IBM Systems and Technology Group University 2005

IBM eServer BladeCenter vs. the Competition

Course #: CB11

Mike Easterly
WW Competitive Marketing

ON DEMAND BUSINESS™

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Objectives

- **Understand & Help Solve Customer Pain Points**
- **Help sales reps communicate IBM advantages**
  - Provide Value to clients
- **Provide tips on how to sell against the competition**
- **Sell the TCO advantages of BladeCenter**

Section Title

Section subtitle
Section subtitle second line

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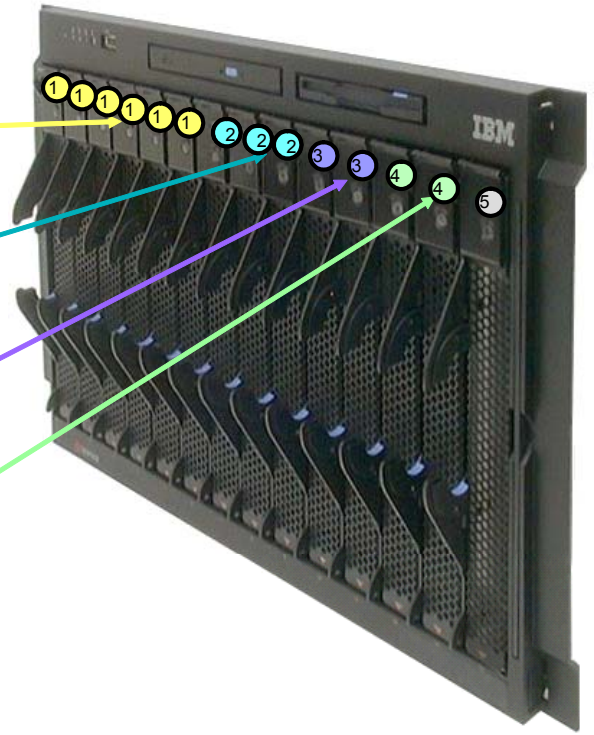
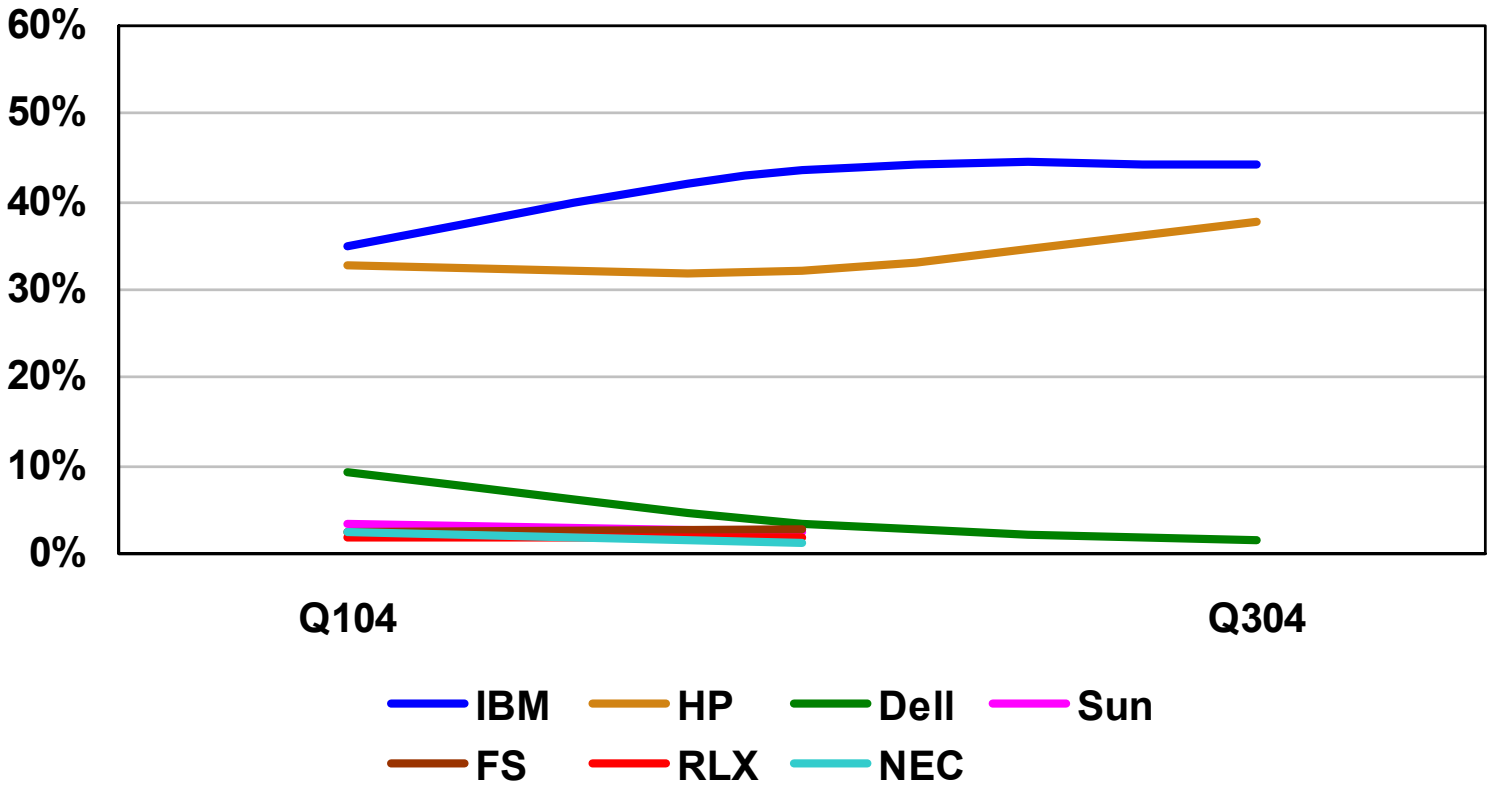
Blade Servers

- Customers want
  - Reduced IT & infrastructure costs
    - Decrease network complexity
    - Space savings in the data center
    - Help address power and cooling
    - Help with server consolidation
    - Improve IT staff productivity
  - Increase storage utilization
  - Highly available solutions
    - Must match rack optimized offerings



IT users are voting with their dollars!



BladeCenter is not just a server it is a lot more!

Source: IDC Quarterly tracker

Competitive Portfolio Comparison

	IBM	HP	Sun	Dell	Fujitsu
Blade Offerings					
Uni	NA	BL10e (IA-32)	B100x/s	NA	NA
2-way (IA-32)	HS20	BL20p/BL30p	B200X	NA	NA
2-way EM64T	HS20	BL20p G3	NA	1855MC	BX600
2-way (Unix)	JS20	NA	NA	NA	NA
4-way (IA-32)	HS40	BL40p	NA	NA	BX600
Operating Sys.					
Windows	Yes	Yes	No	Yes	Yes
32-bit Linux	Yes	Yes	Yes	Yes	Yes
64-bit Linux	Yes	Yes	No	Yes	Yes
64-bit Unix	AIX	No	Solaris	No	No

