ETERNUS DX80
ETERNUS DX60

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Webcast

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ETERNUS – the global storage brand

New Model		Former Model
ETERNUS DX60	replaces	FibreCAT SX60 ETERNUS2000 Model100
ETERNUS DX80	replaces	FibreCAT SX80/SX88 ETERNUS2000 Model200
ETERNUS LT20/LT40/LT60	renamed	FibreCAT TX08/TX24/TX48
ETERNUS CS	renamed	CentricStor VT

FibreCAT SX60, SX80 and SX88 models will go End-of-Life at the end of 2009. Whereas FibreCAT models SX100 and SX80 iSCSI are planned to be available till end of March 2010.

ETERNUS DX – global entry storage

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- Quality and reliability
- Innovation and speed
- Simple installation and easy-to-manage
- Versatile usage scenarios
- Very affordable

ETERNUS DX60 / DX80

ETERNUS DX60 and DX80 – Line-up

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Optimized storage for Small & Medium Enterprise business

ETERNUS DX80

ETERNUS DX60

Affordable entry
in network storage

Max. 24 drives

Max. 120 drives
Supports FC 8Gbps

For higher performance
and more expandability

	ETERNUS DX60		ETERNUS DX80	
Storage Controllers	Single	Dual	Single	Dual
Cache Memory	1 GB	2 GB	2 GB	4 GB
Front-end Hostports	2	4	2	4
Maximum Hostports	32	64	64	128
Fibre Channel type	4 Gb/s		4 Gb/s or 8 Gb/s	
Drive Count	2 - 24		2 - 120	
Maximum Storage Capacity	10.8 TB w/ SAS drives		54 TB w/ SAS drives	
	24 TB w/ Nearline SAS drives		120 TB w/ Nearline SAS drives	

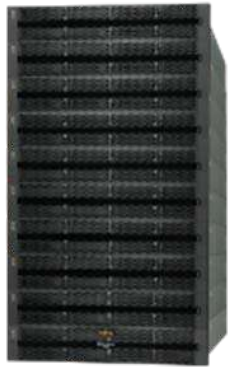
ETERNUS DX60/80 – reliable storage

ETERNUS DX60

- Up to 24 disks
- 24 TB (NearLine SAS)
- 2 GB cache
- 4 Gb/s FC
- 64 connectable hosts
  (Windows, Solaris, Linux, VMware)

ETERNUS DX80

- Up to 120 disks
- 120 TB (NL SAS)
- 4 GB cache
- 8 Gb/s FC
- 128 connectable hosts
  (Windows, Solaris, Linux, VMware)



