

# Section 2 – Project Characteristics

## Project Summary

The VIRGINIA First Team (VA1) offers to transform the Virginia Information Technologies Agency’s (VITA’s) information technology (IT) environment. VA1 members have the experience, tools, financial resources, and personnel to integrate and consolidate VITA’s IT infrastructure. The transformation process, described in the Virginia Public-Private Education Facilities and Infrastructure Act of 2002 (PPEA) Section 2, Project Characteristics, Item a, encompasses all activities from building secure data centers, to application rationalization, to platform and operations consolidation, to staff transition, to ongoing operations. VITA and the Commonwealth of Virginia will achieve their objectives of cost reduction; improved service; manageable operation; and a scalable, responsive infrastructure through this transformation.

## Offering Matrix

VA1’s proposal consists of a base offering plus five optional offerings. The proposal is so structured to give VITA maximum flexibility in selecting the services it desires. This approach may be described as a menu of services. For purposes of this conceptual proposal, VA1 describes the project as if VITA had selected all of the optional offerings.

The base offering contains all services required to achieve VITA’s primary goals of cost reduction, service improvement, security and disaster recovery (DR) enhancement, and future responsiveness improvement. The optional offerings are services from which VITA will benefit. In the opinion of Gartner – Desktop TCO Updated 2003, “A well managed desktop can be 37 percentage less expensive than an unmanaged one.”

The components in the base offering are briefly described in the following matrix.

| Base Offering Components  | Description   |
|---|---|
| 1. Construction of Two New Data Centers   | Construction of one new data center in the greater Richmond area and one in Wise County.  |
| 2. Consolidated Help Desk   | Creation of an integrated help desk environment providing 24 hours a day, seven days a week (24x7) support using EDS’ leveraged and proven tool set including a Knowledge Management System and a Ticketing System for Trouble Tickets integrated with EDS’ Operations Environment.   |
| 3. Network Operations Center (NOC) to Manage Wide Area Network (WAN), Local Area Network (LAN), and Servers | Creation of an integrated NOC to manage the WAN routers and LAN networks centrally throughout the Commonwealth. The NOC will also have responsibility for managing the new desktop and server environments. NOC efficiency will be increased by leveraging EDS tools and experience from similar large-scale infrastructure operations.   |
| 4. Infrastructure Strategy and Standards  | Collaboration with VITA to define and refine an infrastructure strategy and standards defining the targeted infrastructure architecture based on application rationalization, new server architectures (that is, blade, utility models), data rationalization (storage area network [SAN] and Information Life-Cycle Management), and data center optimization creating environments in support of the Application Life Cycle |
| 5. Consulting Services to   | Consulting services for the discovery and planning needed to consolidate and migrate to the   |

| Base Offering Components                        | Description   |
|---|---|
| Consolidation and Plan Implementation           | defined standard infrastructure including the server consolidation, mainframe workload split between data centers, Web hosting, LAN assessments at 176 Commonwealth facilities, data storage rationalization, and an archival plan. Consulting services would support the optional offerings common desktop environment and the Richmond metropolitan area network (MAN). |
| 6. SAN Environment and Storage Archive          | A data storage strategy including multiple storage services and archival capability to effectively manage the increasing demand for data storage and data storage security and protection; aligned with EDS' partners, EMC and StorageTek.  |
| 7. Implementation: Consolidation and Migration  | Implementation resources and tools to facilitate the transformation of mainframes, servers, data storage, and desktops, if selected.  |
| 8. Business Continuity Assessment and Planning  | Business assessment identifies business risks and mission-critical systems; includes development and implementation of defined infrastructure DR solutions.   |
| 9. Web Portal Interface and Billing/Charge Back | Web portal interface reports on server usage on shared servers, storage usage, and mainframe usage; provides service performance information and billing charge information to reflect assets and usage by agency, department, or user, depending on the specific service. Will support desktop services' provisioning of hardware and software if selected.              |
| 10. Project Management Office (PMO)             | The EDS program manager (PM) leads the PMO and is responsible for the success of the transformation. The EDS PM will collaborate with the Commonwealth to manage the complexity of the transformation, track the achievement of projected savings, and drive the project to exceed the Commonwealth's expectations.   |

The optional offerings are briefly described in the following matrix.

| Optional Offerings  | Description  |
|---|--|
| 1. Common Desktop Environment with Thin Client Architecture and Common Messaging (e-mail) | A new standard desktop office environment and common e-mail system taking advantage of thin client architecture and associated savings in hardware and software costs, together with improved productivity with a common e-mail system.  |
| 2. Operational Service Management   | A defined set of infrastructure services and delivery capabilities designed to meet specific and committed service levels to the Commonwealth; provides end-to-end application and system availability for all infrastructure elements including mainframes, servers, routers, LANs, desktops (if selected), and data storage. |
| 3. Human Resources (HR) Transition and Change Management                                  | Pathwise Partners will provide Transition and Change Management support.   |
| 4. Richmond MAN   | A Richmond MAN would be used by 80 percent of the Commonwealth's employees requiring access. It will be developed in conjunction with local telecommunications providers.  |
| 5. LAN and Wide Area Network (WAN) Router Management                                      | LAN and WAN router management across Commonwealth sites for end-to-end availability of services to the consolidated infrastructure in the new data centers.  |

DPR will construct two data center facilities to house the consolidated platforms and operations (processing, help desks, and network operations). VA1 lead, Koll Development Company (KDC) will be responsible for the development of the project, for ongoing facilities management, and for securing private financing for the facilities' construction. The facilities will be designed by Ellerbe Becket in collaboration with VITA leaders and with support from Thompson + Litton and EDS. Conceptual facility

designs are presented in PPEA Section 2, Project Characteristics, Item a. The Staubach Company (Staubach) selected the locations in Richmond and Wise County where, with VITA approval, the facilities will be built. Troutman Sanders will provide legal counsel and communications. VA1 will emphasize collaboration and communication throughout the construction process and the entire transformation. Collaboration brings multiple viewpoints and knowledge to the design process to achieve a balance of function and cost in creating the most suitable data centers for VITA.

EDS will have primary responsibility for IT transformation and for the ongoing IT operations in the data centers. The transformation process concept, described in PPEA Section 2, Project Characteristics, Item a., starts with governance, the establishment of the collaboration team and the communication links; continues through the successful implementation of the new consolidated, rationalized IT environment; and concludes with the ongoing operation of the transformed IT environment. Pathwise Partners, a woman-owned, Virginia-based small business (SB) subcontracting to EDS, will facilitate staff transition through cultural change management. Code X, a minority-owned, Virginia-based SB subcontracting to EDS, will provide technical expertise, particularly in the area of database migrations. The governance structure created at project start-up will be active (collaboration and communication) throughout the transformation implementation and ongoing operations.

VA1’s transformation project adheres to the strategy developed by VITA, led by Secretary Newstrom, in response to Governor Warner’s imperatives. VA1’s proposed transformation lays a foundation from which VITA and the Commonwealth will benefit for years after project conclusion.

## Section 2.a

- a. Provide a description of the project, including the conceptual design. Describe the proposed project in sufficient detail so that type and intent of the project, the location, and the communities that may be affected are clearly identified.

VA1’s project description begins with an explanation of the proposed project schedule. Scheduling for a project of this scope and sensitivity is critical to project success. The schedule must balance VITA’s desire to receive benefit from the project with the need to mitigate risk and to prepare stakeholders (VITA customers and users) for the transformation.

### 2.a-1 Project Schedule

Exhibit 2.a-1, VA1 Project Schedule, shows major project stages and timelines of VA1’s proposed project schedule. The activities are explained in this section.

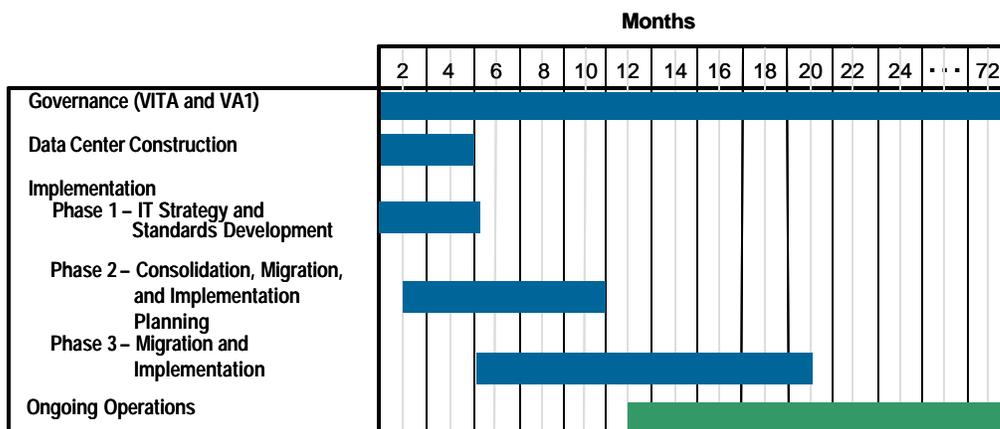


Exhibit 2.a-1, VA1 Project Schedule

## 2.a-2 Governance

Governance must be managed as a partnership between VITA, VA1, and other organizations as appropriate. VA1 has learned that failure to establish clear and open communication channels and to have inclusive decision-making and issue-resolving guidelines and procedures disrupts the entire project, affecting schedules and cost. As shown in Exhibit 2.a-2, Governance Relations, governance establishes clear roles, responsibilities, and accountabilities for all organizational constituents of a program, including executive leaders and program managers. Industry best practices include the use of a governance process, at an enterprise level or for an individual program, to oversee and manage spending and for an acceptable return on investment (ROI). The Value Management discipline identifies and tracks the realization of benefits for VITA.

The key to governance is the identification of a Program Sponsor, who is a senior executive who fully endorses the program and has the authority to do the following:

- Control the allocation and retention of required resources
- Enforce the priority established for the program
- Obtain the timely cooperation of all participants.

To set direction for the program, the Program Sponsor must understand the business landscape and monitor program definition and objectives. The Program Sponsor usually chairs the Steering Committee.

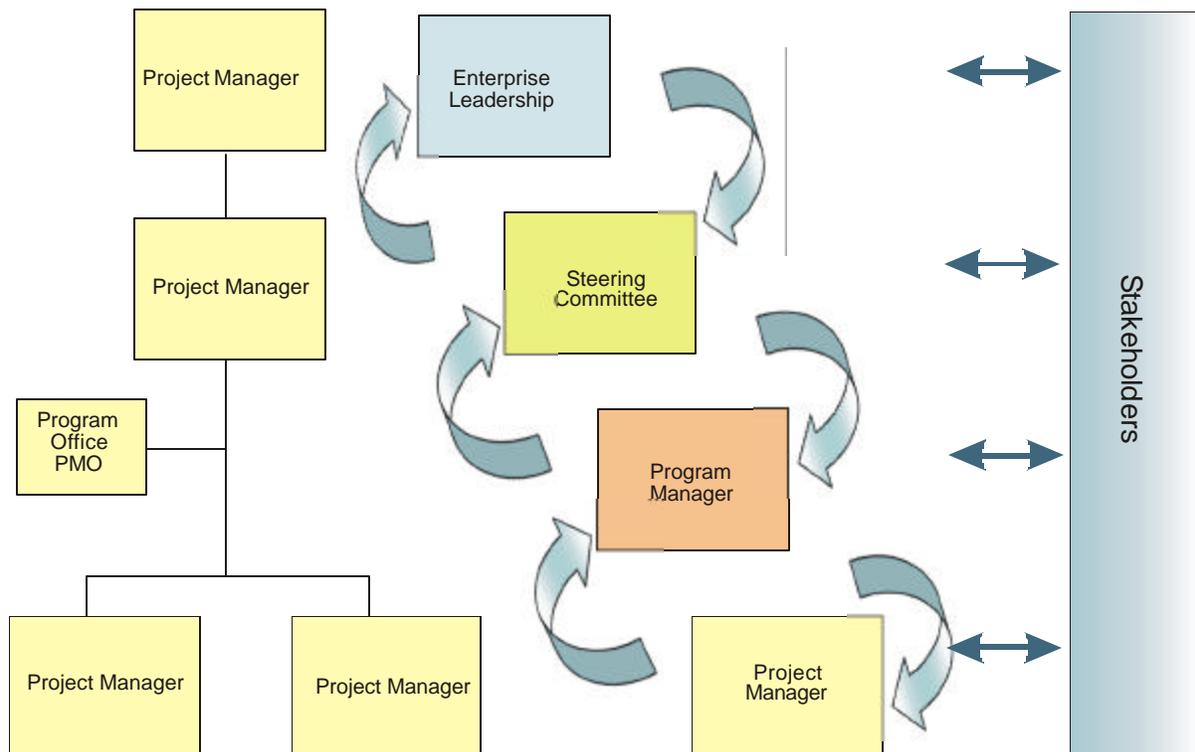


Exhibit 2.a-2, Governance Relations

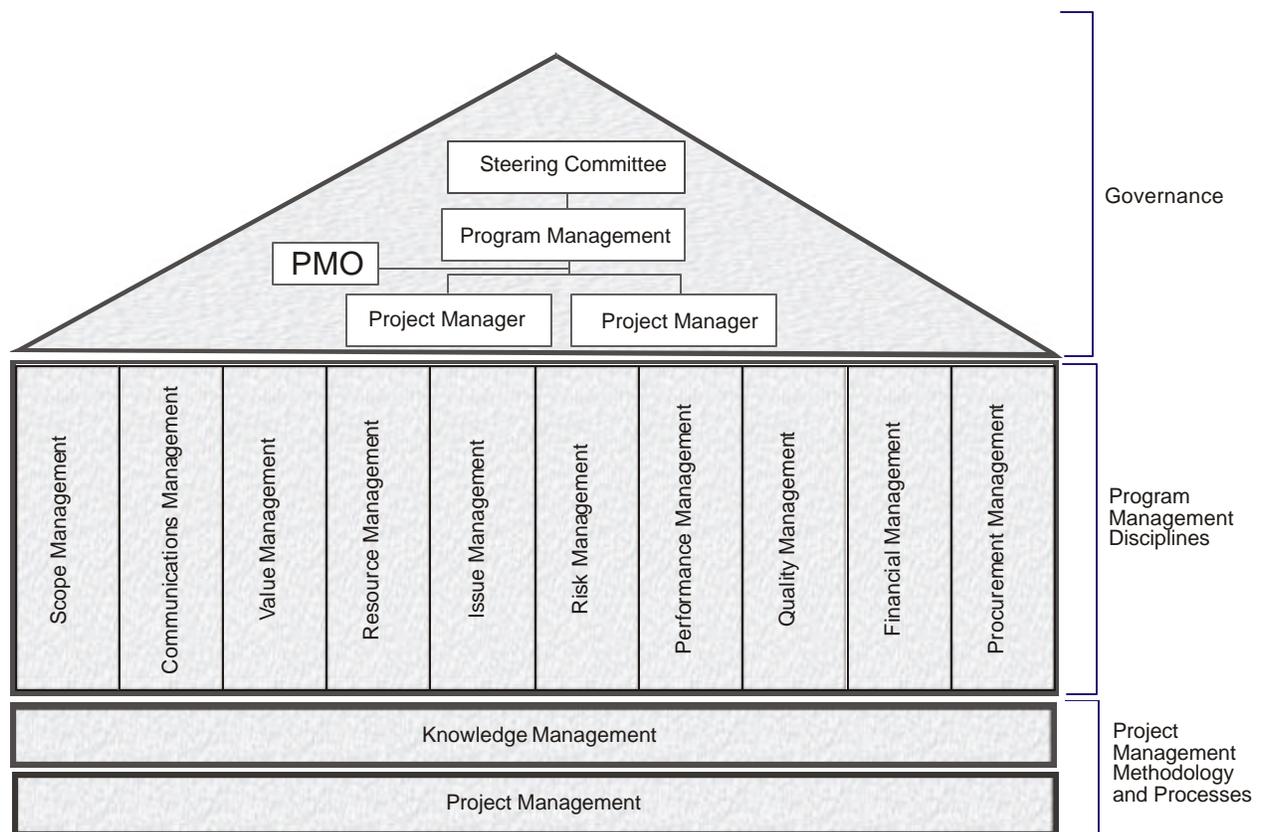
## Program Management

VA1 will use EDS’ Global Program Management Architecture (GPMA) to bring greater detail and functionality to the governance model. GPMA is fully integrated with the governance model. In developing the foundation for program management, several EDS methodologies served as a resource including the following:

- EDS Systems Life Cycle
- EDS Project Management Methodology
- Value Assurance Process
- EDS GM Systems Development Process
- SEI Capability Maturity Model
- PMI's Project Management Body of Knowledge.

