

Three Common Misconceptions About SAP Virtualization – and the Surprising Truth

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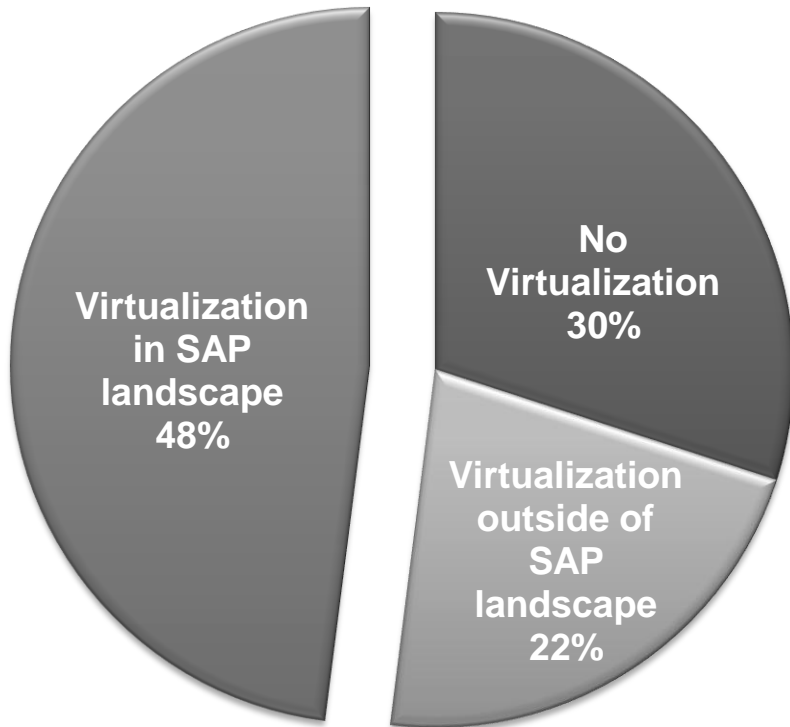
VMware Announces Support from SAP of VMware ESX Server for Production Environments

Responding to Customer Demand, VMware and SAP Establish Global Technology Partnership; VMware Infrastructure Supports SAP® Solutions with Both Windows and Linux on Industry-standard Hardware

PALO ALTO, Calif., December 12, 2007 — VMware, Inc., the virtualization software leader, today announced that SAP AG will provide immediate full support to its solutions in 64-bit Windows- and Linux-based production environments running on VMware ESX Server. Servers from Dell, Fujitsu-Siemens, HP, IBM and Sun have achieved hardware platform certification for SAP® solutions running on Windows and Linux with VMware ESX Server, a component of the VMware Infrastructure software suite. VMware Infrastructure supports SAP solutions with both Windows and Linux on industry-standard hardware. SAP and VMware will assist joint customers in cooperative support services and problem resolution, backed by a global technology partnership agreement and dedicated support staffing.

"There has been overwhelming customer demand for SAP and VMware solutions. Support of SAP solutions on VMware ESX Server means customers can extend the numerous benefits of infrastructure virtualization to the business-critical and functionally rich SAP solutions in their IT environments," said Brian Byun, vice president of global partners and solutions at VMware. "This support reflects the increasingly productive relationship between SAP and VMware, and it provides a sought-after solution for customers looking to combine the powerful process management capabilities of SAP solutions with the robust data center management and cost-saving features of VMware Infrastructure." [....]

Virtualization Adoption in x86-Based SAP Environments



- 44% of (x86) SAP customers virtualize **SAP test/dev environments**
- 44% of (x86) SAP customers virtualize **productive SAP application servers**
- 38% of (x86) SAP customers virtualize **productive SAP databases**
- 98% of (x86) SAP customers who use virtualization in their **SAP environments** use **VMware** virtualization

Source: RAAD, Germany, May 2010, n=212

Thousands of customers, including:



