Best Practices for Monitoring Private Cloud and Virtualization

GN004SN

Andy Kicklighter - Sr. Principal Product Manager - Nimsoft, A CA Company
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abstract

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Private cloud and virtualization are driving fundamental changes in how we deliver IT Services – The flexible, highly variable nature of these environments, mission critical applications within them, and the extreme density of the hardware they deploy on are creating new challenges for the monitoring needed to drive uptime and meeting service level commitments.

In this session we’ll cover these monitoring challenges, their best practice solutions and how Nimsoft Monitor meets these needs as an element of an IT Management-as-a-Service solution.
# agenda – 6 problems and best practices

<table>
<thead>
<tr>
<th>Problems</th>
<th>Best Practice Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compute Density</td>
<td>Coverage, Discovery, Auto-Monitoring</td>
</tr>
<tr>
<td>Highly Variable Environment</td>
<td>Physical and virtual, DRS / HA / vMotion awareness</td>
</tr>
<tr>
<td>Mission Critical Applications</td>
<td>Extended Data Collection and Correlation</td>
</tr>
<tr>
<td>Connections beyond the virtual</td>
<td>Data Center Integration</td>
</tr>
<tr>
<td>Communicating Value</td>
<td>Usage metering and billing</td>
</tr>
<tr>
<td>The High Costs of Multiple Tools</td>
<td>Single infrastructure and tools set</td>
</tr>
</tbody>
</table>
Compute density has radically increased .... Now how do you find the problems? And prevent them?

» Is it the application?
» Is there a problem with the virtual network?
» What about the physical network or shared fabric?
» Is there a rogue application consuming all the bandwidth?
» What about CPU or memory shortages? Physical and virtual?
» Is the virtual environment manager down?
» Is there a SAN allocation or bandwidth problem?
best practices 1 – complete coverage

Success requires a complete view

» Virtualization hosts
» Virtual machines
» Operating systems
» Applications on VM guests
» Virtualization Management
» End user response times
» Global availability, performance
» Networking devices
» Fabric and bandwidth
» Physical systems
» Storage
Best Practice 1 – Discover Physical and Virtual elements

Network-based discovery identifies elements and relationships

- Virtualization hosts and VMs
- Storage units
- Network elements

Detailed discovery for new, more complex building blocks

- Storage configurations and elements (LUNs, Arrays, Groupings)
- Converged infrastructure – Flexpod, VCE Vblock
- Cisco UCS, HP BladeSystem Matrix and similar platforms
- Virtual environment – Auto-discover VMs, Network, Storage, Compute
problem 2 - highly dynamic environment

- Dynamic by Design
  - Self Service orientation
  - Shared Infrastructure
  - Scalable, elastic applications

- Every major element
  - Physical Infrastructure
    - Hot pluggable hardware
    - Configurable networking, storage
  - Virtual Machines
    - Come and go
    - Scale, Adjust and Move
  - Virtual Networks
    - Adjustable for Apps and Load
  - Virtual Storage
    - Resized on demand
    - For optimization and availability

Manual intervention is not an option

Monitoring must automatically configure, report and display
best practice 2 – auto-monitoring

VMs and Virtual Elements

- Auto-apply monitoring
  - Agentless – CPU, Memory, Disk, Network
  - Apply monitoring by policy / template
  - Alerts and Quality of Service
- Auto-display monitoring data
  - Gracefully add and remove
  - Policy controls alerts for removal vs. failure to report

Physical hardware

- Auto-monitoring and display
  - Storage configurations and changes
  - Physical host hot-plug and config
  - Network allocations and changes
best practice 2 - physical and virtual correlation

- **Base level**
  - ESX host health & VM health
  - Network, CPU, Disk, Memory
  - Auto-correlate and display

- **Extended**
  - Under usage
    - No significant operation = instance not used
    - Alert and notify to free resources
  - Over-commitment - “Noisy Neighbor”
    - Correlate to identify VMs that overuse common resources – i.e. network, CPU, disk
best practice 2 – motion awareness

- Auto adjust on resource change
  - % vs. fixed values
  - CPU, memory, disk, storage

- Seamlessly retain monitoring when moved
  - Awareness to alert on action
  - Even retain monitoring if moved back to a physical server
best practice 1 & 2 – here’s what it looks like

- Discovery and solution coverage for all elements
- Performance and availability monitoring, event correlation and analysis
problem 3 - mission critical app support

- Initially
  - Lower priority apps and services
  - File and print, Test and Dev, Demos

- Today
  - Mission critical applications & services
  - Production web applications, ERP, Exchange, Databases....

These mission critical apps and services:

- Must deliver predictable results - meet business requirements
- Require deep application layer visibility
- Can only meet SLAs with enhanced visibility into underlying physical and virtual infrastructure

Initially
- Lower priority apps and services
- File and print, Test and Dev, Demos

Today
- Mission critical applications & services
- Production web applications, ERP, Exchange, Databases....

Exchange Server Farm

Multi-tier Web Application

ERP
Content Management
Enterprise Database
Share point

Critical Services
best practice 3 - extended data collection and use

Extended Data Collection

- Add Agent-based monitoring for SLA compliance and extended uptime
  - Applications – Exchange, DB, WebSphere / WebLogic, etc.
  - Physical networks, chassis, power
  - Transactions, end-user experience
  - Global availability, performance
- Auto-deploy and configure
  - Integrate to Provisioning and Config

Extended Data Use

- Correlation and Display
- Intelligent alerts – Baselining
  - Single items and Service as a whole
problem 4 – a data center environment element

- Virtualized environment – Only one element within a Data Center
  - Legacy systems, Standalone servers, Networks, Power and cooling, Databases ... 

