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zEnterprise Update and Positioning with PureSystems

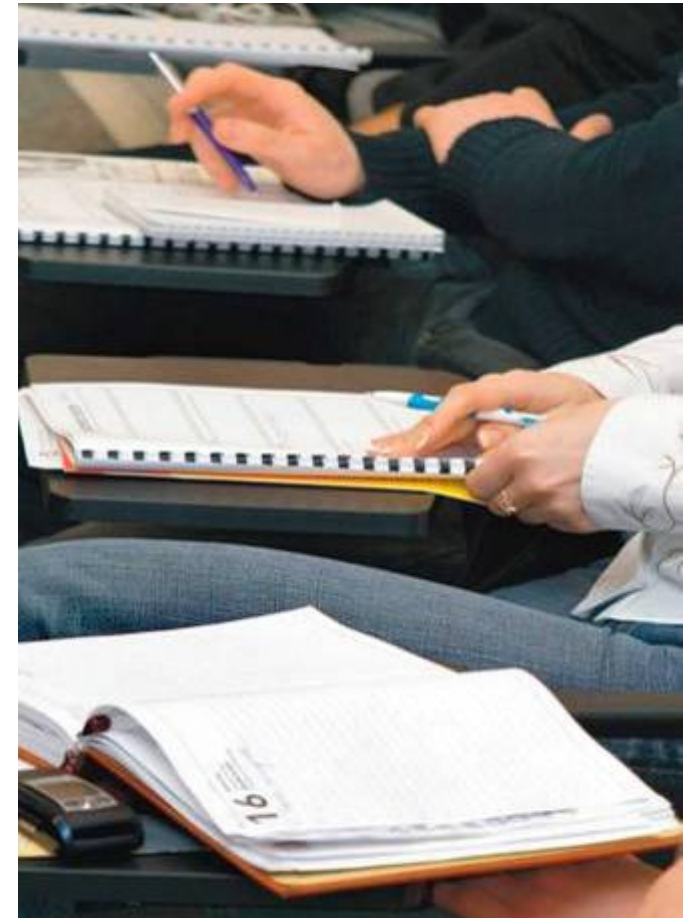
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IBM Corporation

August 7, 2012
Session Number 11797



Agenda

- **Hybrid computing for a Smarter Planet**
 - zEnterprise the System of Systems
 - zEnterprise use cases
- **Positioning zEnterprise and PureSystems**
- **zEnterprise and future directions**



zEnterprise and PureSystems offer new choices and flexibility for Hybrid computing.



- Hybrid computing is strategic across STG
 - zEnterprise announced July 2010
 - PureSystems announced April 2012
- zEnterprise and PureSystems are complementary offerings
- zEnterprise and PureSystems as hybrid models will continue to evolve
- ***zBX and zManager are alive and well!***



A “System of Systems” for Predictable Service Delivery

IBM zEnterprise 196 (z196) or IBM zEnterprise 114 (z114)

- Optimized to host transaction, and mission-critical applications
- The most efficient platform for large-scale Linux® consolidation
- Massive scale-up – 26 MIPS to over 50K MIPS

zEnterprise Unified Resource Manager

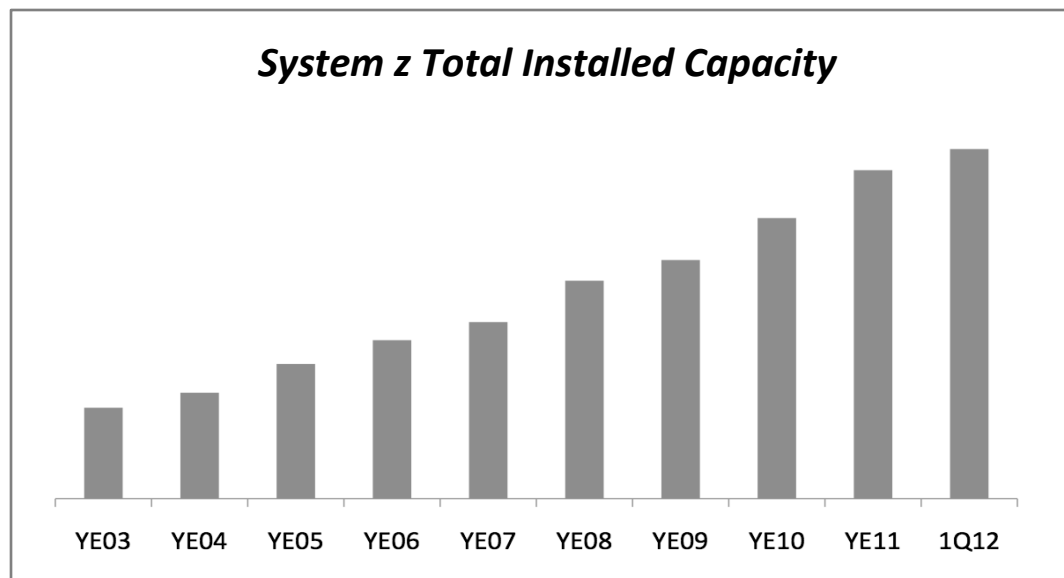
- Unifies management of resources, extending System z qualities of service end-to-end across workloads
- Provides platform, hardware and workload management

