Leveraging MITA to Implement Service Oriented Architecture and Enterprise Data Management

Category: Cross Boundary Collaboration

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Nomination submitted by:
Samuel A. Nixon Jr.
Chief Information Officer
Commonwealth of Virginia
Virginia Information Technologies Agency

www.vita.virginia.gov
Executive Summary

Federal health-care reform created need for management systems. In parallel, more robust identity management and authentication was a priority for the Virginia Department of Motor Vehicles (DMV). The Virginia Information Technologies Agency (VITA) and the commonwealth chief information officer (CIO), who serves as VITA’s agency head, prioritized shared services. The challenge: unite disparate groups and processes to implement enterprise improvements.

Through strong relationships and structured reviews, a vision developed: leverage the health IT mandate to include and require use of service oriented architecture (SOA), enterprise data management (EDM), identity management and secure authentication.

Though Virginia’s consolidated IT infrastructure offered a head start, new technology platforms were required. Cultural and business process differences were extensive. Private sector entities and the federal government also were participants. Authentication needed to be strengthened. Data sharing limitations could constrain future uses.

The secretary of Health and Human Resources led the eHHR projects while VITA built a SOA technical environment as the basis for interoperability between federal, state, and local government systems. DMV implemented the commonwealth authentication service (CAS) to address authentication needs for public Web portals.

Implementing SOA technology and the Medicaid Information Technology Architecture (MITA) framework enables the collection, aggregation and sharing of data among agencies and localities, thereby eliminating unnecessary efforts, streamlining work flows and ensuring cleaner data.

The inter-secretariat collaboration improves the productivity of service delivery. Workers within various agencies and provider organizations can take a collective approach to meeting the needs of clients, including the ability to link to potential programs. Accurately identifying clients across multiple systems reduces the potential for fraud and abuse and enables resources to be directed toward the right clients for the right cost.

The adoption of SOA and a reusable technology foundation improves the quality, efficiency, accuracy and sustainability of government services at a time when demand is at an all-time high.

The outcome is no less than another transformation of Virginia’s IT infrastructure into a modern, integrated system prepared to support single-use applications across agencies as well as more comprehensive shared services.
Business Problem

Federal health care reform efforts, including the Health Information Technology for Economic and Clinical Health (HITECH) Act in 2009 and the Affordable Care Act (ACA) in 2010, created need for health care eligibility and management systems. Medicaid Information Technology Architecture (MITA) and electronic Health and Human Resource (eHHR) systems became national information technology (IT) priorities.

The economy dramatically increased the need for public assistance services. Last year in Virginia, more than 2.3 million applications for Medicaid and Supplemental Nutrition Assistance Program (SNAP) services were processed. There was no increased funding for the increased work load. Additionally, an up to 40 percent increase in Medicaid services was predicted as a result of health care reform effort.

Because reduction of online fraud became a priority, more robust identity management and authentication for online account holders became a priority for the commonwealth. The Virginia Information Technologies Agency (VITA), which provides enterprise IT infrastructure and other solutions for 89 executive branch agencies, and the commonwealth chief information officer (CIO), who serves as the VITA agency head, prioritized shared services. The collaborative challenge: unite disparate business groups and processes to implement effective, efficient and secure improvements in cost reductions and data sharing that extend beyond eHHR and MITA.

Federal funding was available. Development, procurements and funded activities had to align with federal funding, timelines and guidelines. Operational/ongoing funding was an issue.

New governance and standards, including storage and transport of data and data exchange, were needed. A process to acquire citizen consent for data sharing was required, and various parts of Virginia’s state code required updates to support new mandates and initiatives. Authentication had to be strengthened, particularly for remote (online) events. Data sharing limitations, unless addressed, could constrain future uses.