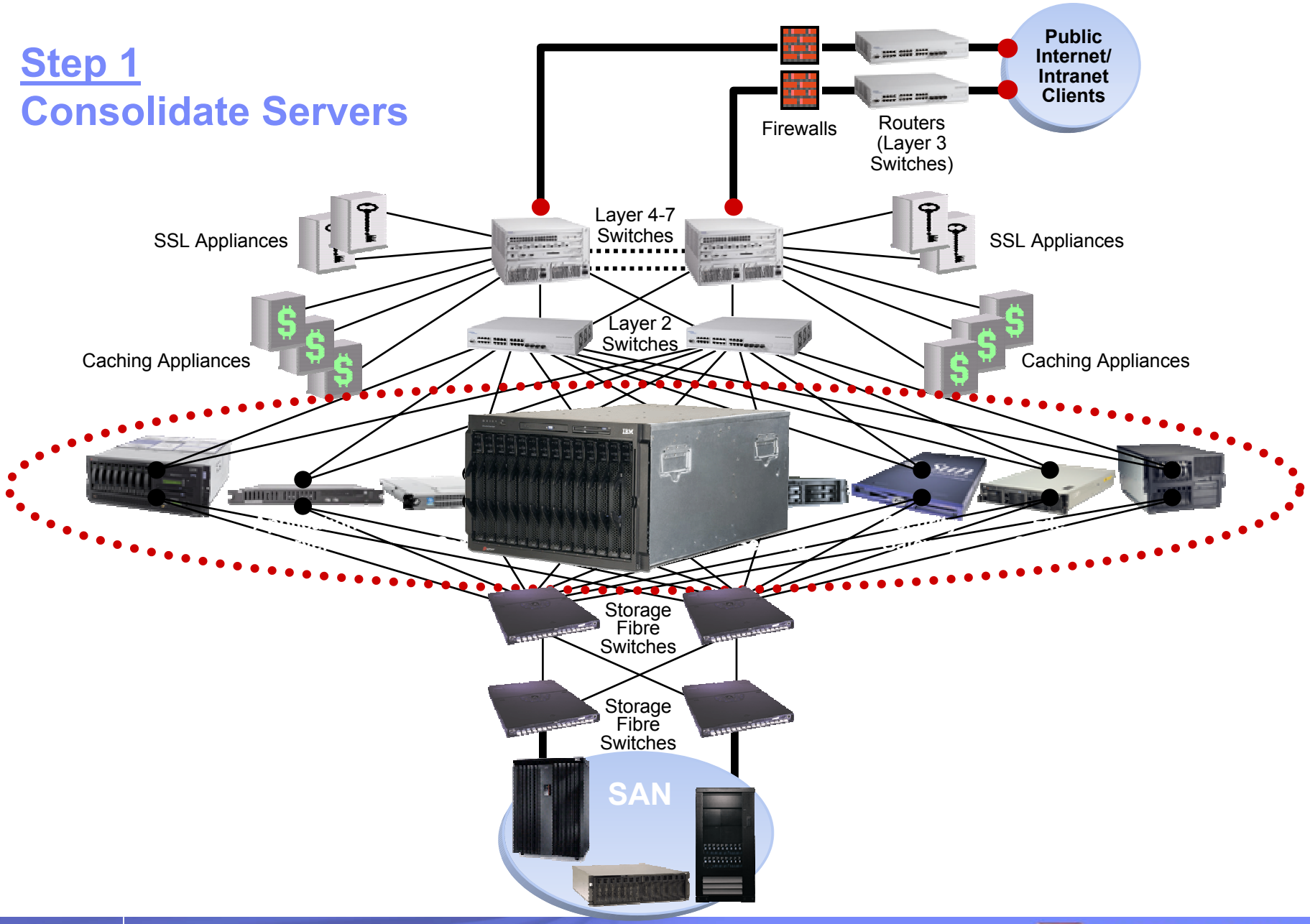
Other Vendors:

- Egenera – 70% of sales to 3-4 customers most are also their investors, story centers around virtualization (PAN software) TopSpin
- RLX – first to market but lack current innovation

