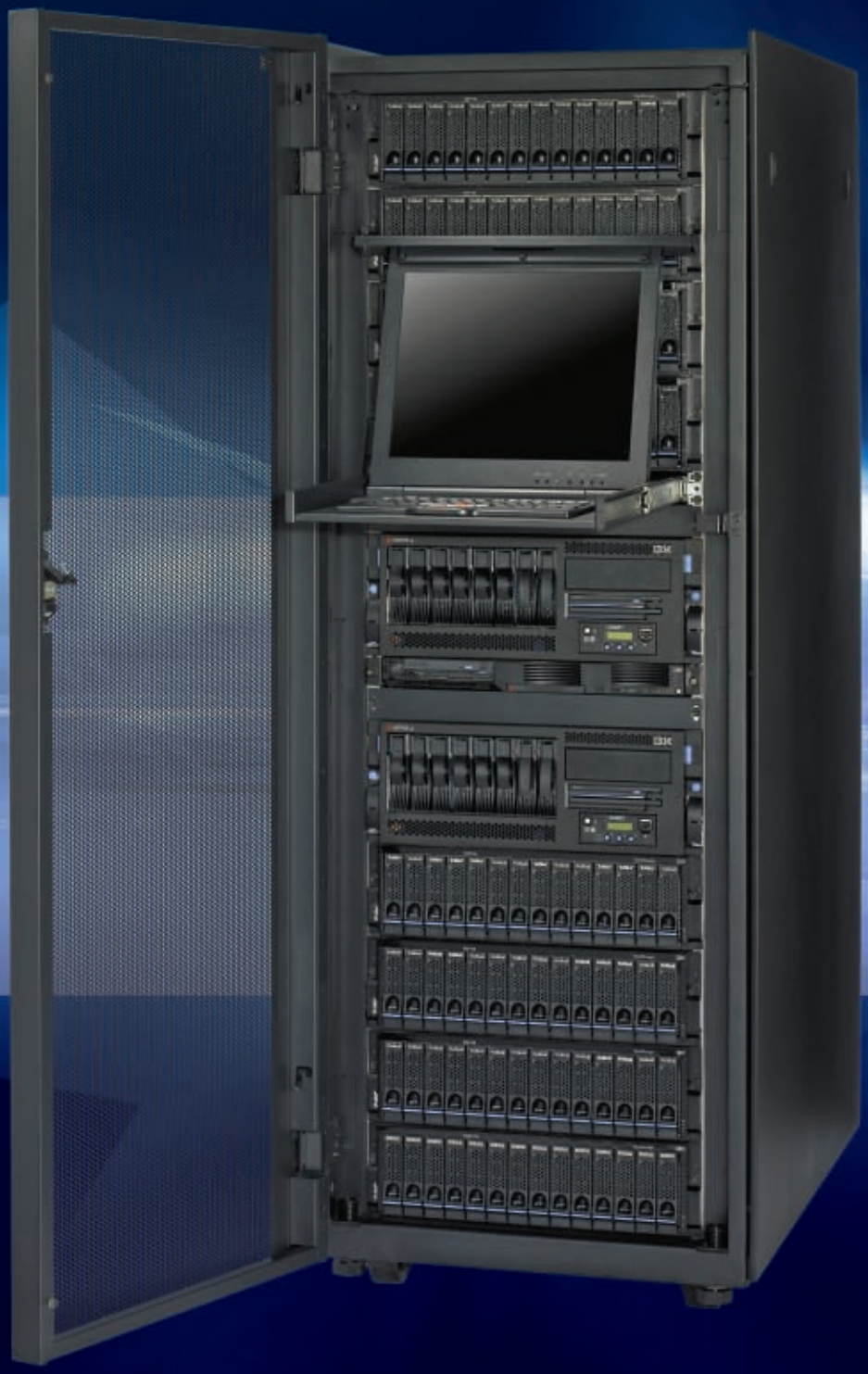
Disk-to-Disk Appliance (D2D)

StorageDR™



GST INC
STORAGE INNOVATION

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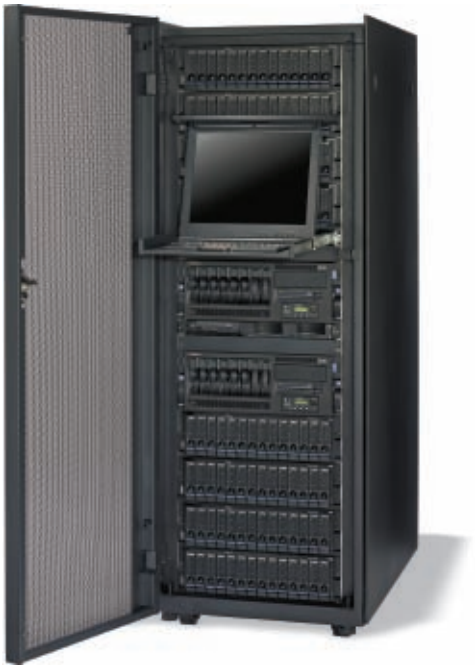