- ABB Grain
- Arinso
- AstraZeneca
- Bender
- Bobst Group
- City of San Diego
- Checkpoint Systems
- Chevron
- Colgate
- Signalbau Huber
- Dow Chemical
- Energie AG
- EFI
- Favril Pharma
- Forest City Enterprises
- FutureFuel Chemical Company
- Hitachi Information Systems
- Moen
- Miami Dade County Schools
- NuVasive
- Peerless Clothing
- **SAP Global IT**
- Siteco
- Southwestern Great American Inc.
- Steeltec
- Tasty Baking Company
- T-Systems
-

SAP on VMware – New FY2010/11 Customers

New transactions in 2010 include:

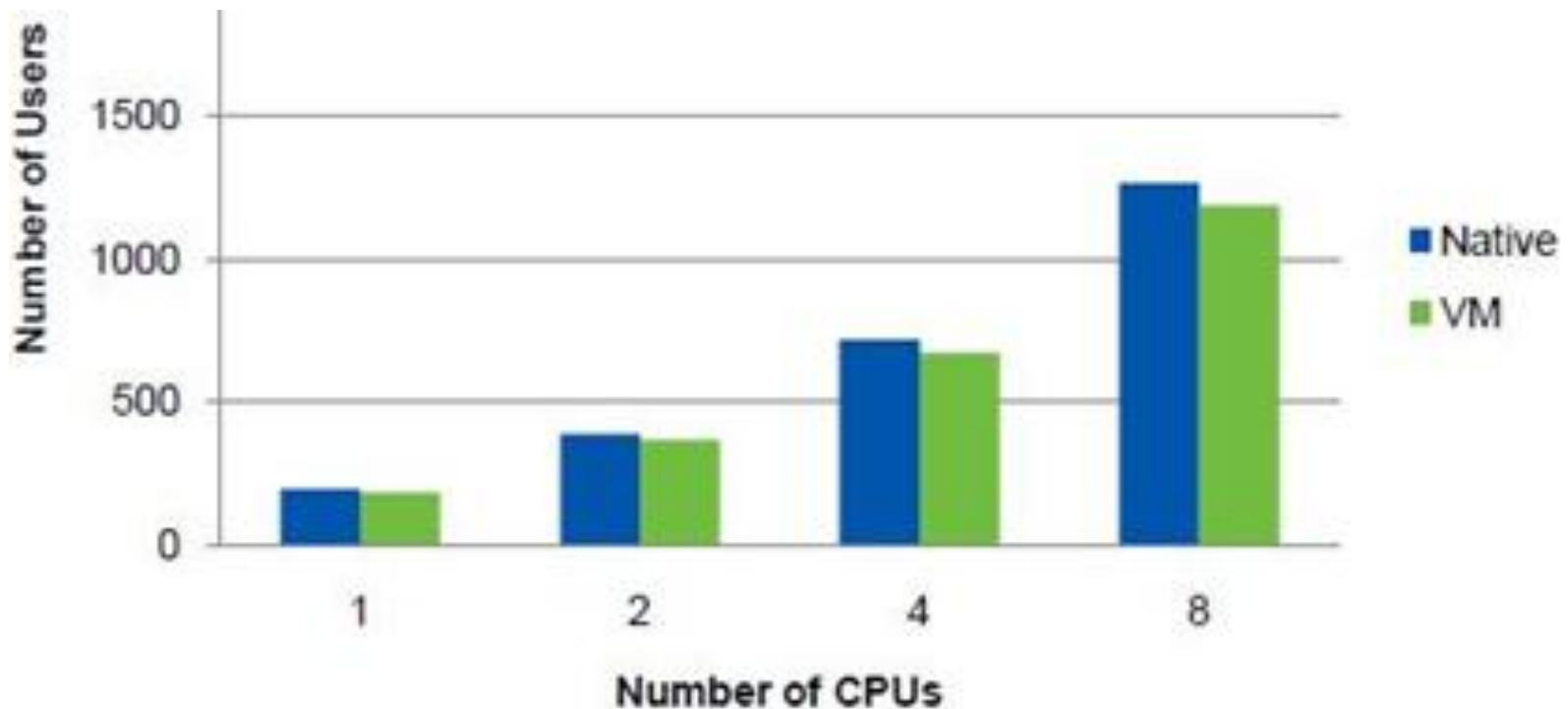


- 3M
- 99 Cents Only Stores
- Adobe Software
- Air Products
- Columbia Sportswear
- CoinStar
- Erie County, NY
- Forest Labs
- Foster Poultry Farms
- Fresenius Medical
- John Maneely
- W.W. Grainger
- Harvard Business School
- Johnsonville Sausage
- KPMG
- Maple Leaf Foods
- Mazda
- Mentor Graphics
- Merck
- Northwest Natural Gas
- Sony Pictures
- Valero Energy
- Wolters Kluwer
- Zimmer