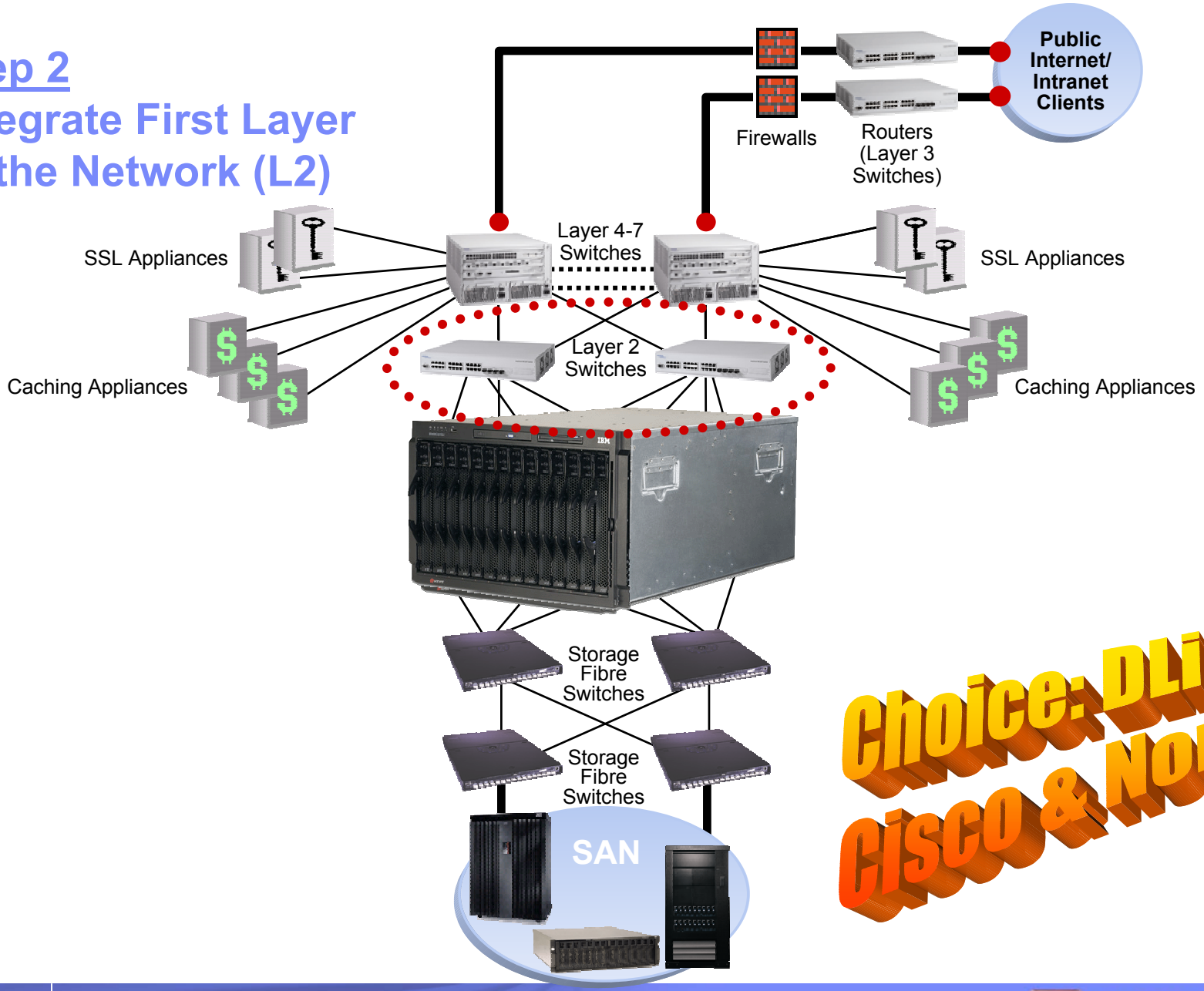
•assumes Sun had a 42U rack

•** Might be less due to power and switches

Step 1
Consolidate Servers

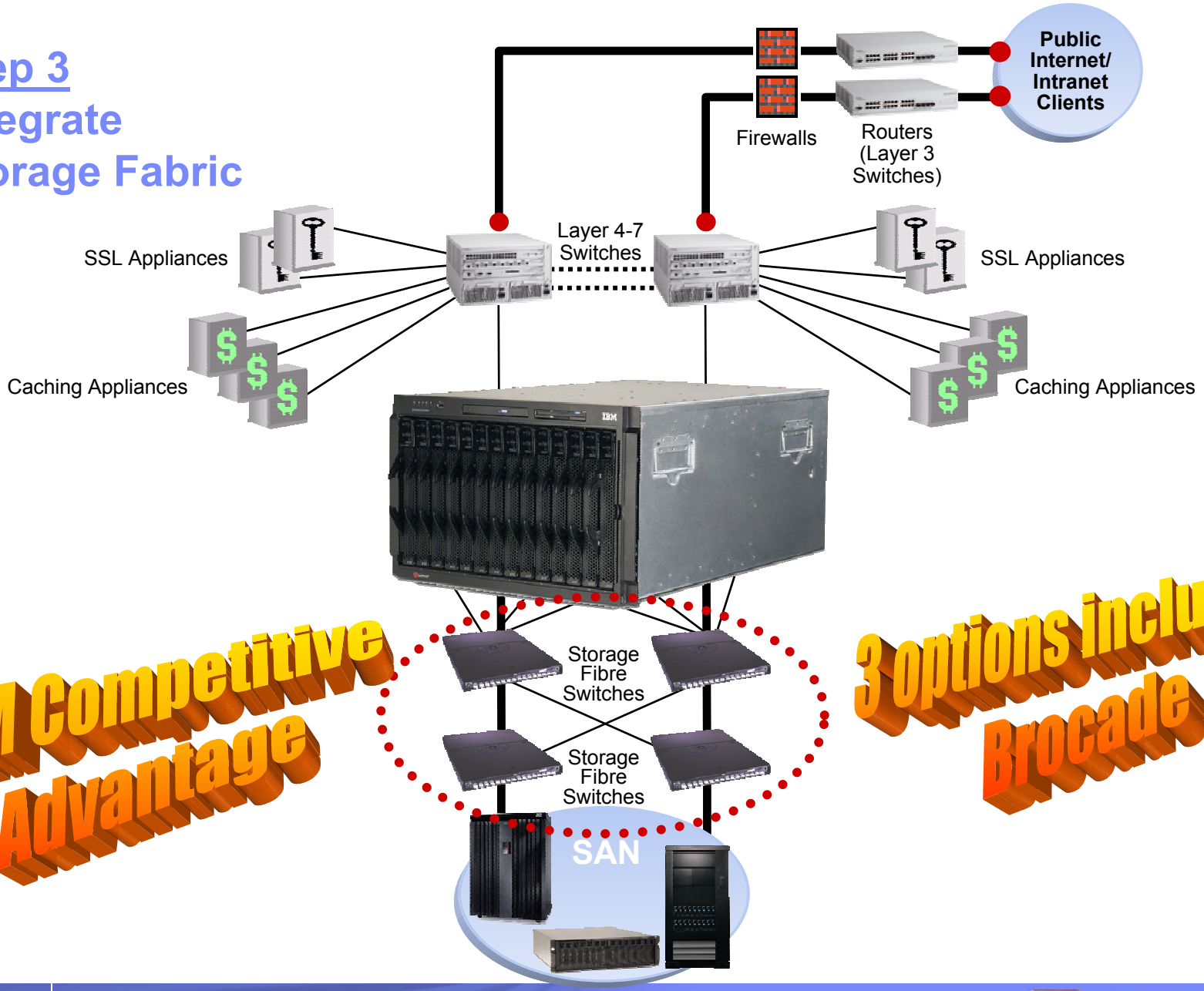


Step 2
Integrate First Layer of the Network (L2)



