

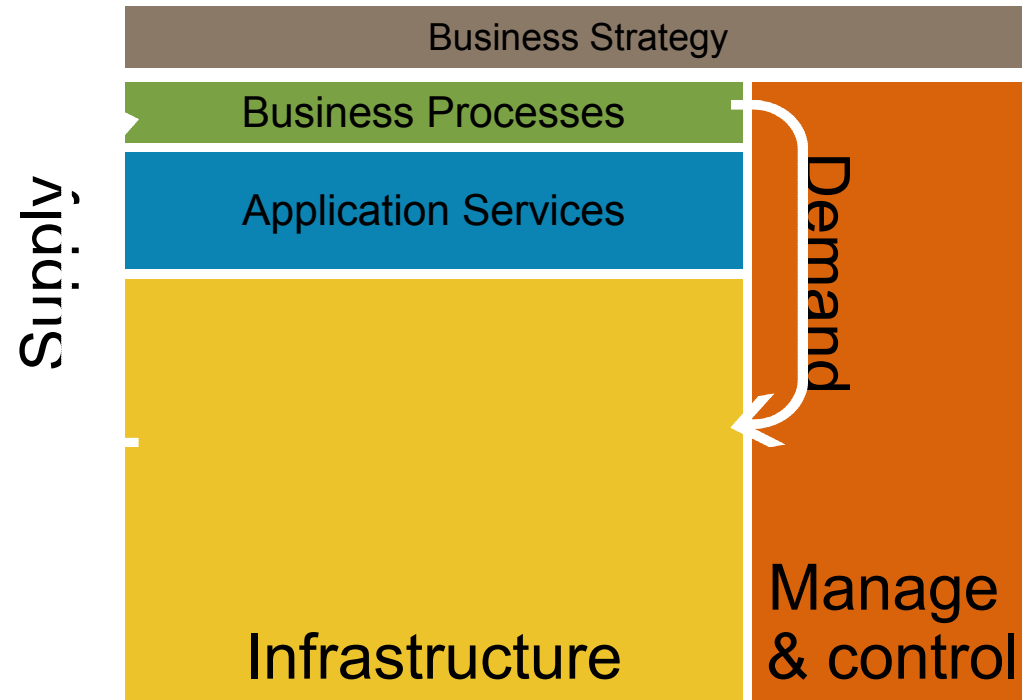
# Head to Head with Dell & IBM: How ProLiant Wins

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Session #2214



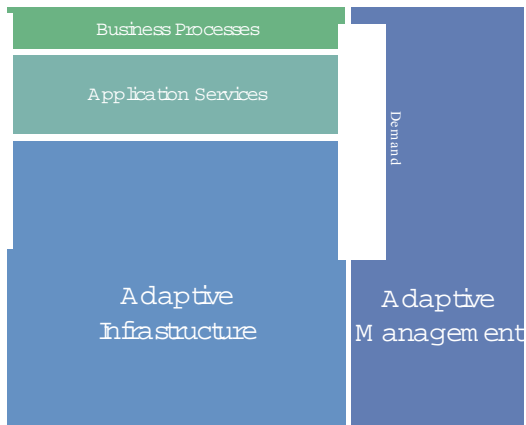
# Adaptive Enterprise: a strategy positioned to win



An IT foundation that dynamically adapts to rapidly changing business conditions

- Tight linkage between IT and business strategy & extension to suppliers, customers.
- Improved service levels through tighter integration.
- Maximized utilization of available resources through sharing and synchronization across all business functions.
- Simplified top to bottom management and control.
- Enabled by automated control and dynamic provisioning.