zEnterprise BladeCenter® Extension (zBX)

- Selected IBM POWER7® blades and IBM System x® blades for deploying applications in a multi-tier architecture
- High-performance optimizers and appliances to accelerate time to insight and reduce cost
- Dedicated high-performance private network



Clients continue to invest in the value of zEnterprise



150+
BladeCenter Extension units; **1100+** blades shipped [ITD]

140+
new accounts since 3Q10 zEnterprise launch [as of 2Q12]

1/3
new growth market accounts; **12%** new accounts ww in FSS

2/3
of Top 100 accounts have installed IFLs [as of 2Q12]

36%
System z clients have IFLs installed [as of 2Q12]

1/5
of total installed MIPS run Linux [as of 2Q12]

A portfolio aligned with typical use cases



- zEnterprise's portfolio delivers the value of hybrid computing to key use case

- **Business Application**



**zBX with Power
and x86 Blades
& Linux on z**

- **IT Consolidation**



**zBX with Power
and x86 Blades
& Linux on z**

- **Analytics & BI**



**IBM 9700, 9710
and IDAA**

- **Application Innovation**



**zBX with DataPower
XI50z**

- Engage the Systems Centers to support customer requests for benchmarks and proof-of-concepts.

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Client use cases for zBX

Business



Analytics and BI



IT consolidation



Application



Handelsbanken

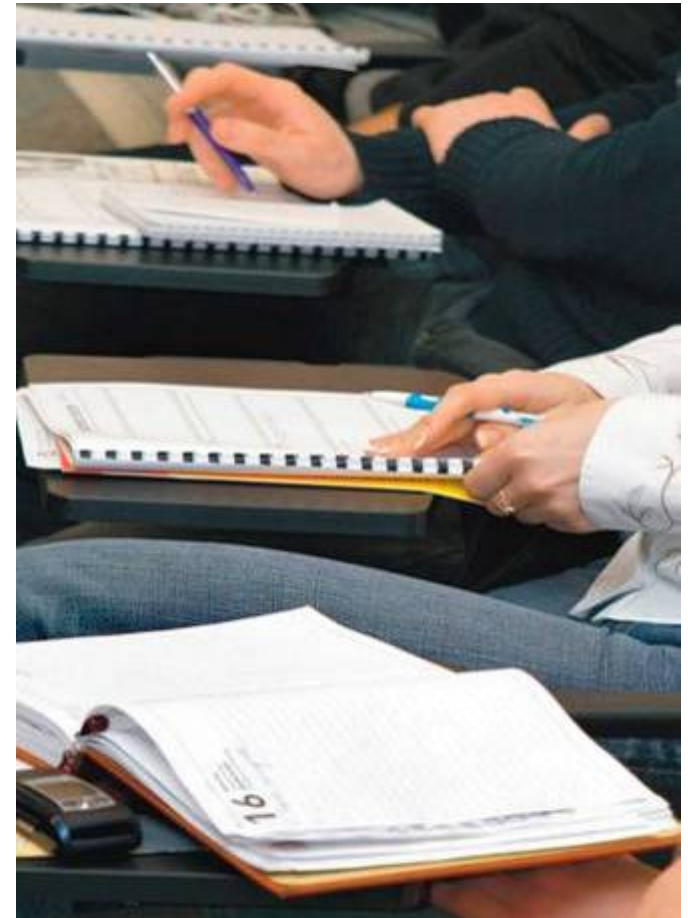


See appendix for hotlinks

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PureSystems: *A new family of expert integrated systems*

- Built-in expertise to address complex business and operational tasks automatically
- Integration by design to accelerate system setup and application management
- Simplified experience from purchase to maintenance

PureFlex System

- Pre-integrated and optimized infrastructure
- Management integration across compute, storage and networking – both physical and virtual
- No compromise design with system level upgradeability
- Designed for cloud with flexibility and simplicity



PureApplication System

- Optimized for performance and virtualized for efficiency
- Designed for transactional web applications and enabled for cloud
- Application-aware workload management



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PureFlex System and System z



System z



Shared

- Multi-architecture systems for AIX, Linux and Windows

- Advanced resource virtualization

- Centrally managed resources

PureFlex Systems



Customers who want...