- RAID 0, 1, 1+0, 5, 5+0, 6 support
- Redundant & Hot-pluggable components

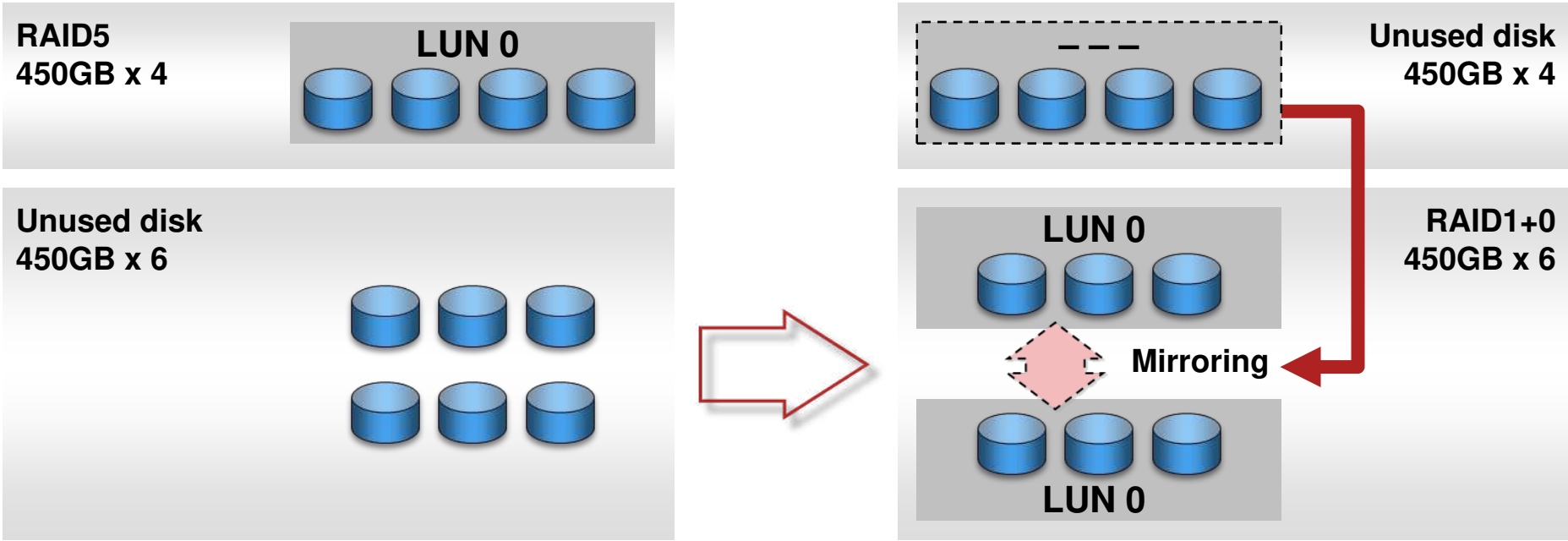
Outstanding Benefits

- RAID migration
- Redundant Copy
- Data Block Guard
- CacheProtector
- SAS, Nearline SAS or Solid State Drives
- Energy-efficient EcoMode
- Disk Encryption
- Snapshots & Clones
- Connectivity of choice
- Simple operation
- Versatile usage scenarios

RAID Migration

- RAID levels 0, 1, 1+0, 5, 5+0 and 6 available
- RAID migration enables moving data between different RAID groups without interrupting operation

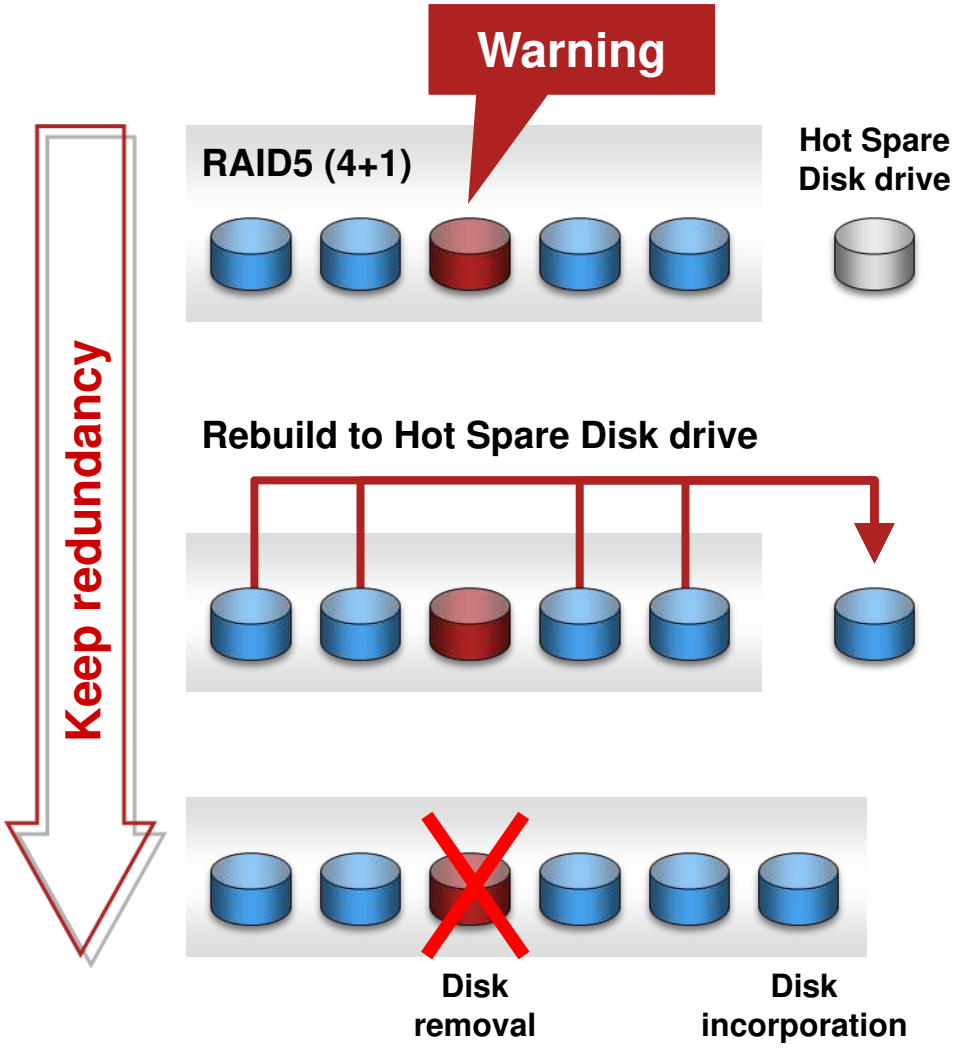
Migration to highly reliable RAID level: RAID 5 ➔ RAID 1+0



