

System z Premier Executive Event



System z Server Strategy and Direction - Maximize the potential of new mainframe technology

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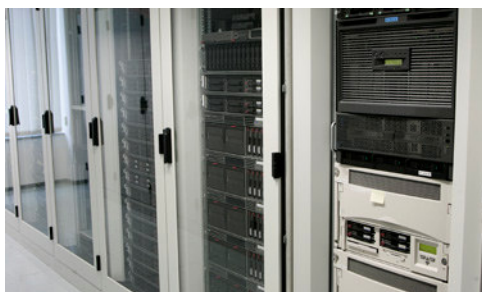
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Today's Data Center is Under Pressure.



7 out of 10
companies

in the Global 1000 will need to modify their data centers to meet increased power and cooling requirements.



70 cents
per dollar

is spent maintaining current IT infrastructures rather than adding new capabilities.



78%
of CIOs

want to improve the way they use and manage their data.

Technology pressures



Silicon speed and Multi-Core
Technology

Virtualization
management

Data access

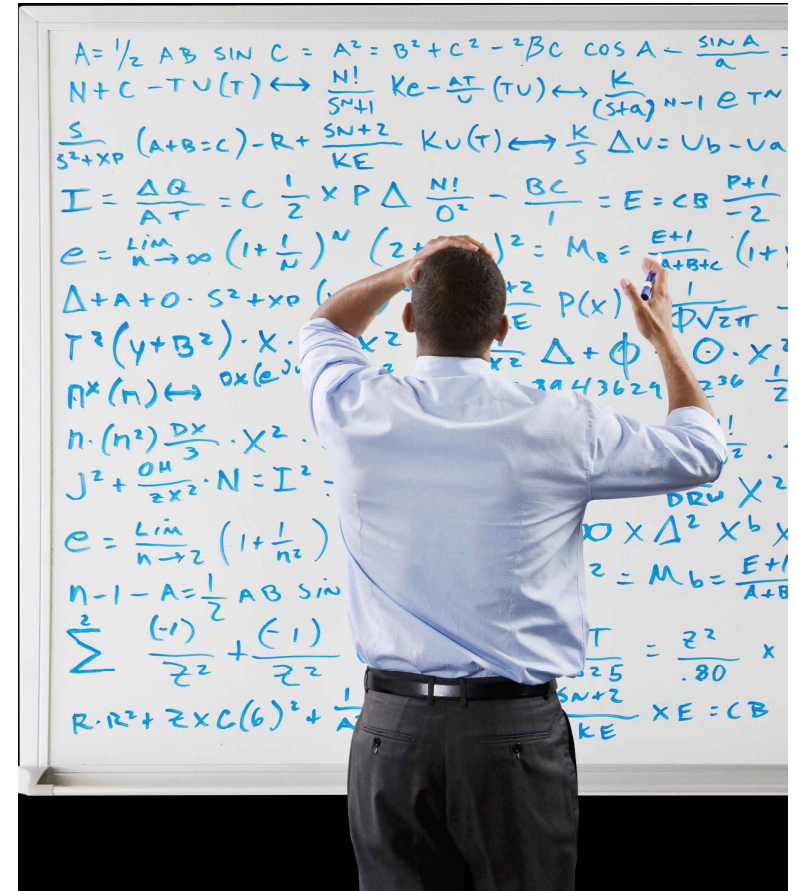
Power and Cooling Efficiency
requires new System Designs

Compute needs driven by
new combinational
workload characteristics

Despite the allure of a “one size fits all” server approach ...

Today's enterprise computing environments are multi-platform for a reason. They're optimized to run different workloads:

- Database and transaction processing
- Analytics
- Web-based interactions
- Enterprise applications such as ERP
- The myriad of x86 applications



Complex solutions are optimally deployed on multi-tier heterogeneous infrastructures ...

... and cost less when System z is part of them

System z improves IT efficiency across industries*



44%

lower cost per credit card transaction



31%

lower IT spend per consumer loan



25%

lower cost per mega watt hour produced



24%

lower cost per hospital bed



20%

lower cost per airline passenger



26%

lower cost per new vehicle



25%

lower cost per retail store



23%

lower cost per barrel of oil

“... in the long run, the marketplace rewards those that make the optimum use of the right computing resources in the right way as evidenced by business performance.”

