

EMC SMARTS SERVER MANAGER

Automated discovery, monitoring, and cross-domain root-cause analysis for the virtualized data center (VDC)



ESSENTIALS

- Cross-correlate and analyze virtual machines (VMs), simple and distributed vSwitches and virtual networks, VMware ESX and Microsoft Hyper-V Servers, the physical network, and the rest of the IT infrastructure
- Know how virtualized data center (VDC) infrastructure problems affect the availability of all VMware-attached storage (SAN, iSCSI, and NAS)
- Gain extensive insight and awareness into your VDC through a seamless, unified view of virtual and physical relationships
- See and understand the operational and business impact of VDC infrastructure issues on VMs

IT OPERATIONS AND THE VIRTUALIZATION CHALLENGE

Server virtualization has dramatically reduced IT organizations' operating costs while unlocking new levels of IT efficiency and business agility. Not surprisingly, a recent Spending Intentions Survey by the Enterprise Strategy Group identified increased server virtualization as the top IT spending priority for IT organizations.

In addition, two of the top three infrastructure management spending priorities in this survey are virtual server management and network management. The high importance respondents attached to these spending intentions validates that the striking business and economic benefits derived from virtualization often carry a hidden burden: server virtualization also dramatically increases overall IT operational management complexity.

As organizations expand server virtualization to include mission-critical applications, the ongoing creation and movement of VMs, the use of virtual networking, and the reliance on virtualized storage introduces new challenges for managers of virtualized data centers (VDCs) when they need to isolate and resolve service-impacting issues. Similarly, cloud environments that leverage a virtualized infrastructure require management and analysis tools that are geared for rapidly changing infrastructure.

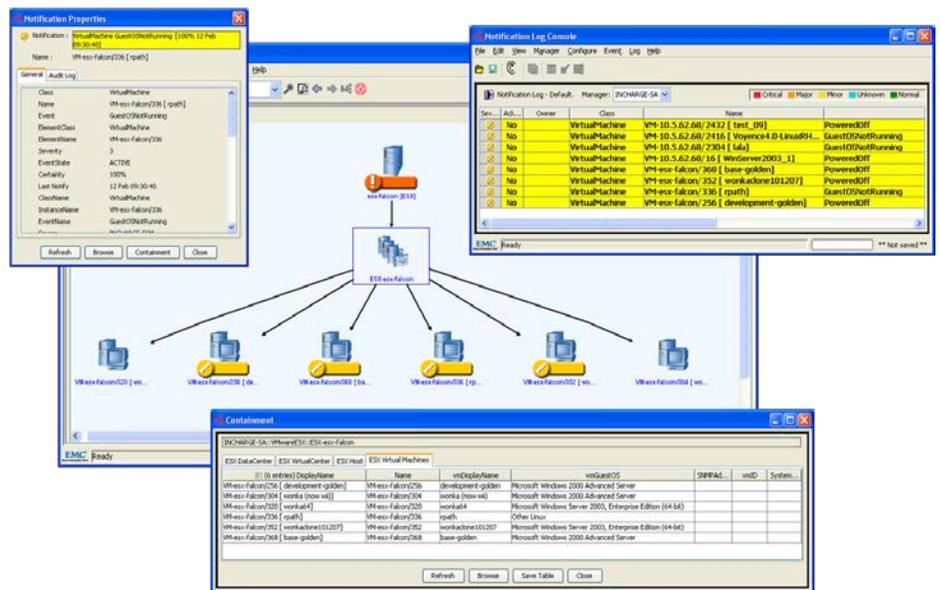
However, many IT operations teams still use separate, unintegrated tools in an attempt to link and analyze physical and virtual infrastructures in a VDC. This disparate and inefficient approach to monitoring and management limits an IT organization's ability to meet its most important ongoing mission: providing IT service assurance to the business.

EMC SERVER MANAGER

EMC® Smarts® Server Manager changes all this by enabling a holistic approach to VDC management. By extending EMC's automated discovery, root-cause analysis, and business-impact analysis through the virtual network, down to the VM level, and including all VMware-attached storage, Server Manager allows IT operations to immediately and accurately pinpoint and address issues in complex IT infrastructures—whether in the physical or virtual environment, or both. The seamless, unified view of IT relationships provided—spanning from virtual to physical—gives IT operations extensive, needed insight and awareness into a VDC.