Choice: DLink, Cisco & Nortel

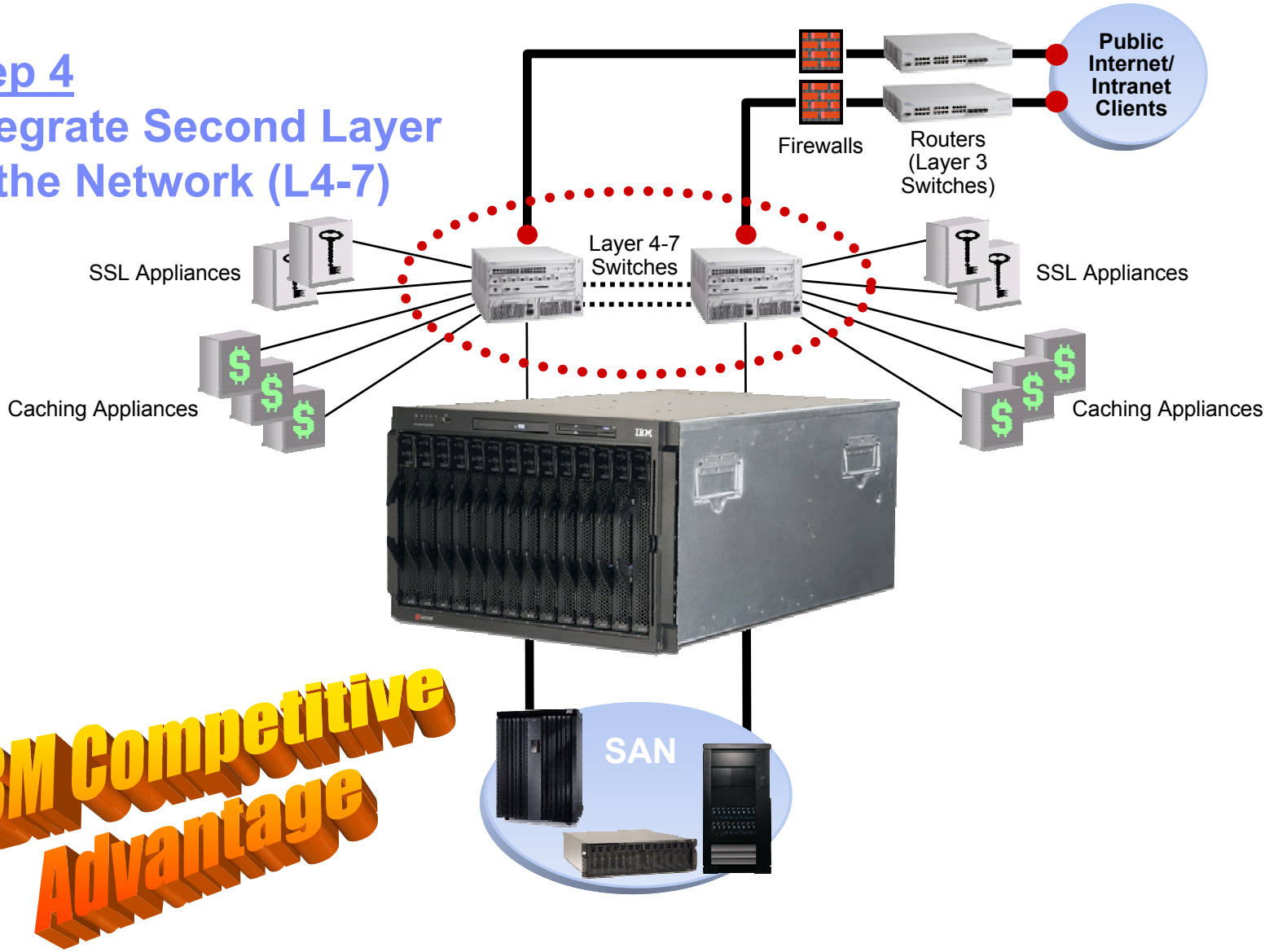
Step 3
Integrate Storage Fabric



IBM Competitive Advantage

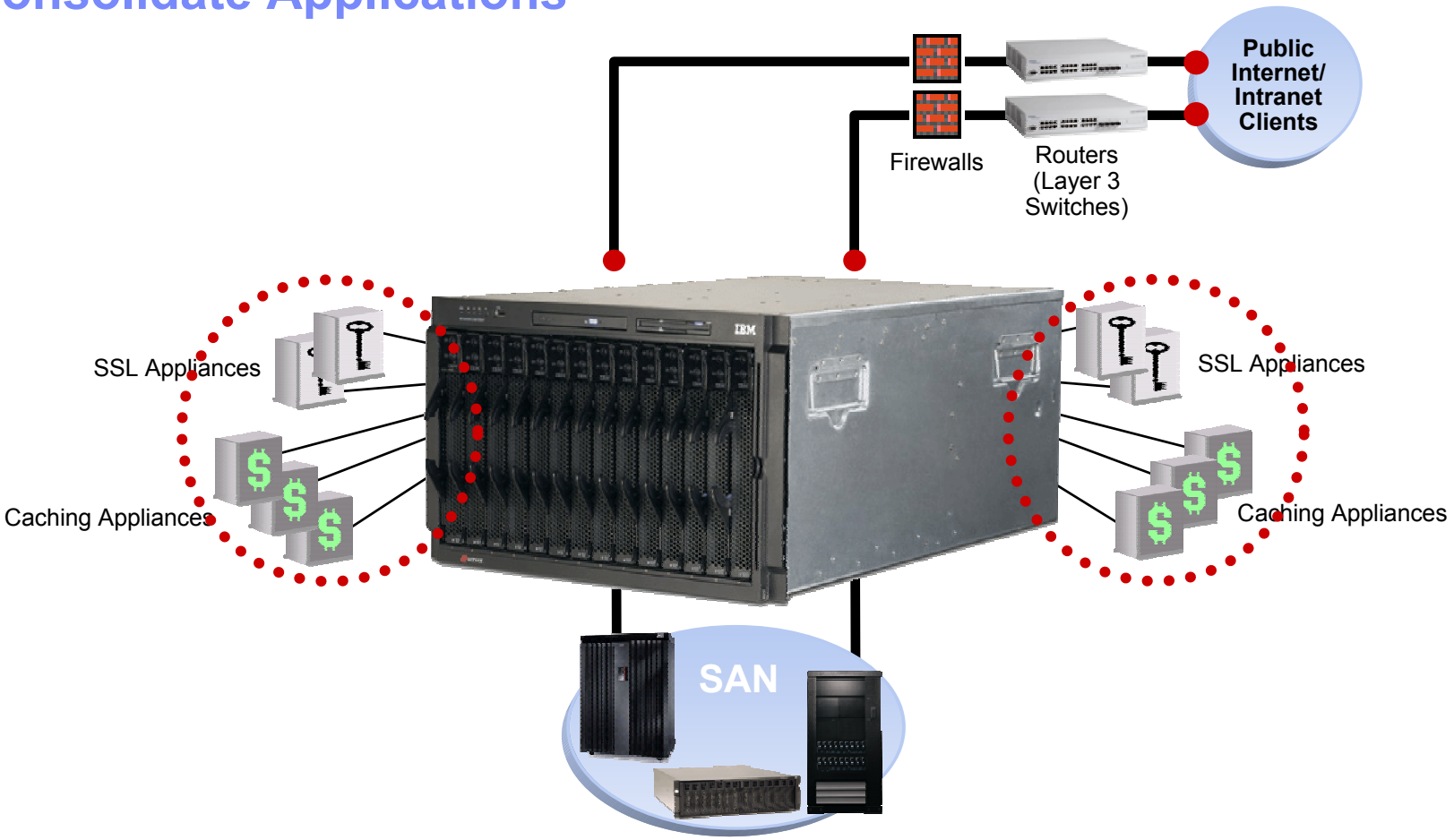
3 options including: Brocade

Step 4
Integrate Second Layer of the Network (L4-7)

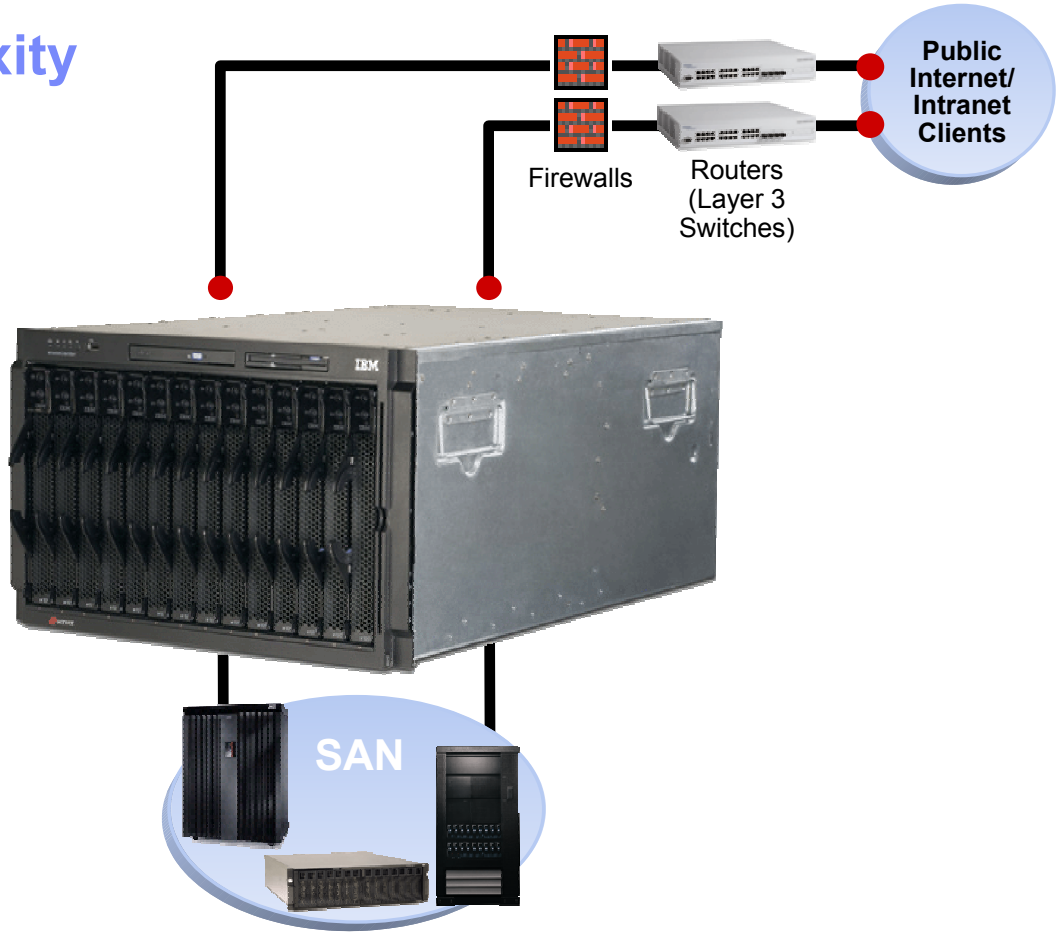


IBM Competitive Advantage

Step 5
Consolidate Applications



Result
BladeCenter Collapses Complexity

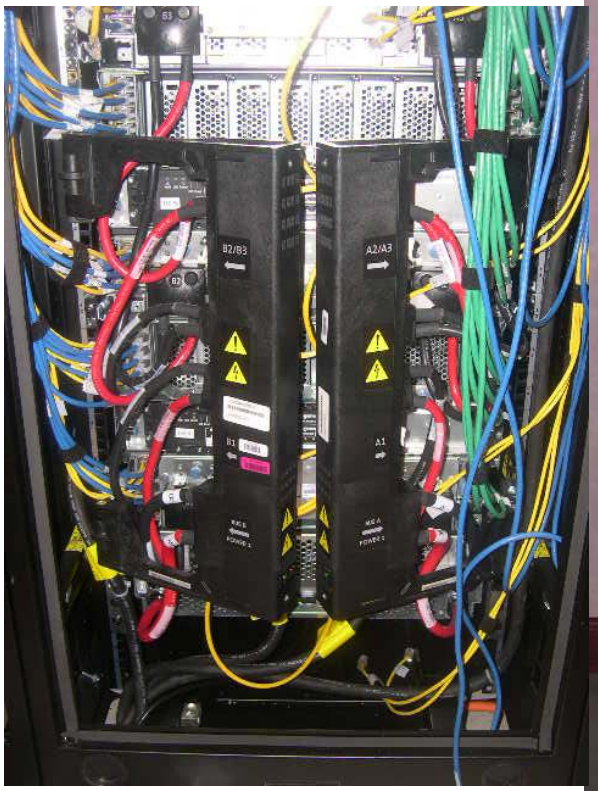


IBM/Intel Open Specifications can deliver additional opportunities

Simplify Deployment/Management of Power

- **IBM**
  - Similar to rack servers
  - Potential 37% cost savings*
- **HP**
  - Unique Distribution
  - Adds clutter to center of the rack
    - Could block space below or above
  - Increased complexity
    - Bus Box
    - Bus Bars

Some HP configs now require 2 power enclosures



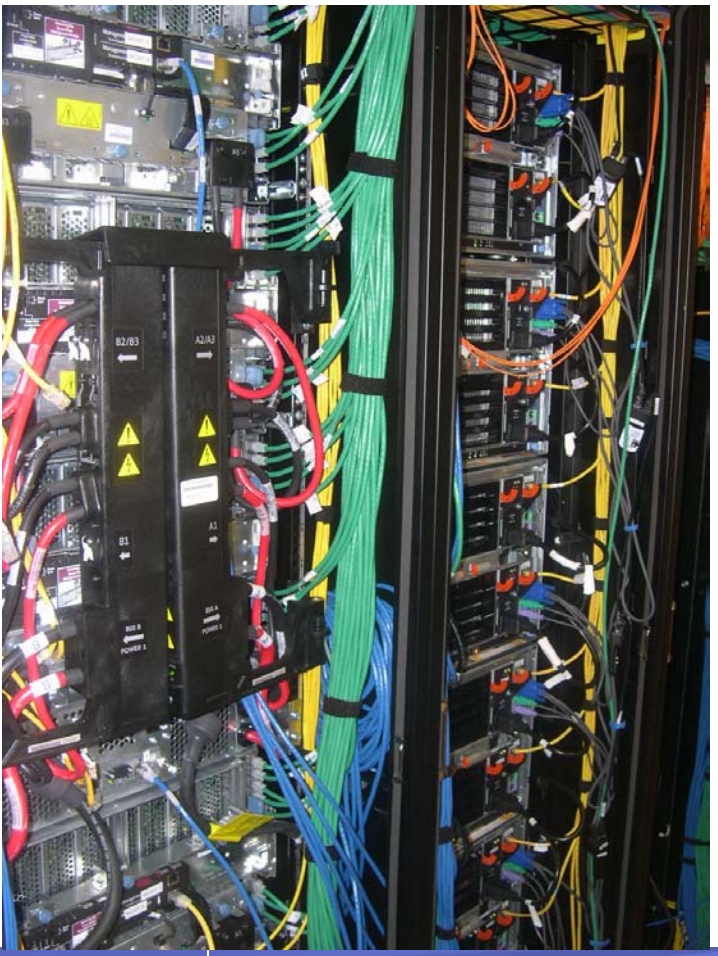
* See Appendix A

Ease of deployment and Serviceability

- **BladeCenter is designed for easy use**
  - Work locally using **CD and Floppy standard in the chassis**
  - Work remotely using **virtual media support** with IBM Director
- **Dell/HP/Fujitsu**
  - Now all three vendors offer a cumbersome **I/O cable** cables which provides USB and video ports.
    - Customers then have to buy a USB floppy or CD-ROM.
    - Cables can only plug in to one blade at a time