Myth #1:

Virtualization Jeopardizes Performance

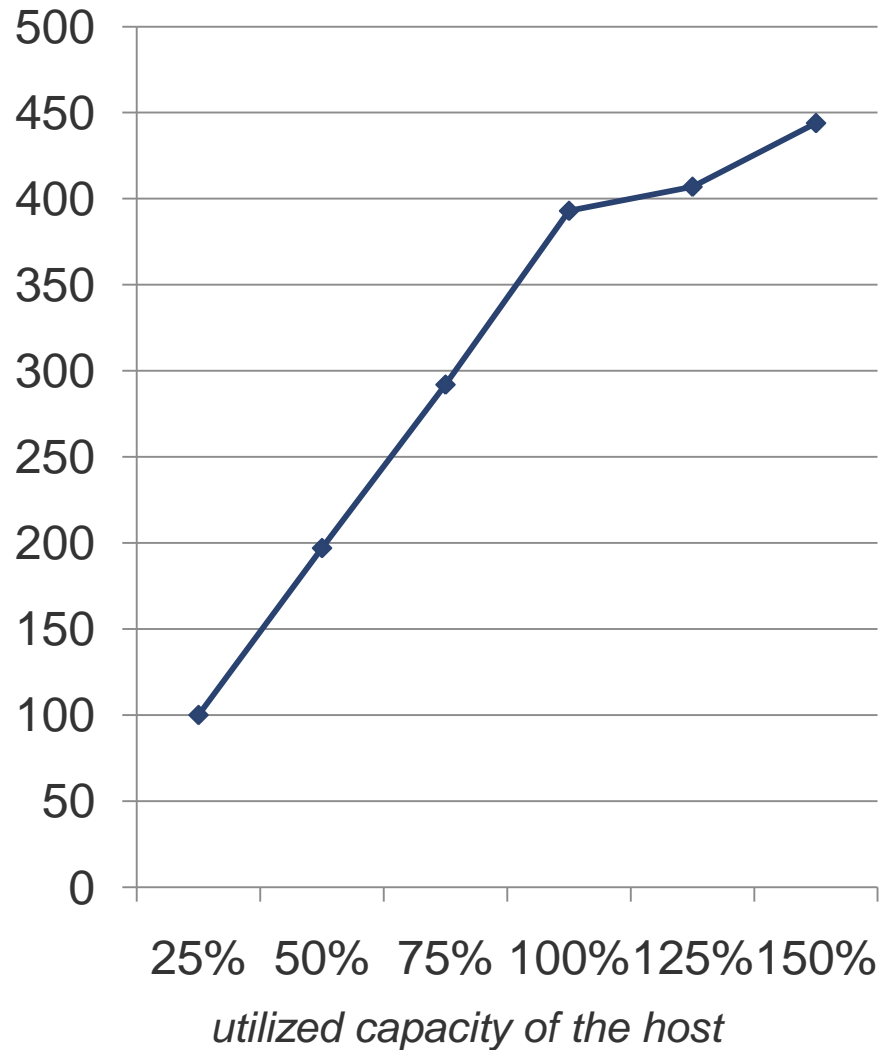
Performance – Virtualization Overhead



■ Virtualization Overhead with vSphere 4.1

- With newest hardware in combination with vSphere 4.1, the measured overhead for SAP ERP 6.0 workload is at 5 - 7 %.
- <http://www.vmware.com/resources/techresources/10128>

