

# Proactive Performance Monitoring for VMware vSphere

**“A truly proactive and real time approach to monitoring and reporting”**



“Proactive visibility into the performance of our VMware environment is critical to keeping infrastructure and application environments running smoothly. Now, with no customization, administrators have the ability to monitor and report on the storage components of our VMware environment easily and quickly from one dashboard. Administrators can now have a truly proactive and real time approach to monitoring and reporting on the performance of our entire VMware infrastructure with Goliath Performance Monitor.”

**Jarian Gibson**  
Virtualization Practice Manager, Choice Solutions

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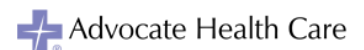
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# Proactive Performance Monitoring for VMware vSphere

You can now improve application availability, and eliminate blind spots and false positives, while reducing the complexity of your VMware vSphere virtual environment by using one product to monitor your Host, VM's, Application, OS, and Hardware.

## Five Layers of Visibility – Hardware, VMware vSphere, VM, OS and Applications

The screenshot shows the vSphere Client interface with the Goliath Performance Monitor (GPM) integrated into the vCenter console. A blue box highlights the 'MonitorIT' button in the top right corner of the vSphere interface, with an arrow pointing to a text box that says 'Goliath Performance Monitor integrates into vCenter'. Another blue box highlights the 'Performance Graphs' section, with an arrow pointing to a text box that says 'Out-of-the-box VMware dashboards'. A third blue box highlights the search filters for 'VMware Host Bottlenecks', 'VMware Host Storage Bottlenecks', 'VMware VM Bottlenecks', and 'VMware VM Storage Bottlenecks', with an arrow pointing to a text box that says '5 Layers of Visibility: Hardware, VM, OS, and App'. The interface shows various performance graphs for CPU, Network, and Storage usage across different VMs.

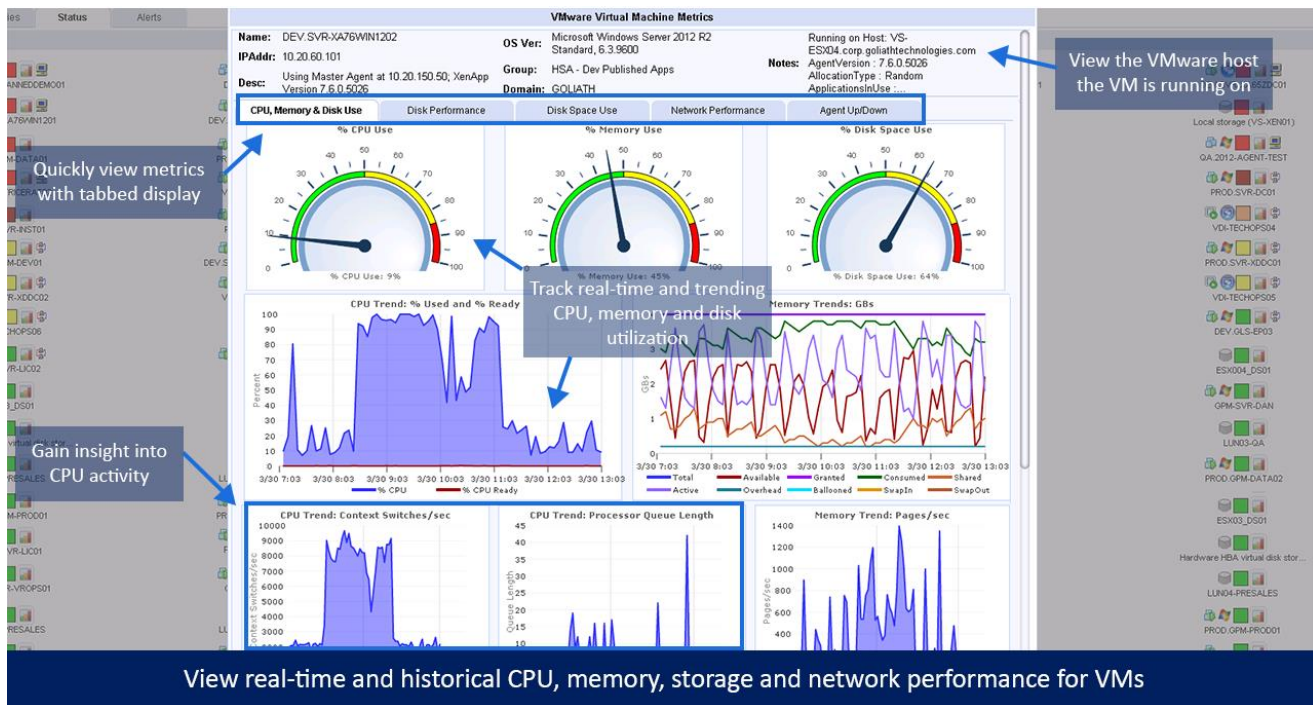
View VMware and the entire supporting infrastructure from one console