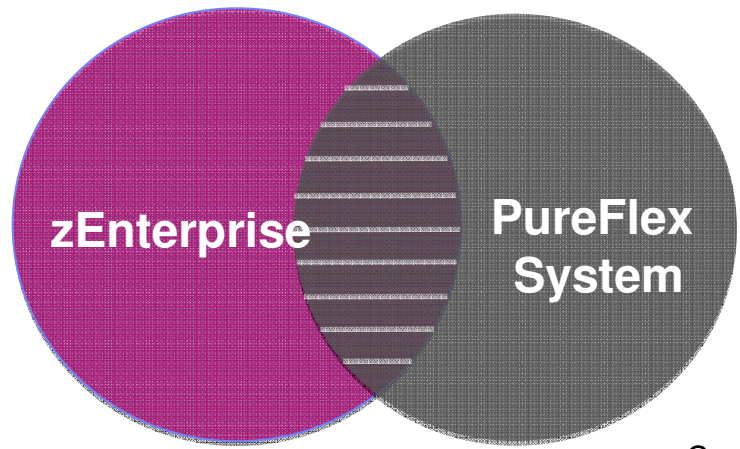
Customers who want...

Multi-platform virtualization and workload-aware resource management in support of zCentric workloads

An integrated infrastructure with compute, storage and networking

- Ability to leverage zGovernance model across a more tightly controlled and integrated set of resources
- Industry leading resiliency and security
- Ability to gain real-time insights from transactional data
- Lowest cost through large scale linux consolidations

- New cloud-ready environments
- Fastest out-of-box deployment of new infrastructure/solutions
- Simplified, integrated management across compute (Power and x), storage and networking



Scalability to support 1000s of users or high volume transactional environments or high intensity batch

Consolidation of Windows, Linux, AIX and IBM i workloads

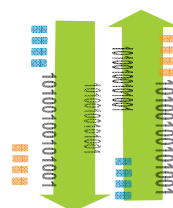


zEnterprise with zBX or... zEnterprise with PureSystems... or both *Additional flexibility with New Possibilities*



Hybrid computing with zEnterprise

- The industry's first heterogeneous cloud platform
- Extend IBM System z® governance to POWER7® and IBM System x blades
- Application integration with Microsoft Windows
- Greater opportunity for consolidation and simplification
- Consistent business controls across applications and platforms



10GbE connection



FlexSystems

Use existing 10 GbE to attach PureSystems to zEnterprise

- Supports additional blade choices
- Works with existing hypervisors (including HyperV and VMware)
- Supports Image mobility
- Integrated storage for distributed environments
- More connectivity options