Performance – Scaling of Memory Throughput



- **Test with SAP Linux Certification Suite and vSphere 4.1**
 - 25 % host utilization = a fully utilized VM with 8 vCPUs and 10 GB RAM
 - even if the host is over-committed, the memory throughput raises because of Intel X7560 (Nehalem EX) "turbo boost" feature which overclocks the cores dynamically

Performance – Storage

Standard vSphere storage guidelines apply

SAN System Design and Deployment Guide

- <http://www.vmware.com/resources/techresources/772>
- ESX servers connect to storage arrays in same way as physical boxes e.g. 2 x HBA cards per server, 4 paths to storage

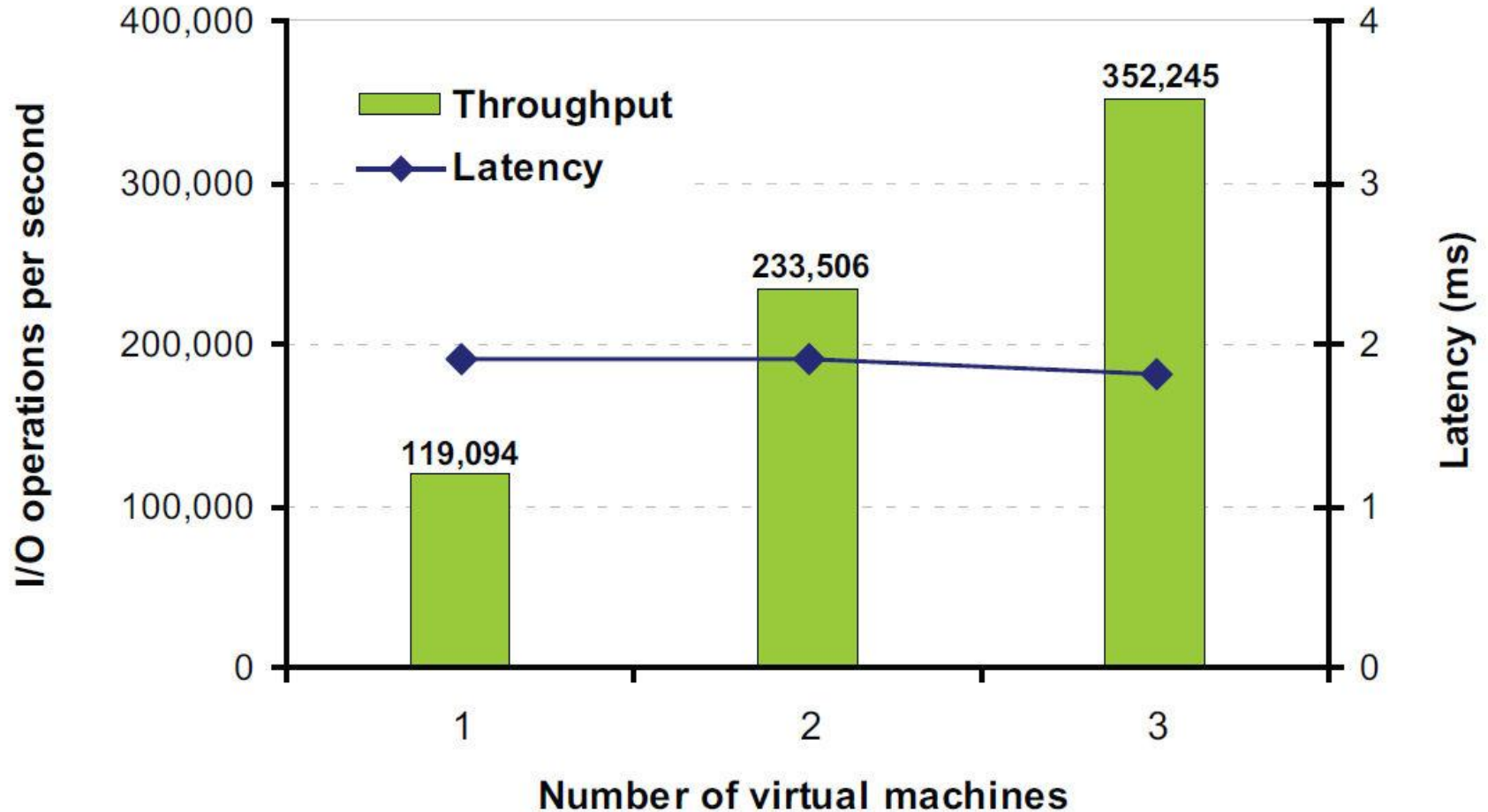
Comparison of Storage Protocol Performance in VMware vSphere 4

