

HP StorageWorks P2000 G3 and MSA2000 G2 Arrays

Family data sheet

The HP StorageWorks P2000 G3 FC Modular Smart Array is a high-performance 8 Gb Fibre Channel or Combo FC/iSCSI connected array designed for efficient storage consolidation and functionality at affordable prices. Choosing the FC/iSCSI Combo controller gives the flexibility to share the array resources over both protocols, closely matching the divergent needs of various-sized departments and budgets.

The P2000 G3 FC ships standard with 64 Snapshots (optional 512) and Volume Copy software enabled for increased data protection. Optional Remote Snap software enables snapshot replication over iSCSI or Fibre Channel. The array allows departmental and small to medium businesses to grow capacity as needed, up to 57 TB SAS or 192 TB SATA. Mixing of enterprise-class SAS and archival-class SATA drives in both Large and Small Form Factor drives is supported. Configure with a single controller for low initial cost with future expansion, or dual controllers for higher availability and performance for the most demanding entry-level situations.



Delivers an affordable, high-performance storage array solution offering the flexibility of 8 Gb Fibre Channel or a combination of FC and iSCSI connectivity, 64 snapshots and Volume Copy software standard and optional Remote Snap replication.

HP StorageWorks P2000 Remote Snap Software

Provides mid-range installations with local or remote, array-based, asynchronous Snapshot replication between HP StorageWorks P2000 G3 MSA Arrays.

HP StorageWorks P2000 Remote Snap Software offers controller-based, asynchronous replication technology that provides local or remote replication between two HP StorageWorks P2000 G3 MSA Arrays. HP Remote Snap functionality is based on existing Snapshot technology offered by HP MSA2000 SAN Array products. Snapshots are used to track the data to be replicated as well as to determine the differences in data updated on the master volume, reducing the amount of data needing to be transferred.

Supporting both Ethernet and Fibre Channel interconnects provides flexible options to your application environments. Protect your investment with Snapshot-based replication enabling local and remote recovery based on need. Leveraging the integrated 64 Snapshots and the Volume Copy standard on the P2000 G3 FC MSA Array, the Remote Snap Software cost-effectively creates the local or remote copies.

Key features and benefits for P2000 FC G3 MSA Systems

Easily managed, highly affordable storage consolidation

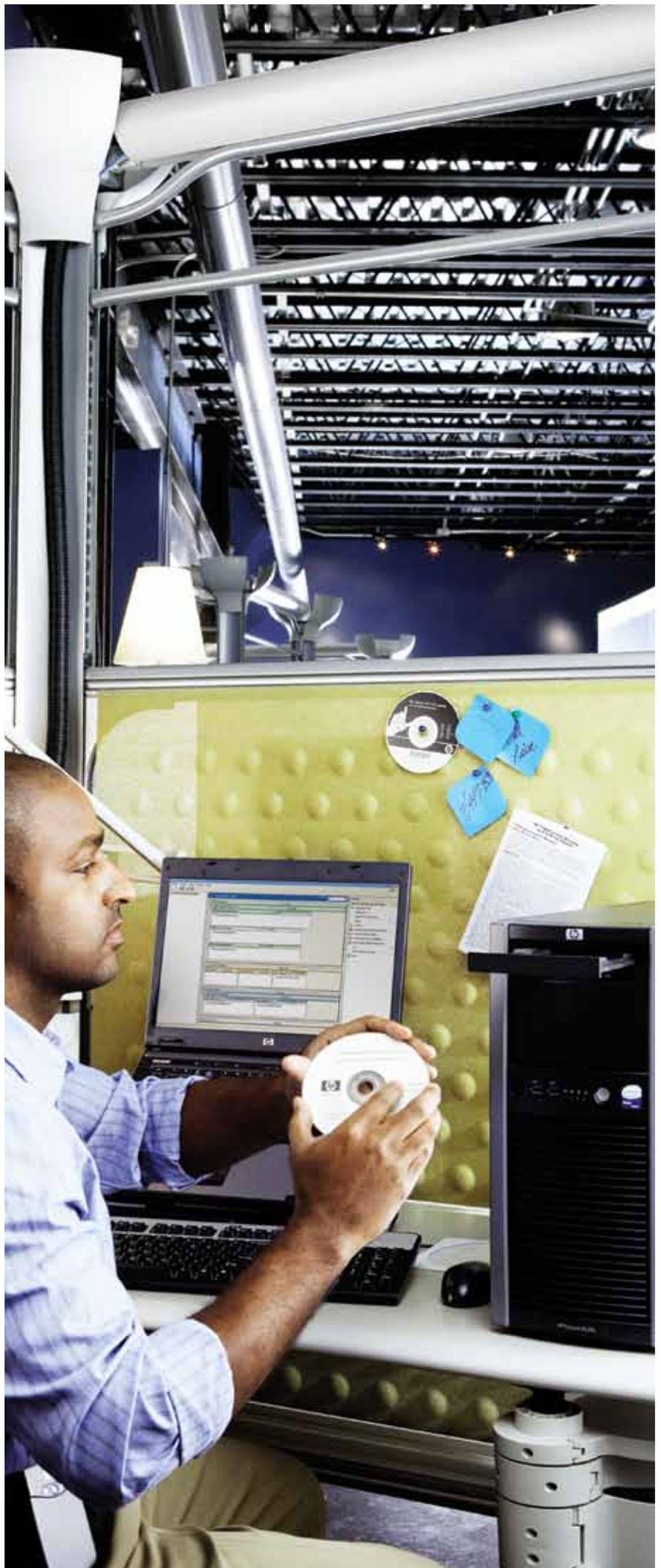
- **Highly efficient consolidation and storage sharing:** The HP StorageWorks P2000 G3 FC Modular Smart Array delivers low cost, consolidated storage array technology to meet departmental and small to medium businesses requirements with 8 Gb Fibre Channel or Combo FC/iSCSI solutions matched with the newest Large and Small Form Factor SAS, SAS Midline (MDL) and SATA MDL drives.
- **Flexibility in drive types and sizes:** The P2000 G3 arrays offer a choice of drives – high performance, enterprise-class SAS drives and low cost, high-capacity archival class SAS MDL or SATA MDL. The array head comes with 12 or 24 drive bays, which are able to simultaneously accommodate dual-ported SAS drives and SATA drives.
- **Cost efficient:** The P2000 G3 array offers single controller models for low initial investment, or dual controllers for higher data protection. The FC/iSCSI Combo controller allows sharing of resources between different departments with the most cost-effective protocol. A wide choice of drive types means a high return on investment (ROI).

