

Alberto De Angelis

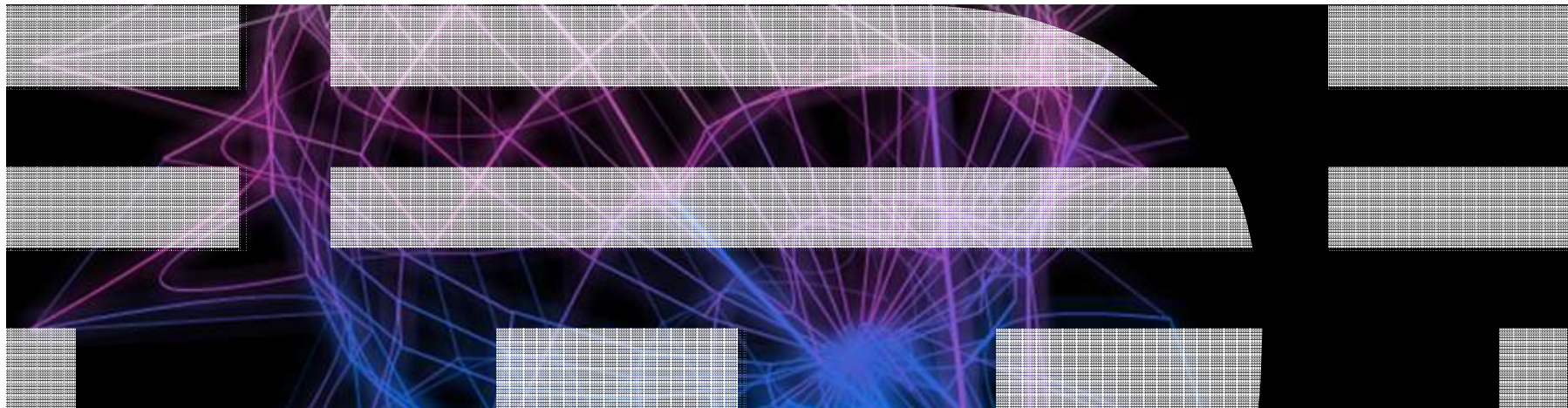
Manager of Power Systems, IBM



Roma, 16 ottobre 2010

# IBM POWER7

## Grandi novità per dare potenza al tuo business

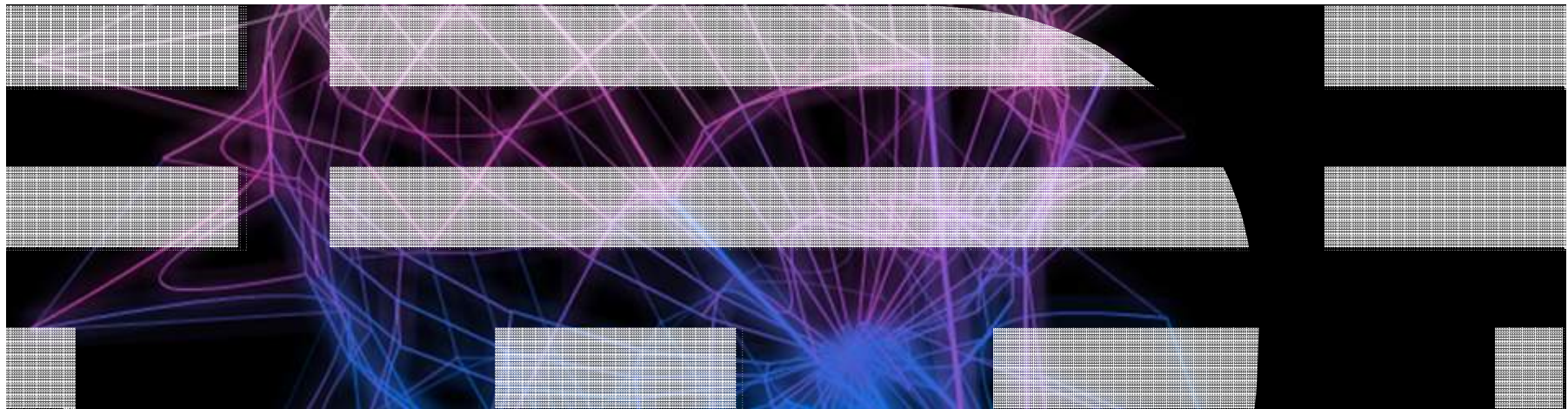


**IBM SmarterSystems**

# Agenda

<b>IBM POWER7: Grandi novità per dare potenza al tuo business</b>		
<b>Apertura</b>	<b><i>Alberto De Angelis</i></b>	<i>Manager of Power Systems, IBM</i>
<b>IBM Power Strategic Evolution</b>	<b><i>Paolo Degl'Innocenti</i></b>	<i>Vice President Systems and Technology Group, IBM</i>
<b>La Ricerca e lo Sviluppo in IBM</b>	<i>Intervista a: <b>Pratap Pattnaik</b></i>	<i>IBM Fellow, T.J. Watson Research Center</i>
<b>Novità Power Systems</b>	<b><i>Alberto De Angelis</i></b>	<i>Manager of Power Systems, IBM</i>
<b>ACG Vision4</b>	<b><i>Renato Ottina</i></b>	<i>ACG Business Leader, IBM</i>
<b>Chiusura</b>		

# IBM Power Strategic Evolution



**IBM SmarterSystems**

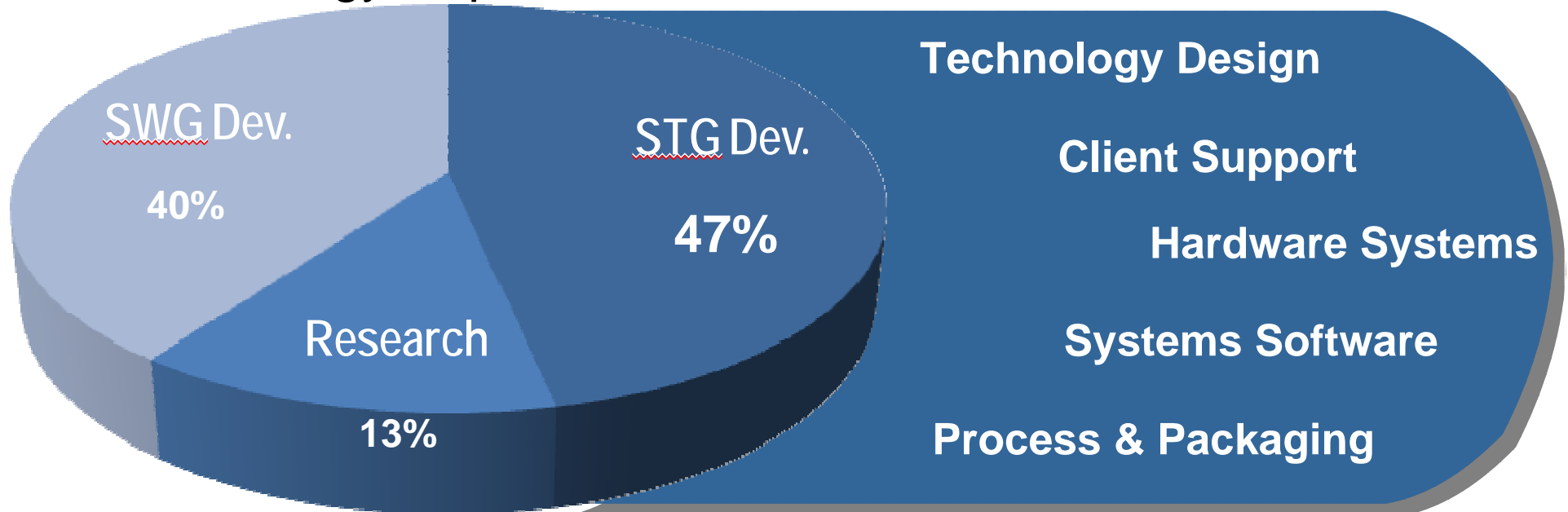
## IBM innovation at all levels

provides a portfolio of systems, optimized for individual needs and workloads, based on:

- Deep understanding of client needs
- Massive investment in technology leadership
- Robust integration of systems and software

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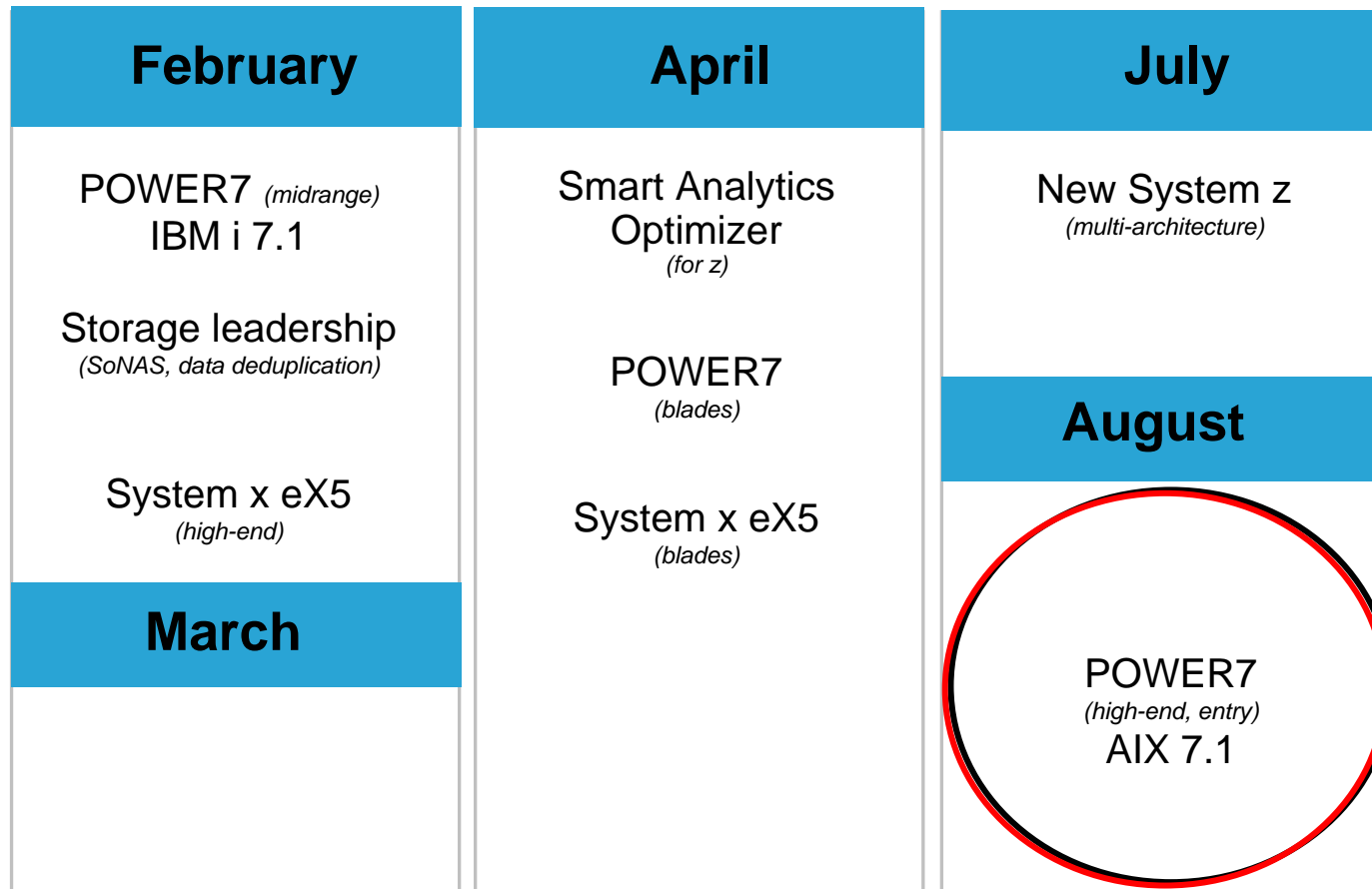
## Technology Capabilities and IBM investment in STG