- <http://www.vmware.com/resources/techresources/10034>

Use Paravirtual SCSI (PVSCSI) adapter for best performance

- VMware KB Article 1017652: "Do I choose the PVSCSI or LSI Logic virtual adapter on ESX 4.0 for non-IO intensive workloads?"
- VMware KB Article 1010398: "Configuring disks to use VMware Paravirtual SCSI (PVSCSI) adapters"

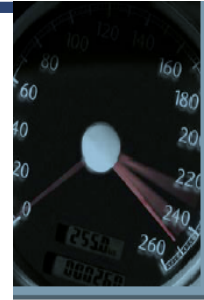
Performance – Storage – Scaling



Configuration

- 2 vCPU, 4 GB RAM, Windows Server 2008 SP1 64-bit, 2 PVSCSI adapter, four vmdks on three datastores

Worlds 1st Certified 3-Tier SAP Benchmark on vSphere!



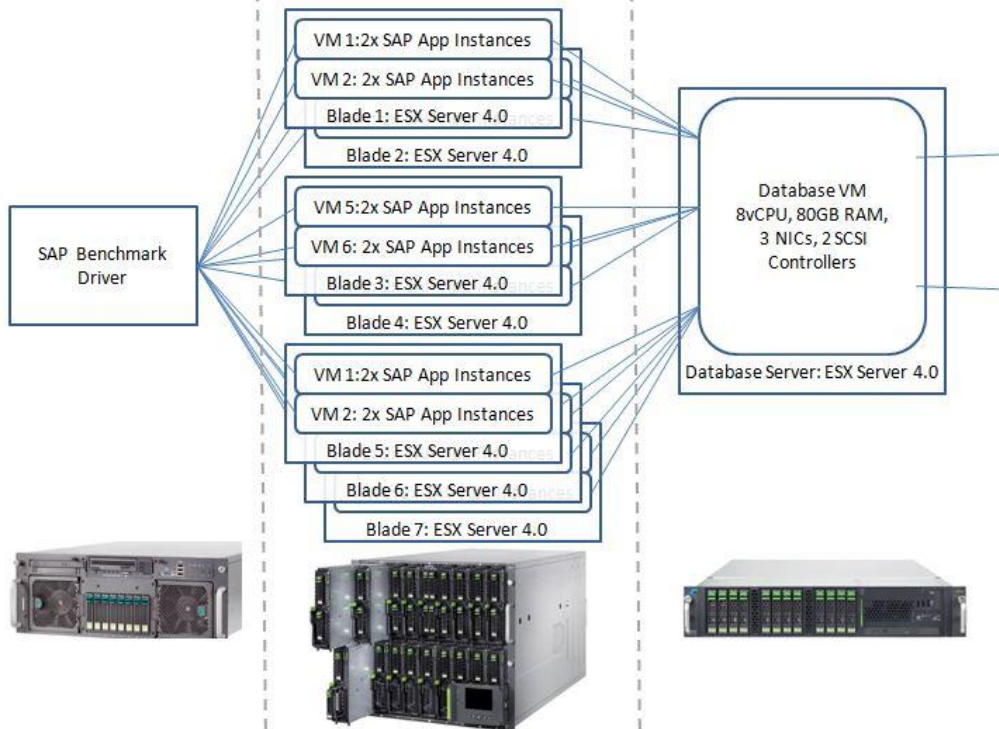
CERTIFICATION

SAP® Standard Application Benchmarks

Presentation Tier
16,000 Users

Application Tier
Seven Servers / 14 VMs

Database Tier
1 Server / 1VM, 78 Disks



The SAP® Sales and Distribution (SD) Standard Application Benchmark performed on February 24, 2010 by Fujitsu in Walldorf, Germany, was certified on April 14, 2010, with the following data:

