

**2008 NASCIO Recognition Awards Nomination
Commonwealth of Virginia**

Nomination Category:

Enterprise IT Management Initiatives

Title of Nomination:

Virginia Information Technology Infrastructure Partnership

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2008 NASCIO Award Submission
Category: Enterprise IT Management Initiatives
Project: Virginia Information Technology Infrastructure Partnership

Executive Summary

The Commonwealth of Virginia and Northrop Grumman Corporation formed the largest public-private IT partnership in the nation in November 2005. Valued at \$1.9 billion over ten years, the [IT Infrastructure Partnership](#) is resulting in a \$270 million upfront capital investment, a modern standardized IT infrastructure “utility” with improved services at predictable costs and economic development. The partnership is self-funded, with no additional costs to taxpayers. All state IT employees retained their jobs during the transition. The state’s Information Technology Investment Board ([ITIB](#)), Chief Information Officer and Virginia Information Technologies Agency ([VITA](#)) closely oversee the partnership.

In the past 31 months, VITA and Northrop Grumman have:

Modernized much of Virginia’s infrastructure – Virginia now has two custom-built, secure and reliable data center and backup data center facilities with redundancy and advanced physical security. To date, Virginia has replaced more than half of the infrastructure and significantly enhanced the security of sensitive citizen information.

Measured IT Infrastructure performance across the enterprise –VITA and Northrop Grumman began measuring and managing to enterprise metrics in July 2006. Beginning July 2008, Virginia will actively monitor, measure and report on 159 service levels.

Standardized services and support - Virginia implemented IT Infrastructure Library (ITIL) best practices, standardized core infrastructure practices and conducted a robust asset inventory validation process, including procedures to keep inventory current.

Increased transparency of IT infrastructure spending – Previously, visibility into IT infrastructure spending was limited. Today, IT infrastructure is a planned and budgeted expense.

Revitalized southwest Virginia –More than 400 high-tech jobs are being created in economically challenged southwest Virginia, including support for higher education curricula and workforce training initiatives in that region.

Valued IT employee contributions –State employees working for VITA did not lose their jobs. Northrop Grumman provided 850 state IT workers job offers with comparable benefits, salary increases, signing bonuses and expanded training and career opportunities.

Virginia is getting a modern, efficient IT infrastructure for the same cost it was paying in 2005 to maintain an aging, 1980s environment. The return on investment includes:

- Investment of more than \$270 to modernize the state’s IT environment
- Cost avoidance of \$200 million over the next 10 years if the state took no action
- Cost savings of \$120 million over the next 10 years in energy costs
- Correction of \$10 million in software license violations and under-funded IT programs

Since 2005, Virginia has made great progress in developing a reliable and agile IT infrastructure, assisting an economically challenged region, securing sensitive information and assets and implementing best practices for IT service delivery and support.

Description of the problem and solution

The state of IT infrastructure in the executive branch of Virginia in 2005 was marked by:

- 85+ independent and duplicative IT shops, lacking standardization and coordination
- Aging, inefficient infrastructure, with 60 percent of equipment 8-10 years old
- Fragmented networks and more than 85 Internet connections
- Inadequate protection of sensitive information and equipment
- A data center facility deficient in security, redundancy, reliability and disaster recovery capability
- Historically underfunded IT programs, some with no IT support or maintenance
- Few metrics on performance and service delivery
- Multiple, inconsistent processes for service delivery, and more than 40 help desks

The IT environment was decentralized and agency-specific; there were no enterprise performance metrics or consistent service levels, and collaboration was stymied. IT infrastructure employees were aligned by agency; resource-sharing was difficult and many agencies had no IT support staff. IT infrastructure funds lacked visibility, with most IT spend as discretionary, rather than as a planned, predictable monthly expenditure. The majority of infrastructure purchasing occurred in the final quarter of the fiscal year when agencies determined they had additional money. This spending often was not tied to IT strategic planning and was without regard for the total cost of ownership.

