Smart Array Competitive Analysis

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Part 2 of 3

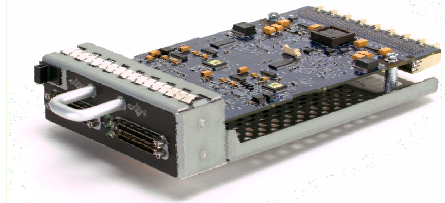
HP WORLD 2003
Solutions and Technology Conference & Expo

What's new for smart array cluster

Selective Storage Presentation

Standard with 2 Port

Share the Smart Array Cluster Storage with multiple servers



4 port SCSI module option

Attach up to 4 direct attached servers

Attach two Smart Array controllers per server

Multipath option software

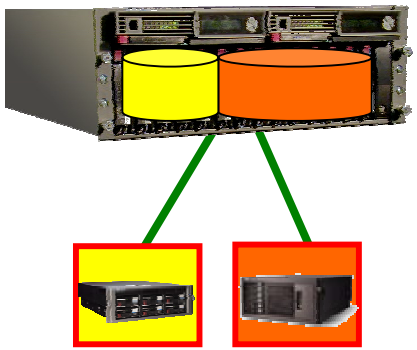
Ships standard with 4-Port Module

Failover between multiple paths to the servers in 2 node SCSI cluster or DAS configurations

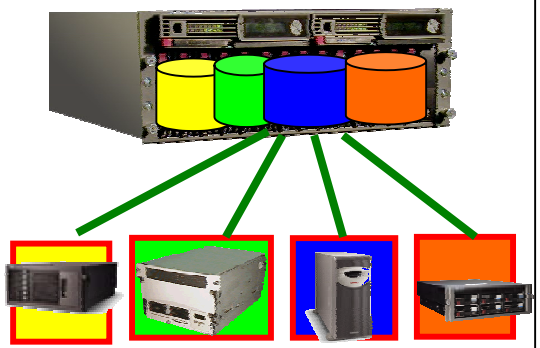
Increases cluster fault tolerance and I/O performance over single path

4-Port Module Configuration Summary

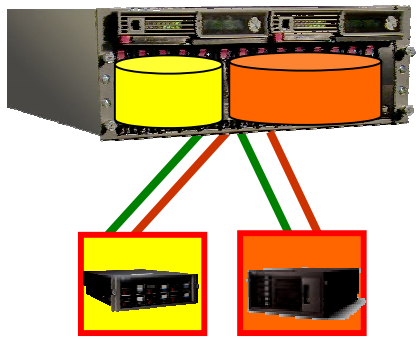
2-node shared storage



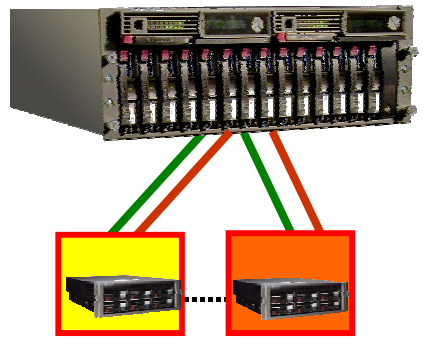
4-node shared storage



Multi-path shared storage



multi-path cluster (S200)



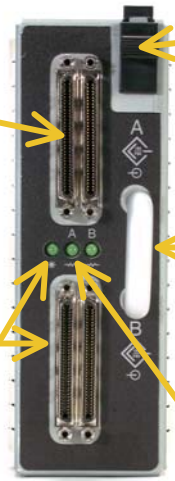
1) Dynamic storage capacity using SSP (share 4TB between up to 4 servers)
2) Maintains simplicity & features of Smart Array
3) Higher levels of availability (protects from HBA & cable failures)
4) Increased IO performance over single path via static Load balancing.

