



# How new mainframe hardware & software technologies help you deliver smarter systems

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## Our Agenda:

- ❑ Market Dynamics
- ❑ Key Customer focus areas on System z
- ❑ IBM System z Software Strategy



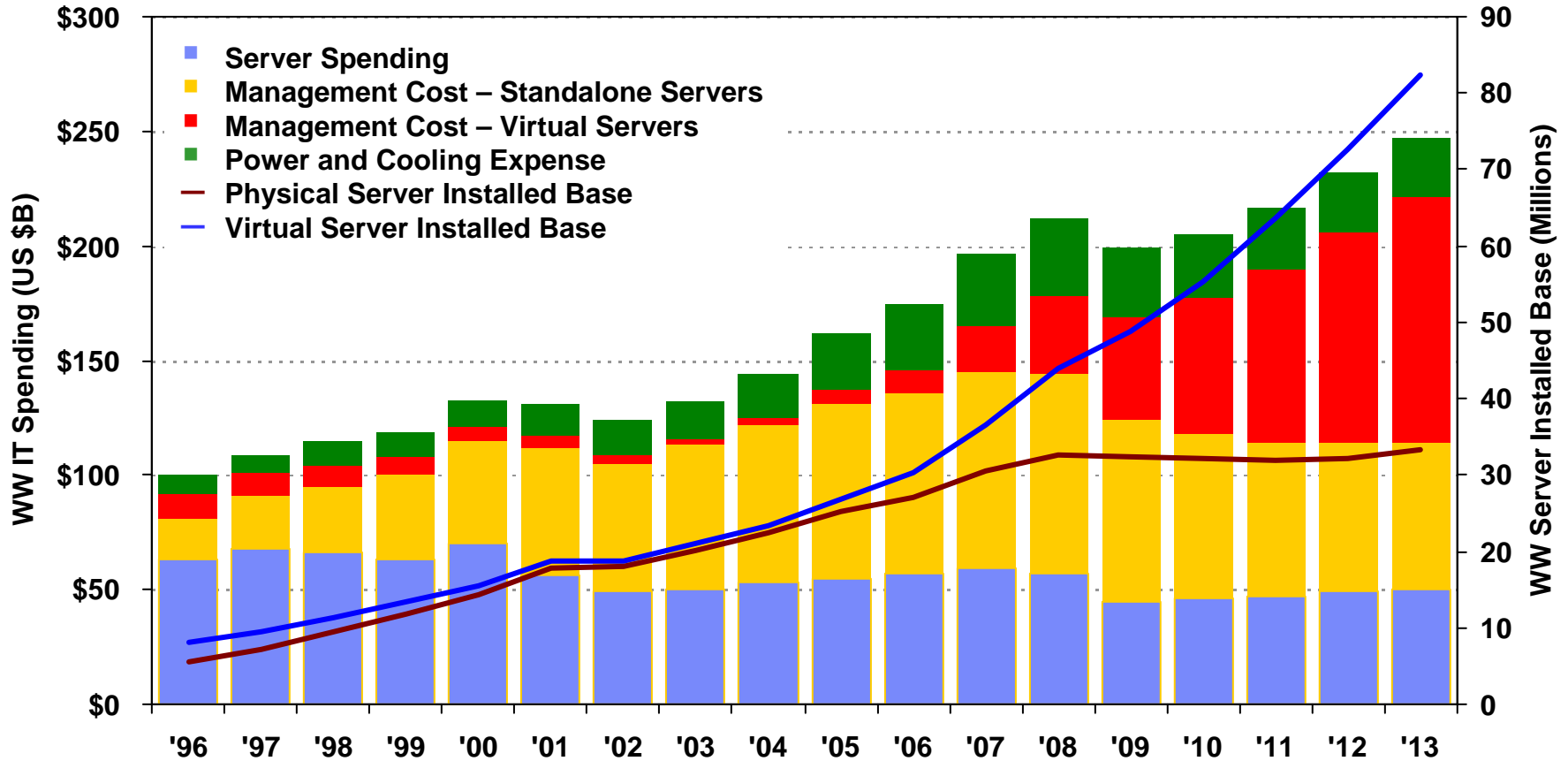
# Our Agenda:

- Market Dynamics



# New economic model for the datacenter

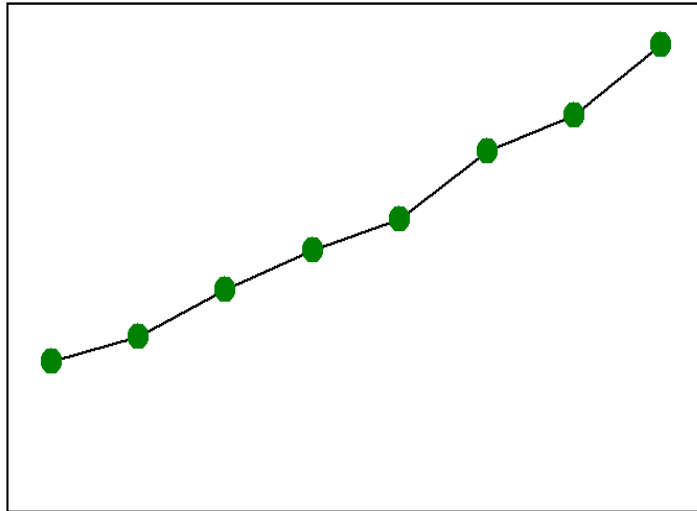
## Management costs shift to virtualized servers



Source: IDC – “Three Data Centers – One Vision?”, March 2010

# Marketplace momentum

System z Install Base



YE03-YE10

“ IBM handily claimed the server market share lead in the fourth quarter as the company rode its new mainframe and Power7 systems, according to Gartner.”