GPMA was originally deployed in 2000 on EDS’ General Motors contract. Once proven, it was institutionalized throughout EDS. VA1 recognizes that the program management model will have to be modified to best suit this transformation project. VA1 will work with VITA to identify and incorporate required modifications.

Exhibit 2.a-3, EDS’ Global Program Management Architecture, presents the significant elements of GPMA. To provide detailed explanations of each GPMA seems inappropriate for this conceptual proposal. The titles are rather self-explanatory; for example, Troutman Sanders and Pathwise Partners will work in Communication Management to promote the flow of information and discussion within the program structure, including with stakeholders; of course, details are available on request.



2.a-3, EDS’ Global Program Management Architecture

### 2.a-3 Data Center Construction

VA1's general contractor, DPR, leads the next step in the transformation by building two data center facilities to house the consolidated operations. The facilities' specifications are based on EDS' extensive data center management experience. The size specifications will manage mainframes, print output, storage systems, centralized backup systems, and approximately 800 servers. This size provides for a 10 percent growth factor. As IT hardware continues to shrink in size while increasing in processing capacity, that growth factor should support VITA's requirements for the foreseeable future. DPR will construct two data center facilities to house the consolidated operations. KDC will be responsible for ongoing facilities management.



*Exhibit 2.a-4, Richmond ETRADE Facility*

The Richmond facility will replace the current Richmond data center, which has security deficiencies that preclude its long-term viability. The new Richmond data center will be a focal point for consolidating processing, network operations, and help desks. VA1 has identified a site in the West Creek Business Park as the proposed location for the Richmond facility. Appendix G, Richmond Facility, includes a location map and aerial view of the site. Exhibit 2.a-4, Richmond Facility, presents a concept of the facility to be constructed.

VA1 estimates the size range of the Richmond facility at 80,000 square feet to 110,000 square feet. The design and size of the facility will be finalized in collaboration with VITA. Appendix G, Richmond

Facility, also contains Ellerbe Becket's schematic outline of the facility.

The Wise County Data Center will house the consolidation of processing that is currently scattered throughout the Commonwealth. VA1 has identified a site in the Lonesome Pine Business & Technology Park as the proposed location for the Wise County facility. Appendix H, Wise County Facility, includes an aerial view of the site. Exhibit 2.a-5, Wise County Facility, presents a concept of the facility to be constructed.

VA1 estimates the size of the Wise County facility at 45,000 square feet. The design and size of the facility will be finalized in collaboration with VITA.

Appendix H, Wise County Facility, also contains Ellerbe Becket's schematic outline of the facility. The proposed location benefits VITA and Wise County. Wise County will benefit from the establishment of a high-technology facility and the creation of high quality jobs to staff the new data center.



*Exhibit 2.a-5 Wise County Facility*

## 2.a-4 Implementation

In designing the new IT environment, VA1’s goals were to overcome the challenges of the current disparate, fragmented environment and to support Virginia’s growth both locally and globally. Achieving those goals requires new thinking, as demonstrated in the Strategic Plan for Technology, and a new IT foundation.

VA1 identified three major components in the implementation: IT Strategy and Standards Development; Consolidation, Migration, and Implementation Planning; and Migration and Implementation. These three components contain a multitude of managerial and technical activities. When the implementation is completed and operations have begun, VITA and the Commonwealth will have the rationalized, consolidated IT environment shown in Exhibit 2.a-6, Commonwealth of Virginia Data Centers.

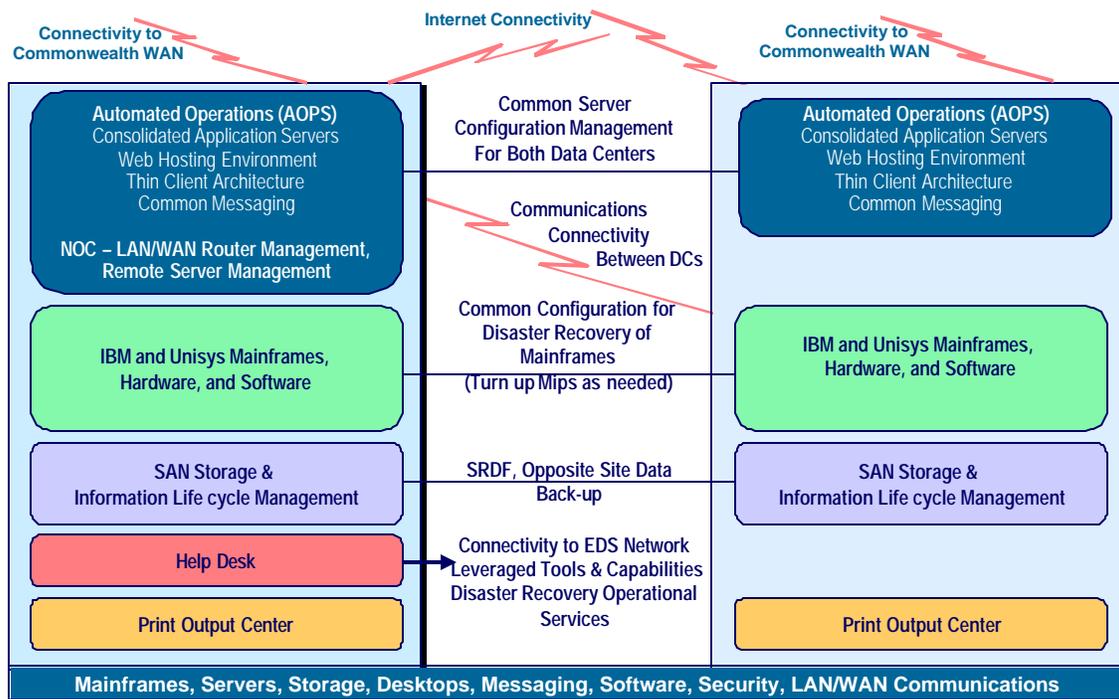


Exhibit 2.a-6, Commonwealth of Virginia Data Centers

## Data Centers

VITA’s new data centers will function as one integrated system. They will be geographically distant to adhere to strict disaster protection principles. Both data centers will be equipped with sufficient data storage to provide mutual real time data backup. Each data center will have sufficient processing capacity to assume the other data center’s workload. These capabilities will be supported by the redundant, diverse high-speed communication links between the two new data centers. The new, integrated foundation minimizes the possibility of the loss of critical data to near zero. It enables the creation of a responsive disaster recovery (DR) program that VITA will directly control. The new Disaster Recovery (DR) program eliminates VITA’s reliance on out-of-state facilities and reduces response time from days to minutes. The response time is made possible by having data replicated between the data centers, allowing for quick recovery processing at the other site in the event of a disaster.

The mainframe environments will be provisioned with the same configuration and capacity capability. This architecture allows for workload to be split between environments and creates a Disaster Recovery (DR) capability for mission-critical systems.

Working with EMC, EDS will provide a data storage solution with replication of mission-critical data to be replicated in the opposite data center to expedite system recovery in the event of disaster. Common centralized backup systems will be used to allow for backup of data at the opposite data center. EDS partners with StorageTek and will deploy a proven technology template that is currently used in the EDS Systems Management Center (SMC) as a reliable backup and recovery capability. VAI's data storage solution offers VITA a robust and secure data storage environment; Subsection Data Rationalization Study further describes the solution and the benefits to VITA.

## Network Operations and Automated Operations Center

VAI will build a combined network operations center (NOC) and Automated Operations (AOPS) Center in the Richmond facility to manage the data center environment; the remote servers, LAN, MAN, and WAN routers; and the Commonwealth's distributed and centralized server environments. The AOPS comprises tools, processes, and technology to provide a repository of server configuration information that allows for quick provisioning of servers configuring them within minutes to defined server configurations, which promotes a capability to allow a 100 percent service-level agreement (SLA) and quick recovery in the event of a disaster. EDS' NOC and AOPS environment will be used to provide a backup operational capability.

The NOC will be populated using a proven model with EDS' tool suite to provide the network availability combined with the COVANET network provided by MCI. EDS manages NOCs for several large infrastructures such as the Navy Marine Corps Intranet (NMCI) and for large commercial clients.

Network management has evolved from the simple performance and operations management of a network to the assurance of the enterprise's ability to deliver services and execute processes on the managed network. The nature of that assurance is expressed in terms of business value. Combining the support of network components as an integrated service increased the ability to provide an end-to-end application availability. The term "network assurance" defines the management of only the network infrastructure as a common service element to facilitate business processes and services transacted by the network infrastructure, which includes the LAN, WAN, and telecommunications infrastructure; it is commonly referred to as jack-to-jack management.

Network assurance enables the physical ability to drive the required communications functions across all elements of the network infrastructure. It is shaped by the changing nature of the service provisioning market, whose consolidations and cost structure make network decisions some of the most visible and critical aspects of network infrastructure design and operations.

Modern global enterprises are driven by rapid successions of innovation that involve the Internet, voice and data convergence, and subscriber service. Traditional notions of network management –once sufficient for communications – are completely obsolete, as are traditional management systems, tools, and processes. EDS brings network assurance innovation to market as a key component of managed communications services – in the form of Global Network Operations Center (GNOC) solutions.

## GNOC Scope

Rapidly changing technologies, globalization, and evolving methods for converging voice and data networks are leading many businesses to look outside their own in-house systems for ways to support and

manage these new communications options. By providing network assurance, EDS' GNOC services provide the network management functions as defined by the Information Technology Infrastructure Library (ITIL) standard framework. Network management is defined as the management capability to consolidate, manage, and link all raw information about network components into a common framework. The raw data collected includes fault, configuration, performance, asset, and security. Network assurance is the service view that encompasses the following network management functions of the LAN and WAN routers working closely with the Commonwealth's COVANET provider as well as the Richmond MAN:

- Availability Management
- Performance Management
- Change Management
- Incident Management
- Event Management
- Fault Management
- Configuration Management
- Problem Management
- Service Desk (Help Desk and Ticketing)
- Service Level Management.

Network management helps manage the growth and expansion of the network, while network assurance improves the overall quality of network operations and services. However, as networks have grown from simple LANs to global internetworked systems, the task of keeping the networks operational and resilient becomes extraordinarily complex, and, in the process, network reliability becomes paramount. Network assurance governs the state of network connections ranging from local processes that connect client/server applications to LANs, WANs, and the public Internet. Regardless of the media involved – fiber, satellite, microwave, landlines – network assurance responsibilities include network planning and design, network change management, network maintenance, network performance and capacity management, network availability management, network problem determination, and troubleshooting.

Network assurance involves the implementation of proper network management technology supplemented by policies, procedures, and standards and managed by a skilled organization. Network management itself has many subordinate roles that must be coordinated either with manual processes or through proper workflow and automation.

Network management includes the configuring, monitoring, controlling, and optimizing of all enterprise and service provider network resources, as well as the resolution of network-related problems. Network assurance services follow a hierarchical approach, beginning with the discovery of detailed network information and ending with value-added services facilitated by a centralized network assurance manager for top-down control.

The scope of the GNOC is to provide network assurance services to manage the LAN, MAN, and WAN routers and management services not currently supported as part of COVANET. The network devices that make up these services include routers, hubs, and switches. The GNOC will be able to provide management capabilities across multi-vendor networks for the foregoing devices. In some instances, lower-level element management tools will be required to support specific components, but the GNOC will provide a manager-of-managers framework, which will manage multiple element managers in a single view.

The GNOC solution is designed to meet current and future needs. By implementing the GNOC, EDS is ready to deliver communications services that meet evolving next-generation standards, thereby resulting in the following benefits for the Commonwealth:

- Reduced operational costs through improved efficiencies
- Delivery of comprehensive network management services and end-to-end visibility
- Delivery of contracted Service Level Agreements (SLAs)
- Technology capabilities (automation)
- Management of a multi-vendor environment
- Ability to keep pace with rapid network growth
- Faster to market, new services.

The GNOC solution uses the current investment in tools, processes, and procedures that are considered best practice and integrates communication services management into a single management solution.

Without these components, the Commonwealth's vision of being a technology leader among state governments and providing citizen-centric services is compromised and productivity opportunities are decreased.

EDS will deploy an AOPS Center and a NOC to manage the servers in the data centers as well as the remote Commonwealth locations. EDS has adopted an Automated Systems Lifecycle approach to managing servers across the development, test, and production environments. This brings consistency in managing servers, reduces outage risks, maximizes IT staff productivity, and improves security in the environment. EDS will work with the Commonwealth to provide an environment where applications are hosted across the application life cycle (see Phase 2 information later in this section).

VITA recognizes, as does VA1, that these two elements form the bedrock on which the entire IT environment is built. As demonstrated by its Strategic Plan for Technology, VITA has made significant progress in the development of IT strategy and IT standards. Standards in networking, telecommunications, project management, and security are examples of VITA's progress.

EDS has maintained a Technology Policy for more than 20 years. The policy addresses the technologies (standards, trends, products) of the past, present, and future. The technologies of the past have been overcome by newer, more capable technologies. The technologies of the future are promising but unproven, uncertain, or lacking in wide acceptance. They present risks VITA cannot accept in its critical environment. Current technologies are state-of-the-art without the risk of bleeding edge. Their future is foreseen; and they are where VITA should invest its technology capital.

## Phase 1. IT Strategy and Standards Development

EDS has developed a methodology architecture that serves as the foundation for the deployment and continuous improvement of its processes and as the source of corporate knowledge and practice.

Process improvement has been shown to reduce errors, increase productivity, and provide consistency of results – leading to client satisfaction. The entire methodology architecture provides constancy of purpose, yet fosters an environment that is process-driven, government supported, locally prescribed, and continuously improved. Methodologies that support engineering disciplines are based on this architecture, which also provides the basis for the education and training curriculum.

EDS tools support the methodologies and processes that are used with clients. We regularly evaluate both commercially available and emerging technologies and toolsets and make the results available to EDS clients. Some tools that have broad applicability are selected for government-level support, and favorable purchase or usage rates are negotiated through EDS' volume purchasing power. Usually, several tools are supported in a given category.

The Enterprise IT model also defines the organizational processes for delivery centers globally and begins to define the desired state for infrastructure delivery centers through the definition and implementation of common global templates, government business processes, and technological improvements.

The global network of expertise provides EDS with a broad base of functional specialization – technical, industrial, and geographical – required to design and deliver the highest quality solution to our clients.

EDS will take advantage of this knowledge and experience in providing assistance to establish and confirm a defined set of infrastructure standards that will become the foundation on which the infrastructure consolidation is built and future procurement and application development occurs.

### *RightStep* Methodology

One of EDS' key methodologies is the *RightStep*<sup>®</sup> methodology. It will be used to support all three Implementation phases. The IT concepts defined in this proposal, together with the standards already defined by the Commonwealth will be refined through the EDS' *RightStep* methodology to take an enterprise approach to IT planning, thereby helping the Commonwealth to identify and prioritize consolidation initiatives and agency-specific initiatives and to optimize IT investment in a manner that best supports the business goals of the enterprise. Areas of study will include the following:

- Application Rationalization Assessment
- Establishment of an Application Lifecycle Strategy (Development, Test, Validation, Production)
- Server Consolidation Study
- Data Rationalization Study for Consolidation into a SAN and Use of the Information Lifecycle Management
- Desktop Standardization Common E-mail Architecture Validating the Use of Thin Client Architecture
- Mainframe Workload Rationalization
- Data Center Strategy and Size Validation
- Business Continuity Assessment
- Help Desk Consolidation Strategy
- MAN Design
- LAN and WAN Router Assessment and Upgrade Evaluation.

*RightStep* is EDS' methodology for strategic enterprise IT planning. *RightStep* is an integrated framework for aligning technology to the government's business objectives by:

- Aligning existing and future IT investments to the strategic plan and business processes
- Confirming government's strategy and business context
- Assessing current technology standing with respect to evolving industry best practices
- Providing focused recommendations for technology opportunities to improve citizen-centric operations
- Identifying opportunities to leverage next-generation technologies and cost reductions
- Establishing an architectural framework that enables rapid change.