# Key elements built-in for an adaptive infrastructure



- Based unifying industry standards
- Powered by industry defining technologies

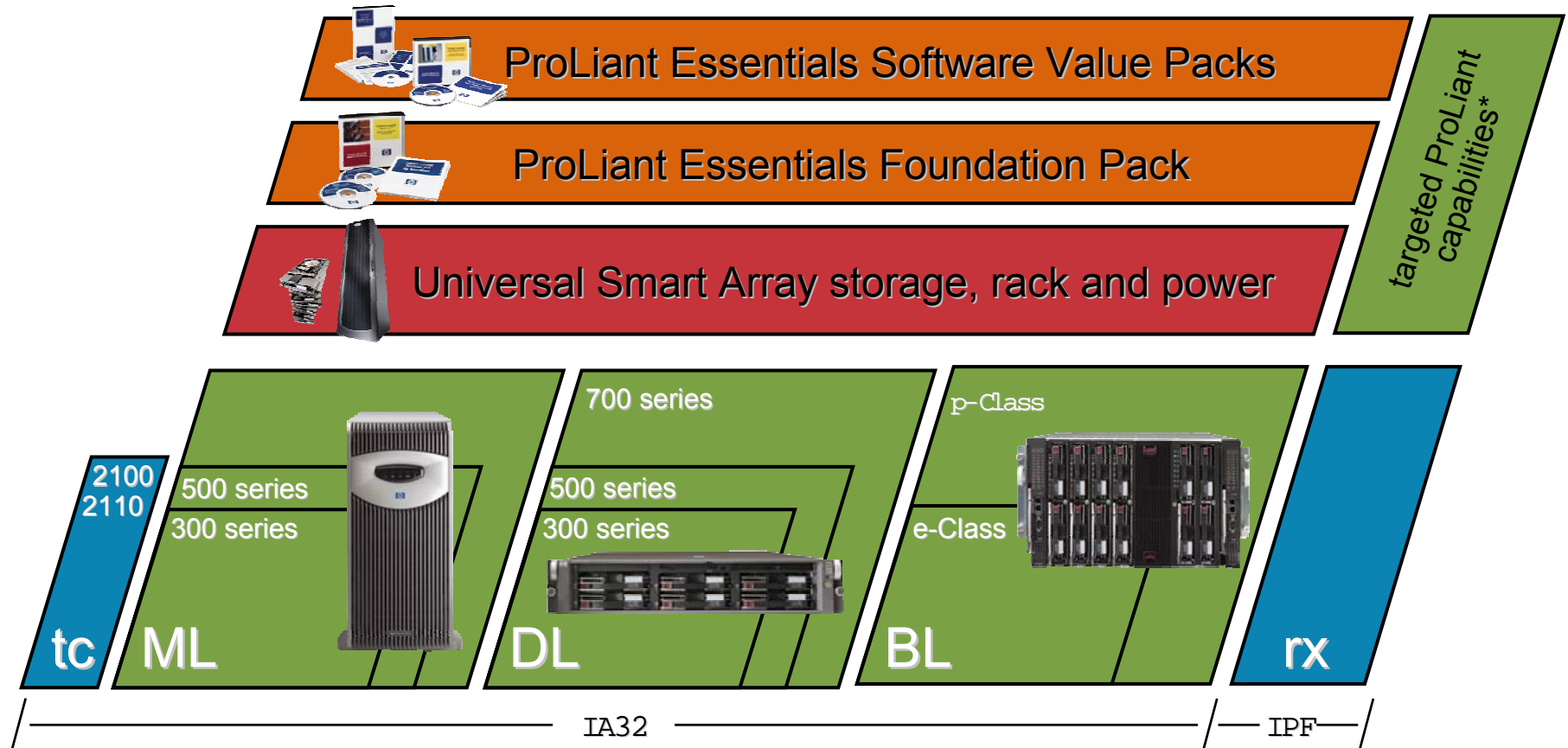
Continuous and secure operations

Automated & intelligent management

Dynamic resource optimization

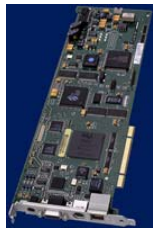
- Strong, collaborative industry partnerships
- Scalable to your unique environment
- Integrated with services and solutions