EMC Server Manager:

- Discovers and manages the availability of VMware® ESX® and Microsoft® Hyper-V™ servers and VMs
- Performs device-level and path-level root-cause and impact analysis for all VMware-attached storage (SAN, iSCSI, and NAS)
- Understands data store availability for HBAs, data paths (including support for EMC PowerPath®/VE), and SCSI LUNs
- Discovers and monitors simple and distributed vSwitches
- Provides the operational and business impact of VDC infrastructure issues on VMs
- Monitors the health of server clusters (another form of server virtualization), including VMware ESX clusters, Microsoft Cluster Services (MSCS), Symantec Veritas Cluster Server (VCS), and BigIP F5 LoadBalancer servers
- Determines when key application processes running on a server are unavailable—including preconfigured monitoring for VMware ESX, VMware vCenter™, and EMC Atmos™—and can manage a group of application processes as a single entity (such as a composite application)
- Identifies when servers are operating in a degraded state (through integration with IBM, HP, Dell, and Oracle server hardware monitoring)



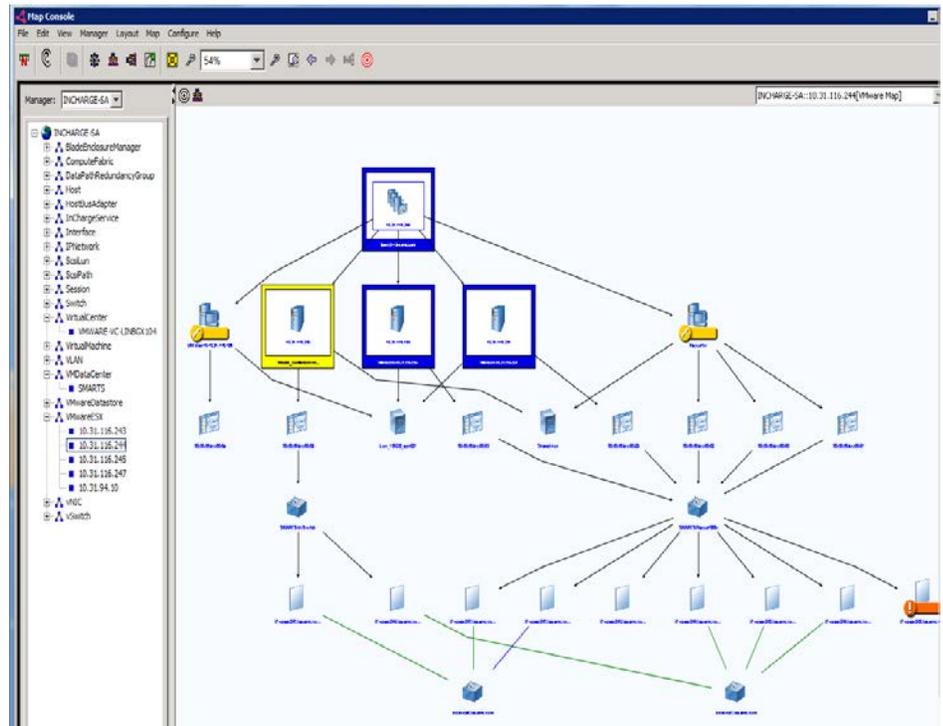
MANAGING VIRTUALIZED SERVERS AND VMS IN CONTEXT OF THE NETWORK

Server Manager discovers VMware ESX and Microsoft Hyper-V servers and continuously monitors their availability and performance—automatically. In addition, Server Manager monitors and analyzes VM event information—such as when a VM has been added, deleted, or moved on an ESX Server by VMware vCenter, or when the virtual network settings on a VM have been misconfigured. With this, an IT organization gains the critical insight, visibility, information, and analysis it needs to:

- Assure IT service delivery and availability across the VDC
- Rapidly resolve problems when they occur—whether in the physical infrastructure, virtual infrastructure, or both—by immediately identifying root causes in the infrastructure

- See and understand the operational and business impact of VDC infrastructure issues on VMs
- Reduce management complexity in virtual and physical environments by leveraging the power of automation and having a complete understanding of the relationships between physical and virtual infrastructure elements
- Holistically manage virtualized infrastructures across networks, applications, servers, and storage environments

Server Manager automatically discovers and maps the relationships among virtual machines, their ESX and Hyper-V servers, and the network infrastructure.