Nearly 50% of IBM's R&D investment for Systems leadership

# An entirely new portfolio in 2010 Consolidated STG Launches – Focus Areas

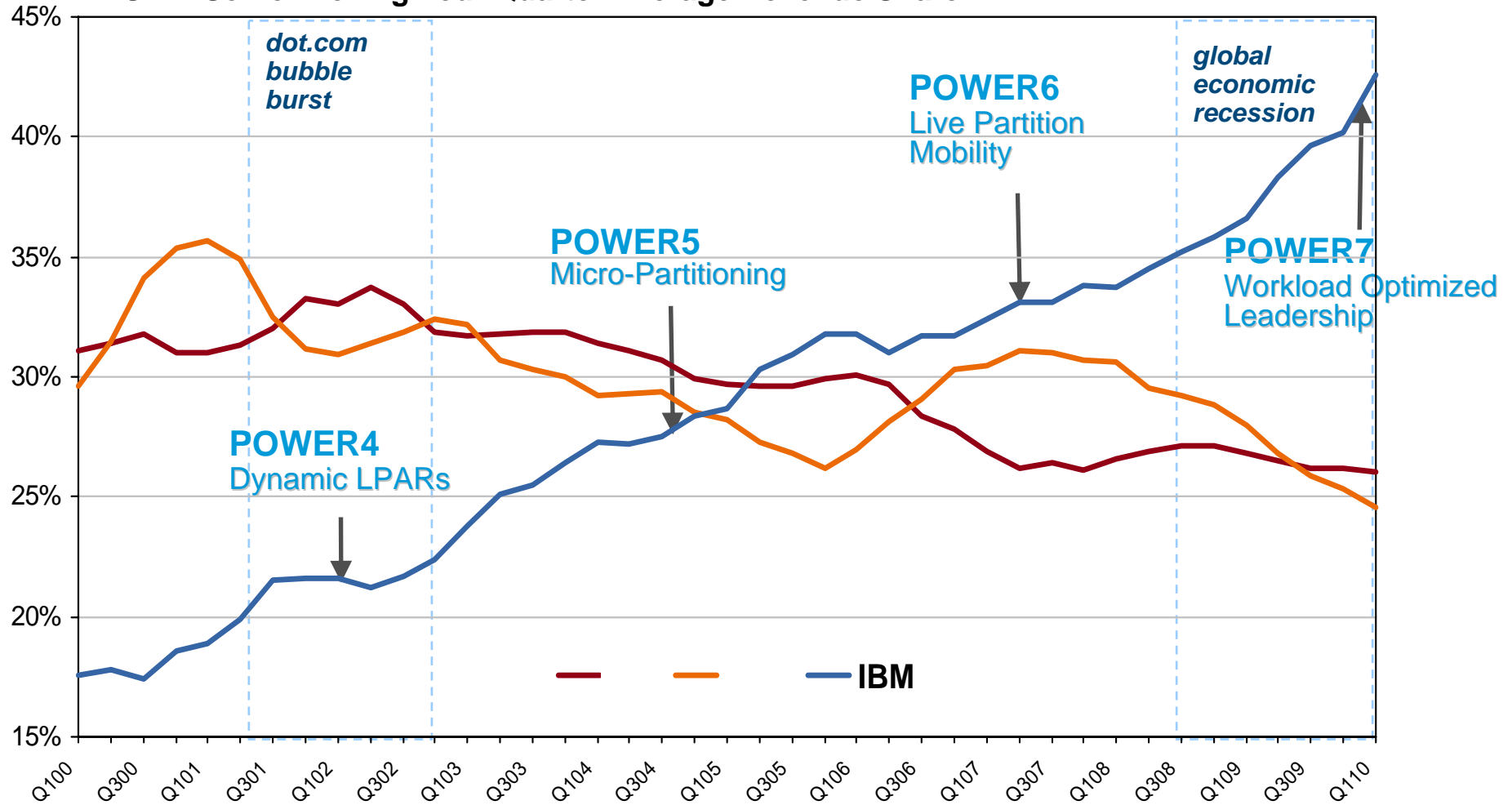
Systems for a smarter planet



# IBM'S 10-year march to UNIX leadership

*...the largest shift of customer spending in UNIX history*

**UNIX Server Rolling Four Quarter Average Revenue Share**

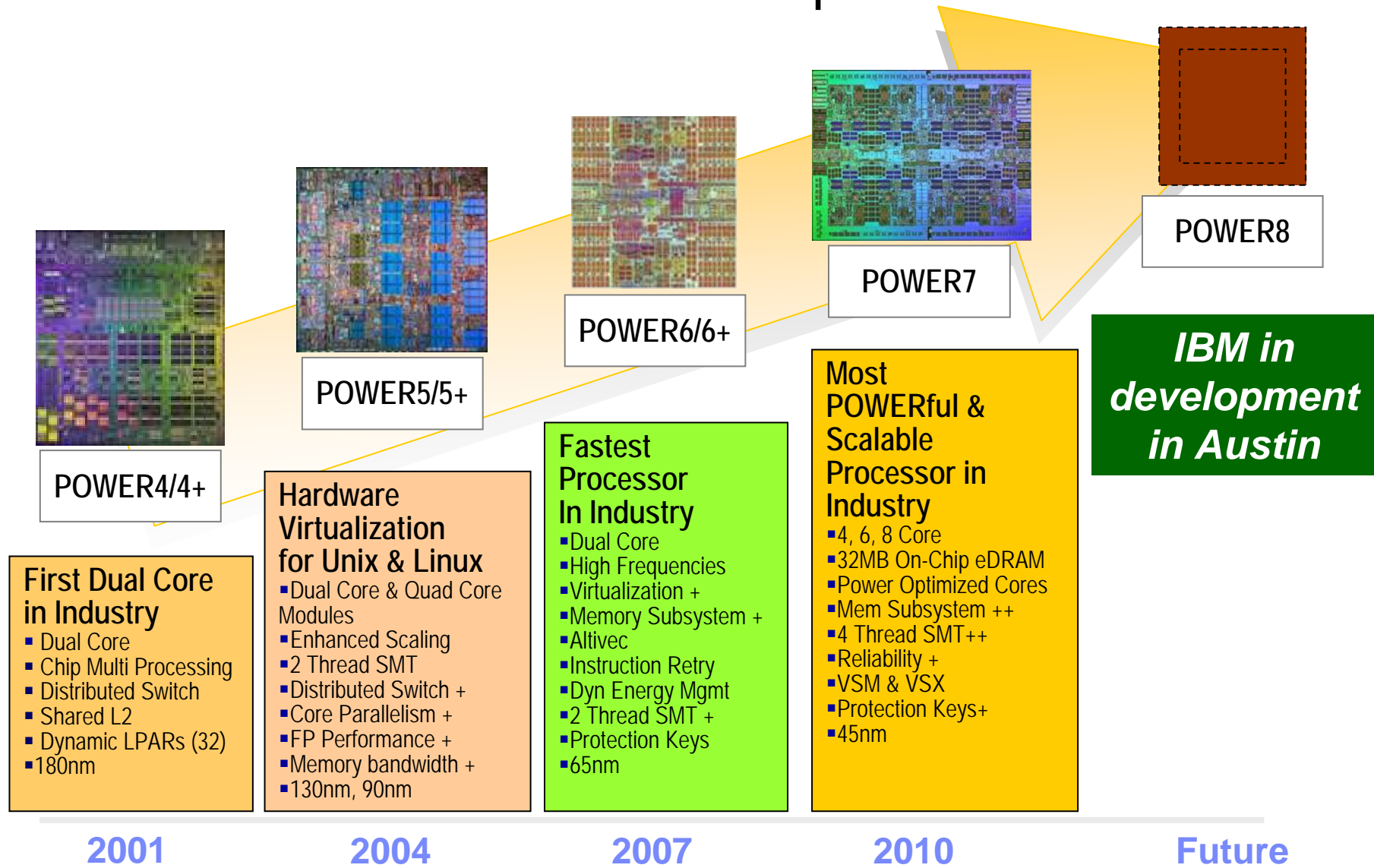


Source: IDC Quarterly Server Tracker Q110 release

# IBM Technology and Key Differentiators

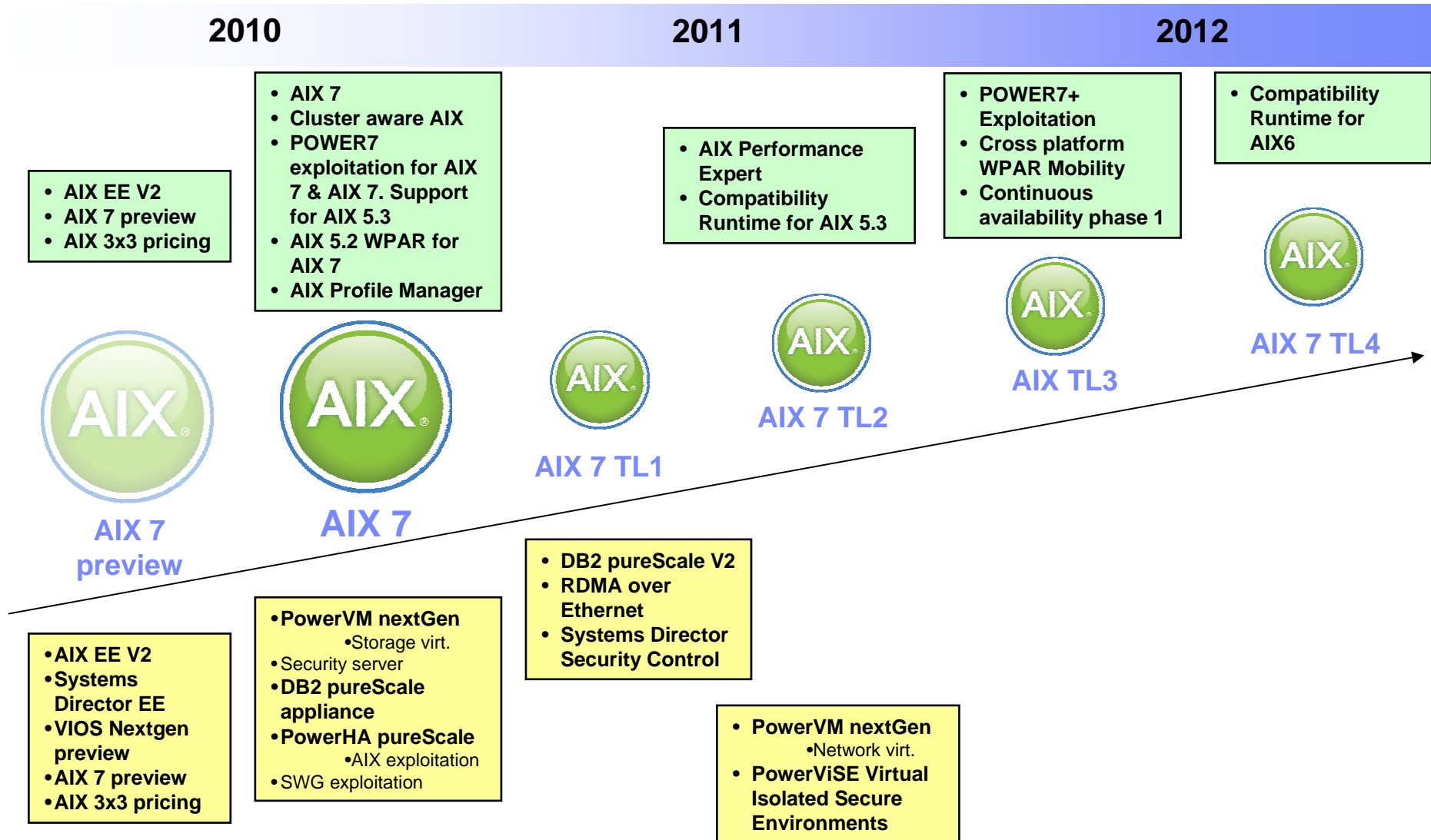
- Roadmap
- Performance
- Stability
- Virtualisation and Asset Utilisation
- Energy Usage
- Reliability, Availability and Serviceability (RAS)
- TCO

