

Hewlett Packard Ties Server and Storage Management Together



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Related Practice Areas For This Brief:
 Storage and Information Management

Abstract:

Hewlett Packard has introduced a new storage management solution that integrates with its HP System Insight Manager to enable server and storage network management via a single platform. HP is paving the way toward integrated enterprise management providing flexible, open standards based management for the entire enterprise.

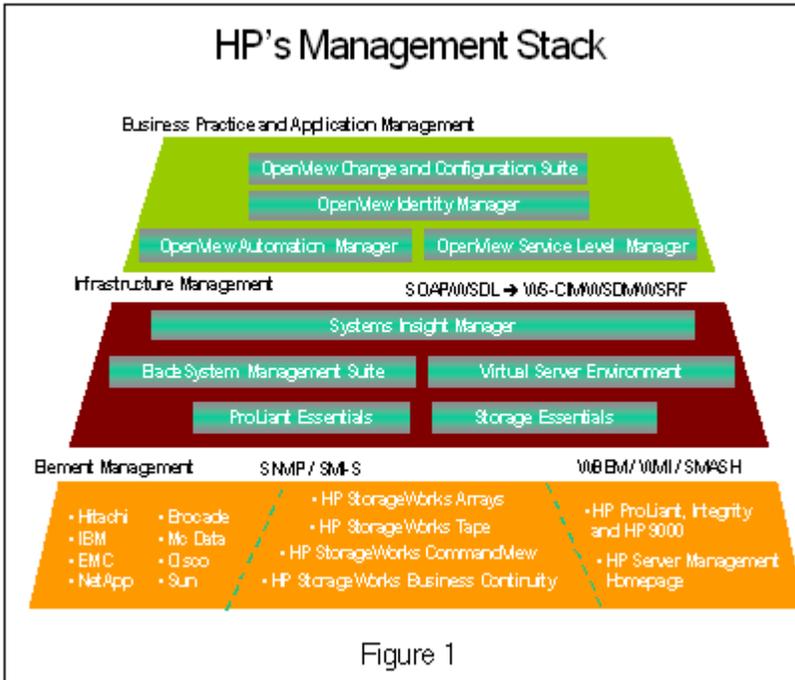
A New Approach to Enterprise Management

Hewlett Packard first established its leadership position in network management well over ten years ago with the OpenView Management platform. One of the key reasons for HP's success in this space was a dedication to standards. HP very wisely based its network management platform on the standards of the day, using SNMP for monitoring and management and providing an open GUI and API's which made it easy to port third party applications to the OpenView platform. Hundreds of third party element, systems and business process applications were developed to run with OpenView. The open standards approach made OpenView the most popular network management platform in the world.

However, as networking evolves so must network management. A complete enterprise management solution must manage beyond the IP network and take into account newer networking technologies including storage area networks. Today a significant amount of storage capacity

is networked on FC or IP networks and as such these networks become a critical part of the enterprise infrastructure. Up until now, management solutions for server and storage network infrastructures have been developed independently with rudimentary integration at best. As a result, enterprise organizations are expected to manage each environment with disparate solutions that do not coordinate discovery, reporting or event management. Problems that may have origins in one environment, yet affect the performance in the other can be difficult to find, and, worse yet, problem ownership may be difficult to resolve. What is needed is a unified server and storage network management solution that enables coordinated management to increase availability, reduce the time it takes to resolve network problems and ease the overall administrative burden.

Hewlett Packard is now moving enterprise organizations to the next generation of open standards and enterprise management with HP Systems Insight Manager and a family of solutions to manage servers and storage networks simultaneously from the same platform. HP Systems Insight Manager (HP SIM), ProLiant Essentials, and Storage Essentials, along with the BladeSystem Management Suite and the Virtual Server Environment together provide standards based infrastructure management which integrates into OpenView Business Process and Application Management solutions (Figure 1). Hewlett Packard is bringing a truly integrated server and storage management platform to the market. ESG believes this type of tight integration



between server and storage management is essential for the delivery of a utility infrastructure, which HP terms the Adaptive Enterprise.