*RightStep*'s fundamental premise is that a successful IT strategy and enterprise architecture must be linked to a government's business direction. The *RightStep* philosophy acknowledges that technology is an important enabler of business processes, not only to support current needs, but also to allow for future

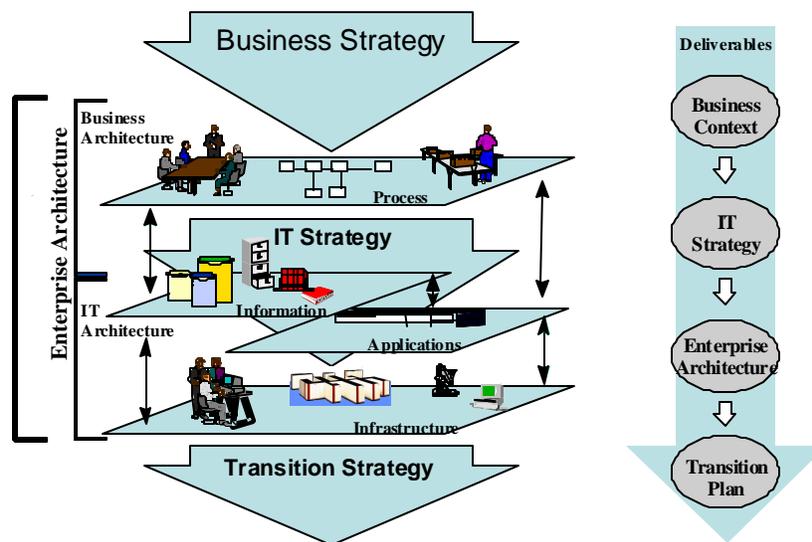
changes and capabilities to be derived from its use. This philosophy provides EDS’ government clients with the ability to best service their citizenry.

A *RightStep* engagement starts at the top, drilling down through the business one layer at a time. First, gaps between the current business performance and the strategic direction are analyzed to identify opportunities for improvement. The next focus is on the following areas:

- Business processes
- Information and application portfolios required to support the business processes
- IT direction for providing the necessary information and application systems
- Technical infrastructure required to support those systems.

Based on the knowledge of IT needs, direction, and architecture, transition strategies are defined that push IT to support the business processes and the client’s strategic business direction – forging a link between IT initiatives, political change priorities, and enterprise goals.

Exhibit 2.a-7, *Aligning Technology with Business Direction*, is a schematic depiction of the *RightStep* methodology:



2.a-7, *Aligning Technology With Business Direction*

EDS consultants will use portions of *RightStep*, its proprietary enterprise architecture framework, to assess the technical architecture of the Commonwealth’s in-scope agencies. Simply stated, *RightStep* is the process to be used to reach best-value decision recommendations for account management and infrastructure consolidation.

*RightStep* addresses the issue that IT resources, like all other resources, are limited and must be invested in areas that will provide the most tangible agency business and operational return. Key elements of the process to develop an actionable strategy are the strategic vision, objectives, and operating principles (business direction) and business processes. Working with VITA’s Enterprise Service Directors, the VA1 team will conduct agency executive interviews and workshops; the team will gather and confirm the business direction and information about current IT performance. This will determine the criteria for identifying and evaluating potential IT initiatives, bearing in mind the particular focus of this engagement.

EDS will assess the IT environment and compare this environment with best practices. The following activities are conducted during the IT assessment:

**Step 1:** Interview key IT personnel (for one to two hours, each) to understand and validate information for the following areas (additional time may be required as mutually agreed to emphasize specific areas or to provide pertinent data in these areas):

- IT strategies, policies, and initiatives including current IT projects.
- Key applications including their functions, interfaces, operating system requirements, and business statistics such as the number of users and transactions, and data volume.
- IT information architecture with respect to how data is shared among applications; for example, point-to-point interfaces, data warehouses, middleware, and so on
- IT infrastructure, such as high-level diagrams of IT networks and associated hardware, the network management tools used, and the capability of the network and critical hardware, such as key database servers, to meet current and future needs.
- IT organization and processes used to support user groups. This includes configuration and support capabilities such as workstation standards, asset management tools used to monitor workstation configurations, software licensing management, and help desk support. It also includes a review of IT governance practices.
- Security policies addressing areas such as network intrusion, firewall configuration, antivirus tools and strategies, and remote access capabilities.
- Storage management policies addressing areas such as backup, recovery, data retention, and archives.
- Cost associated with maintaining key applications and infrastructure.

**Step 2:** Compare interview results with EDS’ best practices in customer and account service, application development and maintenance, forecasting and capacity planning, service management, technical support, field operations and provisioning, and network and data center operations.

**Step 3:** Conduct technical quality surveys of key applications from an IT perspective; that is, the ability to interface with other systems, maintainability, and so on

**Step 4:** Determine opportunities to enhance the IT architecture to meet needs based on the interviews and a comparison to best practices.

### Application Rationalization Assessment

One of the *RightStep* study areas is the Commonwealth’s application portfolio. EDS will use a mix of interviews, questionnaires, and existing information to gather a complete inventory of applications. This information will be used to conduct the Application Rationalization Assessment. The assessment includes the current degree of integration between applications and how well the data architecture supports the application portfolio. This activity uses resources from a number of specialist practices within EDS. These include Technology Planning for the *RightStep* expertise including IT governance, applications assessment for the details of the assessment of the technical quality, enterprise application integration (EAI) for the review of integration, and the metrics group for benchmarking. Other specialists also will be involved to review the viability of vendors currently represented in the portfolio.

Deliverables from the overall process will include the following:

- Recommendations for the applications portfolio’s future direction – obsolete or redundant applications to be retired, opportunities for reengineering, reuse, and so forth
- A governance model to manage the implementation of the rationalization process and the subsequent management of the applications portfolio
- A detailed transition plan showing resource requirements
- Assessment reports and analyses of the current state of the applications portfolio

The process is well suited to and requires input from the application’s users and IT community as shown in Exhibit 2.a-8, High-Level View of EDS’ Application Rationalization Assessment.

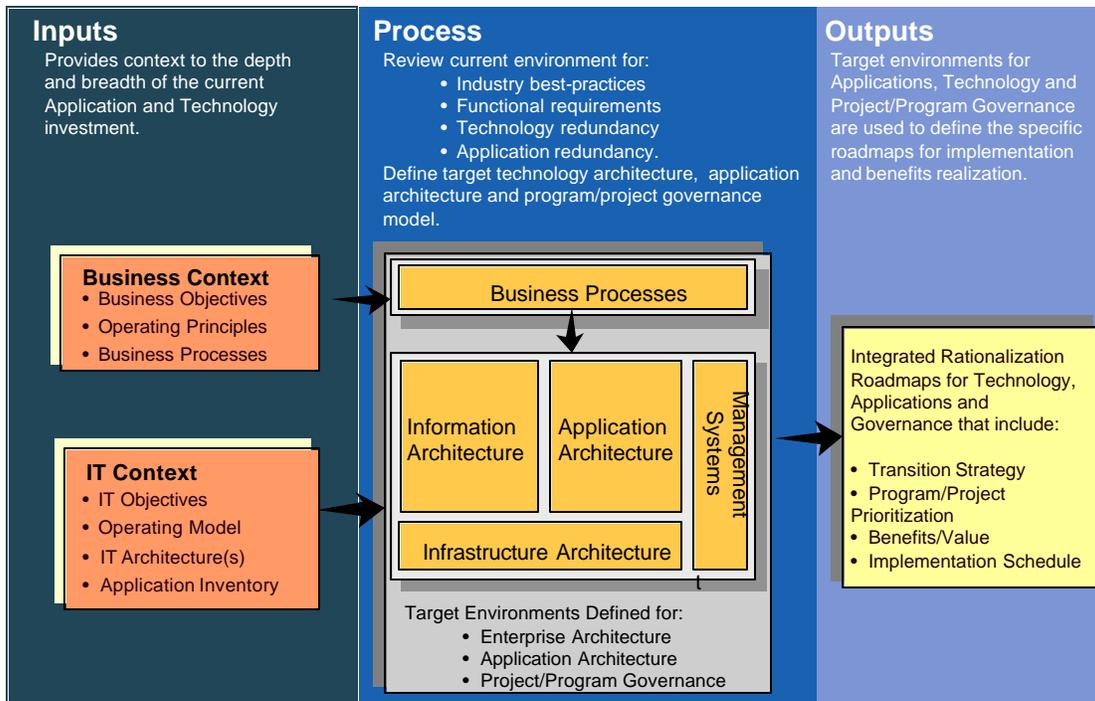


Exhibit 2.a-8, High-Level View of EDS’ Application Rationalization Assessment

The Applications Rationalization Assessment may include recommendations for the following:

- **Applications Consolidation** – Identifies and evaluates applications that have similar business functionality to determine a common application for use across the enterprise
- **Applications Coexistence** – Identifies which applications can reside together on the same server to allow physical consolidation of servers
- **Applications Reengineering** – Identifies legacy applications for extension (i.e. non-intrusive) or renewal to better meet the requirements of the business environment.

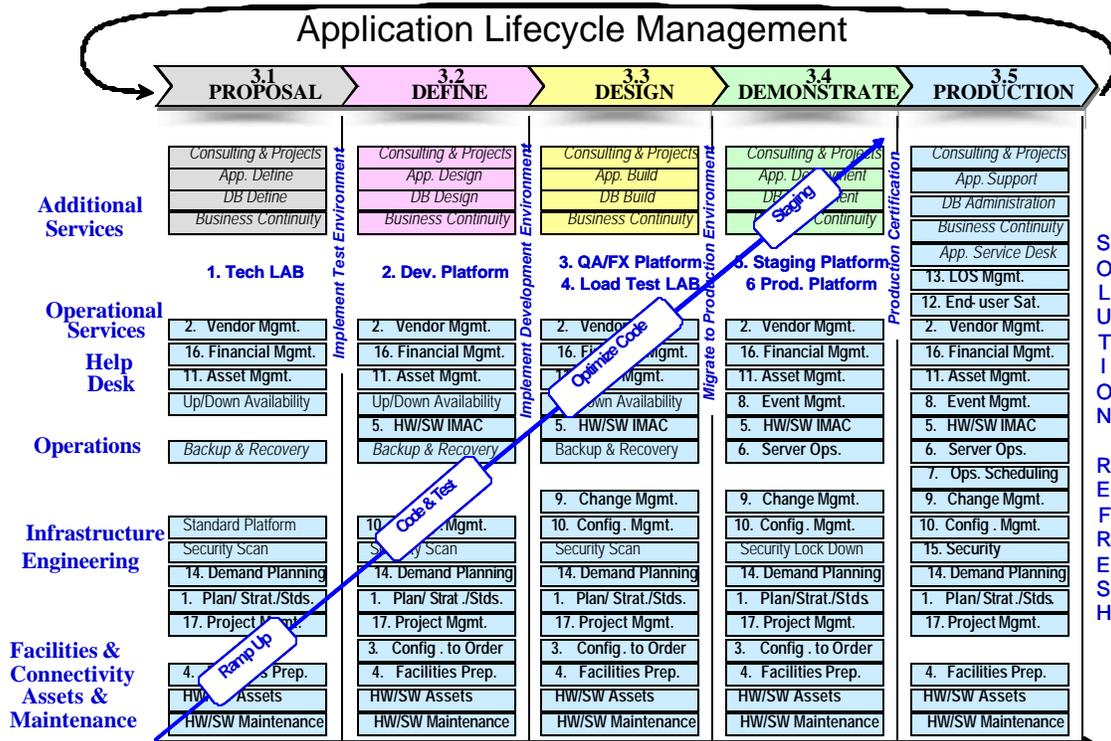
### Application Lifecycle Management

As part of the *RightStep* engagement, EDS will define the standards necessary at the computing and storage levels to support the lifecycle of applications deploying EDS’ best practices.

Integrated support for the life of the application requires support throughout all stages of the Application Maturity Lifecycle, as shown in Exhibit 2.a-9, Application Lifecycle Management. However, business

requirements, service elements, and levels of service (LOS) differ by stage. A solution that integrates the services and provides for the specific needs of each stage, is recommended. Designed to optimize the infrastructure investment, elements of this type support model would include the following:

- Unified strategy and architecture recognizing the specific needs of each life-cycle phase
- Solution engineering commencing at the Sandbox phase allowing for cohesive solution sets spanning application life
- With the production end-point in mind, creation of a staging, or Promote to Production, environment for quick and safe application code deployment
- Capacity Management on computing platforms and storage via the PMO and a demand case process allowing for maximum usage for each phase of the life cycle



2.a-9, Application Lifecycle Management

### Server Consolidation Study

The Commonwealth clearly has the need to reduce its IT-related operating costs. VA1 and the Commonwealth both know that cost reduction and containment demand more than reductions in line item expenditures alone – they require a carefully orchestrated process of analysis, redesign, streamlining, and consolidation. Successful transformation also requires smooth, confident change that is executed in a timely, user-friendly manner. In addressing issues of mounting costs and operational complexity, the Commonwealth has challenged the information industry to respond and participate by envisioning and proposing solutions to address its broad spectrum of concerns. VA1 team member, EDS, proposes the deployment of an enterprise server consolidation strategy.

EDS is pleased to have the opportunity to participate in this crucial phase for the Commonwealth. As an experienced global provider of consulting and IT services, EDS has provided mission-critical support to some of the world's most successful corporations.

EDS' response is designed specifically to address the Commonwealth's objectives to optimize the delivery and support of the midrange server computing environment across the multiple Commonwealth agencies. EDS is uniquely qualified to assist the Commonwealth on this initiative. It possesses the enterprise server consolidation credentials and knowledge combined with a working understanding and record of service excellence. In addition, as a systems integrator, EDS differentiates itself from many traditional hardware providers and original equipment manufacturers (OEMs) in this space – it takes advantage of best-of-breed supplier relationships to address clients' unique business needs.

Please consider the following EDS qualifications in assessing its ability to meet or exceed the Commonwealth's needs for this important initiative:

- Computer Center and Server Consolidation Experience
  - A time-proven, patent-pending methodology for midrange server consolidation that has been employed successfully on more than 1,000 large consolidation initiatives.
  - EDS supports more than 50,000 servers connecting more than 8 petabytes of data globally. It understands the midrange computing space.
  - EDS has a vision for the future of midrange computing and on-demand management systems.
- Multi-vendor and Multi-platform Competence
  - Extensive knowledge of and relationships with hardware and platform vendors and suppliers across the midrange-computing arena (e.g., HP, Sun, IBM, Egenera, and others).
  - Unbiased in the selection, recommendation, and use of various hardware and software technologies – EDS is focused on its clients' needs and requirements.
- Flexibility
  - Experience with creative financial strategies and options to help manage the traditional initial expense associated with efforts of this type.
  - Expertise in deploying and managing complex billing and chargeback mechanisms for large enterprise government clients.
  - A variety of engagement options to consider – from initial planning to ongoing integration and operational support – depending on the Commonwealth unique needs and wishes.
- Reengineering Competencies
  - An approach to identify integration and hand-off points and minimize the risk in moving from the “as is” to the “to be” environments.
  - Expertise in identifying gaps ? platform-level, enterprise controls, and governance ? and related costs associated with aligning each server and application to future business needs.
- Service Level Control
  - A process to map the current state to structured service level models to verify that the appropriate service package will be applied consistently to each server and application.
  - Providing a foundation for standardization of the monitoring and the reporting of service environments.

- Commitment to Operational Excellence
  - A proven record of service excellence as demonstrated in VA1’s references.
  - Use of a Service Excellence Dashboard that verifies the quality of its support and enables VITA to provide specific feedback into that process.
  - Leadership support and oversight provided by Ed Jacques, a highly experienced EDS client delivery executive who will be dedicated to VITA.

### The Case for Server Consolidation

As the uses and needs for IT has expanded over the past decade, most organizations have randomly added servers with little planning. This approach has proved costly, inefficient, and unsupportive of the demands of a government business model that requires application availability, round-the-clock access to data, scalability, and simplified management.

