has now become

~~Why IBM is becoming~~ the #1 provider of UNIX and Linux systems

Pascal Lavrat
Product Manager Aix-Linux on Power
France et Pays francophones d'Afrique

ON DEMAND BUSINESS™

Pourquoi sommes nous confiants dans l'avenir ?

Stratégie IBM pSeries

Virtualisation

L'offre pSeries

Roadmap 2006

Stratégie

The IBM Systems agenda

It's time to take UNIX to the next level!

Virtualize Everything

- **Automate**
- **Optimize**
- **Simplify**

Commit to Openness

- **Support open standards**
- **Advance open standards**
- **Provide choice**

Collaborate to Innovate

- **Enable information on demand**
- **Collaborate with BPs/ISVs/clients**
- **Drive Industry collaboration**

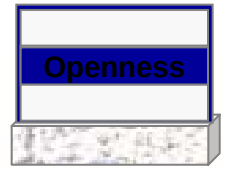
UNIX System Foundation

- **Extend price/performance and scalability**
- **Enable high availability**
- **Deliver enhanced security**

* All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

AIX 5L and Linux on POWER Community Portal

Your online collaboration and innovation center



Discuss your successes, challenges, hints/tips

- ***Forums***
  - ***AIX 5L***
  - ***Virtualization***
  - ***nmon***
  - ***Linux on POWER***
- ***Blogs***
  - ***Virtualization***
  - ***AIXpert***
  - ***Linux on POWER***
- ***Wikis (November)***
  - ***AIX 5L Performance/Tuning***
  - ***Virtualization***
  - ***Nmon***
- ***OpenPower Project***
- ***User Group information***
- ***Event details***

NEW!

http://www.ibm.com/eserver/pseries/community

AIX Collaboration Center

Bringing AIX and POWER users together with IBM teams for innovation

Clients

Business Partners

Independent Software Vendors

AIX Collaboration Center

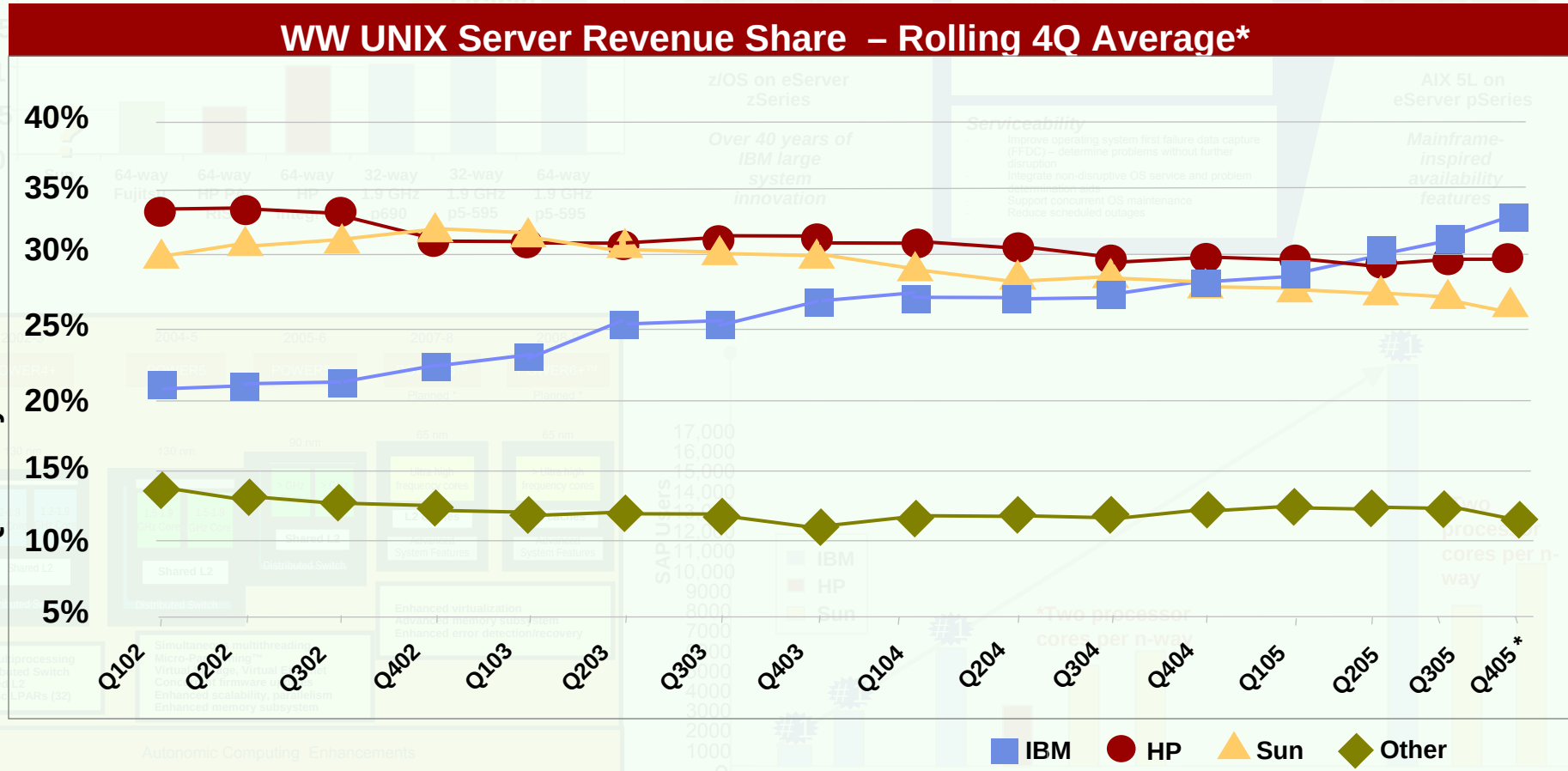
- **Collaborate with ISVs to exploit new capabilities**
- **Provide clients early access to new technologies**
- **Build communities for AIX and POWER**

- **AIX 5L and IBM POWER Servers Development**
- **T.J. Watson Research Center**
- **IBM Global Services**
- **IBM ISV Global Solutions Enablement**
- **UNIX Software Services**
- **IBM Software Group**

Find out more at: **ibm.com/servers/aix/collaborationcenter**

IBM continues worldwide UNIX revenue share leadership

. . . the ONLY platform with momentum according to the latest IDC report!



*IDC Worldwide Quarterly Server Tracker, 02/06

The road to #1…..

- September 2003: Gartner predicts that IBM's AIX-5L will become the #1 UNIX platform by 2008
- July 2004: IBM introduced POWER5, with leadership in over 50 industry benchmarks
- November 2004: IBM achieves over 3 Million TPC-C with 64-way p5-595
- 2nd quarter 2005: IBM p5 with AIX becomes #1 UNIX platform** worldwide
- October 2005: IBM introduces 1st POWER5+ servers, with Quad Core Modules, with 14 new #1 benchmark results.
- **Feb 2006**: New POWER5+ products widened the gap, with over 1M TPC-C midrange servers and new low end products.

*Source for @server p5 systems benchmarks: http://ibm.com/eserver/benchmarks

**Source: IDC Quarterly Server Tracker 8/05

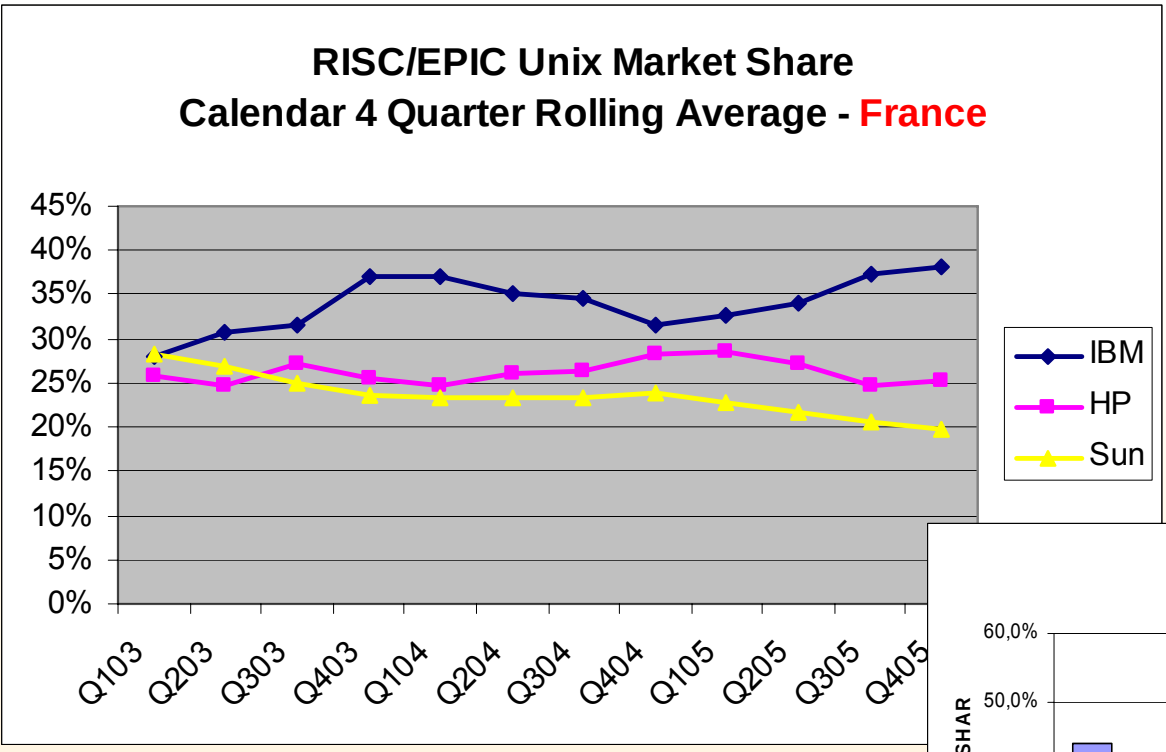
UNIX Server Market Landscape

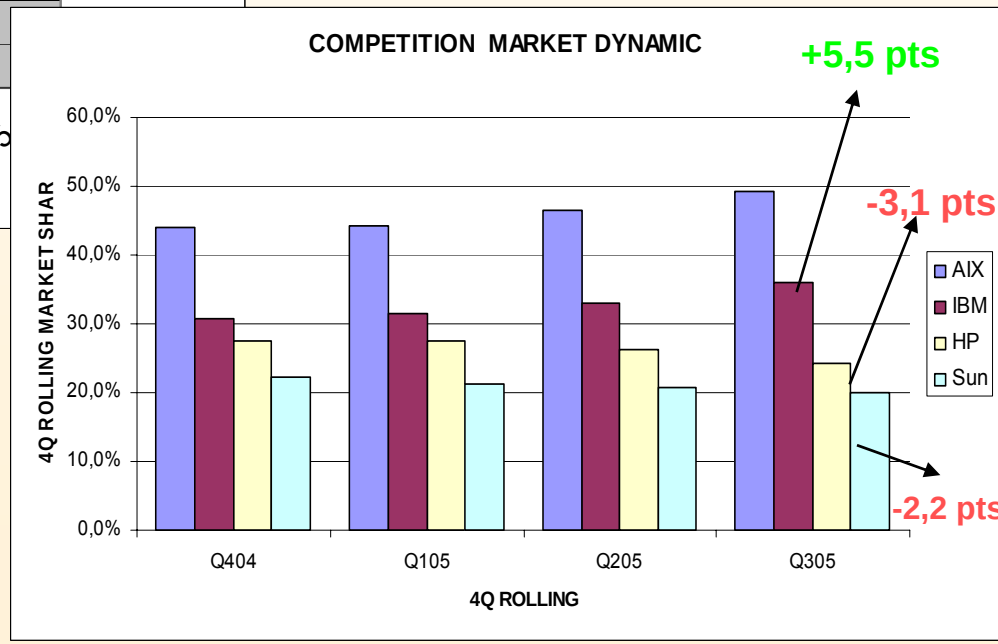
- SUN: Too many cheap arrows, persistent Server revenue declines
  - Revenue declines in 10 of last 12 quarters. -15% in Q4 2005.
  - Lack of high-end refresh causing massive defection to IBM
  - Sun is now picking a fight with DELL
  - Strategy Confusion: Sparc IV vs Opteron vs Niagara ???

- HPQ: Facing challenges due to Itanium transition
  - Itanium expectations have been reset significantly
  - Intel execution issues and priorities causing delays for new Itanium versions
    - Montecito has actually slipped 2 years and will be 10% slower than planned
    - Planned 2.2 GHz dual core, 90nm, 2005 is now called “Montvale” at 2.0 Ghz in 2007

- IBM: Consistently gaining share, growing revenue for 3.5 years
  - Sustained price/performance leadership (2-4x competition)
  - Mainframe-inspired virtualization and RAS leads the industry
  - Execution issues in specific geographies

Tendances Marché France

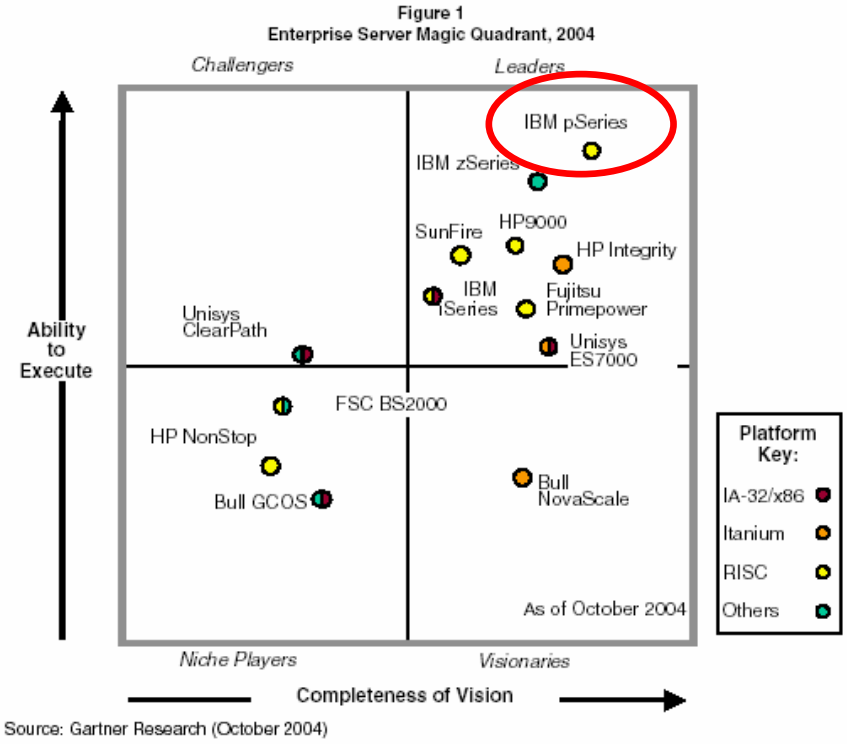




pSeries/p5 la plateforme UNIX la mieux perçue

This analysis DID NOT INCLUDE POWER5 based servers.

The Magic Quadrant October 2004 by Gartner



Source: Gartner Research (October 2004)

Only three server OSs predicted to grow share Microsoft Windows, Linux and AIX®

Only three server microprocessor architectures predicted to grow share - IA-32, IPF and POWER™

AIX will approach or overtake Solaris as the #1 UNIX operating system

CIO Update: The March of Linux in the Enterprise. **Gartner Research** March 10, 2004

"Nos applications fournissent aux utilisateurs les outils dont ils ont besoin pour gérer l'information nécessaire à leur business. IBM est devenu le leader du marché Unix et notre partenariat avec la compagnie va permettre à Oracle de prendre avantage des travaux qui ont été générés depuis plusieurs années".

Charles Phillips, président de **Oracle** 12/05

Selon **Larry Singer, responsable de la veille technologique chez Sun**, "Nos ingénieurs dans les labs ont essayé de modifier certains paramètres des benchmarks, pensant qu'IBM faisait du bench-Marketing et non des benchmarks. Mais la réalité est que les résultats de ces benchmarks sont sacrément bons".

Plus encore, **Vish Mulchand, directeur marketing de la division serveurs chez HP** acquiesce, "Ils ont réellement de sérieux arguments avec le Power5."

CNET News.com, date du 14 octobre 2004

The IBM POWER Strategy:

Deliver better products that solve hard problems, easily and affordably

- Lower TCO through price/performance & IT simplification

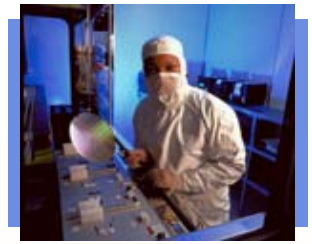
  \+ POWER Architecture
  \+ IBM large system expertise
  \+ AIX 5L™

  = **Outstanding value for business and science**

- Drive massive microprocessor volume to lower costs
  - Video game consoles, major automotive companies
  - Power.org
- Drive POWER into broad server adoption with Linux on Power
  - OpenPower Editions
  - OpenPower Project

Processeurs, Cores ...

