

## EMC Ionix Server Manager Part of Ionix IT Operations Intelligence

Automated discovery, monitoring, and root-cause analysis of virtual environments that simplifies management, improves IT efficiency, and increases IT service availability

### The Big Picture

- Solve a common and critical management challenge—pinpointing the true source of problems in VMware, Microsoft, and F5 environments
- Reduce costs by automating the root-cause analysis of failures or degradation of physical and virtual server infrastructures and components, and server performance problems
- Optimize physical and virtual deployments by identifying the critical end-to-end relationships and dependencies that exist among applications and the infrastructure
- Relate your virtual server topology to the physical server and network infrastructure
- Monitor topology changes within the virtualized infrastructure in real time
- Improve customer satisfaction by detecting server performance issues before they become “hard” failures
- Eliminate potential problems before they occur by proactively monitoring critical application processes
- Ensure high availability of clustered server configurations
- Monitor and instrument redundancy pairs

### Business challenge

Throughout IT organizations, virtualization across the server infrastructure has dramatically reduced operating overhead while providing new levels of business agility. Although virtualization’s business and economic benefits are striking, they come at a cost—virtualization adds another layer of technology. Results of a survey by Enterprise Strategy Group identified difficulty in isolating root causes across a virtualized data center as the top management challenge when deploying virtualization in Tier 1 application environments.

Virtualization increases IT complexity and creates its own set of new management challenges, including the need to:

- Pinpoint problems through discovery, monitoring, and analysis of virtualized services and how they relate to the underlying physical infrastructure
- See and monitor the location and topology map of virtual machines, as well as their relationship to physical servers, in real time—which is especially critical when VMotion® or Quick Migrate are running and moving virtual machines around the shared resource pool
- Monitor and isolate problems in high-availability, clustered, and load balanced configurations—because server clusters are just another form of virtualization
- Automate detection and root-cause analysis of problems that span the data center’s virtual and physical infrastructures
- Proactively warn users of potential problems in business-critical servers, analyzing the root cause of server performance issues in real time

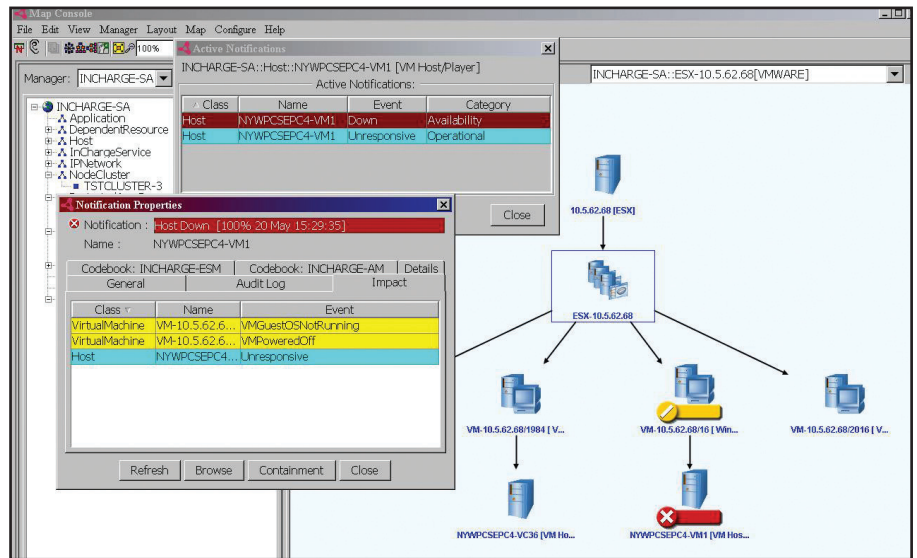
### EMC Ionix Server Manager

EMC® Ionix™ Server Manager (formerly Smarts® Server Manager) simplifies the ongoing management of your virtualized environment by extending the automated management capabilities of EMC Ionix management solutions to include physical and virtualized server infrastructures. EMC Ionix Server Manager also includes EMC Ionix Server Performance Manager functionality, which enables discovery and monitoring of host disks and file systems and provides information about host processes and memory.