In a past report, The Robert Frances Group made the following observation:

“UNIX and Microsoft Windows NT server farms continue to expand unabated at most large corporations. While the hardware remains relatively inexpensive, it represents less than 20 percent of the Total Cost of Ownership (TCO) of the server. CIOs are paying dearly for each server they add to the mix and should be seeking alternative solutions to uncontrolled horizontal growth.”

Source: The Robert Frances Group, “Server Consolidation Strategies,”  
THE AGENDA IT Abstract, June 16, 1999, [www.rfgonline.com](http://www.rfgonline.com)

Four issues appear to be driving large organizations’ server consolidation priorities:

- **Total Cost of Ownership (TCO)** – governments need to manage their human, financial, and IT resources more efficiently; reduce complexity; implement better management practices; and optimize capacity.
- **Applications’ service levels**– the citizenry demands that applications deliver faster response, higher availability, and increased data access.
- **New business solutions** – many clients find that current configurations actually hinder their installation of new solutions such as ERP, e-business, and business intelligence.
- **Information as a strategic business tool** – information in decentralized processors is a critical asset and must be accessible and shared across the enterprise.

The potential cost savings from server consolidation initiatives can be considerable. Cost saving’s projections from highly respected consultancies such as META, GIGA, Gartner, and Forrester provide a clear incentive to push ahead with consolidation. Through the use of its Server Consolidation Services, EDS can help the Commonwealth to optimize total operation costs and reduce expenses in its midrange-computing environment.

### EDS Approach

EDS will use the Blueprint approach to help the Commonwealth optimize and reduce the total cost of operation of their midrange-computing infrastructure. Physical server consolidation will produce savings. Additional savings can be achieved through the centralization and consolidation of data and applications and by instituting a governance structure.

The Blueprint methodology is used on all consolidation engagements and enables the full spectrum of EDS' capability depending on a client's unique needs and wishes. Blueprint has a core strategy of centralization and consolidation. Centralization enables cost reduction by applying facility and personnel resources across servers on common platforms and architectures that are managed from a single or multiple locations using common consistent processes. These processes reduce variation and increase availability of servers, resulting in high user satisfaction. Consolidation of data enables increased use of storage and optimization of storage management. Consolidation of applications leads to improved communications among systems and users and less rework due to passing and conversion of data among different applications. Consolidation of physical and logical servers onto fewer, consistent architectures leads to reduced administrative cost and simpler, easier management of devices. With EDS leading the case for server consolidation, the Commonwealth will lower the total cost of operations by implementing the following strategies that focus on Technology, Organization, and Personnel:

- **Technology** – The enterprise environment could be built in a phased approach and deployed in parallel with the existing local IT infrastructures. This two-level structure, comprehending both a strategic enterprise environment and a much smaller local support capability provides flexibility and centralized control. It facilitates non-disruptive consolidation at a pace controlled by business and technical drivers. This pace can be as aggressive or as gradual as needed to moderate business impact.
- **Organization** – A comprehensive operations model will be built for the defined future technical and organizational structures. The operations model will include organizational structures, roles and responsibilities, and tailored process flows. This model will be critical to achieving the efficiencies desired from the consolidation effort. This model can be developed in parallel with consolidation planning to be available when the enterprise environment is deployed.
- **People** – EDS' experiences with large individual organizations have shown that it is reasonable to expect significant institutional resistance to major consolidation efforts. Given established organizational structures and support procedures, it will be important to provide a well-planned and highly organized consolidation approach.

Based on the Commonwealth's needs, EDS can provide the Blueprint approach to site and platform consolidations. EDS has a solid history of consolidations in the mainframe, midrange, distributed, and storage environments. EDS has the trained employees and the Blueprint capability to provide the full spectrum and depth of engagement the Commonwealth would undertake in a server consolidation.

During the Server Consolidation Study, the following key strategies are examined:

- Technical and Operational Considerations of Equipment
- Plan for Lights-Out Data Center Operations
- Application Rationalization
- Service-Level Impact on Consolidation
- Disaster Recovery Strategy
- Financial Strategies to Offset Costs
- Building of Strong Strategic Partnerships
- Testing of New Technologies
- Enterprise Systems Management Including Recommended Tools and Processes.

## Technical and Operations Considerations of Equipment

The establishment of standard technical targeted environments comprises standard architecture and builds including standard platforms, operational systems, enterprise environment utilities, and processes required

to service the consolidated environments. These are developed with the strategic integrator and the hardware and software providers. The technical direction must be in alignment with the planning continuum, influenced by the political process, and business objectives.

An example of this is in the storage area. The Blueprint methodology identifies the different types of storage associated with processor, data, and application requirements. During data collection, the location of the storage is identified and the criteria is set to enable the move to a managed storage (for example, a strategic SAN or network attached storage [NAS] strategy) environment supporting on-demand and pay-for-usage utility billing scenarios.

Depending on the capital arrangements, the rapid deployment or disposal of equipment can be a key component to the overall financial contract. Again, the proven approach, methodology, and strategic partner are essential for successful and timely server redeployment in the consolidated suite of assets.

The impact of consolidation must be mapped back to the return on investment (ROI) and business case model to deliver the capability to consolidate within a planned schedule. Standards and redeployment details are two major drivers of the cost reductions in the full consolidations.

### Plan for “Lights Out”

EDS has a high-level vision for the Commonwealth of centralizing servers into two domestically centralized data centers to the extent possible. EDS can also envision a subset of the servers to be remotely managed due to attached devices or environments. EDS has pioneered the “lights-out” computer (data) center concept globally through multiple client consolidations spanning its 40 years.

The lights-out data centers referred to as Service Management Centers (SMCs) house the backbone of EDS’ delivery capabilities globally. EDS proposes the development of two data centers that are similar to the EDS SMC environment. The SMCs are engineered and built from the ground up to meet EDS standard facilities requirements. All SMCs are empowered with multiple power and communication capabilities. These facilities operate 24 hours a day, 365 days a year to service the EDS client base. They have multiple tier capabilities to deliver compute, storage, and networking. They enable the integration of multi-vendor environments and deliver seamless service at predefined service levels. These facilities are electronically monitored with online reporting capabilities and billing-by-usage capabilities for both the mainframe and midrange server bases. These SMCs have multiple tier data protection and security systems to provide the intrusion prevention required to deliver at a world-class level to the mainframe, midrange, and desktop levels.

The SMC data centers have enabled EDS to deliver at world-class levels in terms of manpower per MIPS or per server. The electronic and software monitoring also enables a high concentration of servers-to-manpower ratios.

### Application Rationalization

An overview of the EDS Applications Rationalization approach is depicted in Exhibit 2.a-10, EDS’ Applications Rationalization Approach. A detailed description of specific activities follows the exhibit.

#### Phase 1

##### **Task 1 – Conduct Project Initiation Activities and Determine Business Direction**

VA1 will conduct a kickoff meeting to initiate the project and will meet with key client users and IT staff to further understand the Commonwealth’s business direction as it applies to the scope of the engagement.

During this task, the EDS engagement manager conducts a kickoff meeting to establish mutual expectations about the project.

**Task 2 – Application Portfolio Assessment Tasks**

The activities accomplished during this task determine the extent to which the IT applications align or support the agency business process needs: EDS proposes the inclusion of the Application Portfolio Assessment to optimize savings for the Commonwealth.

**Task 3 – Develop Future Vision**

The Assessment team will develop a high-level vision of the future application architecture and associated infrastructure, which will be based on information gathered during interviews and working sessions from Tasks 1 and 2 and responses to questionnaires.

Phase 2

**Task 4 – Analyze and Evaluate Alternative Solutions**

A refined list of opportunities is created from the Current Assessment Report. This refined list will provide high-level functional and technical requirements for evaluating prospective solutions and addressing the requirements application and infrastructure architectures. This will include candidate obsolete applications and possible replacements, applications with duplicate functionality, and opportunities for application and application and data integration to improve functionality and coverage to key business processes.

**Task 5 – Benchmarking and External Research**

Develop an application and data integration return on investment (ROI) model using industry metrics, the current total cost of ownership (TCO), and the TCO of the alternative integration architectures.

Phase 3

**Task 6 – Develop Business Case and Recommendations**

Based on the reviewed and recommended solution, the team will develop the information, application, and infrastructure architecture for the future solution. The team will also identify the initiatives and associated cost and risks for implementing the preferred solution. In addition, a governance model for the transition and ongoing management of the applications portfolio will be prepared.

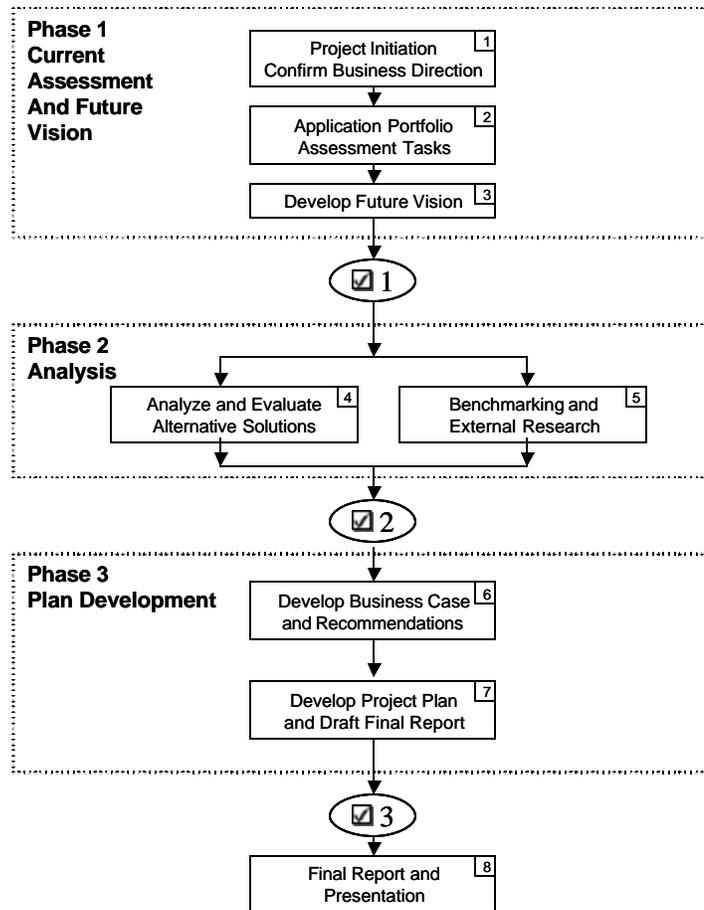


Exhibit 2.a-10, EDS' Applications Rationalization Approach

## Task 7 – Develop Draft Reports

The team will prepare a Draft Transition Plan and Report. The plan will address a timeframe to be agreed at project start-up. The size, costs, and complexity of the required migration, together with the Commonwealth’s ability to absorb change, will dictate the plan duration, but typically these plans span a two- to four-year period. The plan will include detailed tasks, their interdependencies and durations, and associated resource requirements and costs.

The Draft Solution Plan and Report will include the solution application and infrastructure architectures and selected application and data integration requirements. VITA team members, agency and other stakeholders, and EDS will review and approve the Draft Plans and Reports. The Final Report and presentation then will be prepared for Commonwealth executives.

## Disaster Recovery Strategy

Disaster Recovery (DR) is an overall approach to keep the business viable in the event of a disaster – either physical or logical. Disaster Recovery must be built into the overall server consolidation plan. EDS’ Blueprint tool does this for the to-be environment. DR includes several tiers that are driven from the prioritized critical nature of requirements to sustain business capabilities. The following are some typical DR strategies:

- Compute, Storage, Data, and Application
- Fail-over within facility to another box
- Fail-over within the box (that is, cluster strategies, high availability, and others)
- Fail-over to another site capable of backup
- Duplicate and redundant systems strategies.

DR is the management of backup and recovery of critical data because of a computer facility failure or shutdown. DR services involve many functions, such as identifying data, determining recovery needs, developing backup solutions, and implementing the backup and recovery solution. Thus, the requirements of the application drive the business requirements and consolidation during Enterprise Consolidation strategy development.

## Financial Strategies to Offset Cost

Exhibit 2.a-11, Consolidation Expense Bubble, represents the traditional concern of clients undertaking server consolidation: “How to deal with the initial expense to realize savings over time?”

EDS has provided solutions to this problem for clients for more than 40 years. The beginning of the solution lies in the application of the methodology already presented. The EDS Blueprint process takes the client and EDS through the process of identification of assets and initial optimization of the assets, allowing redundant or obsolete equipment to be removed from production. This step provides the initial foundation for the first

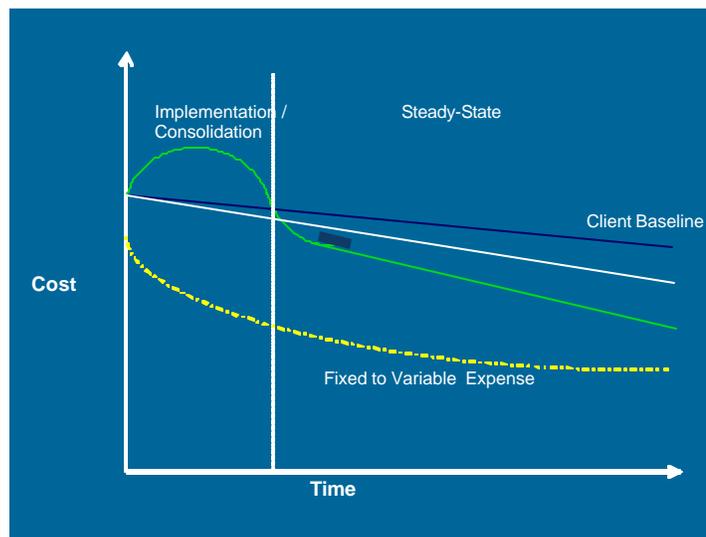


Exhibit 2.a-11, Consolidation Expense Bubble

phase of consolidation. Following the approved blueprint that would be established for the Commonwealth, EDS would assist in the relocation of surplus assets and the selective acquisition of new assets, employing a technological roadmap that guides the selection of the hardware and software to be used for the Commonwealth's specific needs. Finally, the systems will be moved to the new consolidated servers allowing the old assets to be turned off.

EDS has significant experience and broad capabilities in working with its clients to design an optimal funding solution. By partnering with certain investors, EDS has been successful in achieving cost-effective solutions for the funding of projects' capital needs. Some of these solutions have included proprietary hardware funding, access to IT equipment lessors, and use of EDS' purchasing power and alliances such as those included in this proposal.

The funding of capital expenditures has a variety of solutions. It is important that the Commonwealth and VA1 discuss funding solutions early in the process so that the commercial contract has adequate flexibility to incorporate the desired funding solution. The creative financial strategy to offset the expected cost of data center centralization and server consolidation lies in freeing existing assets to facilitate the consolidation, avoiding needless relocation of assets, and delaying of purchases of new assets until they can be fully used, including timing purchases with normal refresh cycles. Additionally, finding alternative funding sources, capitalizing on Federal funding opportunities, and evaluating new trends and approaches for Commonwealth IT funding are all important to consider and review.

### Charge-Back and Customer Cost Allocation Strategies

Many businesses continue to find an ever-increasing need for capital investments in their data center midrange infrastructure, which drives up total cost of ownership (TCO) while balancing budget pressures. This packaging has been designed to help divert these capital investments and enable a pay-as-you-go framework for Utility Compute services. It includes a cost-effective entry into utility services and can help improve the cost efficiency of the Commonwealth's midrange environment when used for new business applications, upgrading existing systems, optimizing existing systems, or Web enabling existing systems. In addition, billing information reported at a departmental level helps identify expenses in enterprise applications or even across multiple agency business applications.

Metering in the utility computing model is similar to electric metering of homes. Just as an electric company has the capability to track usage of its grid by individual homes, individual companies or departments connected to a computing grid will eventually have the ability to measure their total usage of computing resources. EDS can provide that capability now in the data center ? measurement, reporting and allocation of computing resources based on actual usage.

This capability is the latest step in EDS' evolving capability to deliver an out-of-the-box utility service to clients. EDS is already providing computing on demand through flexible pricing and storage-on-demand, to clients such as 7-Eleven, Coors, and Solutia. These agreements enable clients to tap into storage and the use of heavy-duty enterprise software applications as they are needed.

