IBM Power Systems

IBM i and BladeCenter

The New Power Equation

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IBM Power Systems

i SMB Clients

SMB clients typically have a mix of POWER™ processor-based and x86 servers supporting their business applications and infrastructure requirements

- **60% have one i server**
  - 80% have one or two

- **87% have Windows® servers**
  - An average of 12 servers

- **Storage**
  - Not consolidated

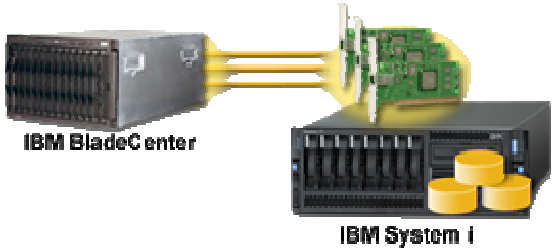
Solutions for SMB

IBM offers a range of solutions from an integrated server just for i to solutions that can run i, AIX®, Linux®, and Windows

Power™ 520 Express

- Run i applications
- Replace existing i server
- Integrated, easy to use solution
- i centric operations

Power 520 + BladeCenter®



- Run i and Windows applications
- Consolidate x86 servers
- i provides storage for blades
- i centric operations

BladeCenter

- Run i and Windows applications
- Consolidate x86 and i servers
- BladeCenter value for SMB and distributed sites
- BladeCenter centric operations

BladeCenter Value

IBM BladeCenter is a simple integration of servers, storage and networking. Its innovative, open design offers a true alternative to sprawling racks and overheated server rooms

- Reduces management tools
- SAN cables removed
- LAN cables removed
- Storage integrated
- Multiple external switches integrated inside the chassis
- KVM costs eliminated
- PDU costs drastically reduced
- Power, heat and floor space conserved

BladeCenter Chassis

i supports BladeCenter S that integrates blades and storage in the chassis and BladeCenter H for larger implementations