IBM's 2005 Patent Total: 13 yrs of Leadership



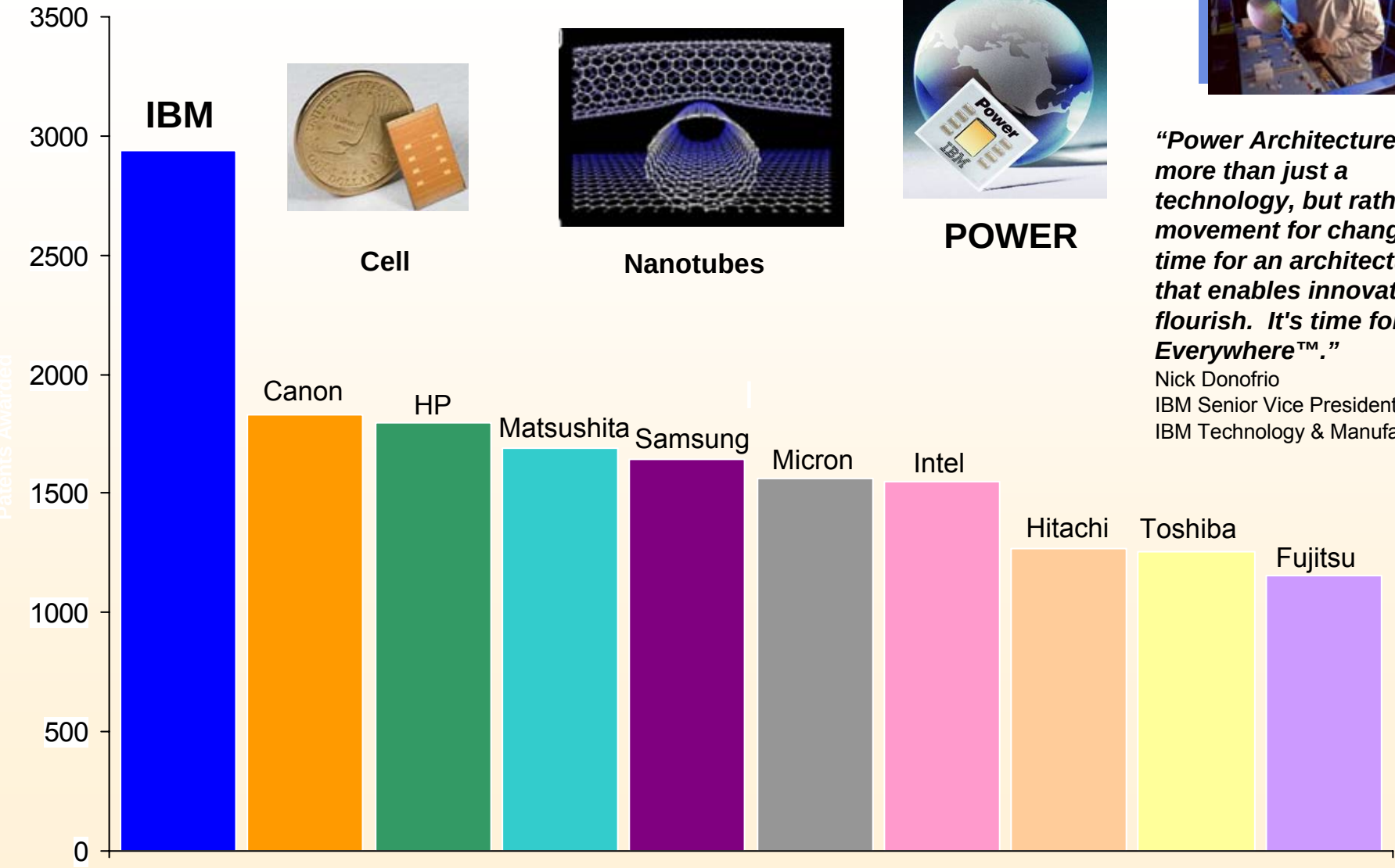
Cell

Nanotubes

POWER

"Power Architecture™ is more than just a technology, but rather a movement for change. It's time for an architecture that enables innovation to flourish. It's time for Power Everywhere™."

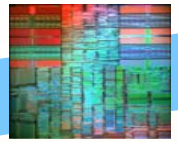
Nick Donofrio
IBM Senior Vice President
IBM Technology & Manufacturing

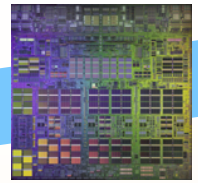
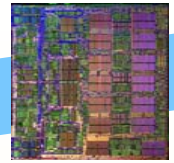
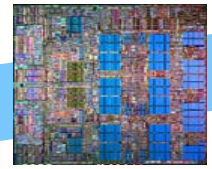


Les processeurs

X 100.000

POWER3 → POWER4 → POWER4 + → POWER5 → POWER 5 +



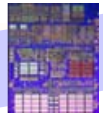
Serveurs

X 1000.000

PPC 750 → PPC 750CXe → PPC 750FX → PPC 750GX → PPC 970FX → PPC 970MP





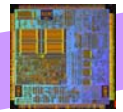
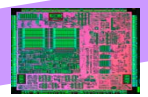



Lames
WorkStations
Jeux

X 10.000.000

PPC 401 → PPC 405GP → PPC 440GP → PPC 440GX



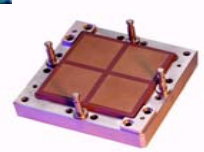



Embarqués

Binary Compatibility

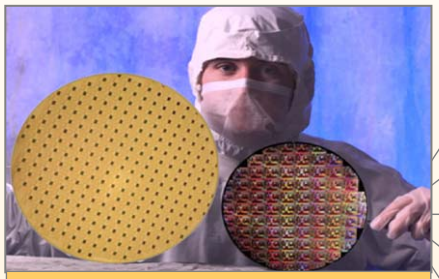
IBM a vendu 28 millions de proc en 2004 et plus de 35 millions en 2005

Only 10% of these were in IBM Servers and Storage



Le Supercomputer le plus rapide au Monde
135 000 Milliards d'opérations par seconde


POWER Architecture™ systems in IBM



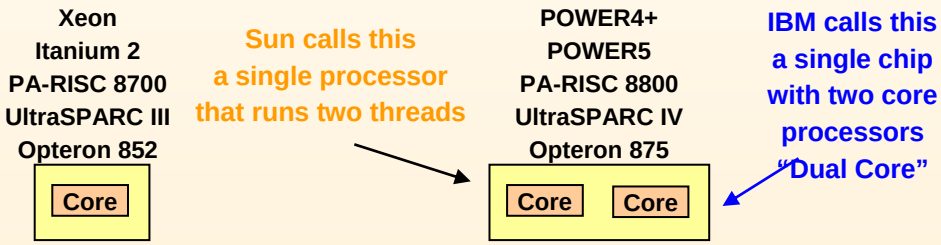
POWER Architecture

- **System p5 and i5 servers** for the most demanding UNIX, Linux, and i5/OS consolidation environments
- **P5 OpenPower Editions** servers for the benefits of POWER and the economics of Linux
- IBM **TotalStorage®** for the most cost-effective family of storage solutions in the industry
- **BladeCenter™** for the lowest TCO in a dense footprint with exceptional price/performance
- **Intellistation®** for the most demanding workstation applications

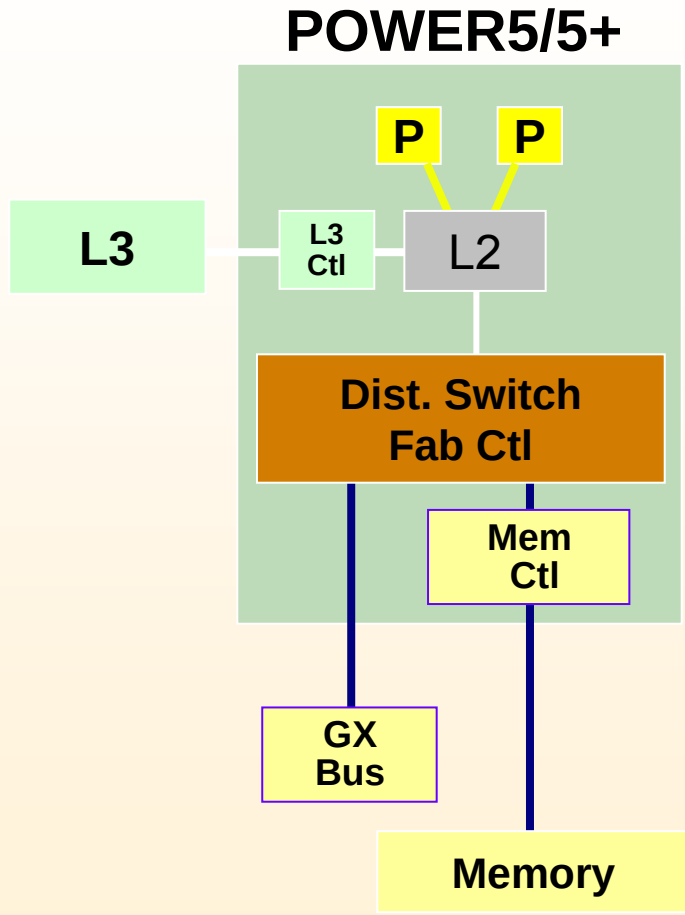
POWER5 / 5+ design…

POWER5	1.5, 1.65 and 1.9 GHz	.13 micron
POWER5+	1.5, 1.65, 1.9 and 2.2 GHz	.09 micron

"If you go to a restaurant and order two apples, it doesn't matter how the server delivers the apples to you. The apples could come on one plate or two plates. Either way, you will consume two apples. Processor licensing works the same way. Customers pay by the number of (core) processors they use, whether they are delivered on one chip or two." Jacqueline Woods, vice president of Oracle's global licensing and pricing strategy speaking on dual-core processors



In the past, chip, processor, core and core processor all meant the same thing. Now, some vendors use processor to mean chip, some use processor to mean core.

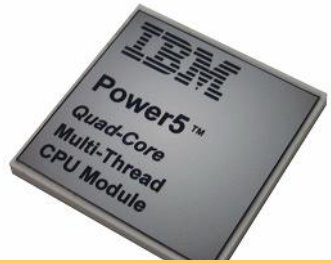


A core is equal to a CPU, and all cores are required to be licensed.

Therefore, if you have a dual-core processor, you are required to have two processor licenses

POWER5+ processor technology

The best gets even better!

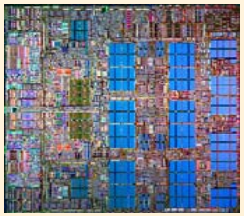


- "IBM System P5 xxx"
- Intégration 37%
- Augmentation des vitesses (Clock & Bus)
- Bande passante I/O augmentée
  - Diminution latence
  - Augmentation bande passante
- Amélioration Controleur mémoire
- Consommation de puissance contrôlée
- Quad-Core Module [QCM] support

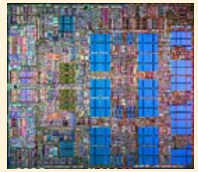
NEW! POWER5+ processor technology

Quad Core Module

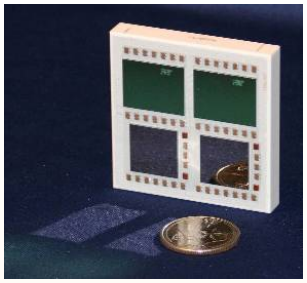
POWER5



POWER5+



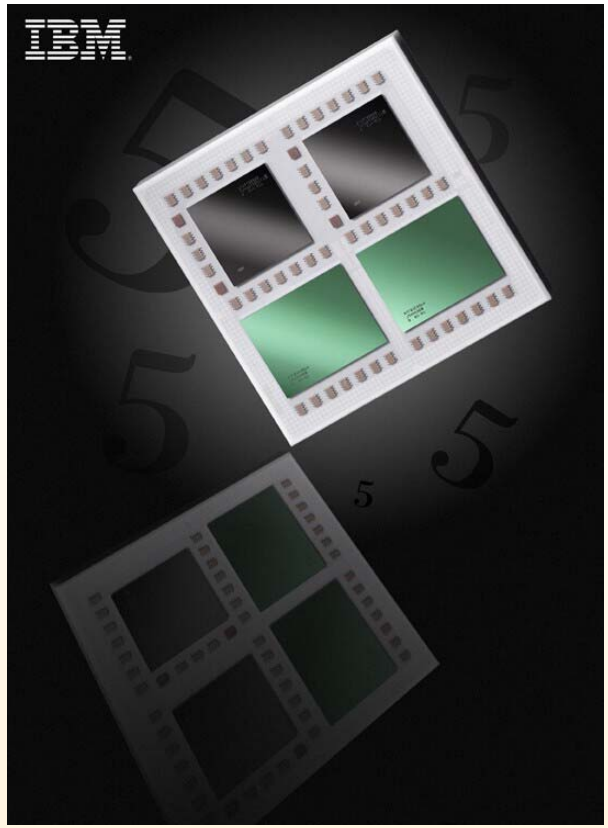
Module QCM “Quad-Core” à 1.5GHz POWER 5+



- Design innovant

- Excellent Rapport

Prix / Performance / Integration

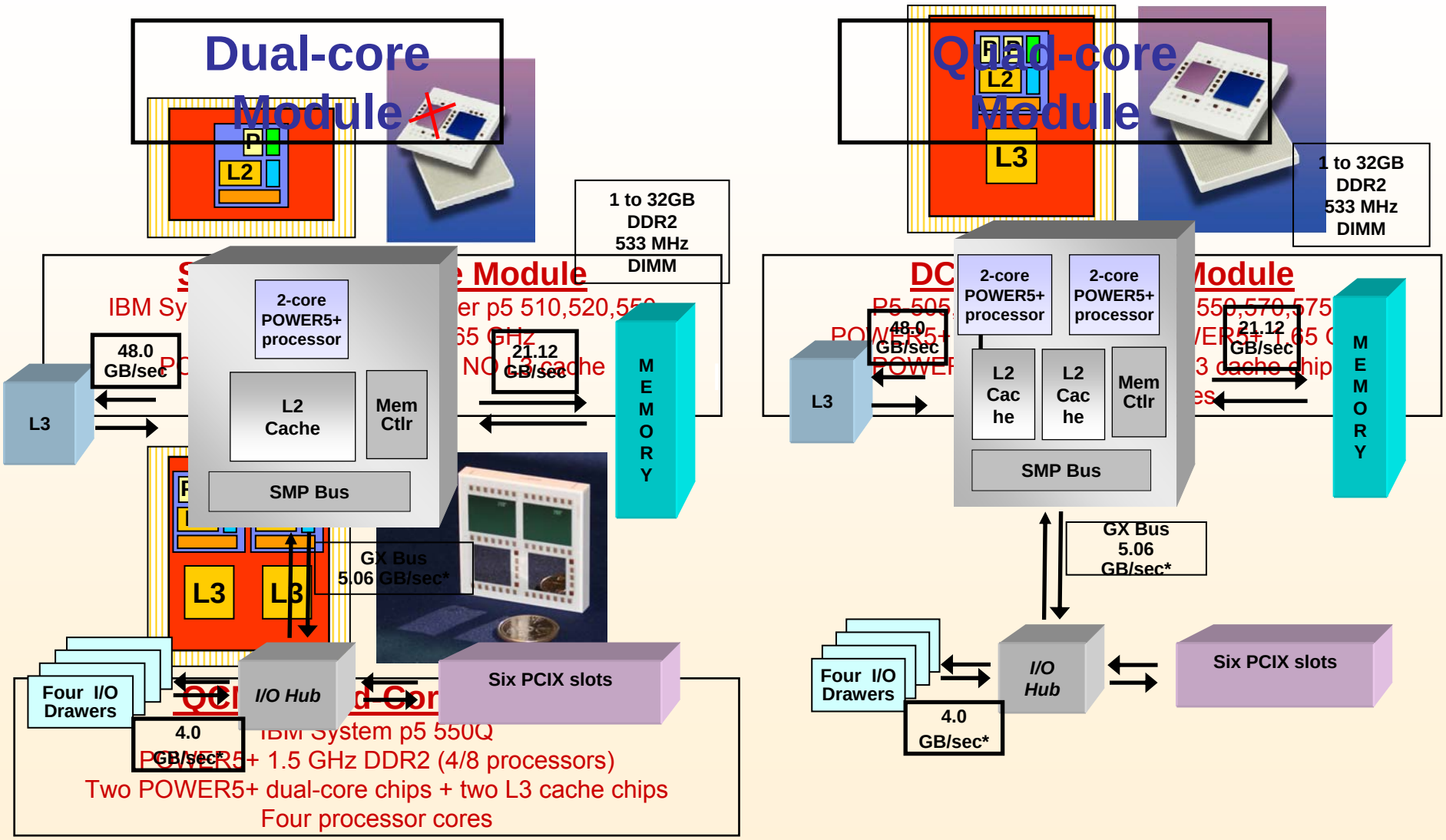


The Quad-Core Module is composed of two dual-core POWER5 chips and two L3 cache chips

Performance doublée par “Socket”