4-port Shared Storage Module

Multi-path Software

Increased High Availability

product view



Bus A

SCSI Port 1 and Port 2

Bus B

SCSI Port 1 and Port 2

Lock

Handle

On/Off LED

Bus A and B I/O Activity LED

Embedded Server RAID performance – case 3

Ultra3, BBWC, dual-channel

HP Proliant DL380 G3

5i Plus

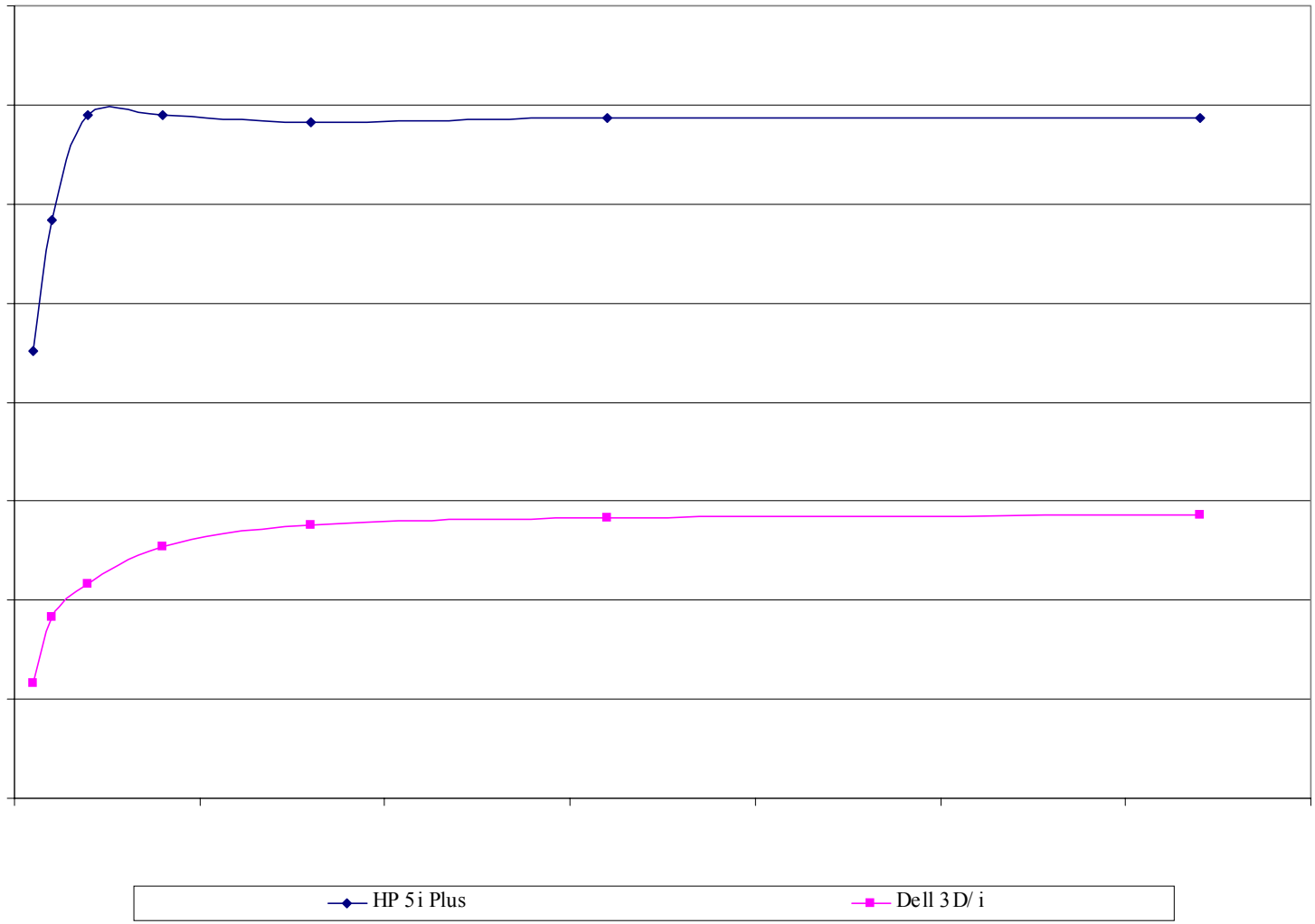
DellPowerEdge 2650

3D/i

Hp 5i plus vs Dell 3D/i

Max IO's

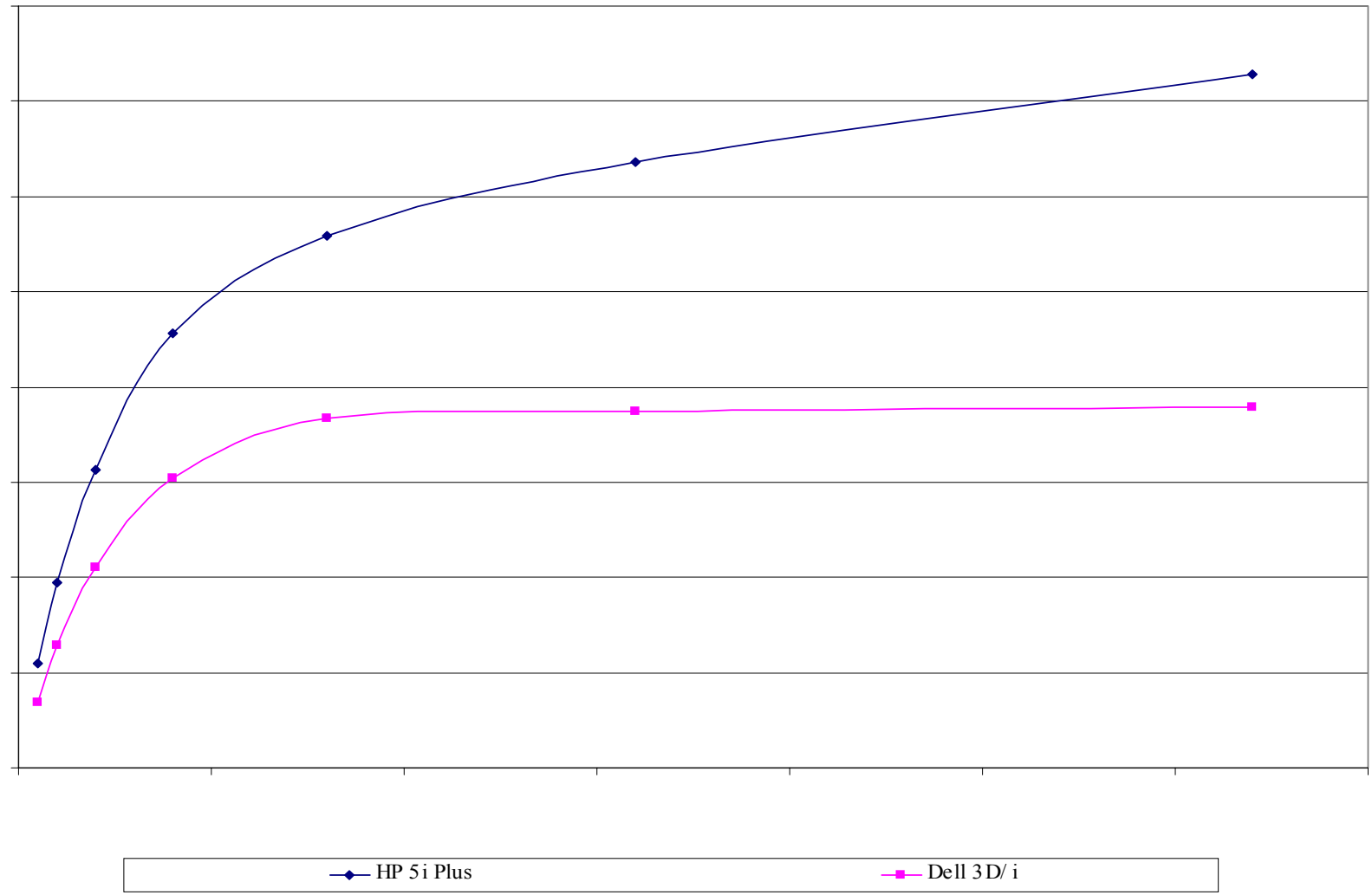
1 channel, RAID 5



HP 5i plus vs Dell 3D/i