The Benefits of Integrated Management

It is important to note that integrating server and storage network management does not require integrating the server and storage

management personnel or their responsibilities. Many organizations have different groups that manage these two entities, and they prefer to keep it that way, which is fine with HP. HP SIM gives users the ability to independently manage their own domains, and there is no requirement for a server admin to take on a storage management role or visa versa. Role based authorizations will regulate what administrative and management tasks each user can perform, so that a storage admin is not making unauthorized changes to the servers and visa versa. What is different with the HP SIM platform is that each user will have a level of visibility and correlation available to them which they could not get in the past, and this will make a significant difference in how they manage their respective environments.

A unified management platform for servers and storage networks will significantly improve an organization's ability to reduce time to problem resolution, more effectively troubleshoot and correlate events and reduce overall administrative costs. To better understand the true benefits of a unified server and storage management platform, it is important to understand the limitations and issues incurred when using two separate management platforms for each environment.

Take something as simple as discovery and topology mapping; both the server management solution and storage management solution will discover servers and provide topology maps, the server solution will focus on server and application connectivity, the storage solution will focus on storage connectivity and application dependence on particular LUNs. One would think with all of this coverage, if there is a problem with application performance, it should be very easy to determine if the problem is with storage connectivity, network connectivity or the application itself. Unfortunately this is not the case. A server management solution will discover a server based on attributes such as a MAC or IP address, whereas the storage management platform discovers the server based on its HBA's WWN (world wide name). Thus, there is no common identity for the server in each management solution, so even a simple task of determining if Server A that is exhibiting a problem on one management platform is in fact Server A on the other platform can be challenging. Trying to troubleshoot the problem when there is not even a common topology map can prove to be very time consuming and confusing.

This may seem like a simplistic example, but it illustrates the complexities of managing an enterprise environment with multiple management solutions. These issues can be compounded unless administrators can collaborate on more complex tasks such as server and storage provisioning. Actually a lack of coordination between the administrators performing these tasks could potentially lead to application performance bottlenecks or brownouts. Consider a scenario where an application is suffering performance problems and the server administrator decides to provision additional CPU capacity to address the issue. However, it turns out the actual problem was on the storage side caused by a lack of sufficient capacity. Adding additional CPU will not address the problem, it may in fact compound the issue by generating more I/O's than the attached array can handle. By being able to first visualize across the entire enterprise and coordinate events and troubleshooting, the real problem could be easily detected and the storage administrator could address the issue by adding capacity.

There are a number of other benefits to having a common management platform, including enhanced reporting. Presently, when a CIO asks for reports on utilization rates or adherence to SLA's, chances are multiple reports with no commonality are delivered; one shows storage utilization rates and application uptime from a storage/SAN availability standpoint, the others will illustrate server usage patterns and perhaps application performance from an I/O perspective. If SLA's are not being met, it will be difficult to pinpoint the true reason without correlating reports and event correlation that illustrate that a lack of sufficient capacity was the reason for the application brownout.

The aspect of a common platform combined with an integrated policy engine across the server and storage management solutions will enable HP to better deliver on their vision of the Adaptive Enterprise. An illustration of this would be the ability to automate blade server provisioning with storage provisioning from a single user interface. In order to seamlessly automate this task, there needs to be seamless coordination and integration across the server and management platforms. For example, say a set of process/policy is set up that states when an application reaches a particular performance threshold, and the storage capacity has reached a certain usage threshold, then a process should be invoked to provision additional CPU and storage capacity to the application. In order to accomplish this, both management platforms need to have a common discovery engine such that Server A is consistent across both management solutions. From there, the policy engine which invokes the process of provisioning an additional blade server would also need to recognize that the task of provisioning the server is complete, and then automatically invoke policies that will find available capacity that meets a certain QoS criteria, and assign the additional capacity (including LUN and volume management). Finally, a single, correlated report that illustrates what changes took place and perhaps includes the resulting performance numbers should be delivered. This type of scenario is the basis of the Adaptive Enterprise, and it is not possible to deliver on this without a highly integrated server and storage management solution. This is the promise of the new platform, and HP should be able to deliver this capability in the near future.

