours (8.00 a.m. to 6.00 p.m.) during regular working days, in accordance with the corresponding public holidays.
- 1.6 "Processing Time" shall mean the time period during which a party works on Incident Remedy for a single Incident. For priority 1 Incidents the time is measured as real time, meaning 24x7 hours. For all other Incident priorities the time is measured in Local Office Hours. Processing Time does not include the time, when the Incident has the status "Customer Action" or "SAP Proposed Solution" or when it has the status "Company Action" and the action is not with the contractual partner of this Appendix. Processing Time is split into Initial Reaction Time and time for Corrective Action as defined in Section 2 to this Schedule 1.
- 1.7 "Release to Customer (RTC)" shall mean the date that marks the initial availability of a new release of SAP Software/Company Software to Joint Customers and the beginning of the restricted shipment phase.
- 1.8 "Service Level Agreement" or "SLA" shall mean the service level in accordance with definitions, procedures, and schedules as they are defined in Section 2 of this Schedule.
- 1.9 "Technical Note" shall mean the accurate and complete description of any error or Incident and of corrective measures and/or correction instructions that need to be applied by customers to remedy or prevent an Incident.

2. DEFINITION OF THE SERVICE LEVEL AGREEMENT

- 2.1 Qualified Response. SAP and Company agree to provide each other and Joint Customer with qualified responses to enable the Joint Customer to start with the resolution process for a software error that caused such Incident. This qualified response shall be provided within the SLA for Initial Reaction Time.
- 2.2 Availability for Technical Support and Escalation. SAP and Company agree to provide to each other availability of their support organizations and senior support management for an Escalated Situation twenty-four hours a day and seven days a week (24x7). Emergency Incident and a Critical Incident are to be handled as an Escalated Situation.
- 2.3 Categorization of Incidents. SAP and Company agree to apply the SAP standard definitions and categorizations for Incidents as they are defined by the SAP Support Standards in accordance with this Schedule 1.
- 2.4 Handling Priority of Incidents.
 - 2.4.1 SAP and Company agree that Company shall not modify the priority of Incidents defined by customers. Company may however lower the priority of an Incident (i) once Company has provided SAP and/or the Joint Customer with a workaround and (ii) if the Joint Customer and SAP consent to such change of the Incident priority.
 - 2.4.2 SAP and Company shall process Incidents by performing their respective support tasks.
 - 2.4.3 SAP and Company shall use best efforts to respond within the Processing Time for Corrective Action.

2.5 Measuring Processing Time and Incident Remedy.

2.5.1 SAP will monitor the Processing Times for Initial Reaction and Corrective Action by means of the SAP Global Support Backbone.

2.5.2 Processing Time shall start with the receipt of an Incident by either Party. Each Company shall confirm the Incident receipt via SAP Global Support Backbone within the SLA for Initial Reaction Time.

2.5.3 Each Party will work on Incident Remedy in close and direct cooperation with the Joint Customer and keep the other Party updated on the progress of the Incident Remedy.

2.6 SLA for Corrective Action. The SLA for Corrective Action shall be deemed to be met if, (i) within the Processing Time subsequent to the Initial Reaction Time the Joint Customer was proposed an Incident Remedy, if a solution is provided system-based status confirmation will be provided via SAP Support Global Backbone.), or if (ii) the Joint Customer has agreed to lower the priority of the Incident subject to the definition of Incident priority in this Schedule 1.

2.7 Action Plan. In case that SAP and/or Company provide a Joint Customer with an Action Plan such Action Plan shall include a status report including:

- a) a description of the progress in Incident Remedy
- b) next steps planned by SAP and/or Company
- c) cooperation actions required by Joint Customer
- d) date and time for the next status update from Company and/or SAP
- e) due dates for actions to be taken by Company and or SAP, to the extent possible
- f) a list of responsible persons allocated by Company and/or SAP to the Incident Remedy.

2.8 SLA on Processing Times, Definition of Priorities, and Response Times.

SAP and Company agree to process Incidents within the time-frames below (see table). The respective period starts with the receipt of an Incident by the Receiving Party (SAP or Company).

- a) Receiving Party shall give SAP feedback about the Incident receipt and processing within the initial response time set forth below.
- b) Receiving Party shall use best efforts to solve the Incident within the targeted solving period set forth below.
- c) The Parties will monitor the response times.