Beginning with migration strategy planning activities, the requirements for the client's charge-back solution are identified and designed into the solution set. The principal elements of the charge-back methodology are presented in Exhibit 2.a-12, Implementing the Usage-Based Charge-Back Methodology.



- Identify Customers/ User Groups
- Define Objectives (cost recovery, profit margin)
- Negotiate/ Communicate Chargeback Model with Customers
- Identify Cost Components (fixed and variable)
- Define Billing Metrics (CPU time, Storage, Bandwidth, etc)
- Configure Tool set (customers, bill items, bill plans)
- Observe Infrastructure Utilization Patterns
- Establish Rates
- Implement Metering and Data Collection
- Define Bill Plans (volume discounts, budgets, etc)

When the requirements are met, the appropriate process is used. Exhibit 2.a-13, A Charge-Back Topology, shows the management of a system.

...successfully with the required manner. Exhibit 2.a-13, A Charge-Back Topology, shows the management of a system.

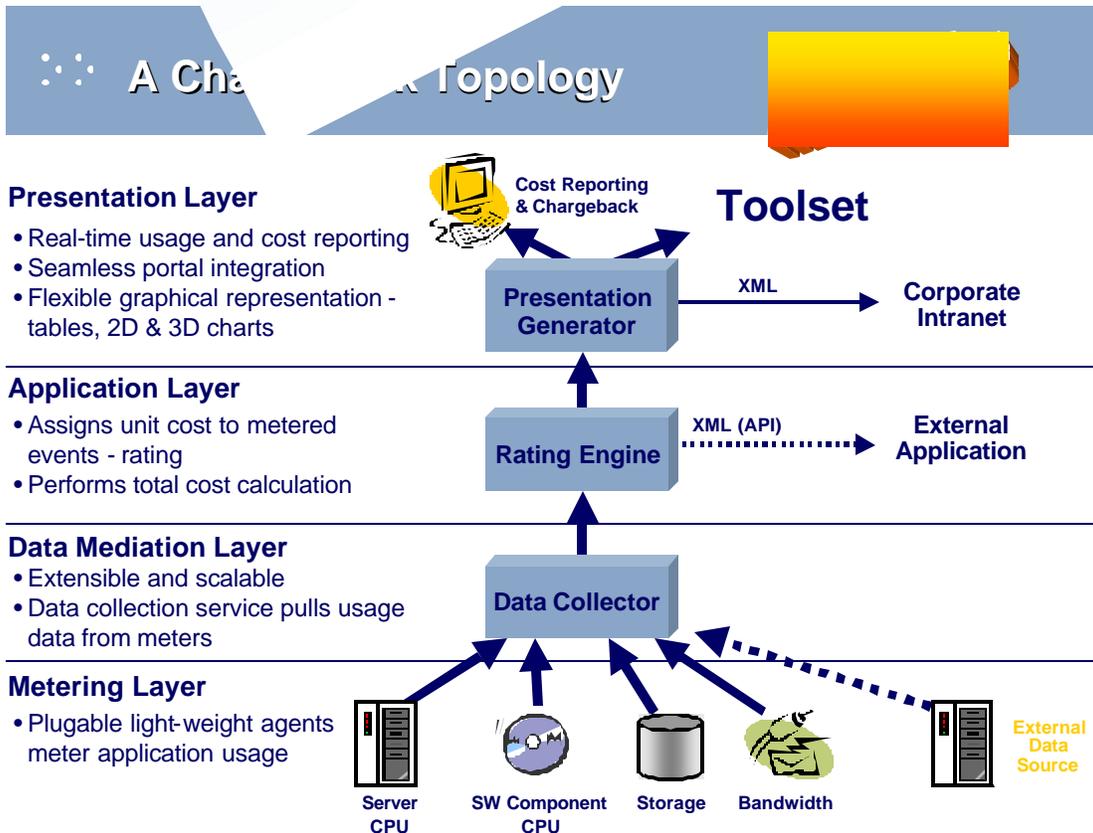


Exhibit 2.a-13, A Charge-Back Topology

EDS' Utility Compute packaging contains an integrated set of managed services and enabling technologies that are currently deployed at EDS' SMCs – large enterprise-scale data centers – or within a client's own data center. These services are available for delivery worldwide; specifically, highlights include the following:

- Utility resource metering software that collects processor resources for consumption-based billing.
- Choice of preconfigured and pretested environments that enable rapid deployment.
- On-request access to Web-based departmental resource reporting using an EDS client information portal.

The key ingredient in EDS' strategy to deliver on demand is to integrate best-of-breed technologies into a strategic utility framework to meet heterogeneous client- hosting requirements for base accounting elements.

### Building a Strong, Strategic Partnership

VA1 recognizes that a strategic partnership is one that is based on a win-win relationship. The ability of one partner to win with or without the other also winning is not a partnership. The creation of strong strategic partnerships among the Commonwealth, VA1, and strategic vendors will delivery the greater value.

EDS may be perceived as an integrator, and that would be correct. It may also be perceived as a reseller of hardware and software in conjunction with services provided to clients, which is also correct, but EDS is much more than this. Its real intent is to be innovative in the use of technology by whatever means necessary to solve business problems for our clients.

- In addition, EDS extends its reach in the marketplace by forging business alliances with top industry leaders. It pursues relationships that support its clients in pursuit of their business goals.

### Testing New Technologies and Equipment

The Commonwealth will need testing capabilities to allow it to test the consolidated environments components before they are moved into preproduction and then into production. Testing is also a key component to the consolidation of platforms, data, and applications.

EDS has two major testing environments and lesser testing environments in each of its Global Application Solutions Centers that are used to test the consolidated server components as required. The Global Application Solution Centers focus on functional components and application-level testing. They are closely aligned with the application development environments.

EDS uses a Platform Integration Performance Evaluation (PIPE) laboratory to test platform capabilities and integration. This laboratory benchmarks and establishes an understanding of what and how new technologies can or should integrate and play together. The laboratory also helps set the refresh technology direction for standard platforms and the associated timing of these refreshed platforms. The PIPE laboratory establishes standard builds and determines the best way to support these environments in Production Delivery to gain maximum output from the platforms.

EDS uses its Global Testing Organization (GTO) to test consolidated and integrated environments to verify that hardware, software, middleware, databases, and applications can work together and coexist in the same environments. This organization has four major testing sites globally and can set up satellites at client sites temporarily to allow the testing of the environments during the transition to the future state.

These test sites can then be transitioned to the client or removed as business dictates. GTO is a global organization and has the capabilities to test environments that cross multiple continents, platforms, and environments at all levels. GTO helps to verify that the server consolidated environments work as planned.

The Global Testing Organization (GTO) is also the place where EDS has the greatest center of testing tools, test cases, and testing processes knowledge. In the GTO, environments can be established, viewed, and bought off by clients through the quality buy off process. GTO also tests applications that become unstable in the production environments.

During server consolidations, many times these environments can be established with demonstration or loaner components of the standard environment – which assists in keeping the cost relatively low. Components include: hardware, software, databases, commercial off-the-shelf (COTS) applications, and so forth.

## Enterprise Systems Management Including Recommended Tools and Processes

As part of its consolidation methodology, EDS uses several patent-pending tools and processes. The tools are a combination of COTS products and customized tools that have been honed during EDS' more than 40 years of experience in the mainframe, midrange, and storage space. The processes are ISO9000 certified for operational areas and are designed for repeatable success.

EDS uses Blueprint for server consolidation efforts. Blueprint, patent pending, comprises EDS' server consolidation approach, methodology, integrated tools, processes, and schedules. Blueprint starts with the initial scope of the server consolidation and moves through a multiple-step process, allowing the transition to be made from the current state to the future-state consolidated environment. Blueprint includes both site consolidation and full multiple environment consolidations templates. EDS often will use the Blueprint methodology when working with a client that requires enterprise server consolidation. In many cases, Blueprint is the “glue” that allows EDS to exceed industry standards for enterprise server consolidation.

When consolidation has occurred, the Operational Production environment employs many patented components. The Operational Production environment is ISO 9001 (2000) certified. EDS maintains the disciplines, process practices, and documentation to allow production environments to retain their ISO certification. EDS has a standard suite of tools that it executes in the data center to deliver to the service level agreements (SLAs) that it commits to delivering.

EDS also uses tools that are specified by the client when there is a requirement to run a suite of tools other than EDS' standard suite. The operations teams are supported by more than 35,000 IT professionals, which are subject matter, certified with industry-recognized certifications, for example, Microsoft – MCSE, IBM Systems Administration, Program Management Professionals.

Because of the nature of EDS' business history of operations, we have personnel with strong experience in consolidations at all levels and with multiple clients in both government and industry. This rich background of process, practices, and trained personnel enables consolidation to be a major activity in all EDS data centers.

As EDS looks toward the future, it constantly reviews tools and processes, in conjunction with the new software products that allow the data centers to run more efficiently. The following new products are being integrated into the operational suite:

- Ejasent / Micro Measure™
- EDS Oncall Notification (EON)
- Peregrine
- OpsWare.

Some of the foregoing are EDS-developed and some are in the market. The following are tools that are upgraded and introduced into product suites as required:

- BMC Products
- CA Products
- IBM / Tivoli Products
- H/P OpenView Products
- Sitescope
- Vantive
- CISCO Products.

These tools allow EDS to integrate and manage multiple vendor environments globally, leveraging standard environmental builds and ISO-driven capabilities. The tools support reduction in costs by giving EDS the global reach to manage clients' remotely located server bases.

### Data Rationalization Study

In conjunction with EMC and StorageTek, EDS will conduct a Data Rationalization study to develop data storage strategies and architecture for consolidation of data into the SAN environment using the Information Lifecycle Management (ILM) approach.

Working with StorageTek, EDS will conduct a storage assessment and will improve the efficiency of the data center consolidation for the Commonwealth. StorageTek will perform a Storage Assessment on all identified Commonwealth data centers using its own proven assessment methodology in conjunction with EDS' server consolidation blueprint approach. This methodology incorporates both experience-based information gathering and industry-leading data collection software tools.

Storage Assessment is critical to maximizing the efficiency of the consolidation of 91 independent agencies into a centralized, managed IT infrastructure. Without first understanding and quantifying the data content throughout the existing storage systems, an efficient, tiered, central storage system will not be possible. An assessment will provide data points well beyond the traditional "ask and document" approach to storage consolidation planning. The truth is in the data itself. Capture of the metadata (data about data) through the Storage Assessment will provide accurate planning points for consolidation. Consideration would also be given to situations where either by Virginia or Federal code, database sharing may not be allowed.

Data center consolidation is a complex and risk-inherent undertaking. The challenge of consolidation is to find an optimal path to reducing costs while maintaining service levels associated with the previously dispersed infrastructure. Storage cost is typically the most overlooked cost, but is probably the most critical with regard to data center efficiencies. Gartner predicts that storage spending will soon become three times the cost of server spending in an enterprise data center. Storage costs are typically approximately 20 percent of the infrastructure and will continue to rise if left unmanaged. A storage assessment is essential in identifying current inefficiencies in the storage environment. Inefficiencies of the storage environment should be identified and addressed before a storage consolidation is implemented. If not addressed before migration of data into a centralized storage environment, the

inefficiencies will remain. The only difference will be that the data lives on a different, centralized, and often more expensive storage container.

EDS propose a storage assessment of the Commonwealth’s existing IT environment to aid in identifying cost saving opportunities. The assessment will accomplish this in the following ways:

- Gather statistics that will help quantify and qualify the current service levels of specific business areas and the supporting applications (for example, e-mail service efficiency).
- Validate the general assumptions with regard to the quantity of servers, storage, and IT infrastructure. It is assumed that the Commonwealth currently has 95TB of storage throughout 91 agencies. The assessment will validate this assumption and provide a detailed report about the use of the storage by agency, server platform, application, data type, and data age.
- Establish a baseline for consolidation planning. (A snapshot of current infrastructure and storage usage).
- Correlation of data to application, agency, server, and storage type.

A storage assessment will allow for planning of consolidation by data (content) instead of storage platform. Rather than planning for block-by-block migration from decentralized storage to centralized storage, a data migration plan can be developed on the basis of data value, data type, and data age. By understanding the content of data that resides on current storage, a multi-tiered storage plan can be developed that takes into consideration the data’s life cycle. The data can be designed for storage on the appropriate storage platform based on its life-cycle value as determined from the storage assessment. This will ultimately aid in establishing consolidation priorities and allow EDS to target the order in which Virginia agencies should be transitioned to managed services.

EDS proposes to collect data about the Commonwealth’s environment, analyze it, and provide with an assessment based on its experience as a leader in the storage industry. EDS adopts a tools-based approach to collect the data relevant to the assessment.

Tools-based data collection provides data points that are grounded in reality. EDS has found that it is appropriate to provide an expert analysis based on demonstrable data points. This approach involves setting up a tools server as a collection point for “agents” that will be rolled out on the systems.

EDS will set up a data-collecting tools server in the Commonwealth’s environment for the period of the assessment to collect metrics from its systems. The tools server will collect data using the following two methods:

- Agent-based data collection involving installation of software on the systems to collect metadata on the Commonwealth’s storage and data environments.
- Agent-less data collection involving scanning of the network for storage components and their information.

StorageTek uses industry-leading storage analysis tools to assist in delivering assessments for clients. These tools are software based and are selected according to the type of information that is needed for the environment. The performance impact of the collection tools on operations is imperceptible. EDS will work with operations personnel to maintain security standards during the data collection phase.

Assessment tools do not record or collect actual client data files, they collect statistics and information about the attributes of the storage and data in the environment. Examples are file age, file size, owner, and location. The contents of client files or databases are not read or modified in any way. Only statistics and metrics are collected and stored on the tools server. An Impact Analysis document will be provided

to the Commonwealth before the deployment of the tools in its environment. This document will detail the following information

- Disk usage
- Memory usage
- Network usage
- CPU usage
- Time and access requirements for installation.

## Desktop Standardization Common E-Mail Architecture Validating the Use of Thin-Client Architecture

EDS will implement a comprehensive common office environment (COE) to meet the Commonwealth’s distributed computing needs, as shown in Exhibit 2.a-14, Desktop COE. Authorized Commonwealth users will have secure access to a redundant, distributed processing environment, and proactive management will provide a stable and reliable environment for Commonwealth users. Remote monitoring and administration will be implemented to rapidly achieve predictable levels of service and provide cost-effective management of the distributed servers and desktop equipment.

During this phase, EDS will evaluate the use of thin-client architecture for user populations throughout the Commonwealth, but predominantly in the greater Richmond area.

Included in this proposal is EDS’ solution, which integrates the Commonwealth’s requirements with the knowledge gained from managing more than 3.5 million desktops to design a secure, reliable, and manageable distributed computing solution. The distributed computing solution calls for the build-out of two centralized server farms to support the common messaging and Microsoft Office applications required by authorized Commonwealth users. To provide the greatest network throughput at the least cost to the Commonwealth, EDS proposes to co-locate the production server farm at the Commonwealth’s

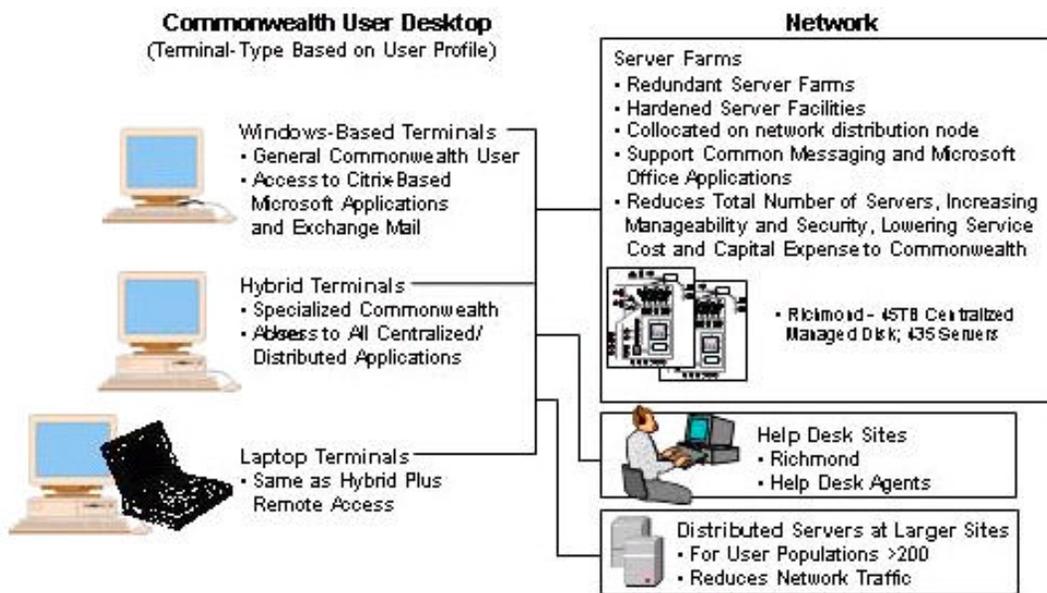


Exhibit 2.a-14, Desktop COE

future data center sites. By co-locating the server farm, the Commonwealth will optimize its investment of the hardened facility and introduce fiber throughput to the mainframe applications that provide the best value to the Commonwealth. This facility will be connected to the major VITA network distribution nodes, to offer diverse network connectivity and secure access. Centralizing these applications across redundant networks will provide greater availability and control toward maintaining the COE.