– ZDNet, 25 Feb. 2011

“ IBM has once again made a hit with the mainframe, as Big Blue's Systems and Technology Group saw revenues increase 21 percent overall and mainframe sales rise nearly 70 percent in Q4 of 2010.”

– eWeek, 25 Jan. 2011

percent year to year revenue growth in 4Q10 – the best growth in the last decade

69

58

percent MIPS growth in 4Q10 – the highest growth in a decade

## 2H 2010 activity

- **Nearly 500 zEnterprise Systems shipped all over the world**
  - Represents nearly 1.5M MIPS delivered to our customers
- **Delivered zBX to clients in 4Q**
- **300+ clients conducted Fit for Purpose workshops (free service from IBM)**

Swiss Re

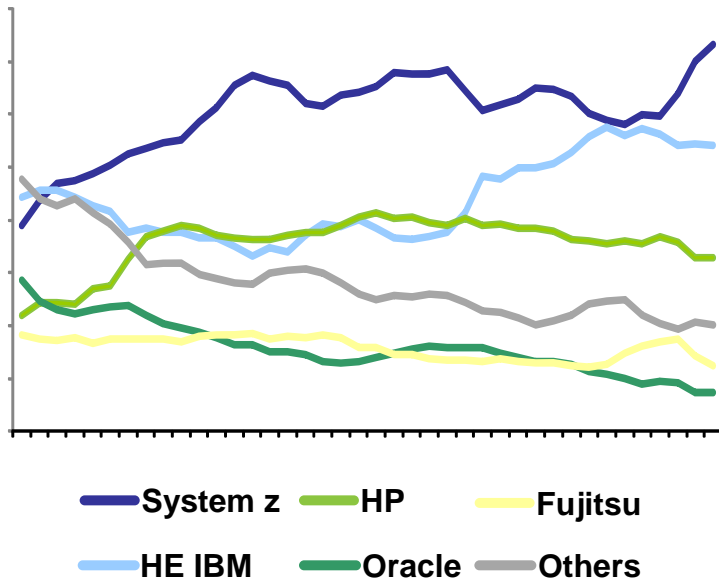


TIVIT



# IBM System z marketplace momentum

IDC: 1Q11 R4Q WW  
\$250K+ Server Share\*



System z market share:

**+7,7** pts y/y gain

Only Server in the market w/

**+6,6** pts R4Q share gain

Market confirming strong success of zEnterprise **also in Q2 2011**

*All driven by the new zEnterprise system*

**86** percent MIPS growth in 2Q11 – culminating in the best four-quarter period in the past five years

percent year to year revenue growth in 2Q11 – the strongest 2Q growth in the last decade **61**

# zEnterprise technology designed for small & medium businesses

## *The Value Begins At the Heart with the z114 ...*

*zEnt 114 (z114): Machine Type: 2818, 2 Models: M05 & M1*

- New technology in a new package
  - **Modular 2 drawer design for lower cost of entry**
  - **Granularity for right-sizing your system**
  - **Additional Scale for consolidation and growth**
  - **Improved data center efficiency**
  - **Same Qualities of Service as the z196**
  - **Hybrid enabled to drive workload expansion and integration**
  
- Improved Platform Economics
  - **New Software Curve**
  - **Lower Hardware Maintenance**
  - **Lower specialty engine and memory prices**
  - **Upgradeability for investment protection**

Up to **18%** Improvement for traditional z/OS workloads <sup>1</sup>

Up to an **ADDITIONAL 25%** Improvement in CPU intensive workloads via compiler enhancements<sup>2</sup>

Up to **12%** Total capacity improvement <sup>1</sup>

Scales From **26 - 3100 MIPS**

Up to **130** available capacity settings

From **1-10** configurable cores for client use includes CPs, IFL, zIIP, zAAP, and ICFs

From **0-2** IBM provided spare cores

Up to **256** GB RAIM fault tolerant memory

**Fully Upgradeable from the z10 BC & z9 BC; and to the z196 M15**



# Fit for Purpose workshops

- **300+ clients conducted Fit for Purpose workshops (free service from IBM)**
- **Public, Insurance, Banking, Utilities, Automotive, Retail...**
- **Customer interest on how to leverage Hybrid solutions for**
  - ❖ Online Services (Internet & Intranet)
  - ❖ SAP
  - ❖ Business Intelligence
  - ❖ Enterprise Service Bus
  - ❖ Cloud
  - ❖ Consolidations (zLinux, Oracle)

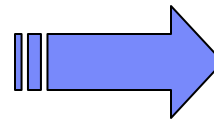
# Utility Company Using SAP

*The Current: z10 + p595 AIX for SAP Central Instance and Application Servers, with DB2 for z/OS database, 60K bills per hour*



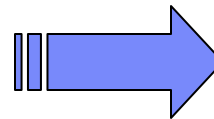
## Client Requirement

- *Achieve 200K bills per hour*



Provide up-to-date technology  
- z196+ p770

- ✓ Results: achieved **250K** bills per hour
- ✓ **300+%** improvement



Provide hybrid technology  
- z196+ zBX

- ✓ Results: achieved **430K** bills per hour
- ✓ **600+%** improvement

## Hybrid Computing Benefits:

- ✓ Over **600%** improvement in current configuration
- ✓ Hardware setup: implementation of zBX Power Blades in only **2 days**
- ✓ Very good linear **scalability** either on scale-up for DB2 on z, or scale out on pBlades on zBX
- ✓ **Low latency** due to the dedicated IEDN network

# New client on z in 2010

The background of the slide features several IBM BladeCenter Extremis server racks. The racks are light grey with a vertical slot for each blade. The IBM logo is visible on the top of the racks. The text is overlaid on a semi-transparent teal box and a white box.

