

# The eG VM Monitor for Microsoft Hyper-V™ Environments

## Benefits of the eG VM Monitor

- **Combined external and internal views:** Real-time performance view of what the Hyper-V server sees about the guest VMs and what the guest VMs see internally.
- **Deep diagnostics:** With a few clicks drill down to the exact processes causing a problem.
- **Automatic correlation:** Analyze performance across layers of the VM infrastructure - the VM host, between the host and the guests, and across VM guests.
- **In-depth VDI monitoring:** Know which users logged in, when, what applications they accessed, what resources they used, etc.
- **Monitor virtual environments with service views - not as silos:** Correlate the performance across applications hosted in the virtualized environments, discover VM dependencies, and identify performance bottlenecks.
- **Single agent licensing:** One agent monitors the Hyper-V host, and all the VM guests.
- **Compatible with VM Migration:** Detect migration of guests across Hyper-V servers, determine the efficiency of the migration.

Microsoft's Hyper-V™ Server 2008 offers a reliable, optimized virtualization platform for enterprises. Built on a Windows hypervisor, Hyper-V allows efficient use of server hardware investments by consolidating multiple server roles as separate virtual machines (VMs) running on a single physical machine and also efficiently run different operating systems.

## Microsoft Hyper-V Monitoring Challenges

Since a Hyper-V hosts is used to host multiple VMs, a single malfunctioning application running in a VM can take up excessive resources, thereby degrading the performance of applications hosted on the other VMs. Besides resource contention among virtual guests, applications executing on the root partition can also affect the performance of the virtual infrastructure. Insufficient allocation of resources to VMs can also contribute to proble situations.

Most Hyper-V monitoring solutions only track the resource usage of the VMs. They fail to provide visibility into the internal operations of VMs which can shed light on the reasons for slowdowns experienced by your virtualized infrastructure. A high-cost, resource-intensive, and high-maintenance alternative to this is to deploy monitoring agents in each of the VMs for monitoring the guest operating systems and the applications running in the VMs.

## In-N-Out Monitoring and Root-Cause Diagnosis Technology

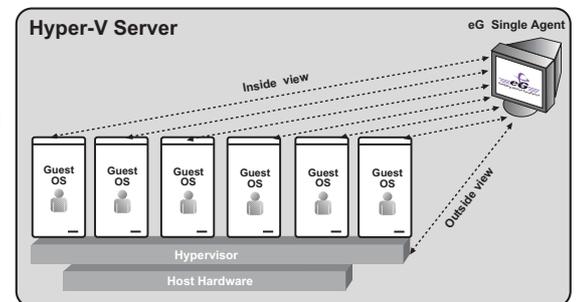
The eG VM Monitor extends the eG Enterprise monitoring technology for Microsoft Hyper-V virtual environments. Using a patent-pending In-N-Out Monitoring approach, the eG VM Monitor provides a comprehensive view of a Microsoft Hyper-V server, including the performance of the hypervisor, the root partition, and all its virtual machines (VMs).

Besides monitoring the health of the Hyper-V host, an agent also auto-discovers VMs configured on the server, their power on/off state, and attributes such as resources allocated

to the VM and the IP address of the VM. Using Windows Management Instrumentation (WMI), the agents provide an "outside view" of a guest VM's performance. The relative resource usage levels of the guest VMs show where the performance hogs exist.

To complement the outside view of a VM, the eG agent obtains an "inside view" that details the user activity, resource allocation, and the application mix running inside the VM operating system. The inside view is critical for problem diagnosis - while the outside view indicates which of the VMs running on a Hyper-V server are consuming a lot of the resources on the server, the inside view highlights which application(s) running in the VM operating system is responsible for the resource usage.