The GST D2D Backup Appliance is part of GST's StorageDR™ family. The Backup Appliance handles all save & restore functions for a wide variety of enterprises needing rapid central backup of critical data. All components are modular and easily connected. Open architecture is powered by IBM's Linux-based xSeries and OpenPower™ models that provide a robust scalable base. IBM TotalStorage™ disk technology provides the industries best hard drives for greater reliability. A rich variety of configurations permits starting with one Disk Drawer of 6 drives and growing to 16 Disk Drawers of 14 drives each. High performance 10K and 15K RPM hard drives are available in 73GB, 146GB, and 300GB capacities. Total capacity ranges up to 69TB native (138TB compressed).

DISK-TO-DISK TECHNOLOGY (D2D)

Unique benefits inherent in the D2D Backup Appliance:

Reliability – While tape continues to make strides in improving its reliability, disk is inherently more reliable, both in the device itself and in the media. Disk drives have a Mean Time Before Failure (MTBF) rating of 600,000 to 1,000,0000 hours, while the latest advances in tape are in the 400,000 to 500,000 hour range.

Speed – D2D speeds are far closer to the speed of the server than D2T speeds, resulting in a backup operation from disk-to-disk that takes much less time and can be accommodated in a much smaller backup window.

Fast Access – The backup data on the target disk array is much faster to access than data backed up onto tape. GST's LPAReplication software can access the data backed up to disk quickly, leaving the tape media for disaster recovery functions (where both disk resources are lost to a disaster). The Hierarchical Storage Management (HSM) aspect of LPARreplication™ enables the rapid access of files backed up on the target disk array.

Security – Data that was initially backed up to the target disk array is migrated using LPAReplication™ to a tape device located on a separate LPAR or server. This is done in the background of the primary application jobs on the main server being backed up. This isolates critical data from the primary server partition and protects it from viruses, as well as allowing it to be removed from the premises later to protect it from physical danger.

Ease of Use – With LPAReplication™, Disk-to-Disk technology is easy to implement and use. Few changes are needed in the backup software being used for the D2D portion. GST's LPAReplication™ is policy-driven with menus and fill-in screens that make configuration of the solution easy and self-documenting.

THE BIG PICTURE

- Speed: 2Gbit transfer speed
- Capacity: up to 138TB compressed
- Software: GST's LPAReplication™ Software
- Hardware: IBM xSeries, OpenPower and TotalStorage
- Connectivity: GST ScalableDR™ G120 & G950 libraries
- Support: IBM 24/7 or 9/5 service
- Cost: less than traditional tape library.

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KEY FEATURES

LPAReplication™ - GST's exclusive LPAReplication™ software runs on the two most popular versions of Linux: Novell SuSE Linux and Red Hat Linux. Most computing environments are supported by LPAReplication™. Therefore, the D2D portion is conducted on the user's server under their own operating system environment. The D2T portion on the target disk array must be conducted in Novell SuSE or Red Hat Linux using LPAReplication™. Therefore, the D2D part must be located in a separate partition set up for Linux, or located on a separate Linux server.

Hierarchical Storage – Backup data stored on the target disk array can be used to provide fast and ready access to these files, should the need arise. Instead of locating the data on backup tapes that have most likely left the premises, data can be retrieved from the target disk array for use by the system. LPAReplication™ contains Hierarchical Storage Management (HSM) capabilities to do this. Most-active files can be permanently retained on the target disk array, or purged periodically.

GST Storage Manager – GST's LPAReplication™ disk management tools optimize use of disk in the Backup Appliance.

Transparency – The source server sees the Backup Appliance as an IBM 3583 tape library.

Open Architecture – Linux operating system running on the IBM xSeries and OpenPower servers permits connectivity to a wide variety of servers and enables low cost of ownership.

Space Saver – The small dimensions and modular configurations facilitate the optimum use of datacenter space.

Serviceability – Modular building-block design permits individual drives, servers and other modules to be easily serviced or replaced.

KEY BENEFITS

Scalable Processors – Can start with a single processor of 2.2, 2.7 or 3.0 GHz and add processors, up to four.

Scalable Memory – Memory can be added in 1, 2, 4GB increments up to a total of seven additional memory cards, providing a range of memory from 2GB on the base processor to 30GB with the scalable memory options.

Scalable Disk – Both 10K RPM and 15K RPM disks are available in units of 73GB, 146GB and 300GB. Disk can be added as needed to create a disk capacity that can accommodate expanding requirements, up to 230 drives. Maximum capacity for 230 x 300GB drives is 69TB native (138TB with compression).

Scalable PCI Expansion – Additional PCI-X Slot Expansion options are available for 6 slots and 12 slots.

Rack-mountable Enclosures – Individual modular enclosures enable each Disk Drawer and other modules to be handled separately; field upgrades of additional Disk Drawers are simple.