The cost to replace the aging infrastructure and implement consistent best practices required a staggering sum – more than \$200 million in upfront investment dollars. With competing budget demands in public safety, transportation, health and education, those dollars were not forthcoming in the limited state budget. Even if Virginia had the money, issuing a traditional request for proposals was too limiting, placing the burden for solution development on the state. Doing nothing would cost Virginia an additional \$200 million over ten years to maintain the technology environment.

Entering into a partnership was the best solution to modernize Virginia's infrastructure. Virginia took advantage of the Public-Private Education Facilities and Infrastructure Act. Rather than prescribing a solution, Virginia published a description of business problems and attributes of the desired solution. The private sector stepped forward to supply expertise, creativity and innovation for modernizing the infrastructure and improving state government operations.

Following an extensive evaluation and selection process, Virginia and Northrop Grumman Corporation formed the largest public-private IT partnership in the nation in November 2005. Valued at \$1.9 billion over ten years, the [IT Infrastructure Partnership](#) results in \$270 million upfront capital investment, a modern standardized IT infrastructure "utility" with improved services at predictable costs and economic development. The partnership is self-funded, with no additional costs to taxpayers and no layoffs of state employees.

In the past 31 months, Virginia citizens, employees and state agencies have benefitted from the partnership's major transformation initiatives. They are:

- **Delivering IT services** – Northrop Grumman assumed operational responsibility for 220,000+ devices, services at 2,000+ locations for 85 executive branch agencies and nearly 850 IT professionals in July 2006.
- **Modernizing the infrastructure** – The 36-month modernization effort began in July 2006 to replace aging infrastructure with a consistent, standards-based platform that is consolidated and centrally managed, including desktop refresh, a single point of contact help desk, a statewide network with two secure Internet gateways, enterprise messaging services, voice and video services, mainframe and server consolidation and construction of secure data center facilities.
- **Standardizing services and support** – Consistent infrastructure practices began in concert with the modernization efforts in July 2006, including implementation of IT Infrastructure Library (ITIL) processes; standardizing incident management; developing, measuring and managing against 159 enterprise performance metrics and service levels; and re-engineering business processes such as billing, inventory management, purchasing and procedures documentation.
- **Revitalizing southwest Virginia** – In support of state priorities for economic development, Northrop Grumman invested more than \$60 million in rural southwest Virginia to construct a new, modern facility housing the enterprise-wide help desk and backup data center; partner with local colleges to bolster workforce training; sponsoring community events; and support local charities.

Virginia manages the partnership through the [ITIB](#) and [VITA](#), which are responsible for all aspects of the [Comprehensive Infrastructure Agreement](#) with Northrop Grumman, including:

- Financial and contractual aspects of the agreement
- Relationships with and interfaces to customer agencies
- Technical elements of nearly 50 modernization projects and service delivery
- Security across the program
- Process and procedures design and rollout, including ITIL
- Impacts to stakeholders and organizational change and communications support

VITA and Northrop Grumman established a joint program management office (PMO) to provide oversight and conduct assurance and maturation activities. The PMO leverages Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK) and frameworks, adapting project standards and the emerging Standard for Program Management (SPM). For assessing and planning maturation, the Organizational Project Management Maturity Model (OPM3) was leveraged in concert with independent program maturity assessments.

Virginia has overcome tremendous challenges in the IT infrastructure arena -- the sheer complexity and magnitude of the monumental undertaking, the level of business process re-engineering required to support the new environment, poor data on the state of the IT environment and resistance when changing the culture of state government. The federal government's cost allocation regulations required VITA to change its fee-for-service model two years sooner than planned, creating an accounting nightmare as funds were reallocated across agencies. Virginia's historically decentralized government structure with 85 executive branch agencies presents challenges. By comparison, other large states have many fewer agencies. Finally, state regulations and rules do not contemplate an outsourcing agreement where

contractors outnumber state employees. Many state mandates, particularly in purchasing and human resources, do not make sense in a partnership environment. Despite these challenges, the partnership has resulted in tangible benefits and improved government operations.