*-- * Dr. Howard Rubin, CEO and Founder Rubin Worldwide*

System z Today – areas of use and workload expansion

1. Information Management on System z

- Data Management on System z (data base)
- Data Warehousing
- Business Analytics and Optimization
- IBM Smart Analytics Optimizer
- Competitive migrations / New Accounts
- Numius, UNC

2. Business Applications

- SAP Solutions
- ACI, Core Banking Applications
- Chordiant and other ISV' applications
- Competitive migrations/New Accounts
- IBK, Banco Pastor

3. IT Optimization and Consolidation

- TCO/TCA
- Competitive Consolidations from UNIX®/x86
- Oracle Consolidations
- Cloud Computing
- Domino®
- Enterprise Linux Server/New Accounts
- CNNIC, Handelsbanken

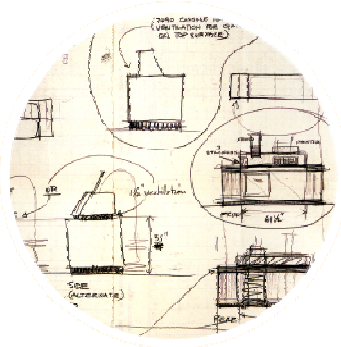
4. Enterprise Modernization

- WebSphere® on System z
- Rational® on System z
- Portal on System z
- Modernizing competitive software stacks (ie. SW, AG, CA, etc.) with IBM solutions
- NYS Dept. of Taxation and Finance

Foundational Competencies

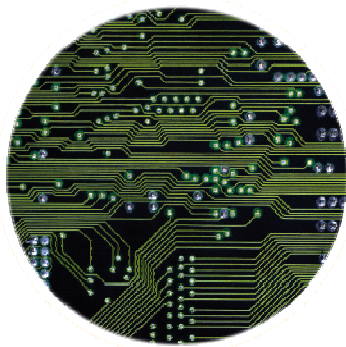
- Virtualization
- Resiliency
- Systems Management
- Security
- zGovernance (Platform Management)

System z: A long history, requiring constant innovation



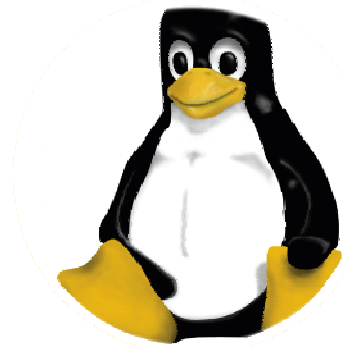
1964 System/360

Centralized computing
for the back-office



1990 - 1993 System/390 Bipolar to CMOS Parallel Sysplex

Chip-level and
architectural changes
providing system-level
benefits and high
availability



2000 eServer z900 Linux on Mainframe

Specialty processor to
bring mainframe
qualities of service to
Linux applications

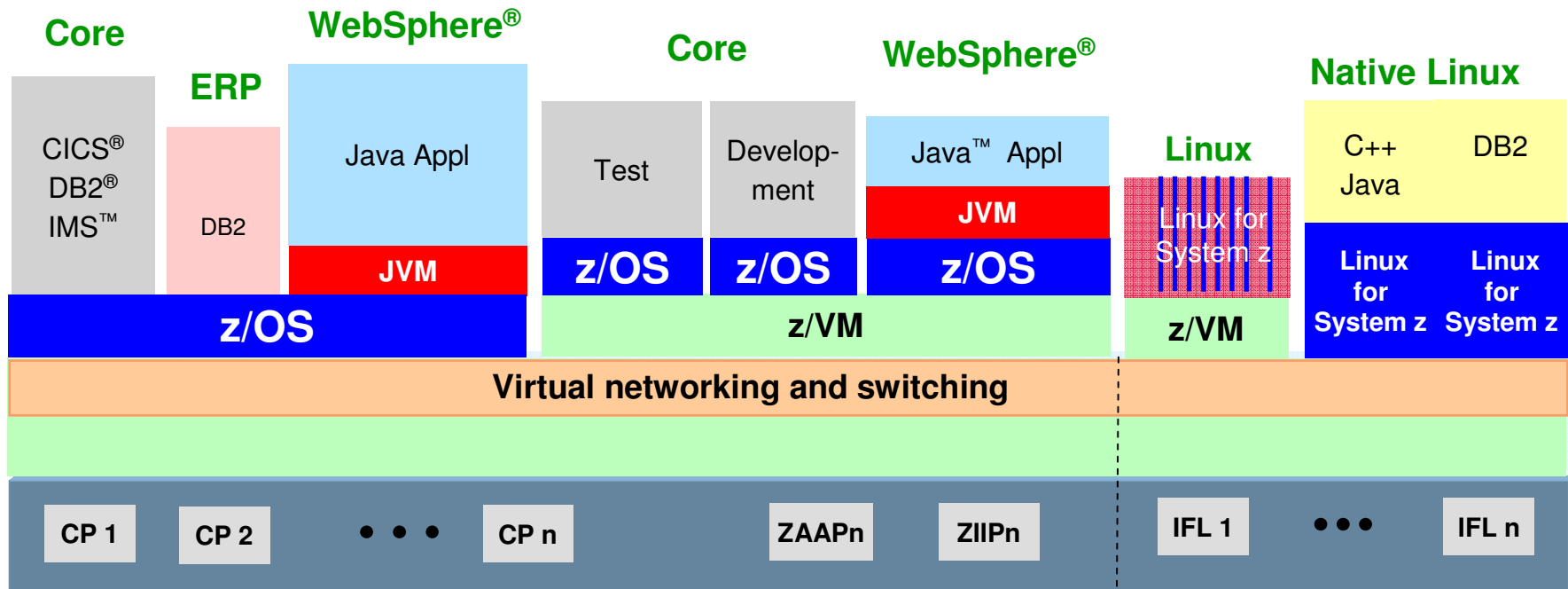


July 2010 zEnterprise

***A new
dimension in
computing***

Today that tradition continues with zEnterprise...

