

EMC Smarts Brings Root-Cause Analytics to Bear on Virtual Server Networks

Since Enterprise Management Associates published this paper, the EMC Smarts solutions have been changed to EMC Ionix.

Event

In early March 2009, EMC announced availability of a new set of extensions for the Smarts family of its IT Operations Insight solutions called EMC Smarts Server Manager. The goal of Smarts Server Manager is to further expand the sophistication of the Smarts solution by directly integrating servers as part of the scope of managed elements and domains which the Smarts tools cover, and in particular by implementing support for both physical and virtual components of server systems as well as an understanding of

EMC Smarts Server Manager expands the sophistication of the Smarts solution by directly integrating physical and virtual servers as part of its managed domain.

cluster architectures. This addition extends the degree of integrated management that the Smarts solution offers, and brings their well-established root-cause analytics capabilities to bear on a broader scope of the proactive operations puzzle – a challenge which has been growing greater and greater with the steady proliferation of virtual computing technologies across the landscape of enterprise IT.

Context

As virtualization technologies proliferate and become an increasingly standard element within server and computing infrastructures, new challenges arise when it comes to achieving adequate visibility for operations monitoring. In particular, the advent of virtual hosting via products such as VMware's ESX Server has created new virtual network ecosystems that can exist within a physical server system and/or among a set of servers that make up a cluster. The operations monitoring challenges this creates are many, including recognizing which VM belongs to which physical host (important for tracking down problem systems), what communications are happening VM-to-VM that never appear outside of the physical host (essential for troubleshooting application interactions and assuring security compliance), and understanding how to track, find, follow, and maintain visibility into VMs that change location, via such features as VMotion, VM HA (high availability) or VMware DRS (dynamic resource scheduling).

Many tools are being introduced into the operations monitoring market to try and deal with these challenges, but most are only giving a part of the picture – either the network topology up to the physical host (from the traditional networking tools side) or insights into which VMs are on each host, but without clear representation of the logical and topological relationships. The new approach that Smarts is taking brings these two viewpoints together and eliminates blind spots that otherwise interfere with monitoring precision and troubleshooting workflow.

In order to deliver this capability, the Smarts team started by implementing a solid set of basic system monitoring functionality, providing core server health assessments for processor use, memory use, files system use, and disk (via the SNMP standard Host Resources MIB or WMI) and special extensions for tracking voltage, fans, power supply,

and temperature via proprietary agents provided by server manufacturers including Dell, IBM, and Sun. These monitoring metrics provide an essential window into the health of the physical servers, which can often be the root cause behind problems that manifest themselves at the VM level.

This particular product will be made available as an add-on for existing Smarts platform users. The first iteration supports VMware only, but support for other hypervisors is on the near-term roadmap. It's not meant to be a standalone solution for managing virtual systems – rather it provides the glue to bring VMs into the realm of integrated operations monitoring and troubleshooting.

Key Ramifications

This announcement follows the introduction of EMC's Server Configuration Manager and Server Configuration Analytics in October 2008 and the EMC Smarts Server Performance Manager product (an add-on for Smarts IP Performance Manager), indicating that EMC is taking quite seriously the challenge of integrating management of servers with its historical strength in network management. Smarts Server Manager, in particular, now brings root-cause analysis to bear on servers, both physical and virtual, further paving EMC's entrée into integrated network and system management solutions.

One of the most important impacts of this announcement is the consolidated visibility into more of the managed environment that now becomes possible from within the EMC Smarts family of products. By adding modeling and mapping of servers and the details on how the servers are performing into the Smarts platform, operators can reduce the amount of "swivel chair" management they have to do, getting more of the management information they need in a single console. The new level of integrated functionality also lays the groundwork for future enhancements that require an integrated understanding of the network and server environment.

Perhaps of even greater immediate value is how this new product extends the Smarts root-cause analytics to cover physical servers, virtual servers, and clusters. As mentioned above, each physical server hosting virtual servers, as well as each cluster of servers, represents a miniature networked ecosystem, and once the entity relationships are understood, the Smarts codebook root-cause algorithms can be brought to bear to help sort through myriad events and alerts to determine the source, or root, of events. Once identified, this allows suppression of all of the non-core symptomatic events and alarms, letting operators focus on the source of the problem and accelerate restoration.

EMC is taking quite seriously
the challenge of integrating
management of servers with its
strength in network management.

EMA Perspective

Many management tools vendors are striving to address the challenges of managing virtual servers in an integrated fashion, as well as to close the gaps between network operations and data center/server management. This move puts EMC Smarts at the front in terms of delivering a combined capability for understanding the topological relationships of physical and virtual servers and clusters, and making intelligent root-cause analysis available to sift through the complexities of integrated monitoring.

This move puts EMC Smarts at the front for making intelligent root-cause analysis available to sift through the complexities of integrated monitoring.

The result will be better clarity for operators when it comes to understanding what is and what is not working, as well as accelerated troubleshooting of service-affecting incidents.

EMC needs to continue to push this “managing virtualization” envelope, and is uniquely positioned to do so, given the tight business relationship with VMware. The EMC Smarts solution could also benefit from the next level of integration across other EMC products, such as leveraging this new data to complement

Smarts Application Discovery Manager (tying application services to the VMs that are delivering them to the physical servers that host those VMs, etc.). Further, federating this new entity relationship data into EMC’s Infra CMDB system (via the Smarts connector) will bring benefits for optimizing virtualized environments in the context of service lifecycle management.

Overall, this new product represents an excellent extension for existing EMC Smarts customers. If you are using the Smarts family of solutions already and are facing the challenges of proactive management across network, servers, and VMs, then EMC Smarts Server Manager is worth a very close look.