Storage demand exponentially grew over the past years and lead to runaway storage costs. The average storage budget reached $3 million in 2010 and is expected to rise even further. These increasing storage costs, along with performance bottlenecks, downtimes, and business continuity, are storage administrators’ top concerns since they’re asked to ensure a high level of service at a reasonable cost. Fortunately, all is not doom and gloom: Sentry Software has developed hardware monitoring, storage monitoring and storage automation solutions to take a load off the SAN Administrators’ mind.
Sentry Software develops two Hitachi-dedicated solutions: Hitachi Disk Arrays KM for PATROL and BMC Atrium Orchestrator Application Adapter for Hitachi Storage. Hitachi Disk Arrays KM for PATROL monitors all the performance metrics of the Hitachi storage systems within BMC PATROL or BMC True-Sight Operations Management. It can work in conjunction with Hardware Sentry KM for PATROL to monitor all the hardware aspects of the disk arrays.

BMC Atrium Orchestrator Application Adapter for Hitachi Storage enables IT operators and administrators to automate manual, repetitive, and time-consuming tasks required to manage Hitachi storage devices. It is designed to fully integrate with BMC Atrium Orchestrator.

Both solutions support Hitachi Adaptable Modular Storage 2000 family (AMS), Hitachi Universal Storage Platform (USP, USP-V/USP-VM), Hitachi Unified Storage (HUS), and Hitachi Virtual Storage Platform (VSP).

How you can use these solutions to reduce IT costs, increase uptime and performance, and enable cloud computing is the question that this white paper will try to answer.
REDUCING IT COSTS

Administrators are constantly asked to reduce IT costs but usually struggle to find how they can achieve this objective. They cannot stop purchasing storage systems or additional space as these investments are essential to maintain a high level of activity. Interesting options for cutting IT costs will be optimizing the storage and power consumption in the datacenter, enabling thin-provisioning, and automating routine tasks.

OPTIMIZING STORAGE CONSUMPTION

Over time, as Hitachi servers connected to a SAN get decommissioned, administrators find an increasing number of unused LUNs that still occupy disk space in the disk array. Identifying these LUNs to reclaim unused space can be challenging and may require powerful tools.

HOW TO DO IT WITH HITACHI DISK ARRAYS KM FOR PATROL?

Administrators can run the LUNs Mapping Table report available in Hitachi Disk Arrays KM for PATROL to easily and quickly identify unused LUNs. This report lists all the mapped and unmapped LUNs present in the Hitachi environment.

Even though this feature is a good start to reclaim unused space, it will unfortunately not be sufficient to optimize storage consumption. Indeed, when a Hitachi server is decommissioned or reconfigured, its associated LUNs can stay mapped preventing storage administrators from accurately identifying LUNs for which the activity is null. To detect inactive LUNs, administrators can then check the value of the TimeSinceLastActivity parameter, which returns the number of days since any activity occurred.

OPTIMIZING POWER CONSUMPTION IN THE DATACENTER

Server farms are generally extended on-request but never scale back. Statistics are eloquent: 10-30% servers in datacenters are using electricity but no longer supply computing services. Adapting the size of a server farm to the workload helps reduce its footprint and the overall power consumption of a platform.

THE SENTRY SOFTWARE’S SOLUTION

Sentry Software looked into this issue and developed a prototype to dynamically adapt the size of a server farm to the workload. To carry on this experiment, Sentry Software monitored Hitachi BladeSymphony2000 servers with BMC TrueSight Operations Management 8.6 and used specific adapters developed for BMC Atrium Orchestrator to shut down idle systems and only turn them on when required. Results are quite impressive: the average power consumption has been reduced by around 10% for small farms and regular workload and by 75% for large farms and spike workload.
ENABLING THIN-PROVISIONING

The thin-provisioning functionalities provided by Hitachi storage systems is often a solution considered by administrators to reduce IT costs since it enables just-in-time storage purchases. But this method is not risk-free! When a pool reaches its full capacity, the Hitachi storage system can no longer satisfy new data write requests, which leads to unrecoverable data loss and corruption. To prevent these critical situations, administrators must know the precise size of the disk arrays, the total amount of free disk space, and the subscribed and consumed capacity.

HOW TO DO IT WITH HITACHI DISK ARRAY KM FOR PATROL?