The solution provides more than 45 terabytes of centralized, managed disk space to store transient user files and mail messages. Coupled with a robust centralized tape backup system, the storage configuration is designed to provide a fluid backup solution of centralized files, as well as providing backup services through the network for files stored on users' hard drives. The storage solution supports disaster recovery through daily removal of transient data file copies to an off-site storage facility.

For the larger Commonwealth locations that support a user population of 200 or more and that are not part of the MAN, EDS will install and support distributed servers, which will support print queues and share point for software distribution and localize network server activities such as directory services. This approach optimizes the use of the network. The same experienced team of technicians that supports the centralized server farm will remotely manage the distributed servers. Based on site information provided to date, EDS has accounted for 40 distributed servers in its solution.

After evaluating the Commonwealth's current environment and available, distributed computing platforms, EDS selected a Citrix-based Windows solution for desktop users. In a Citrix solution, the user executes Windows applications from the servers in the server farm. A Citrix solution supports all of the functionality of a PC-based solution, but in a more secure, reliable, and manageable environment. Knowledge and workstation users will be able to sign in from any COE desktop at any Commonwealth location or remotely through a virtual private network (VPN), and have access to the same applications, data, and self-help knowledge systems as they would at their normal work location. Equipment costs and distributed support services are reduced; enabling EDS to deliver a best-value distributed solution. Exhibit 2.a-15, Richmond Server Farm, and Exhibit 2.a-16, Wise County Server Farm, depict the proposed configuration for the two server farms.

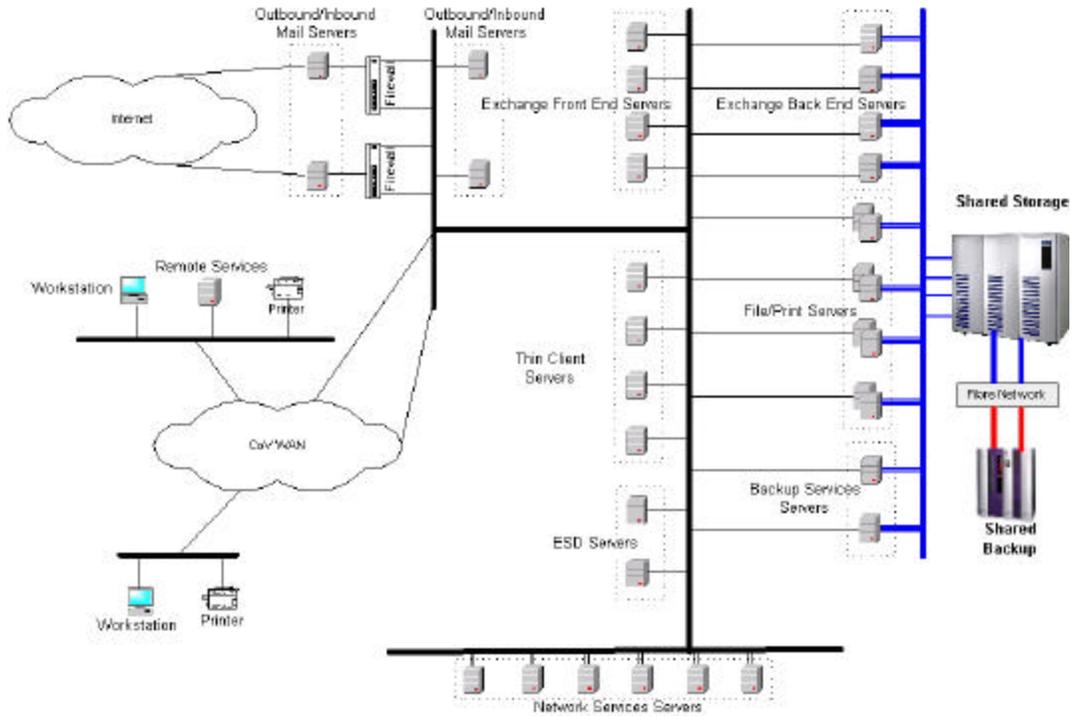


Exhibit 2.a-15, Richmond Server Farm

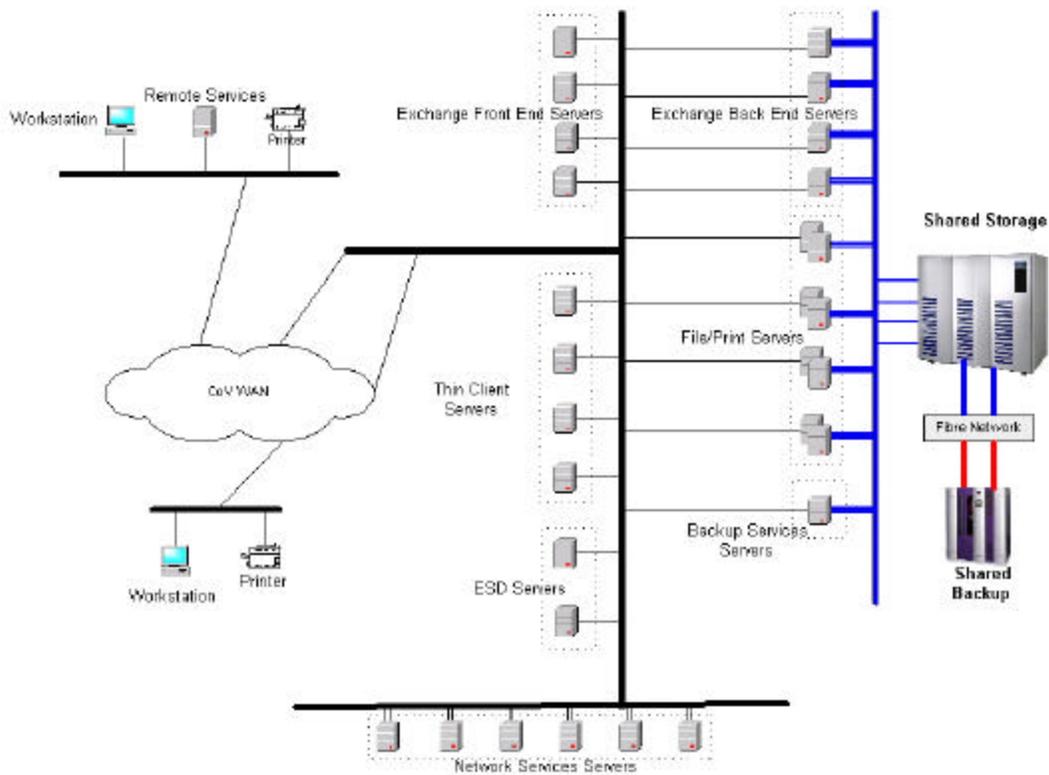


Exhibit 2.a-16, Wise County Server Farm

Three desktop solutions are proposed to meet the variant requirements of Commonwealth users while containing expenses and increasing serviceability. Windows-based terminals (WBTs) give the general Commonwealth user access to the Citrix-based Microsoft applications and Exchange mail services. Because they lack moving parts, WBTs are nine times more reliable than standard desktops and should reduce hardware and field service costs. Hybrid terminals and traditional PC desktop equipment give the more specialized Commonwealth user access to all centralized applications as well as local access to distributed applications not adaptable to a hosted application model. Laptop terminals will provide the same functionality as hybrid terminals, with the added feature of workplace mobility for the Commonwealth users who require the flexibility of working away from the office environment. VA1's initial pricing estimates include WBTs, hybrids, and laptops from one vendor (Dell). Additional vendors may be included in revised proposals to have a positive affect on price or to conform to Commonwealth purchasing strategies (noting that limiting the overall variety of hardware achieves ready availability of spare equipment and lowers the risks inherent in managing ongoing change).

### Mainframe Workload Rationalization

During the IT Strategy phase, EDS will validate the proposed solution of consolidating the core IT infrastructure into a data center in Richmond and another in Wise County. The core mainframe hosting will be housed in the Richmond data center. Each data center will act as a fail-over for the other in the event of a disaster. If disaster recovery services outside of the Commonwealth are needed, an additional EDS facility will be proposed. The overall solution components for the mainframe include the following:

- Site and Data Center Consolidation
- Mainframe Consolidation
- Application Consolidation
- Mainframe Migration and Implementation
- Mainframe Management
- Reporting
- Change and Problem Management
- Disaster Recovery.

EDS will use certified ISO 9001-2000 standard practices and methodologies, which include the Data Center Migration Methodology, to consolidate and re-build the IT infrastructure.

The Site Consolidation and Migration approach will be validated together with the expected total cost of computing (TCC) reductions. Site Consolidation is the process of reducing the number of sites that contain compute processing by centralizing them in two centers. The Commonwealth's centers will reside in Richmond and Wise County, with each center having a core computing emphasis and the ability to provide disaster recovery for the other. Site consolidation will reduce the TCC by the following:

- Eliminating under-used floor space
- Consolidating and taking advantage of support staff
- Increasing stability and reliability
- Reducing network complexity
- Using centralized hardware
- Using centralized software
- Providing disaster recovery and contingency management.

Disaster recovery (DR) strategies will be examined as part of the Business Continuity Planning. DR services involve planning to resume critical business operations following a disaster and returning to normal as soon as possible. EDS will work with the Commonwealth to establish fail-over environments

and procedures involving the two proposed data centers. EDS also will work with the Commonwealth to establish a DR plan and to test the plan to achieve a successful fail-over.

The production environment will be in Richmond. We will install a central processing unit (CPU) that is sufficiently large to host all three of the IBM-type environments with the concept of consolidating environments when appropriate. The Wise County data center will be the disaster site for Richmond and will have sufficient MIPS-on-Demand to host both the Richmond and Wise County data centers. When EDS has an opportunity to evaluate the required application workload, the Commonwealth in conjunction with EDS will make the decision to determine which production applications will be hosted in the Wise County data center.

EDS will provide for the Commonwealth a stable hosting environment that uses standards and best practices throughout the organization. One of EDS' driving principles is: "How technology is used is more important than technology itself." EDS views technology as a tool to address business issues and create opportunities. This philosophy will assist the Commonwealth to effectively manage its business functions.

EDS will validate the consolidation of the current IT infrastructure and will reduce the following costs associated with any IT infrastructure:

- Floor space and utilities
- Mainframe hardware
- Mainframe software
- Network components and recurring charges
- Staffing.

VA1 will examine its portfolio of services and technologies, including Utility Computing, which is often referred to as the "factory model." It is designed to assist the Commonwealth's transformation from traditional IT services to a utility compute model. The Utility Compute packaging is available and will continue to evolve as the technology to deliver more advanced utility computing solutions becomes available. Over time, this evolution will lead to a true virtualized infrastructure that includes a fabric of interconnected resources that are instantly available.

Utility Compute packaging provides flexible pricing that can be adapted to the Commonwealth's business needs. It incorporates a monthly base rate with a utility compute minute that uses processor minutes to integrate managed services, hardware, and system software into a utility infrastructure fee. Pricing includes a base fee plus a unit based on consumption each month.

## Data Center Strategy and Size Validation

VA1 has sized the two data centers based on certain high-level information and assumptions. During Phase 1, EDS will determine whether the assumptions are valid on the basis of the following outcomes:

- Application Lifecycle Strategy (Development, Test, Validation, Production Environments)
- Server Consolidation Study
- Data Rationalization Study
- Desktop Standardization
- Mainframe Workload Rationalization
- Business Continuity Assessment
- Help Desk Consolidation Strategy.

## Business Continuity Assessment

During this initial phase of developing the IT strategy, EDS will perform Phase 1, Risk and Business Impact Analysis, as shown in Exhibit 2.a-17, Risk and Business Impact Analysis. The scope is limited to the Commonwealth’s mission-critical business processes and is estimated to include five data centers. At each site, a Risk Assessment and a Business Impact Analysis will be performed. The effort required for Phases 2, 3, and 4 will be refined based on the priorities business processes and disaster recovery plans required during this strategy phase.



Exhibit 2.a-17, Risk and Business Impact Analysis

## Help Desk Consolidation Strategy

VA1 proposes a dedicated on-site, Tier 1, single-point-of-contact (SPOC) help desk for the Commonwealth’s 91,506 employees. Commonwealth employees will have access to a centrally located help desk in Richmond, Virginia, through a dedicated toll-free telephone number. A single number will provide easy access for contracted application and technical support. The SPOC help desk will manage contracted service requests and resolve, dispatch, and track tickets to closure. EDS will develop the help desk strategy and will size the help desk based on the number of employees and desktop users and the services and service levels. The use of remote desktop management (RDM) tools also will affect strategy and size.

EDS will provide the necessary resources to manage the consolidated help desk. It will incorporate the ticketing system, knowledge management system, and asset management system. EDS will integrate the help desk with the delivery teams supporting the mainframe, NOC, servers, desktops, Web, application hosting, and so on. During this phase, an understanding of the current 34 help desks will be developed to properly scope the necessary resources to conduct the consolidation and provide ongoing help desk services.

EDS has performed many help desk consolidations and has the knowledge and experience to be effective in such migrations.

## Metropolitan Area Network (MAN) Design

During this phase, EDS will refine the design of the MAN for Richmond. The MAN included was developed as a high-level Richmond MAN concept as part of its participation in the Virginia Telecommunications Network Services (VA TNS) procurement. The MAN was not developed to the level that allowed the pricing of equipment components or the recurring costs associated with telecommunications services or ongoing operations and maintenance. This transformation will change the requirements of the Richmond MAN; therefore, the phase will include the following:

- Development of a detailed design for the Richmond MAN.
- Refinement of the initial cost estimate for the implementation and ongoing support.

### Develop a Detailed MAN Design

To develop a high-level MAN design, the following steps are required:

- Determine the updated set of requirements for the MAN, including locations and as much associated information as possible. This analysis will be based primarily on information developed for VA Telecommunications Network Services (TNS) and updated through discussions with EDS and its partners.
- Determine the topology of the MAN and the required connectivity. This will be based on the updated requirements. It will include the type and speed of connectivity required.
- Determine the manufacture, model, and interface configuration of equipment required to connect the planned Commonwealth infrastructure solution to the selected connectivity.
- Determine the management requirements (personnel, locations, and equipment) to support the MAN as part of VA DC or the VA TNS.

### Refine the Estimate for Implementation, Operation, and Maintenance of the Richmond MAN

Based on the foregoing design, the following steps are required to develop an initial price estimate for the MAN:

- Determine the price for the telecommunications services to support the MAN.
- Determine the bill of materials, initial pricing, and ongoing Operations and Maintenance (O&M) cost, based on the equipment list developed for the design. Provide the initial capital requirement, the ongoing operations, and the maintenance costs.
- Determine the cost to manage the MAN.
- Determine the cost of managing the transition from the current environment to the MAN.
- Determine the cost of contract line items paid by the Commonwealth that are attributable to the foregoing cost elements.

## LAN and WAN Router Assessment and Upgrade Evaluation

EDS will review the current network infrastructure, perform a gap analysis for an Intelligent Network Foundation (INF) architecture, and develop a Total Economic Impact Business case. This case will provide VITA with appropriate information to evaluate the viability of an INF solution and promote the proposition within the Commonwealth or engage in the next logical sequence on the INF roadmap.