- Use the most appropriate RAID level for your data
- If requirements change => move data to more suitable disks/RAID levels

Redundant Copy

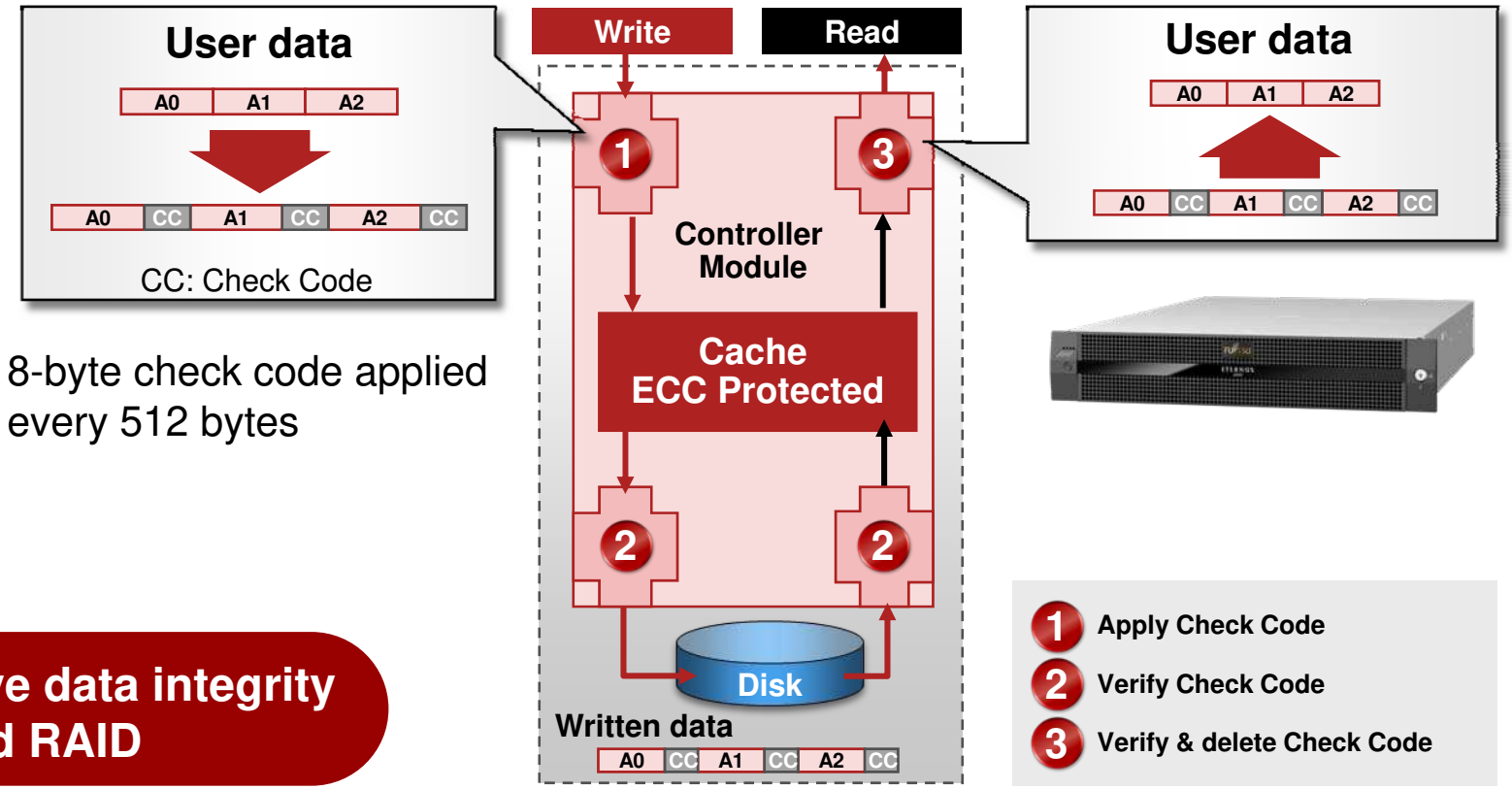
- All disk drives are monitored by the system
- Starts rebuild automatically to Hot Spare if same type of error occurs repeatedly and exceeded a defined threshold
- After rebuild is completed, the disk drive showing signs of failure is disabled