**61 New Accounts  
in 2010**

- **40% growth markets**
- **60% major markets**
- **50% running Linux**
- **Majority installed Business Class technology**
- **Across all industries**

# Thriving System z ecosystem

*System z Linux:  
Fastest growing  
server platform*



- Installed **Linux MIPS growth of 42% CAGR (2004-2010)**
- Shipped IFL engine volumes increased 34% (4Q09 to 4Q10)
- **64 of the top 100 System z clients are running Linux on System z**
- 32% of System z clients have IFLs installed
- **Linux represents 19%** of the System z install base capacity

*Thousands of ISVs  
investing in  
System z platform*



## As of 2010:

- More than 7,000 applications are supported on z/OS and Linux on System z
- **3,250+ Linux applications** are supported on System z:
- 4,000+ applications are enabled on z/OS
- There were 1,200 new and upgraded applications on System z in 2010, with 120+ new ISV partners added to the platform.

*Worldwide adoption of  
mainframe curriculum*



## University adoption:

- **814 schools enrolled** globally, 50%+ outside of US
- Continued flow of schools adding curricula
- 32,941 students from 17 countries have participated in Master the Mainframe contests since 2005
- **SystemzJobs.com:** a new resource to connect System z clients, partners and businesses with students and professionals seeking System z job opportunities

## Our Agenda:

- Key Customer focus areas on System z



# Smarter Planet Solutions Increase Demands on IT

**1.2 zettabytes (1.2 trillion GB)** exist in the “digital universe”

- **50%** YTY growth
- **25%** of data is unique; **75%** is a copy

**32.6M** servers worldwide

- **85%** idle computer capacity
- **15%** of servers run 24/7 without being actively used on a daily basis

Data centers have **doubled** their energy use in the past five years

- **18%** increase in data center energy costs projected



Internet connected devices **growing 42% per year**



Between 2000 and 2010 ...

- servers grew **6x**
- storage grew **69x**

Virtual machines growing **42% per year**



**but IT budgets are growing less than 0.8% per year**

# Today's world is presenting new challenges for the IT infrastructure, requiring Smarter Computing

1 trillion things connected to the net

**68%** report that **integration challenges** impede collaborative relationships

**85%** of CEOs require more **visibility** into their businesses

**78%** of **CIOs** want to improve the way they use data

**79%** expect high or very high levels of complexity over the next 5 years



**45%** higher ROI for agile businesses that actively converge business and IT

Today's online business cycles are **3-7X** shorter



**70%** of budgets spent on maintenance

**445%** growth in Internet usage in past decade

# Resulting Sprawl Drives Unsustainable Costs

**Cost to Manage Growth  
of Inventory Consumes  
IT Budget**





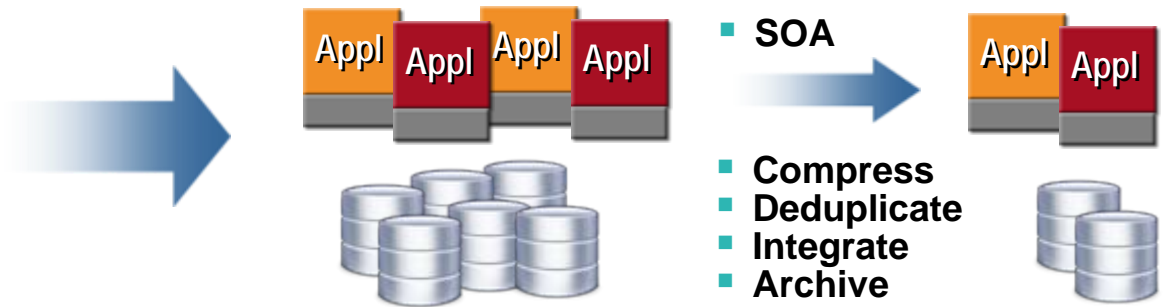
# Strategies to Reduce Costs and Improve Value