System z – Integrated workloads



- **Massive, robust consolidation platform**
- **virtualization is built in**
- **100's to 1000's of virtual servers on z/VM**
- **Intelligent and autonomic management of diverse workloads and system resources**

We need Smarter Systems

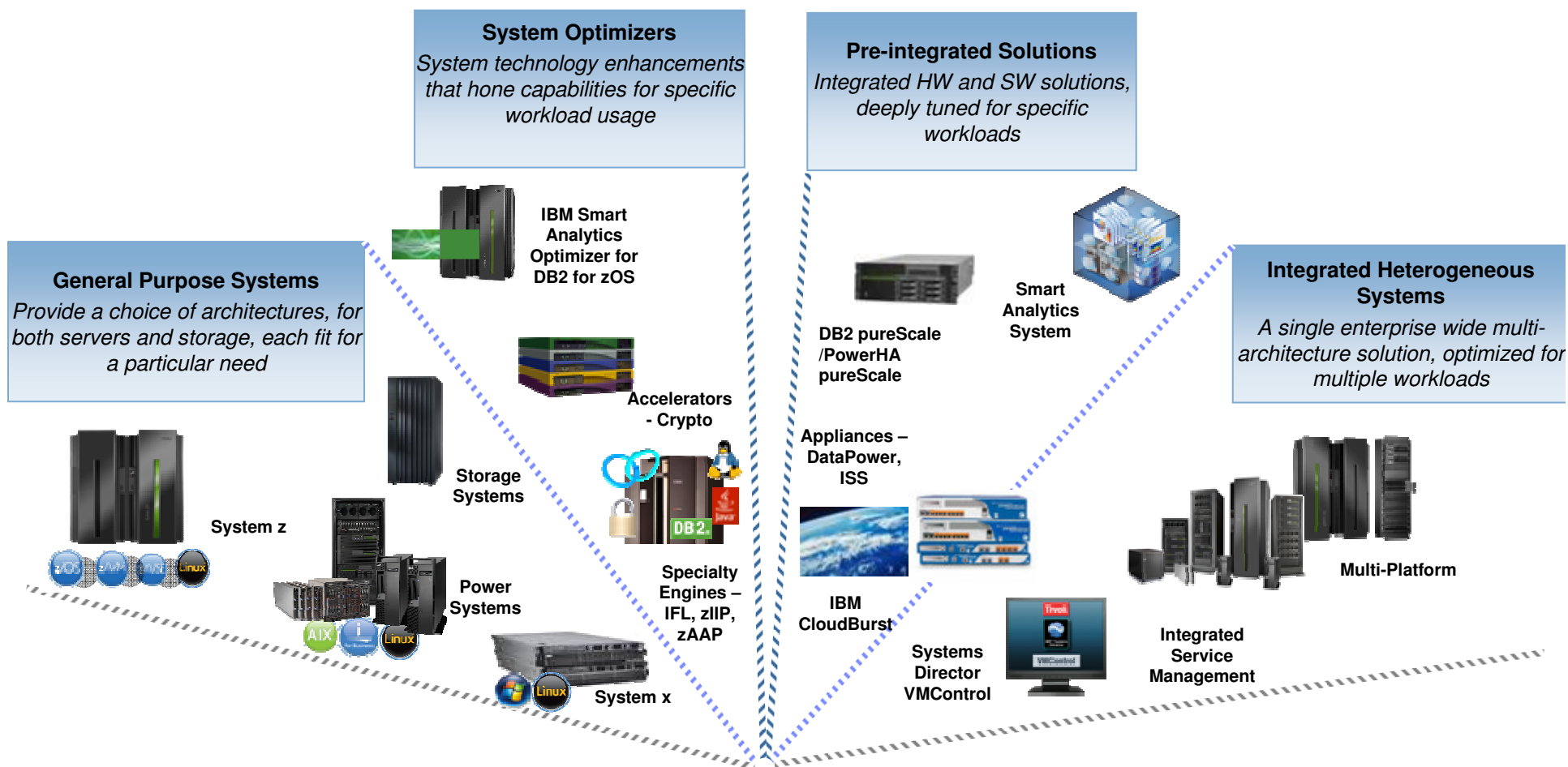
and software for enterprise computing and robust cloud environments that ...