## Quickly Correlate CPU, storage and Network Bottlenecks at a Glance

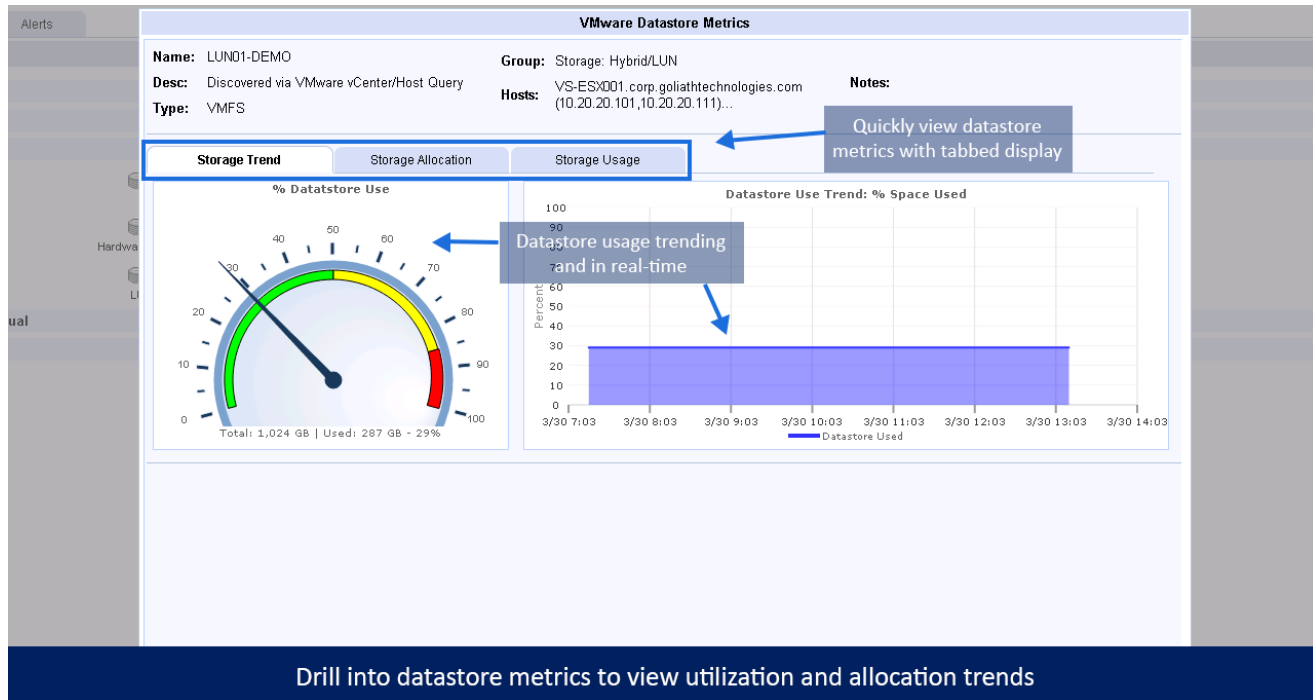
The screenshot displays several performance dashboards for VMware VMs. The top row shows 'VMware Top 10: VM % CPU Used', 'VMware Top 10: VM % Memory Used', and 'VMware Top 10: VM Network KB/sec-Send'. The middle row shows 'VMware Top 10: VM Network KB/sec-Receive', 'VMware Top 10: VM Storage Write Throughput', and 'VMware Top 10: VM Storage Read IOPS'. The bottom row shows 'VMware Top 10: VM Storage Read Throughput' and 'VMware Top 10: VM Storage Write IOPS'. A blue box highlights a specific VM in the 'VM Storage Read IOPS' chart, with an arrow pointing to a text box that says 'Identify under resourced VMs'. Another blue box highlights a specific VM in the 'VM Storage Write IOPS' chart, with an arrow pointing to a text box that says 'Track storage intensive VM performance'. The charts show real-time data and allow for changing the reporting period to trend over time.