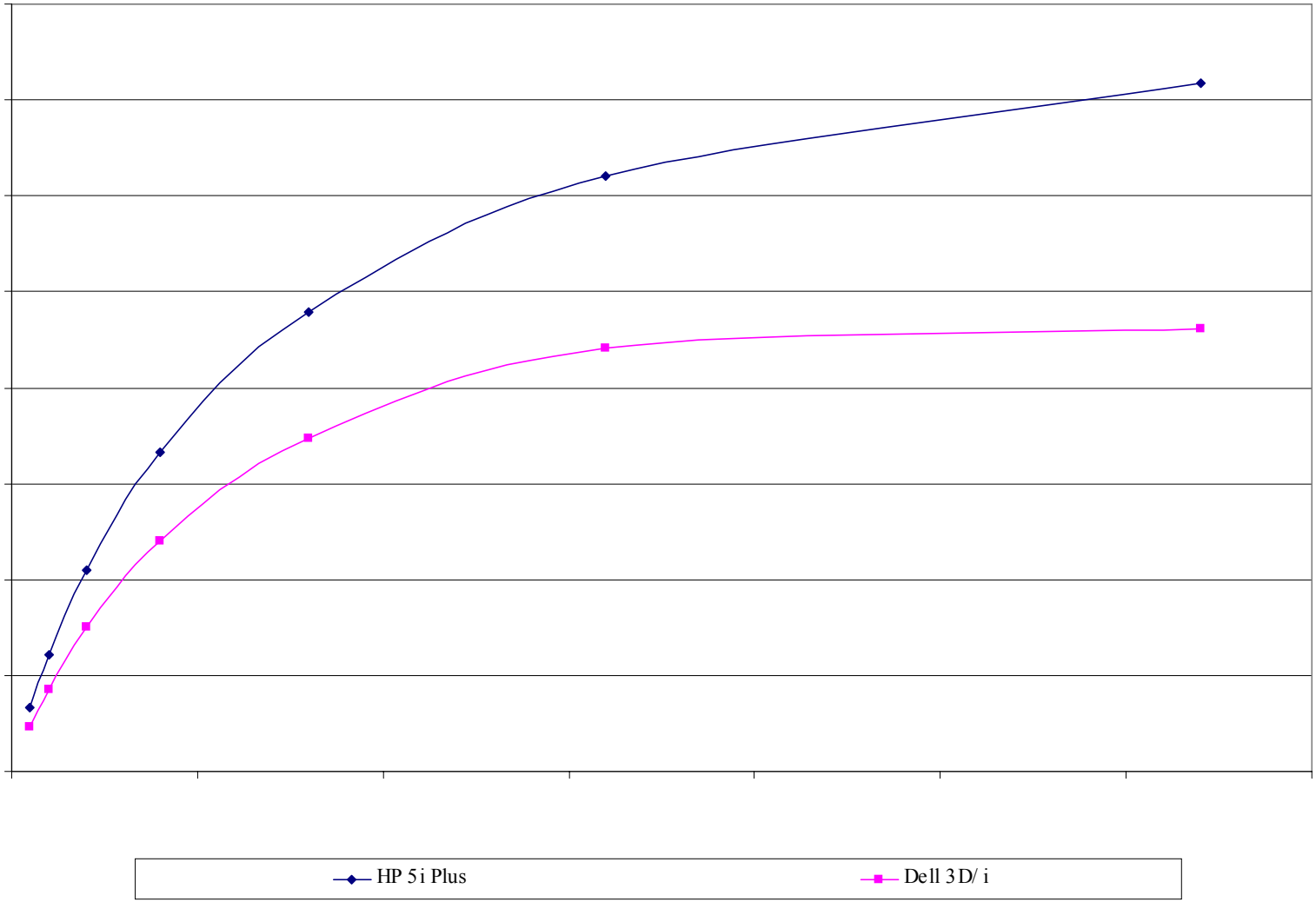
OLTP8k

1 channel, RAID 5



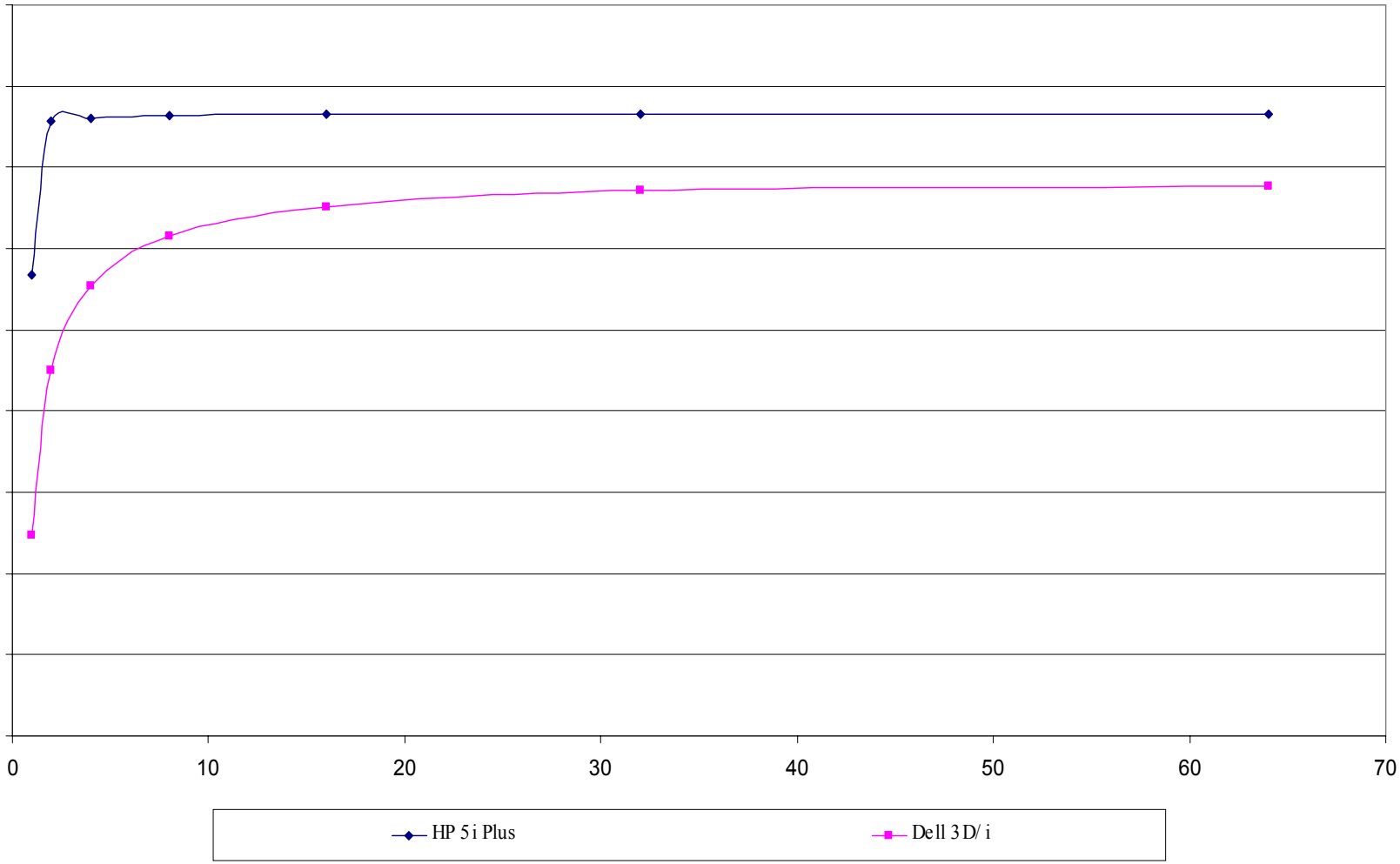
HP 5i plus vs Dell 3D/i

64k random reads
1 channel, RAID 5



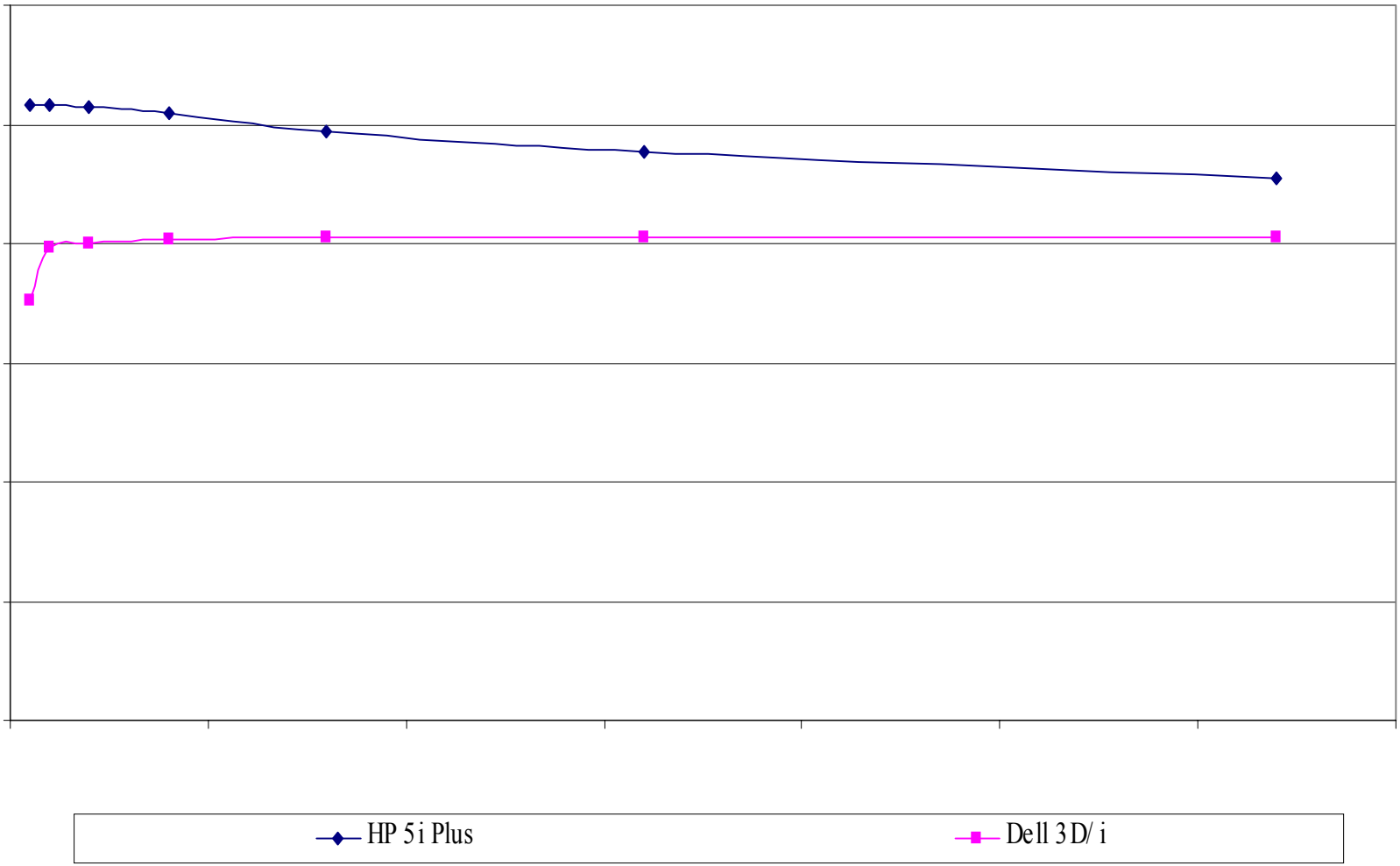
HP 5i plus vs Dell 3D/i

64k sequential reads
1 channel, RAID 5



HP 5i plus vs Dell 3D/i

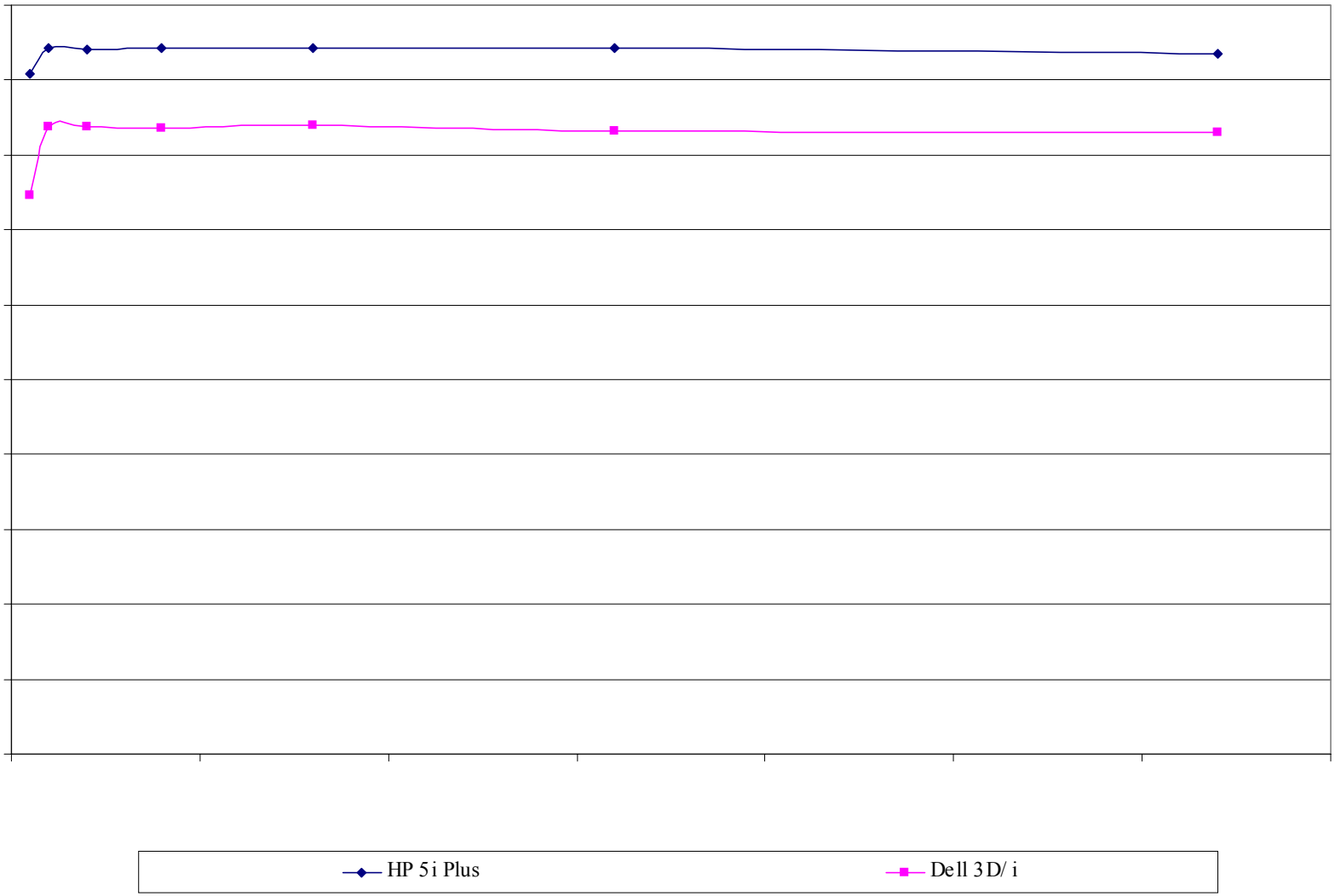
64k sequential writes
1 channel, RAID 5



HP 5i plus vs Dell 3D/i

Max MB's

1 channel, RAID 5



Ultra320 – a performance glimpse

