Learn How You Can Integrate Both Your Physical & Virtual Environments

Bill Donoghue & Leslie Menegaz
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Agenda

> CA Virtualization Management Overview
> CA Spectrum & CA eHealth Integrated Physical & Virtual Management Capabilities
> Customer Success
> Q&A
CA Virtualization Management Overview
Customer Challenges: Virtualization

SYSTEM ENGINEER

• I need visibility into the performance of all my physical and virtual systems in one place
• What are the historical utilization rates? Am I under-provisioning or over-provisioning?

NETWORK MANAGER

• I need to see exactly what the problem is, what is the root-cause and quickly...
• I want to keep up with the fast changing virtual environment

LOB MANAGER

• I like the savings of virtualization but I want to be confident that our customer facing applications are performing well
• If there are potential service issue, I need assurance that we can pinpoint and resolve the problem quickly within the ever-changing virtual environment
• Are we in compliance with all the regulatory requirements in this shared infrastructure?

DB ADMINISTRATOR

• How is my DB performing in physical & virtual environments and is virtualization causing performance issues?
• I would like to see the performance and status of the DB performance as well as virtual systems in one tool

SERVICE DESK

• Even though we have new teams for virtualization management, I want to have a consistent process so I know who to notify and who is fixing the issue?
# CA Virtualization Management Highlights

## Key Challenges

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Key Functionality</th>
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<tbody>
<tr>
<td>Heterogeneous virtual environment</td>
<td>Centralized management for VMware, Sun, IBM and Citrix</td>
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<tr>
<td>Virtual machine sprawl</td>
<td>Auto discovery and topology mapping of VMs to host machines</td>
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<td>Increased downtime</td>
<td>Models based vs. rules based root cause analytics and fault isolation</td>
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<td>Poor performance metrics</td>
<td>Proactive performance monitoring for better capacity planning</td>
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<td>Fluctuating resources</td>
<td>Dynamic resource brokering to optimize resources from 15-30%</td>
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<td>VM security and access</td>
<td>Role based access and security</td>
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Benefits For You

> Provide centralized management of your physical, virtual and clustered systems and broad coverage of heterogeneous platforms

> You can add virtualized environments seamlessly to existing systems, network management tools

> You can use a single solution leveraged across
  - CA Spectrum Infrastructure Manager
  - CA eHealth Performance Manager
  - CA NSM
  - CA Spectrum Automation Manager

Enhance operational visibility and reduce costs

Improve service quality and predictability

Improve ROI using existing tools and established processes
CA Virtualization Management: Products

“Our best in class modular products are increasingly integrated and converging into a single solution for Business Service Assurance and Automation” – John Swainson, CEO
CA Spectrum and CA eHealth
Integrated Virtual & Physical Capability
Overview
Managing Virtual Environments

> **CA Spectrum** - VMware vCenter support
  - Dynamically discover and monitor ESX servers and VMs
  - Visualize logical relationships between ESX servers and VMs
  - Detect vMotion and automatically update the Topology
  - Suppress alarms on VMs when a physical ESX fails
  - View resource allocation and utilization
  - Understand in real time exactly what resources have been deployed

> **CA eHealth** - VMware vCenter certification
  - Report on Physical and Virtual KPIs
  - Trend, Top-N, and At-A-Glance reports
  - “Deviation from Normal” and “Time Over Threshold”

> **“Agent-less” monitoring via integration with vCenter**
  - Dynamically adapt to agent deployments

> **Support for Solaris Zones coming soon**
  - Spectrum 9.1.2 and eHealth 6.2.0
Deployment Diagram

Leverage consolidated data collection from the vCenter server through integration with CA VPM product

vCenter Workstation/VM has 3 components installed:
1. VMware vCenter Server
2. CA SystemEDGE agent
3. CA VPM VC AIM
> Consistent user experience across physical & virtual management

> Hierarchy displays logical grouping consistent with VMware vSphere client
  - Data Centers, Clusters, Resource Pools, Hosts, & Virtual Machines

> Avoids acquiring, learning and maintaining additional domain management tools
CA Spectrum: vCenter Discovery

> Runs continuously in the background when the vCenter/SystemEDGE host is modeled
> Creates models for Datacenter, Cluster and Resource Pools
> Searches for existing ESX and VM models (by IP & MAC)
  - Leverages previously modeled devices
> Model remaining ESXs and VMs
  - Uses *Pingable* model type
  - If device is SNMP-capable, its model can be upgraded later using model-by-IP or Discovery
CA Spectrum: Topology Views

> Universe Topology

- Includes all ESX and VM models (unique icon)
- Shows connectivity to upstream switch and router models
CA Spectrum: Information Views

> Information Views

- Real-time configuration, performance and inventory information
- Obtain performance data without SNMP
CA Spectrum: Thresholds & Status Monitors

> Variety of thresholds and status monitors configurable right from OneClick

- CPU and memory utilization
- Heartbeat, power off, connection state, sensor status
- Disk accessibility, free space, NIC Link Status

> Natively recognizes “power off” with unique alarm

<table>
<thead>
<tr>
<th>Alarm Details</th>
<th>Information</th>
<th>Impact</th>
<th>Host Configuration</th>
<th>Root Cause</th>
<th>Interfaces</th>
<th>Performance</th>
<th>Alarm History</th>
<th>Neighbors</th>
<th>Events</th>
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<tbody>
<tr>
<td>VMWARE VIRTUAL MACHINE POWERED DOWN</td>
<td>Sep 23, 2009 9:22:27 AMEDT</td>
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<td>A VMware Virtual Machine Powered Down event has occurred, from Host_systemEDGE device, named COE-NA-WIN-D1.ca.com.</td>
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<td>The VMware virtual machine has been powered down.</td>
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<td>Severity</td>
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<td>Clearable</td>
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<td>Symptoms</td>
<td>A VMware virtual machine has been powered down.</td>
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<td>Probable Cause</td>
<td>The virtual machine has been powered down through the VMware vCenter application.</td>
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<td>Actions</td>
<td>Power up the VMware virtual machine.</td>
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CA Spectrum: Automatically Adapts to Dynamic Virtual Environments

> Spectrum automatically tracks VMotion activity

> When VMotion occurs...

