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Navigator™

The New Hitachi AMS1000 –
Should It Be On Your Shortlist?

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Management Summary

Procuring storage is like purchasing a car. There are a plethora of brands and models from which to choose, and sorting out all of their features and benefits to pick the "right" one can be a daunting task. A smart approach is to start with a good, specific understanding of your requirements. Why do you want to make the purchase and what issues do you hope to address? With the answer in hand, you may quickly eliminate most of the field from consideration. For instance, if you need a vehicle with superb gas mileage, you can rule out trucks, vans, SUVs, sports cars, and large sedans. Forget the gas-guzzlers! Then you can spend time scrutinizing the merits of a smaller, more manageable set of options.

Hitachi recently announced the new *TagmaStore Adaptable Modular Storage model 1000 (AMS1000)*. It is the largest of Hitachi's midrange storage arrays in terms of capacity, with capabilities that border on the high end. In the spirit of helping you winnow the field in your own procurement process, we describe here the broad storage requirements for which the AMS1000 is a good fit. If your own requirements are at least a partial match, then place it on your shortlist for further consideration.

The major reasons to deploy the AMS1000 include:

- **Scalability to 200+ TB with full performance**.
- **Tiered storage in one platform** – Supports Fibre Channel (FC) and SATA drives, as well as non-disruptive data migration.
- **SAN and NAS in one platform** – Supports FC, iSCSI, and NAS.
- **Consolidating multiple applications in one platform** – Offers enough flexibility and horsepower to serve multiple enterprise applications.
- **Second-tier storage in a Hitachi virtualized environment** – May be virtualized behind Hitachi's high-end *TagmaStore Universal Storage Platform (USP)* and *Network Storage Controller (NSC)*.
- **Remote replication for disaster recovery** – Supports synchronous mirroring today, and asynchronous mirroring will be available in June 2006.
- **Upgrade for AMS200 or 500** – A controller upgrade can turn one of Hitachi's other AMS midrange arrays into the model AMS1000.

As you can see, the AMS1000 is designed for storage consolidation on a larger scale. Read on for the details.

Reasons to Deploy the AMS1000

The *AMS1000* is the most recent storage array from Hitachi Data Systems. It is the successor to the *Thunder 9585V*. It is a mid-range, dual-controller solution with a relatively large capacity, performance, and feature set. In the spirit of narrowing the field, and to help you decide if the AMS1000 should be on your shortlist, we profile below the major reasons one might consider it. These are storage requirements for which this storage array would be a good fit.

Scalability to 200+ TB with Full Performance

The AMS1000 is a large storage system, especially for one classified in the midrange. It scales to 208 TB (using SATA drives) or 129 TB (using FC drives) of raw capacity. This is more than enough capacity for many enterprises, even in light of today's data deluge. It offers 13 GB/s of sequential cached reads and 253k IOPS of random cached reads. This aggregate performance allows it to provide access to a high level of capacity at reasonable speeds. It scales to 16 GB of cache. All of this implies a balance of performance and capacity that is capable of serving enterprise applications, such as ERP, CRM, and messaging.

Tiered Storage in One Platform

The AMS1000 offers tiered storage in one platform. This is a form of storage consolidation, since it is simpler to deploy and manage than multiple arrays. The AMS1000 supports both FC and SATA drives in the same array with different sizes and speeds. In fact, it can create eight tiers just based on combinations of drive type, size, and rotational velocity.[1] The AMS1000 also migrates data non-disruptively among tiers (manually initiated), making it easier to take advantage of them.

Tiered storage has emerged as a popular way to lower costs by storing data at different service levels based on its value and need for accessibility. If some data does not demand fast access, why not store it in a lower-cost tier? It makes sense. Such low-cost tiers, usually based on SATA drives, also facilitate

backup to disk and data archiving. The AMS1000 supports WORM (write-once, read-many) for compliant archiving. It also supports RAID 6, which has two parity drives. This is important when using SATA because of the relatively high probability of an error during RAID reconstruction, which could lead to the loss of a second drive and cause a large data loss.

SAN and NAS in One Platform

The AMS1000 consolidates SAN and NAS into one platform by supporting FC, iSCSI, and NAS. It can be configured to support any two of the three simultaneously. FC SAN, IP SAN, and NAS are complementary technologies, and many enterprises deploy more than one to meet their various networked storage requirements.[2] The AMS1000 can simplify this kind of multi-protocol environment. Management is centralized; the storage pool is shared; and costs are lower. It is like getting two birds with one stone. Host connectivity options include 8 FC at 4 Gb/s (auto-sensing), 4 iSCSI Ethernet at 1 Gb/s, or a mix of FC and Ethernet.

Consolidating Multiple Applications in One Platform

While the AMS1000 is considered mid-range, it has enough flexibility and horsepower to serve multiple enterprise applications. As mentioned previously, it scales to a high level of capacity and performance. In addition, perhaps more importantly, this "horsepower" can be readily partitioned. It supports up to 4,096 LUNs and can connect to 1,024 host servers. Its *Host Storage Domains* feature creates virtual arrays within the physical platform, and *Virtual Storage Ports* allow multiple servers running virtually any open systems operating system to connect securely through a single port. It also supports *Local Cache Partitioning* with up to 32 flexible partitions that can match the cache segment size to an application's block size, thereby optimizing the use of cache and enhancing application performance.

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[1] FC drive support: 73 GB and 146 GB at 10k and 15k RPM, 300 GB at 10k RPM. SATA drive support: 250 GB, 400 GB, and 500 GB (in June) at 7200 RPM.

[2] For more details, see **The Clipper Group Explorer** dated November 18, 2005, entitled *Networked Storage – Evaluation Criteria*, which is available at http://www.clipper.com/research/TCG2005074.pdf.

Second-tier Storage in a Hitachi Virtualized Environment

As you may know, Hitachi's high-end *TagmaStore Universal Storage Platform* (*USP*) and *Network Storage Controller* (*NSC*) can virtualize heterogeneous arrays to create a larger storage pool. If you need second-tier storage for such a virtualized environment, Hitachi's own AMS1000 is a good choice because of its scalability, SATA and RAID 6 support, and ability to be centrally managed, along with all of Hitachi's arrays, by *HiCommand*.

Remote Replication for Disaster Recovery

The AMS1000 supports synchronous mirroring today (viable over metro distances), and it will support asynchronous replication in the near future (June 2006). Called *TrueCopy Extended Distance*, it creates a consistent data mirror at a remote site (virtually unlimited distance) and periodically updates it by sending differentials. Therefore, the AMS1000 is an option, if you need a midrange storage that supports remote mirroring for disaster recovery.

Upgrade for AMS200 or 500

If you already own a Hitachi AMS200 or 500 and need more horsepower, a controller upgrade can turn it into a model 1000.

Conclusion

If you can relate to one or more of these storage requirements, consider the Hitachi AMS1000 in more detail. While this list is not exhaustive, it should give you a sense of where the Hitachi AMS1000 fits in overall market. **It is a solid array for storage consolidation, especially if the scale of your requirements are large and broad, though something less than huge** (for that, consider Hitachi's high-end TagmaStore NSC or USP). **It is also suitable second-tier storage where robustness and speed still count.** Hitachi has a reputation for technical prowess and generous feature sets. This new midrange array follows in that tradition.

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