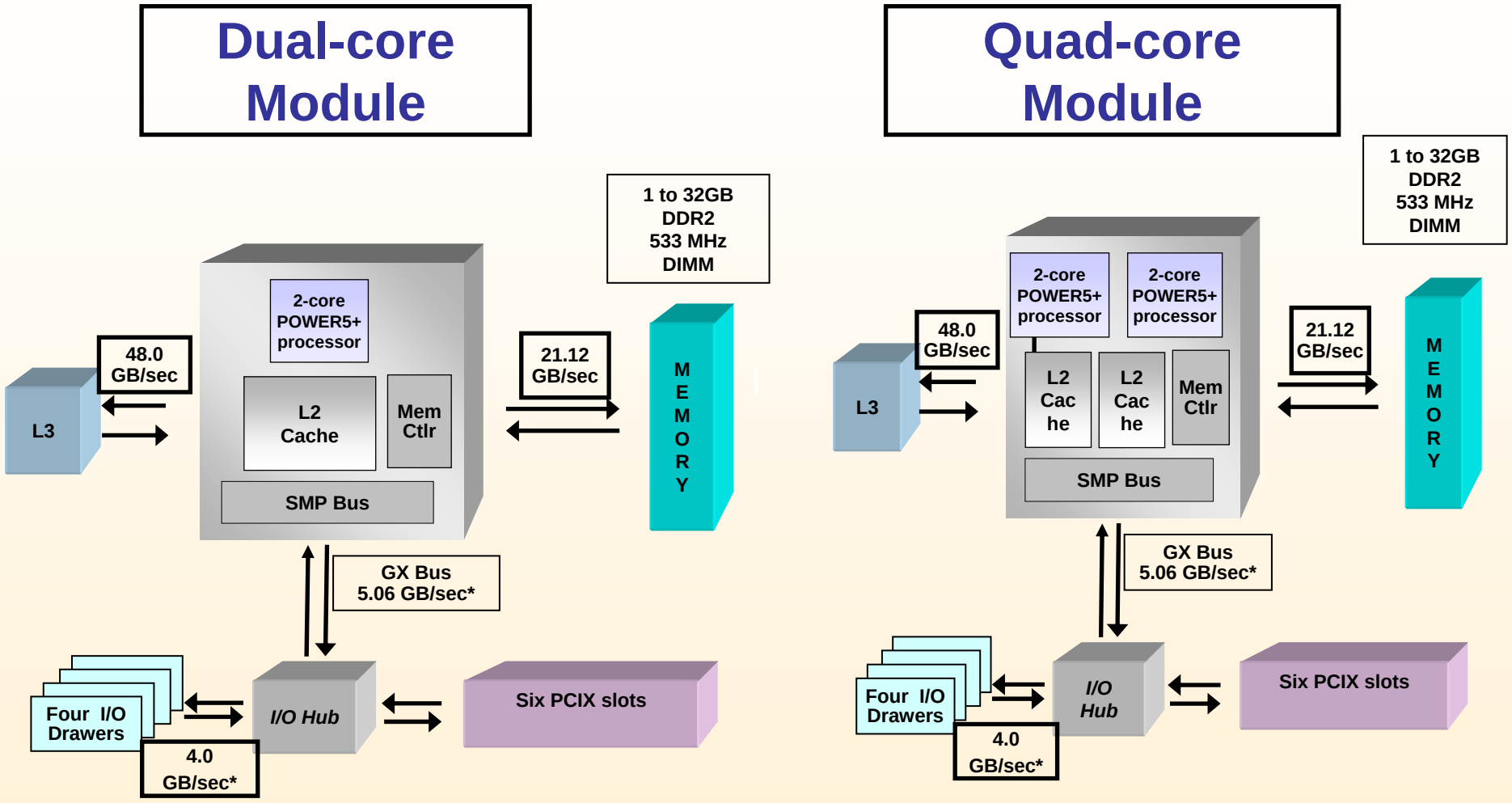
- 1er Module 4-”core processor” de l’industrie
- 2 DCM sur un substrat
- CPU Multithread 8 files d’exécution par “socket “
- 72MB de cache sur un module compact
- IBM Technologie MCM implémentée sur le QCM

POWER5/POWER5+ packaging

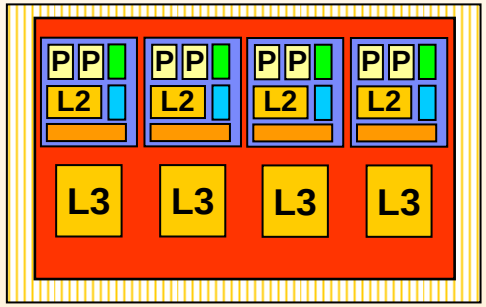


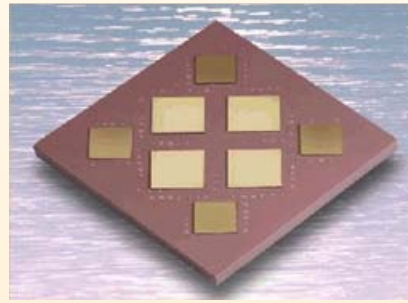
IBM System p5 550Q
POWER5+ 1.5 GHz DDR2 (4/8 processors)
Two POWER5+ dual-core chips + two L3 cache chips
Four processor cores

POWER5/POWER5+ packaging



POWER5/POWER5+ packaging

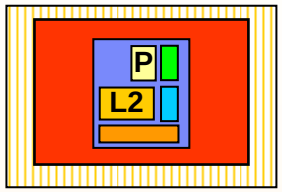




MCM : Multi-Chip Module

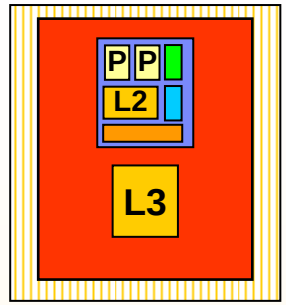
IBM eServer p5 p590 & p595
POWER5 1.65 GHz DDR1 ou 1.9 GHz DDR2
Four dual-core POWER5 chips + four L3 cache chips
Eight processor cores

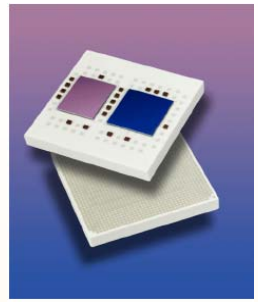
POWER5/POWER5+ packaging



SCM : Single-Core Module

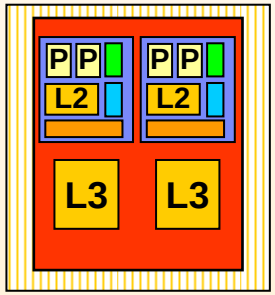
IBM System p5 505 / IBM eServer p5 510,520,550
POWER5 1.5 and 1.65 GHz
POWER5 mono-core chip : NO L3 cache

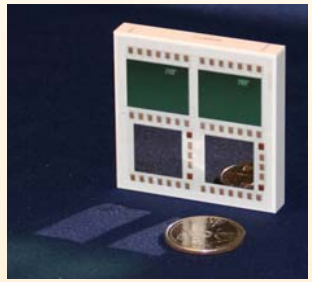




DCM : Dual-Core Module

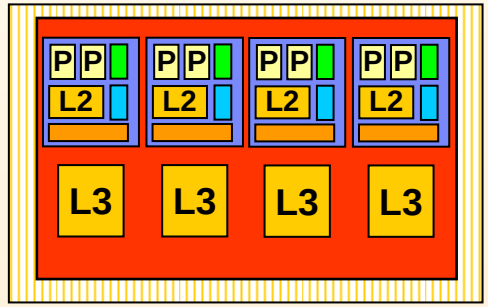
P5-505,520,550 / p5 510,520,550,570,575
POWER5+ 1.9 GHz DDR2 / POWER5+ 1.65 GHz
POWER5+ dual-core chip + L3 cache chip
Two processor cores

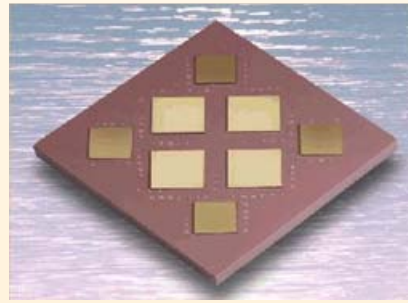




QCM : Quad-Core Module

IBM System p5 550Q
POWER5+ 1.5 GHz DDR2 (4/8 processors)
Two POWER5+ dual-core chips + two L3 cache chips
Four processor cores

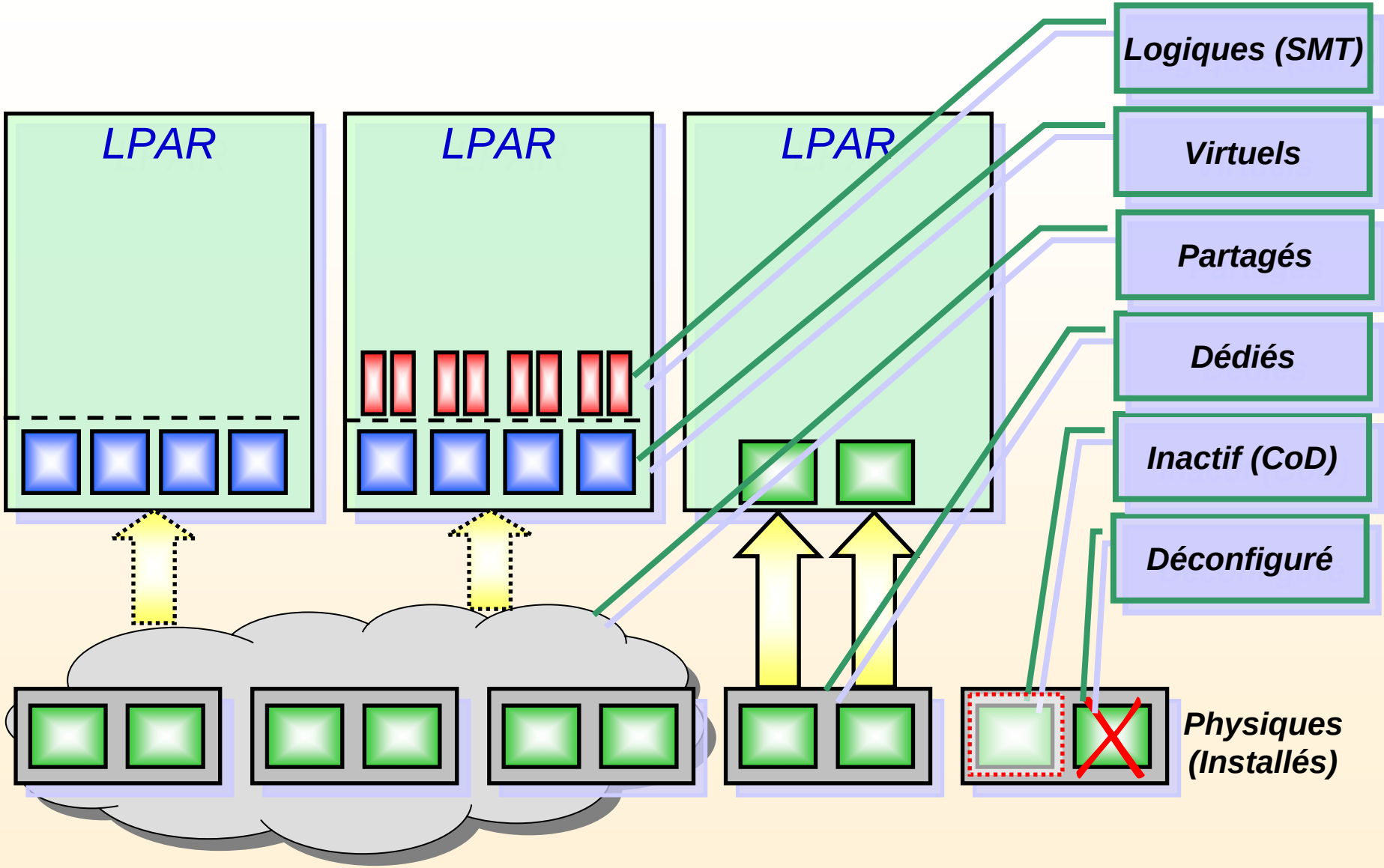




MCM : Multi-Chip Module

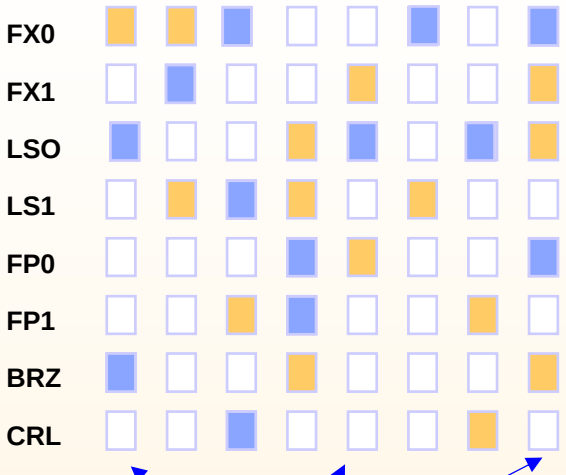
IBM eServer p5 p590 & p595
POWER5 1.65 GHz DDR1 ou 1.9 GHz DDR2
Four dual-core POWER5 chips + four L3 cache chips
Eight processor cores

Terminologie processeur



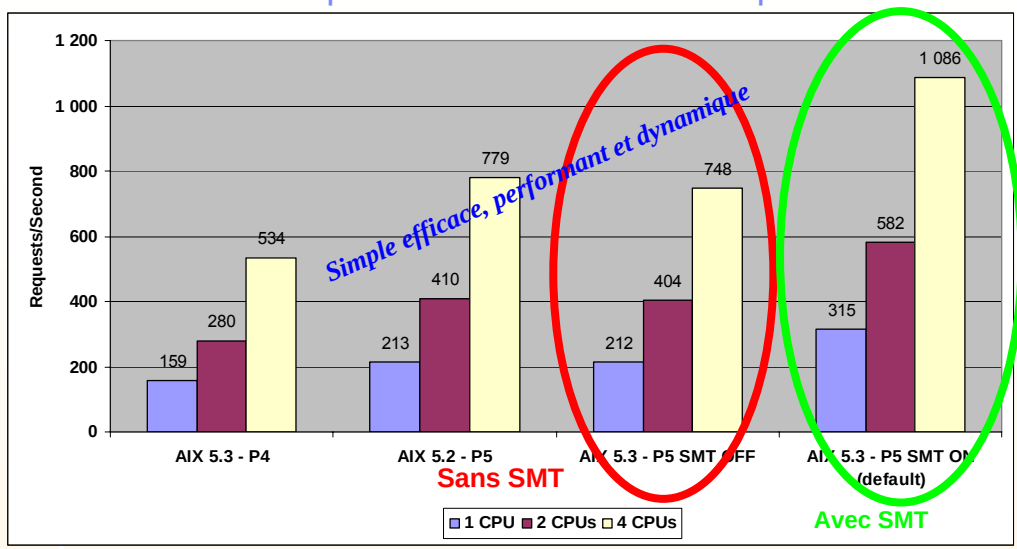
Simultaneous multi-threading

POWER5 (simultaneous multi-threading)



Apparait comme 4 CPUs par chip à l'operating system (AIX 5L V5.3 et Linux)

Exemple de mesure avec Websphère



Architecture 3 tiers P4 : 1.45Ghz P5 : 1.65Ghz

- Utilise les unités d'exécution inutilisées des cycles d'horloge
- Vu par les logiciels comme utilisant un modèle de programmation "symmetric multiprocessing (SMP)"
- Execute deux "threads" par processeur : **2 files d'éxecution par cycle d'horloge**
- Résultats : ***Meilleure performance / Meilleure utilisation processeur***
  - ✓**Réduction du temps d'attente**
  - ✓**~ 40% de débit supplémentaire**
  - ✓**AIX voit deux processeurs**

Virtualization

Les priorités des clients / DSI pour 2006

Efficacité du système d'information pour l'activité de l'entreprise

Réponse rapide aux changements des besoins / flexibilité

Réduction des coûts

Maximisation de l'utilisation de l'infrastructure (ROA)

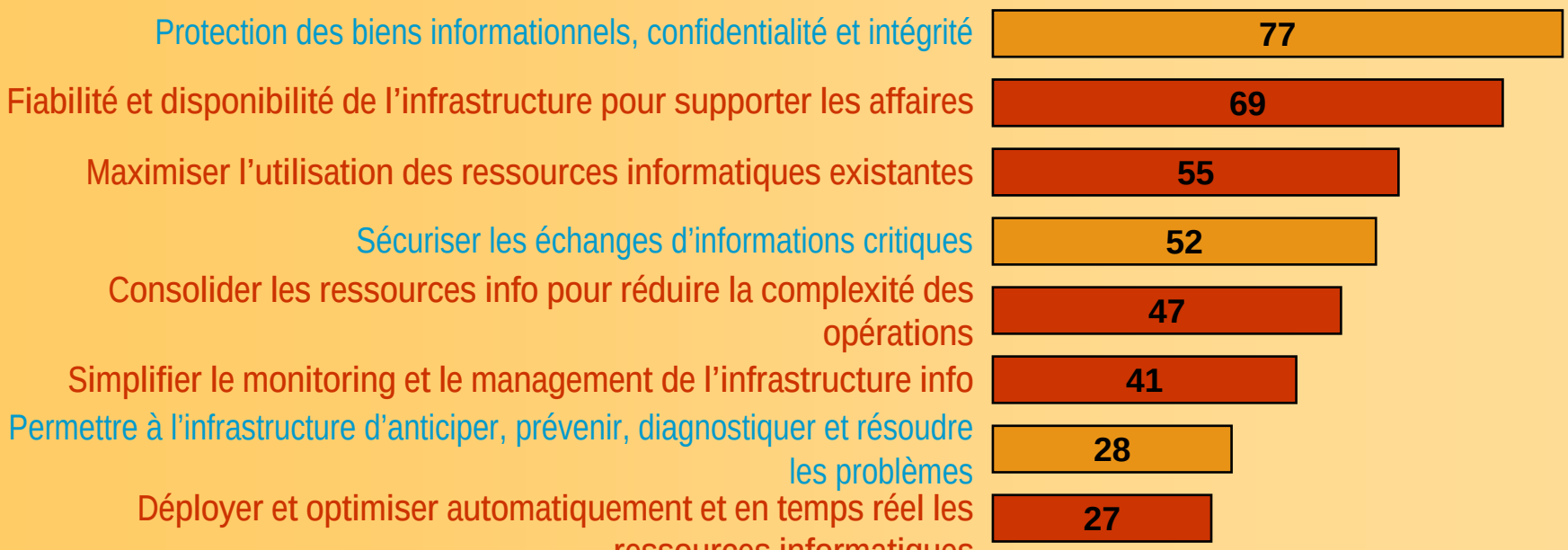
Source : IDC 2006

ON DEMAND BUSINESS

Virtualisation

% de réponses intérêt élevé

Management des infrastructures



Source: Attributes and Capabilities Study, juin 2003 par EBOD Corporate Market Intelligence

1350 directeurs informatiques interrogés dans le monde

Simplification through virtualization

- *Virtualization is the process of presenting computing resources in ways that users and applications can easily get value out of them, rather than presenting them in a way dictated by their implementation, geographic location, or physical packaging. In other words, it provides a logical rather than physical view of data, computing power, storage capacity, and other resources.*
  - **Jonathan Eunice, Illuminata**

According to the Gartner Group, companies that ignore virtualization will pay 15 to 20 percent more than they need to for IT by 2008.