# IBM POWER Processor Roadmap





# AIX Roadmap



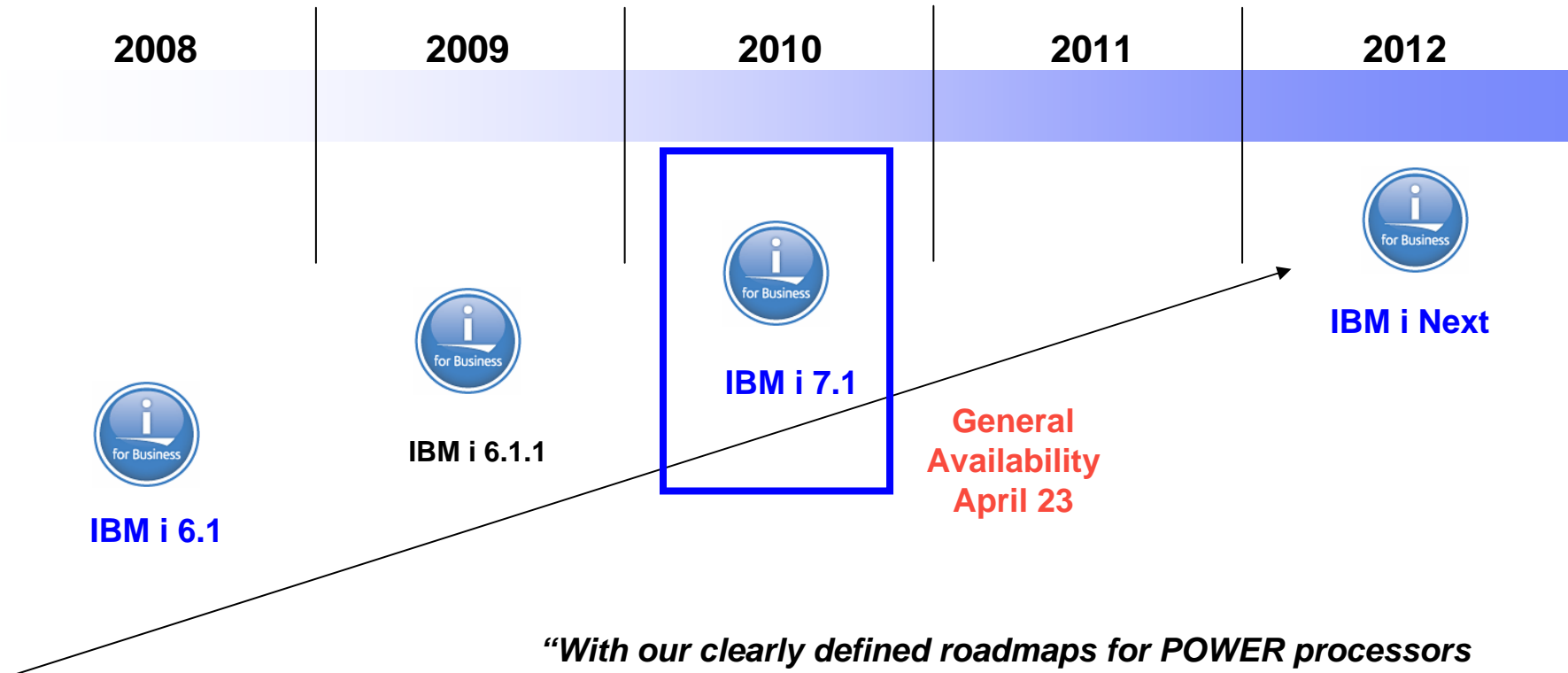
## AIX 7 is Binary Compatible with prior AIX versions - **Guaranteed**

- AIX 7 is binary compatible with AIX 6 and AIX V5\*
  - Current applications will continue to run – no need to recompile applications
  - Even supports 32 bit applications created on AIX versions prior to AIX V5
  - Fully exploits POWER7 processor-based systems
  - Also exploits systems based on POWER4™, POWER5™, POWER6 processors
  - Binary compatibility guarantee planned
- Upgrade process
  - Prior upgrade tools will support upgrade to AIX 7
  - Clients can upgrade directly to AIX 7 from AIX 6 and AIX V5
  - Free upgrade for customers with Software Maintenance Agreements (SWMA)
    - Free Upgrades are like for like edition:
      - AIX 5.3 to AIX 7 Standard edition,
      - AIX 6 Express Edition to AIX 7 Express Edition

\*See general conditions at [ibm.com/systems/power/software/aix/compatibility](http://ibm.com/systems/power/software/aix/compatibility)

# IBM i Roadmap

*Delivering a major new release of IBM i every two years*



***“With our clearly defined roadmaps for POWER processors and the IBM i operating environment, IBM's commitment to our i clients is solid and unchanged. We are making substantial investments in the future of i as an important, strategic element in the IBM product portfolio.”***

# Virtualization capabilities to improve asset utilization

1967	1973	1987	2001	2004	2007	2009
IBM develops <b>Hypervisor</b> that would become VM on the mainframe	IBM announces first machines to do <b>Physical Partitioning</b>	IBM announces <b>LPAR on the mainframe</b>	IBM introduces <b>LPARs</b> with POWER4™	<b>Advanced POWER Virtualization</b> with POWER5™	<b>Partition Mobility</b> with POWER6™	<b>PowerVM Active Memory Sharing</b>



**Power Virtualization Today**

- Fine-grained dynamic sharing of processors, memory and I/O
- Resources may be dedicated
- Shared dedicated processors
- Extreme scalability & robustness
- Integrated firmware hypervisor
- Virtual I/O Servers layer
- Hardware enforced isolation
- LPARs and WPARs
- DLPAR and Processor Folding
- Capacity on Demand
- Partition / Application Mobility

Timeline reference <http://www.levenez.com/unix/history.html#01>

# Power Systems Software



**Workload-Optimizing Systems**



**AIX - the future of UNIX**  
**Total integration with i**  
**Scalable Linux ready for x86 consolidation**



### Virtualization without Limits

- ✓ Drive over 90% utilization
- ✓ Dynamically scale per demand



### Dynamic Energy Optimization

- ✓ 70-90% energy cost reduction
- ✓ EnergyScale™ technologies



### Resiliency without Downtime

- ✓ Roadmap to continuous availability
- ✓ High availability systems & scaling



### Management with Automation

- ✓ VMControl to manage virtualization
- ✓ Automation to reduce task time

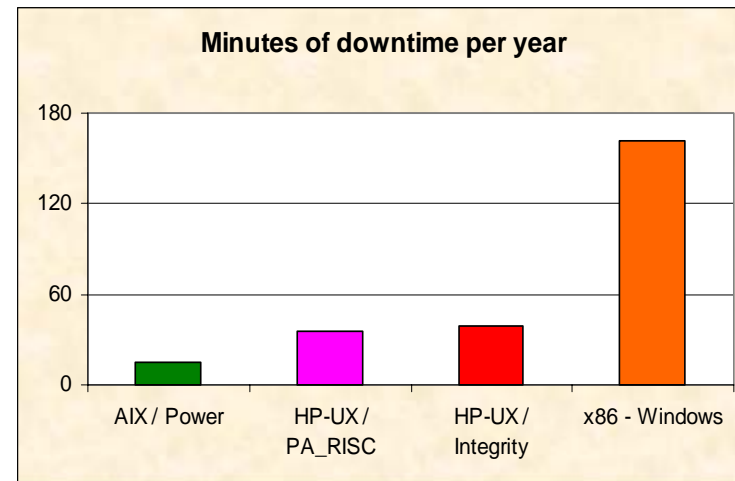
**Smarter Systems for a Smarter Planet.**

# Improving Systems Reliability, Availability and Serviceability - delivering 99.997% uptime

*AIX & Power Systems delivers the best reliability of UNIX, Linux, and Windows*

**54% of IT executives and managers say that they require 99.99% or better availability for their applications**

- **Reliability:** *The fewest unscheduled outages*
  - Less than one outage per year
- **Availability:** *The least amount of downtime*
  - 15 minutes a year
  - 2.3 times better than the closest UNIX competitor
  - More than 10X better than Windows
- **Serviceability:** *The fastest patch time*
  - 11 minutes to apply a patch



Source: [ITIC 2009 Global Server Hardware & Server OS Reliability Survey Results](#), July 7, 2009. Fully paper is available at [ibm.com/aix](http://ibm.com/aix)

# Transition Assistance – Activities required to implement Power Systems into Your environment



## Feasibility evaluation

The new platform can be introduced after making sure of its compatibility with current application and technological environment.

In particular, technology and operation services must focus on those conditions that can become barriers to a painless introduction of new servers into the existing operating environment:

- **Incompatibilities** with standard base software layers, tools and packages (i.e. Volume Managers, Scheduler, monitoring agents, etc)
- **lack of interoperability** with the current technology (i.e. Storage arrays, San and Lan switches, backup infrastructure, etc)
- **unsupported configurations** required by management framework or application environment (RAM locking, multi-threading features, SNMP values, etc)

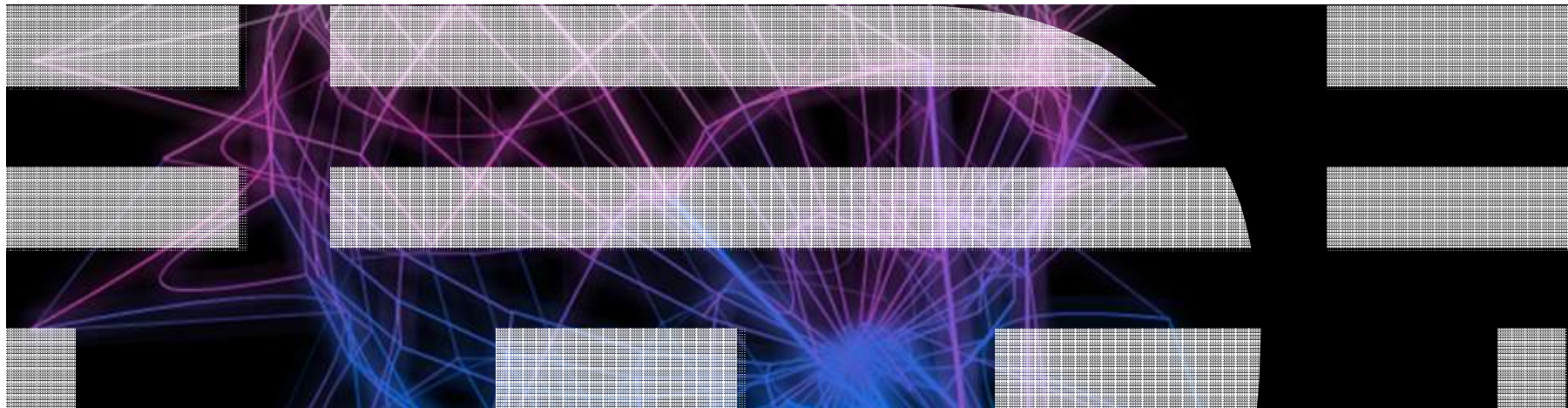


## Migration process template

When new server / group of servers are moved into production, the activity will respect a multi-phase process involving fundamental tasks like:

- migration (application porting, scripts rewriting, software installation)
- regression test and performance acceptance check
- Inclusion into the management framework and final rollout

# Novità Power Systems



**IBM SmarterSystems**



# Power Systems Portfolio

August 17, 2010 – GA: September, 17th

Smart Cube

Power 520

Power 550

Power 560

Power 570

Power 595

Power 710

Power 720

Power 730

Power 740

Power 750

Power 770

Power 780

Power 795



PS Blades  
JS Blades



**New**  
i Editions Express  
for BladeCenter S



High  
Performance  
Computing



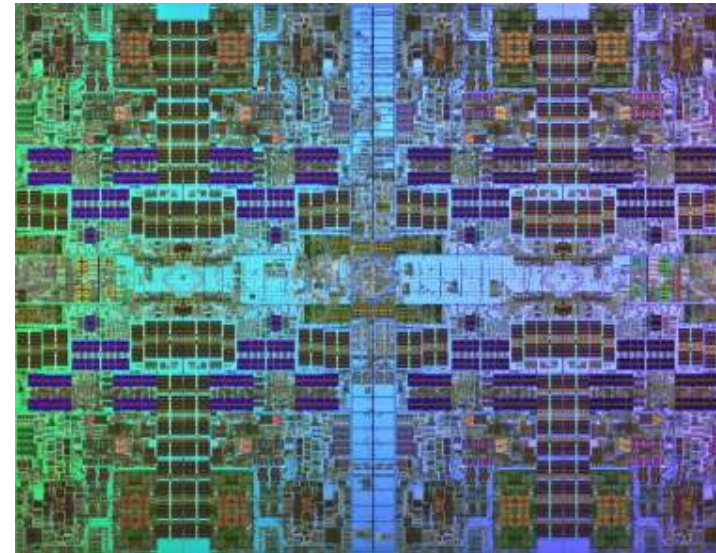
Power 755

Power 575



Power 575

# Technology leadership



- ✓ 4, 6 or 8 cores per socket
- ✓ 3.0 to 4.25 GHz
- ✓ Up to 4 threads per core
- ✓ Integrated eDRAM L3 Cache
- ✓ Dynamic Energy Optimization

# Power is Workload Optimization

**Power Systems™ Express servers offers balanced systems designs that automatically optimize workload performance and capacity at either a system or VM level**



- **Intelligent Threads** utilize more threads when workloads benefit
- **Intelligent Cache** technology optimizes cache utilization flowing it from core to core
- **Intelligent Energy Optimization** maximizes performance when thermal conditions allow
- **Active Memory™ Expansion** provides more memory for SAP
- **Solid State Drives** optimize high I/O access applications