Through EDS' INF solutions, clients have been able to address the following:

- New business objectives that required the implementation of new technology to be integrated into their existing infrastructures. As examples: Live video to desktops to enable distance learning and virtual meetings; voice over IP (VoIP) to enable convergence of voice and data on expensive international circuits; high-quality content delivery to enable new business opportunities.
- Changes to existing business requirements, which typically involve an extension of products or services and drive capacity, availability, and manageability issues. As examples, merging of agency networks; new Business-to-Business (B2B) relationships; and high availability networks.
- Network does not address existing business requirements. In these cases, the network does not adequately address business requirements for network response times, availability, and capability. Solutions could range from minor tuning to a complete redesign of the network. As an example, when over-subscribed WAN links cause increased application response times, the solution may be a WAN redesign
- Integration of the enterprise communication to a common IP network architecture optimizing the latest technologies while significantly saving communication cost.
- Enabling employees to work more effectively across the extended enterprise, thereby increasing productivity and improving service to citizens.

EDS develops innovative solutions using proven technologies, approaches, and methodologies to address clients' requirements. To address the complexities of evolving from a concept to quantifiable goals and tangible services, EDS has developed a logical roadmap that provides a clear path to deploy an INF solution that reduces implementation cost and expedites the cost savings.

The phases of the Intelligent Network Foundation (INF) roadmap are defined as follows:

- INF Analysis and Business Case Development
- INF Validation and Solution Design
- INF Implementation
- INF Operations and Management.

## EDS' Network Consulting Approach

The logical stages of the INF Analysis and Business Case use a repeatable approach that has proven to be very effective in having the delivered solution meet clients' expectations. The following provides an overview of the Analysis and Business Case phase. The stages include data gathering, which is primarily performed by VITA and validated by VA1; analysis of current network infrastructure and a gap to INF architecture; and a Total Economic Impact Business Case.

### Stage 1: Data Gathering

During this stage, the primary activity will be for the Commonwealth to complete a questionnaire and provide information that describes the existing infrastructure, which could include the following:

- Network infrastructure:
  - Network topology diagrams, IP addressing, routing protocols
  - Network equipment and configurations
  - WAN circuits
  - Network usage statistics
  - Traffic flows ? which applications are used and where.

- Business requirements:
  - Identify business requirements for the network.
  - Identify agency stakeholders for each business requirement. These will be persons who have a definite need and have the ability to approve or justify cost.
  - Documented business requirements with service levels and key measurements driving network usage and performance.
  - Identify employee productivity targets and improvements.
  - Determine increases in speed through a collaborative communication infrastructure.
  - Identify enhancements in partner, supplier, and Commonwealth collaboration.

### Stage 2: Analysis and Gap to INF Architecture

The EDS enterprise architect and the assigned team will review and validate the information VITA provides. A gap analysis will be performed of the existing network infrastructure to a modeled EDS Intelligent Network Foundation (INF) architecture. EDS' INF solution provides a high-availability network infrastructure for wireless and conventional (wired) platforms and supports the convergence of voice, video, and data networks. The modeled architecture will align to the stated business drivers for scalability, availability, and manageability. The analysis will:

- Establish a future state network architectural model that will achieve established business requirements.
- Validate existing architecture strategy and implementation and verify appropriate use of existing and emerging technologies to meet evolving business needs.
- Assess ability of network topologies to scale and provide needed flexibility, security, and availability.
- Determine the gap between the existing and future architecture.

### Stage 3: Business Case

The primary activity during this stage is for VA1 to develop a Total Economic Impact business case for VITA to consider in transitioning to an EDS Intelligent Network Foundation (INF) solution. The case would include:

- Comparison of cost to projected cost of the INF solution.
- Analysis of self-managed services versus EDS' managed services.
- Description of cost and business improvement to business drivers, productivity, collaboration, enterprise communication.

The scope of the assessment will be limited to Commonwealth Enterprise Network structures and components at 176 locations, consisting of the following:

- Hubs
- Routers
- Switches
- Remote access devices
- Network bandwidth
- Network management tools
- Network traffic
- Commonwealth business requirements driving network traffic

- Operational processes and procedures
- Network support organization skills and staffing
- Review of business objectives or strategy.

## Phase 2. Consolidation, Migration, and Implementation Planning

Based on the strategies defined in Phase 1, EDS will establish program work streams that will be managed by the Project Management Office (PMO) and governed as part of the governance process to plan the consolidation, migration, and implementations.

Using the outcome of the *RightStep* methodology, the Application Rationalization Assessment, and the Business Continuity Assessment, EDS will develop plans to implement the following:

- Application lifecycle environment (Development, Test, Validation, and Production)
- Server consolidations
- SAN storage environment using Information Lifecycle Management
- Standard desktop and common e-mail environment
- A split of the mainframe workload between data centers
- Data center strategy and size validation
- Business Continuity Assessment
- Consolidated help desk
- MAN in Richmond
- Upgraded LAN and WAN routers across the Commonwealth

In addition, EDS will provide to the Commonwealth requirements for changes to the COVANET WAN environment.

### Implementation Management

VA1's transition project methodology and approach is based on EDS' Implementation Management Methodology, a standard set of techniques and methods that is used for the successful delivery of quality implementation projects in a cost-effective, schedule-compressed manner. The methodology and approach applies to all areas of the transition, including the technical, functional, and human resource-related activities that are necessary to verify that EDS effectively establishes identified services. Additional processes may be needed for particular areas of the transition; and any such items will be documented and incorporated, as they are required, in the Implementation PMO.

### Mainframe and Workload Implementation and Migration

EDS will use its certified ISO 9001-2000 processes and procedures to manage all start-up activities that are necessary to support a new mainframe environment. These implementation services include installing, configuring, and tuning the environment; performing integration and acceptance testing; and preparing for ongoing production support services.

EDS will use proven processes and procedures that have been developed and used in thousands of successful systems and environment migrations. EDS provides these services using its extensive technical and business expertise. The provision of Site Migration Services is based on specific availability requirements and site migration requirements. All enterprise migrations include the following:

- EDS' proven project management methodology to create a complete migration project plan and timeline
- Project manager to oversee migration planning, execution, and close-down
- Extensive detail that defines the required project plan to enable the execution to be managed and executed effectively with the Commonwealth's operational constraints and business requirements
- Testing of the migration plan execution to validate the documented process
- Communication of the plan from development through implementation and post-migration activities
- Migration plan execution using a proven and repeatable set of processes that include multiple implementation options based on the Commonwealth's requirements
- Pre- and post-evaluations of the migration plan, execution, and actual results.

EDS has conducted thousands of migrations and has perfected the process. The Commonwealth can be assured of success through the joint strategies, planning, Project Management Office (PMO), and change management and overall governance processes. EDS is confident of its ability to achieve significant savings for the Commonwealth while successfully managing and mitigating risks.

### Desktop Planning & Implementation

EDS will design and develop the plans to implement and operate a comprehensive Microsoft Exchange 2003 electronic messaging architecture that includes e-mail, Internet mail gateways, calendaring and scheduling, directory lookup and address book capability, limited unified messaging (UM) services, and support for future collaborative, e-mail-enabled applications such as automatic routing of electronic forms. This architecture will be capable of supporting mobile workers' secure access to their electronic messages and communications anywhere and at any time. EDS staff, teamed with Commonwealth employees and Small Business partners, will support conversion activities for users moving to the Exchange environment.

EDS will deploy Windows 2003 as the operating system (OS) at the server level, and Windows XP at the workstation level for laptop and PC users. The initial solution for the Windows-based terminals (WBTs) is based on a CE platform (as opposed to an XP platform) to help contain solution costs. The Microsoft Office System suite of products will be available to all users through robust network connections to the server farm applications.

In addition to the proposed production configuration, EDS will build out a Model Office-Integration Laboratory that is dedicated to the Commonwealth. The Model Office-Integration Laboratory will include the necessary equipment to simulate the Commonwealth's production configuration. For the distributed computing components, this laboratory will support duplicate equipment to allow for the implementation and testing of new software or hardware components in the environment before their implementation into production. The EDS Laboratory will support a copy of the existing system configuration as well as proposed changes.

This approach will allow the necessary comparisons between the existing and proposed environment and support integration testing of non-distributed computing elements. Exhibit 2.a-18, Model Office-Integration Laboratory Distributed Computing Configuration depicts the planned configuration to support Model Office-Integration Laboratory activities for distributed computing.

As an integral part of the distributed computing rollout, VA1 will provide a curriculum of Windows and Office Application courses for knowledge and workstation users to maximize productivity in the

transformed environment. In addition, field service technicians will acclimate users to the new workstation equipment at the time of implementation.

EDS' distributed computing solution is designed to enable the convergence of distributed technologies in conjunction with the modified network capabilities planned for the Commonwealth. The packaged, integrated environment will take advantage of EDS' technical capabilities to provide the Commonwealth with a robust COE.

### Security Solution for the Distributed Computing Environment

The focus of the distributed computing component of the overall EDS security solution is to provide a secure server and desktop environment with a customizable level of security for LANs that require a higher level of security than the WAN. The distributed computing security solution also employs the International Organization for Standardization (ISO) 17799 Security Standard as part of the LAN domain. The distributed computing NOC is supported by the enterprise Security Operations Center (SOC) as an integral part of the EDS optional enterprise security solution.

The distributed computing NOC will provide intrusion detection system (IDS) monitoring and management, firewalls to protect secure enclaves, and desktop and server security components. The NOC will interact with the director for security services and the EDS Service Management Center (SMC) by providing security alerts and updates. Through the SMC, the director for security services can effectively provide centralized oversight of all enterprise security components.

EDS will secure the desktop environment through a number of mechanisms. Access control is defined by Active Directory (AD), which will provide role-based access control and the ability to create and apply security policies to specific groups of users. EDS will design and implement a single AD structure to support all Commonwealth agencies. Microsoft's implementation of Internet Protocol Security (IPSec) also will be managed through AD. EDS will use IPSec to provide secure, encrypted communication channels between mail servers and secure communications with selected users. We will install virus-protection software and manage it on the centralized servers that provide virus detection and prevention activities to the distributed community. Personal firewalls, whether the native Microsoft XP firewall or

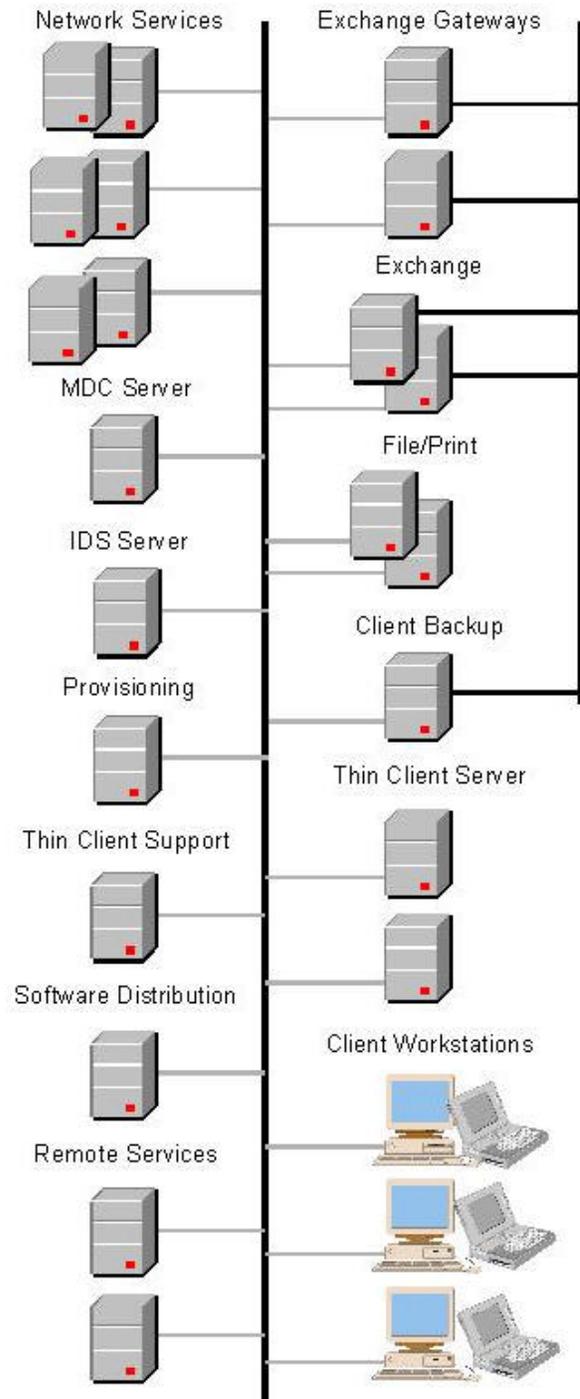


Exhibit 2.a-18, Model Office-Integration Laboratory Distributed Computing Configuration

ISS BlackICE Defender, will also be provided as optional components for implantation when required by Commonwealth agencies.

### Consolidation

VA1 has identified the software tools required to complete a consolidation to these centralized server farms and the labor involved in the design, migration planning, and implementation. The associated costs were broken out into two distinct areas. EDS provided a hardware and software list and respective costs for the Commonwealth's purchase. The Commonwealth list assumes that a completely new infrastructure is built, with zero reuse of current equipment, and that tools are used to facilitate a migration to minimize impact to users. These assumptions could be modified in an updated proposal when additional information is learned about the current environment. EDS' list includes all personnel required to implement the consolidation and support the environment over the long term. Tools required to manage the new environment are also bundled into EDS' overall costs.

EDS will support the Commonwealth's vision for a Common Office Environment (COE) with a robust, proven distributed computing environment. We will support this environment from a hardened server farm and will deploy four desktop platforms based on worker profiles and business needs. The distributed computing solution carries the defense-in-depth concept all the way from the user interface to the VITA infrastructure. The following table highlights the high-level features and benefits of EDS' proposed Distributed Computing solution.

| EDS Design Features  | Benefits to the Commonwealth of Virginia  |
|--|---|
| Centralized Server Configuration   | Reduces the total number of servers, which increases manageability and security, thus lowering service cost to the Commonwealth.  |
| Four COE Desktop Configurations – Windows-based Terminal, Hybrid PC and Laptop | Accommodates multiple work profiles of Commonwealth users while centralizing Office applications for increased manageability and COE control.   |
| Distributed Servers at Larger Sites  | Reduces overall network traffic and provides increased performance for user populations of more than 200 employees at a single Commonwealth location.   |
| Integrated Security Solution   | Provides a comprehensive security structure that includes intrusion detection, virus protection, and firewalls designed to support the Commonwealth's security policy.  |
| Shared Disk and Centralized Tape Backup  | Strategically places transient user files in the server farm to support centralized backup to tape for off-site storage in the event of a disaster and file recovery.   |
| Model Office-Integration Lab   | Provides the necessary testing of proposed hardware and software changes to minimize risk to the Commonwealth when implementing changes into the production configuration. Will support duplicate equipment for each unique processing element to allow Model Office and Integration testing to co-exist. |

### Phase 3. Migration and Implementation

The Migration and Implementation phases will occur when the data centers have been built out and are prepared to accept the applications and associated processing. Also, the implementation of new agency projects will occur in the new environment. This implementation will make operational the environments for the servers, Web hosting, desktop, mainframe, help desk, disaster recovery, and MAN, LAN, and WAN routers.

In addition to developing best-in-class data center facilities, VA1 has decades of experience in operating, maintaining, and upgrading such properties. Its data centers are designed and constructed with reliability

and maintainability in mind. Depending on requirements and assigned budgets, VA1 can build to any of four distinct levels of facilities reliability, ranging from telecommunications closets in office spaces to stand-alone, fully redundant data centers. VA1 also has extensive experience in the design, construction, and operation of office buildings; warehouse, distribution, and print center facilities; and other types of commercial properties. Many of its larger projects were not single buildings, but master-planned, multifunction campus type developments. EDS' development projects commonly include the migration and consolidation of client operations into more-efficient and better-functioning environments.

VA1 will execute the jointly agreed upon Consolidation, Migration, and Implementation Plans. VA1 is confident of its ability to deliver the consolidation.