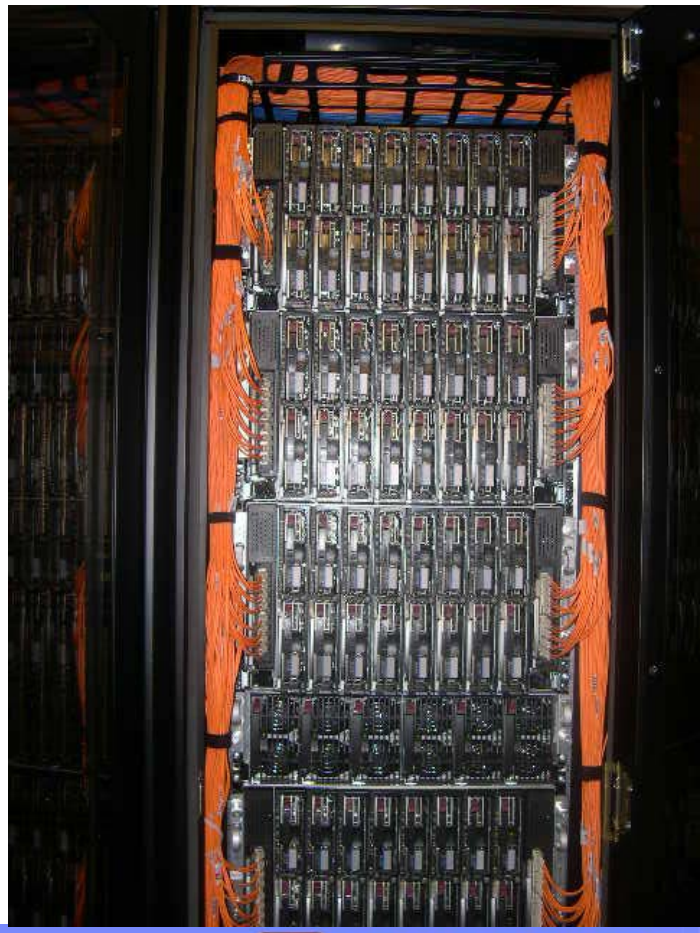
Far fewer cable Requirements

- Ease deployment
- Easier to manage & service
- Reduced cable costs
- Smooth air flow



Potential for fewer:

- Ethernet Cables*
- Fibre Channel**
- KVM Cables*
- Mgmt Cables*



* Due to fewer chassis

** Due to integrated switch

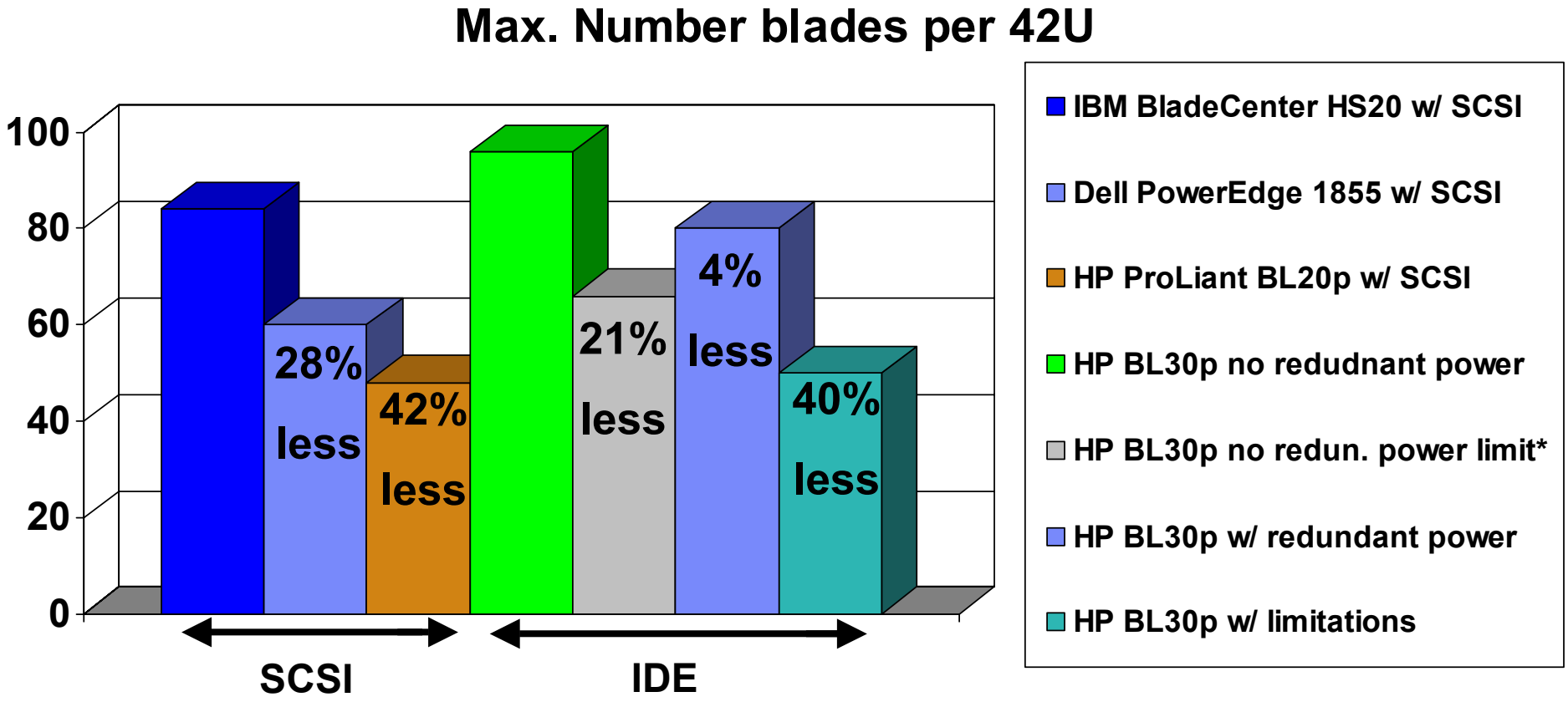
IBM Systems Management

- ✓ **Comprehensive:** IBM offers a wide portfolio of monitoring, provisioning, patching, and configuration management tools that save customers valuable time and money
- ✓ **Integrated:** IBM's management tools tie into IBM's Director to ensure consistency and easy access
- ✓ **Open:** IBM Director is an open framework that allows Industry technology providers to create functional extensions (i.e. Aurema and APC)
- ✓ **Affordable:** IBM offers management tools that can easily be set up without the need for lengthy and expensive implementation services
- ✓ **Heterogeneous:** IBM Director manages and supports cross IBM server platforms and non-IBM x86 systems

IBM Systems Management

- ✓ **Virtual Node Management**: Clients can manage both their virtual and physical nodes within a common management framework
- ✓ **Intelligent integrated blade infrastructure:** Location and device associations are automatically displayed, utilized by management and provisioning tools which reduces deployment times and decreases costly human error
- ✓ **Consistent management:** IBM clients can utilize a single management solution across xSeries/BladeCenter servers running Windows/Linux, plus unify control over their IT environments.
- ✓ **Automated:** Automation of management tasks frees up costly resources and drives consistency across processes
- ✓ **Integration:** Comprehensive set of fully integrated blade management tools available in base Director offering – and have been available since 2002!