**Workload-Optimizing Features make POWER7 #1 in Transaction and Throughput Computing**



## The Future of UNIX

“For the second year in a row, AIX scored the highest reliability ratings among 15 different server operating system platforms” - ITIC 2009



## Total Integration with IBM i

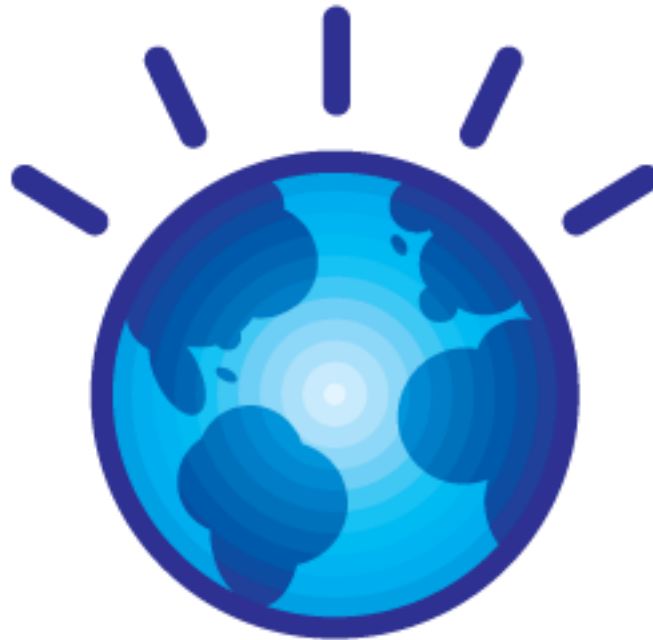
“Costs for use of Power Systems and IBM i 6.1 average 41 % less than x86 servers and Microsoft Windows” - ITG 2010



## Scalable Linux ready for x86 Consolidation

Queensland Motorways replaced legacy Windows x86 traffic management systems with new SAP & Oracle DB running Linux on Power

# Power 795



New

# Power 795

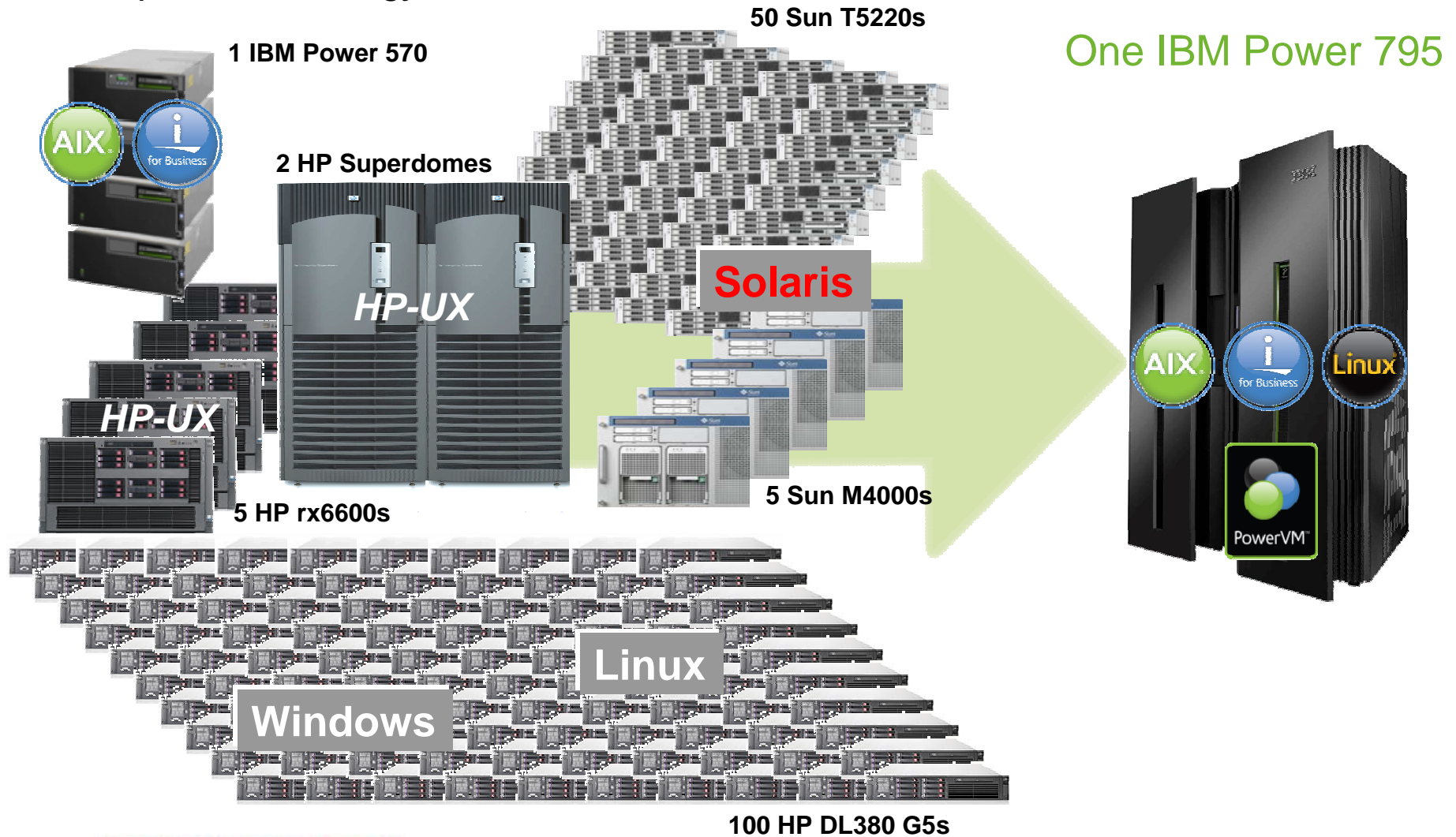
- ✓ New High-end
- ✓ 24 to 256 Cores
- ✓ 8 TB memory
- ✓ TurboCore
- ✓ 3.7, 4.0 or 4.25 GHz
- ✓ 1,000 VMs\* with PowerVM
- ✓ Capacity on Demand
- ✓ Enterprise RAS
- ✓ 24x7 Warranty
- ✓ PowerCare



\* Statement of Direction

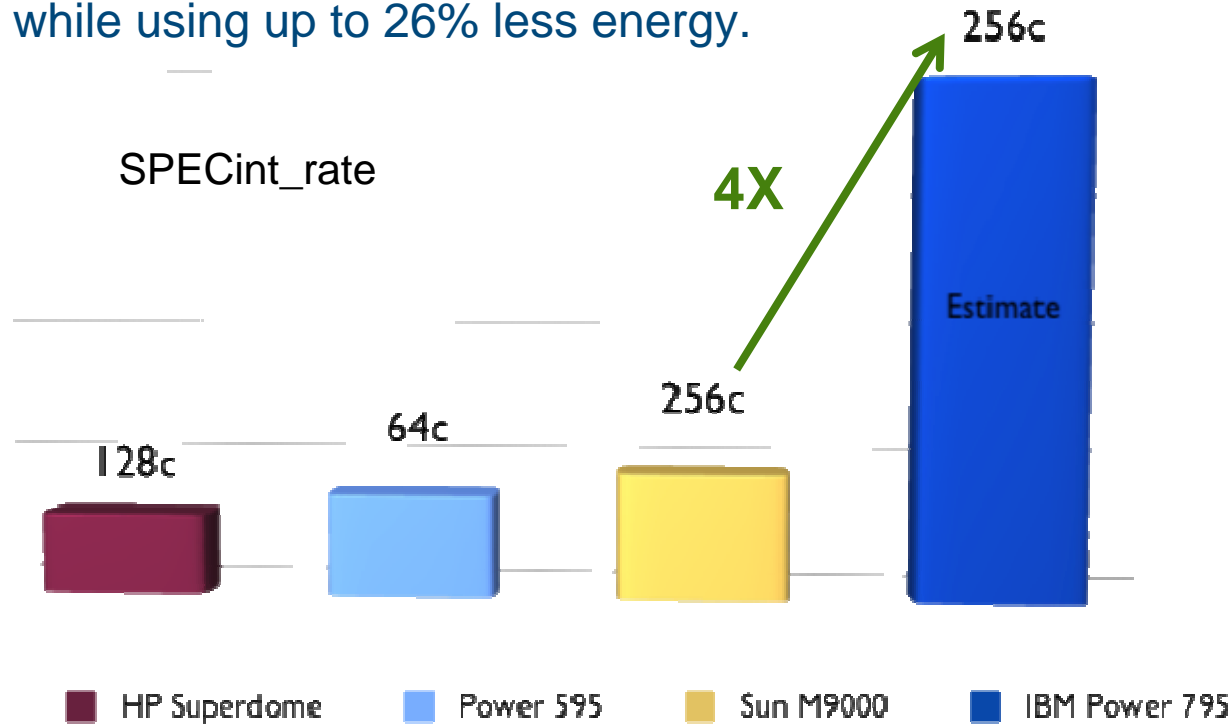
# Reduce cost and simplify with massive consolidation

*Consolidating into the Power 795 substantially reduces costs, floorspace and energy*



# 4 times more scale


Than the largest Sun systems enables telecom companies to grow without disruption as their customer base explodes – while using up to 26% less energy.



## Serious scale.

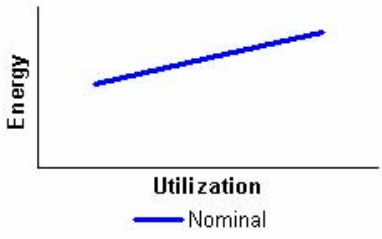


# Example of Energy Estimator output

System Information	
	<b>Model:</b> 795-9119-FHB
	<b>Cores:</b> 96 cores of 8-256
	<b>Processor:</b> IBM® POWER7
	<b>Clock speed:</b> 4000 MHz
	<b>Configured Memory:</b> 1536 GB

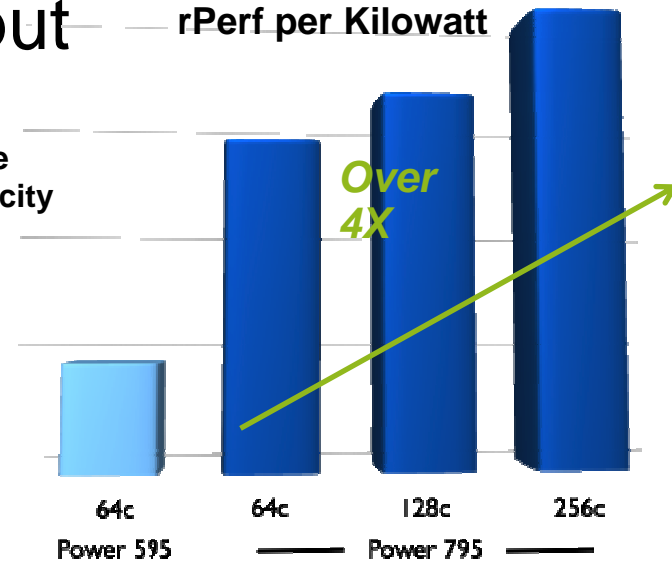
**Energy Estimate**

**Nominal Mode**  
 The following estimation was made without enabling any power saver modes. Thus the cores are running at the published frequency and the system capacity is as published. In Active Energy Manager this is described as "no power savings mode." Using Active Energy Manager to specify power saver modes may significantly reduce energy consumption.