Introducing Storage Essentials

HP Systems Insight Manager (HP SIM) is the foundation platform for server and storage management. HP SIM v4.2 is a mature solution that provides fault monitoring, inventory reporting, and configuration management for ProLiant, Integrity, and HP 9000 systems via a web-based GUI or command line. HP's server plug-in modules integrate with HP SIM, providing performance management, automated server and blade provisioning, workload management, virtual machine

Unified Server and Storage Management

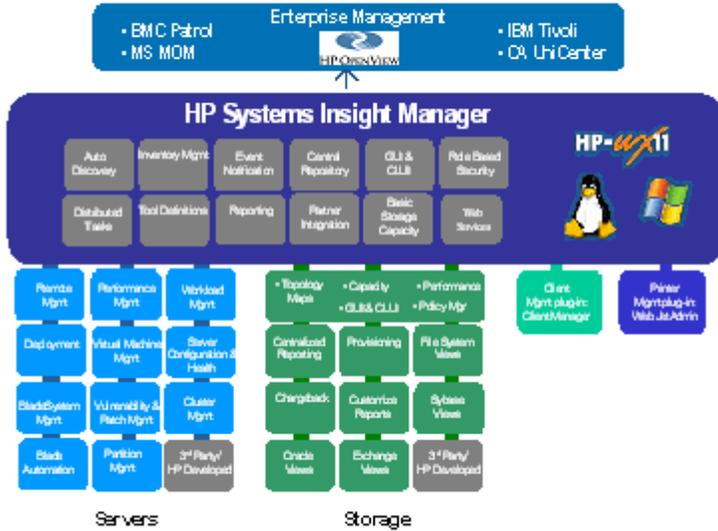


Figure 2

management and a number of other server management features. While HP SIM together with Server Essentials can manage storage attached directly to the servers, HP offered a separate solution called OV SAM (OpenView Storage Area Manager) for managing heterogeneous storage networks.

While OV SAM could effectively manage heterogeneous storage networks, the solution was developed before the advent of recent management standards including CIM, SMI-S, J2EE and JBOS. Thus, although HP had a significant installed base of OV SAM customers, it realized that a management solution based on today's standards was required to bring its customers into the future of storage network management. That future required integration with its server management solution in order to deliver on the promise of the Adaptive Enterprise.

Rather than reinvent the wheel and spend valuable development dollars creating a standards based storage network management platform, HP chose to license and co-develop software with AppIQ. AppIQ is arguably the leading open standards based storage network management OEM vendor, with partnerships with HP, Sun, HDS, SGI and Engenio. The company built its StorageAuthority Suite on the latest open standards including CIM, SMI-S and J2EE. The AppIQ solution is web based, so that it can easily be launched and managed via HP SIM (Figure 2). Initially, HP will offer the StorageAuthority Suite as HP Storage Essentials

powered by AppIQ, however the intent is to go far beyond rebranding the solution. HP's relationship with AppIQ involves co-developing software in order to tightly integrate the AppIQ suite into HP SIM. Integration will result in HP SIM utilizing a common discovery engine, reporting engine, data repository, policy engine and common role based security to manage heterogeneous storage networks and servers from a single GUI. This level of integration should provide a competitive differentiation vs. AppIQ's other partners. HP chose to partner with AppIQ not only because of the dedication to standards and ease of integration, but also due to the strength of the AppIQ solution and its focus on application centric management. ESG has always professed that an effective storage management solution should have a strong emphasis on managing the storage according to the needs of the applications; which is exactly what HP Storage Essentials (powered by AppIQ) delivers. HP Storage Essentials automatically discovers what applications are on which hosts attached to the storage network, visualizing the entire data path and drilling down into the applications to get detailed information about how storage resources are being utilized. An administrator could view an Oracle or Sybase table space, and be able to see the exact path (or multiple paths) that the data in that table takes all the way to the array and the assigned volume(s). By being able to manage an application path, administrators can understand the implications of failures along the path, and understand why there may be specific performance issues with a particular application. When this capability is coordinated via HP SIM with the performance analysis and monitoring in HP Server Essentials performance problems can easily be isolated and remedied.

HP Storage Essentials also provides one of the most intuitive yet sophisticated storage provisioning solutions in the market. The Provisioning Manager module quickly discovers available capacity and provides an easy to navigate interface that enables quick storage provisioning.