Pourquoi avons-nous besoin de la Virtualisation ?

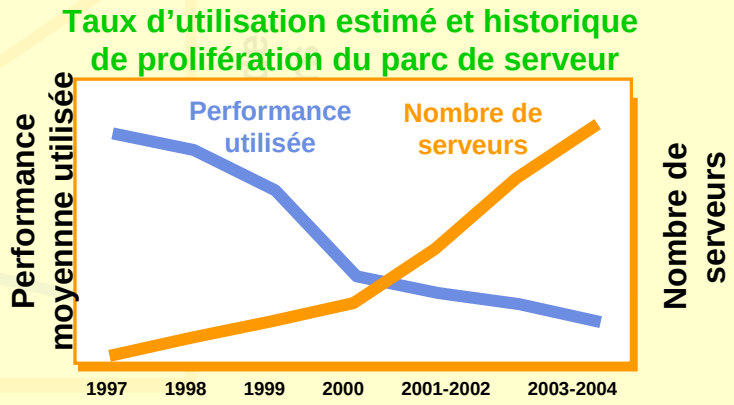
Quel est le taux d'utilisation moyen d'un serveur UNIX ?	25-30 %
Quel est le taux d'utilisation moyen d'un serveur mainframe ?	70-80%
Quel est le taux d'utilisation moyen d'un serveur Microsoft® Windows® ?	Moins de 20 %

La virtualisation permet de répondre aux besoins *à la demande*

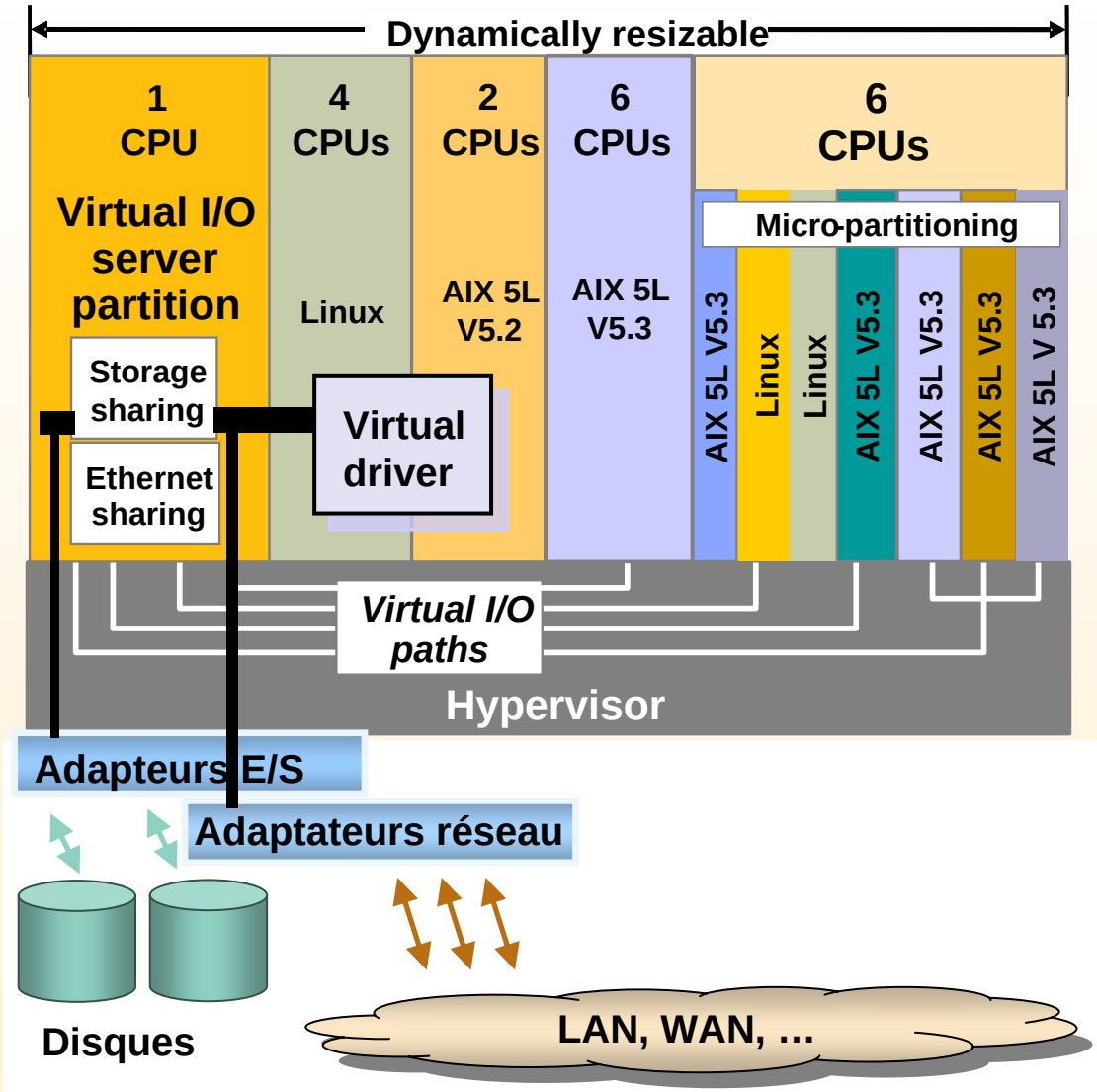
Au niveau des serveurs cela se traduit par

- **La virtualisation des processeurs**
- **La virtualisation des E/S**
- **Des fonctions complémentaires**

Ce qui facilite leur adaptabilité



Options de virtualisation avancées : @server p5



Micro-Partitionnement

- Processeurs partagés entre partitions
- Minimum : 1/10ème de processeur / partition
- Incrément 1/100émé de proc
- AIX 5L V5.3 ou Linux*

Virtual I/O server

- Ethernet Partagé
- Réseau inter-partition interne basé sur la mémoire
- Disques SCSI et Fibre Channel partagés
- Support des partitions AIX 5L v5.3 et Linux*

Partition Load Manager

- Support d'AIX 5L V5.2 et d'AIX 5L V5.3
- Rééquilibrage des besoins en ressources mémoire et processeur

Accounting

* SLES 9 ou RHEL AS 3

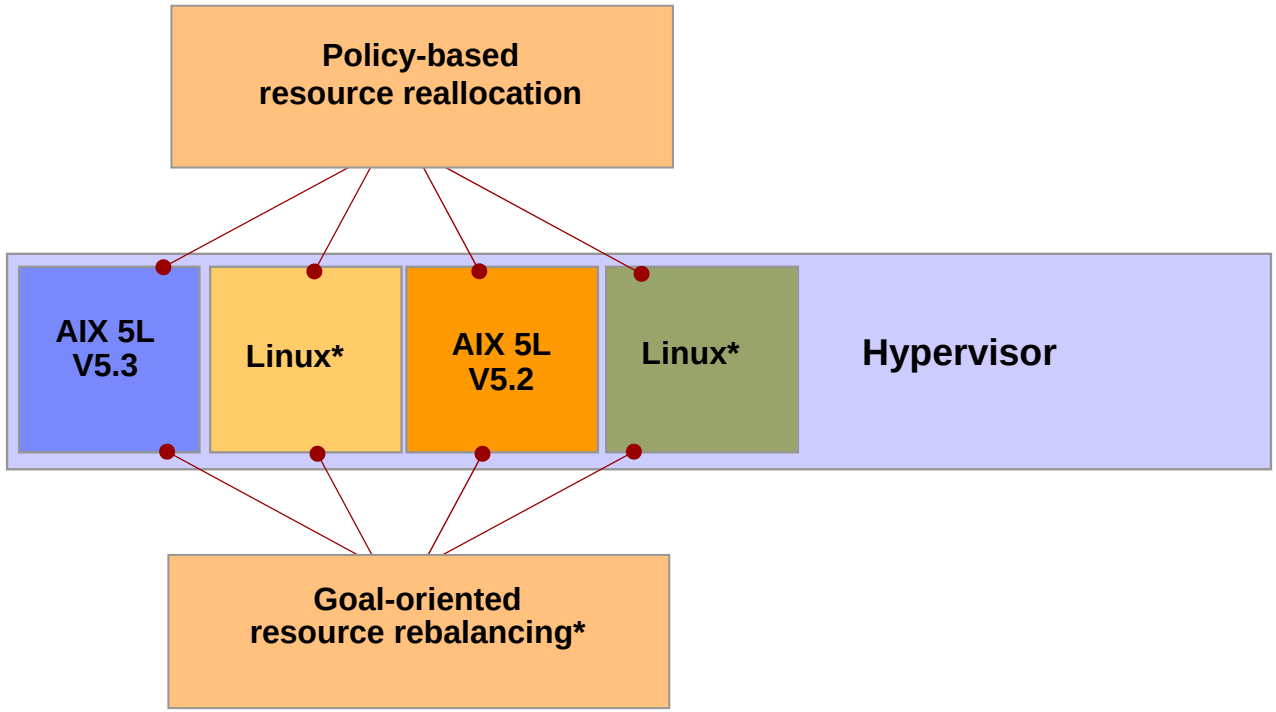
Partition Load Manager : optimisation cross-partition

Déplacement de ressources Processeurs et/ou mémoire

Optimisation automatique des ressources sur base de règles

Allocation dynamique processeur et mémoire

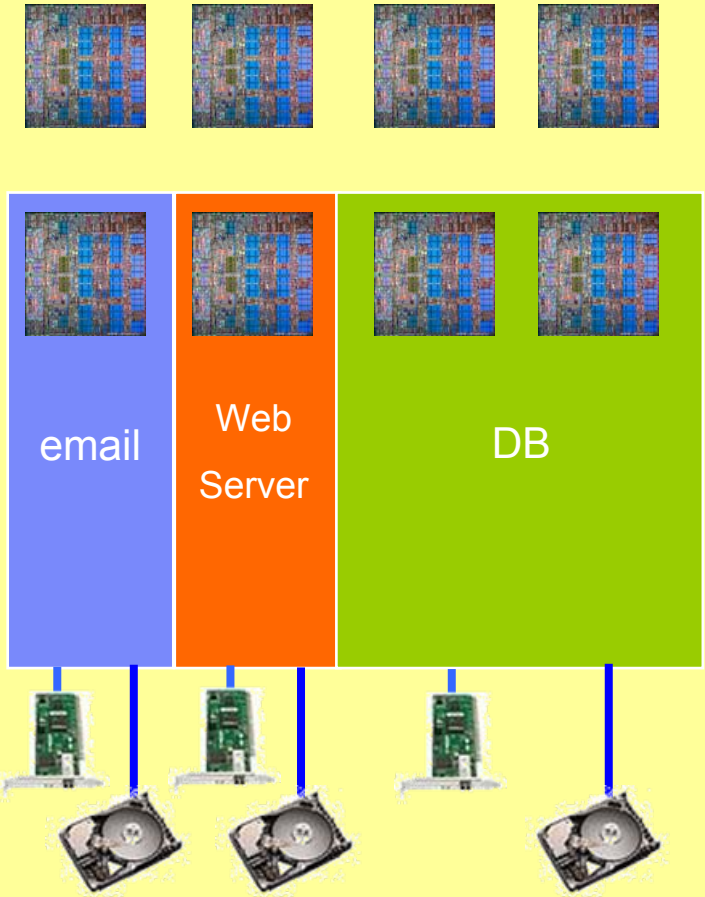
Supporte des partitions AIX 5L V5.3/V5.2



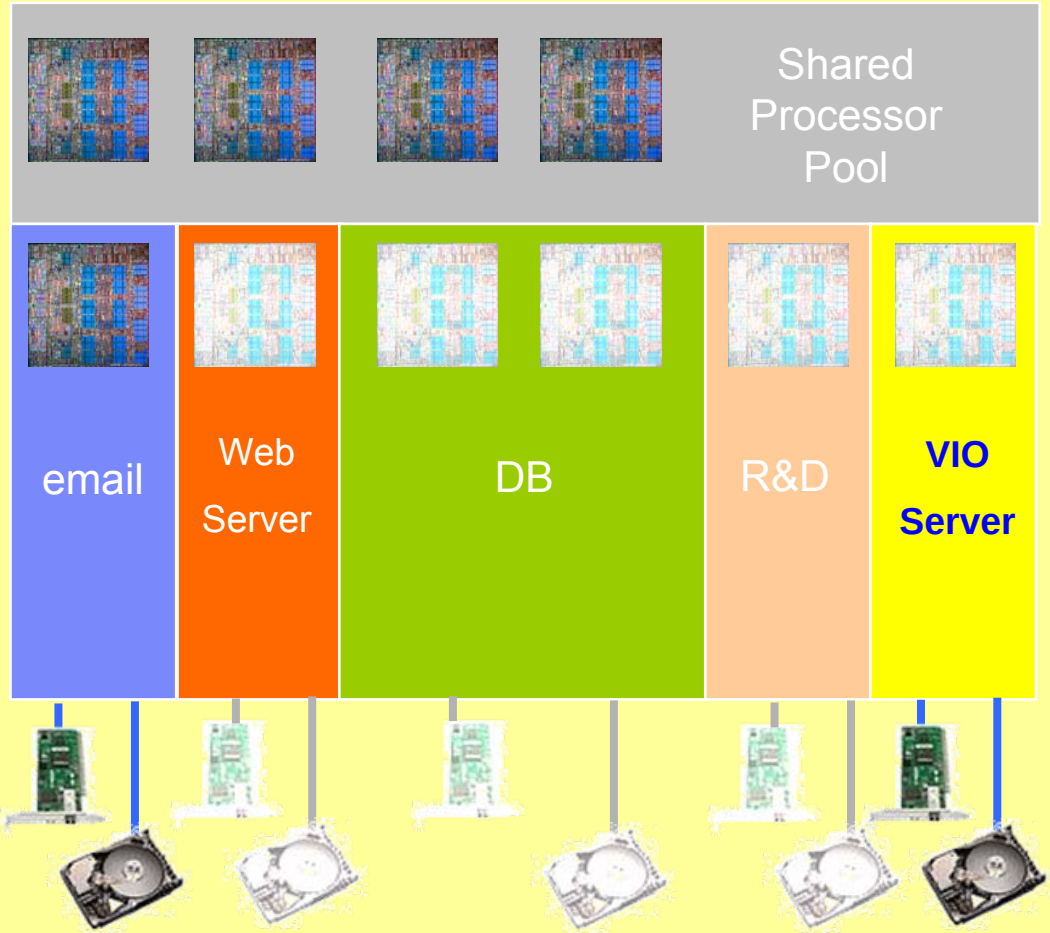
Gestion automatisée de la réallocation des ressources, pour les changements de charges de travail répétitifs