Though Virginia’s consolidated IT infrastructure offered a significant head start, new technology platforms were required. That introduced complexities and new support needs. Cultural and business process differences were extensive between the 11 agencies in the Health and Human Services (HHS) secretariat, VITA, DMV and other potential state partners, including Treasury, State Board of Elections and Corrections. Private sector health care and social service provider entities, multiple vendors and the federal government were expected to be participants.
Solution

To best leverage federal funding, Virginia’s work first was framed around three primary focus areas: health IT interoperability, health information exchange, and enterprise information architecture and governance. Virginia’s agency IT directors/agency CIOs interact through cross-boundary groups, including a CIO Council. Virginia’s IT strategic planning process is designed to discover opportunities for collaboration. Through strong relationships and structured reviews, a vision developed: leverage the health IT mandate to include and require use of service oriented architecture (SOA), enterprise data management (EDM), identity management and secure authentication.

The secretary of HHR became business owner and driver of the electronic HHR (eHHR) projects; his strong leadership brought close collaboration among and between the 11 HHR agencies. DMV led the commonwealth authentication service (CAS) development. VITA was charged with support of CAS, development of an enterprise service bus (ESB) and EDM. Technical requirements for MITA shared services were led by VITA with support of IT teams from other participating agencies. Program managers coordinated projects and communicated with each other and their teams. Many teams representing a wide array of functions were involved within the various agencies: business (operations, policy and executive management), legal, technical (application and infrastructure), security, contracts and financial. The programs worked against fast-approaching and hard federally mandated compliance dates in politically charged topic areas.

VITA built a service oriented architecture (SOA) technical environment as the basis for interoperability between federal, state and local government systems. DMV implemented CAS to address authentication needs for public Web portals. Implementation of these environments was extremely complex. Initial projects included:

- Enterprise service bus that also supported message transformation
- Asynchronous messaging
- Web service registry and repository
- Business rules management system business process management system
- Enterprise data management solution
- Shared customer authentication service
- Environment monitoring, managing and usage/billing portal

Additional services were added:

- Administration of shared application servers to support “smaller” eHHR projects
- Shared proxy servers to implement commonwealth-to-outside connectivity

An example of use of these new solutions is CommonHelp, a Web offering launched by the Virginia Department of Social Services in April 2012 permitting residents to apply for
Communications planning and execution were an integral part of all the projects, including agile team communications, cross-functional team communication, user training, statewide communication to executive stakeholders and employees, and significant organizational change management efforts.

VITA’S commonwealth security and risk management (CSRM) staff was deeply involved from initiation, providing guidance for the design and RFP processes. CSRM:

- Worked with the MITA and CAS teams to ensure that the design and selected vendor offerings met commonwealth security standards
- Assisted the MITA team in developing MITA-specific policies and procedures
- Coordinated with the MITA team to select security controls and monitoring capabilities to protect the environment from threats at both the network and application layers
- Directed the IT infrastructure provider to deploy and configure the security controls and monitoring capabilities to protect the environment
- Oversees the IT infrastructure provider for continuous monitoring of the MITA environment to ensure that existing controls mitigate future threats

Significance

By using SOA-based services, Virginia’s eHHR program reduces costs while enhancing service value through increased performance and decreased waste. The most important beneficiaries of the collaborative efforts ultimately are the citizens in need of services and taxpayers who want state government to be a sound steward of public funds.

Although eHHR was the initial driver, enterprise IT products and environments were developed that now will be available to federal, state and local programs on a pay-for-use basis. Products can be multi-tasked or repurposed; duplication is held to a minimum. New shared services are enabled, with reduced cost and time to implement.

Collaboration across four secretariats helped resolve critical business issues, including governance, data sharing, privacy, security, uniform data standards, business process reengineering across and between agencies, and technical infrastructure agreement.

The self-directed service model allows Virginians to manage their services via the Web without having to go to a local social services office. Eligibility workers can verify information directly against source systems and no longer need to perform exhaustive research. DMV has a consolidated authentication platform to support single sign on for services. Virginia taxpayers benefit from wise use of available federal funds, re-use of
assets, streamlined government processes and significantly improved cross-boundary collaboration.