IBM BladeCenter S
Distributed, small office, easy to configure

IBM BladeCenter E
Best energy efficiency, best density

IBM BladeCenter H
High performance

IBM BladeCenter T
Ruggedized

IBM BladeCenter HT
Ruggedized, high performance

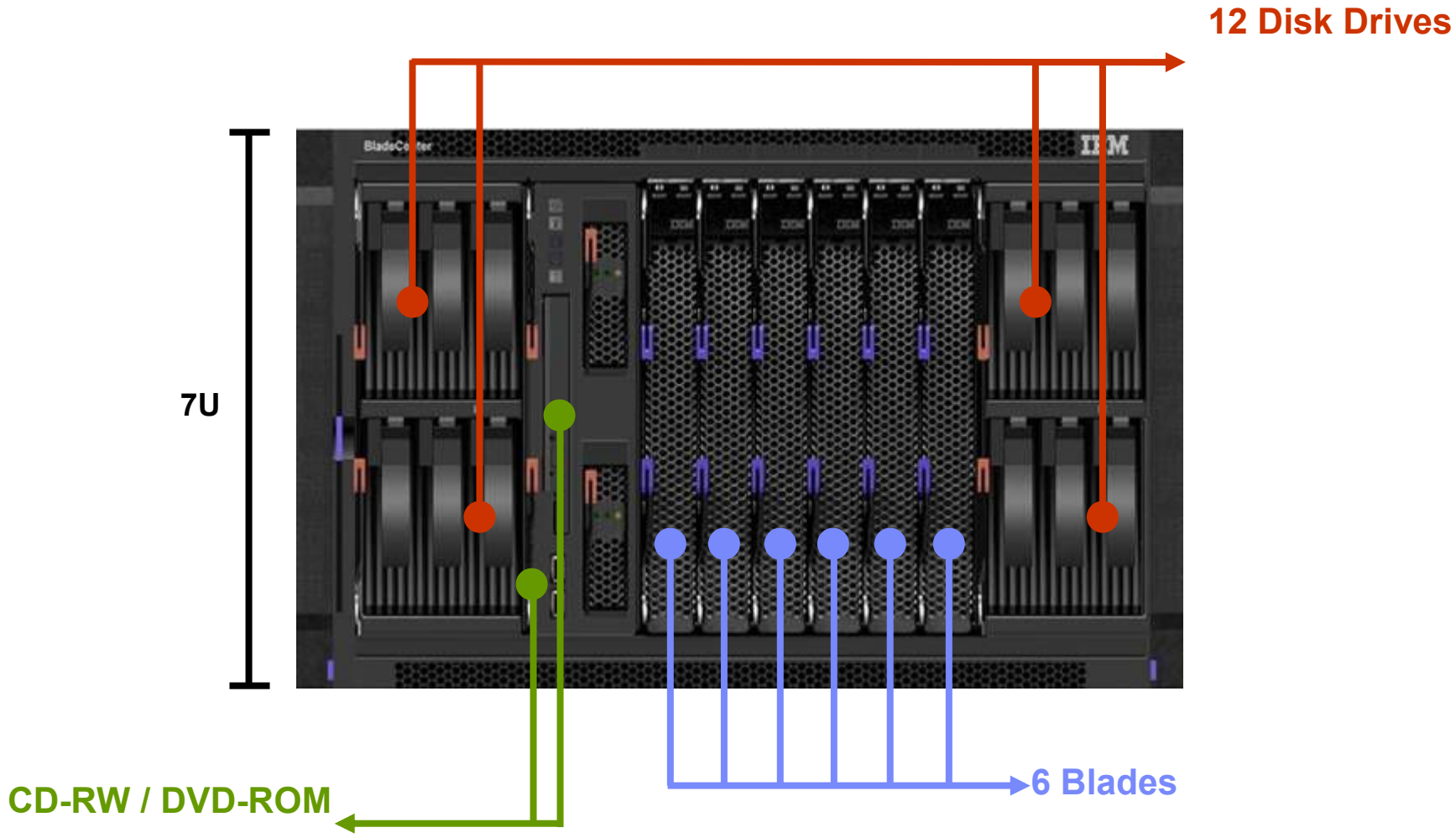
- A common set of blades
- A common set of industry-standard switches and I/O fabrics
- A common management infrastructure