Server Manager performs standard discovery, availability, and performance management of IP servers, and offers a number of optional capabilities including:

- Discovery and availability management of VMware® ESX® servers and virtual machines
- Discovery and availability management of Microsoft® Hyper-V servers and virtual machines
- Deliver monitoring and analysis capabilities for critical, high-availability deployments for load-balanced configurations

- Discovery, availability, and status management of Microsoft Cluster Services and Symantec Veritas Cluster Server (VCS)
- Discovery and availability management of application processes running on a discovered server



Server Manager discovers and monitors host disks and file systems, as well as additional information about host processors and memory. It also can warn you proactively of potential problems in business-critical servers. Standard functions include:

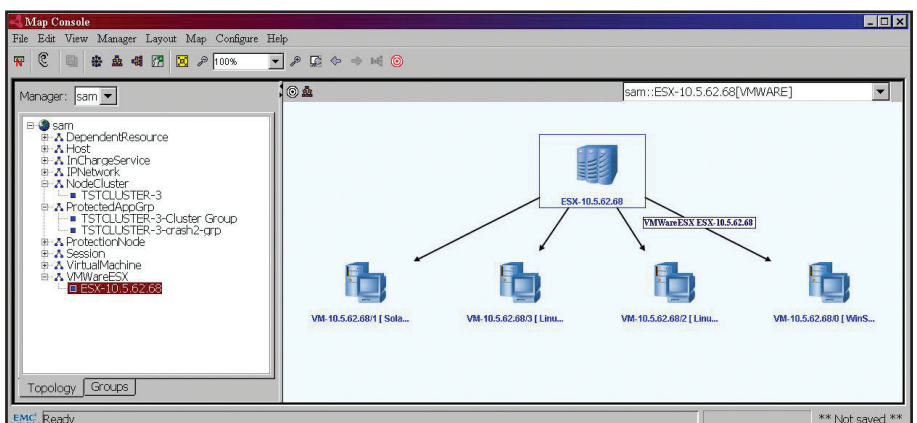
- Automatically polls physical server elements to identify important exception conditions
- Applies automated root-cause analysis to distill raw polling data into meaningful information
- Leverages the analysis of EMC Ionix IP Availability Manager to understand when managed elements are unreachable, and automatically disables polling for those elements until they are reachable again
- Adapts automatically to changes in the network environment, assigning appropriate polling and performance thresholds to newly discovered elements

## Managing virtualized servers (VMware ESX and Microsoft Hyper-V) and virtual machines

Server Manager discovers VMware ESX and Microsoft Hyper-V servers and virtual machines and continuously monitors their availability and performance—automatically. This gives the IT organization the management capabilities it needs to:

- Improve IT service delivery and reduce complexity in virtual and physical environments
- Gain the insight, visibility, and transparency needed to holistically manage virtualized infrastructures across networks, applications, servers, and storage environments
- Simplify virtual management complexities using automated management technologies that determine key physical and virtual infrastructure dependencies, and immediately identify the root cause of virtual infrastructure problems

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



Server Manager creates a topology that associates virtual machines with their ESX or Hyper-V servers and the network infrastructure. With the automated discovery and maintenance of these complex and changing relationships, you significantly improve your ability to manage the IT services delivered using VMware. 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 down to the physical server and network layer.

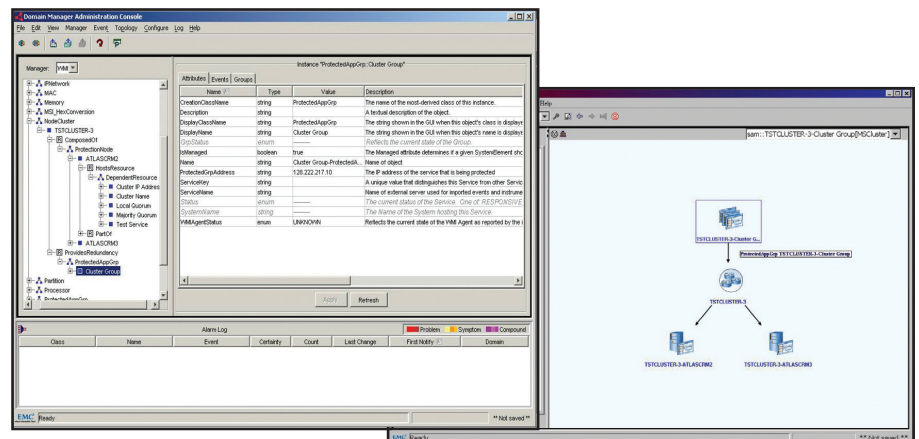
## Managing Microsoft Cluster Services and Veritas Clusters