Administrators can choose to walk through the process manually or automate the entire process, depending on their level of comfort with automation. Again, when this feature is further integrated into HP SIM, it will be easy to tie server and storage provisioning together so when new server capacity is added additional storage capacity can automatically be assigned.

HP Storage Essentials will be available March 28th, 2005. At that time, the solution will be lightly integrated into HP SIM via the web, such that HP Storage Essentials can be launched and viewed via the HP SIM tools menu. Storage Essential events will be sent up to HP SIM (which in turn could be forwarded to OpenView). At that time, discovery, reporting, file analysis, Oracle, Sybase and Exchange support, chargeback reporting and automated provisioning will be provided as they are today with the AppIQ StorageAuthority Suite (Figure 3). HP is targeting 2H05 for further integration into the next release of HP SIM. HP SIM v5.0 will offer shared storage and server features including auto discovery, inventory management, event notification, correlated reporting, a central data repository, common GUI/CLUI, basic storage capacity reporting, and role based security. HP SIM is bundled at no additional cost with every HP server, Blade System and storage system. Thus, users only need to purchase the server and storage management modules required for their environments; the common management platform is embedded with every HP system.

In order to address the needs of current OV SAM customers,

HP Storage Essentials

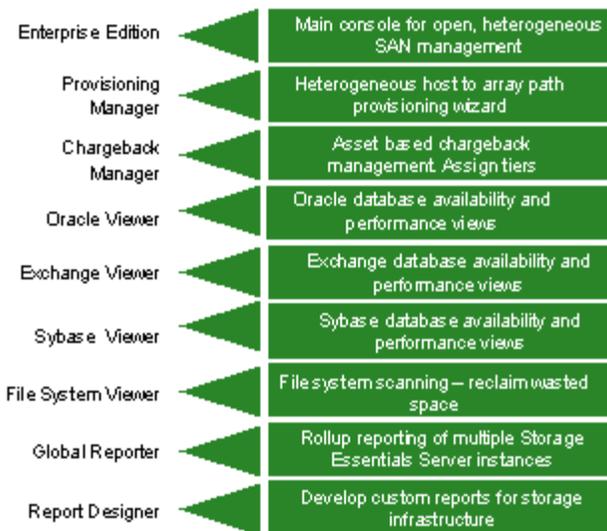


Figure 3

HP will continue to support that set of solutions for the next 3 years, however there will be no further development on OV SAM. HP intends to migrate users over to Storage Essentials and in order to appease all levels of users, HP will soon offer a scaled down, entry priced version of the Enterprise Edition called Storage Essentials Standard Edition. Standard Edition offers the same basic features as the Enterprise Edition but embedded performance and capacity management are not included, although users can upgrade. HP will also continue to release new features and modules in concert with releases from ApplQ.

The Bottom Line

Finally Hewlett Packard is showing the fruits of merging the server and storage groups together as it seemed that was a "group" in name only with seemingly no coordination between the server and storage teams. We at ESG were certainly questioning where HP was heading with its storage management solutions; here was the leader in network management, why did the company not own the storage management space? While 3000 OV SAM customers is actually an enviable number by any standards (and quite a bit more than most of the competition), HP still seemed to be struggling to deliver a technologically superior solution and was not articulating a solid long term strategy. Obviously, the developers and marketing team had some tough choices to make. Did they keep developing a product that evolved before any storage management standards were available that was delivering very little ROI for the company, or scrap the existing solutions in order to move to the next generation of open standards and provide a platform which takes customers well into the future? From ESG's perspective, they made the right choice to move to integrated solutions based on next generation management standards.

The future of enterprise management demands a deeper level of integration that HP intends to provide. It is not feasible to think that a systems company could deliver on strategies such as HP's Adaptive Enterprise without coordination between system, storage, network, application and business process management. Certainly, we expect IBM, Sun, VERITAS, CA and Microsoft and even a few emerging vendors to deliver integrated enterprise management solutions, although not all will do so utilizing a common platform similar to HP SIM. HP understands how to leverage open standards in management as is evident from the success of OpenView in the past. By integrating open standards based server and storage management solutions and tying those together with the existing OpenView platforms, HP is again on the road to being one of the leaders in standards based management.

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