

# EMC IT Addresses the Challenges of Virtualization Management



**“Cost was initially the driver of virtualization. Because we are completely changing the footprint of the data center—virtualizing everything—we need a better way to manage and monitor the environment. Therefore, virtualization has become the driver for a new generation of management tools.”**

— Paul DiVittorio, director, IT Enterprise Systems and Application Hosting Architecture  
Global Infrastructure and Services

## Physical to virtual to cloud—next-generation IT management

As EMC® IT moves their IT Infrastructure from physical to virtual, and eventually to the private cloud, the most critical concerns involve maintaining reliability, quickly deploying ITIL processes, and leveraging automation to improve the operational efficiency of the virtual data center.

### Virtualizing at an accelerated rate

EMC, like the rest of the world, is experiencing an explosion of information which is driving an IT infrastructure expansion at an alarming rate. Due to the magnitude of this challenge, EMC IT introduced an information lifecycle management (ILM) strategy to quickly move into a virtual environment. The EMC IT team created an aggressive roadmap to complete transformation to a 100 percent virtualized data center by the end of 2010 with the intent to shrink the data center footprint, improve operational efficiency, and reduce cost.

As EMC IT moved down the path of virtualization, it became apparent that virtualization not only accelerates processes and performance, but also makes configuration management and process automation gaps grow faster.

### Conquering configuration management and monitoring

#### Challenge

Since virtualization is driving the growth of EMC’s IT infrastructure, maintaining configuration standards becomes paramount to optimizing service delivery. Because the change management process was not integrated with the existing configuration management system, IT spent hours trying to identify and locate Virtual Machine configurations when problems occurred. For example, if a new operating system (OS) is released in an existing Virtual Machine environment, IT typically tests the new version of the OS using new servers, while the old servers continue to run the previous version in production.

EMC’s IT infrastructure is a mix of physical and virtual. Because the virtual environment is driving the growth in the infrastructure, integrated monitoring, configuration, and patch management are critical requirements for managing a combined virtual and physical infrastructure.

#### Solution

In the past, EMC IT had a silo’ed approach to configuration management and monitoring. They had a HP Peregrine solution for ticket management and HP solutions for change management and monitoring. An integrated monitoring and configuration management solution was critical to manage their virtualized infrastructure. IT identified three solutions: EMC Ionix™ Server Configuration Manager (SCM), Ionix Service Manager, and Ionix for IT Operations Intelligence (formerly EMC Smarts®). The monitoring system identifies problems with the server, and the configuration management system tracks recent changes against the “gold standard.”

**“When we have a problem, Ionix for IT Operations Intelligence, integrated with Ionix Server Configuration Manager and Ionix Service Manager, creates a closed-loop process so that the help desk can fix the change in one minute instead of spending hours trying to manually detect the change.”**

— Paul DiVittorio, director, IT Enterprise Systems and Application Hosting Architecture  
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**“It is too risky to set up a virtual data center until you can track Virtual Machines on servers.”**

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**“Closed-loop, Automated Monitoring and Management enables my team to continually look forward, focusing on customers needs and next-generation IT.”**

— Paul DiVittorio, director, IT Enterprise Systems and Application Hosting Architecture  
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The solution’s components include:

- **Ionix Server Configuration Manager** in concert with **Ionix Service Manager** enables EMC IT to detect server change and configuration. Service Manager’s monitoring, reporting, and tracking system also ties in two-way communication. If an application incident occurs, EMC IT can pull information from the CMDB to better understand what happened and what changed.
- **Ionix for IT Operations Intelligence** introduces automated root-cause and event management, and when combined with **SCM** in virtual environments, it can:
  - Detect change against the “gold standard” configuration
  - Log the incident with **Service Manager**, which notifies the help desk that a change occurred by this person on this server
  - Enable the help desk to leverage **SCM** to correct the configuration and resolve the problem

For EMC IT to achieve end-to-end monitoring and configuration management across the virtualized data center, everything must be consistently monitored by domain-specific tools, and Ionix for IT Operations Intelligence is the glue that holds it all together.

## Automation is the key to success

### Challenge

Similar to EMC IT’s configuration management and monitoring challenges, virtualization is driving the growth of EMC’s IT infrastructure, so the ability to deploy Virtual Machines, achieve automated load balancing, and architect for a scalable environment, for example, have also become key requirements.

Deploying Virtual Machines was recently a manual process for EMC IT. Although the benefit of a virtual data center is the ability to move Virtual Machines on-the-fly, if a server crashed, the challenge became understanding which Virtual Machines were running on that server, so IT could restart the affected applications or services could be restarted. The manual process often took hours to find out what server crashed.

For load balancing, scalability, and disaster recovery requirements, EMC IT’s monitoring agents and performance metrics were inconsistent. Without predictive analysis, more physical systems had to be added to handle high performance demands at any point in time. For example, a financial application requires a higher level of performance in the last month of the quarter than in the first two months.

### Solution

An automated plug-and-play methodology and load-balancing solution for Virtual Machine deployments was the key to running an efficient, high performing, and scalable infrastructure.

EMC IT worked with VMware® Professional Services and EMC Ionix Services to identify the necessary products based on their environment’s needs to achieve the desired end goal. The result was an integrated solution that combines the features and functionality of the VMware vCenter™ Lifecycle Manager™ tool set, Ionix Server Configuration Manager, and Ionix Server Manager (formerly EMC Smarts Server Manager).

Now, with a few clicks of a button, a gold configuration image is taken from the Ionix Server Configuration Manager configuration-management database, deployed to the server, and registered with Ionix Server Manager, thus achieving a “plug-and-play” methodology for Virtual Machine deployments. Once the Virtual Machine is deployed, Ionix Server Manager recognizes the Virtual Machine and begins to monitor it.

To achieve automated load balancing to implement a scalable solution, VMware vCenter Lifecycle Manager records the server’s CPU throughout a quarter’s lifecycle to forecast future instances when an application may need higher performance.

Returning to the financial application example, Ionix recognizes EMC’s performance threshold, connects to VMware vCenter Lifecycle Manager and automatically deploys another Virtual Machine

image. When the performance demand is satisfied, Lifecycle Manager will return the system to the standard configuration.

### **Private cloud—improving development efficiencies**

EMC IT is planning on developing a self-service portal for users to leverage the capabilities that private cloud offers. This self-service portal will enable users to log in and request Virtual Machine images that reflect the corporate “gold standard” Virtual Machine image, complete with standard corporate security and backup. Once the user has completed testing the new demo or application, the Virtual Machine is returned to IT.

Currently, users bring their own servers to work or purchase servers from the Amazon cloud to test projects and develop new innovations. The user of the server then has to log a request to have IT integrate the server into the corporate standard. Not only is this process long and very costly, it also causes a massive security issue.

The self-service portal will provide EMC with a solution that is cost effective and highly efficient.



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