Antique Server vs POWER5 LPARs

Antique Server



POWER5 / 5+



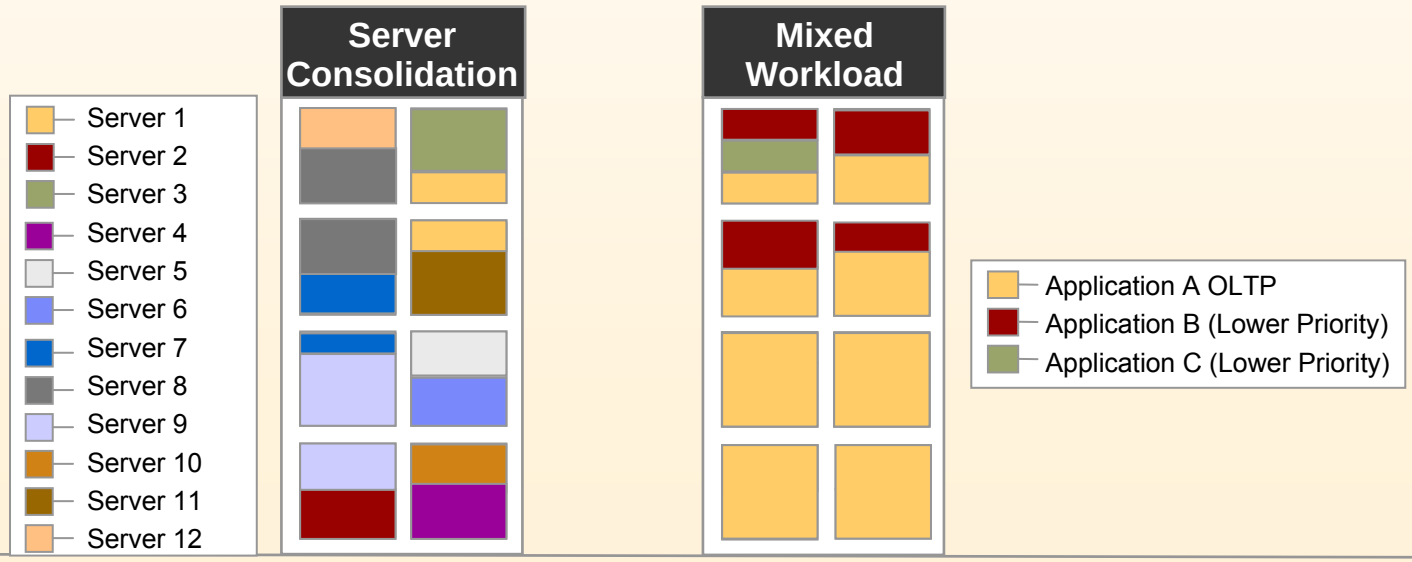
Le micro-partitionnement apporte plus de flexibilité

Architecturé pour répondre aux besoins de consolidation de serveurs et de charges variées

Simplifier votre environnement

Une réponse rapide à vos besoins changeants

Optimiser l'utilisation de votre serveur

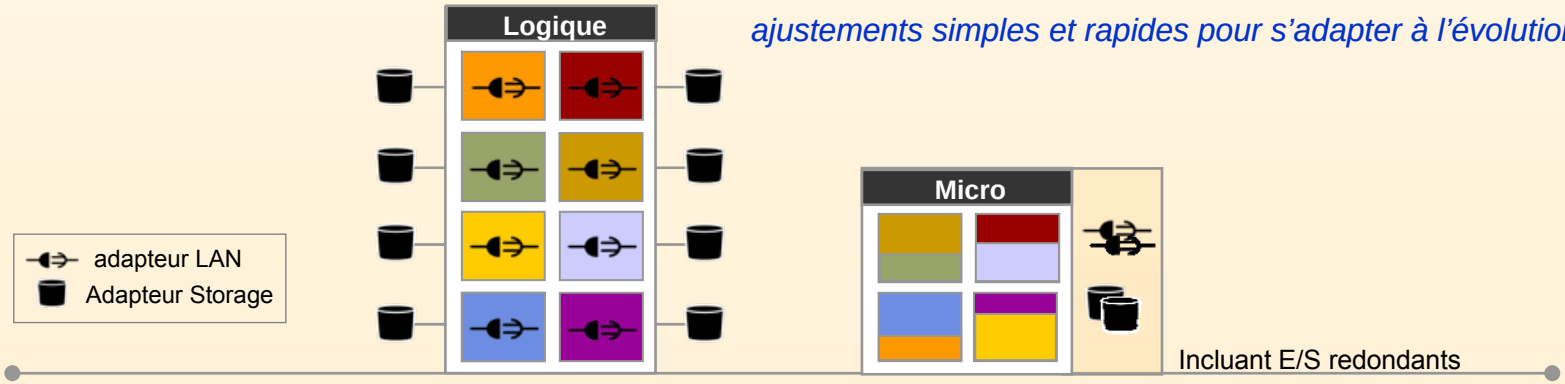


Want to lower your software, energy and space costs?

Buy a System p5 that enables you to **consolidate** the work you might be using many servers to accomplish today . . .
and 'VIRTUALIZE'* for optimum cost savings

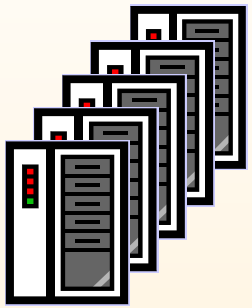
IBM Shared Storage and Networking

moins de ressources à acheter, configurer et maintenir
ajustements simples et rapides pour s'adapter à l'évolution des besoins

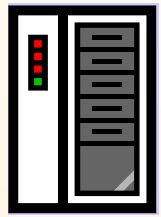


Power5 Sizing Example
Micropartitioned vs Standalone

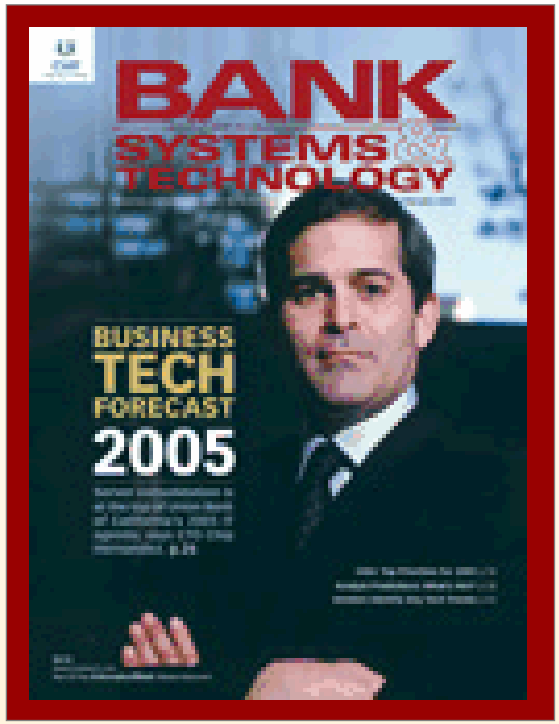
Potential Savings: 25% Hardware, 60% Software, 80+% Infrastructure



	p510 (10) Standalone	p550 (1) Micropartition	Savings
Processors	1x1.65GHz	4x1.65GHz	
Memory	1 GB	12 GB	
Boot Disks	2	8	
Ethernet	2 -100 Mb	2 (Gb)	
rPerf	5.24	19.66	
# Servers	10	1	
Avg Utiliz	20%	58%	
Peak	1 CPU	4 CPU	
Totals			
Total List Price	$72,370	$55,528	-25%
Processors	10	4	-60%
Power (watts)	6,000	1,100	-82%
Cooling (BTU)	20,460	2,557	-87%
Rack (inches)	35	7	-80%
Ethernet Ports	20	2	-90%



Union Bank of California: A Server Consolidation Success



"We recently committed to IBM's p5 processor-based 595 server line. We are excited about this technology because of what it provides in the way of capacity, virtualization capabilities and performance. A total of **91 older servers will be replaced by 16 Power5 processor-based servers**, while improving the processing throughput by a factor of four."

-- Chip Hernandez, Union Bank CTO

The bank will enjoy a
43 percent reduction in floor space
46 percent reduction in power consumption
63 percent reduction in maintenance costs
as a result of server consolidation, Hernandez says.

(http://www.banktech.com/news/showArticle.jhtml;jsessionid=MLVKUDU2LGB2SQSNDBESKHA?articleID=59200037)

Take advantage of our proven, low risk migration process

Like over 250 businesses did in 2005*

Our Migration Factory team offers experience with the following common source platforms . . .

- Sun Solaris
- Tru64 UNIX
- HP-UX
- Sequent DYNIX/ptx
- SGI Irix
- DG-UX
- AIX 5L v4.x to 5.x upgrade
- HP 3000 MPE
- HP VMS/OpenVMS
- HP/Tandem NSK
- Windows

- More than **20 years of application migration experience**
- Unique tools, metrics and automation to reduce the cost of migrating from one platform to another
- Support through process, expertise and project management
- **Free AIX 5L and Linux training for UNIX professionals**

*Internal IBM Migration Factory statistics

Gamme System p5 annonces du 14 février 2006

ON DEMAND BUSINESS™

Q1 2006 new Products

- NEW! The tremendous advantage of IBM POWER5+™ processors with even higher performance over the competition!
  First ever 1 Million TPC-C in a Midrange system*
- NEW! Innovative IBM Quad-Core Module technology that makes POWER5+ performance even more affordable -- now available in more systems!
- NEW! More IBM System p5™ Express models, low-priced and available with AIX 5L™ or OpenPower™ [Linux™] Editions!
- NEW! A System p5 server priced under $3K**, a super-quiet IBM IntelliStation® POWER™ workstation and the industry's first blade server with virtualization as standard -- all with the IBM PowerPC™ 970 processor!
- NEW! Special IBM software pricing and the free download of IBM Director for comprehensive cross-platform management
- NEW! Accessories and upgrades now more affordable than ever!

*IBM System p5 570 result of TPC-C throughput of 1,025,169 tpmC, Price/Performance $4.43 /tpmC (USD), Availability Date of 05/31/2006 from www.tpc.org on February 14, 2006
HP Integrity rx8620 result of TPC-C throughput 332,266 tpmC, Price/Performance 4.48 $/tpmC (USD), Availability Date of 07/15/05 from www.tpc.org on January 20, 2006

** US List Price of the IBM System p5 198 Express as of February 14, 2006. Prices are subject to change without notice and reseller prices may vary.
http://www.ibm.com/servers/ca/en/eserver/pseries/hardware/entry/510express_browse.html

AIX 5L on IBM System p5, @server p5 and BladeCenter JS20/21

AIX 5L

High-end


p5-570


p5-590


p5-595

Mid-range


p5-560Q

Entry deskside



p5-550/550Q


p5-520/520Q


p5-510/510Q


p5-505




p5-185

Entry rack

Supercomputing Node

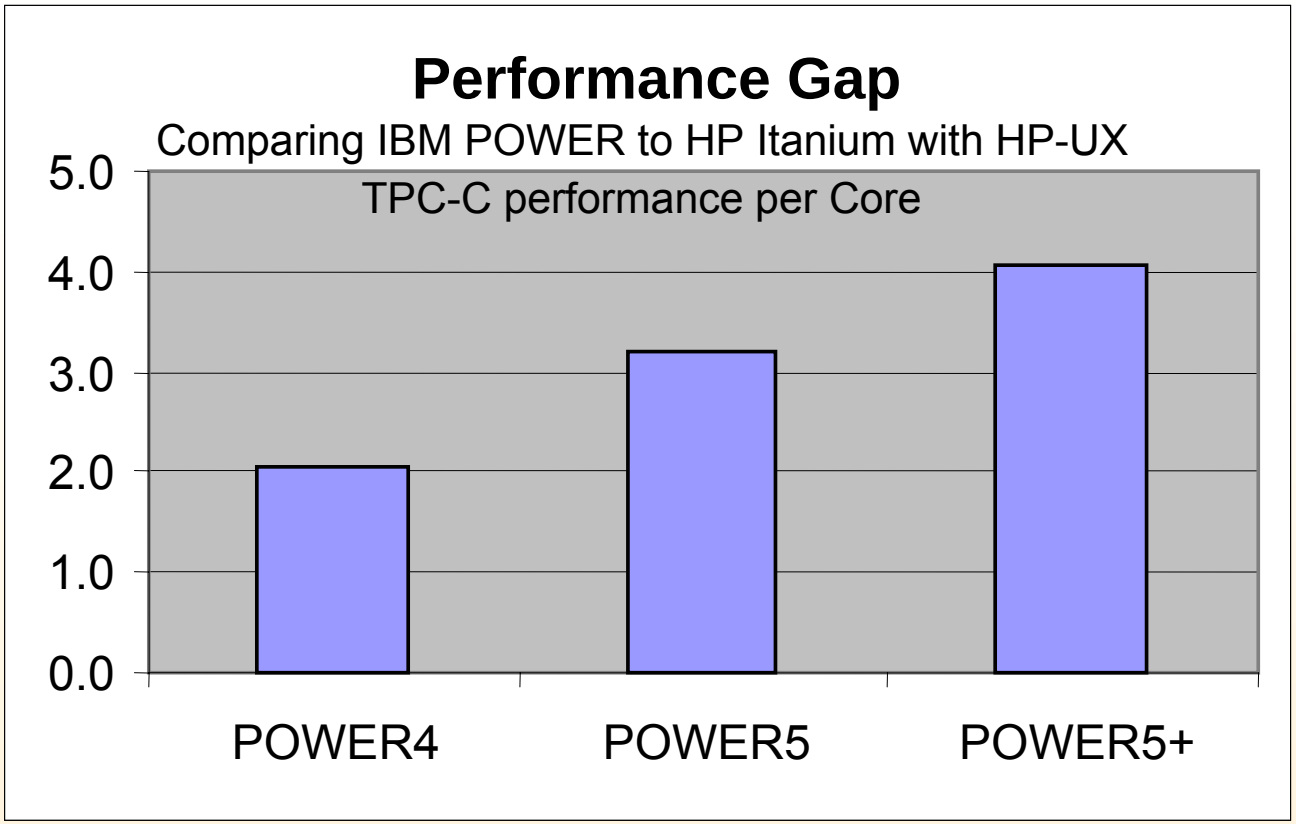

p5-575

BLUE GENE


BladeCenter JS20/JS21

IBM System p5 : Committed to virtualization, openness and collaborative innovation

POWER5+ Widens the gap between IBM and our competition



	POWER4 2003	POWER5 2004	POWER5+ 2006
IBM Perf/Core	32046	50165	64093
HP Perf/Core	15752	15752	15752
Performance Gap	2.0	3.2	4.1

Source: http://www.tpc.org/tpcc/results/tpcc_perf_results.asp?resulttype=noncluster

Annonces du 14 février 2006

IBM POWERPC 970 technology @ 2.5 GHz

IBM BladeCenter JS21

NEW!

IBM IntelliStation POWER 185 Express

NEW!

System p5 185 Express

NEW!

System p5 510/510Q* Express

NEW!

@ 1.9 GHz, 1.65 GHz, and 1.5 GHz
Quad-Core Module

IBM POWER5+™ technology

AIX

System p5 520/520Q Express

NEW!

@ 1.65GHz and 1.5 GHz
Quad-Core Module

System p5 550 Express

NEW!

@ 1.65 GHz

System p5 560Q Express

NEW!

@ 1.5 GHz
Quad-Core Module

System p5 570

NEW!

@ 1.9 GHz and 2.2 GHz

System p5 575

NEW!

@ 1.9 GHz and 2.2 GHz

BLUE GENE

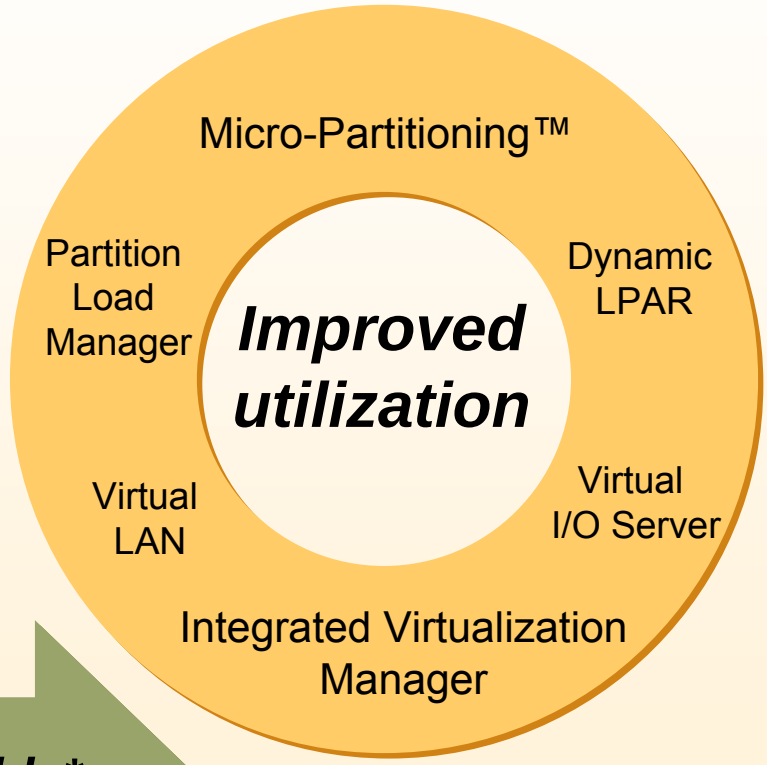
We make it easy to select the right system

Reduce costs and improve operational efficiencies through leadership performance for the price and the IBM Virtualization Engine

Most performance*

Most performance for the price*

Most affordable*



*Comparison of UNIX and Linux operating system platform offerings from IBM System p5, IBM BladeCenter® and IBM IntelliStation POWER workstations as of February 14, 2006

Introducing NEW! IBM systems for AIX 5L and Linux

The right match at the right price for your business. . .