- Dependencies on the other IT infrastructure
  - Service Desk/Service Management, Provisioning, Change Management, Security, Access Control, Patch and Update, Configuration Management, Asset Management ...
best practice 4 - integration capabilities

- Integrate with wider data center management environment
  - Service Desk and CMDB at a minimum
  - Manager of Managers for monitoring

- Additional value in deeper integration
  - Provisioning / Orchestration
  - Change / Configuration management tools
  - Identity Management
  - Life cycle management
  - Security
  - Data workflow and presentation layer access may all be required
problem 5 – communicating value

Self service tools often considered “free” … Can break the IT value chain

» Traditionally:
  - Order server through IT
  - Wait for delivery,
  - Physically install, configure,
  - Maintain and update

» Now:
  - Self-service request

» “We already own the resources
   – Isn’t it free?”
best practice 5 – usage metering and billing

Monitoring must include:

- Device and QOS-based metering
- Mapping metered data to a business model (hours usage, concurrent, and others)
- Reports for users on usage
- Integrate with billing/chargeback

Nimsoft Monitoring: Monthly Charge Back Report

<table>
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<tr>
<th>Material Usage Pack</th>
<th>Quantity</th>
<th>Hours Used</th>
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<tbody>
<tr>
<td>Basic Server monitoring Pack</td>
<td>5</td>
<td>245</td>
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<tr>
<td>Basic Server monitoring Pack - Linux</td>
<td>7</td>
<td>350</td>
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<tr>
<td>Application Servers Monitoring Pack</td>
<td>10</td>
<td>420</td>
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<table>
<thead>
<tr>
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<th>Material Usage Pack</th>
<th>Total</th>
<th>Unit Cost</th>
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<tbody>
<tr>
<td>A. E. Boyce</td>
<td>Basic Server Pack</td>
<td>2</td>
<td>75.00</td>
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<tr>
<td>American Foods Group</td>
<td>Basic Server Pack</td>
<td>2</td>
<td>75.00</td>
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</table>
problem 6 – the costs of multiple tools

Separate tools each require their own:

- Training
- Resource requirements
- Infrastructure
- Maintenance, displays ...

Will kill the economics of your Cloud or Virtualized environment

- Creating additional expense – not saving money
- Using critical infrastructure and resources

Server & OS
Network
Power & Environment
Storage
SaaS and Public Clouds
Databases
Web site / User Experience
Applications
- Exchange
- Oracle
- SAP ...
best practice 6 – as few tools as possible

**Requirement:**

» A single solution that supports all the elements

» Physical and virtual

» Network, application, storage, chassis, environmental, power, user experience, ...
A word about Nimsoft
nimsoft unified manager

A best practice, modular Service Desk and Monitoring solution

» Modular functionality ... accelerates incident detection and resolution
  - Unified views and reports
  - Pre-integrated alarms and incidents
  - Auto-suppression (maintenance)
  - Common configuration

» Service catalog ready to support VMware

» Real world experience-based ITIL v3 best practices framework

» Easy to buy, deploy and manage
nimsoft virtualization monitoring

No other solution is so well suited for monitoring virtualized and private cloud environments

» Complete single tool
- Single infrastructure and portal
- Coverage for the virtual environment, applications and services
- And the wider data center and clouds beyond

» Eliminates the need to manually configure monitoring

» Continuous coverage even when VMs move / adjust as the environment changes

» Integrates with existing tools and portals

» Provides proof-of-value to the business - Meters all usage

» Prevents outages from happening with proactive, pre-emptive monitoring
## recommended sessions

<table>
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<th>SESSION #</th>
<th>TITLE</th>
<th>DATE</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>GN003SN</td>
<td>Simplifying the Service Desk</td>
<td>11/14/2011</td>
<td>16:00</td>
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<tr>
<td>GN002SN</td>
<td>Managing IT at the Speed of Business</td>
<td>11/15/2011</td>
<td>11:00</td>
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<tr>
<td>GN102SN</td>
<td>Managing your Cloud with Confidence</td>
<td>11/15/2011</td>
<td>13:15</td>
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<tr>
<td>GN100SN</td>
<td>Seize the Cloud! Proven Tactics from a Successful Service Provider</td>
<td>11/15/2011</td>
<td>14:45</td>
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<tr>
<td>GN004SN</td>
<td>Best Practices for Private Cloud and Virtualization Monitoring</td>
<td>11/15/2011</td>
<td>16:00</td>
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<td>GN007SN</td>
<td>User Experience – One Perspective To Rule Them All</td>
<td>11/16/2011</td>
<td>9:45</td>
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<td>GN006SN</td>
<td>Nimsoft SaaS Service Desk Essentials</td>
<td>11/16/2011</td>
<td>11:00</td>
</tr>
<tr>
<td>GN005SN</td>
<td>Monitoring that “Just Works”</td>
<td>11/16/2011</td>
<td>13:15</td>
</tr>
<tr>
<td>GN101SN</td>
<td>Cloud Service Assurance – Driving Cloud Availability &amp; QoS</td>
<td>11/16/2011</td>
<td>14:45</td>
</tr>
</tbody>
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related technologies

**Booth 201** - Nimsoft Monitor

**Booth 201** - Nimsoft Service Desk

**Booth 202** - Nimsoft User Experience

**Innovation Center** - Nimsoft Automation
Please scan this image to fill in your session survey on a mobile device
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