- Replace failing disks to keep up redundancy

Data Block Guard

- 8-byte check code is added to every 512-byte data to control data integrity both on the disk and in the cache
- This allows manual rebuilds using parity information from the RAID group



Improve data integrity beyond RAID

CacheProtector

When power fails, a capacitor maintains power until the cache content is saved to non-volatile memory (flash)

- Cache data is safe for unlimited time, it does not depend on battery capacity

The Capacitor recharges within 1 minute when power is restored

- High performance (write cache) available much sooner than with battery backup solutions

No periodic replacement

- No maintenance necessary for Capacitor
- Battery backup solutions must be monitored constantly and batteries need to be exchanged every 3 years

- **No time limit to restore the data in case of power failure**
- **Fast restart after power failure**
- **No maintenance necessary for CompactFlash and Capacitor**

SAS, Nearline SAS, or Solid State Drives

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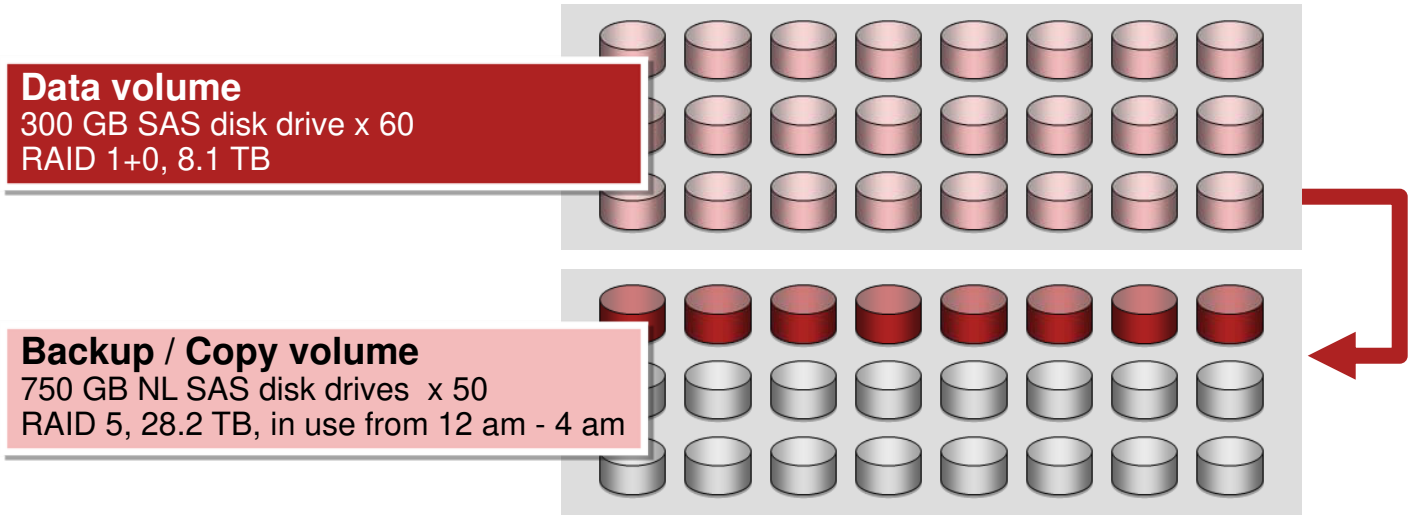
3.5” SAS: for mission critical data	• Enterprise performance and reliability • 15k rpm, 300 GB, 450 GB
3.5” Nearline SAS: cost-efficient capacity for non-critical data	• Nearline SAS drives are SATA drives (high capacity, low cost) with a SAS interface (dual ported, SAS firmware) • 7.2k rpm, 750 GB, 1 TB
2.5” SAS drives: more spindles/IO per U, at less power	• 10k rpm, 300 GB, 24 drives in 2U enclosure • Available as of September 2009
Enterprise SSDs provide best IO/$	• Excellent random reads and writes, lowest latency • Good for highest IOPS demands • Available as of September 2009