Start small and grow in number of supported servers and total capacity

- **Start small, grow as storage demands increase:** The P2000 G3 FC array allows customers to grow their storage as demands increase up to 57.6 TB SAS or 192 TB SATA supporting up to 64 hosts for Fibre Channel attach. The P2000 G3 FC array can support up to 7 LFF drive enclosures and 96 drives or 5 SFF drive enclosures and a maximum of 149 drives.
- **Grow to 64 hosts with Fibre Channel or FC/iSCSI:** Powerful new controllers (FC and FC/iSCSI) with 2 GB of read/write cache provide support for up to 64 hosts. Latest 8 Gb Fibre Channel technology means users can have fast and reliable access to their data.
- **Increased data protection:** The P2000 G3 comes with 64 Snapshot and Volume Copy capability at no extra charge. Increased snapshot capability of 512 snaps is an option. Remote Snap software is also an option, allowing replication over iSCSI or Fibre Channel.
- **P2000 G3 FC supports up to 512 LUNs:** With 512 LUNs, the P2000 G3 FC has more than sufficient LUNs for storage configuration flexibility.

Comprehensive data protection in an easily-administered SAN environment

- **High availability for business continuity:** Reduce risk of IT failure with dual active/active controllers, dual-ported drives and redundant hardware components.
- **Increased level of data protection:** For increased data protection, the P2000 G3 FC comes with a 64 Snapshot licence and Volume Copy software, giving space-efficient, copy-on-write snapshots and clones at no charge. A 512 snap licence is optional. Remote Snap software allowing replication over iSCSI or Fibre Channel is also available.
- **Easy to manage and service:** Reduced time to operation with easy and secure deployment. Lesser risk from operator errors, resulting in decreased downtime and data loss, while increasing customer satisfaction. Supports customer replaceable hot plug components such as drives, controllers, cooling units and power supplies.



