U.S. Army
Shared
Services
Center

The U.S. Army Shared Services Center improves ERP performance, security and cost efficiency with Citrix XenServer and Dell X64 servers.
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The U.S. Army Shared Services Center (SSC), part of the Army’s Armament Research, Development and Engineering Center (ARDEC), leads the planning, design, build, test, training, deployment and sustainment of Army ERP solutions. Serving the soldier in the field as its ultimate customer, the U.S. Army SSC is constantly focused on innovation and process improvement, achieving results that helped earn ARDEC the Malcolm Baldrige National Quality Award in 2007.

The challenge: Improving utilization and efficiency for an SAP infrastructure

Located in Picatinny, New Jersey, the U.S. Army SSC is committed to innovation, both in the solutions it delivers to ARDEC and the Army and the way it manages its own infrastructure. In recent years, the Army SSC has replaced a wide range of legacy applications with SAP® systems, including the FI/FM/CO, PS, AM, CATS, HCM, MM and PLM modules of the SAP Business Suite, Supplier Relationship Management (SRM), Netweaver Enterprise Portal and SAP BusinessObjects Business Intelligence. Having reduced cost and conserved IT resources associated with its software applications environment, the Center turned its attention to its datacenter hardware infrastructure, beginning with the replacement of Oracle/Sun SPARC servers with commodity Intel-based servers. When the Army SSC changed its platform, it recognized an opportunity to leverage server virtualization to maximize the utilization of it server resources, reduce acquisition and maintenance costs, and lower administrative overhead while actually improving the performance of its SAP systems which support 4,700 users.

After analyzing its options for server virtualization solutions, the Army SSC found that Citrix® XenServer® best met its requirements.

Implementing Citrix server virtualization

At the time the ARMY SSC selected XenServer, the platform stack formally supported by SAP and Citrix combined XenServer with Novell SUSE Linux Server—a slight complication, given that the U.S. Army had standardized on Red Hat Enterprise Linux. Nevertheless, the Army SSC decided to go with XenServer and Red Hat anyway, and accept any technical risk associated with that stack. As it happened, the difference in Linux versions made no significant difference in the implementation or the resulting platform. After an initial process to update its hardware infrastructure, the Center migrated and virtualized its entire SAP implementation, including 61 SAP systems, to the XenServer platform in only 11 weeks. What made this particularly impressive was that the Army SSC didn’t
need to bring in a special project staff for its XenServer initiative—the IT team loves what they do, and they enjoyed doing something that was so leading-edge. These dedicated individuals worked long hours and over weekends to accomplish the virtualization task in addition to their regular responsibilities for maintaining the production system.

**Reducing costs and energy consumption through server consolidation**

The virtualization of its SAP server environment enabled the ARMY SSC to replace 21 Oracle/Sun SPARC servers with only four Dell Intel X64 servers; four additional servers, also running XenServer, support the network file system (NFS), LDAP services and provide backup services. Along the way, the Center actually increased the processing power available to its users. The difference can be seen using the SAP Application Performance Standard (SAPS), a hardware-independent performance benchmark developed by SAP. Before virtualization, the Army SSC’s 21 Sun SPARC servers had a processing capacity of 45,510 SAPS. After implementing XenServer on commodity hardware, they had a processing capacity of 147,600 SAPS on only four Dell Intel X64 servers—giving the Army SSC almost 300 percent more processing capacity with 17 fewer servers. At the same time, the Army SSC was using 83 percent fewer watts, so they achieved a dramatic improvement in processing power per watt. Together, the Center’s reduction in operating costs (e.g., hardware maintenance, power, cooling and server administration) yielded savings of $414,181 in the first year (after initial server acquisition costs) and $471,649 per year thereafter. The Datacenter footprint has also been dramatically reduced since there are fewer servers.

**Increasing performance and availability**

The ARMY SSC’s technology upgrade, including the replacement of its 10-year-old Oracle/Sun SPARC servers as well as its implementation of server virtualization, has helped the Center realize significant improvements in performance. Dialogue steps inside SAP that used to take 900 or 1000 milliseconds are now completed in 350 milliseconds or less, for a 300 percent improvement. Batch processing jobs such as bulk data processing have seen similar or greater improvement. The inherent availability of the XenServer platform ensures the consistency of this performance.

**Improving security, business continuity and disaster preparedness**

XenServer has delivered value for several elements of the ARMY SSC’s security strategy. Any server deployed in an U.S. Army network must conform to a set of rules and regulations called the Security Technical Implementation Guidelines (STIG) spelled out in a 482 page manual. The Army SSC went through the STIG process once, on one RedHat Linux VM, and now it can use that VM as a XenServer template for every other VM it deploys. This both saves a lot of work and eliminates human error. The ability to live migrate VMs aids business continuity by enabling the ARMY SSC to shut down physical servers for maintenance without incurring downtime. The Center is now exploring the built-in disaster recovery capabilities in XenServer to upgrade current methods based on offsite tape storage.

**Applications delivered**

- SAP Business Suite
- SAP BusinessObjects Business Intelligence
- Adobe LiveCycle
- Oracle Collaboration Suite (OCS)
Expanding virtualization throughout the environment

The ARMY SSC is building on its success with SAP by virtualizing additional systems on its XenServer platform, including Oracle Collaboration Suite, Adobe LiveCycle and Microsoft Enterprise Project Management. By consolidating more applications on fewer servers, it can continue to lower its administrative overhead and give all those applications the high availability and feature sets that XenServer provides. Once the Army SSC implements disaster recovery, they’ll be able to benefit from that as well. An initiative is already underway to explore desktop virtualization with Citrix XenDesktop® and Citrix XenApp™ to enhance access for additional ARDEC sites, the Pentagon and other organizations to the SAP systems at the ARMY SSC lab, including new functionality and prototypes developed at the Center.

Helping the ARMY SSC increase the value of its SAP implementation while reducing costs, XenServer now plays an important role in the Center’s mission to deliver the innovations the U.S. Army needs, from the datacenter to the field.