BladeCenter Chassis

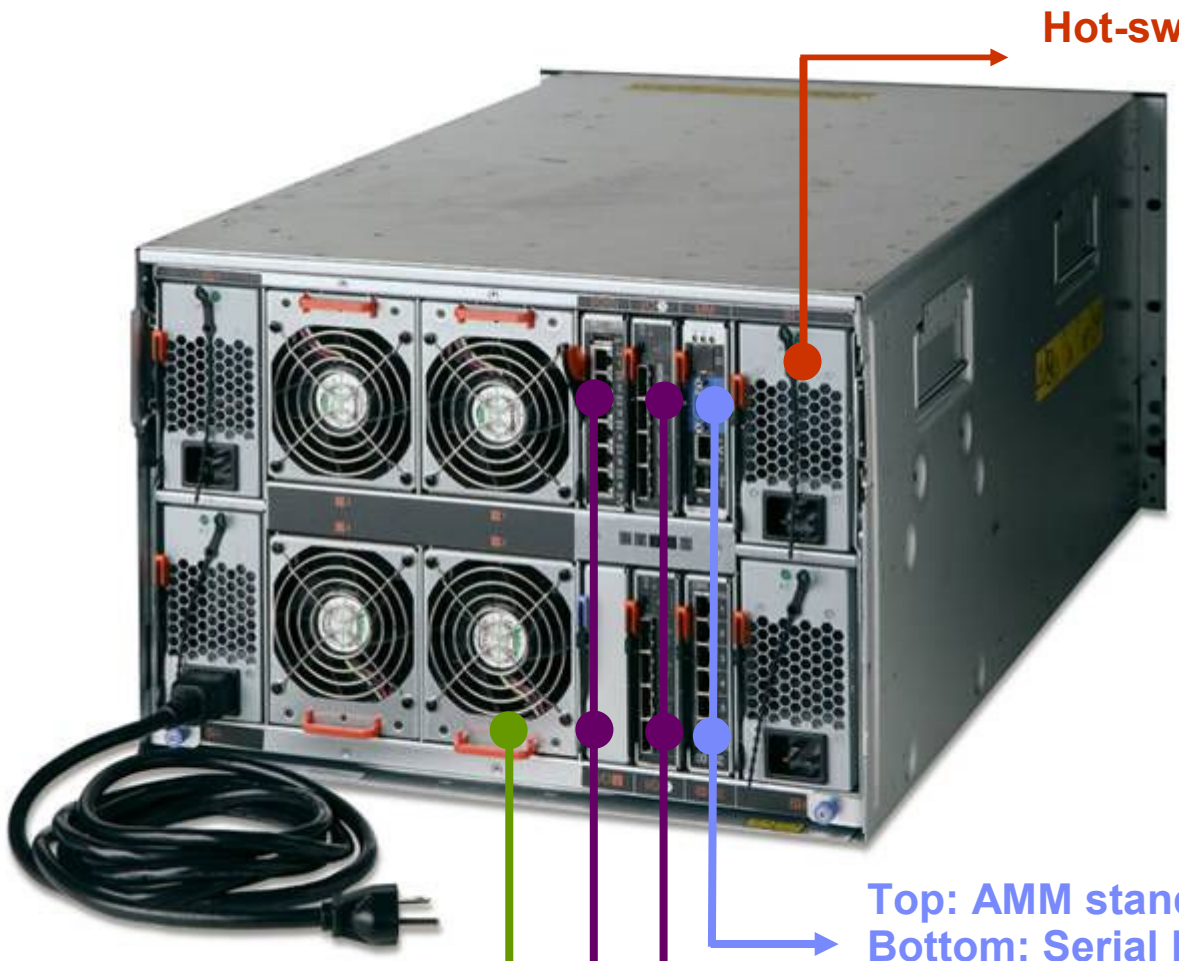
i supports BladeCenter S for small and distributed deployments and BladeCenter H for larger deployments

Chassis	BCH	BCS
# of Blades	14	6
# of Disk Drives	0	0-12 (SAS)
Disk Capacity (Max)	0	3.6 TB
Power	220	110 or 220
Blades	x86 and POWER	x86 and POWER
Redundant Power and Cooling	Yes	Yes
Management Modules	1-2	1
Blades for i	**JS22 and JS12**	**JS12 and JS22**

Meet the IBM BladeCenter S



Meet the IBM BladeCenter S



IBM BladeCenter Office Enablement Kit

Ideal way to deploy BladeCenter S into office environments

- **Includes Acoustical Module built into the back**
- **Optional Air Filter on the front**
- **Locking door for security**
- **Mobile with rollers**
- **33% (4U) extra room to grow**

Meet the BladeCenter H

BladeCenter Blades

IBM offers x86 and POWER processor-based blades to support a wide variety of operating system and performance requirements

HS12
General-purpose enterprise

HS21 XM
Extended-memory

LS41
Scalable, enterprise performance

QS21
High performance

JS12
High-performance, virtualization

HS21
General-purpose enterprise

LS21
High performance

HC10
Workstation

JS22
Scalable performance, virtualization

- A common set of blades
- A common set of industry-standard switches and I/O fabrics
- A common management infrastructure