Priority of Customer Incident	Description	Initial Reaction Times	SLA for Corrective Action	SLA for Response Times
1 Very high	<p>An Incident is properly ascribed priority 1 if the Incident has very serious consequences for normal business transactions and urgent, business critical work cannot be performed. The Incident requires immediate processing because the malfunction can cause serious losses.</p> <p>This is generally caused by the following circumstances:</p> <ul style="list-style-type: none"> • Complete system outage • Malfunctions of central SAP Software functions and/or Company Software in the production system • Top-Issues 	1 hour (7*24h)	4 hours (7*24h)	SLA for Corrective Action
2 High	An Incident is properly ascribed priority 2 if normal business transactions are seriously affected and necessary tasks cannot be performed. This is caused by incorrect or inoperable functions in the SAP systems and/or Company Software that are required to perform such transactions and/or tasks. The Incident requires immediate processing because the malfunction can seriously disrupt the entire productive business flow.	4 hours (Local Office Hours)	No	4 business days (Local Office Hours)
3 Medium	An Incident is properly ascribed priority 3 if normal business transactions are affected. The Incident is caused by incorrect or inoperable functions in the SAP system and/or Company Software.	No		8 business days (Local Office Hours)
4 Low	An Incident is properly ascribed priority 4 if the Incident has few or no effects on normal business transactions. The problem is caused by incorrect or inoperable functions in the SAP systems and/or Company Software that are not required daily, or are rarely used.	No		16 business days (Local Office Hours)

2.9 "SLA for Initial Reaction Time". SLA for Initial Reaction Time shall mean:

- Receiving Party will give a qualified response within the defined time;
- For priority 1 Incidents the time is measured as real time, meaning 7*24 (seven by twenty-four) hours;
- For priority 2 Incidents the time is measured as Local Office Hours.

2.10 SLA for Corrective Action. "SLA for Corrective Action" shall mean:

- Receiving Party will provide a solution, work around or action plan for resolution within the specified time frame.
- The SLA for Corrective Action only refers to that part of the processing time, when the Incident is being processed at Company/SAP ("Processing Time"). Processing Time is split into Initial Reaction Time and time for Corrective Action.
- The Processing Time does not include the time, when the Incident is on status "Customer Action" or "SAP Proposed Solution", whereas (i) the status "Customer Action" means the Incident was handed over to Joint Customer and (ii) the status "SAP Proposed Solution" means SAP or Company has provided "Corrective Action"
- The SLA for Corrective Action shall be deemed to be met if, within 4 (four) hours of Processing Time: (i) Company proposes a solution, a workaround or an action plan or (ii) Joint Customer agrees to reduce the priority of the Incident.

2.11 Classification of Test Systems. Identical problem situations in test systems shall normally justify a priority that is one level lower than the equivalent priority in a Joint Customer's production system.

3. DEFINITION OF THE SUPPORT PROCESS

- 3.1 SAP will implement in the SAP Global Support Backbone a queue for the Company Software ("Company Support Component") to allow for this usage scenario. SAP will name this Company Support Component in the SAP Global Support Backbone in compliance with the SAP component naming conventions.
- 3.2 SAP Solution Manager will be the entry point for customers in addressing an Incident.
- 3.3 SAP Solution Manager will automatically forward all Incidents allocated to the Company Support Component to Company's installation of the SAP Solution Manager for Incident Remedy.
- 3.4 Company must clearly communicate the naming of the Company Support Component to Joint Customers and must inform Joint Customers about the importance of choosing the right support component depending on the software (Company or SAP) where the Incident arises.
- 3.5 In case a Joint Customer accidentally or incidentally uses an SAP support component to send an Incident related to the Company Software to an SAP support center SAP will forward such Incident to the Company Support Component.
- 3.6 In case a Customer accidentally or incidentally uses the Company Support Component for an Incident related to SAP software, Company shall directly forward such Incident to the corresponding SAP support component. Forwarding of such Incidents to SAP must be performed in accordance with the Incident priorities defined in the Support Service Level Appendix.
- 3.7 The Joint Customer takes the decision whether and when an Incident is successfully remedied. Only the Joint Customer decides if the Incident ticket can be closed in the SAP Global Support Backbone.