**Estimated energy at full utilization:** 7,920 Watts  
27,031 BTU/hr

Very high performance  
Very high capacity



**Maximum energy required**  
(2 drawers with 32 adapters included)

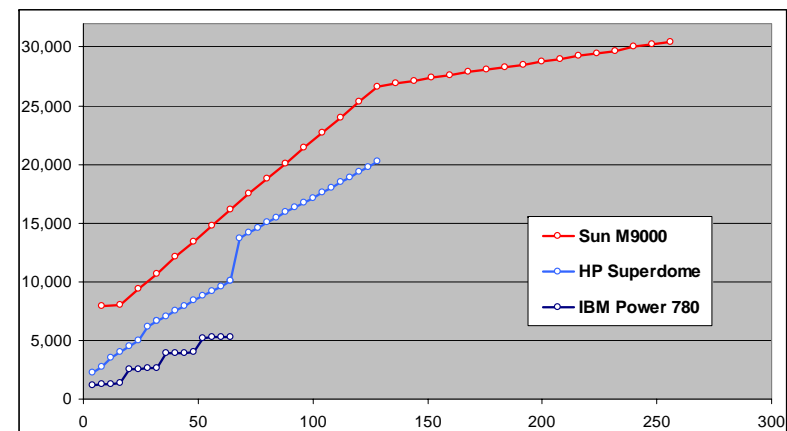
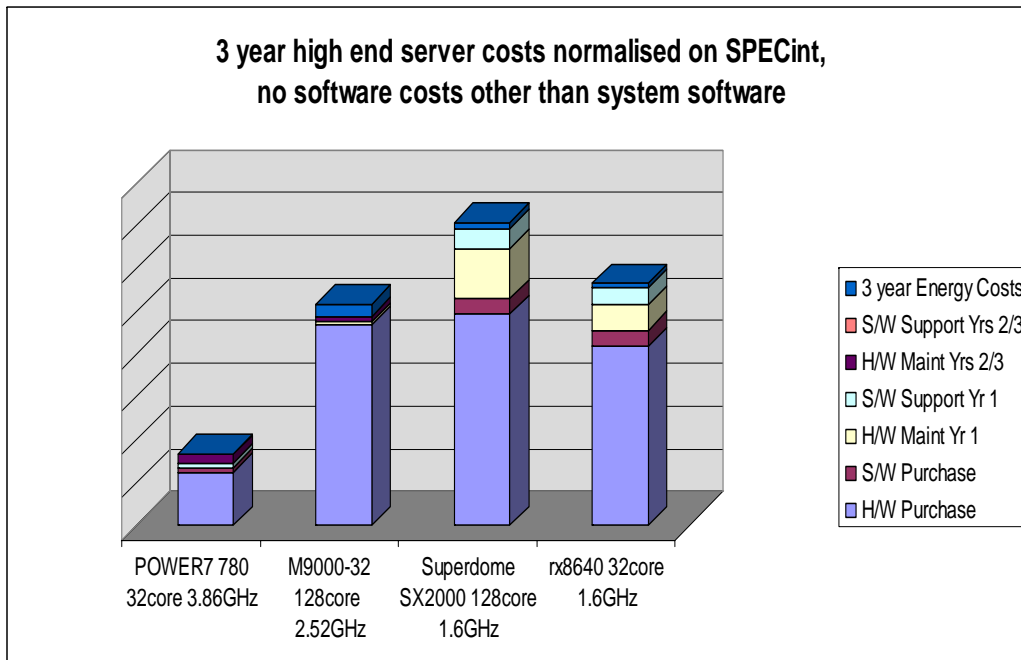
IBM Active Energy Manager can significantly reduce real consumption

**Use "IBM Systems Energy Estimator" for all Power Systems**

<http://www-947.ibm.com/systems/support/tools/estimator/energy>

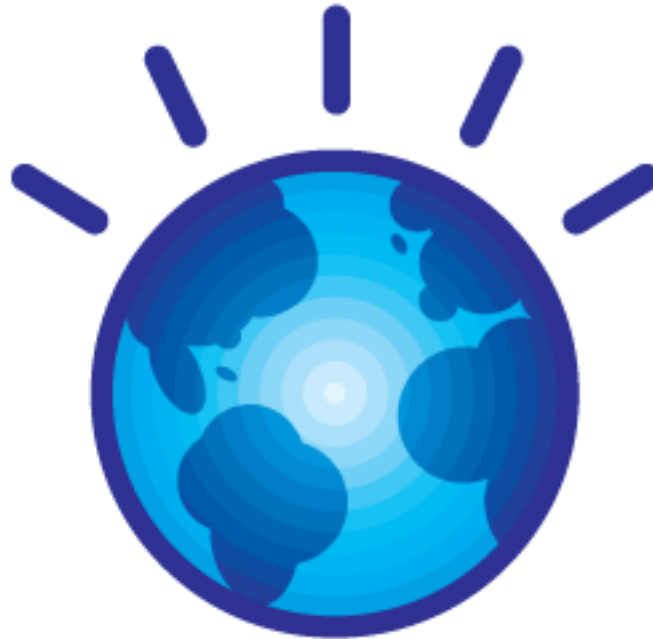
Google search: "energy estimator site:ibm.com"

# Across the entire range, IBM Power 7 offers the best price/performance and performance/watt by comparison to competitors offerings (3/3)



Watts consumed against core count

# Power Systems Express Servers



# Power your planet with Power Systems Express Servers

## 1 Socket

Systems have 3 year warranty

### Power 710 Express

2U - 1 Socket  
4, 6 or 8 cores  
Maximum memory: 64 GB  
PCIe: 4 low profile



New



New

## 2 Socket

### Power 730 Express

2U - 2 Socket  
8, 12 or 16 cores  
Maximum memory: 128 GB  
PCIe: 4 low profile

New



### Power 720 Express

4U - 1 Socket  
4, 6 or 8 cores  
Maximum memory: 128 GB  
PCIe: 4 + 4 low profile  
Up to 4 I/O drawers



### Power 740 Express

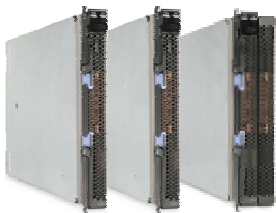
4U - 2 Socket  
4, 6, 8, 12, or 16 cores  
Maximum memory: 256 GB  
PCIe: 4 + 4 low profile  
Up to 8 I/O drawers

New



- ✓ High qualities of service
- ✓ Affordable prices
- ✓ Outstanding energy efficiency
- ✓ Easy to purchase and deploy
- ✓ Workload-optimizing
- ✓ Thousands of applications
- ✓ Choice of UNIX, IBM i or Linux

## Blades



PS700, PS701, PS 702 Express

## 4 Socket

### Power 750 Express



# Power 710, 720, 730 and 740 Express OS Support

2U - 1 Socket

## Power 710

4-core P05 Tier  
6- or 8- cores P10 Tier  
IBM i 6.1 or later

Small Tier - AIX 5.3, AIX 6, AIX 7,  
(AIX 5.2 in WPAR)

SUSE Linux ES 11 SP1/ 10 SP3,  
RedHat Enterprise Linux 5.5, SOD RHEL6



2U - 2 Sockets

## Power 730

P20 Tier  
IBM i 6.1 or later

Small Tier - AIX 5.3, AIX 6,  
AIX 7, (AIX 5.2 in WPAR)

SUSE Linux ES 11 SP1/ 10 SP3,  
RedHat Enterprise Linux 5.5,  
SOD RHEL6



4U - 1 Socket

## Power 720

4-core P05 Tier  
6- or 8-cores P10 Tier  
IBM i 6.1 or later

Small Tier - AIX 5.3, AIX 6, AIX 7,  
(AIX 5.2 in WPAR)

SUSE Linux ES 11 SP1/ 10 SP3,  
RHEL 5.5, SOD RHEL6



4U - 2 Sockets

## Power 740

P20 Tier  
IBM i 6.1 or later

Small Tier - AIX 5.3, AIX 6, AIX 7,  
(AIX 5.2 in WPAR)

SUSE Linux ES 11 SP1/ 10 SP3,  
RHEL 5.5, SOD RHEL6



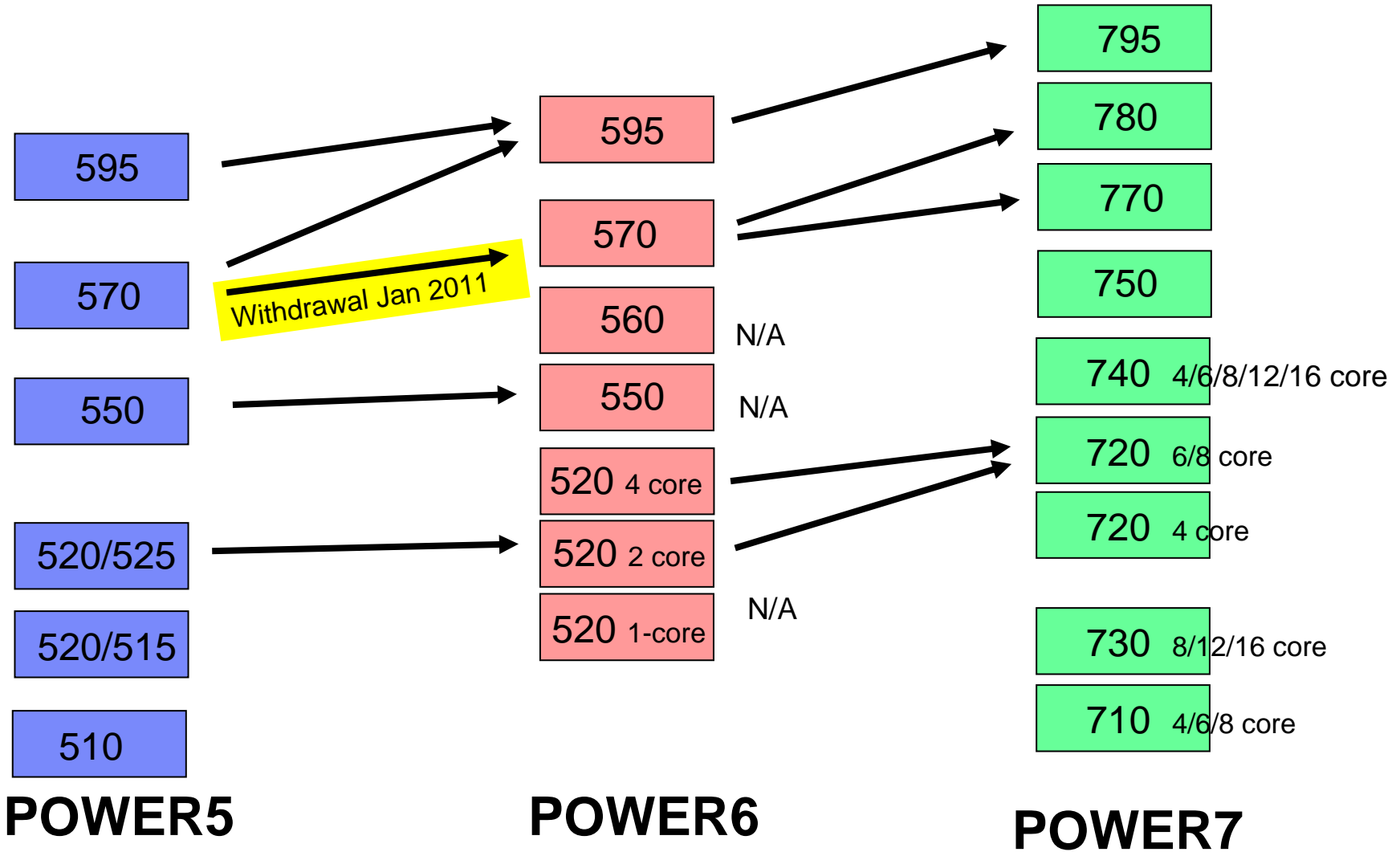
# IBM i System Support

Servers	i 5.4	i 6.1	i 7.1
POWER7		✓	✓
POWER6+ Smart Cube Blades, 520*, 550*, 560		✓	✓
POWER6 520, 550, 570, 595	✓	✓	✓
POWER5/5+	✓	✓	✓
800, 810, 825, 870, 890	✓	✓	

