

# The eG Monitor for Red Hat Enterprise Virtualization™

Performance Management Solution for RHEV Environments



## Benefits of the eG RHEV Monitor

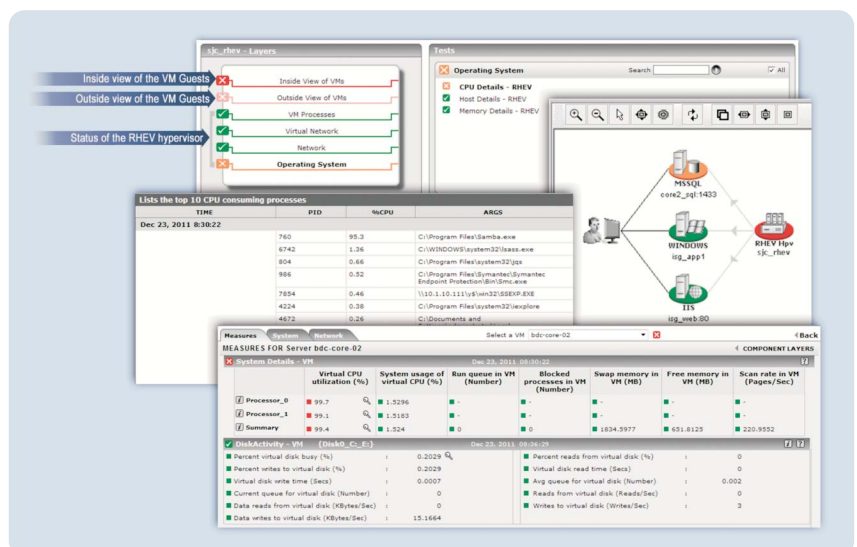
- **Combined external and internal views:** Real-time performance view of what the RHEV server sees about the guest VMs and what the guest VMs see internally.
- **Deep diagnostics:** With a few clicks drill down to the exact cause of a problem – i.e., is it the network, database, middleware, RHEV server, VM, or one of the applications.
- **Total performance visibility:** Analyze performance of every layer, every tier of the RHEV infrastructure – including the RHEV server, the VMs, the RHEV manager, the RHEV database and the applications running on the VMs.
- **Automatic, virtualization-aware root-cause diagnosis with business service views:** Monitor virtual environments with business service views - not as silos, automatically correlate the performance - between physical machines and VMs, between applications and VMs, and between VMs hosted on the same physical machine.
- **Hypervisor-based licensing:** One eG monitor license suffices to monitor the RHEV hypervisor and all the VM guests. Licensing is per physical server and not based on CPU cores, sockets or VMs.

Virtualization technologies provide companies with increased flexibility and the ability to do more with fewer resources. In doing so, virtualization introduces new dynamic dependencies – between physical machines and virtual machines (VMs) and between VMs. These dependencies make it complicated to monitor and manage virtualized infrastructures to ensure service performance and business continuity. For virtualization initiatives to be successful, it is critical that end-users see the same, or better, performance from virtual infrastructures as they had experienced with physical infrastructures.

The eG Monitor for RHEV, part of the eG Enterprise Suite™, is a comprehensive solution for monitoring and managing all aspects of virtual hosts and guests, whether the infrastructure is used to support server or desktop applications. To enable administrators to control the user experience in virtualized infrastructures, eG Monitor for RHEV provides the industry's only virtualization-aware service topology mapping and automatic correlation. This allows administrators to monitor the virtual infrastructure not as a silo but as an integral component of the overall business service infrastructure. Administrators can not only determine if specific VMs are consuming resources, they can also drill down to determine why these VMs are taking up resources (i.e., which applications are responsible for this). Coupled with the ability of the eG Enterprise Suite to monitor 120+ applications, including Citrix, Oracle, IBM, SAP, and others, the eG Monitor for RHEV - with its patent-pending In-N-Out Monitoring™ technology - provides a comprehensive end-to-end solution for monitoring and managing the performance of heterogeneous virtual IT infrastructures.

## Challenges in Monitoring Virtual Environments

Since a single RHEV server is used to host multiple VMs, a single malfunctioning application on a VM can degrade the performance seen by applications hosted on the other VMs on the same RHEV server. To troubleshoot this infrastructure, monitoring solutions need to understand the inter-dependencies – between applications and VMs and between VMs and physical machines. Making the problem more challenging is the fact that VMs (and hence, applications running in these VMs) can be migrated from one physical machine to another. The dynamic nature of a RHEV environment breaks many of the ground rules that traditional management systems have been designed for. To effectively manage RHEV environments, you need a virtualization-aware performance management system that is capable of discovering and adapting to the dynamic inter-dependencies that exist.