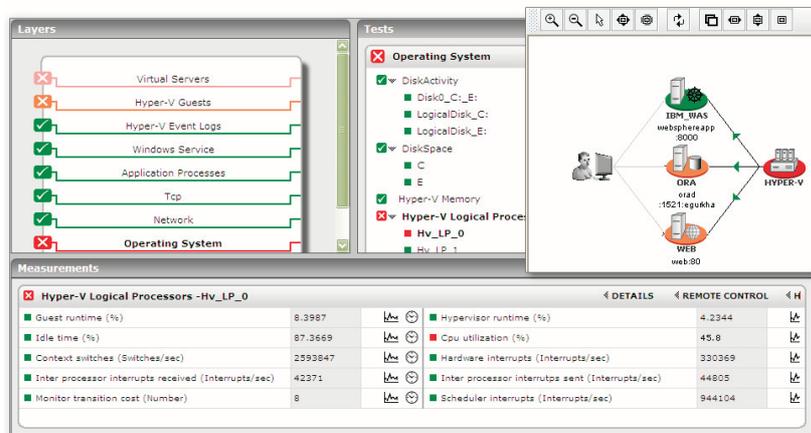
The eG VM Monitor automatically baselines all the metrics it collects. Time of day baselines determined for all the metrics indicate time of day norms for these metrics. Any deviations from the norm are flagged as proactive alerts. This way, administrators are informed ahead of time about any deviations from the norm and can initiate remedial action before the problem becomes catastrophic. No other Hyper-V monitoring solution offers this combination of features.



*An eG agent collects metrics from the Hyper-V host and from within the VMs on the host.*



Another key value proposition of the eG VM Monitor is its ability to monitor virtualized components as not just independent entities, but as inter-related components that collaborate with physical infrastructure components to deliver critical end user services. End-to-end business service views provided by eG's 100% web-based interface depict the applications and network devices that support a business service and the inter-relationships they share. The interface also embeds efficient drill downs that let you go from a service topology view to the virtual applications that are supporting a service, to the virtual hosts on which these applications operate. In the event of a service outage, this service perspective to performance enables the eG VM Monitor to automatically correlate performance across the physical and virtualized tiers that are involved in service delivery, analyze the inter-dependencies between the components that are part of these tiers, and diagnose the root-cause of the outage.



Using a specialized monitoring model for Hyper-V servers, the eG VM Monitor correlates performance between the Hyper-V host and guest VMs.

## What the eG VM Monitor Reveals?

### Hyper-V Host Monitoring

- What is the CPU load on the hypervisor, on the root partition, and each of the virtual guests?
- How many logical processors are currently supported by the hypervisor? Which logical processor is being used excessively? Who is making more use of the CPU resources – the VMs or the hypervisor?
- Is the root partition consuming memory resources excessively?
- Which network adapter/switch is seeing the most traffic? Are all critical Hyper-V processes and services up and running?

### Virtual Guests Monitoring

- How many virtual guest machines are running? What are their IP addresses/host names and operating systems?
- How many virtual processors are currently supported by each VM? Is any VM utilizing the allocated CPU resources excessively?
- What is the total disk capacity of each VM? Is any VM running out of disk space?
- How much physical memory is allocated to each guest? Is any VM consuming too much memory?
- Which guest is using large memory pages?
- Has the Integration services component not been installed on any VM?

- Is any VM experiencing network latencies?
- Which processes on a guest are taking up high disk, CPU, and memory resources?
- Is there excessive queuing for disk access on any guest operating system? Which applications could be causing these accesses?

### Virtual Desktop Monitoring

- How many desktops are powered on simultaneously on the Hyper-V server?
- Which users are logged on and when did each user login?
- How much CPU, memory, disk and network resources is each desktop taking?
- What is the typical duration of a user session?
- Who has the peak usage times?
- What applications are running on each desktop?

### VM Migration Monitoring

- Which Hyper-V server is a virtual guest running on?
- When was a guest moved from a Hyper-V server? Which Hyper-V server was the guest moved to?
- Why was the guest migrated? What activities on the Hyper-V host caused the migration?

## About eG Innovations

eG Innovations, Inc. (www.eginnovations.com) is a global provider of performance monitoring and triage solutions for both virtual and physical IT infrastructures. The company's patented technologies provide proactive monitoring of every layer of every tier in the infrastructure, thereby enabling rapid diagnosis and recovery in enterprise and service provider networks. By ensuring high availability and optimum performance of mission-critical business services, eG Innovations' solutions help enhance customers' competitive positioning, lower operational costs and optimize the performance of their infrastructures. The company's eG VM Monitor™ has won several industry awards including the "Best of VMworld 2008" in the Application and Infrastructure Management category and Readers Choice Awards from VirtualizationAdmin.com and Virtualization Journal.

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