Number of SAP SD benchmark users:	16,000
Average dialog response time:	0.93 seconds
Throughput:	
Fully processed order line items per hour:	1,756,000
Dialog steps per hour:	5,268,000
SAPS:	87,800
Average database request time (dialog/update):	0.120 sec / 0.290 sec
CPU utilization of DB server:	53%
CPU utilization of Dia/Update/Mess/Enq servers:	69%
Operating system all servers:	SuSE Linux Enterprise Server 10 on VMware ESX Server 4.0



Myth #2:

**Virtualization Is Only Useful
for Server Consolidation**

Why Virtualize SAP – Customer Comments

- SAP Upgrades & Implementations
 - **Spital Biel:** “SAP Release Upgrade in < 36 hr“
 - **FutureFuel:** “We had only 3 months to implement, but we made it thanks to VMware!“
 - **EFI:** “100% more test cycles“ & „Upgrade cycle reduced by 33%“
 - **City of Essen:** “... SAP Business Warehouse on VMware delivers < 300 ms response time!“
- Availability & Disaster Recovery:
 - **NuVasive:** “... as high as 99.99% uptime...”
 - **ABB Grain:** “... recovery of core business systems can be completed in two hours..”
 - **Wifag:** “... SAP Systems are running robust with great performance ...”
- Operational Costs & Improved Service Levels
 - **SAP Manged Services:** Lifecycle management of 6.000+ VMs on 400+ VMware ESX hosts
 - **T-Systems:** “30-40% cost savings“
 - **Merz Pharma:** “Improved server utilization“, “Significant savings of operational costs”
 - **AstraZeneca:** “€1.4 M in cost savings over three years“
- Provisioning & Compliance
 - **Checkpoint Systems:** “Provisioning in 30 min instead of 8h“, [now focussing on View]

Customer Example: SAP Global IT

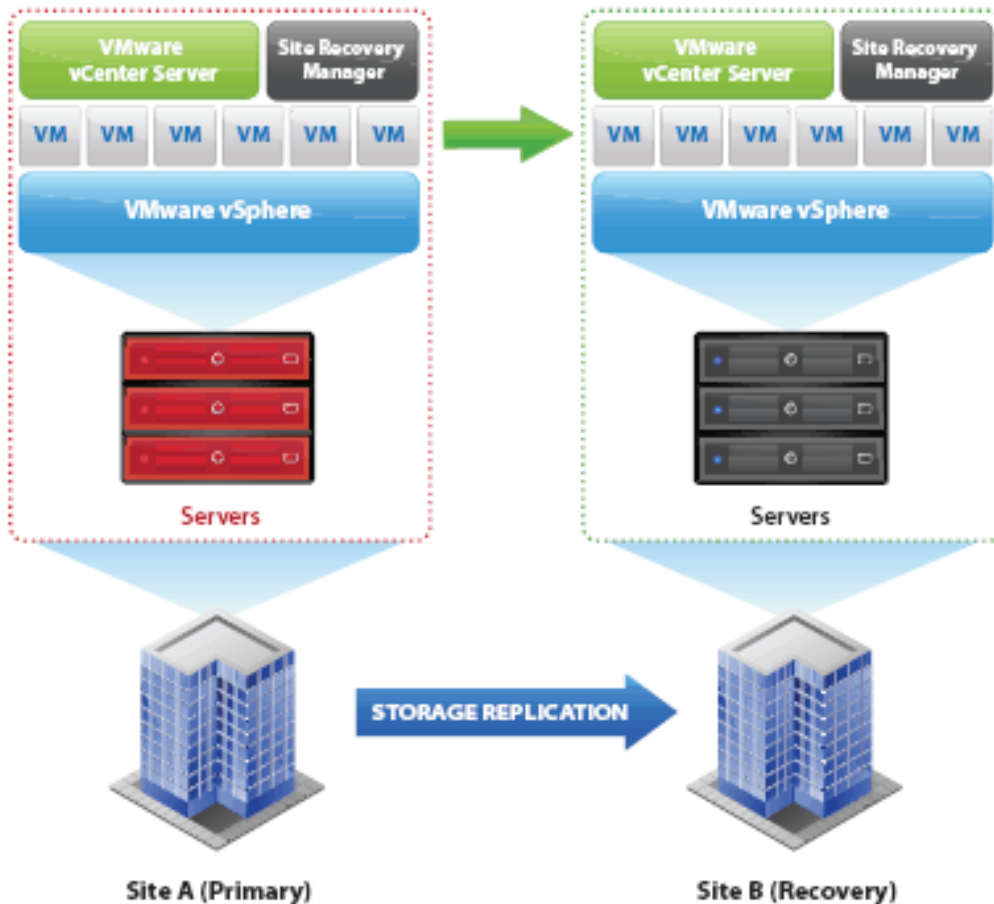
SAP Global IT:

