Hitachi IT Operations Analyzer and DataCore SANsymphony-V
Consolidate System Oversight by Incorporating Virtualized Storage Infrastructures within the Broader View

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Executive Summary

Keeping IT systems up and well tuned requires constant attention, but it is too often complicated by separate monitoring tools required to watch applications, servers, networks and storage. This white paper discusses how system administrators can consolidate oversight of these components, particularly where DataCore SANsymphony-V storage hypervisor virtualizes the storage resources. Such visibility is made possible through the integration of SANsymphony-V with Hitachi IT Operations Analyzer.
Take Control of Co-dependent Components

As today’s data centers grow more complex, IT administrators are increasingly challenged to maintain high levels of availability and performance. But with numerous servers, distributed networks and expanding disk farms, it has become almost impossible to continually keep track of every part of the IT infrastructure. And when problems occur, administrators must scramble to contain the impact, finding it difficult to isolate the root causes among interconnected members. Instead, they piece together temporary workarounds, which inevitably lead to more trouble.

Now, administrators working in complex IT environments can use DataCore SANsymphony-V storage hypervisor and Hitachi IT Operations Analyzer to reduce the incidence of storage-related problems, while maximizing the availability, performance and utilization of their environments. At the same time, they gain a holistic view of the entire data center from a central console, monitoring applications, servers, networks and disks from a single pane of glass.

Virtualization Accentuates Need for Real Time Visibility and Proactive Alerts

Perhaps the most pressing drivers for a new, more comprehensive monitoring approach stems from the rapid transition to virtual servers and virtual desktops. These virtualization initiatives expose unexpected bottlenecks and single points of failure. SANsymphony-V helps to overcome many of these problems by insulating users and applications from the constant upheaval in the underlying storage devices and the physical plant where they reside. Technologies such as synchronous mirroring and asynchronous remote replication, complemented by online snapshots and continuous data protection (CDP), provide the redundancy needed for resilient IT operations. The DataCore software also performs adaptive caching and automated storage tiering to avoid I/O bottlenecks.

However crucial, virtualized storage assets represent only one part of the big picture. That’s where the Hitachi IT Operations Analyzer comes into play. It helps keep vigil on the many interrelated components that make up a dynamic, virtualized data center, maintaining an inventory of the many elements and collecting vital status and alerts from each of them. Their collective state is rolled up into a coordinated display from which administrators can assess the well-being of their systems and be quickly alerted of impending trouble.

By using SANsymphony-V and IT Operations Analyzer software together, administrators can monitor every device in the infrastructure on a single screen, identify issues and take steps to proactively resolve problems before they impact productivity.

Solution Benefits and Capabilities

Plug into the "Single Screen" View

Hitachi IT Operations Analyzer formulates its central monitoring view through a collection of plug-ins supplied by the vendors responsible for those products. SANsymphony-V, like other critical elements in the data center, plugs into IT Operations Analyzer to keep it fully aware of changes in
resources, status and alerts that may be meaningful to those in charge.

IT Operations Analyzer makes regular requests for inventory and state-of-resources updates from SANsymphony-V. As shown in Figure 1, IT Operations Analyzer populates the screen with the most current information, defining a hierarchy of resources.

Figure 1. IT Operations Analyzer displays inventory for SANsymphony-V

Reduce Downtime and Increase IT Productivity with Proactive Alerting and Root Cause Analysis

Monitoring the entire data center, including that portion under the control of SANsymphony-V from a single console clearly saves time and simplifies the management process. In addition, IT Operations Analyzer’s dashboard provides proactive alerting capabilities as well as root cause analysis, which both lead to faster issue resolution, increased performance and improved availability (see Figure 2).
An important benefit of IT Operations Analyzer is its proprietary root cause analysis (RCA) engine, which runs automatically in the background. RCA constantly looks for any events that could impact the IT infrastructure’s performance or availability. This includes such events as a LUN connectivity issue, a multichannel wireless problem or a performance bottleneck caused by insufficient capacity. The IT Operations Analyzer RCA engine enables administrators to quickly determine what initially caused the problem so they can fix it (see Figure 3).
Figure 3. Root Cause Analysis enables administrators to determine the initial cause of the problem.

Using built-in intelligence, RCA enables administrators to reduce the mean time to diagnose issues by up to 90%. RCA automatically performs bottleneck analysis and allows for the analysis of a large number of event alerts in just a few minutes, so administrators can address issues as soon as they arise. RCA also provides data that helps administrators determine the probability that specific devices are causing these issues.

Isolate Bottlenecks and Congestion

With the proactive alerting capabilities of IT Operations Analyzer, system administrators can establish performance thresholds on specific devices to prevent bottlenecks and other issues before they occur. For example, an administrator may set performance thresholds related to chassis metrics like voltage levels, or to server performance metrics such as CPU load. When a threshold is reached, administrators receive an automatic alert so they can take action to prevent issues, like bottlenecks, before they slow down application response or cause outages.

The overarching display also helps isolate congestion points. For example, when IT administrators notice reduced performance in a set of servers, they can view IT Operation Analyzer’s single-screen console and see that perhaps too many servers are competing for the same resource. Then, using SANsymphony-V, administrators can fix the problem by redistributing the workloads among lightly loaded resources, as shown in Figure 4.
By enabling administrators to quickly and easily identify resource issues and other concerns, IT Operations Analyzer makes it possible to distribute IT assets in ways that lead to higher, more responsive applications and happier users.

Storage Specialists Not Required

The integration of IT Operations Analyzer and SANsymphony-V is particularly valuable in today’s complex IT infrastructures. As they become more server- or application-centric, companies are no longer staffing dedicated storage specialists. However, achieving optimal server and application performance depends heavily on how well storage is provisioned and protected.

Through the integration of IT Operations Analyzer and SANsymphony-V administrators gain visibility into their storage assets. This allows them to quickly and intuitively identify issues, without a high level of storage expertise, and resolve problems before they impede productivity or blow up into unplanned outages. In most cases, administrators gain actionable information from the IT Operations Analyzer console that enables them to make informed decisions about boosting performance and availability.
Summary

Maintaining a highly available and responsive data center is an ongoing challenge, particularly in IT infrastructures that include physical and virtualized resources. Hitachi IT Operations Analyzer and DataCore SANsymphony-V combine to provide the holistic view required to monitor all the devices across your entire data center.

The combined solution simplifies data center management with a single-pane view of the entire infrastructure. This visibility into real and logical devices enables administrators to gain deeper insight into the SANsymphony-V storage virtualization. The intelligence can then be used to make adjustments that improve workload distribution and increase the overall availability and performance of the IT infrastructure. In addition, proactive alerts allow administrators to set early warning thresholds that prevent issues from negatively impacting users. When an issue does occur, a root cause analysis engine identifies the source of the problem so it can be rapidly resolved.

With features IT administrators need to optimize data center assets, including storage environments, IT Operations Analyzer and SANsymphony-V deliver a powerful solution to minimize downtime and keep your environment well tuned.

To learn more about how Hitachi IT Operations Analyzer and DataCore SANsymphony-V storage hypervisor can improve your data center’s availability and performance, visit www.itoperations.com/partners.