SLN603
Using VMware Products in Software Development & Testing

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Agenda

- Challenges…and overcoming them with virtualization
- Using VMware products, advanced features
- Delivering better faster cheaper
- How VMTN can help
- Things to consider along the way
- How other customers are doing it
- Q&A
VMware Changes The Game

“VMware does for Intel servers what Henry Ford did for the automobile.”
-- Matt Ramseyer, 7-Eleven

“(Workstation 5) is such an excellent product that I think every tester, developer, and product support person should have it.“
-- Joel Spolsky
http://joelonsoftware.com/
How Virtual Machines Change Dev/Test

- VMs are equivalent to standard x86 systems
- Independent: any x86 will do
- Manageable: OS/apps in 1 unit
- Portable: server = data
- Isolated: fault tolerance, utilization
Most customers in production, many standardizing
Full lifecycle view is important
Frictionless movement and consistency are key
Challenges in Development & Testing

- Hardware and budget constraints
- Rate of (re)configuration, long setup times
- Difficult handoffs between developers and testers
- Diversity of development platforms, target environments
- Replicating complex configurations, production systems
How Customers Are Taking Control

- Eliminates the need to choose between Linux and Windows for their applications
- Installs a 600-machine test bed in less than a day
- Shares configurations between QA and technical support in a zip file
- Builds a library of virtual machine environments to streamline testing
- Saves developers 2 hours per day by simplifying installation and configuration
VMware Development and Test Products

- Workstation
- GSX Server
- VMTN Subscription
- ESX Server
- VirtualCenter

- Full platform from desktop to datacenter
- Used in development and production – the full lifecycle
- Broad host and guest operating system support
- Advanced features and performance
- Virtual machines compatible across products
VMware Development and Test Products

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VMware and the Software Lifecycle

Development
- Instant provisioning
- Advanced snapshot features
- Archived development environments
- Complex configurations

Testing

Staging
VMware and the Software Lifecycle

- Consolidation of testing hardware
- Libraries of test configurations
- Complete testing automation
- Fast debugging
- Instant rollback
VMware and the Software Lifecycle

- Identical staging and production environments
- Easy migration to production
- Reduced hardware costs
Provision Instantly

Choose virtual machine template

Choose host system and datastore

Boot virtual machine
Manage Multiple Snapshots Seamlessly

- Point-in-time capture of full machine state
- Incremental changes to VM saves memory
- Move back and forth between configurations
- Maintain multiple similar virtual machines
- Easy to return to clean state
- Snapshots in ESX Server 3
Create Complex Multi-Tier Configurations

- Provide flexible “sandbox” environments
- Create virtual network connections
- Replicate packet loss, real-world scenarios
- Save configurations as virtual “teams”
- Specify boot order
- Archive for re-use
Mirror Production Systems in VMs

Production Environment

Exchange Front-End Servers
SMTP Gateway
Email Archive Server
Exchange Public Folders
Exchange Back-End Server Clusters
Centralized SAN Storage System

Development & Staging Environment

Exchange Front-End Servers
SMTP Gateway
Email Archive Server
Exchange Public Folders

P2V

Network
Archive Dev & Testing Environments

- Archive dev/test components in VMs for re-use
- Protect dev/test systems from alterations
- Suspend inactive configurations to avoid wasting resources

Virtual machine library
- Test configurations
- Sandbox environments
- OS/patch/app configurations
- Development tools
- Build systems
Consolidate x86 Dev/Test Hardware

- Safely consolidate dev/test systems to increase utilization
- Provision new systems instantly from existing resources
- Save on administrative and operational costs
Simplify Administration

- Don’t forget admin / operational costs
- Use VirtualCenter for large dev/test environments
- Leverage GSX APIs, ESX/ VirtualCenter SDK
Automate Testing

- Create a fully automated test environment

1. Choose test case
2. Select VM from library
3. Execute test script
4. Return results

- SDK enables custom integration with other tools:
  - Start and stop virtual machines
  - Configure and reconfigure virtual hardware
  - Clone virtual machines
  - Migrate virtual machines
Simplify Debugging

- Debug in cloned VMs
- Capture failures precisely
- Share VMs easily
- Debug anywhere
- Simplify complexity
- Consider VMware Player

- Use linked clones to save time and disk space
Improve Patch Testing

- Apply patches to exact replicas of target systems in VMs
- Use snapshots to simplify testing of similar configurations
- Avoid lengthy setups or clean-ups
- Experience fewer problems rolling out patches
Implementation Considerations

- Know the type of testing to be done in the lab...
- Be careful with performance and stress testing
- Establish clear success metrics for your project
- Understand what is being measured
- Consider a VMware PSO Health Check
Software Distribution in VMs

- Give customers pre-configured software in VMs
- Take the hassle out of evaluations

- VM Player removes barriers for evals, demos, sharing VMs
- Also can be used for user acceptance testing, more…
Virtual Infrastructure Dev & Test

- Instant provisioning
- Seamless snapshots
- Virtual machine libraries
- Hardware consolidation
- Simplified administration
- Linked clones
- Patch testing
- Multi-tier configurations
- Automated testing
- Improved deployment
The Challenge: Outsourcing managed hosting services was expensive and it was difficult to deploy servers to meet 7-Eleven’s development and test needs.