Most performance

IBM System p5 510 Express

IBM System p5 570

IBM System p5 575

p5-590 & 595

Most performance for the price

IBM System p5 510Q Express

IBM System p5 520Q Express

IBM System p5 560Q Express

IBM BladeCenter® JS21

Most affordable

IBM System p5 185 Express

IBM System p5 520 Express

IBM System p5 550 Express

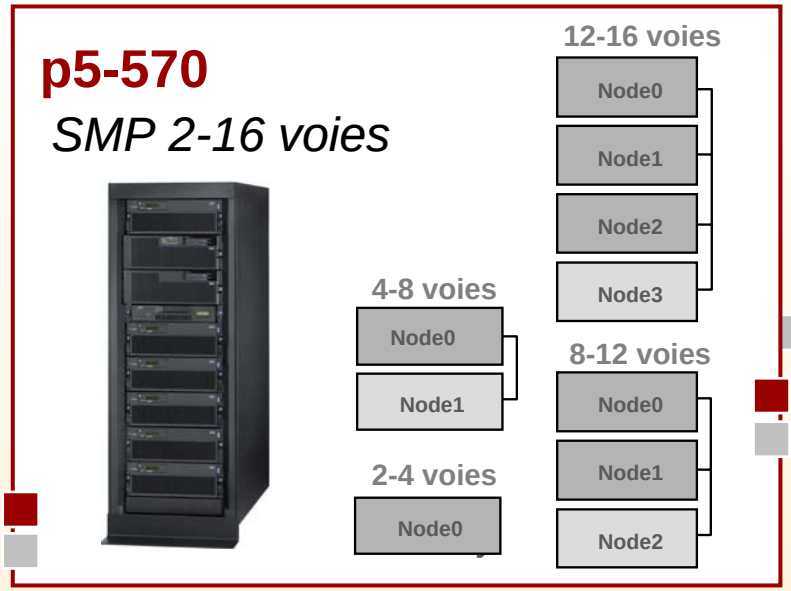
IBM IntelliStation POWER 185 Express

Most performance

L'architecture modulaire* : p5-570

'Pay as you grow' s'adapter quel que soit le futur

Conserver les modules systèmes exista
de nouveaux au fur et à mesure que les



Architecture modulaire 'Pay as you grow'

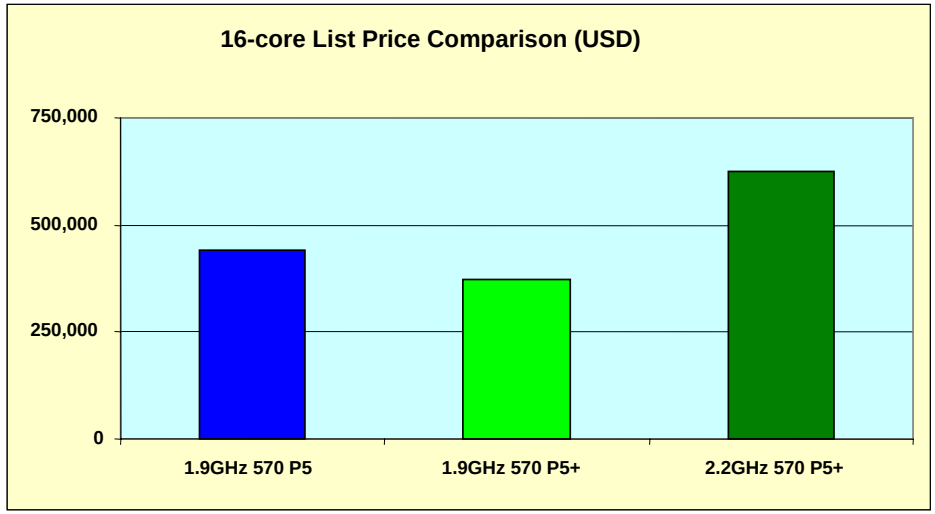
SMP [non NUMA] Rack 19"

Jusqu'à 512 Go mémoire DDR2

Micro-partitionnement*

Virtual LAN, I/O*

POWER5+ 1.9 et 2.2 GHz



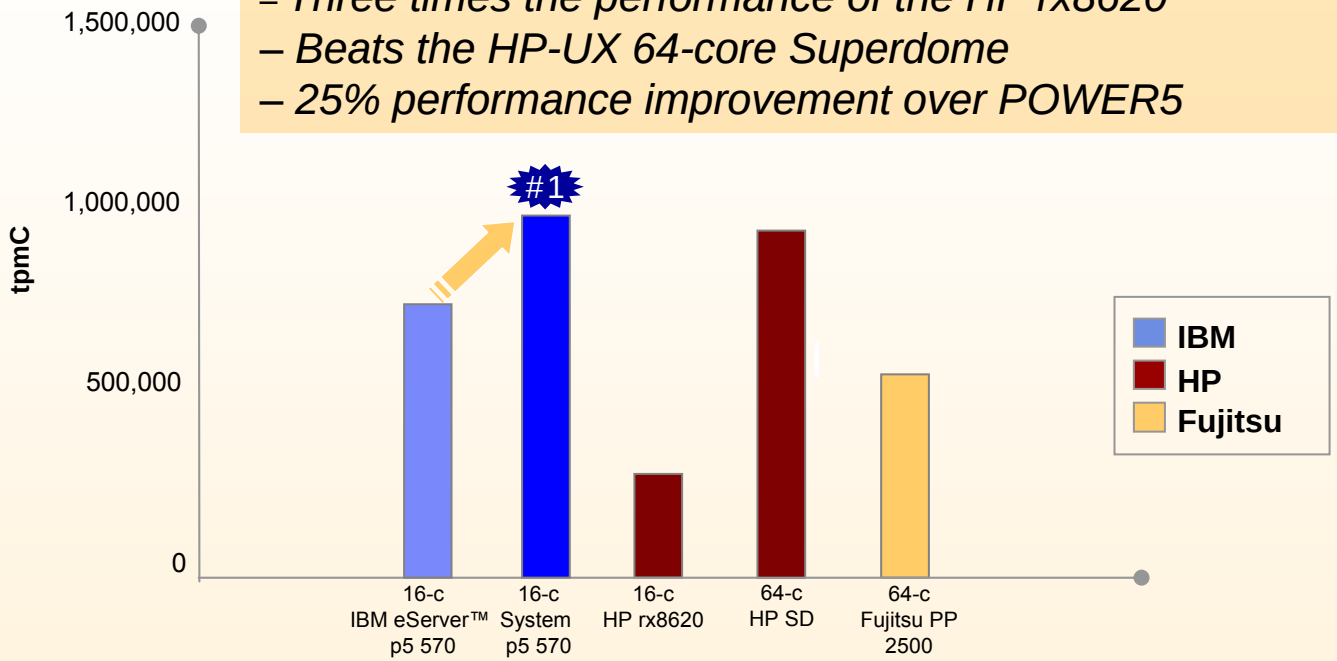
- p5-570
  - New 1.9GHz 570 has 10% more performance[3] and 15% lower List Price (USD) than current 1.9GHz 570[2]
  - 2.2GHz 570 introduces new performance point; >20% more transaction capacity than the previous fastest 570[3]

Et, moins de contraintes de gestion, car il s'agit d'un SEUL système et non de quatre.

p5-570 trumps its own hand!

16-core tpmC results with the System p5 570 break the 1 mil mark!*

- *Three times the performance of the HP rx8620*
- *Beats the HP-UX 64-core Superdome*
- *25% performance improvement over POWER5*



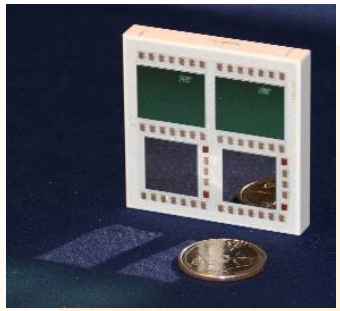
System	eServer p5 570	System p5 570	HP rx8620	HP Superdome running HP-UX	Fujitsu PRIMEPOWER 2500
Processors	16 POWER5	**16 POWER5+**	16 Itanium2	64 Itanium2	64 SPARC64 V
Cores	16 @ 1.9GHz	**16 @ 2.2GHz**	16 @ 1.6GHz	64 @ 1.5GHz	64 @ 1.3GHz
Threads	32	**32**	16	64	64
tpmC	809,144	**1,025,169**	332,265	1.008,144	595,702
$/tpmC	$4.95	**$4.43**	$4.48	$8.33	$12.43
Avail. Date	9/30/04	**5/31/06**	7/15/05	4/14/04	4/30/04

Source http://www.tpc.org
* IBM result submitted on 2/14/06
All other results current as of 2/13/06

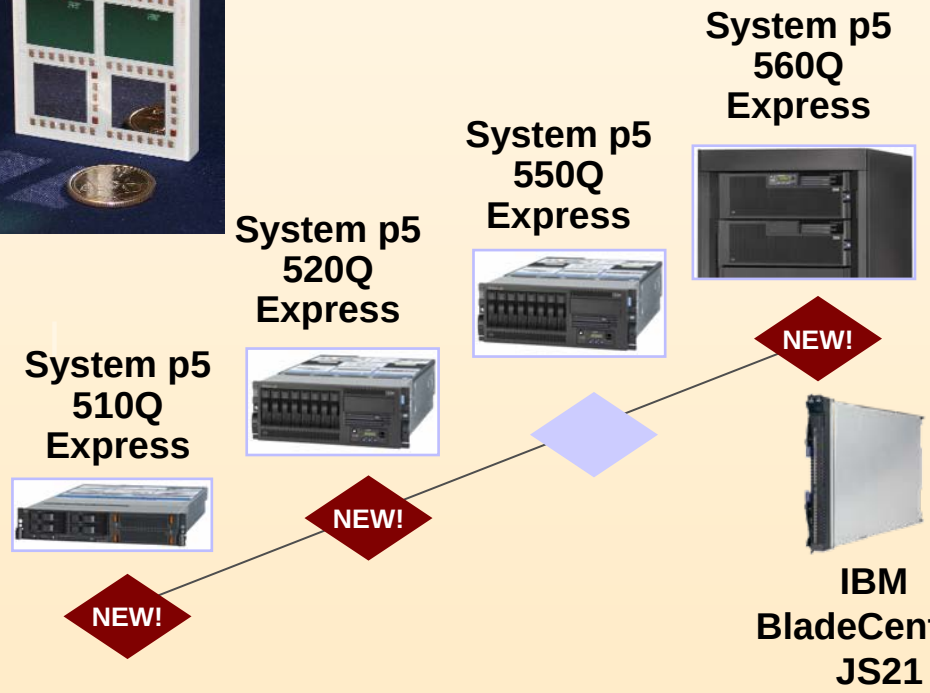
System p5 Express family of 'Q' models

Most performance for the price

Quad-Core packaging at 1.5GHz enables POWER5+ performance at even lower prices!



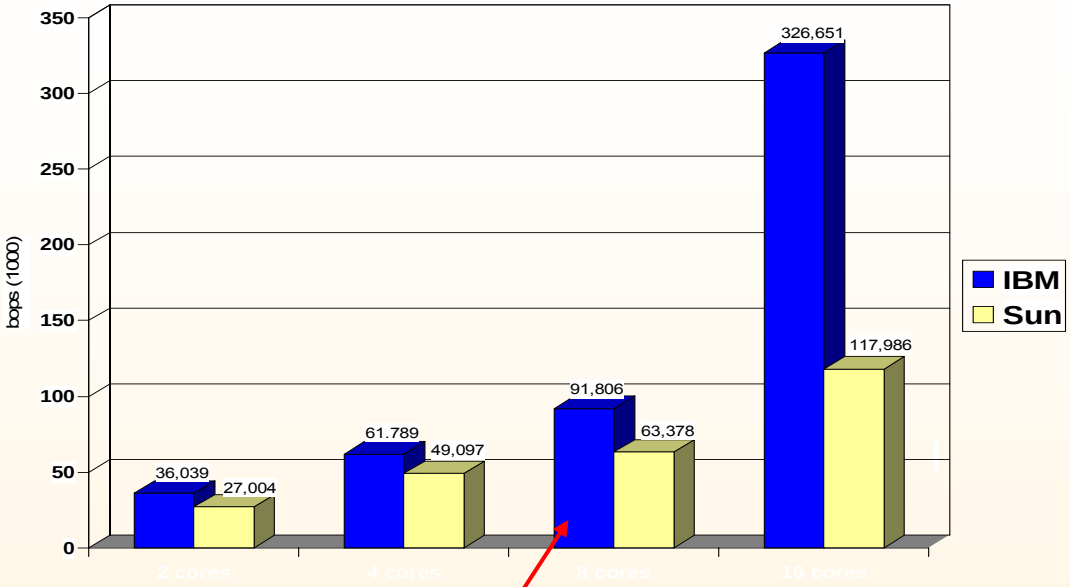
- **System p5 510Q Express:** Our lowest-priced 4-core system outperforms Sun Fire T1000*
- **System p5 520Q Express:** New price point for configurable 4-core
- **System p5 560Q Express:** Outperforms all competitive 16-core systems on Java business applications**

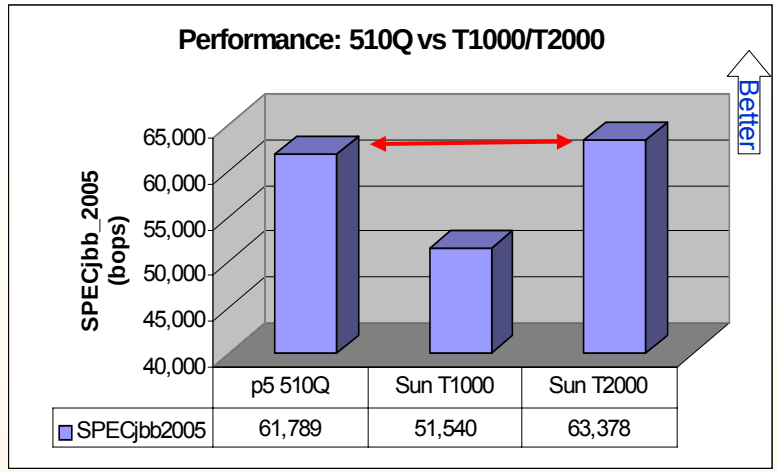


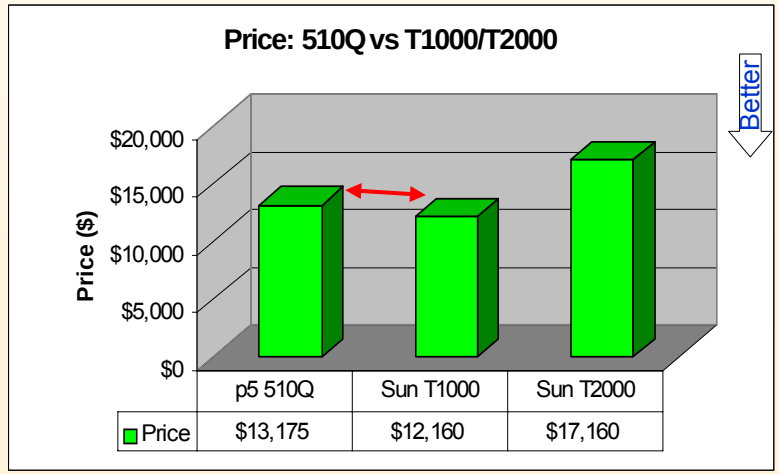
- 3-year warranty and IBM Director for comprehensive systems management [Standard]
- Advanced POWER Virtualization with browser-based Integrated Virtualization Manager for improved utilization on a single server [Optional]

*IBM System p5 510Q (4-cores, 2 chips) SPECjbb2005 result of 54785 bops (54785 bops/JVM) submitted to SPEC for review on 2/13/2006 compared with Sun Fire T1000 (8 cores, 1 chip) result of 51540 bops (12885 bops/JVM).
**IBM System p5 560Q (16-cores, 8 chips) SPECjbb2005 result of 226291 bops (28286 bops/JVM) submitted to SPEC for review on 2/13/2006.
Competitive results current as of Feb 7, 2006 on www.spec.org. SPEC, SPECjbb reg tm of Standard Performance Evaluation Corporation.

Core to core: System p5 servers lead on SPECjbb2005







IBM p5 systems demonstrate significant performance advantage on SPECjbb2005 when compared on equal number of cores

	IBM cores/chips/threading	Sun cores/chips/threading
2 cores	p5 510 p5+ 2/1/yes (1900 MHz)	Sun X4200 Opteron 2/2/N/A (2800 MHz)
4 cores	p5 550 p5+ 4/2/yes (1900 MHz)	Sun X4200 Opteron 4/2/N/A (2600 MHz)
8 cores	p5 550Q p5+ 8/4/yes (1500 MHz)	Sun T2000 US™ T1 8/1/yes (1200 MHz)
16 cores	p5 570 p5+ 16/8/yes (2200 MHz)	Sun V890 US™ IV+ 16/8/N/A (1500 MHz)

Source: http://www.spec.org/benchmarks.html#java IBM results to be submitted to SPEC on 2/14/06; All other results as of 02/03/2006

Most performance for the price

IBM System p5 560Q Express

*Quad-Core Module technology in up to 16-core scalability!**

- Outperforms all competitive 16-core systems on Java business applications**
- IBM unique modular 'building block' technology
- With up to 32 threads, designed to support multi-threaded HPC applications
- Dynamic logical partitioning and IBM Director [standard]
- Optional Advanced POWER Virtualization with browser-based Integrated Virtualization Manager
- **Choose from thousands of AIX 5L or Linux applications and IBM integrated offerings like:** DB2, Oracle, ERP, CRM

4-, 8-, 16-core*
1.5 GHz
POWER5+/QCM

What's your requirement?