4. DEFINITION OF THE ESCALATION PROCESS, DE-ESCALATION TASKFORCE

- 4.1 Either Party's escalation management shall monitor the support processes and co-operate closely with the other party in any possible process with the goal to de-escalate and resolve the Joint Customer situation in a reasonable time.
- 4.2 A joint De-Escalation Taskforce will be set up if an issue related to the Company Software cannot be resolved remotely and where SAP and Company agree that only the cooperation of both can de-escalate such a critical end-user situation of the Joint Customer.
- 4.3 Company and SAP agree to support the other Party for a De-Escalation Taskforce at Joint Customer site upon either Party's reasonable request. Either Party will make reasonable efforts to join the other Party at the Joint Customer site within 36 (thirty-six) hours.
- 4.4 Both Parties agree to initially bear their own costs that might arise in case of escalation. Once the De-Escalation Taskforce is terminated, both parties will mutually agree how remote support costs will be allocated between the Parties according to the results of the Root Cause Analysis of the Incident that lead to this escalation.
- 4.5 Both Parties commit to document in Technical Notes the solution provided to the Joint Customer once the escalation is closed.
- 4.6 Each Party will exchange with the other Party the final reports summarizing the actions taken and results of these actions, likelihood of problem recurrence and recommended future actions.
- 4.7 Parties may close an escalation process upon mutual agreement. Each Party shall provide the other Party with the final reports summarizing the actions taken and results of these actions, likelihood of problem recurrence and recommended future actions.

DEFINITION OF SUPPORT TASKS

1. SUPPORT TASKS OF FIRST LEVEL SUPPORT

First Level Support includes Joint Customer and application management help desk service as follows:

- (1) Receive Incident messages from Joint Customers – comprehensive problem description
- (2) Translate non-English Incident message into English
- (3) Check information provided by the Joint Customers (included/correct missing/wrong information)
- (4) Check the priority based on the given definition (see [Schedule 1](#))
- (5) Check the specific 'support component' in SAP's Support Network

- (6) Assign problem record to a specific “support component” (queue) in SAP’s Support Network call tracking system for follow-up by SAP’s service and support organization.
- (7) Check functionality of Joint Customers’ remote connection.
- (8) Search in support database (e.g. Technical Notes and Joint Customer messages)
- (9) Summarize status before forwarding to next level

2. SUPPORT TASKS OF SECOND LEVEL SUPPORT

Second Level Support is based on SAP Solution Manager Diagnostics and focuses on the Root Cause Analysis including the following tasks:

- (1) Verify Joint Customers’ system customization
- (2) Access Joint Customer system, if necessary for problem analysis
- (3) Analyze dumps, write traces and reproduce problems.
- (4) Provide workaround, if possible
- (5) Create and modify Technical Notes by documenting the Incident Remedy
- (6) Provide Joint Customers with solution or workaround for the Incident(Enhancement Packages)
- (7) Provide Joint Customers for Priority 1 Incidents with solution, workaround or Action Plan within SLA for Corrective Actions.
- (8) Summarize status before forwarding to next support level

3. SUPPORT TASKS OF DEVELOPMENT SUPPORT (OR THIRD LEVEL SUPPORT)

- (1) Check if Incident is definitely caused by the SAP Software.
- (2) Analyze in detail all recorded traces and error messages forwarded to Joint Customers.
- (3) Create knowledge articles for selected Incidents regarding:
 - a) the identified cause of the defect the process of the Incident Remedy with all requested information and material
(e.g. bug fixes, patches, description of workarounds)
- (4) Specify expected duration to fix the Incident by patches, bug fixes or support packages.
- (5) Recommendations for workarounds
- (6) Access Joint Customer systems via remote access (e.g. SAP Support Network):
 - a) to analyze the Joint Customer’s system regarding the Incident
 - b) to customize the systems by using workaround recommendations
 - c) to update the systems by using patches
- (7) Provide SAP and/or Joint Customers with code fixes for the Company Software

Hortonworks Software Service Level Agreements (SLAs)



Hortonworks

Data Sheet

Subscription and Support



Your subscription and support from Hortonworks is much more than support; it is your direct connection with the experts, architects and leaders of the Apache™ Hadoop™ community. Hortonworks represents nearly 100 years of development expertise and deep experience running Apache Hadoop in production, at scale on the most demanding workloads. A Hortonworks support subscription opens the door to this uniquely qualified and skilled team of Hadoop™ professionals.