Server Manager creates a topology that associates VMs with their ESX or Hyper-V servers and the network infrastructure. Automated discovery and maintenance of these complex and fast-changing relationships significantly improves your ability to manage virtualized IT services. Furthermore, automated performance and availability monitoring mean that when a problem arises in your virtual environment, you can immediately determine its root cause and trace its impact to the physical server as well as the network.

DISCOVERING AND MONITORING VSWITCHES

Inside each ESX Server is a virtual network that links vCenter and the VMs running on that server. A virtual network switch—VMware vSwitch—connects these elements. However, visibility into this virtual network is often elusive or unavailable to IT operations teams, creating a significant “blind spot” to efficient and effective management of a VDC.

With the addition of discovery and monitoring of simple and distributed vSwitches, Server Manager extends EMC’s cross correlation and analysis to span VMs, vSwitches and virtual networks, VMware ESX Servers, the physical network, and the rest of the IT Infrastructure. The result: a seamless, unified view of IT relationships—spanning from virtual to physical—that provides extensive insight and awareness into VDCs, and solves this significant management challenge.

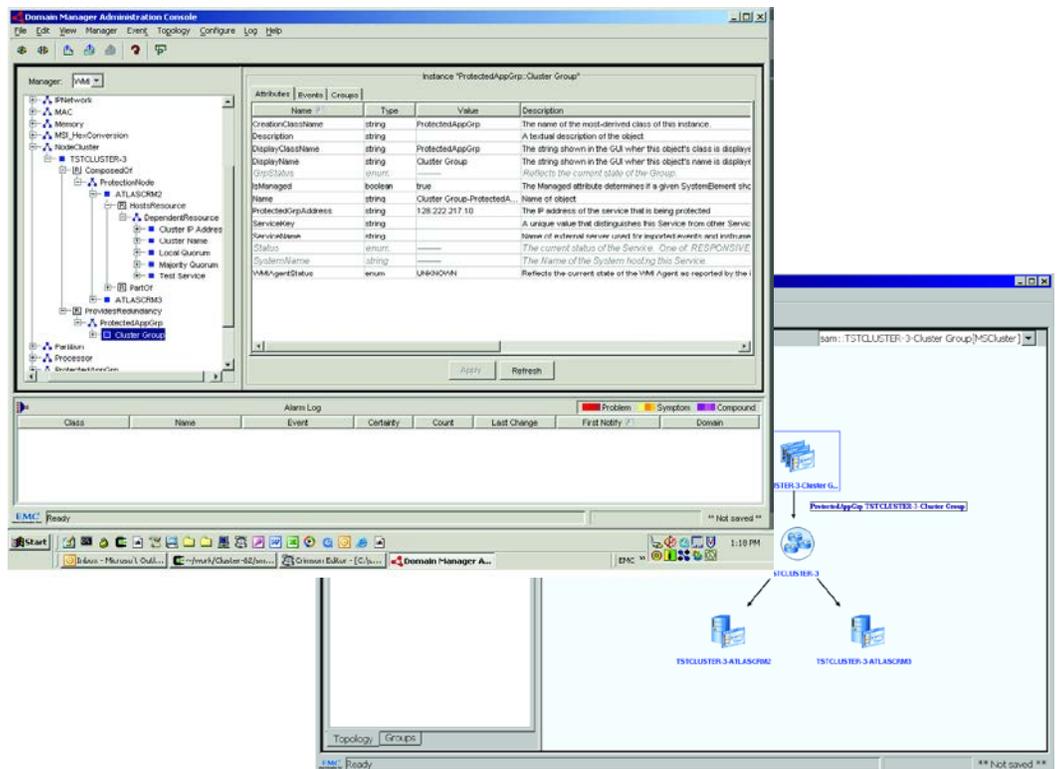
MANAGING CLUSTER ENVIRONMENTS

Microsoft Cluster Services, Veritas Clusters, and VMware ESX clusters provide redundancy for high-availability environments. Typically, a service is started on the servers in the cluster, with one host being active and the other hosts on standby. During a protection switch—for example, if service on the active machine fails or a host fails—the cluster software activates another node in the cluster. Because IP addresses used in clustering can move from one node to another, real-time monitoring of cluster state, failover status, and host status across the cluster environment is critical.