BladeCenter Blades

i supports the 2-core BladeCenter JS12 and the 4-core BladeCenter JS22

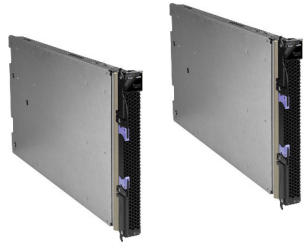
Blades	JS12	JS22
Processor Technology	POWER6	POWER6
# of Cores	2	4
GHz	3.8 GHz	4.0 GHz
Memory (Min/Max)	2/64 GB	2/32 GB
Local Disk (Min/Max)	0/2 73/146 GB	0/1 73/146 GB
Base Ethernet Ports (1 GB)	2	2
Expansion Cards	0-2	0-2
Virtualization	VIOS/IVM	VIOS/IVM
# of Partitions (max)	20	40
AIX	Yes	Yes
Linux	Yes	Yes
i Release	**6.1**	**6.1**
Processor Tier	**P05**	**P10**
CPW	**7100***	**13,800***

* Measurements based on an unconstrained environment. Actual performance may be limited by number of disk drives supported

IBM i Support for BladeCenter H

Reduce IT costs and complexity by consolidating i and x86 servers with an IBM BladeCenter H solution

- **Enables mid-sized i clients to consolidate their IT environment**
  - IBM BladeCenter H supports a combination of 14 POWER6 and x86 blades



- **Delivers the performance required for i applications**
  - IBM BladeCenter JS12 delivers 2-core, 3.8 GHz POWER6 performance
  - IBM BladeCenter JS22 delivers 4-core, 4.0 GHz POWER6 performance

- **Supports consolidation of i and x86 storage**
  - IBM System Storage DS3400, DS4700/4800 and DS8000

- **PowerVM VIOS partition manages Blade resources**
  - AIX and Linux partitions also supported

Introducing i Support for BladeCenter S

Reduce IT costs and complexity by consolidating System i™ and x86 servers with an IBM BladeCenter S solution

- **Enables small and mid-sized i clients to consolidate their IT environment**
  - IBM BladeCenter S supports combination of six POWER6 and x86 blades

- **Delivers the performance required for i applications**
  - IBM BladeCenter JS12 delivers 2-core, 3.8 GHz POWER6 performance
  - IBM BladeCenter JS22 delivers 4-core, 4.0 GHz POWER6 performance

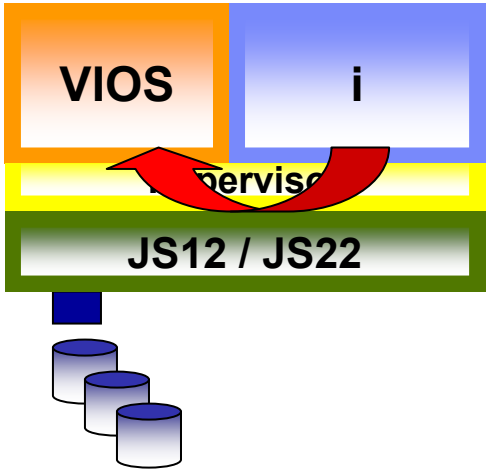
- **Supports consolidation of i and x86 storage**
  - BladeCenter S offers up to 12 - 450 GB disk drives in the chassis

- **PowerVM™ VIOS partition manages Blade resources**
  - AIX and Linux partitions also supported

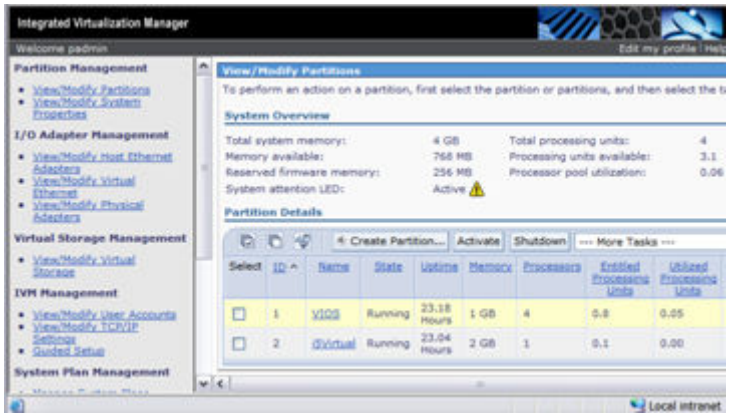
Virtualization with PowerVM

PowerVM VIOS owns resources and storage devices and IVM is used to set up and manage partitions for i on the BladeCenter