IBM provides extreme 2-way density



HP's power configuration tool indicates possible limitations!*

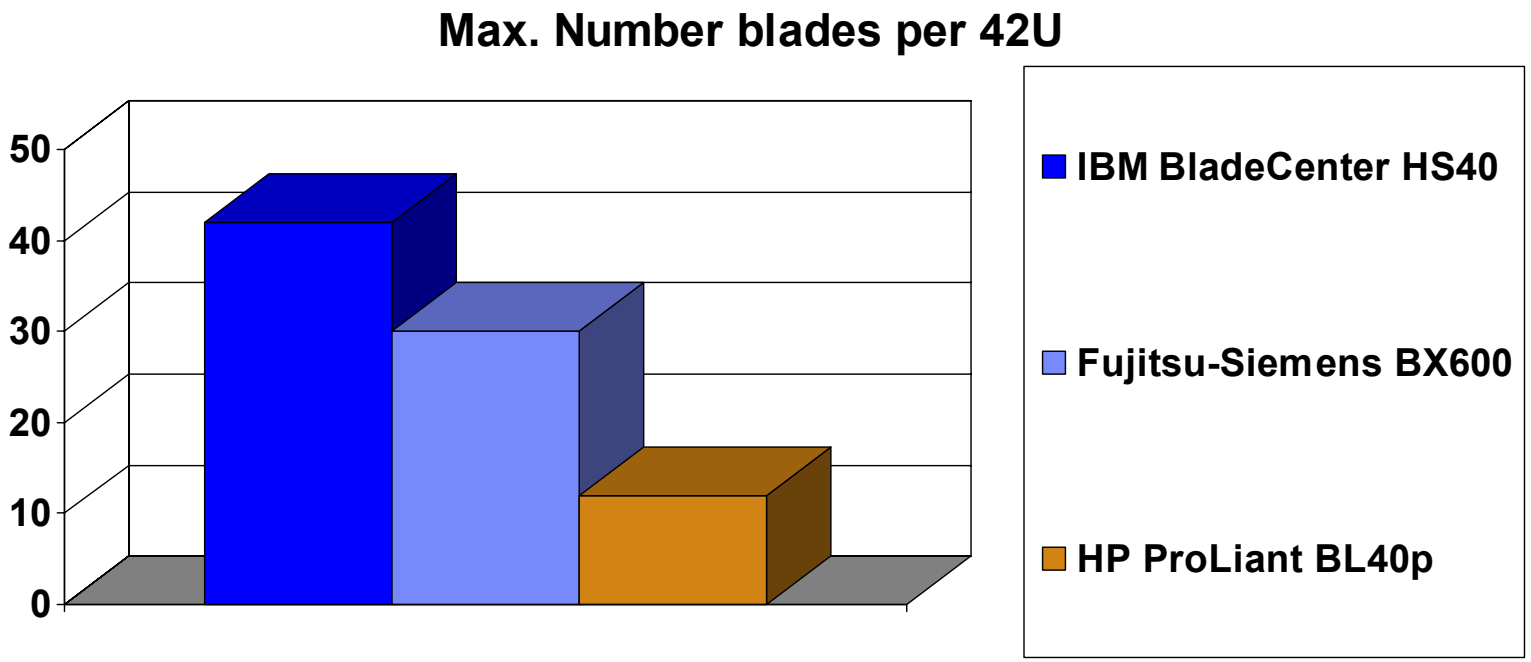
IBM helps clients address issues of limited space!

*Source: Based on HP's Power configurator tool revision 0.42 Sept. 21, 2004

If customers says they require Hot-swap SCSI

- **IBM can also offer Hot-swap SCSI**
  - It does reduces density in half (7 blades in a 7U)
- **Thinks to bring to the customers attention**
  - Investment protection if moving to SAN
    - Boot from SAN might be a great alternative and allows them to get back to 14 blades per 7U with out new hardware
    - Can use the hot-swap SCSI drives in select xSeries servers
  - Considering space requirements for switches
    - IBM's internal switches can save valuable space
    - Dell and HP could require rack space for L2-7 or FC switches
      - Dell would go from 60 blades in a 42U rack to 50 blades

IBM provides extreme 4-way density

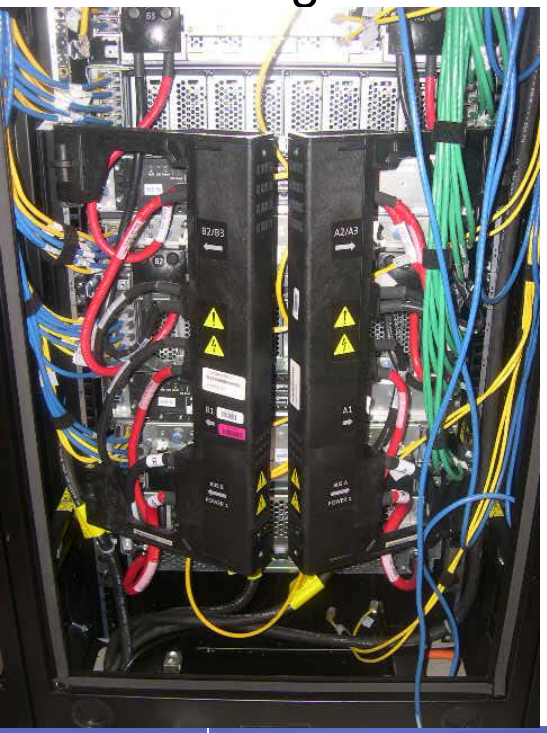


- IBM 40% more 4-ways then Fujitsu-Siemens
- IBM 350% more 4-ways then Fujitsu-Siemens

IBM helps clients address issues of limited space!

Power & Cooling Requirements

- Easy to deploy and service
- Better Airflow for cooling
- Power & Cooling Savings
  - Up to 40% vs. 1U servers (Dell claims 13%)
  - Over 30% vs. HP BL20p Intel blades
  - Significant savings per blade per year



*Source: Gartner Research “Electrical Requirements for Blade Servers”
Jane Wright G00120690 April 24, 2004

Helping Deliver Extreme Levels of Availability

- **BladeCenter is designed to help predict failures before they occur with Predictive Failure Analysis**

	IBM	HP	Dell
Predictive Failure	CPU, memory, Hard drives, blowers,	CPU, memory, Hard drives	Memory & Hard drives

- **Multiple layers of redundancy**

Redundant	IBM	HP	Dell
Hot-swap Cooling	Yes – chassis	No – BL20p/BL30p	Yes – chassis
Hot-swap power	Yes - internal	Yes - external	Yes - internal
Internal switches	Ethernet & Fibre Channel	Ethernet	Ethernet
Midplane	Yes	No	No
Mgmt. Module	Yes	No	Future

Need to sell based on price per blade server

- Chassis - IBM as much as 28-70%[1] less
  - IBM one chassis since announce
- Ethernet switch – up to 42-71%[2] less
  - IBM can support up to 4 NIC's on 2-way blades
  - Dell can only support 2 NIC's
- Ethernet Layer 2-7 Switch – Internal vs. External
  - Can deliver over 60% greater Layer 4 session performance than external[3]
  - Can cost almost 40% less an HP ProLiant BL-class blade server outfitted with an external layer 4-7 switch[3]
- Fibre Channel card & switch – up to 10-36%[4,5] less
- Cost of Ethernet and Fibre Channel cables

[1] Appendix B, [2] Appendix C, [3] Tolly Group - http://www-306.ibm.com/pc/support/site.wss/document.do?lndocid=MIGR-54372, [4] Appendix D, [5] Appendix E

Infrastructure Benefits of Blades

- BladeCenter offers the ability to dramatically reduce cost of ownership for Intel-based compute platforms
- Numerous Factors Affect TCO (some tangible / some less-tangible)

Purchase Cost Factors

- Server to Server comparisons
  - Allocated blade+chassis cost vs. rack server cost
- Switch Infrastructure
  - External KVM, Ethernet, Fibre Channel switches
- Infrastructure comparisons
  - Rack requirements
  - KVM / Remote Console requirements
  - Systems Management Connection components

Total Cost Factors

- Infrastructure
  - KVM Cabling
  - Ethernet Cabling
  - Fibre Channel Cabling
  - Systems Management Cabling
  - Power Cabling
  - Power Distribution / Delivery Configuration
- Floor Space / Density
  - External Switches (Ethernet, Fibre Channel, KVM)
  - Cost of External Switches
  - Rack Costs
  - Floor Space
- Operations
  - Power Costs
  - HVAC / Cooling Costs
- Management Costs
  - Remote Management Infrastructure
  - Management / Analysis Personnel
  - Service / Support Allocation
- Investment Protection
  - Future Compatibility / Infrastructure Investment