- A mid to large database [>1TB] server for Oracle and DB2
- A large single application server for ERP and CRM

*16-core System p5 560Q is not an Express model

**IBM System p5 560Q (16-cores, 8 chips) SPECjbb2005 result of 226291 bops (28286 bops/JVM) submitted to SPEC for review on 2/13/2006. Competitive results current as of Feb 13, 2006 on www.spec.org. SPEC, SPECjbb reg tm of Standard Performance Evaluation Corporation.

Most performance for the price

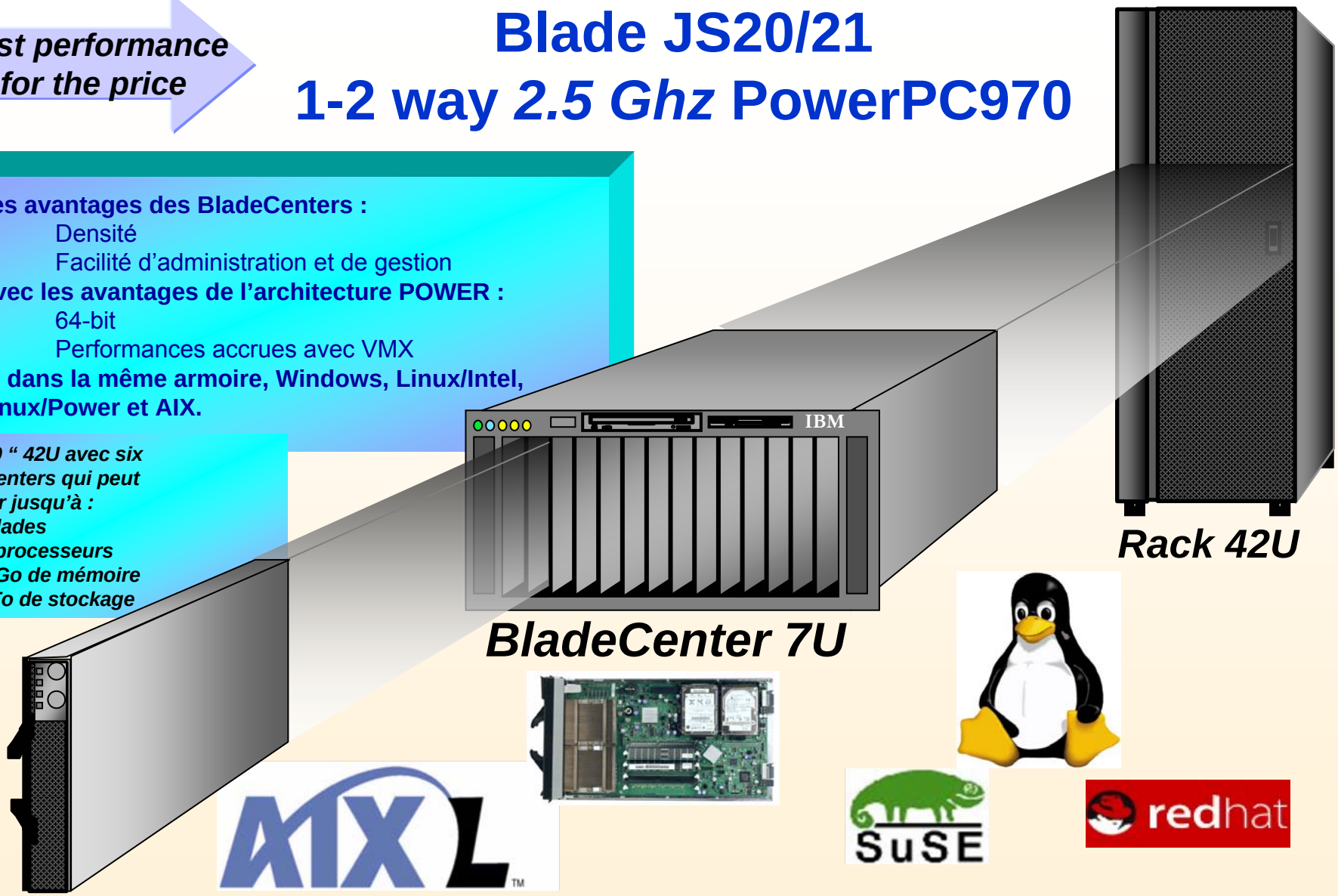
Blade JS20/21
1-2 way *2.5 Ghz* PowerPC970

Les avantages des BladeCenters :
- Densité
- Facilité d'administration et de gestion

Avec les avantages de l'architecture POWER :
- 64-bit
- Performances accrues avec VMX

Et dans la même armoire, Windows, Linux/Intel, Linux/Power et AIX.

Rack 19 " 42U avec six BladeCenters qui peut contenir jusqu'à :
- ***84 blades***
- ***168 processeurs***
- ***336 Go de mémoire***
- ***6.7 To de stockage***

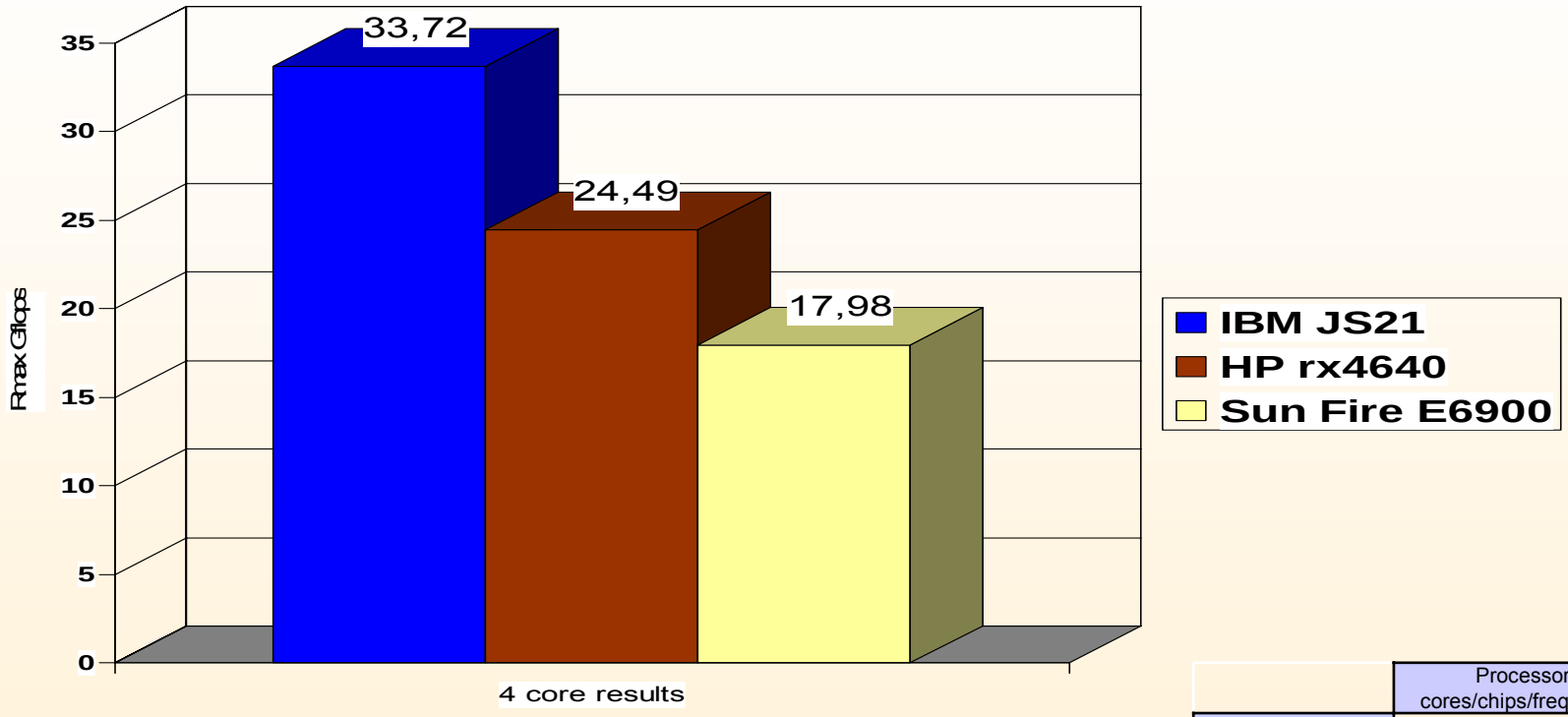


Rack 42U

BladeCenter 7U

Built on PowerPC 970 processor, not POWER5.

IBM BladeCenter JS21 takes #1 position in Linpack results



	Processor cores/chips/frequency
IBM BladeCenter® JS21	PowerPC 970MP 4 / 2 / 2500 MHz
HP rx4640	Itanium 2 4 / 4 / 1600 MHz
Sun Fire E6900	US™ IV 4 / / 1350 MHz

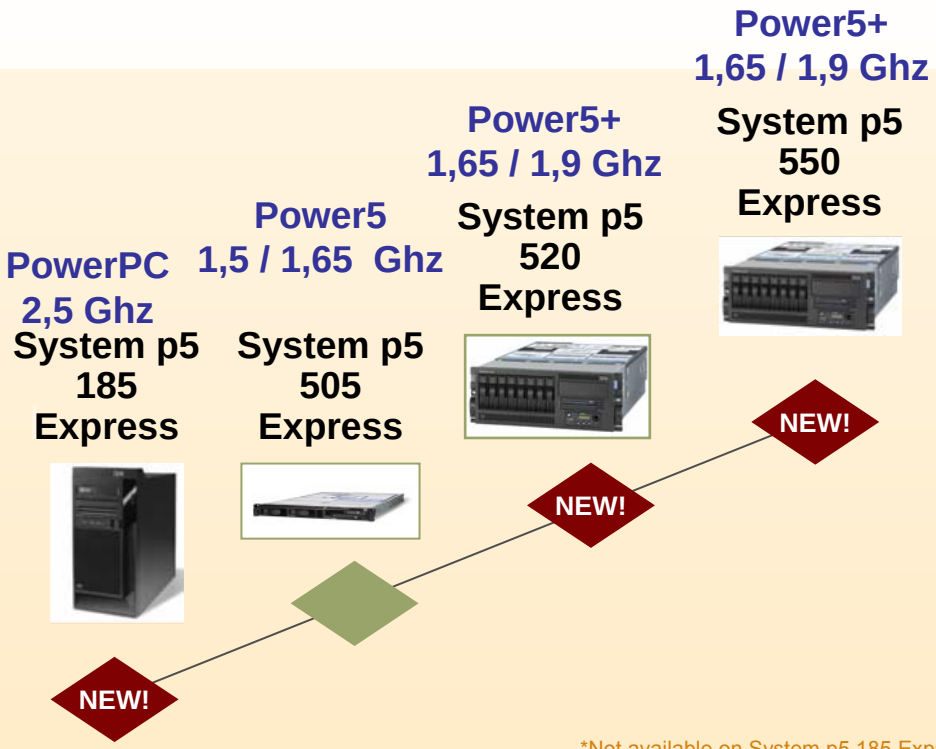
Source: http://www.netlib.org/benchmark/performance.pdf IBM submitted on 2/8/06; All other results as of 02/13/2006

Most affordable

POWER systems

At a price that might surprise you!

- **System p5 185 Express:** The perfect single application server for smaller to mid-sized businesses
- **System p5 520 Express:** Outperforms all competitive 2-core servers in floating point*
- **System p5 550 Express:** Outperforms all competitive 4-core servers in Java™ business applications**



*Not available on System p5 185 Express

- 3-year warranty and IBM Director for comprehensive systems management [Standard]
- Advanced POWER Virtualization with browser-based Integrated Virtualization Manager for improved utilization on a single system [Optional]*

*IBM results submitted to SPEC as of 02/13/06. Claim based on IBM System p5 520 2-core 1.65GHz SPECfp_rate2000 result of 61.6. Source: http://www.spec.org.

**"SPECjbb2005 IBM System p5 550 (4-cores, 2 chips) SPECjbb2005 result of 60419 bops (60419 bops/JVM) submitted to SPEC for review on 2/13/2006. Competitive results current as of Feb 7, 2006 on www.spec.org. SPEC, SPECjbb reg tm of Standard Performance Evaluation Corporation".

The ultimate UNIX® system to enable on demand business
IBM @server® p5 590 and 595

The capacity to handle the workload of
32 systems and 256 processors -- with room to spare

15 4-way
Sun v480's
60 CPUs *

15 4-way
HP rp5470's
60 CPUs **

CONSOLIDATION

Sun F15K 72-way *

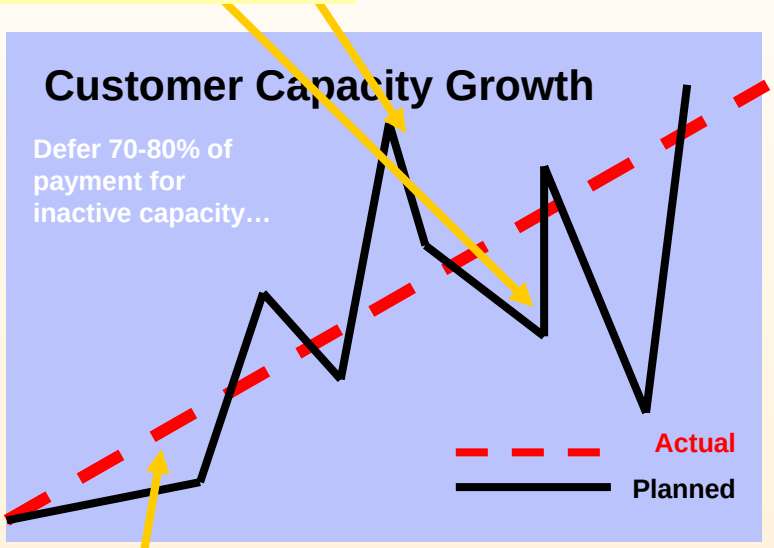
HP SD 64-way **

System p5 : un pas de plus vers le On Demand

Conçu pour utiliser automatiquement et dynamiquement les processeurs et mémoire inactifs à partir des objectifs pré-définis, et augmenter ainsi les capacités de traitement du système

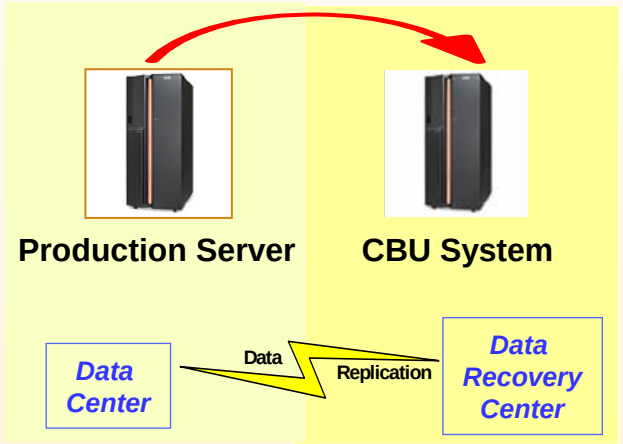
- Ajuster la capacité du serveur au moment opportun
- Evolution des serveurs non disruptive
- Flexibilité de déploiement pour adresser les pics d'activité
- Déployer de nouveaux services rapidement

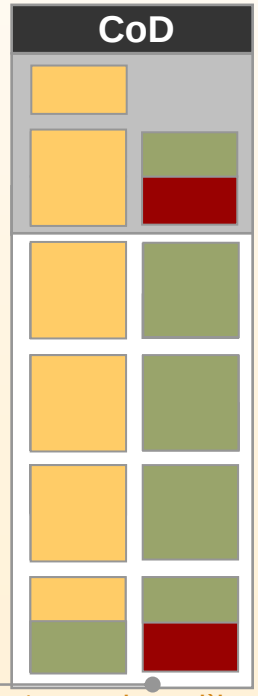
Temporary Capacity on Demand



Permanent Capacity Upgrade on Demand (CoD)

Capacity BackUp (CBU)





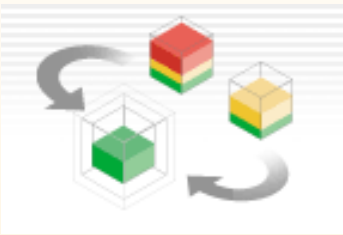
*sur certains modèles

Processeurs en réserve (« Reserve COD »), possibilité d'activer automatiquement de la puissance processeur lorsque l'utilisation atteint 100% de la capacité.