- ... unify and optimize multiple systems to work as a single, integrated service delivery platform
- ... can scale without adding complexity to meet the growing demands on the infrastructure
- ... simplify data center management
- ... can turn IT into a catalyst for business innovation and growth



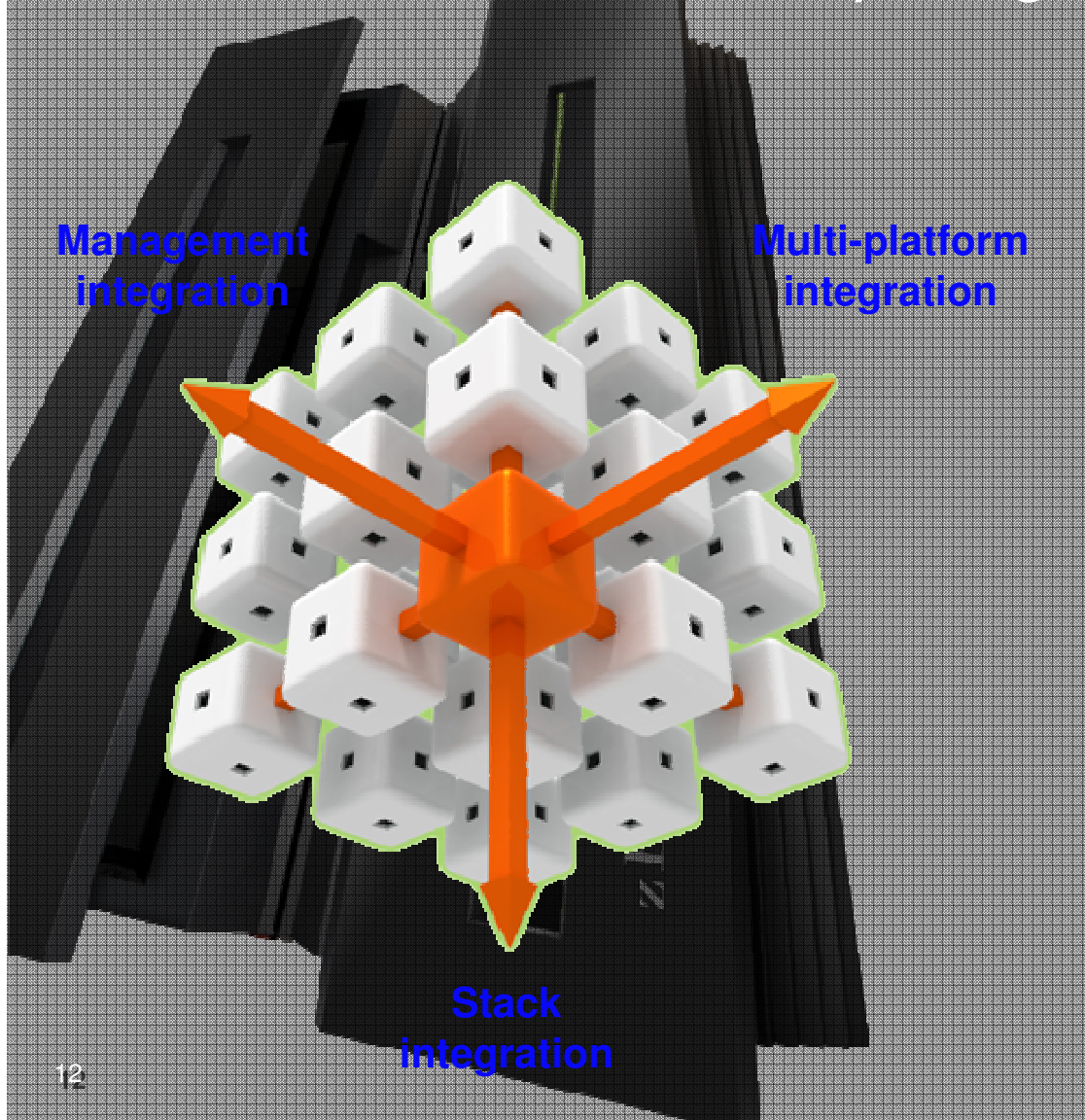
Workload Optimized Systems

Solutions across a spectrum of value designed to best address the unique requirements of the different workloads they support



Announcing the IBM zEnterprise System

A New Dimension in Computing



- A “System of Systems”, integrating IBM’s leading technologies to dramatically improve productivity of today’s multi-architecture data centers and tomorrow’s private clouds.
- The world’s fastest and most scalable enterprise system with unrivalled reliability, security, and manageability.
- The industry’s most efficient platform for large scale data center simplification and consolidation.