  - Spectrum receives VMotion updates
  - Affected VMs are automatically moved and re-associated with their new ESX hosts
  - Connections in the Spectrum topology and navigation panel are automatically updated

> Provides up-to-date and real-time view of the integrated physical and virtual infrastructure without manual intervention
CA Spectrum: Adapts to Dynamic Envt.

Vmotion Occurs!

VM connection updated

VM Impacted
CA Spectrum: Enhanced Fault Isolation

- Intelligent alarm correlation isolates faults to ESX Hosts and suppress symptomatic alarms on virtual machines
- A single root cause alarm is provided to the Operations team
- Impact Identified
  - Virtual entities impacted will be listed as under Spectrum’s Impact Subview
CA Spectrum & CA eHealth Integration

> Drill down to CA eHealth AAG reports from CA Spectrum models in VHM hierarchy

> CA eHealth can detect changes in the vCenter managed environment in two ways:
  ▪ Spectrum can be configured to notify eHealth of changes and spawn an eHealth rediscover
  ▪ VPM AIM can be configured to notify eHealth of changes and spawn an eHealth rediscover

> Leverage proactive performance alerting analytics for alert consolidation
Intelligent Performance Monitoring

Deviation from Normal

Is performance unusual compared to normal behavior?

Time is Unacceptable = 15 min.

Time Window = 1 hour

Upper Threshold
Baseline
Lower Threshold

Automatically determines baseline values

Time over Threshold

Identify when something is too wrong for too long

Time Over Threshold = 15 min.

Threshold = 60%

Time Window = 1 hour

Reduce noise by a factor of 25!
CA eHealth & Virtual Host Management
Integrated Virtual Performance Management

- Visibility into both physical and virtual server environments
- Single performance management tool with visibility into physical systems, networks, databases, applications, and now virtual systems
CA eHealth & Virtual Host Management
Integrated Virtual Performance Management

> Automatically discovers VMware servers and captures Key Performance Indicators
> At-a-Glance and Trend Reports for ESX Hosts
  - Machine Counts
  - CPU Utilization
  - Memory Used
  - VM Memory
  - Console Memory
> Proactively identifies performance degradation before issues can impact the services and users
CA eHealth & Virtual Host Management
Integrated Virtual Performance Management

> Automatic detection of changes in virtual environment
  - VMotion detection
  - Addition/reduction of resources

> Live interactive reporting
  - Visualization of virtualization KPI’s via an interactive web interface
  - Updates real-time as data is acquired
Coming in eHealth 6.2
Performance Dashboard for Virtual Environments

Hover-over shows counts of alarm severities. Drill down on alarm status will bring up list of alarms which can be drilled to Alarm Detail Report. Drill down on element name runs AAG report, while drill down on chart runs Trend report.

Provides KPI insight into Virtual Centers, Data Centers, ESX Hosts, and Virtual Machines.
## Customers Success Stories

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<th>Leading HR Outsourcer</th>
<th>Leading IT Commerce to Financials, Banks</th>
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<tbody>
<tr>
<td><strong>Challenge:</strong> Poor performance visibility in their VMware environment, poor application availability</td>
<td><strong>Challenge:</strong> Many point tools, needed a standardized tool that could scale and be cost effective</td>
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</table>
| **Results:**  
  • Centralized and standardized management of their virtual and physical server environments  
  • Critical visibility into VMware performance that previously did not exist  
  • Identified and resolved recurring problems and eliminated “quick fixes” | **Results:**  
  • Simplified and standardized their global infrastructure management across P+V  
    • Increased IT productivity  
    • Controlled costs |

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<th>Leading Virtualization Vendor</th>
<th>Fastest Growing Gaming Company</th>
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<tr>
<td><strong>Challenge:</strong> Outgrew their open source tool, needed RCA, OS level monitoring, deep performance</td>
<td><strong>Challenge:</strong> Safeguarding IT performance and availability of assets paramount to quality of guest services</td>
</tr>
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</table>
| **Results:**  
  • Single pane-of-glass to manage both their physical and virtual environment  
  • Improved serviced quality  
  • Gained OS level performance metrics | **Results:**  
  • Single pane-of-glass for improved operations  
  • Faster response due to models based RCA  
  • Reduced downtime due to application availability |
Don’t Miss Out On These Related Sessions and Labs...

> Virtualization Hands on Lab: Integrations with CA eHealth Performance Manager, CA Spectrum Infrastructure Manager

> “First Look Session” Managing database performance within virtual environments

> CA VPM r12: The next generation deep dive
Summary

> CA provides you with an integrated solution to managing your complex infrastructure

> CA Virtual Performance Management gives you the foundation for managing virtual environments

> CA Spectrum & CA eHealth integrations give you comprehensive fault & performance management across both physical & virtual
Development Exchange Summit 2009

Q & A