- **PowerVM VIOS Based Virtualization**
  - i partition uses I/O resources from a VIOS partition
  - VIOS also provides virtualization for AIX and Linux partitions
  - Included with PowerVM Standard Edition
  - Requires POWER6 processor-based systems and i 6.1
  - Supports DS3400, DS4700, DS4800, DS8100* and DS8300*



- **Integrated Virtualization Manager**
  - Tool that runs in VIOS partition for creating and managing partitions
  - Provides an alternative to HMC for LPAR management
  - Requires VIOS to own i I/O resources
  - Included with PowerVM Standard Edition
  - Supported on BladeCenter JS12 and JS22 with i 6.1



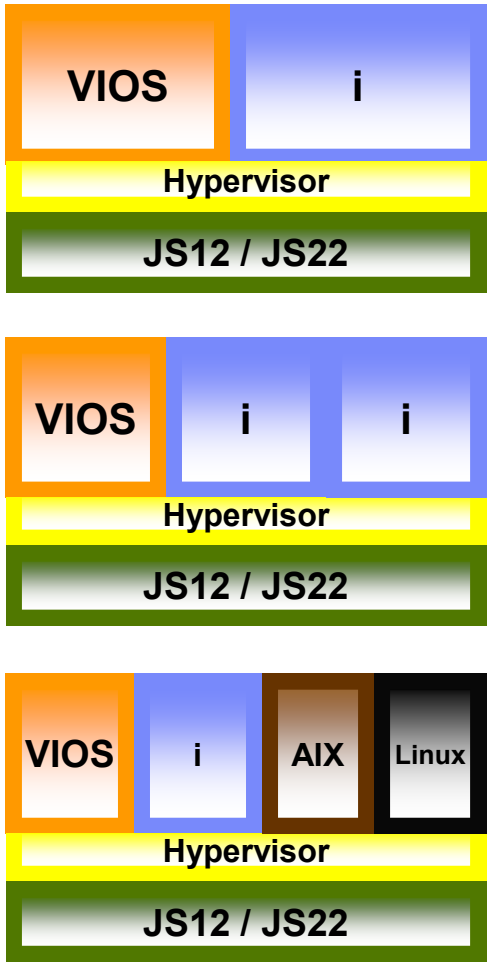
PowerVM™

* **DS8000 supported only with Blade configurations**

BladeCenter S Configuration with i

- **BladeCenter S Chassis**
  - SAS, Ethernet Switch(s)
  - Up to 12 SAS Drives (450 GB each maximum)
  - DVD
- **JS12 Blade**
  - 2 Cores, up to 64 GB of Memory
  - 1 or 2 Disk Drives
  - SAS, Ethernet Adapters
- **JS22 Blade**
  - 4 Cores, up to 32 GB of Memory
  - 1 Disk Drive
  - Ethernet, SAS Adapters
- **Storage**
  - Up to 12 SAS Drives (450 GB each maximum)
  - External SAS Tape Drive
- **VIOS partition manages Blade resources**
  - IVM is used to set up and manage partitions
  - i, AIX, and Linux are client partitions
- **i 6.1**
  - Processor and User entitlements