Hitachi Disk Arrays KM for PATROL not only informs administrators about the actual physical capacity but also helps detect situations where an over-subscribed pool is reaching its full capacity. An alert is in fact triggered when the SubscribedCapacityPercentage parameter for a thin pool reaches 75%.

AUTOMATING ROUTINE TASKS

In large organizations relying on large systems such as Hitachi Storage Systems, IT gets more than 100,000 storage-related requests every year. With those demands requiring 30 to 45 minutes of work to accommodate each one, SAN administrators are rapidly weighed down with work. And because time is money, administrators are constantly asked to answer requests as quickly as possible to reduce costs. Shortening IT workflows from weeks to hour is the story they have always dreamt about.

HOW TO DO IT WITH BMC ATRIUM ORCHESTRATOR APPLICATION ADAPTER FOR HITACHI STORAGE?

BMC Atrium Orchestrator Application Adapter for Hitachi Storage provides any information regarding disk arrays, volumes, and LUNs mapping. It also integrates storage allocation into provisioning workflows, virtualizes provisioning processes across the Hitachi environment, and allocates storage based on service levels in a private cloud. By adopting this automation solution to self-operate the storage allocation process, administrators can free up time to concentrate on more important issues.

INCREASING UPTIME AND PERFORMANCE

Because poor performance costs enterprises millions per year in lost revenues, administrators are asked to closely monitor their Hitachi environment and detect bottlenecks at an earlier stage.

HOW TO DO IT WITH HITACHI DISK ARRAYS KM FOR PATROL?

With Hitachi Disk Arrays KM for PATROL, administrators can compare the transfer byte rate of each controller and display them as a graph. If unbalanced workload distribution is noticed, administrators can run the LUNs Owning Controller Table report to identify the LUNs that are not owned by their normal controller and take the appropriate actions.

Additionally, administrators can rely on hourly and daily reports to obtain accurate information about the activity of each array, controller, fiber port, storage pool or volume. For these reports, data is collected regularly and frequently so that administrators can identify trends and more accurately predict future capacity needs.
The amount of bandwidth currently in use by the FC Ports can also be obtained through the BandwidthUtilization parameter. Expressed in percentage, this parameter helps administrators adopt the right bandwidth management strategy. If high bandwidth utilization is observed, administrators must wonder if their topology design and bandwidth allocation are correct, how they can better control the flow and avoid congestion, and possibly consider limiting bandwidth usage on a per-user basis or improving traffic prioritization.

**ENABLING CLOUD COMPUTING**

Cloud computing relies on sharing computing, storage, and network resources that can be massively and automatically managed through cloud computing solutions. These solutions are generally powerful for managing the computing and network resources but not for managing storage resources. Hitachi, for example, provides storage solutions to help administrators implement cloud solutions while Sentry Software provides adapters for BMC Atrium Orchestrator to manage storage resources.

**HOW TO DO IT WITH BMC ATRIUM ORCHESTRATOR APPLICATION ADAPTER FOR HITACHI STORAGE?**

Natively integrated into the storage provisioning workflows of BMC and BMC Cloud Lifecycle Management, BMC Atrium Orchestrator Application Adapter for Hitachi Storage can automatically create, assign, and delete LUNs for new and existing servers. The solution comes with server provisioning and decommissioning use cases to help administrators fully benefit from the available features.

**CONCLUSION**

Hitachi expertise in data storage and server virtualization cannot be denied since the world’s leading enterprises have indeed adopted its solutions. In an era of tight spending, some administrators are however asked to drop this “Rolls Royce” solution at the expense of cheaper-to-buy one. But other options exist to reduce IT costs and increase uptime and performance.

The Sentry Software’s monitoring and automation solutions help administrators fully benefit from the Hitachi Storage Systems by ensuring they’re available at all times. The close partnership established between Hitachi and Sentry Software guarantees that all new brands will be quickly supported.

Additionally, since all the Sentry Software’s solutions easily integrate into the BMC framework, deployment is easy and administrators can benefit from the BMC-proven experience in monitoring and automation.
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ABOUT SENTRY SOFTWARE™
Sentry Software, a BMC MarketZone Direct and Technology Alliance Partner, provides monitoring solutions that expand and enhance the capabilities of BMC TrueSight Operations Management, thus enabling up to 100-percent coverage of any infrastructure. Sentry Software specializes in single solutions for multi-platform monitoring of hardware, storage, custom applications, or any IT infrastructure component. Its products are deployed in diverse industry sectors around the globe.

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