System p5 : un pas de plus vers le On Demand

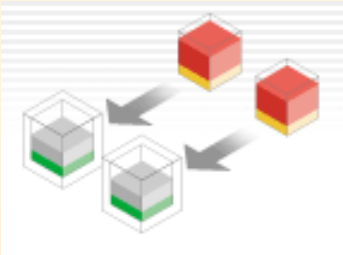
Temporary capacity for workload testing or any one time need:
Trial Capacity on Demand no charge
New application or resource testing
One time up to 30 contiguous days of usage

Permanent capacity for non-disruptive growth: Capacity Upgrade on Demand
Planned growth
Pay when purchased



Temporary capacity for fluctuating workloads: On/Off Capacity on Demand, Reserve Capacity on Demand for System p5
Business peaks
Pay before or after activation

Activation of Advanced Functions on System p5
Advanced POWER Virtualization
For More information on **Advanced POWER Virtualization**

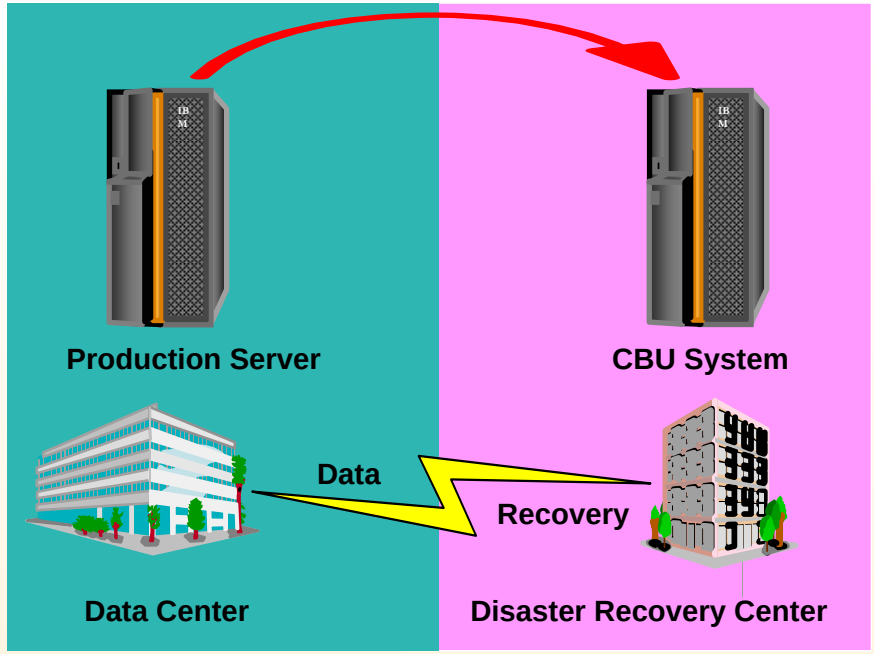


Interim capacity for continued operation: Capacity BackUp
Emergency recovery
Divert workloads to backup servers for up to 30 days without additional charge

Capacity BackUp (CBU) Configurations

Protect your enterprise data

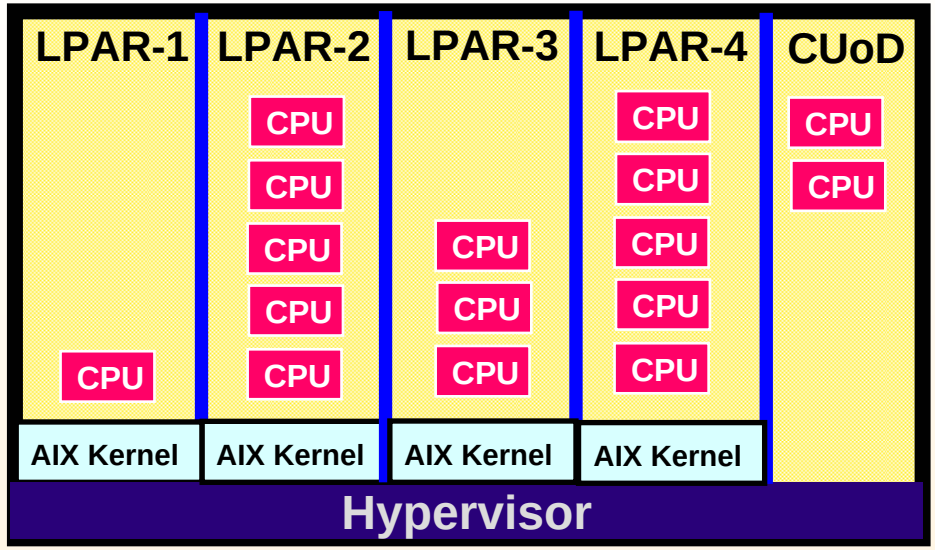
- **Specially priced 32-way systems**
  - p5-590 or p5-595 (1.65/1.9 GHz)
  - Four active processors
  - 900 processor days included (more days available)
- **Specially priced 64-way p5-595 systems**
  - 4 active processors (1.65/1.9 GHz)
  - 1,800 processor days included (more days available)



- ✓ Purchase system with 4 active processors and 28 or 60 inactive processors a long with memory and I/O for backup system… ***Lower TCA***
- ✓ Automatically activate processors and memory with HACMP when production system failover occurs… ***Flexibility, Responsiveness, Increased RAS***
- ✓ Inactive resources do not expire or have to ever be activated…***Lower TCO, Flexibility, Responsiveness***
- ✓ Use Trial CoD to immediately activate resources for system tests or emergency use… ***Lower TCO, Responsiveness***

Availability – Processor Deallocation and Sparing

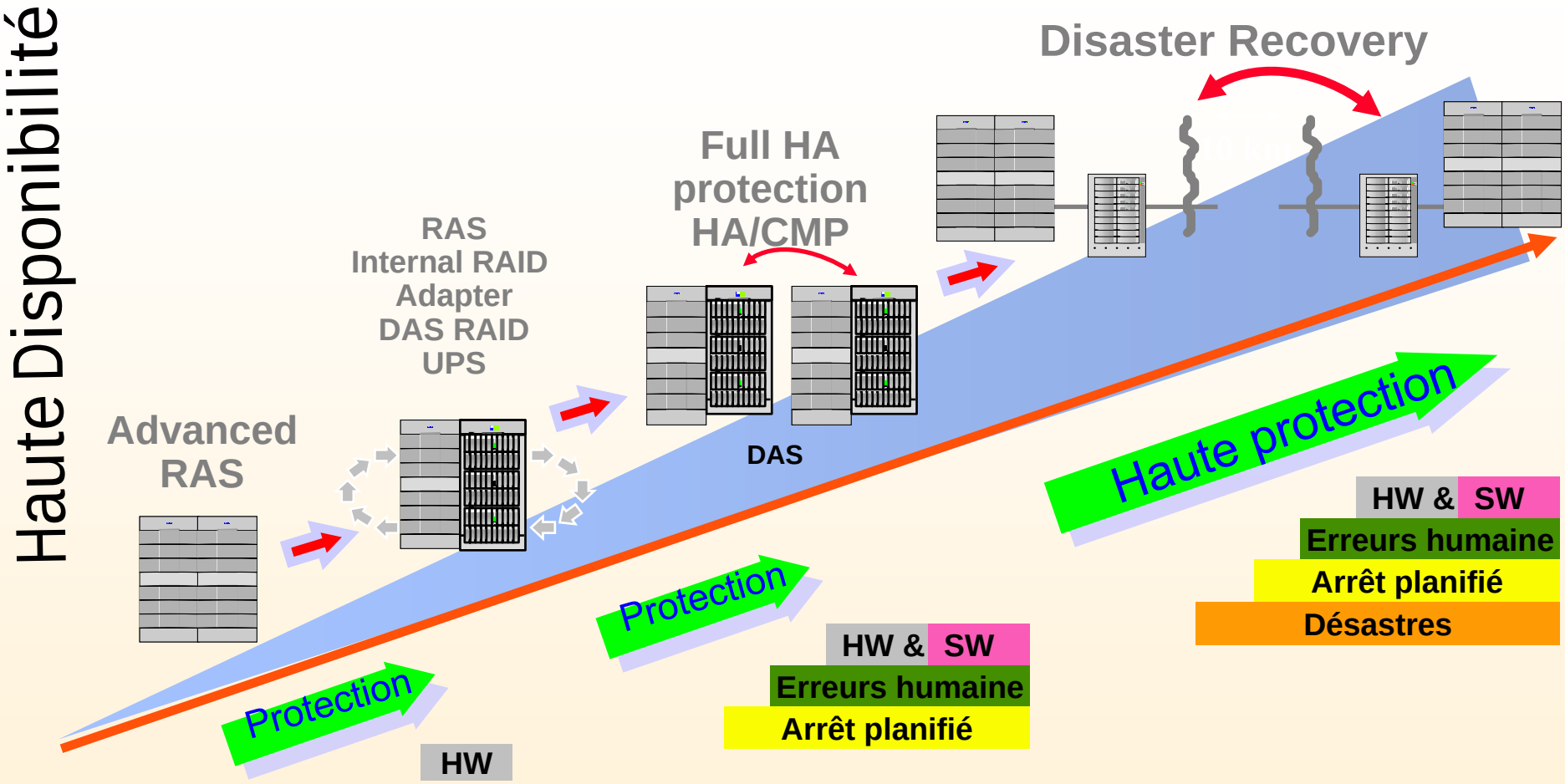
- **Processors**
  - Dynamic CPU Deallocation
  - Capacity Upgrade on Demand
    - Dynamic processor sparing
- **General System**
  - CEC bus retry and recovery
  - Persistent memory and CPU deallocation
  - N+1 Power supplies and line cords
  - N+1 Cooling fans



X **Marked as deallocated**

No loss of application availability

Les solutions Haute Disponibilité



disponibilité évolutive

AIX 5L, Linux et i5/OS* sur serveurs @server p5

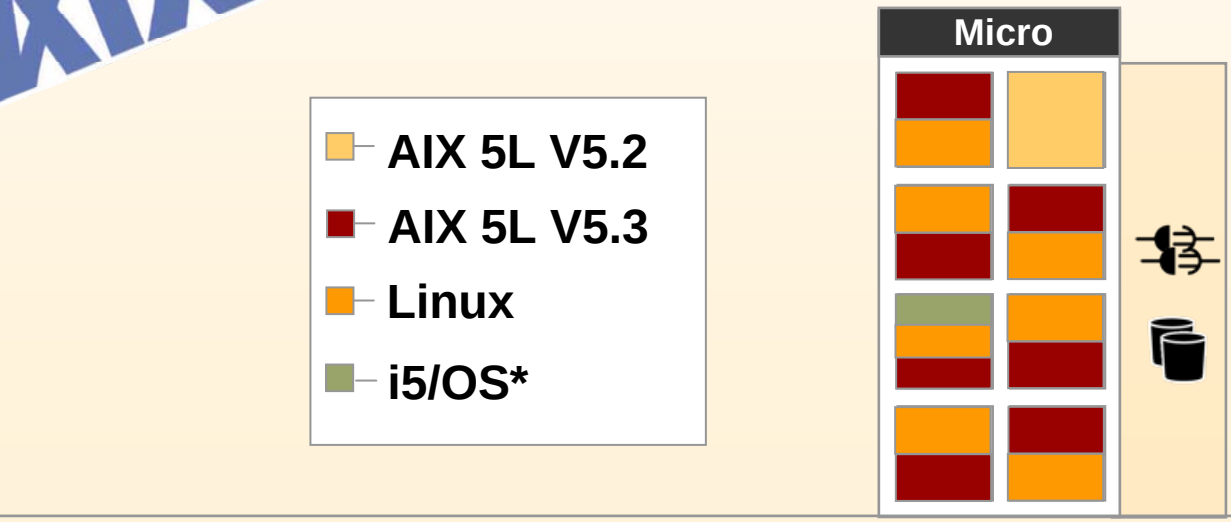
Conçu pour que vous utilisiez l'OS que vous souhaitez

— ***sur le même système***

— ***sur le même processeur***

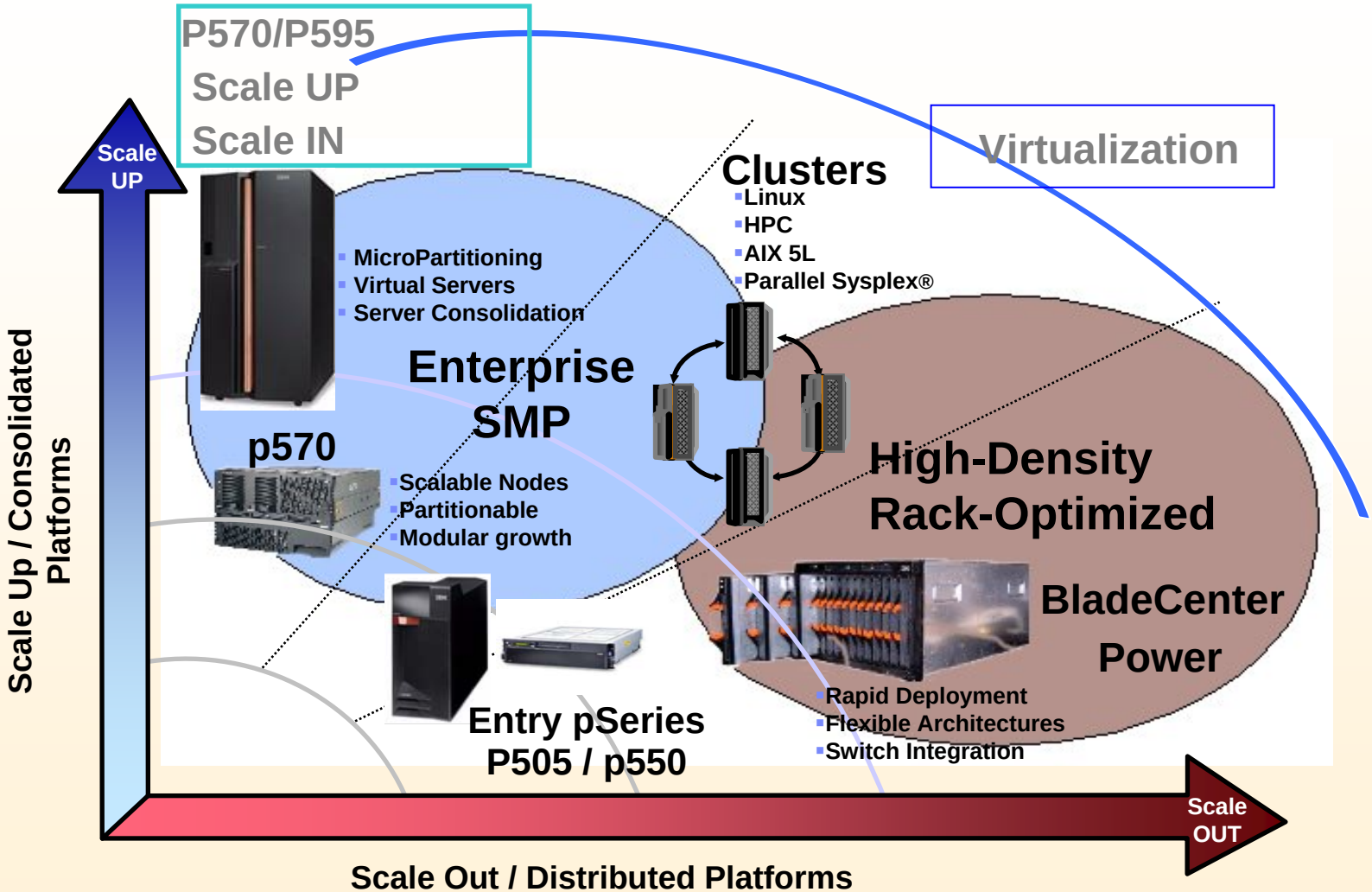
— ***en même temps***

Ce qui facilite leur adaptabilité



*p5 570 & p5 59x

Server Market Trends and Directions



Scale up. Scale out. Scale within.

With more than 70 leadership performance benchmarks!*

- ***From 1- to -64 core, starting at less than 3200 € list price!*****
- ***For AIX 5L and Linux operating systems***
- ***Using IBM POWER Dual-Core and Quad-Core technologies***

System p5 505 Express

System p5 510 & 510Q Express

System p5 520 & 520Q Express

System p5 550 & 550Q Express

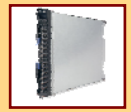
System p5 560Q Express

System p5 570

System p5 575

@server® p5 590/595

IBM BladeCenter JS20 & JS21



IBM IntelliStation POWER 185 and 285 Express

*Source: http://www.ibm.com/systems/p/benchmarks/

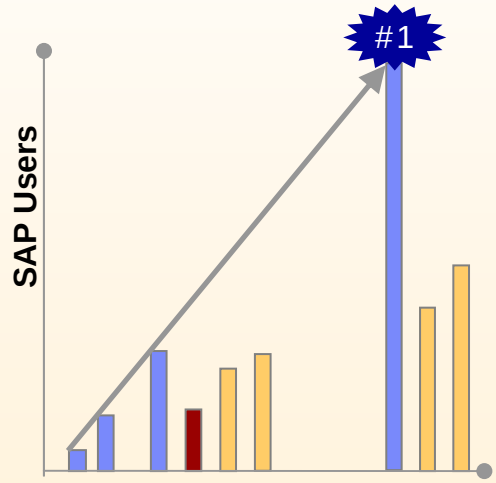
** US List Price as of February 14, 2006. Prices are subject to change without notice and reseller prices may vary.http://www.ibm.com/servers/ca/en/eserver/pseries/hardware/entry/510express_browse.html

Why IBM is now the #1 UNIX vendor worldwide

IBM Made Significant Technology Investments

Successfully Leveraged Mainframe Experience

Delivered Sustained Price/Performance Leadership



Questions

M@rci™ e-business

Pascal LAVRAT
Product Manager UNIX-Linux on Power
Pascal.lavrat@fr.ibm.com