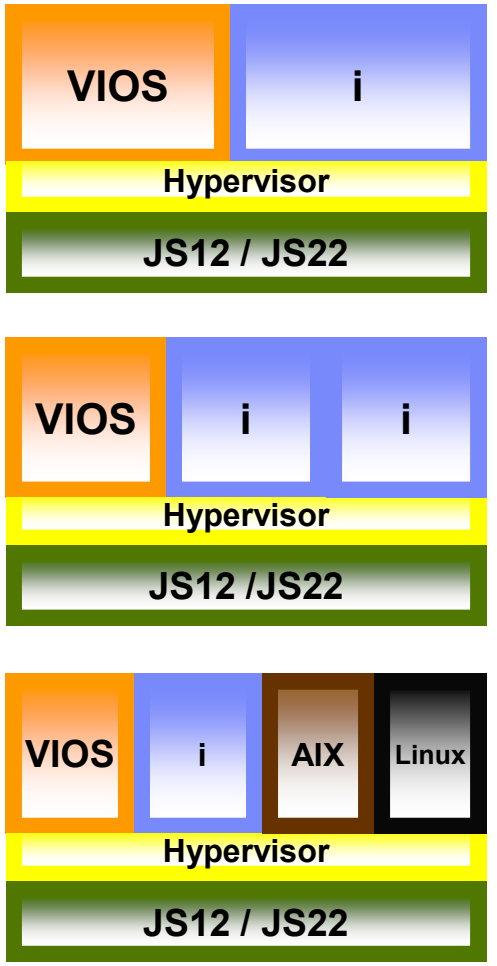
Partitioned Blade Examples



BladeCenter H Configuration with i

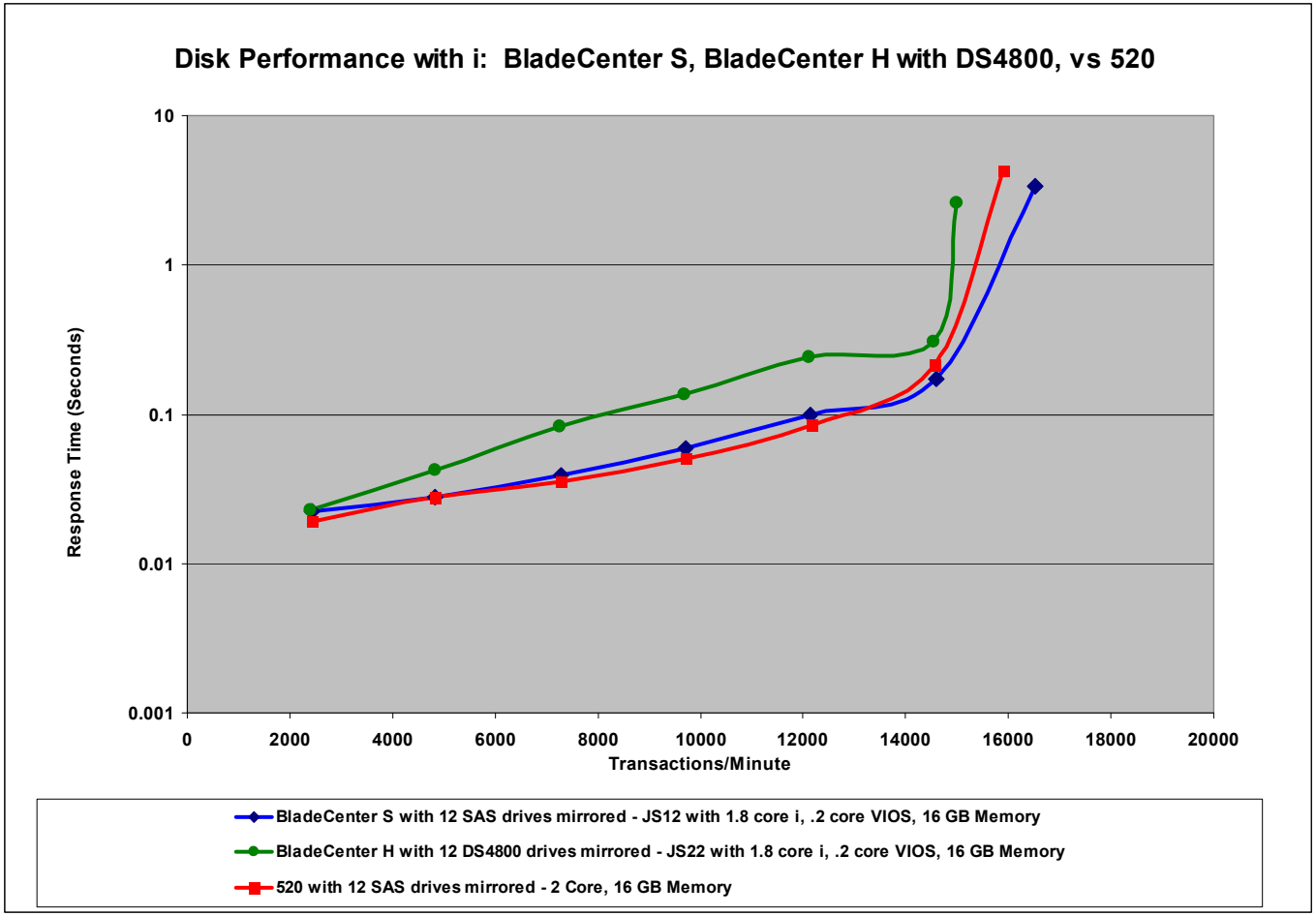
- **BladeCenter H Chassis**
  - Fibre, Ethernet, SAS Switch(s)
  - DVD
- **JS12 Blade**
  - 2 Cores, up to 64 GB of Memory
  - 1 or 2 Disk Drives
  - Fibre, Ethernet, SAS Adapters
- **JS22 Blade**
  - 4 Cores, up to 32 GB of Memory
  - 1 Disk Drive
  - Fibre, Ethernet, SAS Adapters
- **Storage**
  - DS3400, DS4700, DS4800, DS8100, or DS8300
  - External SAS Tape Drive
- **VIOS partition manages Blade resources**
  - IVM is used to set up and manage partitions
  - i, AIX, and Linux are client partitions
- **i 6.1**
  - Processor and User entitlements