## Optimize the Overall IT Environment

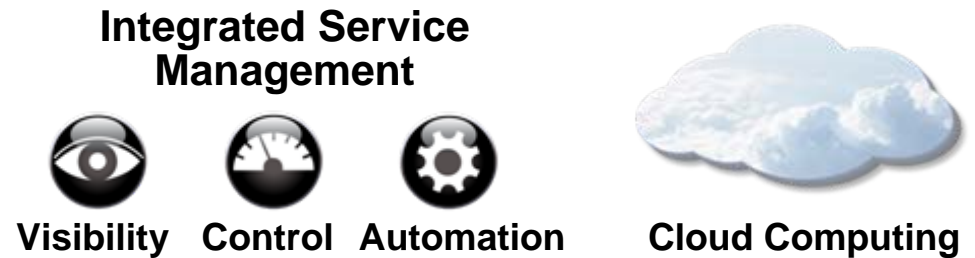
**Consolidate Hardware Infrastructure**



**Eliminate Redundant Software and Data**



**Improve Service Delivery**



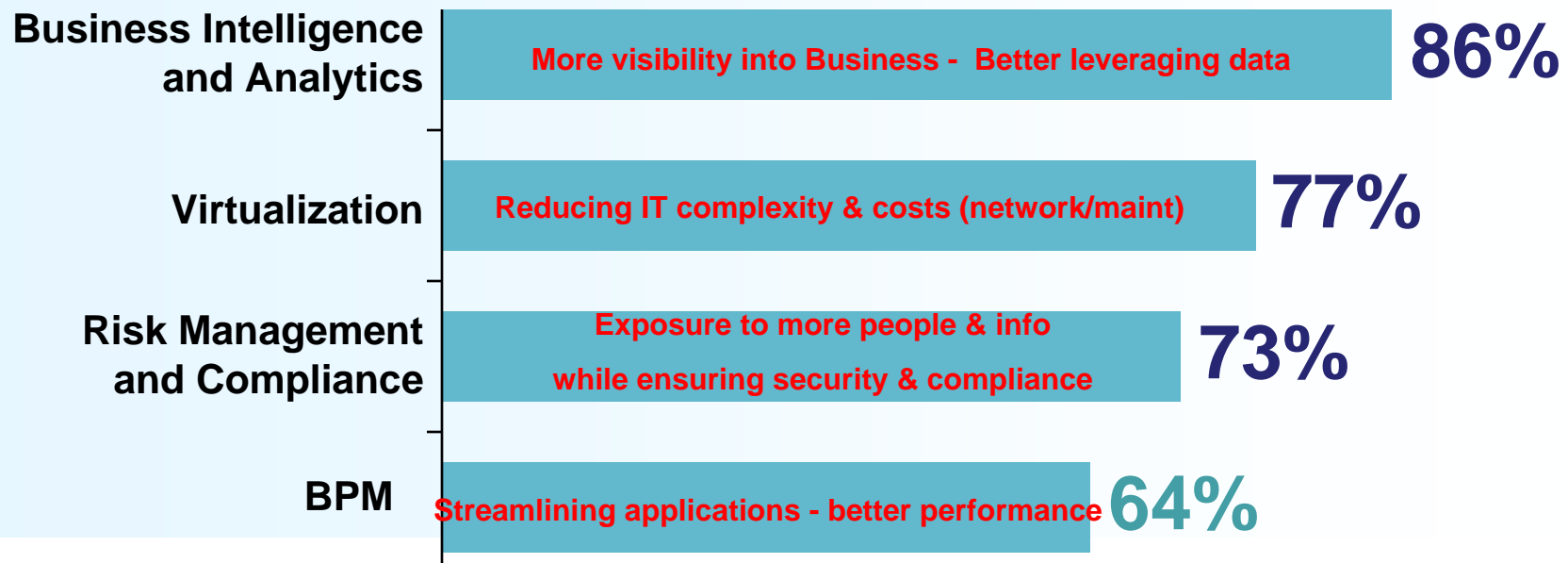
## CIOs have identified their most important initiatives to further reduce complexity



IBM CIO Study 2009: <http://www-935.ibm.com/services/us/cio/ciostudy/>

>2,500 CIOs from over 75 countries and 15 industries

## CIOs have identified their most important initiatives to further reduce complexity



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# The new workloads on System z match the top CIO priorities, accelerated by the capabilities of zEnterprise

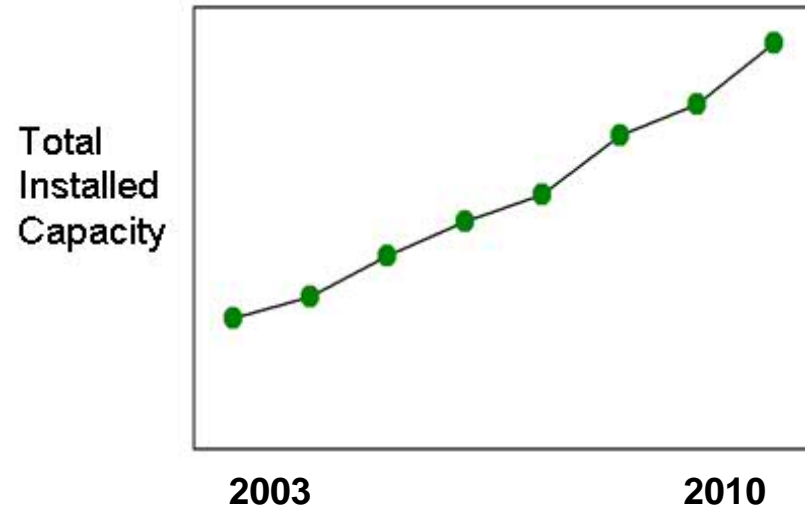
## Strategic workload

- ▶ Transaction Processing
- ▶ Virtualization
- ▶ Risk Management
- ▶ Business Intelligence and Analytics
- ▶ BPM
- ▶ Cloud computing

## Why zEnterprise?

- ▶ Qualities of Service
- ▶ Capacity
- ▶ Efficiency
- ▶ Flexibility
- ▶ Leverage existing System z assets