A Hortonworks support subscription provides expert technical assistance for organizations implementing solutions based on the Hortonworks Data Platform, powered by Apache Hadoop. With a Hortonworks support subscription, you can be assured your needs are addressed in a timely manner by the Apache Hadoop experts who architect next generation big data solutions.

Subscription and Support

Developer Support

Your Developer Support agreement assists your key developers as they build their Hadoop projects. Developers interact with the Hortonworks support staff to receive guidance on the use of the software and answers for “how-to” questions.

Enterprise Plus Apache Accumulo™ Subscription

Your Enterprise Subscription Plus Apache Accumulo subscription will provide product support for your Hortonworks Data Platform installations that include Apache Accumulo that may require assistance after hours. With 24x7 phone-based access to our team of Hadoop experts for your most severe issues, you can rest assured that our support experts will be available to help get you back to normal operations. As well, the phone-based, enhanced response target for less severe issues is there to assist your team during business hours. You will have access to our support experts who can provide troubleshooting expertise, installation assistance, configuration advice and performance issue triage to help speed resolution of your issue. Your subscription provides access to our private support portal where you can find knowledge base articles and log cases online. And, you’ll have access to patches, Updates and Upgrades for the Hortonworks Data Platform.

Standard Plus Apache Accumulo Subscription

Your Standard Plus Apache Accumulo Subscription will provide product support for your Hortonworks Data Platform installations that include Apache Accumulo only require business day support, which may be your research, test and development Hadoop installations. You’ll have access to our private support portal where you can find knowledgebase articles and log your cases online. With business day access to our team of Hadoop experts, you will have access to our support experts who can provide troubleshooting expertise, installation assistance, configuration advice and performance issue triage to help speed resolution of your issue. Access to patches, Updates and Upgrades for the Hortonworks Data Platform is included.

HORTONWORKS SUPPORT SUBSCRIPTION OFFERINGS

	Standard + Apache Accumulo	Enterprise + Apache Accumulo	Developer
Recommended	Growing clusters that require mission critical SLAs	Advanced clusters that require mission critical SLAs mission critical SL	Key developers creating Hadoop applications
Term	1 Year	1 Year	1 Year
Named Support Contacts	3 Operations	5 Operations	1 Developer Only
Support Incidents	Unlimited operational support incidents through development, pilot, staging and deployment ¹		Unlimited development support for “how to” guidance ¹
Availability & Response Times			
Access	Web Only	Phone & Web	Web Only
Hours of Direct Support	M–F, 6am–6pm local time ²	24 x 7	M–F, 6am–6pm local time ²

Severity 1 Response ³	1 Business Day	1 Hour	n/a
Severity 2 Response ³	1 Business Day	4 Hours	n/a
Severity 3 Response ³	1 Business Day	1 Business Day	1 Business Day
Severity 4 Response ³	1 Business Day	1 Business Day	1 Business Day
Support Features			
Remote Troubleshooting	Webex, SSH	Webex, SSH	n/a
Community & Advanced Knowledgebase	Yes	Yes	Yes
Access to Customer Support Portal for Case Management	Yes	Yes	Yes
Timely Access to Upgrades, Updates and Patches	Yes	Yes	n/a
Supported			
Configuration & Installation	Yes	Yes	No
Performance Issues	Yes	Yes	No
Diagnosis of System or Application Issues	Yes	Yes	No
Application Development Advice and Issues	No	No	Yes

¹ Does NOT include production issues with customer code, end-to-end debugging, development of customer code, 3rd-party products used during development and deployment

² Excludes Hortonworks holidays

³ Initial response time

Service Level Agreements Definitions of Severity:

- **Severity 1, Critical:** Production system is down or severely impacted such that routine operation is impossible
- **Severity 2, High:** Production issue where the system is functioning but in a degraded or restricted capacity
- **Severity 3, Medium:** Production issue where minor functionality impacted or a development issue
- **Severity 4, Low:** Request for information with no impact to business operations