Use the out-of-the-box charts and dashboards to view VMware data in real-time or change the reporting period to trend over time

## Correlate CPU and Memory Utilization



## Breakdown of Storage Utilization



# Real-Time Disk Performance Trends for Hosts and VMs

**VMware Host Metrics**  
 Name: VS-ESX004.corp.goliathtechnologies.com  
 OS Ver: VMware Host  
 IPAddr: 10.20.20.104, 10.20.20.114  
 Group: ESX Hosts  
 Desc: Discovered via VMware vCenter/Host Query  
 Domain:

**Top 5 Disk Throughput Trend: KBytes/sec**

Disk Device Name	Type	Minimum	Maximum	Average
LUN07-PRODAV (lun07-prodav)	Read	1433	5833	3838
LUN07-PRODAV (lun07-prodav)	Write	1209	3086	2125
LUN05-PRODINFRA (lun05-prodinfra)	Read	136	2041	592
LUN05-PRODINFRA (lun05-prodinfra)	Write	236	910	425
LUN03-QA (lun03-qa)	Read	0	886	286

**Top 5 Disk IOPS Trend: Operations/sec**

Disk Device Name	Type	Minimum	Maximum	Average
LUN07-PRODAV (lun07-prodav)	Write	148	747	500
LUN05-PRODINFRA (lun05-prodinfra)	Write	48	199	67
LUN07-PRODAV (lun07-prodav)	Read	15	56	39
LUN06-PRODVID (lun06-prodvid)	Read	0	20	1
LUN02-DEV (lun02-dev)	Write	5	19	7

**Top 5 Disk Latency Trend: Milliseconds**

Disk Device Name	Type	Minimum	Maximum	Average
LUN06-PRODVID (lun06-prodvid)	Write	1	325	33
LUN02-DEV (lun02-dev)	Read	1	255	22
LUN03-QA (lun03-qa)	Write	1	148	15
LUN05-PRODINFRA (lun05-prodinfra)	Write	1	118	16
LUN02-DEV (lun02-dev)	Write	1	117	16

Annotations:  
 - View storage IOPS trends (points to IOPS graph)  
 - Identify disk latency spikes (points to latency graph)

**View disk performance metrics and identify bottlenecks over time**

# Real-Time Heat Map

**Monitor IT**

Dashboard: CPU, Memory, Storage, Availability, Logon Simulator

Monitor > Dashboard

Groups: Categories, Status, Alerts

**Physical/Virtual Category Status**

**Virtual Hosts**

- 10.20.20.101
- 10.20.20.102
- 10.20.20.103
- 10.20.20.104
- 10.20.20.54
- 10.20.20.56
- VS-XEN01

**Virtual Machines - Host Based**

- DEV.GFN-40
- DEV.GFN-CENTOS01
- DEV.GFN-Test
- DEV.GFN35
- DEV.GLS-EP03
- DEV.GPM-DEV01
- DEV.SVR-LIC02
- DEV.SVR-SF03
- DEV.SVR-XA76WIN08FRE01
- DEV.SVR-XA76WIN1201
- DEV.SVR-XA76WIN1202
- DEV.SVR-XA76WIN1203
- DEV.VDI-XD56WIN701
- DEV.WS-FLOYD
- DEV.WS-MANPA
- DEV.WS-TPECK
- PROD.GFN-CONFIRM
- PROD.GPM-DATA01
- PROD.GPM-PROD01
- PROD.NET-NSVPX01
- PROD.SVR-ADMIN01
- PROD.SVR-ADMIN02
- PROD.SVR-BU
- PROD.SVR-DC01
- PROD.SVR-DC02
- PROD.SVR-DIR01