**Wdfm IBM i 5.4 YE 2010**  
**Last chance 5.2/5.3 → 5.4**

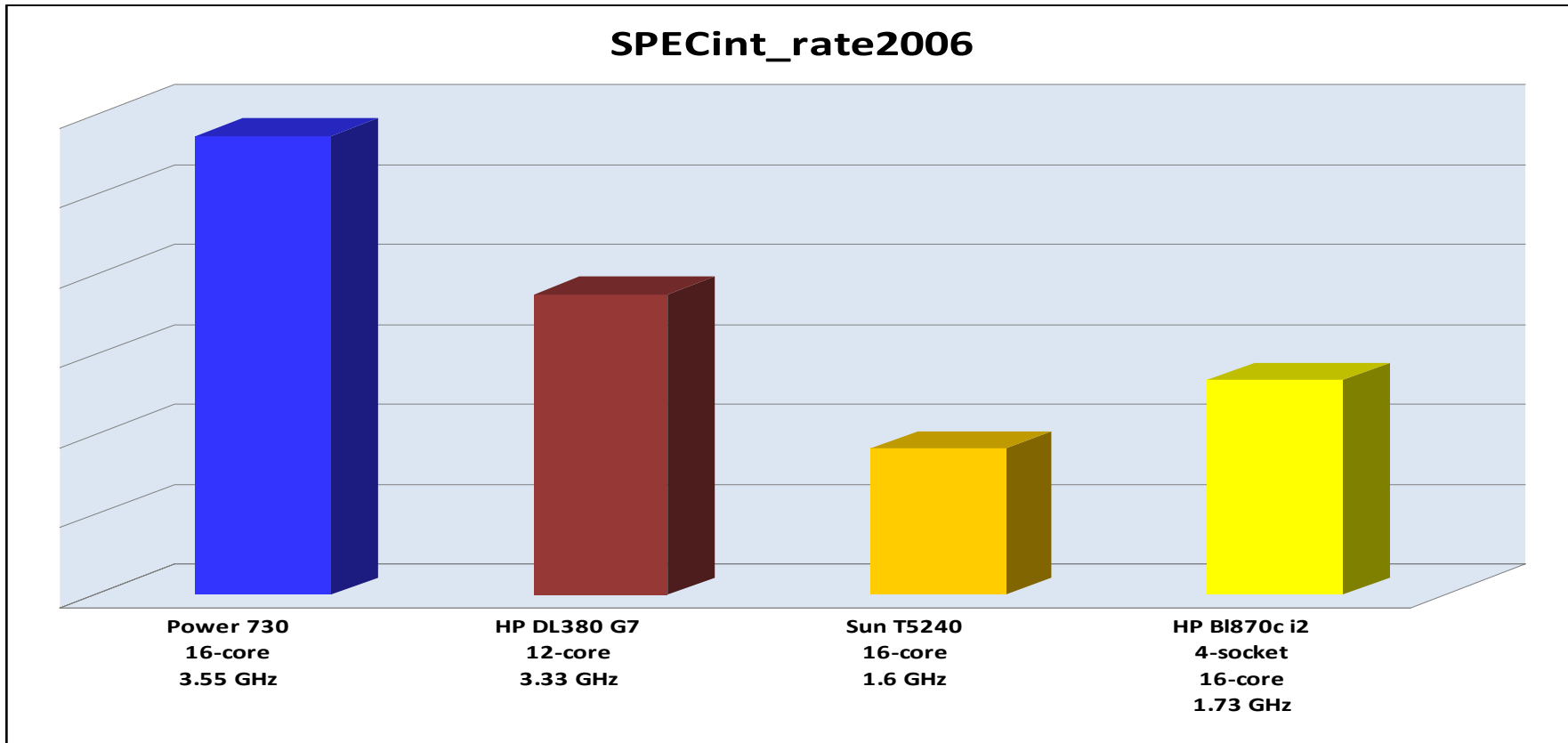


# Model Upgrades (Same Serial Number)



# Power 730 delivers best in class performance

- ✓ 3X better performance than Sun SPARC Enterprise T5240 server
- ✓ 1.5X better performance versus HP Proliant DL380 G7 (Westmere-EP)
- ✓ 1.9X more performance than new HP Integrity Blade BI870c





# 47 to 1

Number of HP Proliant DL380 G5 servers that can be consolidated into a single IBM Power 730 2-socket system.

**Save 98% on energy, 83% of the cores for software licensing, and 97% on floor space.**

**4X** less unplanned downtime than a Linux / x86 server reduces risk of lost revenue and productivity due to server downtime and lowers IT management costs



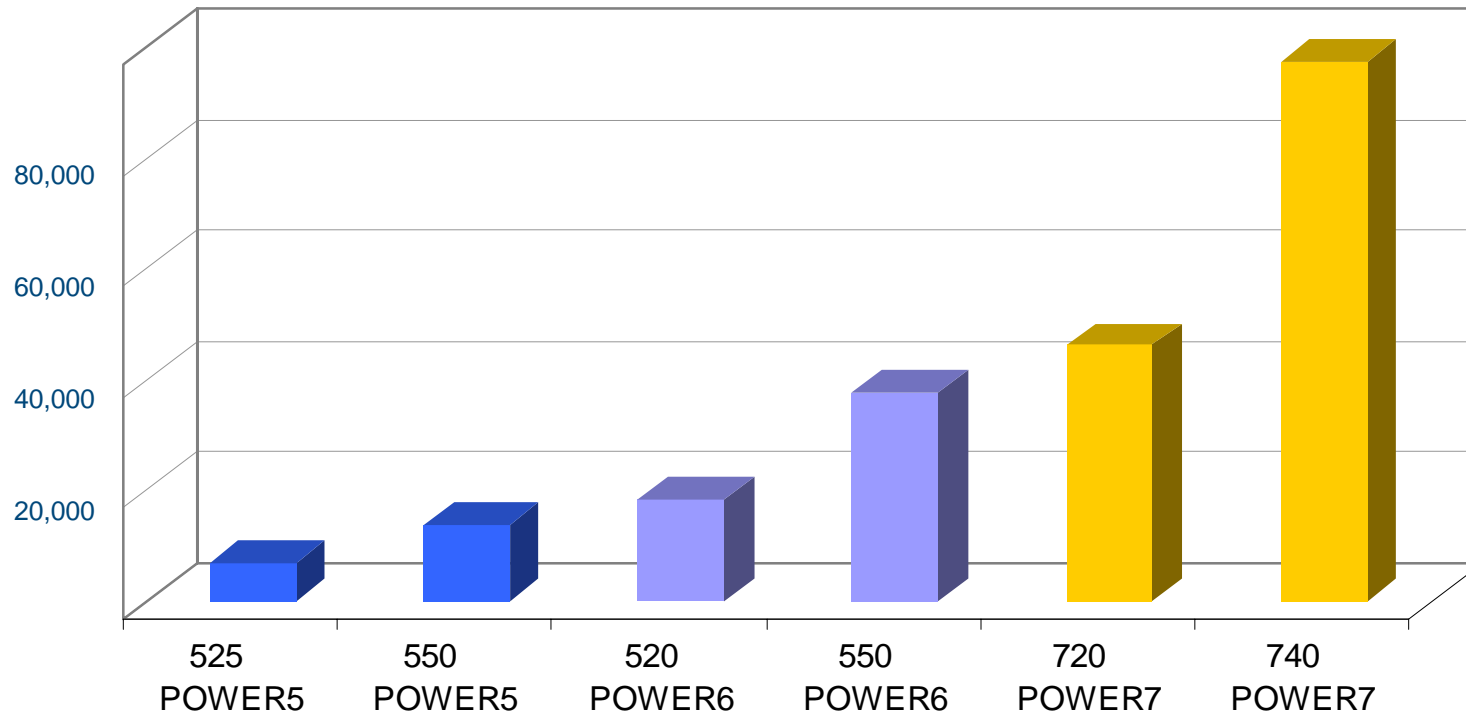
IBM Power 730 Express



Based on projected results for Power 730 Express server consolidation of HP Proliant DL380 G5 servers  
Source: SPECint\_rate2006. For the latest SPEC benchmark results, visit <http://www.spec.org>.

# POWER7 delivers outstanding performance

## CPW



Single core CPW

3800

4300

5950

# Moving from an x86 infrastructure to Power Systems

# 52% reduction

in year over year IT costs through consolidation of x86 onto Power Systems

## The challenge

NACG faced challenges expanding as a business and lacked a “single version of the truth” for decision making due to frequent outages and poor performance of its ERP application.

## The solution

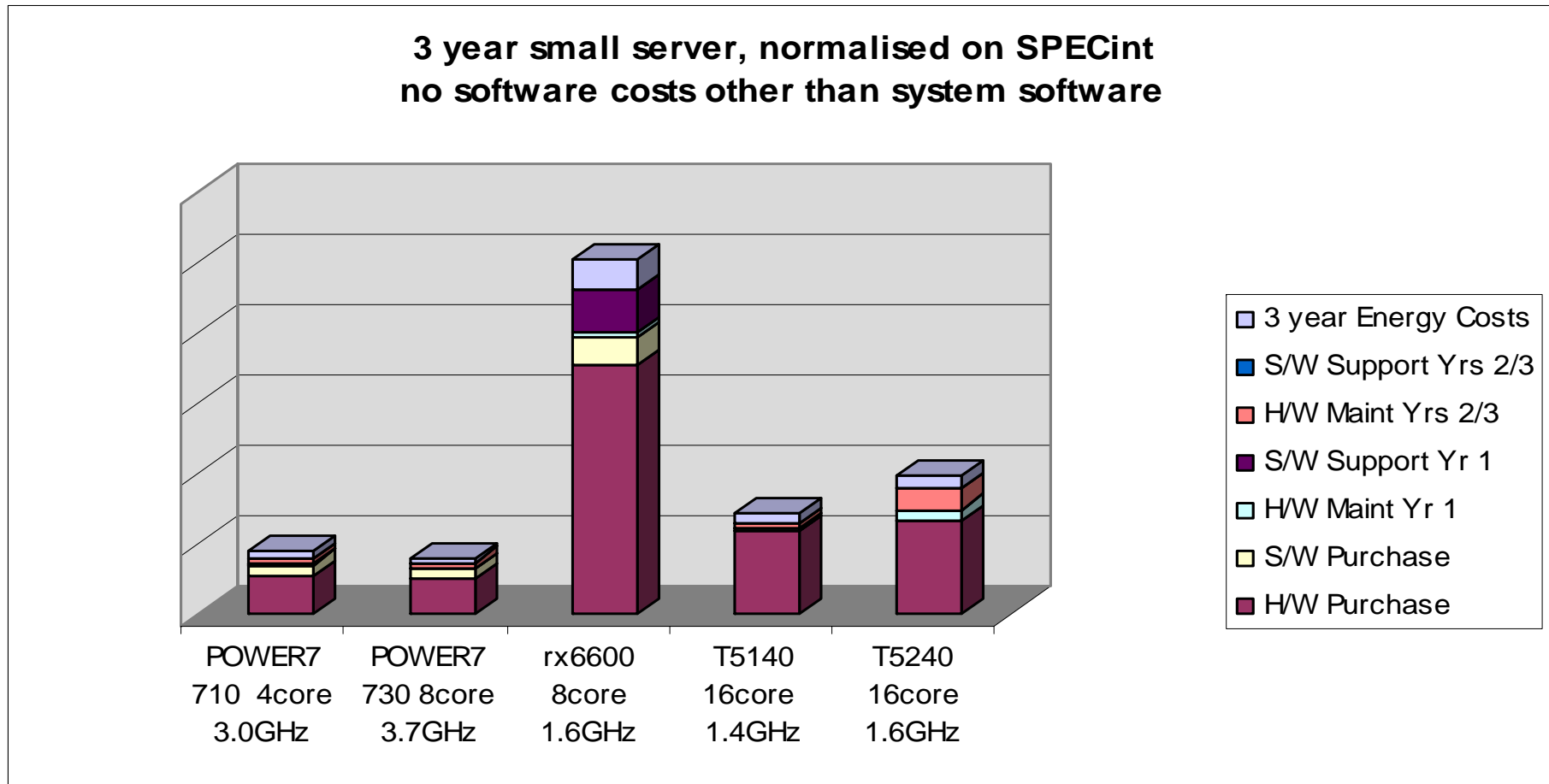
After identifying the root of the issue as the instability of Dell servers running Microsoft Windows, NACG migrated the infrastructure to two Power 570s running IBM i. ERP outages have been essentially eliminated, response times are up to 96% faster, and NACG employees can focus on productive, more profitable work.