System z Install Base



## Our Agenda:

- Key Customer focus areas on System z
  - Customer implementation examples



# Virtualization on System z offers superior scalability and manageability

*Virtualization*

## Today's challenges

- ▶ Unable to share resources efficiently
- ▶ Simple workloads on single platforms can cause virtual server image proliferation
- ▶ Initiatives for hybrid applications are daunting

## Why zEnterprise

- ▶ z/OS offers multiple levels of virtualization on a single machine
- ▶ Linux on System z virtualization even stronger in hybrid computing environment
- ▶ Cost-effective to run Java and Linux-based applications on the same platform

## SOLUTIONS

**z/OS**

**Linux on System z**

**Integrated Service Management**

**WebSphere Application Server**

**WebSphere Virtual Enterprise**

The z IFLs in the ELS deliver up to 40 percent more capacity at a 50 percent lower price – a price-performance improvement of up to 65 percent.



# Turn information into insight for real-time decisions across the enterprise

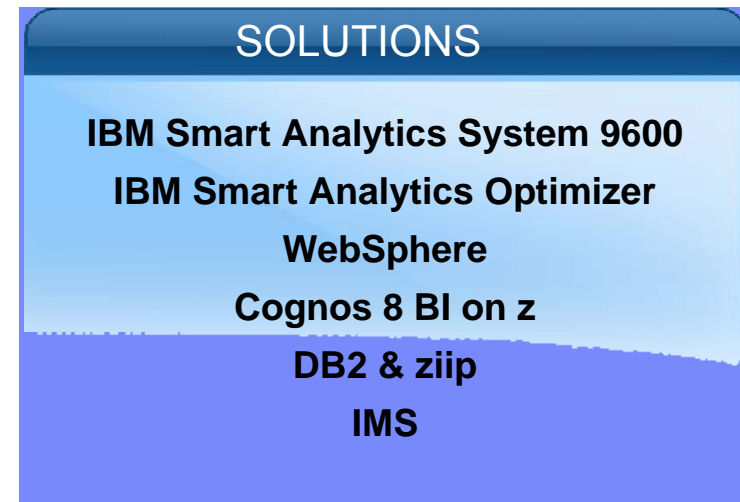
*Business  
Intelligence  
and Analytics*

## Today's challenges

- ▶ Can't integrate analytics with operational data
- ▶ Lack of infrastructure for real-time response
- ▶ Rising management and security costs

## Why zEnterprise

- ▶ Robust and highly available solution
- ▶ Data already resides on System z
- ▶ Faster output
- ▶ Less storage required with compression
- ▶ Automated processes and tasks



“Direct access to operational data as it happens, as the data is created, is really becoming vital. System z is a dream platform to deliver that “



# Business Process Management on System z enables agile processes for change

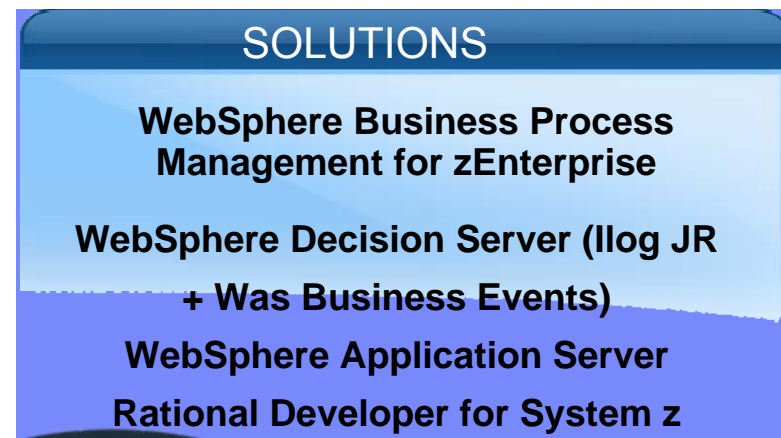
BPM

## Today's challenges

- ▶ Inflexible systems inhibit responsiveness
- ▶ Difficult to use existing business logic for new services
- ▶ Siloed resources prevent sharing

## Why zEnterprise?

- ▶ Allows multi-tier application integration
- ▶ Automatically prioritizes and routes work
- ▶ Monitors for critical business events and initiates actions
- ▶ Unmatched scalability and 85%-100% utilization



Citi turned to IBM to implement a new IT solution to automate and integrate data driven processes





## Our Agenda:

- ❑ IBM System z Software Strategy
  - ❑ System Z Software update
  - ❑ Helping customers w/ Smarter Computing
  - ❑ Growing the System z Ecosystem



# System z Software Strategy

- Capitalize on Traditional System z Strengths
  - Batch & Transaction processing, Data Serving, Highest Quality of Service
  - Optimize to the evolving System z Hardware design point
- Extend Value Proposition to New and Mixed Workloads
  - Systematic re-engineering of the software stack
  - Integrate with Modern Application Development Environments
  - Deliver extensive Data Management services
  - Leverage the wave of workload consolidation; zLinux
  - Simplify System z – make it easier to install and manage for better TCO
    - New faces of z
    - End-to-end management from a z central point of control
- Continue to grow the System z Ecosystem
  - Attract new System z customers and ISV application workloads
  - Enable new Hybrid and Cloud environments
  - Make System z relevant to the new IT generation



