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For Small-Scale Storage Consolidation, EMC Serves Up the CLARiiON AX100

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Management Summary

In the trickle-down theory of enterprise storage, technology breakthroughs start at the high end, with mostly larger enterprises as the beneficiaries. As the technology becomes more mature, simplified, and cost-reduced, it becomes available to smaller enterprises and eventually lands on the doorstep of small- and medium-sized businesses (SMBs). This arrival is none too soon, because SMBs face the same information storage challenges as larger enterprises. Fast data growth, increasingly stringent service level requirements, and rising storage costs and complexities are ubiquitous.

With its mid-tier CLARiiON line of networked storage and greater emphasis on the channel, EMC has been increasingly reaching out to SMBs. And now, it has landed squarely in the middle of this space with **the new *CLARiiON AX100* – a consolidated, networked storage solution sized appropriately for SMBs and the SMB-like requirements of departments and remote offices of larger enterprises.** Its unique features include:

- **Storage consolidation** – The AX100 scales to 3 TB of raw capacity and up to 8 host servers with dual connections through a Fibre Channel SAN.

- **Low cost** –prices start under $6,000. It takes advantage of low-cost SATA drives and existing CLARiiON technology. The price includes hardware, embedded functionality, and a 2-year warranty.

- **Easy installation and operation** – The AX100 is designed for quick installation, simple management through a GUI, and user serviceability.

- **High availability** – With redundant hardware and connectivity, non-disruptive capacity upgrades and component replacement, and snapshot copies for online backup, the AX100 helps deliver high application availability.

- **Good performance** – Sufficient for multiple SMB-scale applications.

- **NAS capability** – It offers simultaneous SAN and NAS capability when used with the EMC *NetWin 110* or *200* NAS gateway.

The CLARiiON AX100 is an inexpensive solution for storage consolidation. By centralizing storage, simplifying management, and improving utilization, it can help SMBs get a handle on the costs and complexities of information storage. Read on for details.

SMB vs. Large Enterprise

When it comes to information storage, many consider SMBs (small- and medium-sized businesses) and large enterprises to be different "animals" with different requirements. This is true to a degree, but before relegating them to entirely separate categories, consider what they have in common:

- **Fast data growth** – Everyone is experiencing the fast, continuous data growth of the Information Age, whether large enterprises, SMBs, and even individuals. (Think of the size of your PC disk drive today, compared to 5 or 10 years ago.)

- **Multiple applications and servers** – SMBs are likely to have file and print servers, Web servers, databases, and e-mail applications.

- **Data protection** – If you lose your data, you will probably lose your business. Whether big or small, to function an enterprise needs billing records, customer information, marketing, and sales material, e-mail, R&D files, and so forth.. Protecting data and keeping it accessible via replication, backup, and restore are ubiquitous challenges.

- **Rising storage costs and complexities** – Data and application growth drive storage purchases, which often results in many islands of storage that are dedicated to individual servers and applications. It is costly to purchase, on a regular basis, additional capacity, and even more so to manage and back up the storage. Storage is a moving target, and enterprises need leverage to handle it.

The storage differences between SMBs and large enterprises are primarily a matter of scale:

- **Capacity – As a loose rule of thumb, capacity requirements are proportional to the size of the enterprise.** SMBs may have 100s of GBs to TBs of data, and large enterprises may have 10s to 100s of TBs.

- **Performance and connectivity – An SMB typically has fewer applications**

serving fewer users, so the storage performance and connectivity requirements are not as high.

- **IT budget – The budget for IT expenditures is generally a percentage of revenue**, so large enterprises have larger budgets and SMBs are naturally more limited.

- **IT administrators – In keeping with the size of the IT budget, an SMB may have few or only one IT administrator** for applications, servers, networks, and storage. Large enterprises have entire IT departments and staff with specialized storage expertise.

The point is that both SMBs and large enterprises need cost-effective, consolidated, functional storage to handle increasing information requirements, but SMBs need solutions that are sized, simplified, and priced appropriately for their requirements.[1]

The CLARiiON AX100

From its storage beachhead in large enterprise data centers, EMC has been expanding down-market since acquiring the *CLARiiON* product line in 1999. The most recent and farthest-reaching extension is the EMC *CLARiiON AX100*, a networked storage array tailor-made to suit SMB requirements. It boasts several patents pending and is designed for storage consolidation on a limited scale, lowest cost, ease of use, and high availability. (*See sidebar on next page for technical specifications*.) There are several salient capabilities.

Storage Consolidation

Scalability to three TB of raw capacity may not seem huge next to an EMC *Symmetrix DMX*, but it is plenty for many in the SMB market. It is enough to serve multiple applications and purposes. With up to 4 Fibre Channel (FC) host ports, the

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[1] See *Networked Storage – A Buyer's Guide to Pain Relief* in **The Clipper Group Explorer** dated April 25, 2003, at http://www.clipper.com/research/TCG2003017.pdf.