Annotations:  
 - View all alerts for the environment (points to Alerts tab)  
 - Drill into host metrics (points to VS-XEN01)  
 - Confirm the agent is connected (points to PROD.GFN-CONFIRM)  
 - Click the red icon to view alerts specific for that machine (points to PROD.SVR-BU)  
 - Identify powered off VMs at a glance (points to DEV.SVR-MI01)

**Real-time heat map turns hosts, VMs, and storage red if an error or fault condition takes place**

## Threshold-Based Alerting

The screenshot shows the 'Specify Monitoring Rule Parameters and Properties' dialog box in VMware vSphere. The rule is named 'VMware Host Alert' with a description 'Host reaching thresholds for CPU, Memory, and Network resource levels' and a severity of 'Critical'. The 'VMware CPU, Disk and Memory Parameters' section is expanded, showing various performance thresholds. A blue callout box labeled 'Define custom thresholds' points to the 'CPU Ready (Percent)' field, which is set to 2. Another blue callout box labeled 'Proactive notifications on CPU, Storage and Memory performance' points to the 'CPU Performance Thresholds' section. The 'Disk Performance Thresholds' section includes fields for Throughput (Read/Write), IOPS (Read/Write), and Latency (Read/Write/Total). The 'Memory Performance Thresholds' section includes fields for Active, Consumed, Shared, Granted, Swap-in, Swap-out, and Ballooned, with radio buttons for 'Percent' and 'GB'. 'Apply' and 'Cancel' buttons are at the bottom.

Customize alert threshold appropriately based on your environment

## Eliminate Alert Storms

The screenshot shows the 'Specify Monitoring Rule Parameters and Properties' dialog box for a rule named 'Group Policy Failure - Folder Policy Exception' with a description 'Client side extension caught the unhandled exception' and a severity of 'High'. The 'Schedule' tab is selected, showing options to 'Alert Every Time' (unchecked), 'Minimal Notification Interval' (15 Min(s)), and 'When Any Single Event Occurs' (5 Times in 120 Seconds). There are checkboxes for 'Combine All Events', 'Include Description', and 'Log Only When Criteria Match'. There are also fields for 'Active Only if Server 'Owns'' and '...This Cluster Group'. A blue box highlights the 'Schedule' section. The 'Remediation' and 'Notifications' tabs are also visible. The 'Suspend Rule' checkbox is unchecked.