- U320 increases the bandwidth available to customers
- Smart Array continuity:
  - investment protection with backward compatibility to Ultra2 and Ultra3 interface speed
  - consistent manageability and configurations tools
- 64MB of DDR-RAM memory upgradeable to 128MB of total memory for code, transfer buffers, read and write cache
- Sequential read and write performance most improvement – almost double with less drives

Smart Array 642

- 6th generation U320 entry controller
- dual channel, 133MHz PCI-X array controller
- 64MB DDR-RAM, upgradeable to 128MB

BBWC64 MB BBWC Enabler

- transportable 64MB memory and battery module upgrade for the Smart Array 641/642 controllers

Competitor's U320 Controllers

- U320 Server Embedded Controllers
  - Dell PERC 4D/i – Integrated; 128 MB BBW Cache; LSI 1030 logic; PowerEdge 2600
  - IBM ServeRAID-5i – Works with LSI 1030 chip set; RAID levels
- U320 PCI RAID Controllers
  - Adaptec
    - 2200S RAID Controller : Dual-channel, entry level: $799.00
    - 39320D-R – 1 and 2 Channel variations. HostRAID
  - Intel – SRCU42L RAID Controller: Dual –channel. $475.00
  - LSI MegaRAID Series:
    - MegaRAID SCSI 320 – 2 : Dual-channel
    - MegaRAID SCSI 320 – 1 : Single-channel
    - MegaRAID SCSI 320 – 0 : Zero-channel

Competitors' U320

- External Storage
  - Adaptec DuraStor 412R: Ultra320, 2U 12-bay
  - AMI – 2U, 8 drive capable

  - U320 Hard Drives
  - 10K Hard Drives
    - Seagate 36 GB
    - Maxtor Atlas 36 GB
  - 15K Hard Drives:
    - Seagate 18 GB/36 GB/ 72 GB
    - IBM 36 GB/ 72 GB

What does all this performance stuff mean?

- Mature Products like the Ultra-3 SA-5304 still among the best. Firmware revisions keep products efficient.
- Smart Array Cluster is strong performer and has write back cache (whereas leading competitor disables in cluster mode).
- 5i+ is top performing Ultra-3 embedded controller available.
- Early U320 products from HP show performance to be very competitive.

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