# z/OS and z/OS Management Facility R13\* ...

..... get more value from your workloads with improved performance, programming, and operations.

z/OS V1.13 plans enhancements designed to:

- **Shorten batch windows** using JCL improvements in JES2 environments.
- **Simplify application programming** with a new z/OS base component, z/OS Batch Runtime environment, designed to enable COBOL and Java to interoperate for DB2 with transactional integrity
- **Get early warning of certain system issues** before they become obvious to help you act quickly and decisively with updated z/OS Predictive Failure Analysis and Runtime Diagnostics functions.
- **Improve I/O performance** for z/OS UNIX workloads in a Parallel Sysplex using direct I/O with fully-shared zFS file systems, and improve zFS availability with a new zFS internal restart function.
- **Provide more options you can use to secure your data** with newer, faster, and more scalable encryption and security capabilities incorporated in IBM Tivoli Directory Server for z/OS (LDAP), RACF, z/OS System SSL, and z/OS PKI Services.
- **Improve system responsiveness** with less-disruptive DFSMSHsm journal and control data set (CDS) backups.

.... become more responsive and efficient with built-in expert guidance to reduce time to perform tasks

The z/OS Management Facility V1.13 is planned to offer enhancements that:

- **Clone z/OS images and deploy software** more easily and consistently, using a new z/OS Management Facility (z/OSMF) software deployment task.
- **Define new storage volumes to SMS** quickly and easily using a single UI, and a new z/OSMF disk management task.
- **More easily maintain highly secure network connections** with an updated z/OSMF-based Configuration Assistant for z/OS Communications Server.
- **Integrate the z/OS experience** with the ability to link and launch between z/OSMF applications and between z/OSMF and other browser-based applications.



# IBM Compilers exploit z for Maximum Performance

- Compilers exploit new hardware instructions introduced by z (microcode implementation)
- Code generated by the compilers is highly tuned for z
- Boost in performance of applications running on z



## z/OS XL C/C++

- standards compliant C/C++ compilers to support porting code
- METAL C compiler option to support low-level programming

## Enterprise COBOL for z/OS

- support for modernization of applications (XML support and Java support)
- integration with middleware such as CICS, DB2, and IMS

## Enterprise PL/I for z/OS

- facilitates repurposing of existing business processes into new business models
- Integration with IBM middleware (CICS, DB2, and IMS)

**Z10** introduced **34 new instructions** (17 Java related)

**zEnterprise** introduced 5 facilities and **73 new instructions** (16 java related). Both z/OS XL C/C++ V1R12 and Enterprise PL/I V3R10 do support and exploit them. In addition there are new built in functions in these compilers that are specific to zEnterprise.

From a high level perspective, the breakdown of the 73 are;

The high-word facility - 30 new instructions

The interlocked-access facility - 12 new instructions

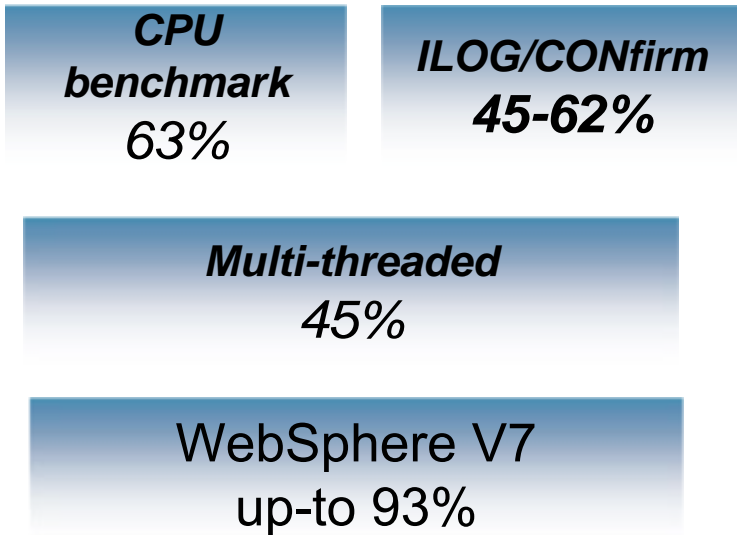
The load/store-on-condition facility - 6 new instructions

