The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

YEAR:
2012

STATUS:
Laureate

Organization name:
US Army PM Acquisition Business

Organization URL:
https://acqbiz.army.mil/

Project Name:
PM Acquisition Business Next Generation Business Environment (NGBE) Consolidation

What social/humanitarian issue was the project designed to address? What specific metrics did you use to measure the project's success?

PM Acquisition Business (AcqBusiness) delivers enterprise service-oriented solutions to the Army Acquisition community that increase situational awareness and enhance decision support. PM AcqBusiness maintains more than 70 Web-based Army applications that serve over 80,000 users worldwide and is sought after by other Army organizations to rapidly develop and field new capabilities. PM AcqBusiness is at the forefront of leading Army efficiency initiatives to streamline software, hardware, and development costs. In doing so, PM AcqBusiness is consolidating stove-piped applications into a single environment, standardizing on a core set of common tools to lower development costs, deploying lower cost and open source products where practical, and leveraging existing technologies across the organization. The PM AcqBusiness Next Generation Business Environment (NGBE) project was initiated to deliver an enterprise capability to the Army Acquisition community and to streamline the hardware and software portfolio, resulting in increased capability and significantly lower costs to the Army. The NGBE solves numerous challenges which limited operational efficiency, including a growing and increasingly complex solution portfolio, the lack of consistent life-cycle management processes, and the absence of fundamental logical artifacts such as an enterprise architecture and technology roadmap. Further, the NGBE collapses redundant legacy applications and processes, further enhancing productivity and increasing organizational efficiencies. The NGBE successfully transforms the PM AcqBusiness enterprise, including infrastructure, architecture, and the development and sustainment processes to enable efficient solution delivery. The NGBE will reduce the server

footprint by 83%, reduce maintenance downtime by 75%, and provide an estimated cost avoidance of $4.4M through FY16.

Please describe the technologies used and how those technologies were deployed in an innovative way. Also, please include any technical or other challenges that were overcome for the successful implementation of the project.

The NGBE represents a modernized environment with highly integrated suite of technical capabilities. These include an advanced Infrastructure, Portal and Content Management capabilities, Service-Oriented Architecture (SOA), an Business Intelligence (BI), all protected by a common Access Management capability. PM AcqBusiness is implementing a wide range of innovative capabilities to assist in the consolidation of existing hardware and software components. For hardware, the existing server architecture is currently being replaced with modern, multi-core x64 processors that support virtualization capabilities. This allows for the condensing of existing previously managed physical servers to a few servers with larger processing and memory capacities. For virtualization, the inclusion of a thin-hypervisor-based virtualization solution using Red Hat Enterprise Virtualization (RHEV) allows for centralized management and administration of multiple virtual machines via a single graphical user interface (GUI). Advanced virtual machine metrics reporting, reduced downtime and rapid provisioning of virtual machines are also key characteristics. PM AcqBusiness also extended the virtualization to prototype cloud concepts such as Infrastructure as a Service (IAAS) as well as demonstrating the benefits associated with dynamic scaling in the environment. With regards to IAAS, PM AcqBusiness prototyped a "self-provisioning portal" with API connections to the RHEV platform to show how a customer can provision (based on user-defined criteria for CPU, RAM, and hard disk space) an entire virtualized infrastructure. The customer can stand up an entire infrastructure in a matter of minutes while providing the Army with chargeback capabilities, via an invoicing function, if necessary. An example would be the cloud controller standing up additional web server instances during periods of high webpage usage and then turning off excess webserver virtual machines during off-peak hours.

Please list the specific humanitarian benefits the project has yielded so far.

The PM AcqBusiness NGBE delivers enterprise service-oriented solutions to the Army Acquisition community that increase situational awareness and enhance decision support. The NGBE fundamentally changes the methods through which PM AcqBusiness hosts its products. For example, systems were required to go through lengthy acquisition cycles to procure hardware and software assets. These cycles could take anywhere from weeks to months. The configuration process was also cumbersome as it was dependent on external parties to execute the configuration and those parties were not beholden to PM AcqBusiness schedule concerns. The NGBE successfully transformed the PM AcqBusiness enterprise, including infrastructure, architecture, and the development and sustainment processes to enable efficient solution delivery. We began to decommission systems and remove redundant capabilities by introducing a new solution design paradigm which transformed development from application-centric to service-centric. PM AcqBusiness realized the critical need to consolidate both the IT portfolio as well as the IT infrastructure. The NGBE addresses IT infrastructure challenges by establishing key goals, such as a new consolidated hardware infrastructure, defined and standardized suite of software and strong promotion of web services and an enterprise data access strategy that seeks to reduce the number of existing applications and increase reusability of each application. The NGBE design is driven by the need to drive engineering cost efficiencies without sacrificing the capabilities that PM AcqBusiness clients have come to expect. In fact, the NGBE environment helps establish a new and unparalleled ability for PM AcqBusiness clients to leverage self-service capabilities to create some of their own solutions.

Please provide the best example of how the project has benefited a specific individual, enterprise or organization. Feel free to include personal quotes from individuals who have directly benefited from the work.

Due to its nature as a rapid software development organization, PM AcqBusiness developed and inherited a significant application portfolio over the course of its first 3 years. By the close of 2009, the organization had responsibility to manage 6 separate security enclaves, with over 130 servers and over 85 distinct applications. Many of these systems lacked documentation and a significant portion of the hardware and software were near or at end of life. Moreover, the organization built or inherited over 80 separate databases requiring dedicated staff to maintain and patch each one. To solve these challenging problems, PM AcqBusiness developed the NGBE Virtualization and Consolidation Strategy, which sought to modernize the legacy environments. The key concepts behind this strategy included the identification of all existing hardware and software assets that support PM AcqBusiness applications; the design of a fully modernized and cloud-based architecture that allows on-demand activation of additional hardware assets; and the installation and configuration of the environment. PM AcqBusiness has implemented a highly virtualized infrastructure, leading to cost avoidance of an estimated $4.5M over 6 years, we have streamlined the architecture, saving the government over $500k over the past 12 months, and we are streamlining and modernizing the application portfolio into the NGBE. NGBE reduced physical server footprint from 80 servers to 17, which in turn reduces the power, space and HVAC requirements. Reduced maintenance downtime by 75% (as compared to the current 300 hours / year). Based on analysis ROI (Savings to Investment Ratio [SIR]), the amount of savings (cost avoidance) is 135%, which is defined as the amount of savings generated for each dollar of investment. In addition, PM AcqBusiness received full endorsement from Assistant Secretary of the Army ASA (ALT) for the plan and business case for the Next Generation Business Environment.