IBM zEnterprise System – Best-in-class systems and software technologies

A “System of Systems” that unifies IT for predictable service delivery



IBM zEnterprise 196 (z196)

Optimized to host large-scale database, transaction, and mission-critical applications
 The most efficient platform for large-scale Linux consolidation
 Capable of massive scale-up
 New easy-to-use z/OS V1.12

zEnterprise Unified Resource Manager

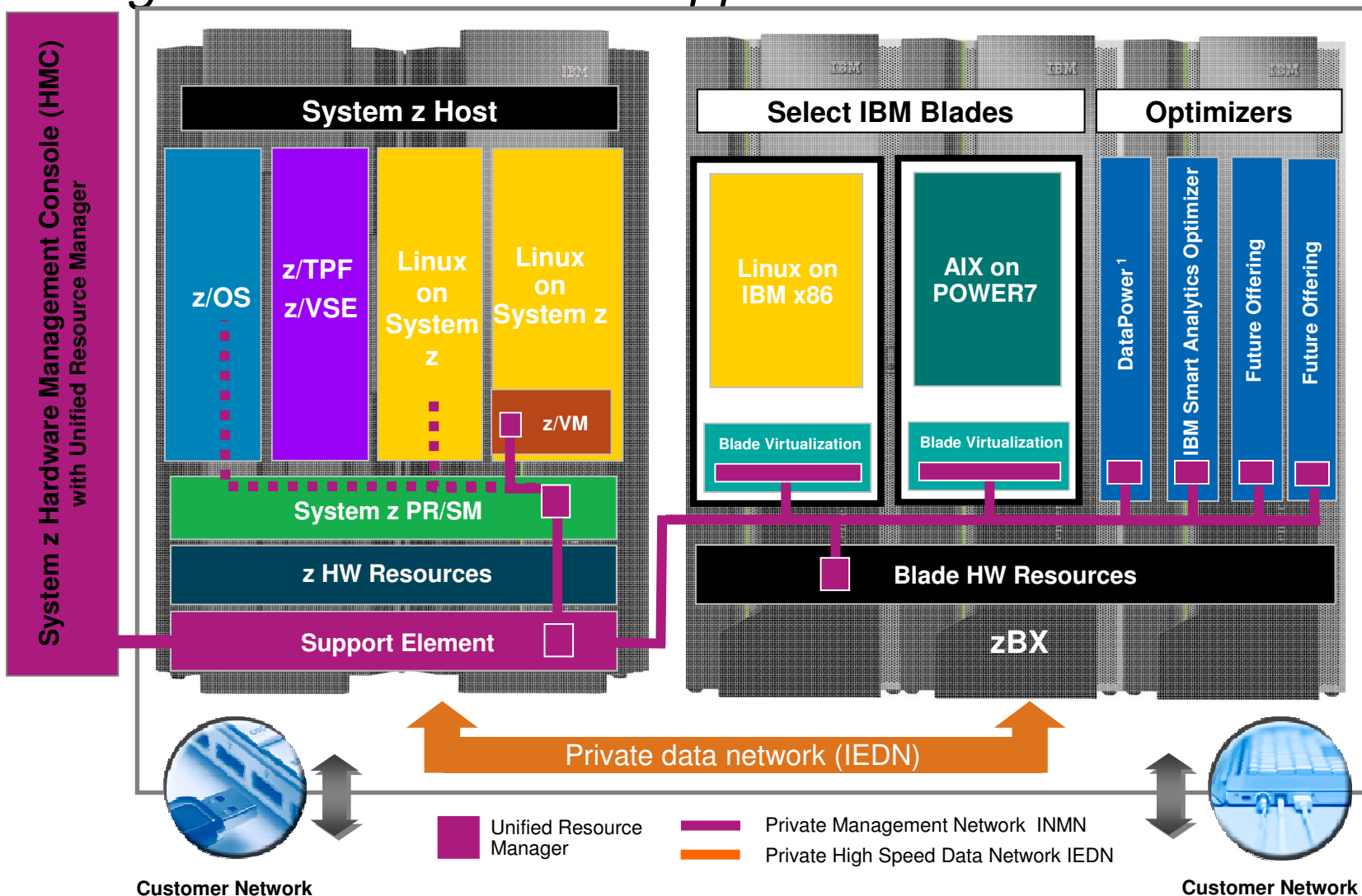
Unifies management of resources, extending IBM System z qualities of service end-to-end across workloads
 Provides platform, hardware and workload management

zEnterprise BladeCenter Extension (zBX)

Selected IBM POWER7 blades and IBM x86 Blades* for tens of thousands of AIX and Linux applications
 High-performance optimizers and appliances to accelerate time to insight and reduce cost
 Dedicated high-performance private network

A look inside the IBM zEnterprise System

Enabling a new dimension in application architecture



¹ All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represents goals and objectives only.