Server Manager addresses this need by:

- Discovering the cluster and its elements—cluster nodes, protection groups, and dependent resources
- Generating an event when a protection switchover occurs
- Creating an event when a protection group completely fails
- Performing root-cause analysis when host failures cause a protection group to fail

Server Manager automatically discovers, maps the topology and relationships, and monitors Microsoft Cluster Services, Veritas Clusters, and VMware ESX clusters.



MANAGING THE AVAILABILITY OF APPLICATION PROCESSES

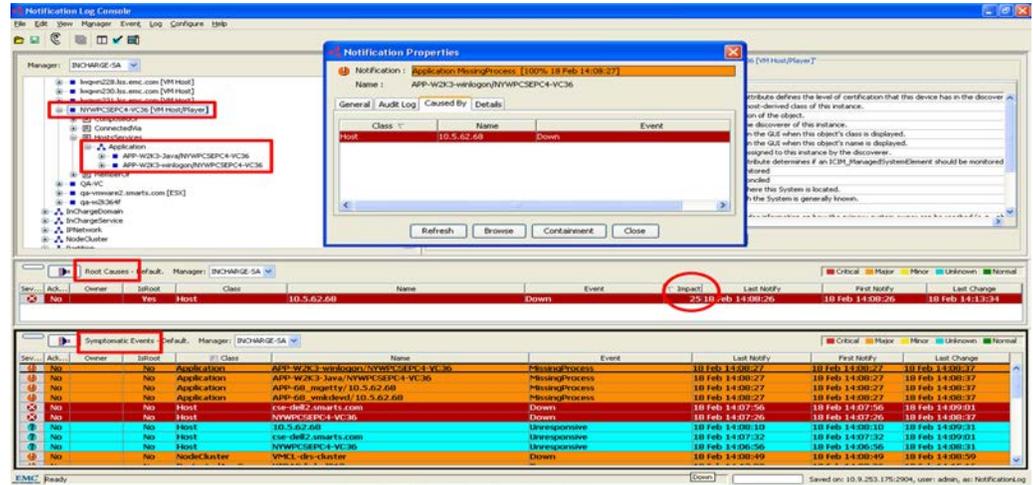
Access to and availability of critical business applications and services represent the lifeblood of all information-driven organizations. Having the ability to manage the performance and availability of the physical and logical server infrastructure is essential to service assurance and the proper function of key business applications. However, ensuring the highest levels of availability and performance also requires monitoring key environmental factors associated with an application.

Server Manager monitors critical business applications and generates a range of alerts for critical applications on a given host. This capability alerts the IT organization to a number of conditions—for example, when a process is missing or when the number of processes per

application is too low or too high. In addition, by leveraging SNMP instrumentation already on your servers, Server Manager minimizes any server performance impact associated with monitoring your critical applications and process.

In addition, Server Manager can manage a group of application processes—best known as composite applications—as a single entity, regardless of whether the grouped processes are running on a VM, “traditional” physical server, or both.

Server Manager also monitors critical business applications, notifying the operator of key conditions that can affect performance or availability.



BUSINESS VALUE FROM SERVER MANAGER

- Gain VDC vision and insight, reduce management complexity, and resolve problems faster by understanding, in real time, the relationships that exist between physical and virtualized servers and the rest of the IT infrastructure, as well as the business impact that problems have associated with them
- Save time, improve efficiency, reduce costs and business risk, and increase IT service availability by automatically determining the root cause and business impact of VDC problems—whether they reside in the virtual environment, physical infrastructure, or both

Identify potential service-impacting availability and performance problems—before they occur—by monitoring and analyzing critical applications and processes, high-availability environments, and virtualized and physical server infrastructure

CONTACT US

To learn more about how EMC products, services, and solutions can help solve your business and IT challenges, [contact](#) your local representative or authorized reseller—or visit us at www.EMC.com.

www.EMC.com

EMC², EMC, the EMC logo, PowerPath and Smarts are registered trademarks or trademarks of EMC Corporation in the United States and other countries. VMware, VMware ESX, and vCenter are registered trademarks or trademarks of VMware, Inc., in the United States and other jurisdictions. Microsoft and Hyper-V are registered trademarks or trademarks of Microsoft Corp. © Copyright 2012 EMC Corporation. All rights reserved. Published in the USA. 11/12 Data Sheet H6135.8

EMC believes the information in this document is accurate as of its publication date. The information is subject to change without notice.

