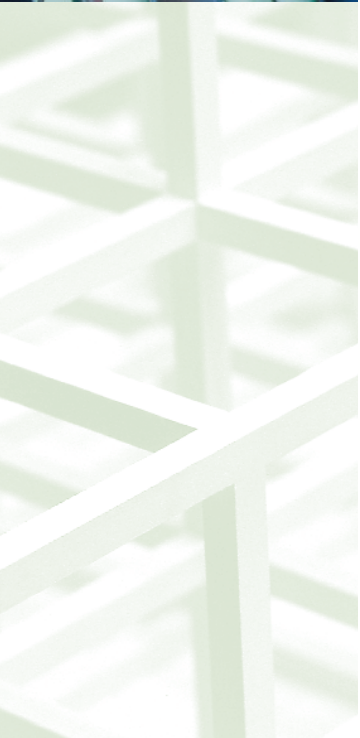# Compaq StorageWorks™

Modular Array 8000 and Enterprise Modular Array 12000 Storage Systems

COMPAQ

NonStop™

24x7

It's not just about capacity any more (but then that's probably not news to you). E-business. 24x7 operations. Heterogeneous, open environments. Enterprise computing today puts a whole new set of demands on storage beyond the mighty terabyte. More flexibility, easier manageability, higher density and true investment protection are way up there on the list when it comes to storage priorities. And the new *Compaq StorageWorks Modular Array 8000 (MA 8000)* and Enterprise Modular Array 12000 (EMA 12000) have it all — innovative flexibility that addresses a full spectrum of storage challenges, in a platform businesses know and depend on.

New flexibility in a trusted storage platform

The *Compaq StorageWorks* MA 8000 and EMA 12000 integrate a breakthrough enclosure architecture with our proven HSG80 Fibre Channel controller and software technology. They offer the best balance of features and value on the market. And only Compaq offers complete storage support — from hardware and software to services and consulting.

An easy transition for current RA8000/ ESA 12000 customers

The MA 8000 and EMA 12000 maintain the platform and operating system coverage of our current RA8000/ESA 12000 products. You can transition smoothly to this new technology without compromising your current computing investments.

The perfect first step to consolidated storage

Many customers who currently depend on dedicated storage solutions face skyrocketing capacity and service level requirements. Consolidated storage solutions like MA 8000 and EMA 12000 provide the ideal way to efficiently meet growing capacity needs and better address availability issues. Consolidated storage enables you to maximize capacity while centralizing management and maintenance to a single storage system — simplifying storage administration, saving time and reducing costs. The flexible, scalable and easy-to-manage MA 8000 and EMA 12000 are the ideal foundation for your consolidated storage network and heterogeneous Storage Area Network (SAN).

A new design for more flexible storage

So what's so innovative about the MA 8000 and EMA 12000? For one thing, they have a new, modular design that provides separate controller and drive enclosures, delivering:

➜ **Greater configuration flexibility, because you have more choices of pre-configured or custom storage configurations to meet your needs precisely**

➜ **Start with a few GBs and grow up to 2.6 TB of capacity in a single storage system (invest in the capacity you need when you need it)**

➜ **Higher drive density in a smaller footprint — ideal for space-constrained data center environments**

➜ **Up to 14 drives per drive enclosure — the highest spindle count in the industry and a real performance advantage**

open environments

higher density

The industry-leading architecture of the MA 8000 and EMA 12000 uniquely supports universal drives and carriers, so you can standardize across your enterprise — simplifying management, reducing inventory costs and allowing for redeployment of drives across your *Compaq ProLiant* and *Alpha* environments.

Critical availability

Storage with absolutely no single point of failure? That's the MA 8000 and EMA 12000. A redundant system-level architecture plus high-availability storage software provide continuous data access. Hot-swappable redundant components including controllers, power supplies and fans reduce maintenance downtime. And support for clustered servers running Windows NT, Novell NetWare, UNIX and Oracle Parallel Server clusters delivers host-level redundancy. In fact, both clustered and non-clustered hosts can share the same storage system, for outstanding flexibility.

Long-term investment protection

The MA 8000 and EMA 12000 integrate smoothly with your current computing assets and keep future diversity in mind.

They're the ideal way to standardize storage across your *Compaq ProLiant* and *Alpha* servers in a multi-platform or multi-vendor enterprise.

➤ **Outstanding choices for consistent storage across the entire Compaq product line**

➤ **Support *ProLiant* and other x86-based and *Alpha* servers running Windows NT, Novell NetWare, IBM AIX, SUN Solaris, SGI IRIX, *Tru64* UNIX and Open VMS**

➤ **Include features for multi-vendor operating environments**

Superior performance and scalability

Each MA 8000 or EMA 12000 system scales up to 2.6 TB of storage behind a dual-active controller pair, so you can match performance needs with capacity needs. Additional systems can be attached for near limitless capacity.

And a choice of 256 MB or 512 MB battery-backed-up cache per controller is standard, so performance scalability can be fine-tuned to your application needs. The 1 GB of cache available per controller pair can be used as mirrored write-back and/or read-ahead cache.

The advantages of Fibre Channel Technology

Fibre channel technology provides flexible storage benefits in terms of performance, logistics and manageability. Fibre channel technology allows you to share storage across the SAN, copy disk-to-disk to reduce administrative downtime and replicate storage systems that may be miles apart. And with your MA 8000 or EMA 12000 system, you can choose from two implementations:

➤ **Switched fabric using switches that scale to even the largest SAN**

➤ **Arbitrated loop using cost-effective hubs**

Storage Area Network capabilities

Shared storage via SAN provides shared access for multiple storage systems in heterogeneous environments. Designed for high data availability, SANs support server clusters and can be configured for redundancy that eliminates single points of failure. The same SAN that provides consolidated multi-platform connectivity also provides the backbone for remote storage access and data replication — critical for disaster tolerance and disk-to-disk backup.

Value-added software

Data Replication Manager (DRM)

DRM copies data online in real time to a remote storage system hundreds or even thousands of miles from your primary site, allowing for rapid recovery after a site disaster. You can also create copies of your data to use for parallel operations such as routine backups — without disrupting your production systems. DRM synchronous copy operations eliminate transaction data loss, and with Fibre Channel-to-ATM connectivity, DRM allows for transfers over unlimited distances.

Enterprise Volume Manager (EVM)

EVM facilitates storageset-to-storageset copying while minimizing downtime. Special clone and snapshot operations allow for routine operations to be conducted without compromising production systems.

EVM improves production volume application performance and provides a user-friendly interface for cloning and copying tasks.

SANworks Secure Path for Windows NT and Sun Solaris

Secure Path ensures continued data availability by eliminating any single point of failure from host to storage. Should a hardware failure occur, Secure Path reroutes I/O to a functioning alternate path. Secure Path also provides easy management, alert monitoring and I/O load distribution.

Simple, centralized management

SANworks Command Console (SWCC) provides a single management console from which to easily and efficiently configure, monitor and manage all storage systems on your SAN. SWCC provides real-time status reports on your storage environment, improves productivity and reduces the costs and risks of downtime and security breaches.

Trust your enterprise to *Compaq StorageWorks* solutions

Satisfied customers have made Compaq the second largest supplier of computers and services in the industry today. In fact, *Compaq StorageWorks* solutions are the choice of more Fortune 1000 companies than any other storage solutions available.

So whether you're ready to take the next step to an external storage solution, or you're looking for maximum flexibility in extending your current SAN environment, there's no better choice than the *Compaq StorageWorks* MA 8000 and EMA 12000.

For more information, visit

www.compaq.com/storage

or contact your

authorized Compaq reseller.

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