The distinct-operands facility - 24 new instructions

28 The population-count facility - 1 new instruction

# Java and WAS Performance with zEnterprise

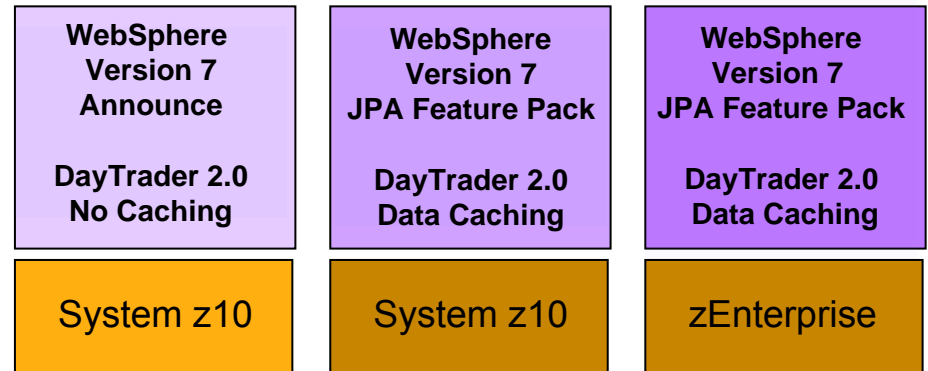
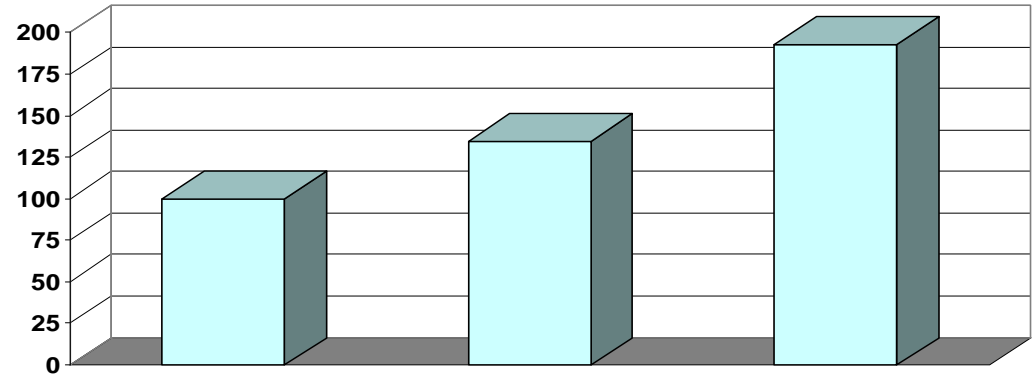
World class per-thread performance yields outstanding results:



Extensive hardware and software collaboration with deep platform exploitation:

- New out of order pipeline design
- 70+ instructions
- Java runtime environment general optimizations

System z10 Announce      Uplevel Software      zEnterprise Hardware

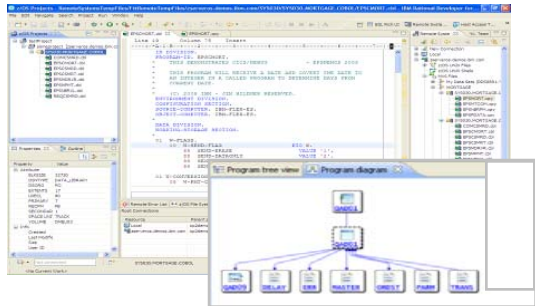


Then → Now

# Operational Advantage: Drive enterprise operations effectiveness & efficiency

**Rational Workbench support lifecycle of application development & maintenance for zEnterprise applications**

- on **z/OS, Linux for System z, AIX, and x86 Linux**
- using a combination of tools
- running on a variety of platforms to best suit the client's requirements



## Rational Developer for System z and Power Systems

- IDE for COBOL, PL/I, HLASM, C/C++, Java and JCL
- Increase productivity
- Reduce MIPS

## Rational Asset Analyzer

- Dramatically improve productivity
- Better manage quality

## New z/OS XL C/C++

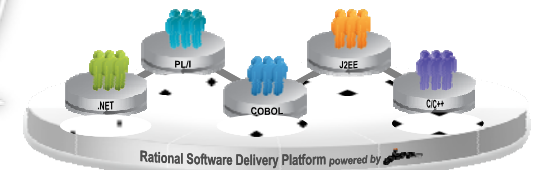
## New Enterprise PL/I for z/OS

- Maximize application performance with new zEnt microcode support
- Reduce cost by exploiting zAAP engine for XML processing



## Rational Developer for System z Unit Test

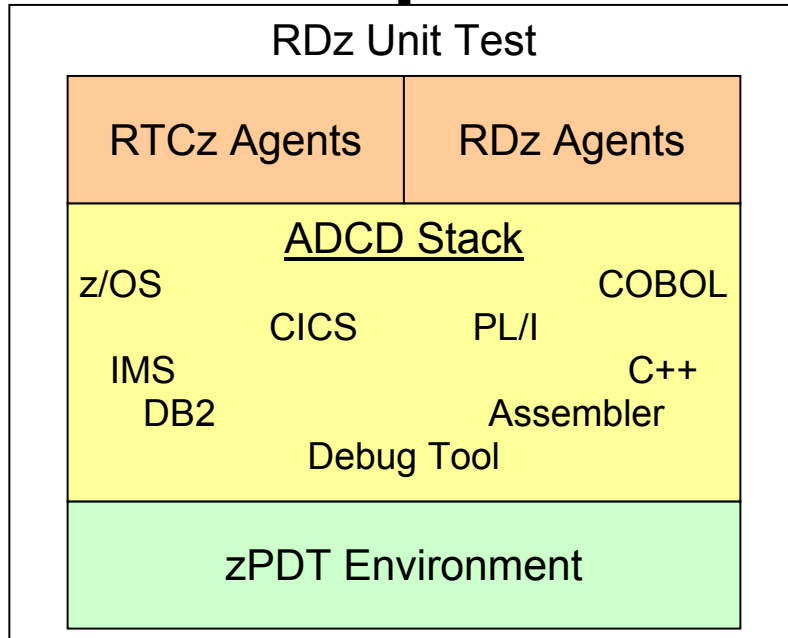
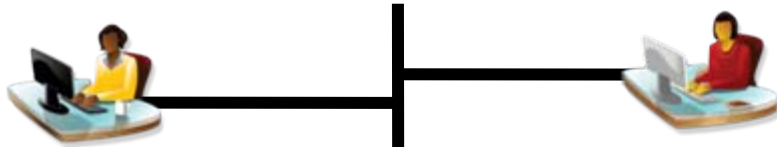
- Rapidly prototype z/OS apps
- High fidelity Unit Test
- Unit test without consuming valuable production MIPS