3.5” SAS, Nearline SAS and 3.5” SSDs can be intermixed in the same enclosure

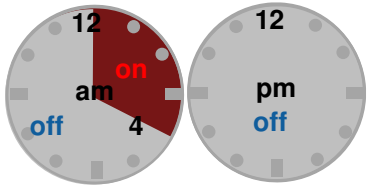
Energy-efficient EcoMode

When disks (RAID groups) are used only a few hours per day (e.g. for backup), EcoMode is a simple way of saving power

- Drive spin down can be scheduled
- Drives are spun down if idle
- Drives are spun up automatically when accessed
- Can be managed with ETERNUS DX GUI or CLI

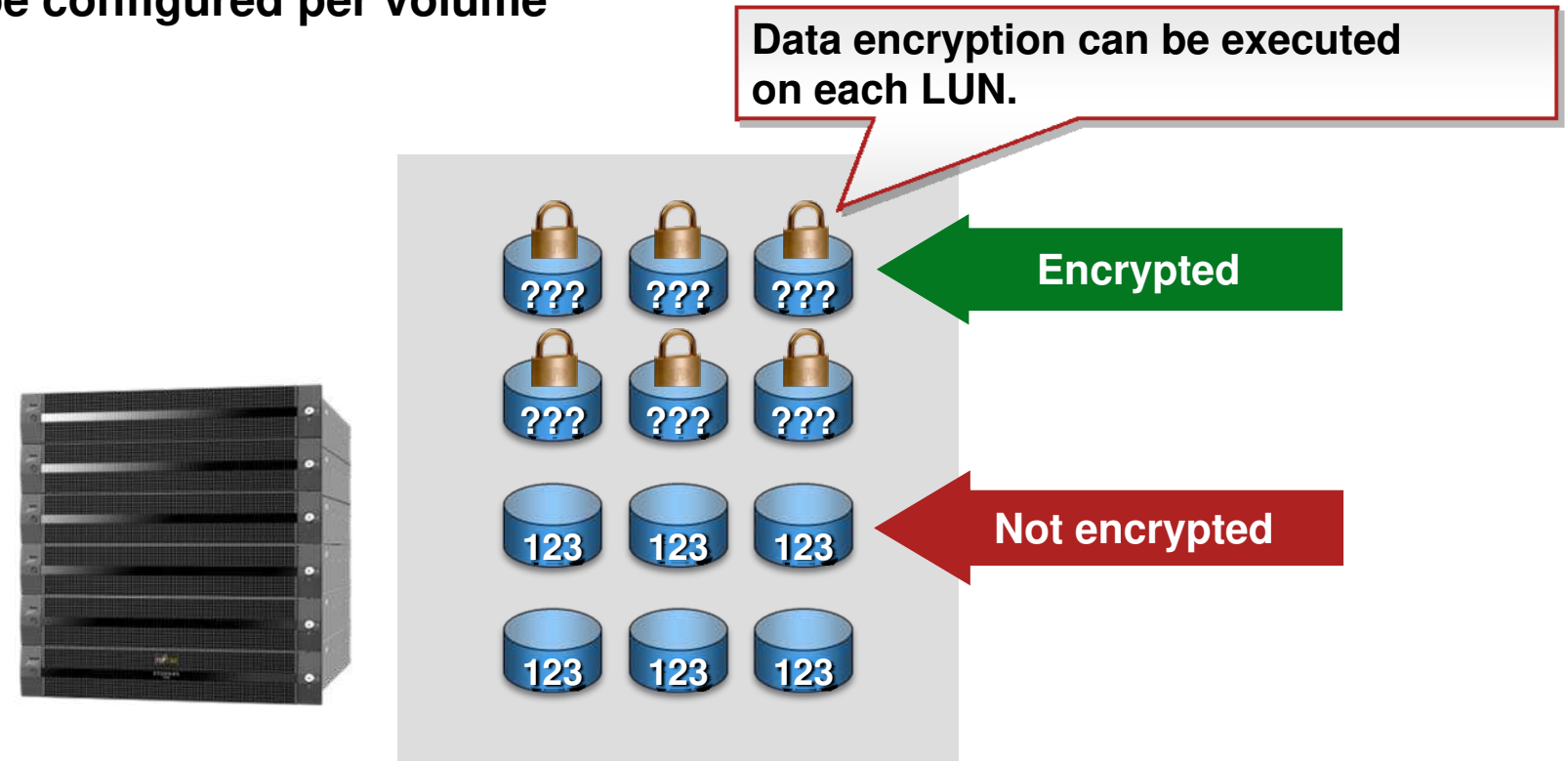


- **Save up to 10% energy by spinning down less frequently used drives**



Disk Encryption

- Key is generated automatically by the system
- Data at rest encryption requires no key management
- Can be configured per volume



- Protects your data also on defective or decommissioned disk drives

Snapshots & Clones

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Snapshots for Data management and protection:

- **Create instant backups (point-in-time copies)**
  - Hardly any impact on application performance
  - Minimal disk capacity consumption
  - Immediate availability
- **Immediate access to backup data**
  - Eliminates delayed access associated with tap-based backup