HP StorageWorks P2000 G3 FC Modular Smart Array System



Number of drives	149 SFF drives or 96 LFF drives Maximum including expansion
Drive type	P2000 300 GB 6G 15K LFF DP ENT SAS P2000 450 GB 6G 15K LFF DP ENT SAS P2000 600 GB 6G 15K LFF DP ENT SAS P2000 1 TB 6G 7.2K LFF DP MDL SAS P2000 2 TB 6G 7.2K LFF DP MDL SAS P2000 2 TB 3G 7.2K LFF DP MDL SATA 72 GB 6G 15K SFF DP ENT SAS 146 GB 6G 10K SFF DP ENT SAS 300 GB 6G 10K SFF DP ENT SAS 146 GB 6G 15K SFF DP ENT SAS 500 GB 6G 7.2K SFF DP MDL SAS 500 GB 3G 7.2K SFF MDL SATA LFF or SFF supported, depending on model
Capacity	192 TB Maximum Including expansion, depending on model
Storage expansion options	P2000 3.5-inch disk enclosure or D2700 2.5-inch disk enclosure
Host interface	8 Gb Fibre Channel (2) Ports per controller or 8 Gb Fibre Channel (2) Ports and 1 GbE iSCSI (2) Ports per controller (Combo controller)
Storage controllers	P2000 G3 FC MSA Controller P2000 G3 FC/iSCSI Combo MSA Controller One or two controllers supported per array. Controller models may not be mixed in the array.
SAN backup support	Yes
OV storage mirroring support	Yes
Systems Insight Manager support	Yes
Supported Operating Systems	P2000 G3 FC controller and the FC ports on the FC/iSCSI Combo Controller support: Microsoft® Windows® Server 2008 R2 IA32, x64, IA64 (Standard, Enterprise, Data centre) Microsoft Windows 2003 R2 Microsoft Windows 2003 X64, IA64 Red Hat™ Linux (32/64) SUSE Linux (32/64) HP-UX Solaris 10 (x86) VMware 3.5, 4.0 Citrix XenServer HP Enterprise Edition OpenVMS The iSCSI ports on the P2000 G3 FC/iSCSI Combo Controller support: Windows, VMware and Red Hat Linux
Clustering Support	Yes, Windows, Linux, HP-UX, OpenVMS and Solaris
Form Factor	2U
Warranty	3-year parts only Next Business Day, no labour, or onsite support
QuickSpec URLs	http://h18000.www1.hp.com/products/quickspecs/13551_div/13551_div.pdf

The total package – Software

HP StorageWorks 2000 Modular Smart Array Snapshot Software	<p>HP 2000 Modular Smart Array Snapshot Software enables increased data protection by creating recovery points for your data, a snapshot takes a 'picture' of what your data was at the time of the snapshot. The snapshots are maintained even as data continues to change. In the event of a failure, you can recover data to any previous snapshot. Snapshots are a great complement to tape or disk backup strategy.</p> <p>HP 2000 Modular Smart Array Snapshot Software functionality is controller-based, so no host resources are used and they are space-efficient and provide copy-on-write capability. http://hp.com/go/msa2000</p>	Included
HP StorageWorks 2000 Modular Smart Array Volume Copy Software	<p>HP 2000 Modular Smart Array Volume Copy software makes a physical copy of the data to another set of disks within the same array. One of the benefits of snapshot and volume copy software is the ability to mount a snap or volume copy to another server for backup, application testing or data mining. HP 2000 Modular Smart Array Volume Copy Software is controller-based, meaning no host resources are used. It provides a physical copy of data from one LUN to another with no server performance impact. The P2000 family arrays ship standard with 64 Snapshots and Volume Copy for increased data protection. http://hp.com/go/msa2000</p>	Included
HP StorageWorks P2000 Remote Snap Software	<p>HP StorageWorks P2000 Remote Snap Software is storage-based asynchronous replication technology that provides remote replication on the HP StorageWorks P2000 G3 MSA Arrays. HP Remote Snap functionality is based on existing Snapshot technology offered by HP MSA2000 SAN Array products. Supporting both Ethernet and Fibre Channel interconnects provides flexible options to your application environments. Protect your investment with Snapshot-based replication enabling local and remote recovery based on need. http://hp.com/go/RemoteSnap</p>	Optional
HP StorageWorks Storage Mirroring	<p>HP StorageWorks Storage Mirroring prevents data loss from failure, error or disaster. It provides replication and recovery of valuable Windows and Linux data to another server. Proactive replication is a key strategy coupled with tape backup and snapshot technology for up-to-the-second data protection. Having replicated data co-located enables customers to recover their static and transactional data in seconds to minutes. http://h18006.www1.hp.com/products/storage/software/sm/index.html</p>	Optional

HP StorageWorks 2000sa G2 Modular Smart Array

Bring the latest in efficient consolidated storage array technology to the entry-level segment with 3 Gb SAS solutions matched with the newest Small and Large Form Factor SAS, SAS MDL and SATA MDL drives.

The HP StorageWorks 2000sa G2 Modular Smart Array is a 3 Gb SAS direct attach, external shared storage solution that helps customers easily transition from direct attached to centralised storage. It allows departmental and small to medium businesses customers to grow capacity as demands increase up to 36 TB SAS or 120 TB SAS MDL, or SATA MDL supporting up to 64 hosts.