*“The proven reliability of the IBM Power 570 servers meant that the outages which had been an everyday experience for our employees quickly became a distant memory.”*

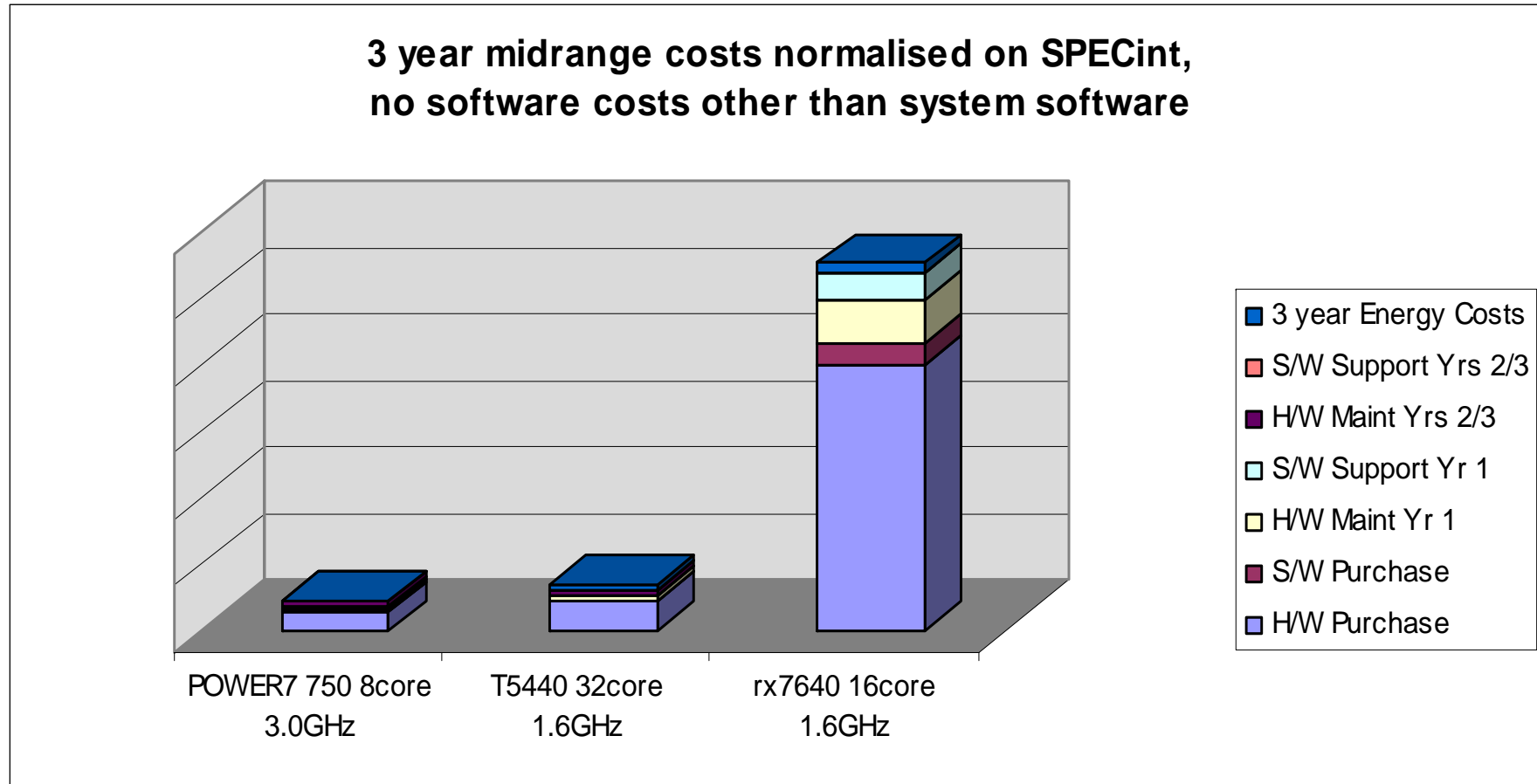
*David Booth, CIO  
North American Construction Group*



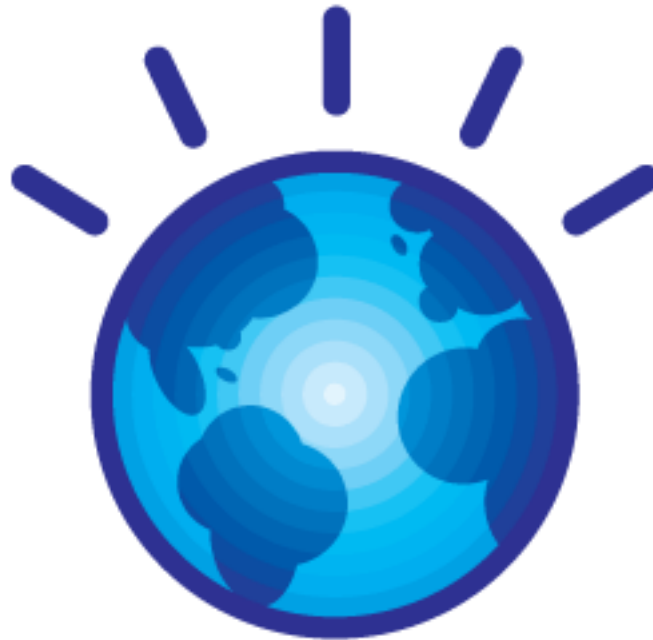
Across the entire range, IBM Power 7 offers the best price/performance and performance/watt by comparison to competitors offerings (1/3)



Across the entire range, IBM Power 7 offers the best price/performance and performance/watt by comparison to competitors offerings (2/3)



# IBM i Offerings



## IBM Power Systems delivers significant advantages and opportunity for clients to reduce costs and increase ROI



ITG Power i  
Value Proposition vs x86

**Understand the benefits and exploit  
Power Systems leading capabilities**

1. Power Systems delivers more capability than similar x86-based systems
2. Power Systems has a competitive and sometimes lower TCA
  - At the hardware/systems software level
  - At the solution level including the SW and Middleware
3. Power Systems has a lower TCO
  - Power Systems can accelerate a business' ability to reduce IT operations costs

# IBM i Solution Editions for SAP, JDE, Lawson and Infor

Reduce cost, complexity and implementation time for ERP solutions



- Special offer reduces cost of acquisition by up to 35%
- Optimized install reduces implementation time
- Total integration with IBM i eliminates complexity
- IBM i delivers 42% lower total cost of ownership than Windows and x86\*
- ISV optimization for Power Systems provide leading performance
- Offered in partnership with leading ISVs
- Assist clients to move up to ISVs latest release and features
- Backed by superior service and support

**Power 720 Express**

**Power 740 Express**



<b>SAP Business All in One</b>
<b>Oracle JDE</b>
<b>Infor LX (BPCS), System 21 and XA (MAPICS)</b>
<b>Lawson M3 and S3</b>

\* – 'Minimizing Costs and Risks for Midsize Business', ITG January, 2010





# The evolution FROM the IBM Smart Business... All in one solution for the Small and Medium Business Market

## APPLICATION

Find your business application on Smart Market

[www.ibm.com/smartmarket/it](http://www.ibm.com/smartmarket/it)



SmartB\_Active\_Report.htm

## Applications



## SMART DESK

Simple to manage and to administer through a single user friendly interface

## CONTRACT

Simple to buy through a single contract (Hw, Sw, Application) with a monthly rate and very aggressive price

## Smart Cube



## Smart Business Software Pack

Lotus software

WebSphere

## CONFIGURATIONS

Available in different Power6 520 configurations based on number of users available



## Smart Support

## SUPPORT

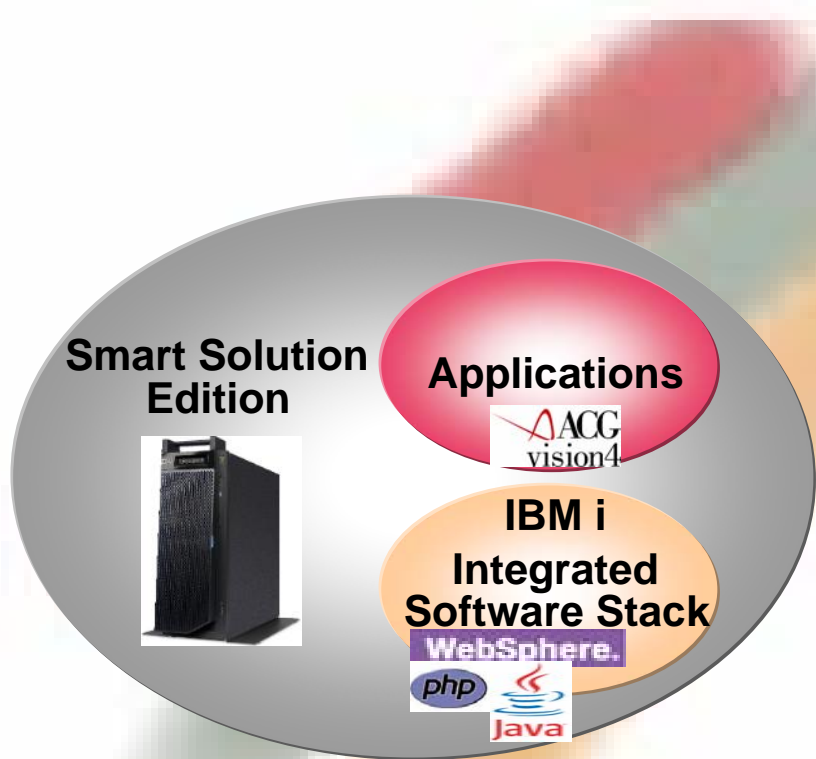
Integrated complete support for your all-in-one solution – 800 820 894

## SOFTWARE PACK

Leverage on the collaboration/application server products bundled into your Smart Business solution

# ...TO the IBM i Smart Solution Editions for Power7

## Power7 720 Solution Edition - Complete and integrated solution for the Small and Medium Business Market

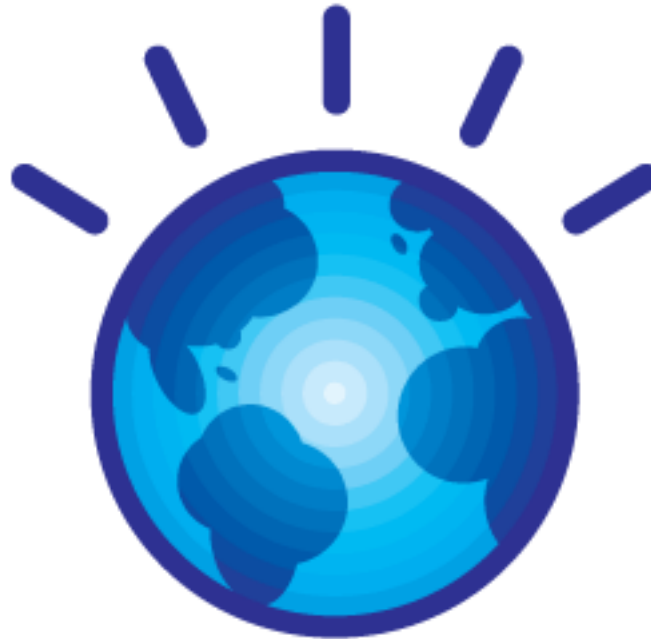


- Optimized for your business
- Rich choice of modern applications
- Scalable solution for your growing business needs

- Possibility to buy with a single contract (Hw, Sw Application) with a monthly rate
- Aggressive price
  - IBM i discounted user entitlements
  - Minimum 3 IBM i processor licenses
- Integrated and complete support for your solution – 800 820 894

- Leverage on the features of the IBM i operating system: full functional, reliable and virus resistant
- Easy to manage through web and client sever graphical interfaces
- Integrated DB for the all set of applications
- integrated Security and Backup
- Complete Web infrastructure
  - Http server, application server
  - Java and Php

# Power Systems: integrated value



# Power is integrated value

## Turn information into insight

- ✓ Capture, predict, act on disparate data
- ✓ Attract, retain more profitable customers
- ✓ Optimize marketplace resources



IBM Smart Analytics 7700

## Enterprise qualities of service for Clouds

- ✓ Elastic scaling for optimal performance
- ✓ Self-service portal for rapid provisioning
- ✓ Security for mission critical workloads

IBM Cloudburst\*  
IBM Service Delivery Manager\*



\*: Statement of Direction

## Transaction resilience and agility

- ✓ Continuous availability
- ✓ Transparently scale your applications
- ✓ Respond to changing business needs



IBM pureScale Application System

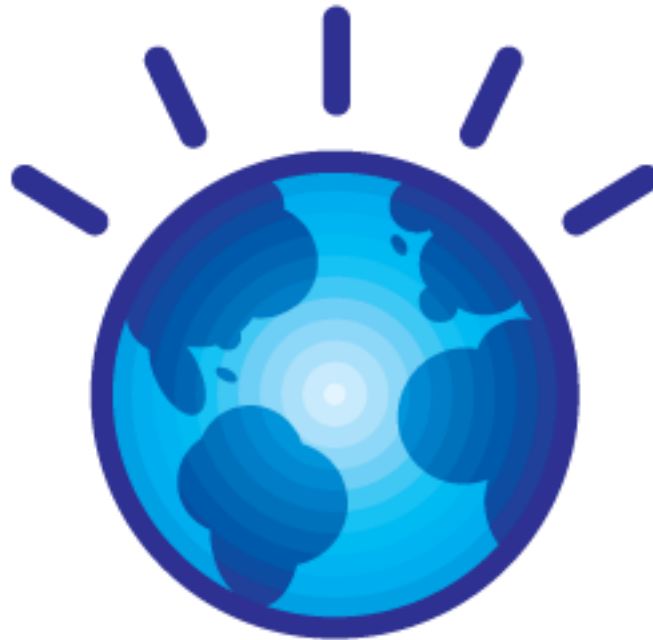
## Unleash application innovation

- ✓ Accelerate development lifecycle
- ✓ Increase quality through standardization
- ✓ Reuse and optimization of core assets

IBM Rational Power Appliance



# Events



## IBM Technical University



[http://www-304.ibm.com/jct03001c/services/learning/ites.wss/it/it?pageType=course\\_description&courseCode=IS000IT](http://www-304.ibm.com/jct03001c/services/learning/ites.wss/it/it?pageType=course_description&courseCode=IS000IT)

### IBM Power Systems and Storage Technical University

- Las Vegas, 18 - 22 October, 2010
- Register at <http://www-304.ibm.com/jct03001c/services/learning/ites.wss?pageType=page&c=M387632K48848U54>



- IBM Systems Technical University
- Lyon, France, 25 - 29 October, 2010
- Register at <http://www-304.ibm.com/jct03001c/services/learning/ites.wss?pageType=page&c=M680996O79065K05>





# COMMON EUROPE CONGRESS

- ❑ Principale evento tecnico per la comunità Power Systems
  - ✓ 3 giorni di manifestazione con centinaia di partecipanti
  - ✓ Conferenze tecniche - Laboratori - Tavole rotonde  
Incontri con gli Specialisti - Sessioni per Decision Makers  
Sessioni per Studenti - Gala Dinner & Entertainment
  - ✓ Spazi espositivi degli sponsor
  - ✓ Speaker locali e internazionali
- ❑ Ogni anno ospitato in un paese diverso. Partecipanti da tutta Europa.
- ❑ A cura di Common, in collaborazione con IBM e i suoi Business Partner

## MILANO, 23-25 MAGGIO 2011

<http://cec2011.common.it>

# Power your planet.

Smarter systems for a Smarter Planet.