# HP ProLiant: a robust portfolio positioned to win



\*IPF Windows with future ProLiant capabilities

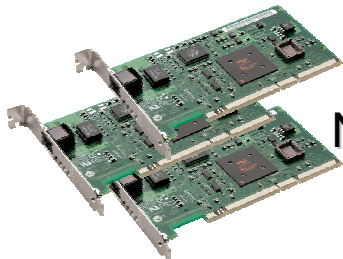
# Technology innovation leadership



Remote Insight  
Lights-out Edition

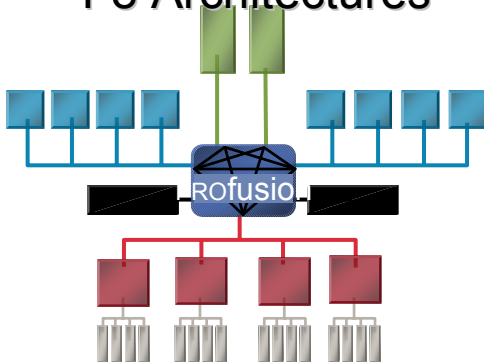


Integrated  
Lights-out



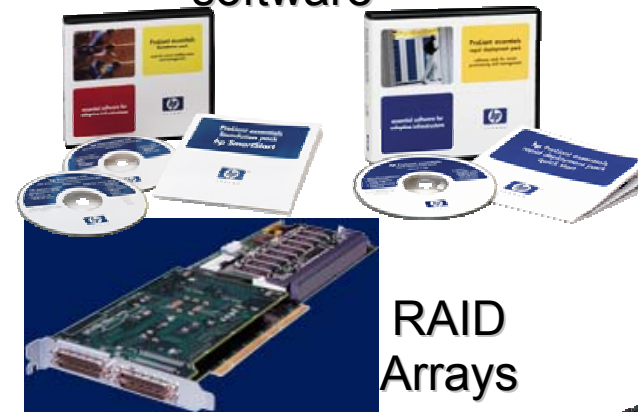
NIC Teaming

8-way Profusion &  
F8 Architectures



Pre-failure  
Warranty

ProLiant Essentials  
software

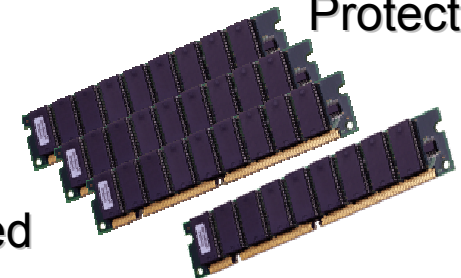


RAID  
Arrays



Pre-loaded  
Images

Advanced Memory  
Protection



Integrated  
RAID 5i



Hot Plug Components



HP  
Insight  
Manager

# #1 in standards based enterprise computing

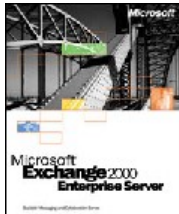
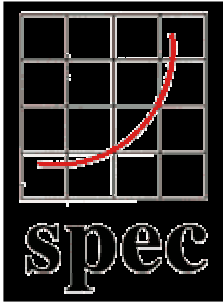


• World-Wide Market Share	32%
• Rack-optimized	40%
• Tower	26%
• 1P	22%
• 2P	35%
• 4P/6P	44%
• 8P	45%
• Blades	23%
• NT/Windows	32%
• NetWare	34%
• Linux	29%

Source: IDC Quarterly Server Tracker 1Q03 All market shares are based on SIAS units.