IBM zEnterprise 196: The heart of the new machine

The industry's fastest and most scalable enterprise system

Dramatic improvement over IBM System z10™:

For Linux

Up to

60%

Improvement in
performance

for

35%

Less cost

For z/OS

Up to

40%

Improvement in
performance

with

60%

More capacity

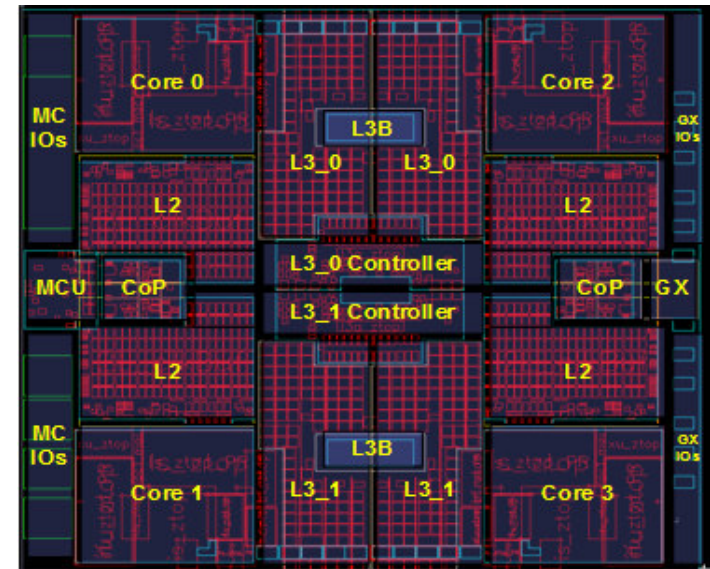
**With no increase
in energy
consumption**

**And even better
performance with
new software**

- 5.2 GHz superscalar processor
- Up to 96 Cores, 1 to 80 configurable for client use
- Up to 3 TB RAIM memory
- Over 100 new instructions
- 1.5 MB L2 Cache per core, 24 MB L3 Cache per processor chip
- Cryptographic enhancements
- Optional water cooling
- z/OS, z/Linux, z/VM, z/TPF, z/VSE

z196 – IBM Leadership Technology At the Core

- New 5.2 GHz Quad Core Processor Chip boosts hardware price/performance
 - 100 new instructions – improvements for CPU intensive, Java™, and C++ applications
 - Over twice as much on-chip cache as System z10 to help optimize data serving environment
 - Out-of-order execution sequence gives significant performance boost for compute intensive applications
 - Significant improvement for floating point workloads
- Performance improvement for systems with large number of cores – improves MP ratio
- Data compression and cryptographic processors right on the chip

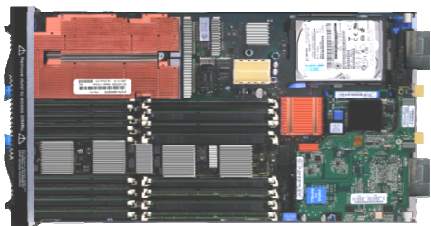


IBM POWER7 and System x¹ Blades

General purpose processors under one management umbrella

What is it?

The zBX infrastructure can host select IBM POWER7 and IBM x86 blades. Each blade comes with an installed hypervisor that offers the possibility of running an application that spans z/OS, Linux on System z, AIX on POWER®, or Linux on System x (SOD) ¹ but have it under a single management umbrella.



How is it different?

- Complete management: **Advanced management brings operational control and cost benefits, improved security, workload management based on goals and policies.**
- Virtualized and Optimized: **Virtualization means fewer resources are required to meet peak demands with optimized interconnection.**
- Integrated: **Integration with System z brings heterogeneous resources together that can be managed as one.**
- Transparency: **Applications certified to run on AIX 5.3 or 6.1 will also be certified and run on the POWER7 blade. No changes to deployed guest images.**
- More applications: **Brings larger application portfolio to System z.**

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Management Stack

Building an architectural construct of hardware, software, services

Service Management

- Visibility, Control and Automation for Applications, Transactions, Databases and Data Center Resources
- End-to End Workload Management and Service Level Objectives that Align IT Management with Business Goals
- Common Usage and Accounting for business accounting
- Dynamic/Centralized Management of Application Workloads based on Policies
- Business Resilience for multi-site recovery
- End-to-end Enterprise Security