Microsoft Cluster Services and Veritas Clusters provide redundancy for IP-enabled client/server applications. In a typical deployment, each protected application receives a virtual IP address to which clients connect. The service is started on the servers in the cluster, with one host acting as the active node while the other hosts are standby nodes. The active node associates one of its interfaces with the virtual IP address, and 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. The new active node associates one of its interfaces with the virtual IP. Because these virtual IP addresses can move from one node to another, real-time monitoring of cluster state, failover status, and host status across the cluster environment are critical capabilities.

Server Manager solves the management challenges associated with the use of virtual IP addresses with these types of cluster services. Server Manager’s capabilities include:

- 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

EMC Ionix Server Manager automatically discovers, maps the topology and relationships, and monitors Microsoft Cluster Services and Veritas Clusters.



## Managing application processes running on a discovered server

Access to and availability of critical business applications and services represent the lifeblood of all information-driven organizations. Having the capability to manage the performance and availability of the physical and logical server infrastructure is an essential part of ensuring that these key business applications function the way they should. However, key environmental factors associated with an application also need monitoring. That way, you can ensure that critical business applications achieve high levels of availability and performance.

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 exceeds the minimum or maximum values allowed. Server Manager provides a tool to configure the critical applications and process that need monitoring. This capability, provided in conjunction with EMC Ionix IP Availability Manager, leverages SNMP instrumentation in your servers, which minimizes the CPU and memory impact associated with IP Availability Manager.

## Business value

EMC Ionix Server Manager delivers value to the user by:

- Increasing the performance and availability of virtualized and physical server infrastructure
- Automating the root-cause analysis of problems or potentially service-impacting conditions across servers and IP networks
- Delivering monitoring and analysis capabilities for critical, high-availability deployments including clustered servers
- Monitoring critical applications and processes to identify potential service-impacting problems—before they occur
  1. Gathers and analyzes server performance information in real time
  2. Pinpoints performance problems before servers fail
  3. Works with EMC Ionix Business Impact Manager to reveal the impact of server events on services and customers

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

The screenshot displays the EMC Ionix Server Manager interface. On the left, a tree view shows the hierarchy of monitored components under 'INCHARGE-AM', including Applications (APP-INETD, APP-PAGEOUT, APP-SVCHOST, APP-WORD), Hosts, Chassis, Disk, FileSystem, Host, Interface, IP, IPNetwork, MAC, Memory, Processor, ServiceProcessSetup, and SNMPAgent. The main window shows a 'Notification Properties' dialog for an 'Application MissingProcessEvent' with 100% certainty, dated 28 Nov 15 25:56. The 'Relevant Attributes' table shows 'MissingProcess' with the value 'WINWORD.EXE -zzz'. Below the dialog is an 'Alarm Log' table with the following data:

(2 entries) Class	Name	Event	Certainty	Count	Last Change	First Notify	INCHARGE-AM
Application	APP-SVCHOST/192.168.56.4	MissingProcessEvent	100%	2	02:05:39	28 Nov 15:12:07	INCHARGE-AM
Application	APP-WORD/192.168.56.4	MissingProcessEvent	100%	2	02:05:39	28 Nov 15:12:07	INCHARGE-AM

## Software requirements

Server Manager is supported on Solaris, Red Hat Linux, Microsoft Windows, VMware, and Hyper-V and also requires:

- EMC Ionix Service Assurance Management Suite
- EMC Ionix IP Management Suite

## About EMC

EMC Corporation is the world's leading developer and provider of information infrastructure technology and solutions that enable organizations of all sizes to transform the way they compete and create value from their information. Information about EMC's products and services can be found at [www.EMC.com](http://www.EMC.com).



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### Take the next step

To learn more about how EMC Ionix Server Manager and other EMC Ionix management solutions can positively impact your business and IT operations, contact your local EMC or EMC Ionix sales representative, or visit our website at [www.EMC.com/ionix](http://www.EMC.com/ionix).