Solution Brief

VMware vCloud Suite on System x:

A Private Cloud and Simplified Management Solution

Highlights

- Fast, virtualized, private cloud that ensures 100 percent faster compute[1] performance than previous generation x86 systems, consistent across applications
- Agile system design that delivers infrastructure, applications and IT services to users across multiple hardware platforms
- Operational efficiency that can decrease disaster recovery management costs by 50 percent[2] and drives greater resource utilization to increase staff productivity by 67 percent[3]

Across the business landscape, demands on IT infrastructure are increasing and accelerating, while IT budgets are simultaneously diminishing. In a rapidly changing environment that is forcing IT leaders like you to implement more efficient systems, operational flexibility of your IT infrastructure is the key to survival.

A private cloud solution can provide you with that operational flexibility. While a private cloud environment can ultimately lower your TCO; minimizing risk and administrative overhead is vital to achieving the early success your bottom line demands. Fortunately, well-known global corporations have partnered to bring you a proven private cloud solution that delivers the long-term flexibility you need in an available-now package.

VMware® and Lenovo® are proven market leaders that have combined best-in-class competencies to provide a reliable, efficient, and flexible private cloud and simplified management solution. The VMware® vCloud Suite® on System x® solution helps you quickly build your reliable private cloud, efficiently manage it over time, and flexibly extend and scale it into the true Software-Defined Data Center (SDDC) you envision.

This private cloud and simplified management solution includes optimized, tested hardware and software, so you can quickly deploy and provision a private cloud and provide users with available-anywhere, secure access to your mission-critical knowledge. This private cloud solution delivers the speed, agility and efficiency needed to increase your IT capacity and minimize costs.

Introduction to the vCloud Suite on System x solution

Based on VMware vSphere® virtualization software, vCloud Suite provides the components for building and running a private cloud infrastructure. This comprehensive suite of tools addresses each pillar of the data center (compute, network, and storage) by abstracting these services in software. VMware vCloud Suite provides comprehensive, simplified management features with built-in intelligence to automate on-demand provisioning, placement, configuration, and control of applications based on defined policies.

The System x X6 family of servers represent the sixth generation of servers built on Enterprise X-Architecture® technology. Enterprise X-Architecture is the culmination of more than a decade of technology refinement and innovation. Each generation has delivered increasingly more capability beyond industry standards. Now, the X6 family of scalable modular servers provides an expandable fit-for-purpose enterprise alternative. These servers can offer more processor cores, memory, and I/O than previous systems and handle greater workload needs than the systems that they supersede. Power efficiency and server density are optimized, making these servers affordable to own and operate. Reliability, Availability and Serviceability (RAS) features are more advanced than those previously available in x86 systems.

Key benefits

- Pre-integrated, architected, tested and configured private cloud solution, optimized for enterprise-level performance
- Fast server deployment and application provisioning — from days to minutes
- New storage technology that provides immediate access to actionable information and delivers faster database performance
- Higher availability due to automated load balancing and advanced Reliability, Availability and Serviceability (RAS) features
- 30 percent more uptime[7] for mission-critical applications, an innovative modular rack design that allows "fit for purpose" configurations and pay-as-you-grow scenarios
- Greater price and performance from eXFlash memory-channel storage; increases in VM density and CPU utilization of up to 2x[8]

X6 increases performance and virtualization density while decreasing infrastructure costs and complexity. What you get are faster analytics engines, less IT sprawl, and actionable information – fast. X6 servers are fast, agile, and resilient.

vCloud Suite on X6: Fast, Agile and Efficient

Faster Virtualized Environment

The vCloud Suite on System x solution provides the virtualized power your users need for anywhere, anytime business intelligence. Built on Intel® Xeon® E7 v2 family processors, X6 servers provide faster virtualized performance, thanks to better bandwidth and lower latencies. Featuring an innovative modular design that positions up to 12.8 TB of ultra-low latency eXFlash memory-channel storage close to the processor on the memory bus, X6 enterprise servers deliver up to:

- 100 percent faster performance than previous generation systems
- Three times the memory capacity[4] of previous generation systems
- One-third the write latency of PCIe-based flash[5]

Agile System Design

VMware vCloud Suite enables on-demand deployment of IT services in minutes with full control over critical business and IT policies, while automatically matching infrastructure resources to continually changing business demand and workload needs. X6 enterprise servers incorporate simplified scalability and fit-for-purpose scenarios, ultimately reducing TCO. You can get the performance you need now and add more capability later. X6 servers feature one module or "book" for each major subsystem within the server – Compute Books, I/O Books and the Storage Book all can be accessed from the front or the rear of the server while it remains in the rack. You can pay-as-you-grow and expand later to meet future requirements.