Tivoli Enterprise Service Management

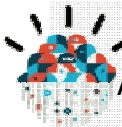



- Leverage Tivoli for Systems Integration

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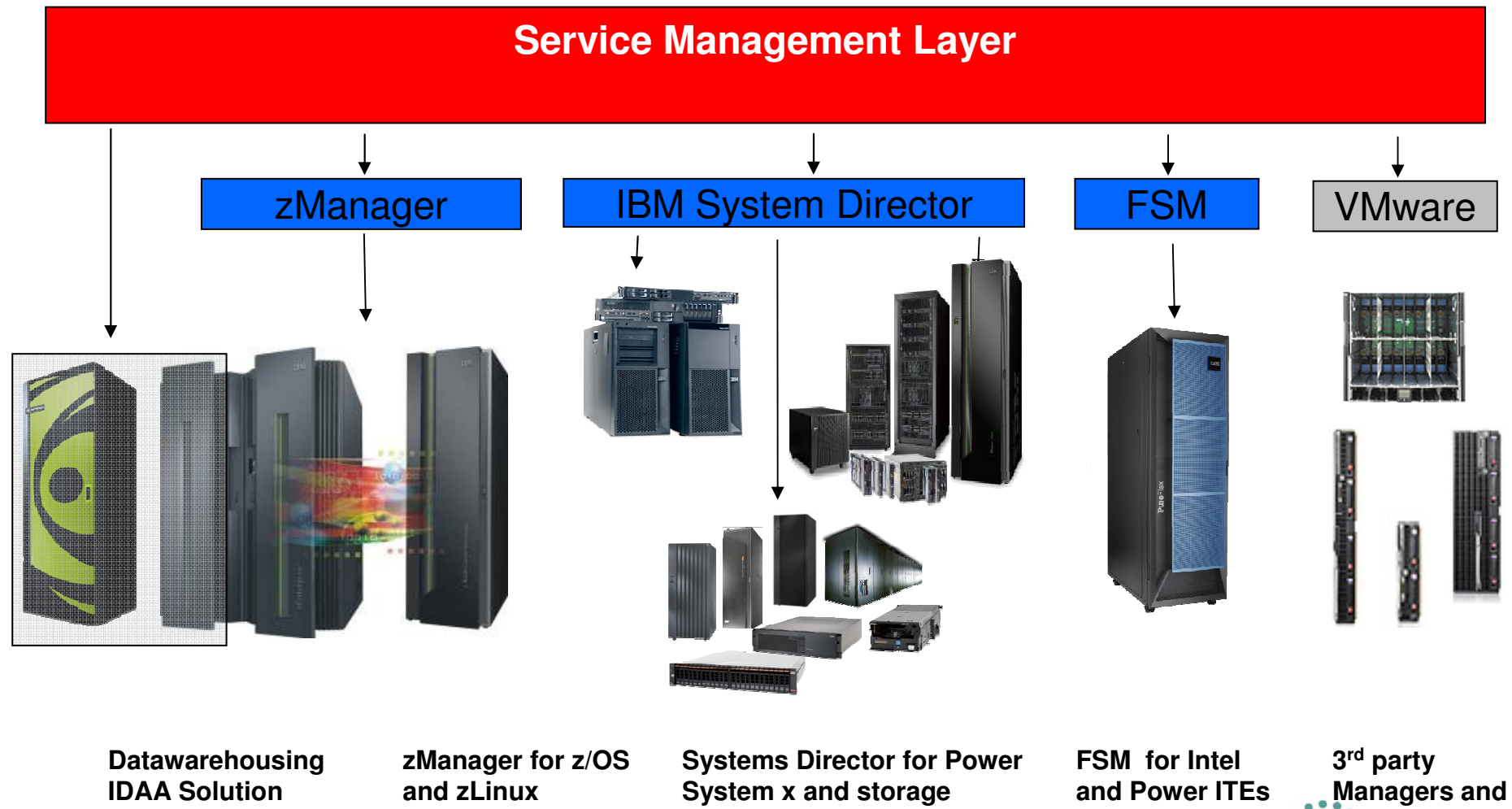
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System z for workloads.

	Client Need	System z provides:	Best fit with System z when...
 <p>Accelerate with Cloud</p>	<p>Reduce cost and improve service delivery</p>	<p>The ideal private enterprise cloud, bringing together the qualities of service of the enterprise data center with the flexibility of cloud computing</p>	<p>Client needs highest levels of utilization, multi-tenancy, fine-grained usage and accounting, workload automation and security.</p>
 <p>Consolidate</p>	<p>Reduce cost and complexity of existing IT operations</p>	<p>The ability to dramatically reduce operating costs through the large scale consolidation of multiple workloads.</p>	<p>The customer desires a Linux platform, savings from environmental and 3rd party SW licenses cost reductions to achieve the best total economics with a consolidation ratio of 6 to 1 or greater.</p>
 <p>SAP or Industry Business Applications (Innovate)</p>	<p>Deploy new business applications</p>	<p>A cost effective deployment platform with unmatched scale, availability, and security and enables integration of complex multi-module applications</p>	<p>Need to support 1000+ users or 1000's of transactions or high intensity batch processing Need the highest level / continuous application availability Manage multi-tier application across a single system</p>
 <p>Business Analytics (Optimize)</p>	<p>Deliver insight and create new business opportunities</p>	<p>A comprehensive portfolio of data serving, data warehousing and business intelligence solutions that can be integrated in a single system</p>	<p>50% of data being analyzed is on System z Need to analyze real-time operational data Need to centrally manage very large quantities of data</p>