# ProLiant performance leadership

## Mail & Messaging, SPECweb & WebBench



### ProLiant ML370

2P NotesBench 15,750 users  
2P SPECweb99 5,373 connections

### ProLiant DL560

4P Domino R5  
24,000 mail users



### ProLiant BL20p

2P SPECweb99\_SSL  
1,242 connections

As of 7/14/03

## Applications



### ProLiant BL20p

2P SAP SD User 2-tier  
315 SD users



### ProLiant DL560

4P SAP SD User 2-tier  
500 SD Users



### ProLiant DL740

8P SAP SD User 2-tier  
715 SD users

## TPC-C & TPC-H



### ProLiant ML350

#1 Overall Price/Performance  
\$2.47/tpmC & 1P Performance  
19,526/tpmC



### ProLiant ML370

2P Performance 44,942 tpmC



### ProLiant DL380

2P Price/Performance \$3.71



### ProLiant DL580

4P TPC-H Price/Performance  
\$66/QphH & 1695QphH



### ProLiant DL760

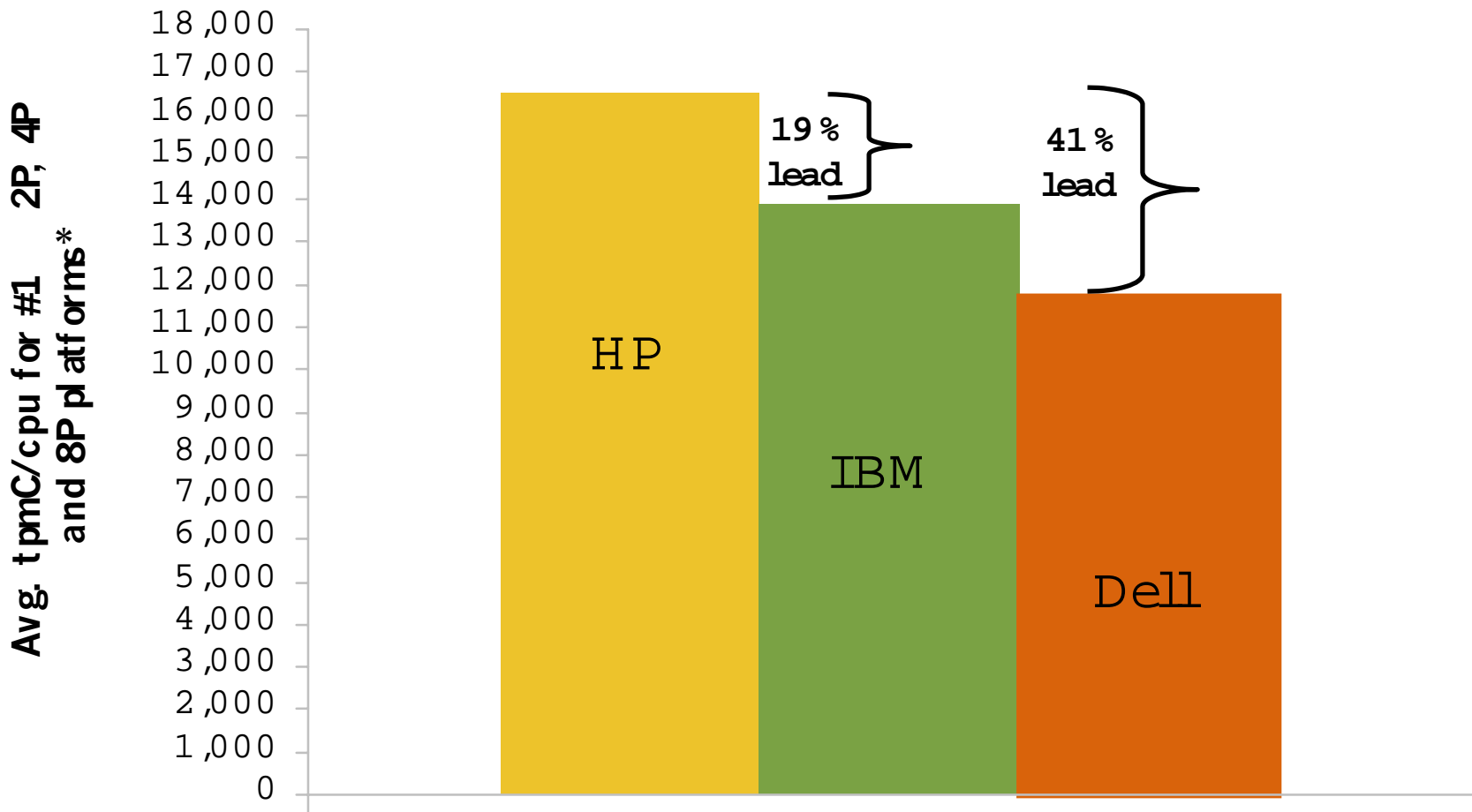
8P Performance  
3,346 QphH & \$65/QphH

### ProLiant ML570

4P Price/Performance  
\$4.98/tpmC & 68,739 tpmC



# ProLiant delivers performance leadership




Source: [www.tpc.org](http://www.tpc.org)

\*As of 7/14/03



# HP industry standard servers

700 series  
500 series  
300 series



DL

HP ProLiant DL  
Density-optimized  
for rack mount  
environments

500 series  
300 series



ML

HP ProLiant ML  
Maximum  
expansion  
for rack and tower  
environments

p-Class  
e-Class



BL

HP ProLiant BL  
Maximum flexibility  
and control in blade  
server  
infrastructures

2100 series



tc

HP Server tc  
series  
Dependable servers  
for value-conscious  
small businesses