VMware Solution: VMware VirtualCenter, VMotion, ESX Server and GSX Server enable a small internal team to manage and provision servers.

Results:

• Saved more than $100,000 in one year
• 10:1 server consolidation on 2-CPU servers, 30:1 for 4-CPU servers
• Shortened server deployment time from 6-8 weeks to one day
• Improved server utilization by 60 percent
• Reduced downtime with VMotion
Customer Success Story

The Challenge: Symantec needed large-scale test beds to validate and test enterprise products. The hardware needed to simulate diverse client environments was expensive to buy, host, and maintain.

VMware Solution: Use VMware virtualization for testing a variety of operating system and software configurations.

Results:

• 600-machine test bed set up in less than a day
• Save on space, power, air-conditioning and maintenance
• Expose product to a large number of diverse environments to ensure product quality
Customer Success Story

The Challenge: Providing solutions for financial institutions, Baker Hill needed a large amount of hardware for test, development and production.

VMware Solution: Entire suite of VMware products to increase flexibility and productivity for QA and development, and to provide a stable, reliable production environment.

Results:

• 15 virtual machines per CPU in QA
• Reduced response time for new servers from 2-3 weeks to 2 days or less
• Increased productivity; developers work from their desks instead of walking to and from a lab
• Can emulate complex production environments
VMTN Subscription

- Designed for teams of developers and testers
- Simple, low subscription pricing includes support, updates, upgrades
- Choice of host OS, products, architecture
- Per-user licensing allows multiple installs
- Predictable licensing model

**Price** | $299 / yr
---|---
Workstation | ✓
GSX Server | ✓
ESX Server Developer Edition | ✓
Virtual SMP | ✓
P2V Assistant | ✓
Technical Support | ✓
Updates, Upgrades | ✓

**Note:** Windows & Linux versions, 2-way licenses, some ESX features prohibited
Accelerate The Software Lifecycle

- Migrate by transferring virtual machines or using VMotion
- Develop, test and stage using exact replicas
- Reduce risk and underutilized hardware in staging
- Remove friction from hardware throughout your environment
Questions?
### Customer Scenario: Need to replace 92 Windows servers

#### Option 1: Physical Hardware Refresh

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<tr>
<th>Hardware Costs</th>
<th>Number</th>
<th>Price</th>
<th>Total</th>
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<tr>
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<td>92</td>
<td>7,500</td>
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**Total** $690,000

#### Option 2: Virtual Infrastructure

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<th>Hardware Costs:</th>
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<tbody>
<tr>
<td>ESX Host Server</td>
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<td>VirtualCenter Server</td>
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<td>5,450</td>
<td>10,900</td>
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<td>ESX Server VIN</td>
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<td>3-Yr VIN Support</td>
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<td>VirtualCenter</td>
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<td>3-Yr VC Support</td>
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**Total** $278,996
**Customer Scenario:** Need to replace 92 Windows servers

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**Virtual infrastructure cost savings not included here:**

- Lower power and cooling costs
- Lower network & SAN port costs
- Easier management
- Less maintenance downtime
- and more…

**Total** $690,000

**Total** $278,996
Customer Praise for VMTN Subscription

"We have adopted VMTN Subscription for the developers in our company. VMTN Subscription is a cost-effective way to give our developers all of the computing resources they need...."

-- David Meyer, VP of Product Management
Plumtree Software

“VMTN Subscription is a convenient approach that gives development teams the flexibility to use multiple VMware products according to their needs.”

-- Steve Beavers, Systems Analyst
Greenberg Traurig LLP
Server Growth

Annual x86 Server Purchases

Annual Units (M)

2004 2005 2006 2007 2008 2009

Source: IDC reports and forecasts
Inefficiency

How Systems Administrators Spend Their Time

- Support: 20%
- Security: 10%
- Backup, monitoring, etc.: 15%
- Miscellaneous: 30%
- Server Deployment: 20%
- Hardware Procurement: 5%

Source: System Administrator's Guild (SAGE) Survey