Infrastructure Benefits of Blades

- **Against HP**
  - IBM has a lower web price on 2-way and 4-way*
    - Additional selling points for SAN customers (FC)
    - Additional selling points for space savings, power & cooling
- **Against Dell**
  - Dell will have a lower price per 2-way blade
  - IBM needs clients to consider infrastructure costs:
    - Purchase costs: rack rails, chassis, switches, cables
    - Infrastructure: Floor Space, rack costs, power & cooling
    - IT staff: deployment, servicing and ongoing management
    - Potential cost of downtime: availability and serviceability
- **Against Fujitsu-Siemens**
  - IBM is priced competitive and has technology leadership

* Appendix F

A look at technologies on the Blades

- **HS20**
  - Support for Chipkill – not on Dell or HP
  - Ultra320 SCSI – not on HP BL20p
  - Intel EM64T processor – not on HP BL30p or Fujitsu-Siemens
  - PC2-3200 memory - not on HP BL30p or Fujitsu-Siemens
- **HS40 vs. HP BL40p**
  - Support for up to 16GB of memory
  - Ultra320 SCSI
- **JS20**
  - Great for pSeries customers or those wanting AIX
  - Alternative to Itanium
  - Ideal for Linux customers wanting price performance
    - Up to 31% less expensive then HP BL20p on HW costs*

* Appendix G

Selling in to Telco

- **Competitors**
  - HP cc3310
  - Sun Netra 240 (2-way)
  - Sun Netra 440 (4-way)
- **Competitive Advantages**
  - Density
    - 40 blades vs. 21 blades in 42U
    - 20 blades vs. 8 blades in 42U
  - Performance – Intel Processors and latest Ultra 320 technology
  - Availability
  - Switch offerings
  - Warranty three years standard vs. 1 yr
  - Competitively priced

Look at the Future

- **HP ProLiant**
  - Products with questionable success
    - BL10e & BL40p
  - Expect to see Opteron based blades*
    - BL25p – 2-way Opteron 2.4+, 2 HS drives, 4 NICs
    - BL35p – 2-way Opteron 2.4+, 2 ATA drives, 2 NICs
    - BL45p – 4-way Opteron, 32GB memory, 2 HS drives, 4 NICs
- **Dell PowerEdge 1955****
- **Sun**
  - Potential Opteron based likely to require new chassis***

*Source: http://www.theregister.com/2004/09/08/hp_opteron_servers/
**Source: http://techrepublic.com.com/5100-22_11-5433980.html
*** Source: http://www.pcworld.com/news/article/0,aid,113722,00.asp

Competing with Egenera

- **Egenera's largest customers are underwriting its IPO**
  - Credit Suisse First Boston, Goldman Sachs, JP Morgan Chase
- **Where is Egenera's revenue coming from?**
  - 2002 - 89% Credit Suisse First Boston, Goldman Sachs, Lehman Brothers
  - 2003 – 64% came from AOL, JP Morgan Chase and Goldman Sachs
  - 1Q04 – 70% came from Credit Suisse First Boston, AOL, JP Morgan
- **Posted a $37.1m loss in 2003 on sales of $41.2m.**
- **Reasons to select IBM**
  - Decades of experience
  - Thousands of customers using our products
  - Financial stability and Strong solution relationships
- **Leverage Topspin IB Switch Module**
  - virtualizes and shares I/O & storage across an entire BladeCenter or collection of BladeCenters for cost savings and high availability

Source: Egenera and its amazing technicolor IPO By Ashlee Vance in Chicago Published Friday 25th June 2004 23:00 GMT

Competitive Assistance

Mike Easterly

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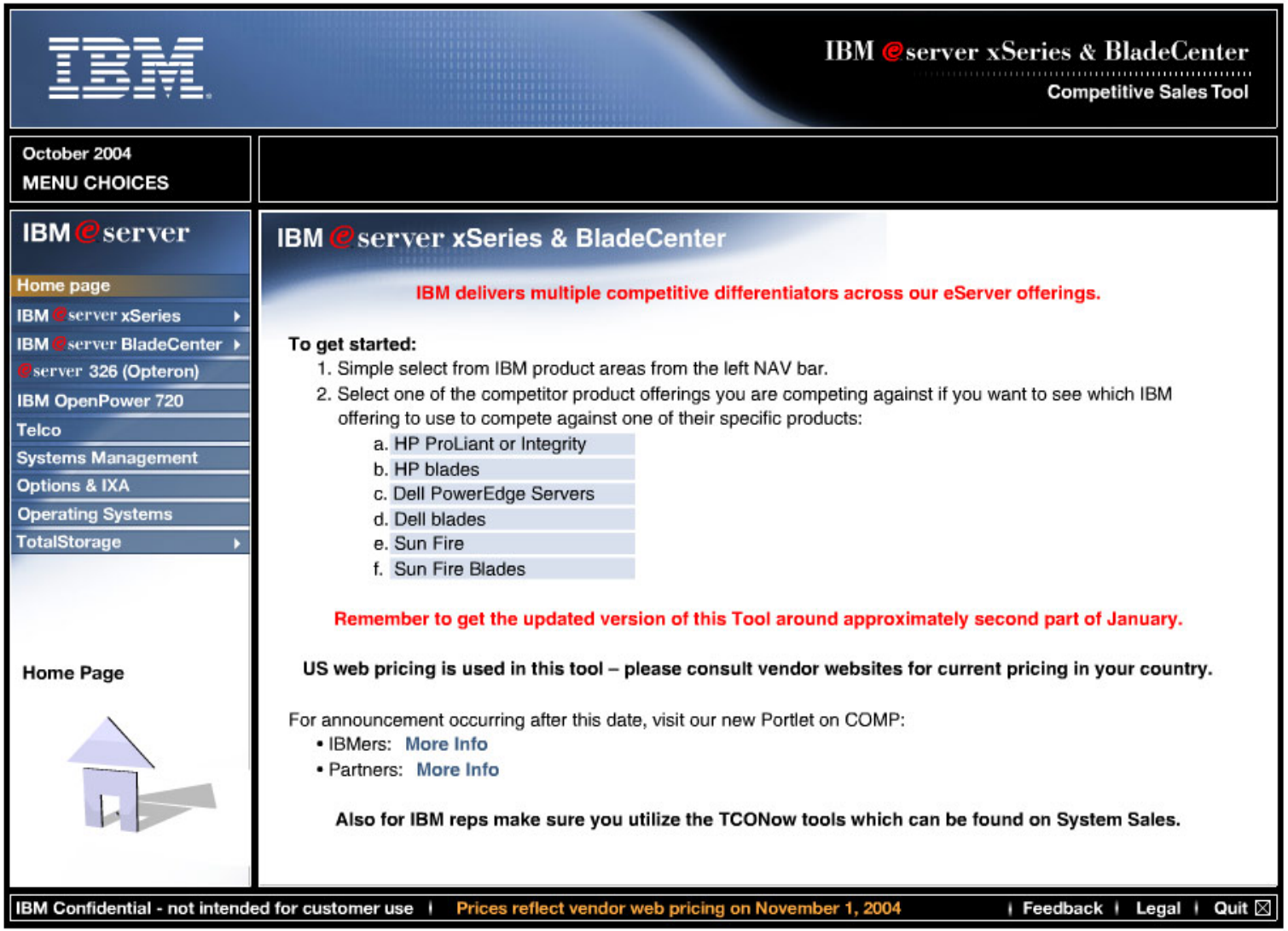
Resources

- **WW IS&T Competitive Marketing Portlet (COMP)**
  - Includes xSeries, BladeCenter, pSeries and TotalStorage
  - IBM - http://w3-03.ibm.com/sales/competition/compdlib.nsf/pages/ISTGPage
  - Partners – http://partners.boulder.ibm.com/src/compdlib.nsf/bpwebbysource?OpenView&IBM+Systems+and+Technology+Group+WW+Competitive+Marketing&Start=1&
- **xSeries/BladeCenter Competitive Sales Tool**
  - Designed to provide concise info needed by sales reps
  - pSeries/BladeCenter Competitive Sales Tool
  - TotalStorage Tool Coming in January
- **Competeline - Pre sales support**
  - Americas
    - Intranet:http://w3-1.ibm.com/support/americas/competeline.html
    - Business Partners must contact Partnerline: 1-800-426-9990
  - EMEA Competitive Support Competeline
    - Intranet:http://cmsc.dk.ibm.com
    - Business Partners: Phone: +45 45234450 or mail: comp@dk.ibm.com

xSeries/BladeCenter Competitive Sales Tool



Appendix

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Appendix A

Cost Comparisons Power Distribution

Single Phase

- Cost to support 24 blades w/ redundant power
  - **IBM BladeCenter HS20 $3,194**
    - Four PDU's $299 each = $1,196
    - Four Power supplies $999/pair = $1,998
  - **HP ProLiant BL20p or BL30p $5,717**
    - Two Single Phase Redundant Power with 4 power supplies $2,619/each
    - ProLiant p-Class Mini Bus Bar (supports up to 3 server blade enclosures) $479
- Cost to support 48 blades w/ redundant power
  - **IBM BladeCenter HS20 $5,192**
    - Four PDU's $299 each = $1,196
    - Eight Power supplies $999/pair = $3,996
  - **HP ProLiant BL20p or BL30p $11,175**
    - Four Single Phase Redundant Power with 4 power supplies $2,619/each
    - ProLiant p-Class Scaleable Bus Bar (supports up to 5 server blade enclosures) $699