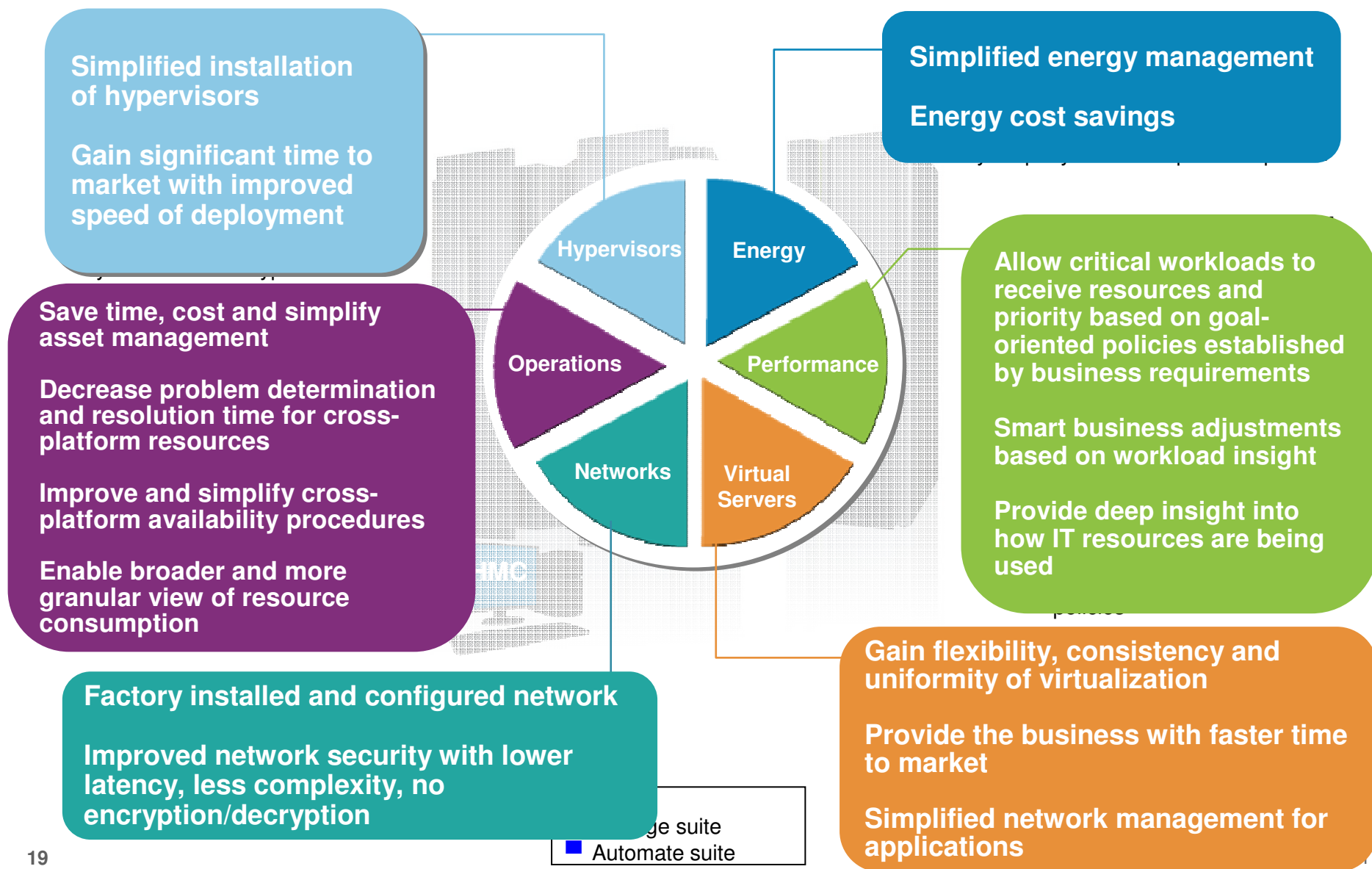
Platform Management

Hardware Management

Extending with **Unified Resource Manager**

- Hypervisor management and creation of virtual networks
- Operational controls, service and support for hardware / firmware
- Network management of private and secure data and support networks
- Energy monitoring and management
- Workload awareness and platform performance management
- Virtualization management – single view of virtualization across the platform

... Value Made Possible By the Unified Resource Manager



IBM Smart Analytics Optimizer

Capitalizing on breakthrough technologies to accelerate business analytics

What is it?

The IBM Smart Analytics Optimizer is a workload optimized, appliance-like, add-on, that enables the integration of business insights into operational processes to drive winning strategies. It accelerates select queries, with unprecedented response times.



Faster insights for enabling new opportunities

How is it different?

- Performance: **Unprecedented response times to enable 'train of thought' analyses frequently blocked by poor query performance.**
- Integration: **Connects to DB2® through deep integration providing transparency to all applications.**
- Self-managed workloads: **Queries are executed in the most efficient way.**
- Transparency: **Applications connected to DB2, are entirely unaware of IBM Smart Analytics Optimizer.**
- Simplified administration: **Appliance-like hands-free operations, eliminating many database tuning tasks.**

WebSphere DataPower¹ Appliance in the zBX

Purpose-built hardware for simplified deployment and hardened security

What is it?

The IBM WebSphere DataPower appliance (SOD)¹ integrated in the zEnterprise System, can help simplify, govern, and enhance the security of XML and IT services by providing connectivity, gateway functions, data transformation, protocol bridging, and intelligent load distribution.



How is it different?