- **Create copies of data that can be used to support key IT functions, e.g. assess impact of upgrades**
  - Read + write snapshot of a database before upgrading its release

Clones with ETERNUS SF

- **Shorter Backup Window**
- **Faster Restores**
- **More Flexibility to `play` with data**

Connectivity of choice

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Fibre Channel

- 4 or 8 Gbit/s, can connect up to 128 servers (DX80)

iSCSI (will be supported as of September 2009)

- Enables SAN functionality via the known Internet protocol
- Requires smaller investment in new IT infrastructure compared to FC
- Employees do not have to be trained separately.

SAS (will be supported as of September 2009)

- Fastest connection version with a speed of up to 12 Gigabit/second
- Technology to directly connect server and array
- Very low-priced cluster configurations can be implemented.

- **Host ports and performance are ideal for storage consolidation projects**

Supported servers & OS

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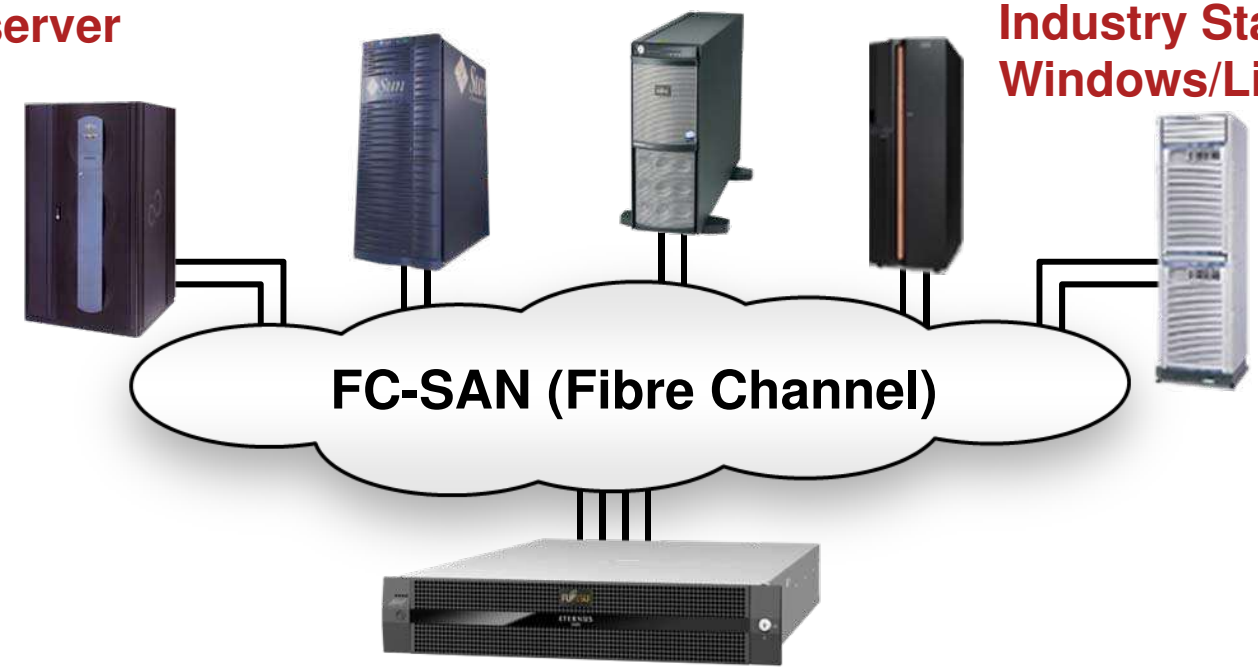
Fujitsu & other vendors' UNIX server