## 2.a-5 Ongoing Operations

Planning for ongoing operations is integrated throughout the implementation process. EDS knows that operations cannot simply be an add-on at the end of the transformation process. EDS operates world-class data centers around the world. Some of the standards and objectives under which the data centers operate are presented in the following paragraphs. EDS will collaborate with VITA to achieve high levels of data center performance.

### Systems Management

Systems management is a critical component of a world-class data center because automation and dynamic resource allocation (and tracking) are key aspects of infrastructure services. Effectively managing installed hardware and software will enable the data center to provide service with 99.999 percent availability.

- **Performance management** – The performance of data center systems must be managed from a day-to-day management perspective. The performance management component is critical not only to an individual system, but also to all systems in the data center. This is because a problem in one system can spread to all systems in the data center and the enterprise because of the interconnectivity that exists. Levels are as follows:
  - low – performance management implemented at the technical level and monitoring performed on an exception basis
  - medium – performance management implemented at the technical level, monitoring performed on a proactive basis
  - high – performance management implemented at the technical and business levels, with monitoring performed on a proactive basis.
- **Capacity planning** – These processes must include organic and non-organic growth from technical (actual usage) and business perspectives. Levels are as follows:
  - low – capacity plan in place based on history
  - medium – capacity plan based on history and new functions and features
  - high – capacity plan in place based on actual usage and business trends.
- **Dynamic resource allocation** – IBM's initiative, Autonomic Computing, is based on building self-managing systems (a combination of hardware and software) and has four components: self-optimizing, self-configuring, self-healing, and self-protecting systems. A data center has processes similar to this concept in place. Levels are as follows:
  - low – some manual resource allocation across selected systems

- medium – some compatible systems within the data center are linked and allow for manual resource allocation across the linked systems
- high – all compatible systems within the data center are linked and enable automated and dynamic resource allocation across the linked systems.
- **Single consolidated console** – The management of individual systems is critical to the overall smoothness of operations. The more tightly integrated the different systems’ consoles are, the more visibility there is into the different areas. At the same time, console integration allows for drill-down in case of problems. Levels are as follows:
  - low – some components within systems have integrated and consolidated consoles
  - medium – some mission-critical systems have consolidated consoles and drill-down capability for all major mission critical applications
  - high – all mission critical systems have consolidated consoles and drill-down capability for all major mission-critical applications.
- **IT maturity** – Measures the maturity of the IT organization. Levels are as follows:
  - low – repeatable and standardized processes
  - medium – managed processes measured on an ongoing basis
  - high – change processes to increase quality and performance.

## Operational infrastructure

The operational infrastructure is one of the key areas in a data center in which personnel are still needed for many direct system interactions; consequently, these interactions may lead to outages because of mishandling or errors. In most instances, the outages can be managed and avoided through the use of appropriate technologies, processes, and procedures.

- **Standardization** – Hardware and software selections need to be standardized. Levels are as follows:
  - low – no standards in place
  - medium – standards in place but not always followed
  - high – standards in place and enforced through committee.
- **Business continuity** – Disaster recovery enhancement to include recoverability of all major business processes. Levels are as follows:
  - low – business continuity plans in place
  - medium – static business continuity plans in place and tested
  - high – active business continuity plans in place and tested regularly (at least annually) to mitigate the potential for an outage.
- **Problem and change management** – A fully documented and integrated problem and change-management process must be in place. Levels are as follows:
  - low – paper-based problem and change-management system without centralized tracking
  - medium – electronic problem- and change-management system with automated approval process
  - high – fully electronic, documented and integrated problem- and change-management process in place and enforced.
- **Root cause analysis** – A root cause analysis program for all high severity (Level 1 and Level 2) must be in place to avoid duplication of outage. Levels are as follows:

- low – root cause analysis program in place, but not always executed
  - medium – root cause analysis program exists, but not all problems get to the root cause
  - high – executive-level enforced root analysis program in which the root causes are determined for all problems entering the program.
- **Lights-out operation** – The ability to remotely manage dim data centers is key to leveraging the standards already in place. Separating the equipment that must be attended from the “set-it, forget-it” equipment saves costs and uses operational staff. Levels are as follows:
    - low – identify personnel requirements for facility and raised-floor equipment
    - medium – move non-person-intensive equipment into a separate facility, turn out the lights and manage with a small staff
    - high – move non-person-intensive equipment to a separate, less expensive facility and manage remotely; turn out the lights.

## Application Infrastructure

Although a bit distant from the actual data center, the application infrastructure is a key component in a data center’s capability to provide world-class service. A data center can only deliver availability up to the level for which the application was designed. If an application is not designed for high availability, a data center will be unable to deliver high availability through deployment of infrastructure hardware and software.

- **High availability** – In a world-class data center, the data center and application infrastructure are highly available, which implies that some type of clustering is implemented, and the application can take advantage of the automated fail-over. Levels are as follows:
  - low – no high availability solution is in place at the application infrastructure level
  - medium – a clustered environment is in place with manual processes for fail-over
  - high – a clustered environment is in place for system and application, and automated fail-over scripts are implemented and tested quarterly.
- **Virtual applications** – Virtual applications are the next level in the virtual data center concept, enabling utility-type provisioning and management from a data center and client perspective, including resource usage and billing. In addition, the applications allow for pure plug and play because applications can be interchanged and run on any platform in the compute infrastructure. Levels are as follows:
  - low – all applications are built to run on a specific hardware instance
  - medium – some form of platform independence and utility-type billing and management capability
  - high – all applications are independent of the hardware platform and operating system and allow for utility-type billing and management.

## Maturity

The maturity of an IT environment relates to the technology deployment and the strategy for refreshing the deployed hardware and software technologies.

- **Technology refresh process** – Enables the introduction and exploitation of new technology to improve availability and manageability. Levels are as follows:

- low – no technology refresh plan in place
  - medium – a fully documented technology refresh plan is in place and is updated regularly
  - high – a fully documented technology refresh plan in place, updated, and is in ongoing use.
- **Technology refresh implementation** – The refresh of the existing infrastructure is key to the world-class data center because refreshes allow for the introduction and exploitation of new technology that improves availability and manageability. The levels of technology refresh implementation include the following:
    - low – no planned technology refresh implementation performed
    - medium – a fully documented technology refresh implementation plan is in place and executed regularly
    - high – a fully documented technology refresh implementation plan is in place, updated on an ongoing basis and executed as part of the infrastructure processes.
  - **Tactical and strategic planning** – The ability to create and execute tactical and strategic infrastructure plans is a key indicator of the maturity of a data center. Levels are as follows:
    - low – no tactical or strategic planning
    - medium – either tactical or strategic planning performed and executed
    - high – tactical and strategic planning performed and executed.
  - **Real-time client business view** – The client must have visibility not only into technology components, but also the business view of the deployed technology. The client must be presented with a customizable business view of the underlying IT components based on the business view required. Levels are as follows:
    - low – no client business view
    - medium – manual process to create business process with extensive delay
    - high – real-time view of all business processes.

## Section 2.b

b. Identify and fully describe any work to be performed by the public entity.

It is assumed that the VITA and the Commonwealth will represent the public entity associated with the project. Therefore, the public entity will have the responsibility of the following:

- Executing the designate leases for the two facilities
- Procurement and payment of furniture, telephone equipment, and specialty items
- All relocation and moving expenses of personnel and equipment for the new facilities
- Cooperating with and supporting VA1 in the negotiations with third-party entities for the mutual benefit of the public entity.

## Section 2.c

c. Include a list of all federal, state and local permits and approvals required for the project and a schedule for obtaining such permits and approvals.

The list of permits anticipated for the completion of these projects is as follows:

- Notice of Intent (NOI) filed with the Environmental Protection Agency (EPA) for earthwork and erosion protection demolition permit (Richmond)
- Building permits by local and county authorities (Richmond and Wise County)
- Trade building permits for all required trades (Richmond and Wise County)
- Municipal curb cuts and Right-of-Way permits (Richmond and Wise County).

The list of anticipated approvals for these projects is as follows:

- NOI Release
- Final inspections and Certificates of Occupancy from municipalities and the county (Richmond and Wise County)
- Trade permit final inspection approvals (Richmond and Wise County)

The schedule for the permits and approvals is included in the overall Project Schedule in Section 2 f.

## Permits and Approvals

The documents will be produced in accordance with the following Applicable Governing Codes & Regulations for the State of Virginia and the jurisdictions of Richmond and Wise County.

- Building Code: International Building Code 2000
- Fire Code: BOCA Fire Code 1996 - 6461526
- Mechanical Code: International Mechanical Code, 1996 ( Dale Smith 646-6982 )
- Energy Code: Energy Conservation Code 1998
- Plumbing Code: International Plumbing Code, 2000
- Electrical Code: International Electrical Code, 2000
- Elevator Code: 1996 Elevator Code A17.1 with 97 and 98 Addendums (Michael Clark - 646-6945 )
- Accessibility Code: Americans with Disabilities Act (ADA) 1990: ICC/ANSI A117.1 - 1998 Accessible and Usable Buildings and Facilities
- Occupational Safety and Health Administration (OSHA): Federal Occupational Safety and Health Act.

## Section 2.d

- d. Identify any anticipated adverse social, economic and environmental impacts of the project. Specify the strategies or actions to mitigate known impacts of the project. Indicate if an environmental and archaeological assessment have been completed.

## Adverse Impact

VA1 anticipates no adverse social, economic, or environmental impacts as a result of this important project for the Commonwealth. VA1, with extensive experience in executing projects of this type, will take all necessary steps to avoid negative social, economic, or environmental impacts.

## Environmental Assessment

Until the Commonwealth approves a site for the Richmond-area data center, VA1 cannot offer a specific analysis of environmental impacts. When a site has been selected and approved, however, it will be developed to conform to all Commonwealth and local environmental regulations.

The proposed data center in Wise County, Virginia, at the Lonesome Pine Technology Center will have no adverse environmental impacts. The VA1 has secured an option with the Wise County Industrial Development Authority to purchase seven acres in the Lonesome Pine Technology Center. This developed, green-field site has all utilities available. Further, representatives of Wise County have informed members of VA1 that the location of a data center in the Lonesome Pine Technology Center is consistent with the Counties' Comprehensive Plan and will not result in any anticipated adverse environmental impacts.

## Archaeological Assessment

VA1 cannot offer an archaeological assessment for the Richmond area data center until the Commonwealth approves a specific site. When a site has been selected and approved, VA1 will assist the Commonwealth to determine whether the selected site has archaeological significance. If items of archaeological significance are suspected during construction, the appropriate Commonwealth agencies will be notified and VA1 will follow all relevant procedures governed by law.

VA1 knows of no archaeological assessment that has been performed for the proposed data center site at the Lonesome Pine Technology Center in Wise County. If the Commonwealth approves the Lonesome Pine site, VA1 will assist in determining whether the site has archaeological significance. If items of archaeological significance are suspected during construction, the appropriate state entities will be notified and VA1 will follow all relevant procedures governed by law.

## Section 2.e

- e. Identify the projected positive social, economic and environmental impacts of the project.

## Positive Impact

The Commonwealth will benefit significantly as a result of the proposed transformation.

## Social Impact

The construction of a new primary and secondary data center will result in better overall working conditions. Moreover, the consolidation of data centers will further the Virginia General Assembly's mandate to merge the Department of Information Technology, the Department of Technology Planning and the Virginia Information Providers Network into the VITA. This proposal will enable VITA to consolidate IT operations for 91 Commonwealth agencies. The proposal also will enable the Commonwealth to have a separate and secure data center with redundancy through its secondary site in Wise County, Virginia.

## Economic Impact

The proposed consolidated data centers in the Richmond metropolitan area and at the Wise County site will lead to greater efficiency in operations and will dramatically reduce overall costs in an ongoing manner. Higher efficiencies in space planning, which will use modern building materials and planning,

will reduce the need for additional commercial space. Moreover, consolidated data centers offer lower costs of operation for the Commonwealth while dramatically improving the security of its public service infrastructure.

The location of the data center in Wise County is one hundred percent consistent with the County’s mandate to secure higher paying jobs for its citizens. The location of a secondary data center in Wise County is supported not only by County officials, but by economic development groups charged to promote the economic development of southwest Virginia. These groups include the Virginia Tobacco Indemnification and Community Revitalization Commission, Virginia Southwest Promise, and LENOWISCO Planning District Commission (PDC). Wise County and its citizens will benefit not only from the creation of high-paying jobs but also from potentially new business growth and tax revenue.

Finally, because VA1 consists of companies that have successfully performed many projects in the Commonwealth, a substantial amount of the monies expended for this important project will remain in or be of benefit to local Virginia companies. This includes providing jobs and salaries for local employees and generating revenues from local vendors and small business purchases, in addition to the benefit to all Virginians in having an efficient yet secure technological infrastructure. VA1 is committed to designing and constructing the primary and secondary data centers so that they blend attractively with their environs and avoid potential adverse impact, as addressed in Section 2.d. This sensitivity will extend to making the facility respectful to and protective of local sites and neighborhood ecology.

## Section 2.f

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|---|
| f. Identify the proposed schedule for the work on the project, including the estimated time for completion. |
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Appendix I, Project Schedule includes a project schedule that assumes a normal process of development and delivery. Certain aspects of the project may be accelerated or adjusted to meet specific timetables the VITA may require. VA1 has not had the benefit of specific schedule input from VITA, but it would encourage that information to be exchanged early in this process.

## Section 2.g

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| g. Identify contingency plans for addressing public needs in the event that all or some of the project is not completed according to projected schedule. |
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The migration plan mitigates any risk of delay to the Commonwealth by maintaining all existing data center facilities until the transition is successful. At that time, the only conceivable effects on timetables that may require the consideration of a contingency plan might be the following:

- Technology equipment availability
- Deliverability of the specific Richmond site
- Unknowns of data migration from the existing facilities.

## Section 2.h

- h. Propose allocation of risk and liability for work completed beyond the agreement's completion date, and assurances for timely completion of the project.

The risk and liability of the development of these projects clearly falls on Koll Development Company (KDC). The guarantee of completion and delivery of the facilities will be KDC's responsibility, within its agreement of the loan documents. KDC will require an acceptable lease document that is executed by the Commonwealth to help securitize the loan. In support of the KDC guarantee, DPR will execute a guaranteed maximum price (GMP) contract for the exact scope of work and timetables required under the lease. Ellerbe Becket will execute a contract with KDC to meet certain deliverables tied to a specific timeframe, so that no aspects of the development process are delayed. Liquidated damages will be in force to motivate all parties to meet their obligations.

DPR and all major subcontracted trades will be required to post Performance and Payment Bonds for their work, which will further backstop any risk of financial or workmanship risks of delivery.

KDC has excellent an record and a reputation for delivery with numerous financial institutions, including the ones proposed. Those relationships have been established over the years by mitigating risk through the use of its GMP contract documents with solid, qualified contractors and architects and its experiential ability to manage through any issue that may arise.

## Section 2.i

- i. State assumptions related to ownership, legal liability, law enforcement and operation of the project and the existence of any restrictions on the public entity's use of the project.

Koll Development Company or an appropriate legal entity shall retain ownership of all real property equipment and assets as described in Section II.a (Project Description). The ownership entity shall execute a lease document with the Commonwealth for the right of exclusive use and benefit of the property equipment and assets. Commonwealth laws shall govern the enforcement of said lease document as well as its operations. Any restrictions to the beneficial use of the property, equipment, and assets by the Commonwealth of Virginia shall be as stated in the executed lease document and/or the operational contract that the Commonwealth may execute with EDS.

## Section 2.j

- j. Provide information relative to phased or partial openings of the proposed project prior to completion of the entire work.

It is intended that the two data facilities will be delivered in essentially the same timeframe from the commencement of a lease with the Commonwealth. The timeframe may vary slightly depending on the deliverability of the Richmond site, but the Wise site is ready to move on, with little or no issues.

In addition, it is intended that the rent commencement shall initiate upon the issuance of a Certificate of Occupancy from the local governing authorities for each of the individual facilities. If it is determined that migration of data to the new facilities shall be in a phased manner, the VITA may elect to do so. Regardless of the desire for VITA to execute a phased migration, the facilities will be ready for occupancy of 100 percent of the space. KDC is willing to discuss the flexibility of partial rent commencement based on a phased occupancy by VITA.