To align enterprise vision with federal and state direction, the first secretariat-wide Information Technology Strategic Plan (ITSP) was established; previously ITSPs were written only at the agency level. The implementation of SOA and EDM as basis for MITA and other shared services is a prime example of best practice enterprise thinking that addresses Virginia and NASCIO priorities. Unifying the structural data and architectural components allows the commonwealth to further consolidate and optimize shared services. Cyber security was a driving construct, particularly since personal information may be involved. The health care initiatives led to significant business process improvement across the enterprise and enables further modernization and standardization of legacy applications and systems. Virginia efficiently used its federal fund opportunities for budget and cost control to the benefit of the taxpayer and the enterprise of Virginia government. Identity and access management are enabled, big data is harnessed and standardized, and business analytics now may be used for further modernization of legacy systems.

The Center for Medicare and Medicaid Services (CMS) has singled out Virginia as an example for other states planning their IT landscapes.

**Benefits**

Virginia now is accepting modified adjusted gross income for benefits online; new business operations have started; external communications are flowing; call centers are answering phones; enrollments are processing; and, daily reporting metrics have started.

A solution to match person records across agency systems is implemented; the EDM Person Data Exchange Standard was adopted in April 2012.

The commonwealth’s shared services portfolio now is designed on the MITA model. The commonwealth adopted enterprise information architecture language into Enterprise Architecture Policy 200-02 in July 2012. The Virginia General Assembly contributed Item 427 of the 2012 and 2013 Appropriation Acts requiring standardization of “all citizen-centric” data. VITA developed a Virginia instance of the National Information Exchange Model (NIEM) Core Person Data Exchange Standard to meet Item 427. The plan was delivered to the General Assembly on July 1, 2013.

As a result of CommonHelp, significant caseload and workload increases were absorbed by local social services staff without an increase in state general funds. Eligibility modernization projects met all federally mandated compliance dates.
The program increases the value of government services in Virginia through increased performance and decreased waste. For example, the Virginia Department of Social Services (VDSS) can access tax data to verify income and determine assets through the Commonwealth Accounting and Reporting System (CARS) or DMV, thus lowering error rates and fraud risk and saving as much as 45 minutes per application.

A shared SOA environment drives down long-term technology costs for all programs and provides the opportunity to leverage a much wider array of services available on the ESB. In later phases, legacy systems will be retired, lowering operating costs and eliminating the risk of old, brittle technology. Retiring one aging legacy system alone at VDSS will save millions per year in operating costs.

In August 2011, the secretaries of HHR and Technology formed the Secretarial Committee on Data Sharing with cross-agency representation. All Virginia agencies now may become a participant through an enhanced memorandum of understanding. This approach is modeled after federal and state agreements used for health information exchange data sharing. Other agencies now can use the SOA infrastructure on a cost-sharing basis.

The first phase of CommonHelp rolled out on time and within budget. During its soft launch, more than 4,000 applications were enrolled online. Within the first year, 30 percent of public assistance applications were received online.

Opportunities to leverage CommonHelp have been identified. One is the Virginia Community Reentry Initiative. CommonHelp will enable prison inmates to apply for services before release, improving their support network for a more successful transition.

Implementing SOA technology and the MITA framework enables the collection, aggregation and sharing of data among agencies and localities, thereby streamlining work flows and ensuring cleaner data for all participating government and other entities.

The inter-secretariat collaboration improves the productivity of service delivery. Workers in various agencies and provider organizations can take a collective approach to meeting the needs of clients, including the ability to link to potential programs for clients based on demographics. Accurately identifying clients across multiple systems reduces the potential for fraud and abuse and enables resources to be directed toward the right clients at the right cost.

The adoption of SOA and a reusable technology foundation improves the quality, efficiency, accuracy and sustainability of government services at a time when demand is at an all-time high. The outcome is no less than another transformation of Virginia’s IT infrastructure into a modern, integrated system, prepared to support single-use applications across agencies as well as more comprehensive shared services.