Fujitsu & other vendors' Industry Standard Server Windows/Linux



Supported OS (Fibre Channel)

UNIX server
- Solaris™
- HP-UX
- AIX

Industry Standard Server
- Windows Server® 2003
- Windows Server® 2008
- Windows Storage Server
- Red Hat Enterprise Linux AS/ES
- SUSE Linux Enterprise Server
- VMware® vSphere 4

■ **Supports a wide variety of servers such as Fujitsu, IBM, and HP**

Simple operation

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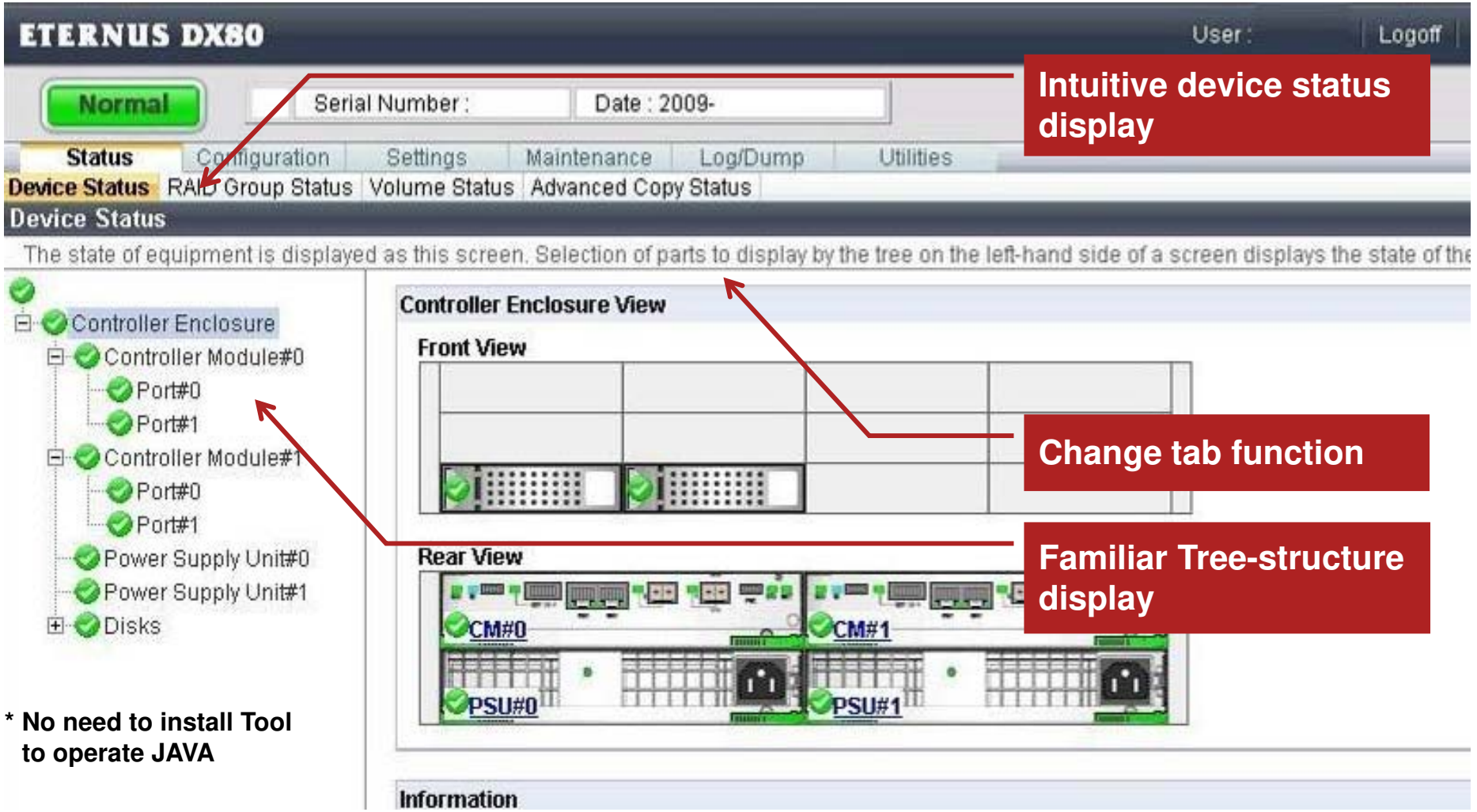