- Pervasive deployment of VMware across its IT environment
- Usage of more than 10,000 VMs with VMware with its primary platform
- Delivering efficient access to training, demo, development landscapes and mission-critical SAP applications through automated self-service provisioning

“Because the demand for image-based demo solutions of our products is increasing significantly, automated system provisioning in less than a day became mission-critical for our business [...]. Our Lean Demo System Landscape Services can now be further expanded to fulfill additional customer requirements, and we’re looking forward to leveraging this new technology for larger demo solutions as a next step.”

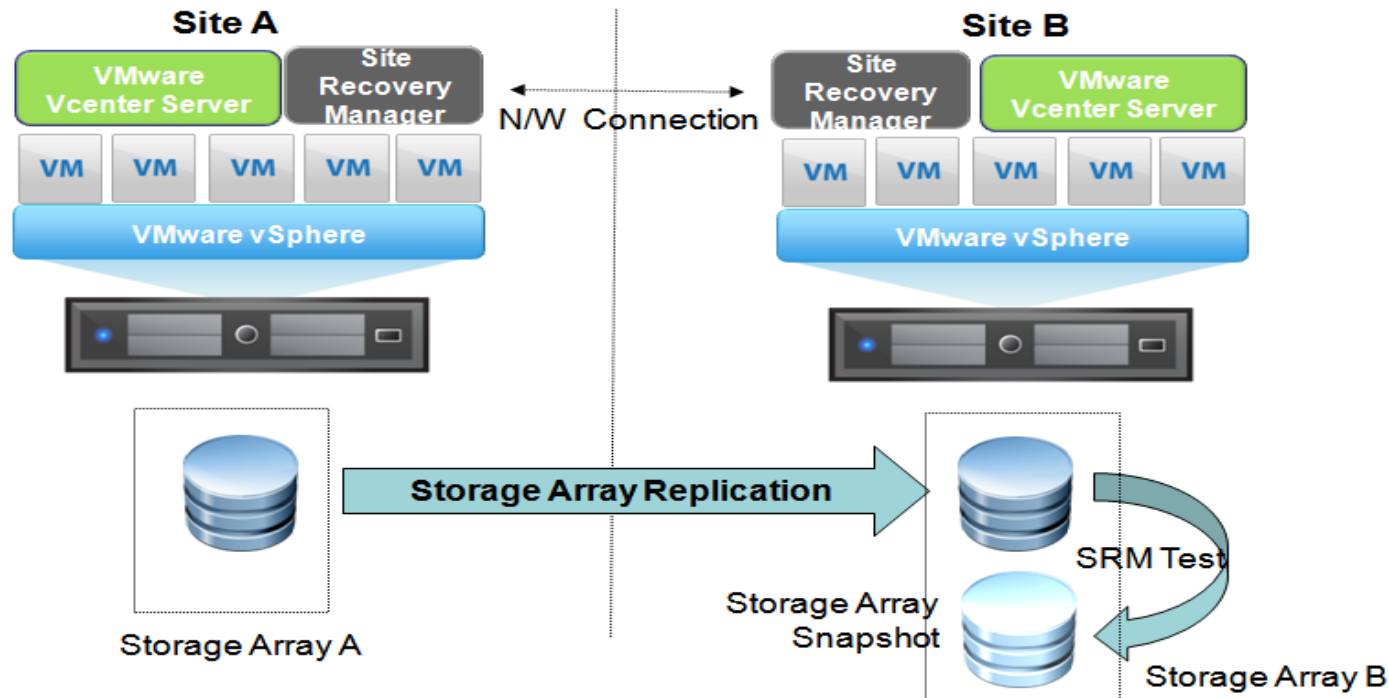
- Dr. Martin Przewloka, senior vice president, Demo Solutions, SAP Marketing.

