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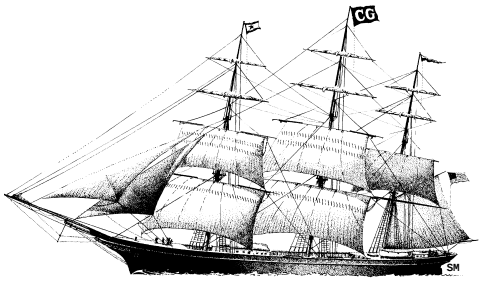

Navigating Information Technology Horizons℠

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ONStor's *SF4400* — The Purpose-Built NAS Head

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Management Summary

Once, technology companies thought they were in the business of building physical assets that, if designed right, would not fail. Designing for perfection was an inherently disappointing process, and redundancy came to the rescue. And as long as these assets had a fixed and persistent function, managing the failover between redundant element (should one fail) while still trying to get use out of both assets (as long as one of them was not failing) spawned management complexity. This was not due to a flaw in the nature of any device, but because we were still pre-architecting perfection.

Now, technology has discovered a more successful approach to perfection by building services instead of assets. These exist for as long as they are used. If an instance fails, another takes its place. What the physical infrastructure supporting this service is doing depends on the task at hand, much like the multi-tasking nature of many human endeavors.

This stateless approach gives the following benefits:

- Operational resilience, where failure is not dire and business continuance can be assured.
- With a general-purpose infrastructure, more can be done with less, since idle assets can be repurposed.
- With an optimized infrastructure, more can be done with what you have. Workloads are doled out more efficiently through load-balancing algorithms than by rigid assignations and pre-set failover schemes.

One prosaic but essential enterprise workload is file serving, which underlies the workflows by which work gets done. The human touch-points of a workflow may be fewer, but they are often more time-sensitive than ever. Many now come as unpredictably-timed self-service transactions through multiple instances of Web servers. Network Attached Storage (NAS) has served as a way to segregate and optimize access to files, but now many enterprises do not want to segregate their files on separate storage devices, and, choose instead to use NAS *gateways* with their Storage Area Networks (SANs). They want this function to scale huge.

Among the NAS vendors, a company named *ONStor* has taken the concept of a stateless appliance and applied it to the process of file serving in SAN environments and to providing the file services necessary to assure highly scalable access to and protection of SAN-based data. Their ONStor SF4400 Series SAN Filer is a purpose-built appliance, not a standard server. It does not do SAN management or RAID – just LAN-free file protection and file serving – and with no special agents on the servers requesting the files. It is a clean, lightweight approach. For more details, read on.

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The Appliance

All appliances are not alike. All give focused, targeted functionality. But some also are another intermediary between the user and the data, and another possible point of failure. Some function by deploying agents on servers and arrays that can sap performance of these assets.

The ONStor *SF4400 Series SAN Filer* places no agents on servers. The appliance architecture is 64-bit symmetric multi-processing, which makes it inherently resilient, and also capable of doing more than one thing at once. It can serve files and protect the data without impairing either process.

It does this by means of multiple chips. There is a BroadCom *SiByte* processor that handles data movement. There is a MIPS chip that handles the arbitration aspects of file serving. There are even separate file-level processors and block-level processors for mirroring and snapshots and block-level for back-up. They all lie on a 12 GB/s backplane that speeds the coordination between them.

This is a stateless appliance. Each processor only *owns* a process while that process is active. Because of this, load balancing can be used to implement redundancy, and to meet multiple levels of demand and the need for multiple levels of throughput. This approach prunes the need for complex failover scenarios down to a map of the file system and a topology of the nodes, which are kept in flash memory on the NAS gateways.

In a load-balancing-based redundancy, journaling becomes very important. The logs are kept on the arrays on the SAN[1] on a per file system basis. As the principal part of the EverON software platform, the STOR-FS File System aggregates data and device state information that it stores similarly on the SAN. STOR-FS functions as a repository rather than a global name space. It can work with any storage and

ONStor SF4400 SAN Filer Series

Four models, which you choose based on the IOPS you need and the HA configuration you desire.

The low-end models feature 16,ooo IOPS in the base configuration and 32,000 IOPS in the active-active, high configuration model. (performance will obviously degrade if there is a unit failure).

The high-end modes offer 35,000 IOPS and a whopping 70,000 IOPS in the active-active high availability model.

This allows you to select exactly what you need. Initially, up to 4 filers can be pooled. This number is expected to grow.

Starting price is $85,000.

Scope

- NFS and native CIFS
- File size: 100 TB
- File System: 100 TB
- File pool: 400 file systems

EverON Software

- STOR-FS File System

ONStor Applications

- *ONStor Data Mirror*
- *ONStor High Availability*
- *ONStor File Manager*
- *ONStor Load Balancing*

File Protection services

- Mirroring
- Index-based Snap Shot (up to 48)
- Automated volume management
- Back-up to tape with third party products

[1] where they can be replicated.

give NAS file access to SAN storage in a clean, lightweight and scalable manner.

Go to Market Strategy

The ONStor appliance can work with a variety of third-party storage. Already it is qualified with LSI, IBM and Hitachi Data Systems SAN-based storage (and, hence, with the large arrays offered by HP and Sun). It can work with switches from McData and Brocade, and is working on Cisco certification. ONStor is certified for backup with Veritas and with IBM Tivoli Storage Manager.

Significantly, at product launch, ONStor announced partnerships with a number of resellers including AC Technology, Champion Solutions Group, Maxium Systems, Evolving Solutions, Key Information Solutions, and Micro Strategies. The alacrity with which these resellers climbed on board indicates the need for enterprise-scale NAS, but also indicates the allure of a well-optimized appliance that can be used creatively with the resellers value-add to create scalable solutions. The worth of an appliance is multiplied by the value that can be added to it. And in this, too, not all appliances are alike. Immediate popularity among distributors in the large enterprise market is a very good sign for the future of the SAN Filer 4400 Series.

Conclusion

It is important to optimize processes, like file serving, which often are a hidden backbone of your enterprise. ONStor give you a clean, lightweight, stateless approach to file access - one that adds capability to a SAN without adding complexity. Think about whether it is right for you.

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