Based on Dual 3.2GHz 2 HDD and 2-4 DIMMS

Three Phase

- Cost to support 24 blades w/ redundant power
  - **IBM BladeCenter HS20 $3,696**
    - Two PDU's $849 each = $1,698
    - Four Power supplies $999/pair = $1,998
  - **HP ProLiant BL20p or BL30p $5,937**
    - Two Three Phase Redundant Power with 6 power supplies $2,619/each
    - ProLiant p-Class Scaleable Bus Bar (supports up to 5 server blade enclosures) $699
- Cost to support 48 blades w/ redundant power
  - **IBM BladeCenter HS20 $5,694**
    - Two PDU's $849 each = $1,698
    - Eight Power supplies $999/pair = $3,996
  - **HP ProLiant BL20p or BL30p $11,175**
    - Four Three Phase Redundant Power with 6 power supplies $2,619/each
    - ProLiant p-Class Scaleable Bus Bar (supports up to 5 server blade enclosures) $699

Pricing from HP website on November 3, 2004

Appendix B

Cost of Chassis and Power per blade

- **Comparison included (assume single phase power):**
  - IBM – Chassis, 4 power supplies, 2 PDU's (14 2-way or 7 4-way blades)
  - BL20p - Chassis, power enclosure, 2 power supplies, bus box (8 blades)
  - BL30p – Chassis, 2 power enclosure, 4 power supplies, bus bar & 8 sleeves (to support 16 blades)
    - Might require more power supplies, HP has not updated the power config tool.

	IBM HS20	HP BL20p	HP BL30p	Dell 1855
cost/blade	$313.28	$438.12	$455.25	
Difference		39% more	45% more	

	IBM HS40	HP BL40p	Fujitsu-Siemens
cost/blade	$616.56	$438.12	$455.25
Difference		40% more	45% more

IBM, Dell & HP web pricing on November 4, 2004

Appendix C

Ethernet Switch Costs

- **For those wanting 2 NIC's per blade**
  - IBM - two IBM BladeCenter 4-port Gigabit Ethernet Switch Modules at $2,199/each
  - HP BL20p clients will need the ProLiant BL p-Class C-GbE2 Interconnect Kit which come in pairs at $4,399.00/chassis
  - Dell -

2-way	IBM*	HP BL20p	HP BL30p	Dell
Switch cost/server to support 2 NICs	$314	$549	$274.50	
Difference				

	IBM*	HP	Fujitsu
Switch cost/server to support 4 NICs	$628	$2199	
Difference		71% more	

IBM, Dell & HP Web Pricing on November 3, 2004

Appendix D

Fibre Channel Switch per 2-way server cost

	Cost per Server	Savings
IBM BladeCenter	$2,998	
RJ-45 Patch Panel 2 with FC pass through		
HP Proliant BL20p	$3,537	IBM 15% less
HP Proliant BL30p	$3,381	IBM 11% less
p-Class C-GbE2 Interconnect Kit		
HP Proliant BL20p	$3,437	IBM 12% less
HP Proliant BL30p	$3,351	IBM 10% less

- **IBM requires:**
  - 2-port Fibre Channel Switch Module $13,999 (two)
  - Fibre Channel Expansion Card which costs $999/blade
- **HP requires:**
  - BL20p/BL30pPass-through
    - ProLiant BL p-Class RJ-45 Patch Panel 2 with FC pass through (pair) $2,499*
    - ProLiant BL p-Class GbE2 Storage Connectivity Kit (12 FC SFF transceiver slots) $1,699
  - Each blade to have Dual port Fibre Channel Card $999 (different card for BL20p then BL30p)
  - Two HP StorageWorks SAN switch 2/16N FF (redundancy)16 ports - $16,500/each*
  - Cables per chassis to get to the switch $82.00/each, require 16 cables/chassis (2 per blade)

IBM & HP Web Pricing on September 23, 2004

Appendix E

Fibre Channel Switch per 4-way server cost

	Cost per Server	Savings
IBM BladeCenter HS40	**$4,998**	
HP ProLiant BL40p	**$7,873**	IBM 36% less

- IBM eServer BladeCenter HS40 requires:
  - 2-port Fibre Channel Switch Module $13,999 (two)
  - Fibre Channel Expansion Card which costs $999/blade
- HP ProLiant BL40p requires:
  - Two FCA2101 Fibre Channel Host Bus Adapter for Windows NT/2000 into the 2 PCI-X slots, which cost $3,584* ($1,792 each)
  - Two HP StorageWorks SAN switch 2/16N FF (redundancy)16 ports - $16,500/each*, assumes support for 8 HP chassis (2 connects per p-class chassis/each)
  - Cables per chassis to get to the switch $82.00/each, require 2 cables/server

IBM & HP Web Pricing on September 23, 2004

Appendix F

Single Phase

	Unit $	Qty	Total
IBM BladeCenter (supports 4 more blades)			
BladeCenter HS20 2x3.2GHz Xeon 2MB L3, 1GB, 40GB	$ 5,667	24	$ 136,008
BladeCenter enclosure (Total 14U rack space)	$ 2,789	2	$ 5,578
Redundant Gbps Ethernet Switch Kit	$ 2,199	4	$ 8,796
RDM single pack	$ 119	4	$ 476
RDM 20 pack	$ 2,139	1	$ 2,139
Redundant power (for slots 7-14)	$ 999	2	$ 1,998
PDU	$ 299	4	$ 1,196
			$ 156,191
HP p class			
HP BL20p G2 2x3.2GHz Xeon 2MB L3, 1GB, 36GB	$ 6,198	24	$ 148,752
Enclosure w/ 8 RDP licenses (Total 24U space & 12U blocked by Scaleable Bus Bar)	$ 2,039	3	$ 6,117
Gbps Ethernet Switch Kit	$ 4,399	3	$ 13,197
Single Phase Redundant Power w/ 4 power supplies	$ 2,619	2	$ 5,238
Scalable Bus Bar (supports up to 5 server blade enclosures)	$ 699	1	$ 699
IBM & HP Web Pricing on November 4, 2004			$ 174,003

* While the BL20p comes with 3 Gigabit Ethernet, the HS20 comes standard with two and two more are optional.

Appendix G

Single Phase

	Unit $	Qty	Total
IBM BladeCenter (supports 4 more blades)			
BladeCenter JS20 2x2.2GHz PowerPC 970 1.5GB, 40GB	$ 3,608	24	$ 86,592
BladeCenter enclosure (Total 14U rack space)	$ 2,789	2	$ 5,578
Redundant Gbps Ethernet Switch Kit	$ 2,199	4	$ 8,796
RDM single pack	$ 119	4	$ 476
RDM 20 pack	$ 2,139	1	$ 2,139
Redundant power (for slots 7-14)	$ 999	2	$ 1,998
PDU	$ 299	4	$ 1,196
			$ 106,775
HP p class			
HP BL20p G2 2x3.06GHz Xeon 1MB L3, 1.5GB, 36GB	$ 4,796	24	$ 115,104
Enclosure w/ 8 RDP licenses (Total 24U space & 12U blocked by Scaleable Bus Bar)	$ 2,039	3	$ 6,117
Gbps Ethernet Switch Kit	$ 4,399	3	$ 13,197
Single Phase Redundant Power w/ 4 power supplies	$ 2,619	2	$ 5,238
Scalable Bus Bar (supports up to 5 server blade enclosures)	$ 699	1	$ 699
IBM & HP Web Pricing on November 4, 2004			$ 140,355

* While the BL20p comes with 3 Gigabit Ethernet, the HS20 comes standard with two and two more are optional.

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