Significance of the project to the improvement of the operation of government

The IT Infrastructure Partnership is the nation’s largest public-private IT partnership and the largest known example of successful high-tech rural sourcing. The partnership has:

Modernized much of Virginia’s infrastructure – Virginia has a custom-built, secure and reliable data center and headquarters, with redundant power and utilities and advanced physical security monitoring. It is rated a Tier III facility by the Uptime Institute, experiencing an average of 99.98% availability. Virginia successfully moved data center operations out of a facility that was rated a security risk into the new center in 2007. Progress highlights are:

Investment	Before	Today
Desktop computing	Incompatible, outdated PCs; inconsistent security and support	23,000+ desktops refreshed, with full lifecycle support and adequate security
Facilities	A deficient data center, limited disaster recovery capability	Two custom-built, secure, reliable facilities; robust disaster recovery capability
Network	Fragmented and inconsistent with 85+ Internet connections	754 agency sites migrated to statewide network with two secure Internet gateways
Mainframe & server	3,000+ servers in numerous locations, under-utilized capacity; inadequate support and security	Data center migrated to secure facilities; disaster recovery test completed; 806 servers consolidated or relocated
Help desk	40+ disparate, uncoordinated help desks using multiple incident management tools	55 agencies transitioned to common incident management tool, central help desk
Messaging	Nine+ incompatible e-mail platforms	Statewide e-mail platform developed; agency migrations under way
Security	80% of agency security programs rated inadequate; inconsistent, uncoordinated	Significant improvement in security posture; coordination across agencies; enterprise security operations center

Measured IT Infrastructure performance across the enterprise – Prior to the partnership, most agencies managed their IT environments through “best effort” with few – if any – performance metrics. Virginia began measuring and managing to enterprise metrics in end user services, data center services, network and security in July 2006. Beginning July 2008, Virginia will actively monitor, measure and report on 159 service levels, with incentives for meeting or exceeding metrics and penalties for missing service levels outlined in the contract with Northrop Grumman. For the first time, agencies have metrics and reports to understand the IT environment from a data-driven perspective.

Standardized services and support – VITA and Northrop Grumman implemented ITIL best practices for change, configuration and release management, with additional ITIL processes rolling out in phases over the next 12-18 months. Virginia standardized core infrastructure

practices, such as performing routine backups or installing new equipment, and ensured compliance across the enterprise. Virginia also corrected thousands of software license violations and conducted a robust asset inventory validation process, including standard procedures for installing, moving, adding or changing (IMAC) assets to keep the inventory current. The partnership is developing a service catalog to improve purchasing and developed a customer relationship management program.

Increased transparency of IT infrastructure spending – Prior to the partnership, visibility into IT infrastructure spending was limited. To avoid losing precious program dollars, many agencies spent year-end program funds on IT infrastructure, often not taking into account the total cost of ownership or ongoing maintenance. This approach to IT spend was not strategic, and difficult to plan and support (nearly half of all IT expenditures occurred in the final quarter of the fiscal year). Agencies relied on leftover discretionary funds to pay for infrastructure, often limping along with antiquated equipment or inadequate security and support in tight fiscal years. Today, IT infrastructure is a planned, budgeted and predictable expense. Rather than purchasing commodities, agencies are purchasing services and service levels, with installation, maintenance and replacement built into the service fees. As a result, infrastructure investments are planned, in alignment with agency strategic planning objectives, and fit into the enterprise architecture.

Assisted southwest Virginia – Rural southwest Virginia struggles with coal mine closures and a disappearing textile manufacturing economy. Northrop Grumman is working with nine localities and three colleges and universities to introduce more than 400 high-tech jobs to the region. Northrop Grumman opened the back-up data center facility in 2007 and has hired nearly 50 employees to staff the growing help desk. Northrop Grumman invested more than \$200,000 in higher education curriculum development and workforce preparation initiatives. CGI has opened a facility next door to Northrop Grumman, inviting further investment from other IT firms and proving rural sourcing is a viable alternative to off-shoring. The partnership supports public officials' goal to increase economic development in the southwest region of the state and to encourage Virginia natives who left the region in search of better jobs to [return to their roots](#).