With up to 511 LUNs and LUN sizes up to 16 TB, the MSA2000sa G2 gives maximum configuration flexibility. The MSA2000sa G2 allows mixing of enterprise-class, dual-ported SAS drives and archival-class SAS MDL or SATA drives, and supports both LFF and SFF drives. The optional HP StorageWorks 2000 Modular Smart Array Snapshot Software offers increased data protection. The MSA2000sa G2 can be configured with a single controller for a low initial price with future expansion, or with dual controller for situations that require higher availability and performance for the most demanding entry-level situations.

HP StorageWorks 2000i G2 Modular Smart Array

Delivers an affordable, high-performance storage array solution for entry-level customers with 1 GbE iSCSI solutions matched with the newest Small and Large Form Factor SAS, SAS MDL and SATA MDL drives.

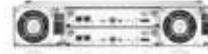
The HP StorageWorks 2000i G2 Modular Smart Array selection of SAN devices features the very latest in efficient consolidation, functionality and technology – at very affordable prices. The ideal customers needing to consolidate their storage include smaller companies with tight budgets and limited IT expertise, or larger companies that have perhaps hundreds of smaller departments and remote locations.

The MSA2000i G2 features a 1 Gb Ethernet (1 GbE) iSCSI connected array. It allows customers to grow their storage as demands increase up to 36 TB SAS or 120 TB SAS MDL or SATA MDL, supporting up to 32 hosts for iSCSI attach. All models support the optional HP StorageWorks 2000 Modular Smart Array Snapshot Software, which offers controller-based snapshot, and Volume Copy which gives cloning functionality. Planning for future growth is easy by starting with the basic modular pieces and adding capacity as needs arise.

HP StorageWorks 2000sa G2 Modular Smart Array



HP StorageWorks 2000i G2 Modular Smart Array



Number of drives	99 SFF or 60 LFF Maximum including expansion	99 SFF or 60 LFF Maximum including expansion
Drive type	MSA2 300 GB 3G 15K LFF DP SAS MSA2 450 GB 3G 15K LFF DP SAS P2000 300 GB 6G 15K LFF DP ENT SAS P2000 450 GB 6G 15K LFF DP ENT SAS P2000 600 GB 6G 15K LFF DP ENT SAS P2000 1 TB 6G 7.2K LFF DP MDL SAS P2000 2 TB 6G 7.2K LFF DP MDL SAS MSA2 500 GB 3G 7.2K LFF SATA MSA2 1 TB 3G 7.2K LFF DP MDL SATA P2000 2 TB 3G 7.2K LFF DP MDL SATA 72 GB 6G 15K SFF DP ENT SAS 146 GB 6G 10K SFF DP ENT SAS 146 GB 6G 15K SFF DP ENT SAS 300 GB 6G 10K SFF DP ENT SAS 500 GB 6G 7.2K SFF DP MDL SAS 250 GB 3G 5.4K SFF ETY SATA 500 GB 3G 7.2K SFF MDL SATA Supported, depending on model	MSA2 300 GB 3G 15K LFF DP SAS MSA2 450 GB 3G 15K LFF DP SAS P2000 300 GB 6G 15K LFF DP ENT SAS P2000 450 GB 6G 15K LFF DP ENT SAS P2000 600 GB 6G 15K LFF DP ENT SAS P2000 1 TB 6G 7.2K LFF DP MDL SAS P2000 1 TB 6G 7.2K LFF DP MDL SAS P2000 2 TB 6G 7.2K LFF DP MDL SAS MSA2 500 GB 3G 7.2K LFF DP MDL SATA MSA2 1 TB 3G 7.2K LFF DP SATA P2000 2 TB 3G 7.2K LFF DP MDL SATA 72 GB 6G 15K SFF DP ENT SAS 146 GB 6G 10K SFF DP ENT SAS 146 GB 6G 15K SFF DP ENT SAS 300 GB 6G 10K SFF DP ENT SAS 500 GB 6G 7.2K SFF DP MDL SAS 250 GB 3G 5.4K SFF SATA 500 GB 3G 7.2K SFF MDL SATA Supported, depending on model
Capacity	120 TB Maximum with expansion Depending on drive type	120 TB Maximum with expansion Depending on drive type
Storage expansion options	MSA2000 3.5-inch disk enclosure (single or dual I/O) MSA70 2.5-inch disk enclosure (single or dual I/O)	MSA2000 3.5-inch disk enclosure (single or dual I/O) MSA70 2.5-inch disk enclosure (single or dual I/O)
Host Interface	3 Gb/sec SAS (4) Port per controller	1 GbE iSCSI (2) Port per controller
Storage controllers	(2) MSA2300sa G2 Maximum	(2) MSA2300i G2 Maximum
Clustering support	Yes Windows, Linux, Solaris and HP-UX	Yes Windows and Linux
SAN Backup support	Yes	Yes
OV Storage Mirroring support	Yes	Yes
Systems Insight Manager support	Yes	Yes
Supported Operating Systems	Microsoft Windows Server 2008 IA32, x64, IA64 (Standard, Enterprise, Data centre) Microsoft Windows Server 2008 R2 Microsoft Windows 2003 R2 Microsoft Windows 2003 X64, IA64 Microsoft Windows Server 2008 Hyper-V Red Hat Enterprise Linux SUSE Linux VMware HP-UX Solaris For detail operating support list, please visit www.hp.com/storage/spock	Microsoft Windows Server 2008 IA32, x64, IA64 (Standard, Enterprise, Data centre) Microsoft Windows Server 2008 R2 Microsoft Windows 2003 R2 Microsoft Windows 2003 X64, IA64 Red Hat Linux VMware Microsoft Windows Server 2008 Hyper-V For a detailed operating support list, please visit www.hp.com/storage/spock
Form factor	2U	2U
Warranty	3-year parts only Next Business Day, no labour, or onsite support	3-year parts only Next Business Day, no labour, or onsite support
QuickSpec URLs	http://h18000.www1.hp.com/products/quickspecs/13331_div/13331_div.pdf	http://h18000.www1.hp.com/products/quickspecs/13330_div/13330_div.pdf