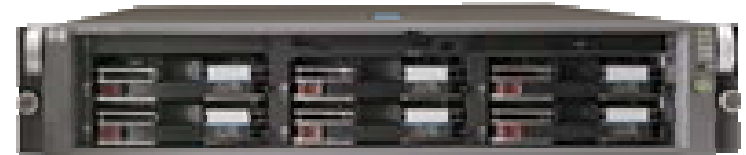
# Competitive map

HP	Dell	IBM
DL760	PE8450	-----
DL740	-----	x440
DL580	PE6650	x440
DL560	-----	x360
DL380	PE2650	x345
DL360	PE1750	x335
DL320	PE350	x305
ML570	PE6600	x255
ML530	PE4600	-----
ML370	PE2600	x235
ML350	PE1600	x225
ML330		
tc21XX/ML310	PE600sc	x205
BL e class	-----	-----
BL p class 20P 40P	1655MC	HS20

# ProLiant DL: we will, we will, rack you

- Embedded technology leadership

- iLO
- Smart Array 5i Plus Controller
- Dual Port NICs



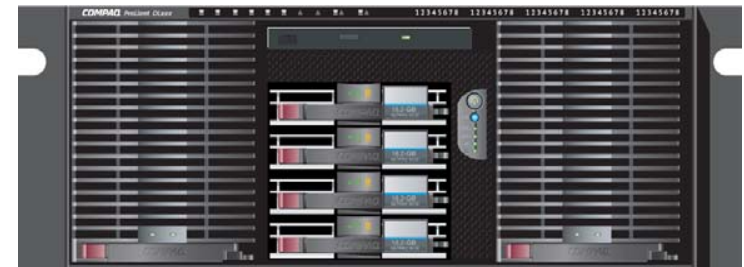
- Clear market share leadership

- 1st 2P X 2U platform

- 1st platform with 533 MHz FSB

- 1st 4P X 2U platform

- 1st 8P X 4U platform



**High Performance Features:**

**Less Filling**

# ProLiant DL320 G2: PowerEdge 350 & xSeries 305



## ProLiant DL320 G2

- Supports a Remote Insight Lights-Out Edition (RiLOE) card
- Supports both ATA and SCSI hard drives
- Supports 4 GB of memory
- Has an integrated video controller
- Supports full height and full length PCI slot

## PowerEdge 350

- Does not support the Dell Remote Access Card (DRAC)
- Supports ATA hard drives only
- Supports only 1GB of memory
- Video controller is not integrated and requires a separate card

## xSeries 305

- xSeries supports 2 PCI slots; however, both slots are only half-length and one is low-profile slot

# ProLiant DL360 G3: PowerEdge 1750 & xSeries 335



## ProLiant DL360 G3

- Ships standard with hot plug power supply and option for redundant hot-plug power supplies
- Utilizes an HP universal hot plug hard drive tray
- Has an embedded Smart Array 5i Plus controller with RAID support standard
- iLo Standard
- Dual 10/100/1000 NICs
- Rear loading power supplies
- 1<sup>st</sup> to market with 533MHz FSB
- 266 MHz DDR SDRAM

## PowerEdge 1750

- Has a hard drive tray that is unique to the PowerEdge 1750 alone
- RAID support is offered as an optional upgrade only for \$499
- ERA/O is a \$399 upgrade
- Top loading power supplies
- Only offers 400MHz FSB
- Only supports 200MHz DDR SDRAM

## xSeries 335

- Does not have option for redundant hot-plug power supplies
- Does not have 2 full-length 64-bit 100MHz PCI-X slots. Only 1 full length and one half-length slot.

# ProLiant DL380 G3: PowerEdge 2650 & xSeries 345



## ProLiant DL380 G3

- 3 full-length PCI-X slots, 2 of which are hot plug
- Support for 6 universal hot plug hard drives
- Supports an option for fully redundant hot plug fans
- Certified Class B EMI testing
- 6 DIMM slots for memory

## PowerEdge 2650

- 3 PCI-X slots with no hot plug support
- Only 5 hot plug hard drives
- Hot plug fans do not have an option for full redundancy

## xSeries 345

- Only Certified Class A EMI testing
- No hot-plug PCI slots
- Only 4 DIMM slots for memory

# ProLiant DL380 Packaged Cluster: a silver bullet unto itself



## ProLiant DL380 Packaged Cluster

- Unique in the industry-standard marketplace; a single SKU, prepackaged and pre-wired
- Comes fully assembled for customer convenience

