

Creating a Seamless & Agnostic Ecosystem

(Federal, State, and Local IT Alignment)

By R. Russell Ruggiero

Introduction

Having done research and project management work in the government space exposed me to the multitude of technologies used. In addition, work with groups like World Wide Web Consortium (W3C), Organization for the Advancement of Structured Information Standards (OASIS), and Association for Information and Image Management (AIIM) introduced me to workings of open-standards organizations. My latest research work has revolved around Strategy Markup Language (StratML), which is an open, machine readable standard that could better align interested parties that share the same goals and objectives in crafting strategic agreements. As a result, these recent efforts have helped to uncover possible areas where federal, state, and local IT systems may benefit from a consensus of standards used, data center consolidation, while leveraging new technologies to form a more cohesive ecosystem.

Every Type of Technology

From my research and experience, it seems that that government (federal, state, and local) run just about anything and everything. From powerful mainframes to desktop PCs. From historic to cutting edge, the gamut runs wide and deep. So when people make blanket statements about government IT systems, we should be a bit wary because it is almost impossible to pin down from a logical point of view. These IT systems work together to help run the U.S. day-to-day, and credit must be given where credit is due. That does not mean that alternative options and new technologies should not be leveraged to improve overall efficiency and data transparency.

Consensus on Standards

Where I see the biggest problem relates to the myriad of standards used and supported. For example, are we to adopt and accept open-standards like Electronic Business eXtensible Markup Language (ebXML) for registries, Simple Object Access Protocol (SOAP) regarding messaging, and Security Assertion Markup Language (SAML) for security? This is just the tip of the iceberg so to say. What about dealing with a general consensus regarding network security, computer security, and information security? Now we must take a step back before we can move forward. The goal here is to create seamless bidirectional and unidirectional information flows at the federal, state, and local levels. We can also throw the word agnostic in to create an even loftier goal. For example, a terrorist attack in the form of a dirty bomb taking place in Manhattan subway system would require seamless information flow from DHS/FEMA, along with the DOD to first responders (e.g., policemen, firemen, etc.). Since I live in Manhattan and have visited Ground Zero well over one-hundred times since 9/11, any improvement in communications would seem to be a logical approach in saving lives, while reducing injury and property damage relating to this type of event driven manmade scenario. Hence, the need to agree on standards that in fact foster seamless bidirectional and unidirectional information flow between all interested parties. We must then try to envision federal, state, and local governments agreeing on reducing the number of prime technologies to help streamline the system to promote greater efficiency and improved information flow. This would enable entities such as the DHS/FEMA and DOD to create a far more agnostic and efficient infrastructure that could better deal with manmade or natural catastrophic events. It could also shift important resources from support to researching and implementing new and useful technologies to help push the communications envelope.

Data Center Consolidation

This is an area I was asked to research because of its importance and large cost component.- <http://breakinggov.com/2011/09/15/an-unlikely-innovator-in-technology-adoption-federal-spending/>. The consolidation effort has been going on for about three years and should see federal data centers shrink from approximately 2,000 in 2010 to 1,200 by the end of 2015. From a magnitude perspective the DOD alone currently manages hundreds of data centers. The reduction of utility costs, floor space, energy costs, and lower number of physical servers are the key drivers behind the effort. It is a very ambitious and worthwhile goal, which makes a great deal of sense, but there are going to be some formidable challenges. Database migration and database upgrades are complex and disruptive. It is not just a matter of moving servers to a new location; there has to be a reengineering process included into the mix as well. And without a consolidation process to spread across the various agencies, this undertaking could end up under the rug, or worse, with a negative return of investment (ROI). It will mostly likely take about 10 years to really know the economic impact of the data consolidation effort, and there needs to be a new type of matrix created to come up with a true ROI. Caveat, accurate numbers could be hard to come by because nothing of this magnitude has ever been attempted before.

Leveraging New Technologies

The Cloud - <http://breakinggov.com/2011/08/16/the-hard-numbers-of-government-debt-federal-spending-episode/> will most likely hasten data center consolidation with solutions like Amazon Web Services (AWS), Google Cloud Platform, IBM SmartCloud Enterprise+, and Microsoft Azure Cloud representing Enterprise as private sector options. It is also logical to assume that continued growth will also take places like areas that include Single-Sign On (SSO) at the user level, firewalls & routers at the network level, and operating systems at the computer level. Speaking of security, entities like the National Security Agency (NSA) have been at the cutting-edge of regarding technologies meant to thwart any type threat on U.S. soil such as 9/11-type and cyber-attacks. In addition, no question people will be looking at things like open-source efforts like Apache Hadoop (MapReduce 2.0 (MRv2) or YARN), which enables the distributed processing of large data sets across clusters of commodity-type servers. As the private sector pushes the bar higher, the public sector sets new levels for the private sector, so on and so forth.

Efficiency and Transparency

It stands to reason that narrowing the amount of standards used and supported, along with data center consolidation will help to improve overall IT efficiency. However, it would also seem logical to foster data transparency in the improvement process to form a more cohesive IT ecosystem. Accountability can be had in the form of metrics, and it will be open, machine-readable solutions that will help reach the goals of important initiatives like the Government Performance and Results Act (GPRA). Case in point: Section 10 of the GPRA Modernization Act (GPRAMA), particularly now that Office of Management and Budget (OMB) M-13-13 has reiterated the direction previously set forth in Circular A-119 to use voluntary consensus standards whenever possible. To circle back, standards play a key role and adopting ones that help with data transparency will help to improve accountability of public sector entities, as mandated in GPRAMA.

Postscript

Again, we should thank the men and women supporting at the federal, state, and local IT systems for doing an excellent job running the U.S. on a day-to-day basis. Regarding the Affordable Health Act (ACA) or Obamacare. This effort has really taken some flak in the press since its inception. From theory and practical knowledge, it is never easy deploying large-scale applications in heterogeneous environments. For anyone familiar with government deployments, many hurdles exist, which is common and adjustments are most often made during the deployment phase to help reach the defined goals and objectives. Regarding, the topics discussed, narrowing the number of standards used, along with consolidating data centers seems like a great way to reduce redundancy and improving overall efficiency, while leveraging new technologies keeps pushing the envelope. In the mix will be a new breed of open, machine readable formats that will help foster data transparency (a.k.a. accountability). Some skillsets will change, and some will stay the same, but one thing is for certain, things are improving at the federal, state, and local IT ecosystems.

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W3C

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R. Russell Ruggiero

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