Business Continuity – VMware vCenter Site Recovery Manager



- Disaster Recovery Management
 - Protect virtual machines by storage replication using integration adapters.
 - Create and manage recovery plans directly from vCenter Server.
 - Monitor availability of remote site and alert users of possible site failures.
 - Store, view and export results of test and failover execution from vCenter Server.
- Non-Disruptive Testing
 - Use storage snapshot capabilities to perform recovery tests without losing replicated data.
- Automated Failover
 - Initiate recovery plan execution from vCenter Server with a single button.

SAP and Site Recovery Manager for Disaster Recovery



- **SAP / SRM customer case study - Tarkett Eastern Europe:**

[https://cw.sdn.sap.com/cw/community/esc/cag11/sapvweek2009session10%3bsaplb_*\(J2EE8941720\)8941750](https://cw.sdn.sap.com/cw/community/esc/cag11/sapvweek2009session10%3bsaplb_*(J2EE8941720)8941750)

- Presented at SAP Virtualization Week 2009 – benefits:
 - Ability to test and adapt DR scenario frequently
 - Show results to the auditors
 - Economically feasible compared to physical solution

Myth #3:

**The Benefits of Virtualization
Don't Span Across the Board**

- Faster time-to-service (upgrades & implementations)
- Improved SAP service levels (uptime, performance)
- Optimized Business Continuity & DR
- Decreasing OPEX
- Increasing Asset Utilization & Reducing CAPEX
- Improved risk management (deployment, compliance)
- Delivering a Dynamic SAP IT Model

Virtualization Benefits at NEA

- **CapEx Reduction**
 - 50% reduced Investment vs. physical servers
 - Includes hardware, software, network, labor
- **OpEx Reduction**
 - VMs increased from 30 to nearly 600 in 24 months with the same staffing!
 - Power/cooling savings.....although we haven't quantified the savings
- **Provisioning**
 - Reduced from weeks to hours/day
- **Hardware Flexibility**
 - Single xSeries model for all servers
- **Availability**
 - HW outages eliminated with vMotion
- **Enables the Dynamic Data Center**
 - Manage capacity and priority at a macro level
- **Isolation of HW/SW layers**
 - In future we can upgrade HW & SW independently
- **Simplified Disaster Recovery**

Florida School District – Miami Dade County

- Fourth largest school district in US
- Three-year ROI of 116%!
- Capital cost savings of US\$2.2 million
- Carbon emission reductions equivalent to taking 63 cars off the road!

For this school district, the benefits of virtualization are truly across-the-board. Not only did it deploy VMware technology that touches all of its business-critical applications, including SAP and Microsoft applications, but it also started with a small-footprint virtualization implementation and then expanded to virtualize its mission-critical SAP solutions in production.

For More Information

→ VMware Public Web:

<http://www.vmware.com/sap>

<http://communities.vmware.com/blogs/SAPsolutions>

→ SAP Public Web:

www.sap.com/usa/ecosystem/customers/directories/technology/vmware.epx

SAP Developer Network (SDN): www.sdn.sap.com/virtualization

www.sdn.sap.com/adaptive

→ Related SAP Education and Certification Opportunities:

<http://www.sap.com/education/>

AD310: VMware vSphere 4: Install and Configure for SAP System Administration

ESXi Promotion

Thank You

This webcast has been recorded and a link to the on-demand version will be sent to you in a follow-up e-mail along with a PDF copy of the slides.

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