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Today's Hybrid computing model with the introduction of PureSystems



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Tivoli's Integrated Service Management Portfolio: Unifying layer for enterprise-wide integration



VISIBILITY

- **Tivoli Performance Monitoring – OMEGAMON, ITM, ITCAM**
 - End-to End Application Performance Monitoring
 - zEnterprise Hybrid Application Management
- **Tivoli Financial & Asset Management, Usage & Accounting, Asset Discovery**
 - Common usage and accounting for business accounting
 - Asset and Change Management for physical and virtual resources



CONTROL

- **Enterprise Security Portfolio – TAM, Tivoli Security Policy Manager, zSecure**
 - End-to-End Enterprise Security support, including RACF
- **Tivoli Storage: TSM, TPC, Tivoli Advanced Storage portfolio**
 - Multi-site Storage management and disaster recovery
- **Smart Cloud Family – Provisioning, Orchestration, Monitoring**
 - Resource provisioning and management for Cloud on z



AUTOMATION

- **Tivoli System Automation: NetView, SA for z/OS, SA for Multiplatform and Application Manager**
 - High availability, GDPS and disaster recovery
- **Tivoli Workload Automation and Business Service Management – TWS, TBSM, Netcool/Omnibus**
 - Policy based dynamic/centralized management of Application Workloads
 - End-to End Workload Automation and Service Level Objectives

Service Management Layer

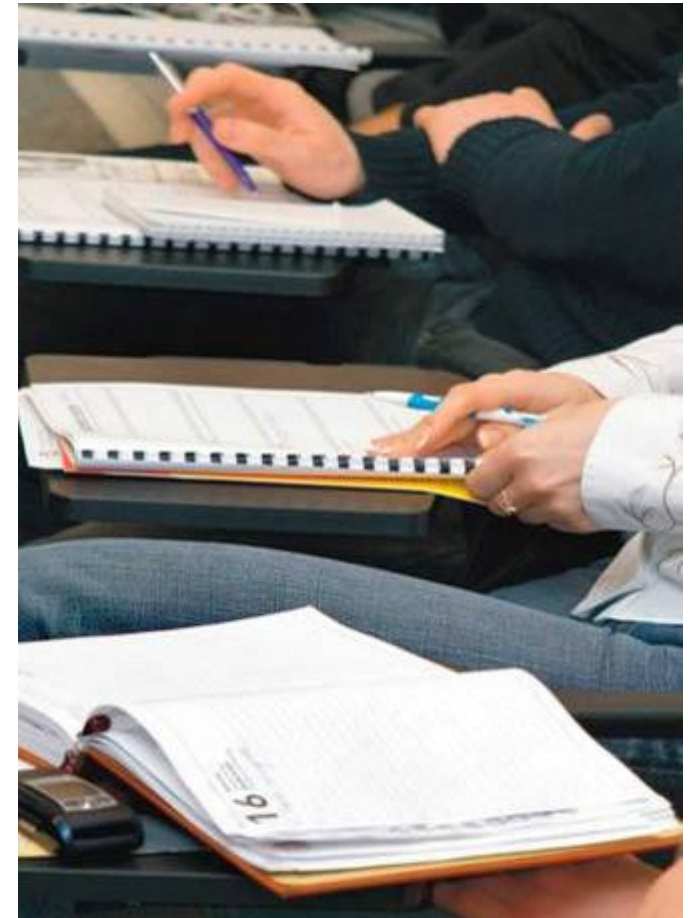


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Delivering to Smarter Computing with zEnterprise

Hybrid computing on System z keeps getting smarter

Vision:

- zEnterprise will continue to invest in improving the virtualization and management capabilities for hybrid computing environments
- zEnterprise will more tightly integrate with PureSystems over time
- zEnterprise and STG will continue to leverage the Tivoli portfolio to deliver enterprise wide management capabilities across all STG systems including PureSystems

Initial Focus

- Monitor and management of heterogeneous resources.
- Specialized complex query processing with industry leading performance in a true appliance with IDAA
- DataPower XI50z appliance can help simplify, govern, and enhance the security of XML, Web and IT services – providing fast and flexible application integration
- Support for AIX on POWER7 and Linux on System x.