Set notification intervals and escalation conditions to eliminate alert storms

# Out-of-the-Box Monitoring Rules

Configure > Monitoring Rules

Rule Name	Type	Severity	Description
VMware Virtual Machine Alert	ServerWatch	Critical	When this takes place ALL servers unreachable
VMware View - Web Component	WinServicesWatch	Caution	VMware View - Web Component (wstomcat)
VMware View - User Unable to Login	EventLogWatch	Caution	Multiple alert types
VMware View - USB Arbitration Service	WinServicesWatch	Caution	Supports connectivity to attached USB devices
VMware View - Snapshot Provider	WinServicesWatch	Caution	VMware Snapshot Provider Service
VMware View - Security Gateway Component	WinServicesWatch	Caution	VMware View - Security Gateway Component (wstunnel)
VMware View - Script Host	WinServicesWatch	Caution	VMware View - Script Host (WSSH)
VMware View - PCoIP Secure Gateway	WinServicesWatch	Caution	VMware View - PCoIP Secure Gateway (PCOIPSG)
VMware vCenter Single Sign On	WinServicesWatch	Caution	VMware vCenter Single Sign On (ssotomcat)
VMware vCenter - VMwareVCMSDS	WinServicesWatch	Caution	VMware vCenter - VMwareVCMSDS (ADAM_VMwareVCMSDS)
VMware vCenter - VMware View Composer	WinServicesWatch	Caution	VMware vCenter - VMware View Composer (svid)
VMware vCenter - VMware Universal Access	WinServicesWatch	Caution	VMware vCenter - VMware Universal Access (vmware-ufad)
VMware vCenter - VirtualCenter Server	WinServicesWatch	Caution	VMware vCenter - VirtualCenter Server (vpxd)
VMware vCenter - Thread Ordering Server	WinServicesWatch	Caution	VMware vCenter - Thread Ordering Server (THREADORDER)
VMware vCenter - Snapshot Provider	WinServicesWatch	Caution	VMware vCenter - Snapshot Provider (vmvss)
VMware vCenter - Single Sign On	WinServicesWatch	Caution	VMware vCenter - Single Sign On (ssotomcat)
VMware vCenter - Inventory Service	WinServicesWatch	Caution	VMware vCenter - Inventory Service (vimQueryService)
VMware vCenter - Converter Standalone Worker	WinServicesWatch	Caution	VMware vCenter - Converter Standalone Worker (vmware-converter-worker)
VMware vCenter - Converter Standalone Server	WinServicesWatch	Caution	VMware vCenter - Converter Standalone Server (vmware-converter-server)
VMware vCenter - Converter Standalone Agent	WinServicesWatch	Caution	VMware vCenter - Converter Standalone Agent (vmware-converter-agent)
VMware Host Resource Availability	ServerWatch	Critical	Monitor VMWARE for CPU, Memory, Disk, Network and Virtual Storage Thresholds
VMware Host Alert	ServerWatch	Critical	
VMware DataStore Alert	ServerWatch	Critical	DataStore monitoring for available Storage threshold
VMware Datastore - Low Space	ServerWatch	Critical	

All alerts include notification, alert resolution, and remediation capabilities

## Alert Resolution

Specify Monitoring Rule Parameters and Properties

**Alert Resolution Notes**

A program, the Clsid displayed in the message, tried to start the DCOM server by using the DCOM infrastructure. Based on the security ID (SID), this user does not have the necessary permissions to start the DCOM server

**RESOLUTION**  
Verify that the user has the appropriate permissions to start the DCOM server.

**\* Log:**  
To assign permissions:

**Type:**

- Using Regedit, navigate to the following registry value HKCR\Clsid\clsid value\localserver32. The clsid value is the information displayed in the message.
- In the right pane, double-click Default. The Edit String dialog box is displayed. Leave this dialog box open.
- Click Start, and then click Control Panel.
- Double-click Administrative Tools, and then double-click

Save remediation instructions in Alert Resolution feature

OK Cancel

Open All Select All Unselect All Close All

Include remediation instructions with alerts to ensure consistency of fix actions and reduce resolution time

## Goliath Performance Monitor for VMware vSphere Features:

- Out-of-the-box plug-in to vCenter
- Real-Time Dashboards and Historical Reports
- Daily Health Check Reports
- One product for VMware vSphere ESX and ESXi Host, VM's, Applications, OS, and Hardware
- Comprehensive alerting on thresholds, events and faults
- Proactive remediation sequences
- Advanced troubleshooting with application > user > server correlation

### Host

- CPU Utilization
- Memory Utilization
- Active, Granted, Overhead, Ballooned, Shared, and Swapped Memory
- Storage Throughput, Latency, and IOPS
- Network Throughput
- Virtual Infrastructure Inventory

### VM

- VM Started, Off, or Paused Status
- CPU Utilization and Ready
- Memory Utilization
- Active, Granted, Overhead, Ballooned, Shared, and Swapped Memory Storage
- Disk Throughput, Latency, and IOPS
- Network Throughput and Utilization

### Storage

- Utilization
- Virtual Disk Size
- Snapshots, Orphaned VMs, and Wasted Space
- Provisioned, Consumed, and Free Space