- Security: **VLAN support provides enforced isolation of network traffic with secure private networks. And integration with RACF® security.**
- Improved support: **Monitoring of hardware with “call home” for current/expected problems and support by System z Service Support Representative.**
- System z packaging: **Increased quality with pre-testing of blade and zBX. Upgrade history available to ease growth. Guided placement of blades to optimize.**
- Operational controls: **Monitoring rolled into System z environment from single console. Time synchronization with System z. Consistent change management with Unified Resource Manager.**

Cloud computing: More value with zEnterprise



Security

Industry-leading security at the core of an integrated infrastructure

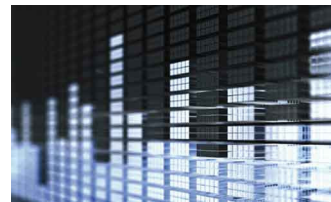
Identifies potential fraud in Real Time



Availability

Resiliency management and fewer points of failure

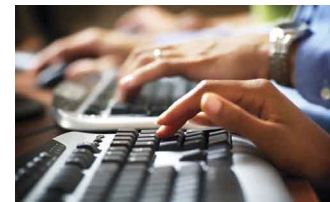
Centralized workload management aligned to business priorities



Scalability

Ability to meet massive demands from users and data

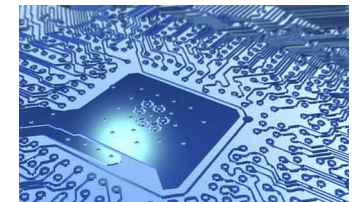
Unmatched scalability with the highest transaction processing capacity



Efficiency

Economies of scale for labor, software and environmental costs

Reduce labor, energy, and development costs


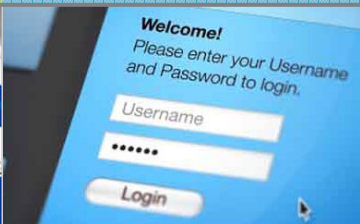





Virtualization

Centralize management of virtual servers across a heterogeneous pool

Enable thousands of virtual servers within a single integrated system

IBM has been collaborating with clients to prepare for this day

BANKING	INSURANCE	RETAIL	HEALTHCARE	PUBLIC SECTOR
				
Core Banking	Internet Rate Quotes	Online Catalog	Patient Care Systems	Electronic IRS
Wholesale Banking – Payments	Policy Sales & Management (e.g. Life, Annuity, Auto)	Supply Chain Management	Online Claims Submission & Payments	Web-based Social Security
Customer Care & Insight	Claims Processing	Customer Analysis		

Retail client using SAP financials

The Future: DB2 for z/OS with Application Server on POWER7 Blades + Future exploration of SAP Business Warehouse Accelerator on x86 Blades



Client Pains

- Resource intensive and vulnerable to several points of impact
- Too many network hops
- Outages when applying microcode updates
- Multiple software tools and software process for site failovers

Benefits

- Consistency of business controls
- Monitor and manage applications end to end
- Manage, maintain and provision resources with true application insulation
- Better utilization of assets
- Insulate application development teams from infrastructure technology
- Consolidation of skills through consistent tools

Public sector client develops an Internet tax application

The Future: DB2 z/OS with Application Server on POWER7 Blades in zBX, IBM WebSphere® DataPower



Client Pains

- Not able to respond quickly for need of new function
- High cost of staff required to maintain multi-tier application

Benefits

- Network speed increased by ten times
- Single workload management view across multiple platforms reducing labor overhead
- Everything is pre-tested, pre-configured for their mission-critical application

Banking client enables Internet banking

The Future: System z (IMS™/CICS/DB2); p7 Blades running AIX for WebSphere and IBM System x Blades running Linux



Client Pains

- Extremely complex environment
- Majority of maintenance applied to systems manually
- Several single points of failure
- Bank presence in multiple countries across Europe and are maintaining different infrastructures based on acquisitions

Benefits

- Increased flexibility through simplification and standardization
- Lower cost through a single management and policy framework
- Reduced risk by extending System z Quality of Service to multiple platforms
- Better service to users from improved resource management
- Greater focus on delivering new business functions through reduced manual coordination of tasks

IBM Services

Help get the most for your business from the zEnterprise System

Assess and design an IT architecture to optimize for business advantage

- Develop a business case and high level transition plan
- Fit-for-purpose analysis
- Deliver a roadmap for an adaptable and efficient infrastructure that integrates IT and business strategy and priorities

Build and run a smarter system with services for zEnterprise

- Migrate effectively and efficiently to zEnterprise environment.
- Create a more cost-effective and manageable computing environment with server optimization, integration, and implementation services
- Enhance and simplify cross-platform high availability
- Effectively run and manage zEnterprise with maintenance and technical support services

The IBM zEnterprise System

*Now extending System z cost savings
and value to a new dimension*

- Designed to meet the need of today's heterogeneous data centers
- Enables a mixed set of workloads to be deployed on best fit technologies
- Delivers lower acquisition and operating costs than a "one size fits all" approach
- Reduces risk by extending the reach of System z Qualities of Service
- Improves service through tighter integration for multi-tier workloads





**Thank You
Questions?**