Operational Efficiency

VMware vCloud Suite brings together virtualized compute capabilities with analytics-based, simplified operations management to drive greater resource utilization and staff productivity. This can lead to up to 70 percent CapEx and up to 56 percent OpEx[6] savings. Through automation, vCloud Suite delivers the highest levels of application uptime, and it ensures business continuity with virtualization-aware security and compliance. You get greater control over the cost of, access to, and placement of IT services.

How can the vCloud Suite on System x help you?

The vCloud Suite on System x private cloud and simplified management solution enables pay-as-you-grow scenarios that address today's virtualization demands. It also provides the scalability needed to meet tomorrow's changing business requirements. The result is an agile private cloud solution that delivers simpler operations and greater resource utilization, along with cost savings and increasing efficiency.

- Get faster time-to-value – save time on configuration, deployment and provisioning
  - Pre-integrated, architected, tested and configured private cloud solution, optimized for enterprise-level performance
  - Speed server deployment and application provisioning – from days to minutes
  - New eXFlash memory-channel storage provides immediate access to actionable information and delivers faster database performance
- Achieve 30% more uptime for business-critical applications with
  - Higher availability using automated Predictive Failure Alert (PFA) actions and VMware vSphere® Distributed Resource Scheduler™, automated load balancing via VMware vSphere® High Availability, and advanced reliability, availability, and serviceability (RAS) features in X6. Deeply integrated hardware management, monitoring and configuration tools (UIM) create simpler, more productive workflows and allow IT to add, provision and migrate volumes for storage
  - Proactive alerts monitor security and regulatory issues
- Reduce CapEx by 70 percent and OpEx by 56 percent through automated operations management
  - Standardize and consolidate data centers into intelligent, policy-based IT operations with server virtualization and business-critical application/big data app support
  - Capacity management and optimization tools right-size VMs and optimize density to maximize infrastructure investments
  - Increase VM density and CPU utilization up to 2x[9]

Why VMware and Lenovo?

VMware and Lenovo have collaborated to deliver successful, integrated virtualization solutions to customers worldwide. These customers recognize System x leadership in the worldwide server market and VMware's undisputed leadership in server virtualization software infrastructure.

Together we offer best-in-class virtualized cloud solutions that include the software, servers, networking, and storage. Our joint solutions are seamlessly integrated to deliver the agility and flexibility that you need with support for the many approaches to cloud computing. By working with Lenovo and VMware, you can count on:

- Expertise from global companies in the delivery of complete end-to-end solutions
- High quality solutions and expert service delivery
- Significant joint investments in product integration and interoperability

Learn More

To learn more about VMware and Lenovo solutions, please visit http://www.vmware.com/partners/global-alliances/lenovo/overview.html and read the solution Reference Architecture whitepaper at http://www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP102420.

1 100 percent performance improvement is based on preliminary results of SPECint*_rate_base2006, SPECfp*_rate_base2006, and TPC-E benchmarks, plus performance gains from eXFlash DIMM storage. SPEC and TPC benchmark results will be available at www.spec.org and www.tpc.org, respectively, after 2/18/14. Configurations: 4-socket x3850 X6 server using Intel Xeon processor E7-4890 v2 vs. 4-socket server using the previous top-of-the-line E7-4870 (v1). (X6 Portfolio Claims & Benefit Statements; Chapman, Pathan, Petteway, Gutierrez)

2 Forrester, 2013

3 Forrester, The Total Economic Impact of VMware vCenter Operations Management Suite, August 2012

4 6 TB maximum memory vs 2 TB or less for previous-generation competitive four-socket servers. SPEC and TPC benchmark results available at www.spec.org and www.tpc.org.

5 Laboratory testing shows eXFlash DIMMs can deliver 3 times lower latency (‹5 microsecond) than PCIe based flash (15-19us)

6 Taneja Group, Transforming the Datacenter with VMware's Software-defined Data Center vCloud Suite, June 2014

7 Management Insights, 2014 Study Shows Business Experience Significant Operational and Business Benefits from VMware vCenter Operations Management Suite.Palo Alto, CA

8 Based on a 2:1 server consolidation from improved performance, and reduced hardware and licensing cost by replacing 28.8TB of external SAN with 3.2TB of internal eXFlash DIMM storage on the server, reducing top-of-rack switching and networking hardware, and managing performance with IBM FlashCache and Storage Accelerator software

9 ibid.

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