Partitioned Blade Examples



Comparing Disk Performance

BladeCenter S, BladeCenter H with DS4800, and 520 can deliver excellent disk performance



Results of IBM performance testing, your results may vary.

Compare and Contrast

There is a choice of two BladeCenter chassis for i deployment

BladeCenter H

- Up to 14 blades
- Supports JS12 and JS22 for i
- Supports x86 blades
- Requires SAN
- For a data center

BladeCenter S

- Up to six blades
- Supports JS12 and JS22 for i
- Supports x86 blades
- Disk in chassis
- For office or data center

Compare and Contrast

With a Power 520 Express, clients can run i applications and use their existing skills. BladeCenter supports i and Windows applications, but may require new skills.

Power 520

- **Single server**
  - 6 disk drives
- **Runs i 6.1 and 5.4, AIX and Linux**
- **Provides storage management for attached System x™ or BladeCenter**
- **Skills Required**
  - Power hardware
  - i operating system
  - i storage management

BladeCenter S

- **Six blades**
  - 12 disk drives
- **Runs i 6.1, AIX and Linux**
- **Runs Windows on x86 blades**
- **Skills Required**
  - BladeCenter management
  - VIOS and partitioning
  - SAN or BladeCenter storage
  - Plus i operating system

BladeCenter JS12 Pricing

Entry configuration for BladeCenter JS12 starts at under $5000

	Feature	Description	Unit Price	QTY	Price
JS12					
7998-60X	60X	JS12	$200	1	$200
	8442	JS12 2 Core 3.8 GHz	$3,140	1	$3,140
	8444	One proc entitlement	$100	2	$200
	8220	2 GB Memory	$219	1	$219
	8236	146 GB SAS Drive	$429	2	$858
	8250	SAS Expansion Card	$249	1	$249
	5406	PowerVM	$0	2	$0
	2145	Specify Primary OS - IBM i	NC	1	NC
					$4,866