# ProLiant DL560: PowerEdge 6650 & xSeries 360



## ProLiant DL560

- 1<sup>st</sup> 4P 2U platform and offer 50% more density than any of its competitors
- Offers greater power efficiency in a non-redundant configuration
- Offers greater level of reliability with Online Spare Memory
- Offers 1+1 power supply solution
- Uses 550W power supplies

## PowerEdge 6650

- Only offers 4U form factor
- Only offers 1+1 power supply solution
- Uses 900W power supplies

## xSeries 360

- Only offers 3U form factor
- Only offers 2+1 power supply solution
- Only offers ChipKill memory solution



# ProLiant DL580 G2: PowerEdge 6650 & xSeries 360 & 440



## ProLiant DL580 G2

- Supports hot plug mirrored memory
- Has an Integrated Smart Array 5i Plus controller with a battery-backed write cache enabler on all 2-processor models – standard
- Supports up to 32GB max memory
- Offers 4 HDD's

## PowerEdge 6650

- Has a memory mirroring capability, but no hot-plug memory
- Offers only an embedded Ultra3 controller with optional RAID support

## xSeries 360 & 440

- x360 only offerx 8GB max memory
- x360 only offers 3 standard HDD's and x440 only offers 2 HDD's
- Neither IBM platform offer an integrated RAID controller with RAID support standard
- x360 only offers Chipkill and does not offer hot-plug memory

# ProLiant DL760 G2 and DL740: PowerEdge 8450 & xSeries 440



## ProLiant DL760 G2 & DL740

- Features Hot Plug RAID memory for the ultimate in memory fault tolerance
- Enabled by the modular chassis design, the ProLiant DL760 server offers simple drawer swap allowing for a server upgrade between the ProLiant 8500, DL760 and DL760 G2

## PowerEdge 8450

- Offers only ECC memory protection
- Offers only PCI slots
- Does not support Xeon MP processors

## xSeries 440

- Does not offer upgrade path from previous 8-way platforms
- Only supports 2 HDD's
- Does not offer Hot Plug RAID Memory
- Does not offer 7U platform

# ProLiant ML: we tower over the competition

- Clear market share leadership in the pedestal market and even greater strength in 2P tower
- 1<sup>st</sup> to implement iLO in a tower platform
- Greater customer deployment flexibility with rack and tower configuration models as well as tower to rack conversion kits
- Greater levels of availability with Advanced Memory Protection
- Greater levels of serviceability and reliability testing



Tastes great and less filling:  
delivering performance and  
price/performance based on  
customer need

# ProLiant ML310: PowerEdge 600SC & xSeries 205

## ProLiant ML310

- Has a pre-failure warranty on hard drives (ATA and SCSI), memory and processors worldwide
- Comes with an integrated dual-channel ATA adapter with ATA RAID support or an integrated single-channel SCSI controller (depending on model selected)
- Supports Remote Insight Lights-Out Edition II (RILOE II) to provide excellent operating system-independent, secure, out-of-band management

## PowerEdge 600SC

- Does not offer a pre-failure warranty
- Does not offer an integrated ATA RAID solution, only an optional SCSI RAID and ATA RAID controller
- Does not support the Dell Remote Access Card (DRAC) for out-of-band server management

## xSeries 205

- Only supports 2GB maximum memory
- Does not offer 64-bit PCI slots
- ATA models have integrated dual ATA/100 adapters with no standard integrated ATA RAID

# ProLiant ML330 G3: PowerEdge 1400SC & xSeries 220



## ProLiant ML330 G3

- 4 X 64-bit PCI slots
- U3 SCSI or ATA RAID 0, 1
- Offer ATA & SCSI model
- Rack-mountable
- 4GB maximum memory
- Pre-failure warning on processors, memory and hard drives

## PowerEdge 1600

- No HDD option
- No rack-mount option
- No pre-failure warnings.