**Workload-Optimizing Systems**

Virtualization without Limits

Resiliency without Downtime

Dynamic Energy Optimization

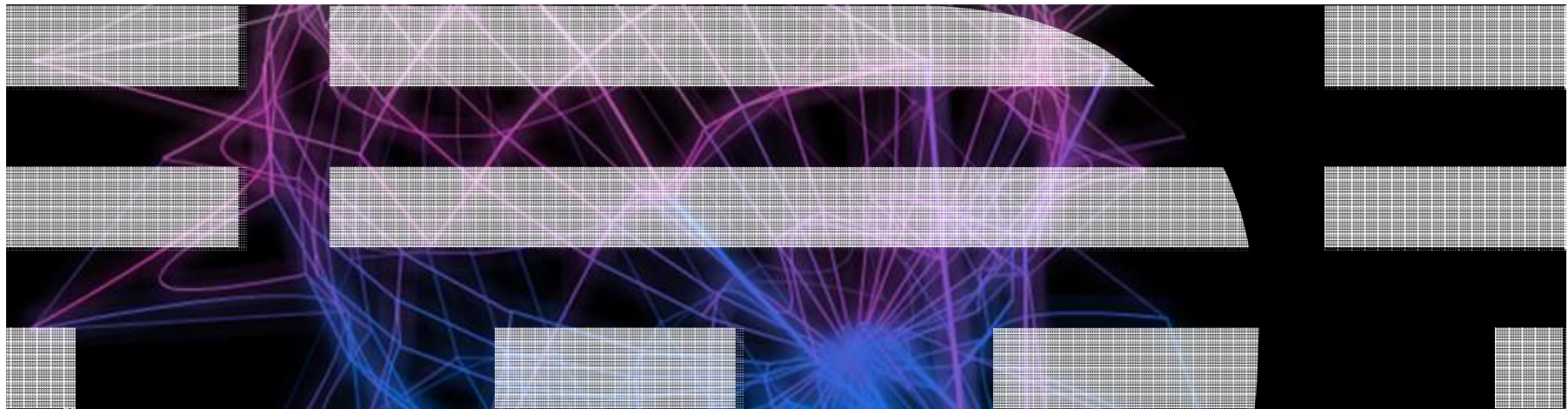
Management with Automation

Integrated Value

# Power is... our planet.



# ACG Vision4



**IBM SmarterSystems**

ACG Vision4 è l'ERP di IBM per le aziende italiane

Vision4 è un insieme di elementi importanti:



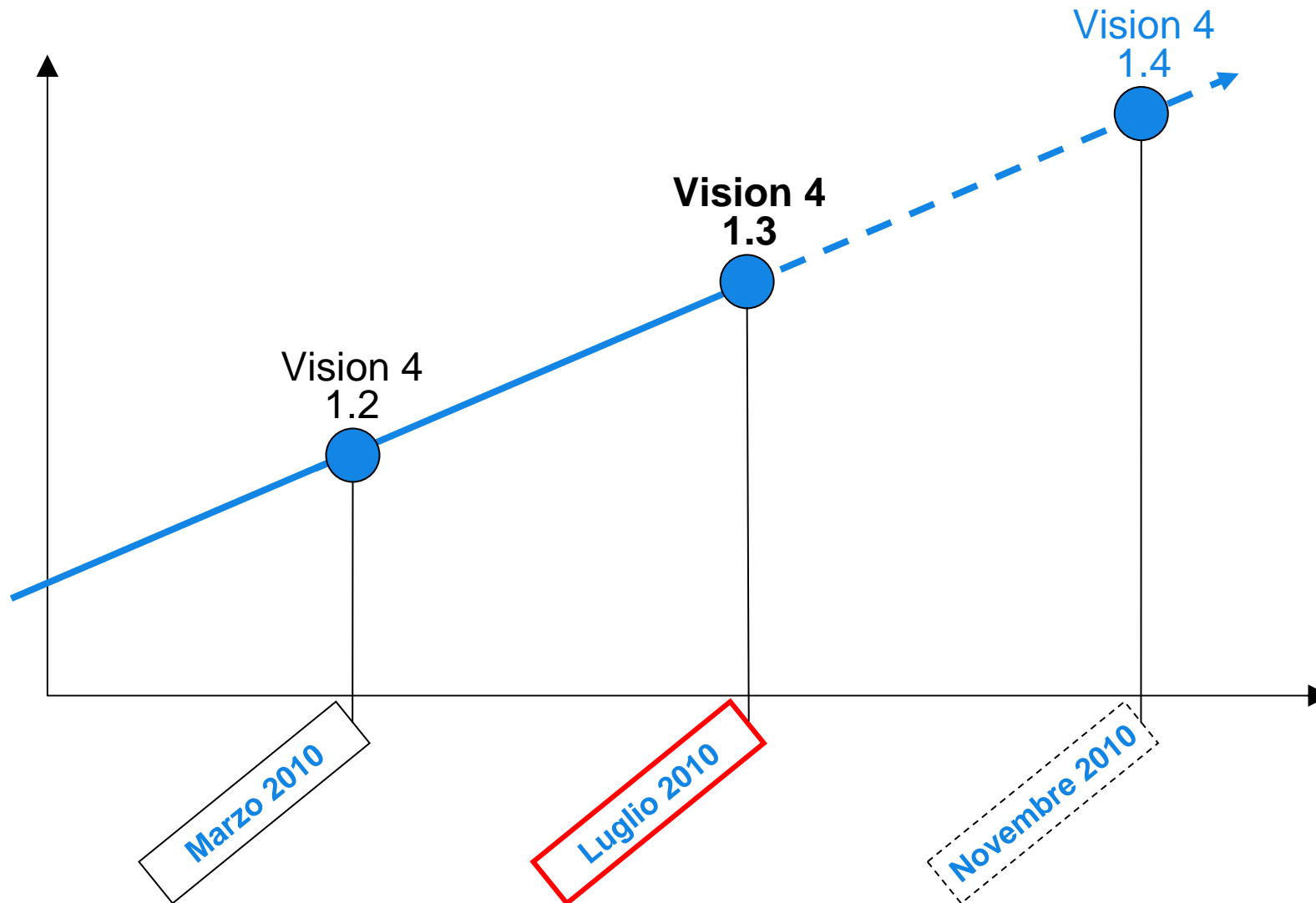
**Esperienza** - Le ACG rappresentano 20 anni di conoscenza dei processi di business delle aziende italiane.

**Innovazione** - la base tecnologica per i processi di business dei prossimi anni

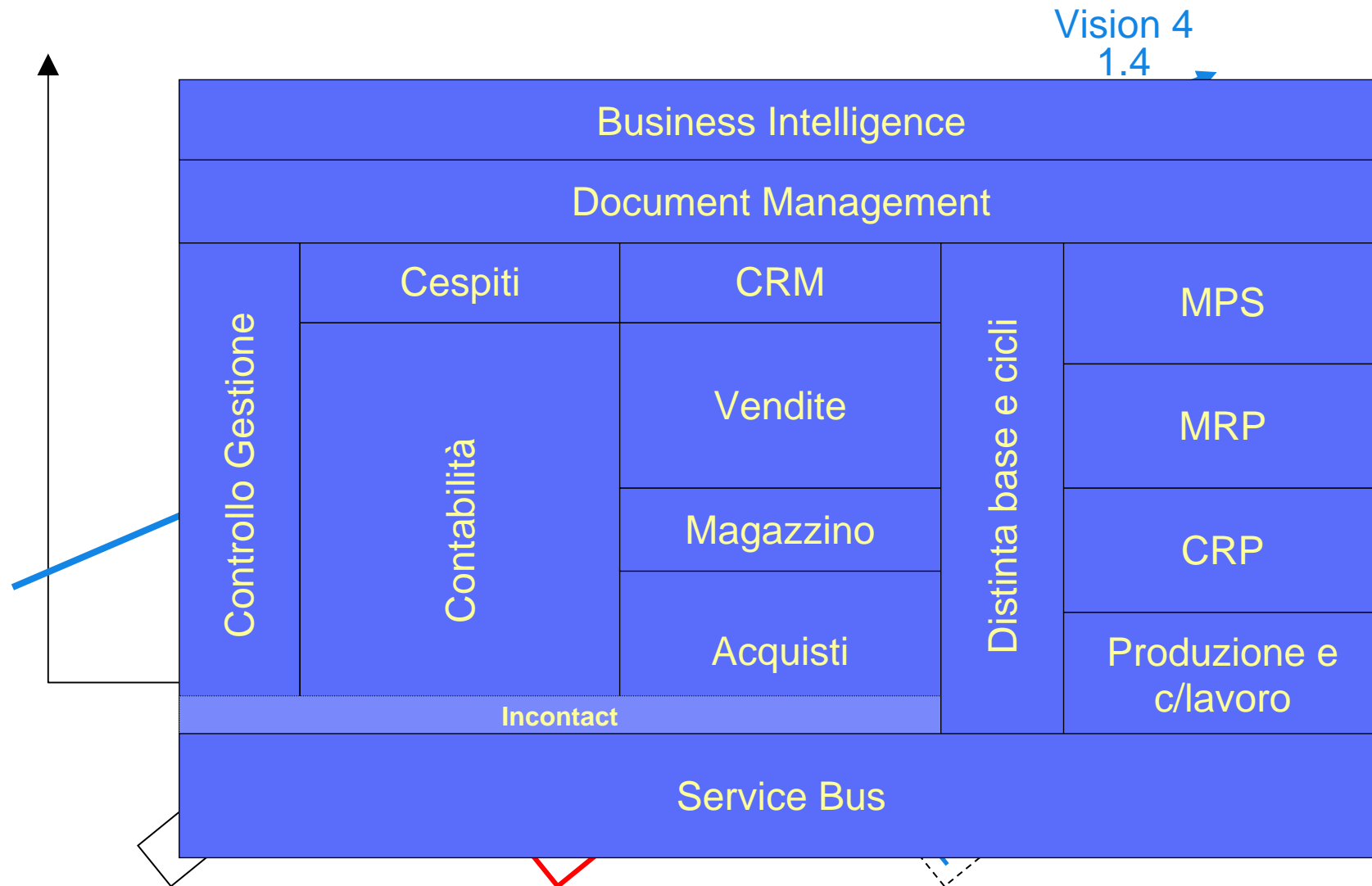
In un prodotto completamente nuovo.

Esperienza + Innovazione = **Affidabilità**

# Un cammino in continua evoluzione



# Un cammino in continua evoluzione



## Vision4: l'ERP dell'innovazione

- I punti di forza della Vision4:
  - Un'architettura completamente nuova
  - Un'interazione process oriented
  - L'analisi dei dati integrata grazie a Cognos



## ACG Vision4 e Power: la giusta soluzione per vincere le sfide del mercato

### ▪ ACG su Power

- Power System Benchmark Center – ACG benchmark
- Test effettuati su 4 diversi Blade centers con Power 6 e Power 7
- ACG Vision4 (DB2, Websphere, Cognos)
- Configurazione monoprocesore con 8G di memoria
- Da 30 a 40 utenti concorrenti su Power 6
- Da 40 a 50 utenti concorrenti su Power 7



### ▪ ACG Vision4 e Smart Business

- Una soluzione unica per le applicazioni gestionali nell'azienda
- Completa, facile nata per l'applicazione