Valued IT employee contributions – The partnership is committed to employees, who are crucial to success. Northrop Grumman provided 850 state IT workers the option of remaining state employees or accepting job offers with comparable benefits. Employees who accepted the job offers received a 4 percent salary increase and up to a 6 percent signing bonus, as well as access to expanded training and career options. Employees could transfer their years of service to the Commonwealth to Northrop Grumman and had the option of transferring leave balances or receiving a payout. With unprecedented outreach efforts across the state, 66 percent of employees, or 556, accepted the job offers. The partnership developed guidance for operating in a complex, matrix-management model successfully.

The partnership has many stakeholders and beneficiaries, including Virginia citizens and taxpayers, residents of southwest Virginia, customer agencies, IT employees, and approximately 900 other localities and public bodies that purchase services. These stakeholders are enjoying the benefits of the partnership through economic revitalization, improved management of government IT operations, enhanced ability to operate during or restore services after a disaster, and correcting the many deficiencies and risks in the IT environment. The partnership has built a

solid foundation for driving cross-cutting collaboration, enterprise applications and shared services to improve how services are delivered to citizens and remove technical barriers to better integration across related services.

Benefits of the project

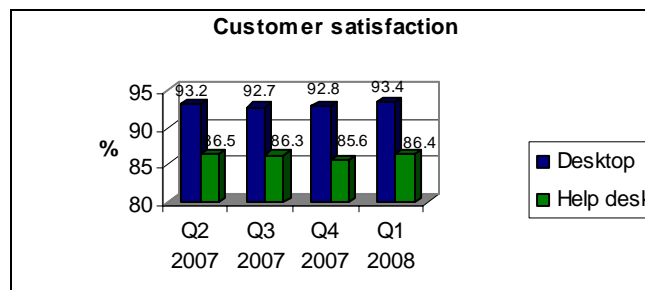
Virginia is getting a modern, efficient IT infrastructure for the same cost it was paying in 2005 to maintain an aging, 1980s environment. The partnership is self-funded, relying on efficiencies gained from consolidation and centralization to pay back the upfront investment over the course of the agreement. The return on investment includes:

- Investment of more than \$270 million in replacing and modernizing the infrastructure
- Virginia avoided spending \$200 million over the next ten years to maintain the outdated, inefficient infrastructure
- Virginia will save \$120 million over the next ten years in energy costs due to installation of new, energy-efficient equipment and better use of computing capacity
- Correcting \$10 million in software license violations and historically under-funded IT programs that had no support and no maintenance on thousands of devices

The contract with Northrop Grumman provides the state with price and performance assurances:

- Service fees and levels evaluated against industry peers by an independent third party, to ensure the state gets the best price over the lifetime of the contract
- Service fees independently compared with fees paid by other Northrop Grumman customers for similar services, so Virginia maintains “most favored customer” status
- A penalty structure for not attaining critical service levels and incentives for consistently meeting and exceeding performance levels
- Continuous improvement in services over the life of the contract

With standard IT processes in place, IT support staff can support multiple agencies and backfill one another, reducing downtime and loss of productivity when IT support staff are unavailable. Agencies and citizens have greater visibility into the level of performance they are getting for the money. In addition to 159 performance metrics, VITA and Northrop Grumman conduct customer satisfaction surveys for help desk, desk side support and messaging. The surveys have been consistently positive, above industry standards. The chart below shows the percentage of respondents who rated overall satisfaction “agree” or “strongly agree,” by quarter.



In just over two years, the IT Infrastructure Partnership has helped Virginia make great progress in developing a reliable and agile IT infrastructure for state government, bringing high-tech jobs to an economically challenged region of the state, securing sensitive information and assets, and implementing best practices for IT service delivery and support.