* US List prices, subject to change without notice

BladeCenter S Pricing

Entry configuration for BladeCenter S starts at under $6000

	Feature	Description	Unit Price	QTY	Price
BCS					
7779-BCS	BCS	BCS	$1,946	1	$1,946
	4156	Ultra Slim CD / DVD	$159	1	$159
	4545	Storage Module - 6 Disk	$795	1	$795
	3267	SAS Switch Module	$999	1	$999
	3219	Copper Pass-Thru Module	$699	1	$699
	3223	Pass-Thru Cable	$79	1	$79
	3749	146 GB 15K SAS Disk	$469	2	$938
	4578	Power Cord 2.5m	$10	2	$20
					$5,635

* US List prices, subject to change without notice

Introducing: IBM i Edition Express for BladeCenter S

New offering includes BladeCenter S, BladeCenter JS12, and i that can be expanded with additional components and blades

- **Bringing the best of i and BladeCenter together**
  - Integrate both i and Windows blades plus storage, networking, into a single chassis
  - Office-ready with quiet operation, can use standard office power
  - Built-in PowerVM™ Virtualization
- **Priced less that a 520 system**
  - Priced below a Power 520 1-core and less than **HALF** the price of a Power 520 1 of 2-core
  - Lease payment potentially less than monthly maintenance payments on existing System i
- **Accelerate your move to blades**
  - Fastest growing Server form factor in the Industry
  - VIOS preinstalled, i preinstalled, reduces time and skills required to get started
  - Five additional blade slots for x86 consolidation and future growth

i Edition Express for BladeCenter S includes:

- ✓ JS12 base configuration for i
- ✓ IBM i processor entitlement, 1yr SWMA,10 users
- ✓ BladeCenter S chassis optimized for i

i Edition Express for IBM BladeCenter S

The lease price of the BladeCenter S and JS12 can be less than the monthly maintenance prices on older systems. P05 SWMA offers additional savings.

i Edition Express for BladeCenter S

Monthly Charges

Model	CPW	SWMA	Lease	Total
i Edition	7100	$76	$338	$414

* 36 month lease price for Best credit customer, US prices subject to change without notice

System i Server

Monthly Charges

Model	CPW	SWMA	MMMC	Total
270	465/30	$382	$341	$723
270	1070/50	$382	$413	$795
810	1020/1020	$382	$450	$832
810	1470/1470	$382	$600	$982
820	370/35	$382	$257	$639
820	370/70	$1,010	$403	$1413
820	950/70	$2,281	$597	$2878

BladeCenter Enables Consolidation & New Application Deployments

New consolidated BladeCenter solution with DR site provides more resilient infrastructure for x86 and i applications	*Manufacturer in the US*
Society members gain access to information with new web application deployment based on WebSphere running on multiple blades with i	*Medical Society in the US*
Deploying new shared IT infrastructure virtualizing x86 environment and consolidating i with a BladeCenter solution	*Public Sector in Italy*

Plans: BladeCenter and i

IBM is investing to enhance the BladeCenter solution for i

- **Recent announcements**
  - BladeCenter JS12 support for BladeCenter H
  - Support for LTO 4 Tape Drive
    - IBM System Storage TS2240 Tape Drive Model H4S
  - Capacity Backup (CBU) Support
    - Primary System (Tier)
      - JS22 (P10)
      - JS22 (P10)
      - JS12 (P05)

    Capacity Backup System (Tier)
    JS22 (P10)
    JS12 (P05)
    JS12 (P05)
  - 450 GB Drive for BladeCenter S
  - DS3400 support for BladeCenter H
  - Pre-installation of IBM I with BladeCenter S
- **Planned Enhancements**
  - DS3200 Support
  - Virtual Tape support

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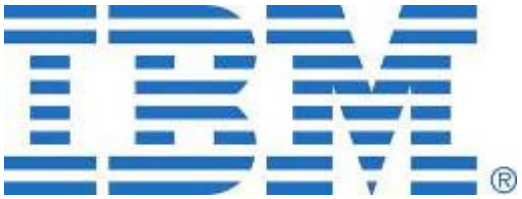

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