CLARiiON AX100 At A Glance

Size:	2U
RAID controllers:	Single or dual
Host ports:	2 or 4 FC (direct) 8 or 16 FC (SAN)
Host connectivity:	Up to 8, single or dual path
Disk drives:	160 GB, 250 GB SATA
Max capacity:	12 drives, 3 TB raw
Host OS support:	Windows, Linux, NetWare
HA features:	RAID 5 w/ hot spare N+1 power & fans Dual controller w/ failover Dual host paths w/ failover
Embedded functionality	Management GUI Snapshot copy Path failover and load balancing LUN masking
Basic warranty	2 year HW & SW 5 x 9 support Next-business day replacement User serviced

AX100 can attach directly to four servers via single connections or eight servers over a SAN[2] via dual, high-availability (HA) connections. For data security, it includes functionality for mapping LUNs/volumes to hosts in a SAN environment. It supports *Windows*, *NetWare,* and *Linux* host operating systems.

Low Cost

The AX100 leverages existing CLARiiON technology and incorporates

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[2] AX100 is compatible with fabric switches from Brocade and McData and host bus adapters from QLogic and Emulex.

low-cost SATA drives. Compared to high-end FC or SCSI drives, SATA drives cost significantly less and have higher capacities, albeit with lower performance and durability profiles. The result is that EMC can offer the AX100 for list prices starting under $6,000 with 750 GB of capacity in a single-controller configuration, and $12,000 for dual controllers. The base price includes hardware, embedded functionality, and a 2-year warranty with next business day parts replacement.

Easy Installation and Operation

In keeping with the limited IT administrator resources of SMBs, a person with minimal technical expertise can install an AX100 in under 30 minutes. No extensive training is required. It comes with an easy-to-use management GUI for setup, monitoring, and maintenance across all attached servers. The unit is also user-serviceable, so customers can perform capacity upgrades and failed component replacements themselves. EMC's channel partners will also offer value-add services, such as system and SAN installation, maintenance, etc.

HA and Business Continuance

The AX100 can be configured with dual controllers and dual host connections for redundancy. Host path failover and load balancing capabilities are included. Power and cooling components have *N+1* redundancy. RAID 5 support - with hot sparing - protects data from drive failures. Capacity upgrades and component replacements are non-disruptive. Local snapshot copies allow for non-disruptive backups and fast recoveries to a prior point in time. The result is a robust storage platform that tolerates component failures and helps keep applications and their associated business process up and running.

Good Performance

Aggregate performance is very good for entry-level networked storage and sufficient to support multiple SMB-scale applications.

NAS Capability

When attached to an EMC *NetWin 110*

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or *200* NAS gateway, the AX100 can provide shared file access over an IP network while simultaneously delivering block-level storage over Fibre Channel. With a list price of only $6,100 for the NetWin 110, the AX100+NetWin combination offers an inexpensive solution for storage consolidation and SAN/NAS convergence.

The AX100 is sold through OEMs, distributors, and resellers worldwide. Support for iSCSI (block storage over IP) is planned for release in second half 2004.

Benefits to the SMB

For SMBs looking for a solution to their storage challenges, the CLARiiON AX100 can offer a number of benefits:

- **Inexpensive solution for storage consolidation** – Many associate storage consolidation with a big project and infrastructure investment, but it does not have to be such a large commitment. EMC has managed to deliver storage consolidation in a petite package with petite pricing for those with smaller-scale requirements.

- **Lower storage TCO** – The main reason for storage consolidation is to lower storage TCO. Management/operating costs are by far the largest component, and a consolidated storage platform with AX100's ease-of-use characteristics will have a positive impact on operating costs. A centralized platform also helps improve utilization, which has a positive impact on storage acquisition costs.

- **Improved service levels** – AX100's high availability characteristics can provide more continuous information access than internal storage or more basic storage arrays. Users benefit from better application availability and response time, and the business benefits from higher productivity.

- **Peace of mind** – EMC is a trusted brand in storage with a history of product quality. Given the importance of storing and protecting enterprise information,

there is a value to the peace of mind associated with a brand name.

Conclusion

If your enterprise needs a solution to mounting storage costs and complexities, but your requirements and resources are smaller scale, then take a look at the new EMC CLARiiON AX100. The benefits of consolidated, networked storage are not just for enterprises with large-scale requirements. At the right size and cost, it is for everyone. **The AX100 delivers storage consolidation on a limited scale, with low cost, ease of use, and high availability to meet the requirements of SMBs as well as departments and remote offices of larger enterprises.**

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About the Author

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