11U, 25U, 42U Equipment Rack – Standard equipment racks hold the many different configurations of the Backup Appliance plus other servers that are being backed up.

Scalable Connectivity – Wide range of IO cards provides considerable choice in configuring Fibre Channel (FC), SCSI and RAID connectivity.

Service and Support – A variety of support programs provide installation and onsite service; includes IBM support and GST's Accelerated Ship Program (GASP) to speed replacement units to the scene rapidly.

Warranty – Purchase price includes GST's 3-year warranty.

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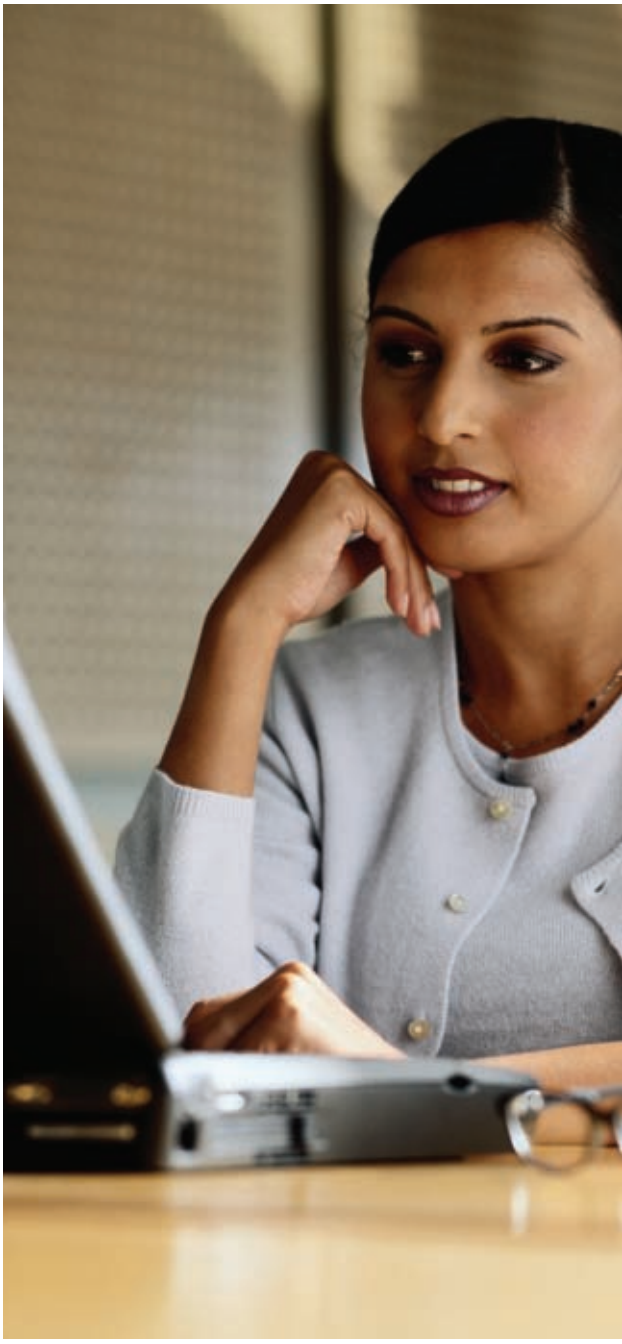
StorageDR™

SPECIFICATIONS	StorageDR™ - D2D
Supported Libraries	
GST Enterprise G120	Yes
GST Enterprise G950	Yes
Configuration	
Disk Capacity	up to 69TB
Host Support	up to 4
Host Connectivity	2GBit Fibre
RAID Levels	5, 10
Physical Characteristics	
Processor Types	2.2GHz, 2.7GHz, 3.0GHz
Processors	1 - 4
Cache	2 - 256GB
PCI-X Slots	6 - 12 Slots
Disk Drives	up to 230
Storage Towers	up to 32
Flat Panel Monitor	up to 1
PCI-X Expansion Tower	up to 1
Fibre Switch	up to 1
Rack Enclosure Models	11U, 25U, 42U
UPS Models	3000XHV, 7500XHV, 10000XHV
Supported Disk Drives	
73GB - 10K RPM	Yes
73GB - 15K RPM	Yes
146GB - 10K RPM	Yes
146GB - 15K RPM	Yes
300GB - 10K RPM	Yes
OS Support	
OS/400, i5/OS	Yes
AIX	Yes
HP-UX	Yes
Linux	Yes
Novell NetWare	Yes
Solaris	Yes
Windows	Yes
Service Options	
9x5/Next Day	Yes
24x7x4	Yes



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GST, Inc. engineers, manufactures, markets and sells a full line of tape, disk, networking, and memory hardware and high availability and security software plus storage-related services for the midrange server community. Product development closely tracks market needs, providing latest engineering, product design and customer support facilities. For information about the company, its products and support see: http://www.gstinc.com.

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