* No need to install Tool to operate JAVA

■ Fast intuitive operation using familiar Tree-structured display

Usage scenarios 1/2

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- Can be used in databases (SQL, Oracle) for critical and important data
  - High performance, availability & easy administration
  - Easily integrated into various environments
  - Achieves ‘server less’ backup through VSS & snapshot functionality
- Can be used in business continuity scenarios
  - Certified for Middle sized-Clusters x10sure
  - Classic server clusters with Microsoft Clusters (MSCS)
  - Synchronous copies of data with the DuplexDataManager(DDM)
  - Data backup with CA BrightStor ARCserve

Usage scenarios 2/2

- Can be used in virtualized environments (VMware)
  - Cost savings
  - High availability on virtual servers
- Can be used in branch office solutions
  - Flexible use up to 120 TB capacity with SAS & NL-SAS disks
  - High data transfer rate (8 Gb/s FC)
  - Can be used in various environments
  - Redundant storage of data (DDM)
- Scale-out scenarios (upgrade as and when required)
  - Very good construction / upgrade in 10 shelves up to 120 TB
  - Integration of SAS and NL-SAS Disks in one shelf
  - Administration costs do not rise with scale-out

Important product facts

- ETERNUS = new brand of Fujitsu storage systems
- ETERNUS DX60/DX80
  - Are orderable, first shipment starts July 1st
  - Lead in performance with 4 or 8 Gb/s FC and scale up to 120 TB capacity
  - Offer high levels of reliability through RAID Migration, Redundant Copy, Data Block Guard, CacheProtector, Snapshots&Clones, Disk Encryption
  - Support different storage tiers in one array on SAS, Nearline SAS & SSD
  - Store data in an energy efficient way with EcoMode
  - Integrate well, are simple to set up and operate with easy-to-use GUI
  - Support more LUNs, more hosts and more Operating Systems than ever

Online resources

- Available on the Internet at ts.fujitsu.com/eternus_dx:
  - ETERNUS DX60 and ETERNUS DX80 data sheets
  - White papers and a product brochure for SMBs
- On the Fujitsu Technology Solutions Extranet partners find:
  - Further sales, technical and competitive information as well as
  - Marketing collaterals like posters, rollup banners and web banners
- On the Fujitsu media server we offer public downloads of:
  - Product pictures and visuals in high resolution

Deployment support

- Demosystems at a reduced price
  - For showrooms and proof of concepts
- Attractive pre-packaged solutions
  - With “My very first’s” available as of July/August
- Local customer and partner support contact
  - At ts.fujitsu.com/support

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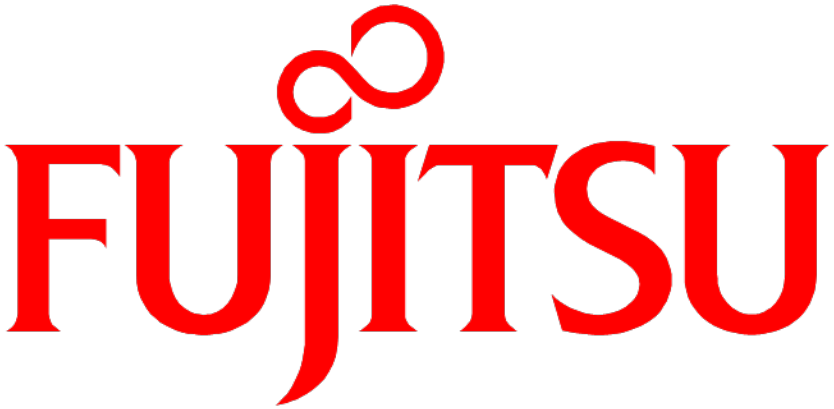
http://www.fujitsu.com/eternus



THE POSSIBILITIES ARE INFINITE