## xSeries 225

- No standard ATA RAID

# ProLiant ML350 G3: PowerEdge 2600, 1600 & xSeries 225

## ProLiant ML350 G3

- Supports 8 HDD's
- 4 PCI-X slots
- Up to 8GB maximum memory
- Offers 3-3-3 warranty support
- Pre-failure warranty covers HDD's, memory and processors
- Tower or rack model

## PowerEdge 2600 & 1600

- 2600 only has 6 GB maximum memory and 1600 only has 4GB maximum memory
- 1600 only has 2 PCI-X slots
- 1600 only has 6 HDD's and only offers tower model

## xSeries 225

- xSeries 225 only supports 6 HDD's
- Pre-failure warranty only covers HDD's

# ProLiant ML370 G3: PowerEdge 2600 & xSeries 235



## ProLiant ML370 G3

- Has online spare memory
- Supports up to 12 GB memory
- Has Integrated Lights-Out (iLO) capability for remote management built in
- Offers a tool-free rack rail kit for true rapid deployment
- Offers 6 X 64-bit PCI-X slots
- Offers a standard hot-plug power supply

## PowerEdge 2600

- No online spare memory
- Only support for 6GB maximum memory
- Integrated remote management is an extra cost option (ERA/O)
- The rack rail kit requires 2 different tools and the customer to add/remove over 10 screws

## xSeries 235

- Does not offer online spare memory
- Base model does not come standard with a hot plug power supply. The hot plug redundant power supply option kit must be purchased separately by the customer – a trash-and-replace upgrade

# ProLiant ML530 G2: PowerEdge 4600 & xSeries ???



## ProLiant ML530 G2

- Supports 14 HDD's
- Up to 16GB maximum memory
- Supports 7 PCI-X slots
- Offers Hot-Plug Mirrored Memory

## PowerEdge 4600

- Only support for 10 HDD's
- Only support for 6 PCI-X slots
- Does not offer hot-plug mirrored memory

## xSeries ???

- IBM does not currently offer a platform that is directly comparable to the ML530 G2



# ProLiant ML570 G2: PowerEdge 6600 & xSeries 255



## ProLiant ML570 G2

- Supports up to 14 HDD's
- Up to 32GB maximum memory
- Offers Hot-Plug Mirrored Memory

## PowerEdge 6600

- Supports only 12 HDD's
- Does not offer hot-plug capabilities with its mirrored memory solution
- Only support for 16GB maximum memory

## xSeries 255

- Supports only 12 HDD's; standard 6 hard drive cage and optional 6 hard drive cage
- Only supports up to 12GB maximum memory

# ProLiant BL: emerging market leadership

- 1<sup>st</sup> tier one vendor to market with Blades
- 1<sup>st</sup> to market with 2P blade
- 1<sup>st</sup> to market with 2P & 4P blade with FC SAN connectivity
- Best-in-class technologies
  - Strongest suite of deployment and management tools
  - Fully enabled virtual remote management
  - Densest blade offering with hot-plug SCSI drives
  - Flexible interconnect options



Feature-PHAT  
for thin computing

# ProLiant BL10e: A silver bullet unto itself

## ProLiant BL10e

- Features Intel Pentium M ultra-low voltage processors at 1GHz
- Allows the installation of up to 280 blade servers with a 3U rack-optimized blade server enclosure that holds 20 blades/enclosure

## PowerEdge ???

- Dell's announced blade strategy does not include a low-power, 1-processor blade offering

## IBM ???

- IBM's announced blade strategy does not include a low-power, 1-processor blade offering

# ProLiant BL20p : PowerEdge 1655MC & BladeCenter HS20



## ProLiant BL20p G2

- Support for 2 SCSI HDD's
- Support for 4GB maximum memory
- Offers 4 network adapters (1 dedicated to iLO management)

## PowerEdge 1655 MC

- Only offers 2 network adapters
- Only offers 2GB maximum memory
- Does not offer hot-plug drive support

## IBM BladeCenter HS20

- Only supports 2 non-hot plug IDE drives
- Only offers 2 network adapters

# ProLiant BL40p: A silver bullet unto itself

## ProLiant BL40p

- Features 4 Xeon processors, hot plug SCSI drives, and redundant SAN capability
- Includes an integrated Smart Array 5i plus, 6 NICs (1 dedicated to iLo), and 2 full length PCI-X slots

## PowerEdge ???

- Has not announced a 4P blade and is currently questioning viability of blade market

## IBM ???

- No 4P blade offering

# Summary: why ProLiant wins

- Greater portfolio breadth & flexibility
- Clear technology innovation leadership
- 1<sup>st</sup> to market with emerging technologies
- Best-in-class management capabilities
- Clear performance leadership
- More enhanced feature set on each platform



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