The total package – Software

HP StorageWorks MSA2000 Modular Smart Array Snapshot Software	HP MSA2000 Modular Smart Array Snapshot Software enables increased data protection by creating recovery points for your data. A snapshot takes a 'picture' of what your data was at the time of the snapshot. HP MSA2000 Modular Smart Array Snapshot Software functionality is controller-based, meaning no host resources are used and they are space-efficient and provide copy-on-write capability with no server performance impact. For more details, visit http://hp.com/go/msa2000	Optional
HP StorageWorks MSA2000 Modular Smart Array Volume Copy Software	HP MSA2000 Modular Smart Array Volume Copy software is similar to the snapshot software but with one important difference – the Volume Copy Software makes a physical copy of the data (instead of a 'picture' of the data) to another set of disks within the same array. One of the additional benefits of snapshot and volume copy software is the ability to mount a snap or volume copy to another server for backup, application testing or data mining. For more details, visit http://hp.com/go/msa2000	Optional

Service and Support

HP Factory Express

HP Factory Express is designed to help you get a better return from your IT investment by providing customisation, integration and deployment services along with your storage and server purchases. It provides predictable, trusted and tested IT solutions tailored to your business needs. We allow you to customise hardware to your exact specifications in the factory – helping to speed up deployment and free up internal resources. For more details, visit www.hp.com/go/factoryexpress

Customer technical training

Consider education as an integral part of your strategy to get the best return on investment for your HP storage solution. HP offers a variety of training courses on storage software, networking, archiving and disk storage systems. Our classes are available in many delivery modalities from traditional instructor-led courses at one of our 80 training centres worldwide to onsite training customised to your needs or online. For more details, visit www.hp.com/learn/storage

Financial Services

HP Financial Services provides innovative financing and financial asset management programmes to help customers acquire, manage and ultimately retire their HP solutions cost-effectively. For more information on these services, please contact your HP representative, or visit www.hp.com/go/hpfinancialservices

HP Services

HP Technology Services, to help take the worry out of deploying, supporting and managing your HP StorageWorks P2000 G3 Modular Smart Array System storage solution – trust the services professionals at HP to boost availability and avoid costly downtime.

Recommended services

3-Year HP Support Plus 24 Service: For a higher return on your storage technology, this 3-year combined reactive support option delivers integrated onsite hardware/software support services available 24x7.

HP StorageWorks MSA Family Disk Array Installation and Startup Service: A service engagement that provides product deployment consistent with HP product specifications. This service includes service planning, service deployment, installation verification tests (IVT) and customer-oriented sessions.

Related services

HP Proactive Select Service: Improves IT performance and manageability through the use of cost-effective flexible proactive services.

HP Entry Storage Data Migration Service for Windows: Provides deployment services for HP StorageWorks Storage Mirroring Data Migration software.

For more information about HP services and support, contact your HP sales representative or HP-authorized Channel Partner or, visit www.hp.com/hps/storage

To implement a storage array designed for efficient storage consolidation and functionality, visit <http://hp.com/go/msa2000>

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