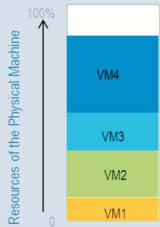


The eG Monitor for RHEV correlates performance across the RHEV server and guest VMs. Automatic virtualization-aware root-cause diagnosis enables administrators to rapidly identify bottlenecks and to right-size their infrastructure for peak performance.

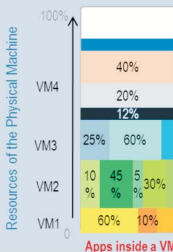
## In-N-Out Monitoring and Root-Cause Diagnosis

The eG Monitor for RHEV™ extends eG Enterprise's universal monitor technology to virtual environments. Using a patent-pending In-N-Out Monitoring™ approach, it provides a comprehensive view of the RHEV Server, including the performance of the hypervisor and all of its VM guests. RHEV servers are monitored in an agentless manner. An eG monitor deployed on a Windows or Linux system uses the RHEV RESTful APIs to provide an "outside view" of the performance of VMs. The relative resource usage levels of the VMs show where the performance hogs may lie. To complement the outside view, the eG agent obtains an "inside view" that details the user activity, resource allocation and the application mix running inside the guest operating system. All of the metrics collected by the agents are automatically baselined, so that IT administrators can be informed proactively of any deviations from the norm. No other virtualization management solution offers this combination of features.

### Deep Visibility Into RHEV VMs



- **The Outside view** shows the portion of physical resources used by each VM (CPU, disk, memory)
- Provided by the virtualization hypervisor
- Useful for capacity planning and identifying certain VM issues
- Does NOT show **why** a VM is consuming resources



- **The Inside view** shows the portion of resources allocated to a VM that are used by each application and each user of the VM
- Provided by the guest OS (for Windows: WMI)
- Useful for user load balancing, identifying guest OS issues, misbehaving applications, and unauthorized user activities
- Does show **why** a VM is consuming resources, accelerates fix

From a monitoring and performance management standpoint, the eG Monitor for RHEV goes well beyond managing virtualized servers as discrete entities. End-to-end business service views show the applications and network devices that support each business service, and the inter-dependencies among them. Applications are associated with the VMs they run on, and each VM is mapped to the physical machine upon which it is hosted.

The dependency of the VMs to physical machines is determined dynamically, so as to support the RHEV Live Migration technology. A patented root-cause diagnosis engine analyzes the service topology graphs and the virtual-to-physical machine mappings to pin-point where the problem areas in the infrastructure lie.

## What the eG Monitor for RHEV™ Reveals

### RHEV Server Monitoring

- What is the CPU load on the RHEV server and each of the VMs?
- What is the free physical memory in the RHEV server and which VM is contributing to the memory usage?
- Which network interfaces of the RHEV server are seeing the most traffic?

### Outside View of Virtual Machines

- How many VMs are running? What are their IP addresses/host names and operating systems?
- How many virtual CPUs are allocated to each VM?
- What portion of the physical server's CPU is used by each VM?
- How much memory is configured for each VM? What percentage of the configured memory is each VM consuming?
- How many disk reads and writes are being initiated by each VM?
- How much network traffic is being generated by each VM?

### Inside View of Virtual Machines

- What percentage of the physical CPU allocated to a VM is being used by processes running in the VM operating system?
- Which processes running in the VM operating system are responsible for the resource usage (CPU, memory, disk) of the VM?

- Do all the disk partitions in the VM operating system have adequate space?
- Is there excessive queuing for disk access on any VM operating system? Which applications could be causing these accesses?
- Are all the critical Windows services running in the VM operating system?
- At what times of the day was the VM rebooted?
- Is any of the processes running in the VM operating system leaking memory or handles?

### RHEV Manager Monitoring

- Is the RHEV manager up and performing well?
- Are all the key processes required for the RHEV manager working (JBoss web processes, Postgres database, etc.)?
- Is the operating system hosting the RHEV manager functioning well?
- Are there any unusual events (errors, migrations, etc.) happening on the RHEV manager?
- How are the virtual machine clusters managed by the RHEV manager performing?
- What storage domains are configured for each datacenter? Are the storage domains available and how much free space does each domain have?

For more information  
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## About eG Innovations

eG Innovations provides intelligent performance management solutions that dramatically accelerate the discovery, diagnosis, and resolution of service performance issues in virtual, cloud, and physical service infrastructures. Only eG Innovations offers 360-degree service visibility with virtualization-aware performance correlation across every layer and every tier - from desktops to applications, and from network to storage. This unique approach delivers deep, actionable insights into the true causes of cross-domain service performance issues and enables administrators to pre-emptively detect, diagnose, and fix root-cause issues - before end users notice. eG Innovations' award-winning performance management and monitoring solutions are trusted by the world's most demanding companies to enable delightful user experiences, keep mission-critical business services at peak performance, and deliver on the ROI promise of transformational IT investments.