Delivery of new hybrid function

- Support for Windows Server 2008
- Expanded external network communications from the zEnterprise
- Virtual storage management support
- Larger configurations of System x blades
- Extending management functions of Unified Resource Manager with APIs
- Enhanced Tivoli monitoring, discovery and availability/automation for zBX resources
- Image mgmt support for x86 and power blades through ISD
- Support for zBX on next generation server

Future Vision

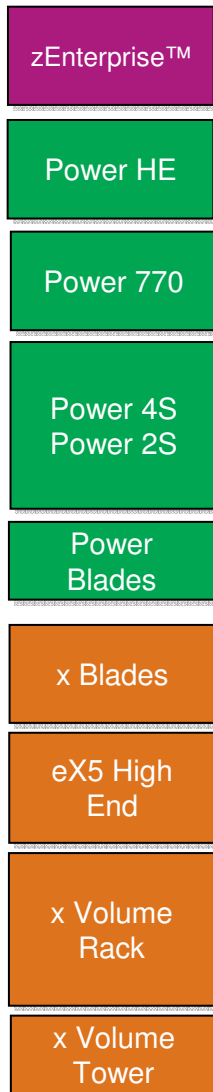
- CEC and zBX
Continued investment in improving the virtualization and management capabilities for hybrid computing environments
- Unified Resource Manager
Improvements and extensions
- Integration with STG Portfolio
zEnterprise and STG will continue to leverage the Tivoli portfolio to deliver enterprise wide management capabilities across all STG systems including PureSystems

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

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IBM systems overview



PureApplication System

- WebSphere and DB2

PureFlex System

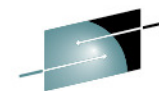
- Power 4s and 2s
- x86 4s and 2s
- Storage
- Networking

- **System z** remains the enterprise consolidation system with best economics for clients, delivering the best availability, security, scale and management required for enterprise critical work. zEnterprise with zBX is a proof point for hybrid universal management capabilities of IBM.
- **Enterprise Power (High End and 770)** continues to be the leading system for UNIX consolidation with 60% unit share; delivers leadership virtualization, performance, security and resiliency needed by most enterprise clients.
- **Power Express (4s and 2s)** provides highly customizable systems for traditional UNIX and IBM i applications in Midmarket or distributed enterprise clients.
- **Power Blades** will transition to PureFlex System Power Compute Nodes.
- **System x Blades** should be prioritized if the customer focuses on existing investment protection.
- **eX5 High End** should be prioritized for scale-up and maximum x86 memory requirements.
- **PureFlex System** provides unified management with enterprise storage and choice of compute nodes (Power and x86). Pureflex System can be connected to IBM general purpose systems and the environments managed through the Tivoli® suite.
- **PureApplication System** provides a pre-integrated, pre-optimized hardware and software stack with a single point of management . It should be the first choice to compete with Oracle Exalogic offering.

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Example Use cases and benefits

Use Case	Business Benefit	Reference Material
<p>Business Apps</p> <ul style="list-style-type: none"> •SAP for Utilities •Department of Defence - Canda •PeopleSoft Enterprise Application 	<ul style="list-style-type: none"> •Increased scalability •Simplified management of application components •Simplified management of end-to-end solution 	<p><u>SAP Utilities White Paper</u></p> <p><u>Department of Defence Assessment</u></p> <p><u>PeopleSoft White Paper</u></p>
<p>IT Consolidation</p> <ul style="list-style-type: none"> •Client scenario BG-Phoenics •Client scenario EUROCONTROL 	<ul style="list-style-type: none"> •Enabled secure database consolidation •Improve agility, support growth and cut IT expense •Simplified management of resources 	<p><u>BG Phoenics Case Study</u></p> <p><u>EUROCONTROL Press Release</u> ,</p> <p><u>EUROCONTROL Case Study</u></p>

Example Use cases and benefits

Use Case	Business Benefit	Reference Material
<p>Business Analytics</p> <ul style="list-style-type: none"> •Client scenario NLB •Client scenario Swiss RE 	<ul style="list-style-type: none"> ▪Improved query performance ▪Users able to access information more quickly ▪Increased flexibility ▪High ROI 	<p>NLB Press Release, Swiss Re Case Study, Swiss Re Video</p>
<p>Application Innovation</p> <ul style="list-style-type: none"> •Client scenario HIIS (ZZZS) •Client scenario Handelsbanken 	<ul style="list-style-type: none"> ▪Able to deploy services more quickly ▪XI50z deployment benefits from secure 10Gbps IEDN ▪XI50z blades managed by Unified Resource Manager 	<p>HIIS (ZZZS) Video 1, HIIS Video 2, HIIS Case Study</p>