A Block Storage Multi-Protocol Converter:

The core for versatile data storage products.
TechnoMages, Inc.

- Privately held company: HQ in Maryland
- Focuses on Disk and Tape Storage management
- Develops software for versatile, adaptable volume-management
- Integrates this software into disk arrays and router appliances
Block Storage Multi-Protocol Converter

- Kernel-level router of SCSI Commands and Data
- Capable of any-to-any routing between targets and initiators that are cabled via…
  - Ultra160 SCSI (Ultra320 coming) [SPI-2,3,4]
  - FibreChannel (1 and 2 Gbps) [FCP]
  - Ethernet [iSCSI]
  - Other IP transports (ATM, other WAN) [iSCSI]
  - EIDE (initiator only) [ATA]
- Commercial name: DTP (“Data Transport Processor”)
  - Subsets of the BSMC’s capabilities
  - GUI and CLI configuration tools
  - Packaged in embedded OS

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Internal Structure of BSMC
Internal Structure of DTP

- Front End SCSI Target
  - iSCSI Target
  - SCSI Target
  - FC Target
  - Other Targets

- Back End SCSI Target
  - SCSI Command Processor
  - BlockIO
  - CacheIO
  - TapeIO
  - Router

- Block Device
  - Virtualization Device
  - RAID Device

- Generic SCSI Device
  - to iSCSI HBA
  - to FC HBA
  - to Other HBAs

- OS

- TMIsh

- Webmin

- to block device driver
Performance

- The engine is PCI bound: currently about 1000 MB/sec theoretical max throughput
- InfoSlice with SCSI disks is disk bound, with ATA disks is ATA interface bound
- Can saturate two 2 Gbps FC links
- Best iSCSI over a single Gig-E result today is ~70 MB/sec
Uses of DTP: Protocol Interconnect capabilities

SAN
- FC
- iSCSI

WAN (ATM, T1/T3/ etc)
- iSCSI

SAN
- FC

LAN
- iSCSI

DTP
- iSCSI

DTP
Uses of DTP: LAN Management

Storage

LUN 1

LUN 2

Server 1

Server 2

Server 3
BSMC: the flexible core of storage management products

- Interface conversion:
  - SCSI
  - Fibre Channel
  - iSCSI

- LUN management:
  - Logical Volume Management
  - RAID
  - Access Control
InfoSlice: multi-interface disk array

- All of the DTP capabilities
- Interfaces: any mix of
  - iSCSI (Gig-E available)
  - SCSI (U-160)
  - Fibre Channel (1 and 2 Gbps)
- RAID 0, 1, 10, 5
- SCSI or ATA disks
- 3 form factors, from 0.25 TB to 4 TB
- Initiator interfaces for connecting tape drives et al. to many servers
Questions?

An annotated copy of this presentation and information about TMI’s products can be found at http://www.technomagesinc.com