## Rational Team Concert for System z

- Common repository across multiple platforms & languages
- Different processes by developer type
- Integrated or loosely federated processes across all development groups

# RDz Unit Test Offering Description








- RDz Unit Test package
  - zPDT environment + USB Key
  - ADCD Stack
    - actual Middleware S/W (incl. z/OS)
    - actual Compilers
  - RDz and RTCz Agents
  
- zPDT provides System z operating environment, on a x86 PC running Linux
  - great flexibility to run a customized environment
  
- ADCD stack provides true IBM middleware test environments
  - no API simulation like or competitors provide
  - lowers development expenses by reusing existing S/W deliverables
  
- RDz and RTCz agents
  - packaged for simplification
  - still need RTC CAL to activate



# DB2 10

## Customers seeing reduced costs, simplified workloads through proven technology



Reduced Costs	Simplified Workloads	Proven Technology
<p>“Based on the performance metrics from our controlled test environment, we see a significant amount of CPU and Elapsed time savings. This release has many features that will help bring down our operating costs.”</p>  <p>Morgan Stanley DB2 Team</p>	<p>“With DB2 10 able to handle 5-10 times as many threads as the previous version, the upgrade will immediately give the bank some much-needed room for future workload growth while simultaneously reducing their data sharing overhead.”</p>  <p>Paulo Sahadi - Senior Production Manager, Information Management Division at Banco do Brasil</p>	<p>“Every single SQL statement we have tested has been better or the same as our current optimal paths – we have yet to see any significant access path regression. We had to spend a lot of time tuning SQL with DB2 9, but we expect that to disappear when we upgrade to DB2 10.”</p>  <p>Philipp Nowak, BMW DB2 Product Manager</p>
<p>“The new temporal functionality in DB210 for z/OS will allow us to drastically simplify our date-related queries. In addition, we’ll be able to reduce our storage costs by using cheaper storage for inactive rows and reduce our processing cost by having DB2 handle data movement more efficiently than the custom code we’ve written to do the same work in the past”</p> <p>Large Insurance Company - DB2 10 Beta Customer</p>	<p>The biggest improvement for us was the enhancement regarding SAVE DATA support. We force customers to run their CPU-intensive queries in batch and in prior releases they failed after running for hours just because the table already existed and there were minor differences in the column definition”.</p> <p>Walter Janissen- ITERGO Informationstechnologie GmbH</p> 	<p>The new audit capabilities in DB2 10 will allow tables to be audited as soon as they are created, which is an obvious benefit for the business and will reduce costs and simplify our processes”</p> <p>Guenther Schinkel -Postbank Systems AG</p> 

For more customer references visit

<http://www-01.ibm.com/software/data/db2/zos/testimonials.html>



## DB2 XI Focus Areas

- Continuous availability
- Performance and scalability
- Ease of management, autonomies
- SQL new function for better application performance, simplified application logic, and improved analytics
- Fast and easy migration planning and execution
- No application or DBA changes required to get DB2 XI benefits

# Announcing IMS 12!

- Early customer delivery (ann.QPP Dec10, 2010)
- IMS 12 will offer:

## Reduced Costs!

- Up to **10%** out of the box MIPS savings
- Up to **30%** savings on network support

## Improved Productivity!

- Up to **50%** faster deployment of IMS resource definitions and changes using the **IMS Explorer**
- Ability to create PLI code from WSDL for rapid application development

## Improved Performance!

Database logging up to **2x** faster

## Growth Enablement!

Additional storage constraint relief and dynamic change capabilities



# IMS 12 for Early Customer Deliver (announced Dec 10, 2010)

## Database Management

### Full Function Database

- Extended Address Volume Support for non-VSAM
- FF Dynamic DB Buffers
- FF DB Storage Enhancement
- Additional FF Enhancements

### Fast Path Database

- FP Buffer Manager 64 bit Enhancements
- FP DEDB Secondary Index Enablement
- Additional FP Enhancements

### DBRC

- DBRC Enhancements
- Migration/Coexistence

## Systems Management

- IMS Repository and Usage for DRD Resources
- IMPORT Command Enhancement
- Logger Enhancements
- Syntax Checker Enhancements

## Transaction Management and Connectivity

- IMS to IMS TCP/IP Communications
- MSC TCP/IP Support
- OTMA TCP/IP Support
- IMS Connect Type-2 Commands Support
- Additional Connect Enhancements
- OTMA Security Enhancements
- APPC/OTMA Sync SQ
- Enhanced CQS Traceability

## Other growing area of interest for IMS

- **IMS and Cognos** for improved reporting and operational BI
- **IMS and Cognos** Now for operational business process monitoring
- **IMS and Mashup Center** for easier and faster access to IMS assets
- **IMS and ILOG** for application modernization and agility
- **IMS and RAA** for easier business rules mining
- **IMS, RDz and RAD** for faster and easier application development and modernization

# Why IBM DB2 for z/OS and IMS Tools?



**Performance & TCO**

**Data Access & Availability**

**Automation & Standardization**

**Continuity & Resiliency**

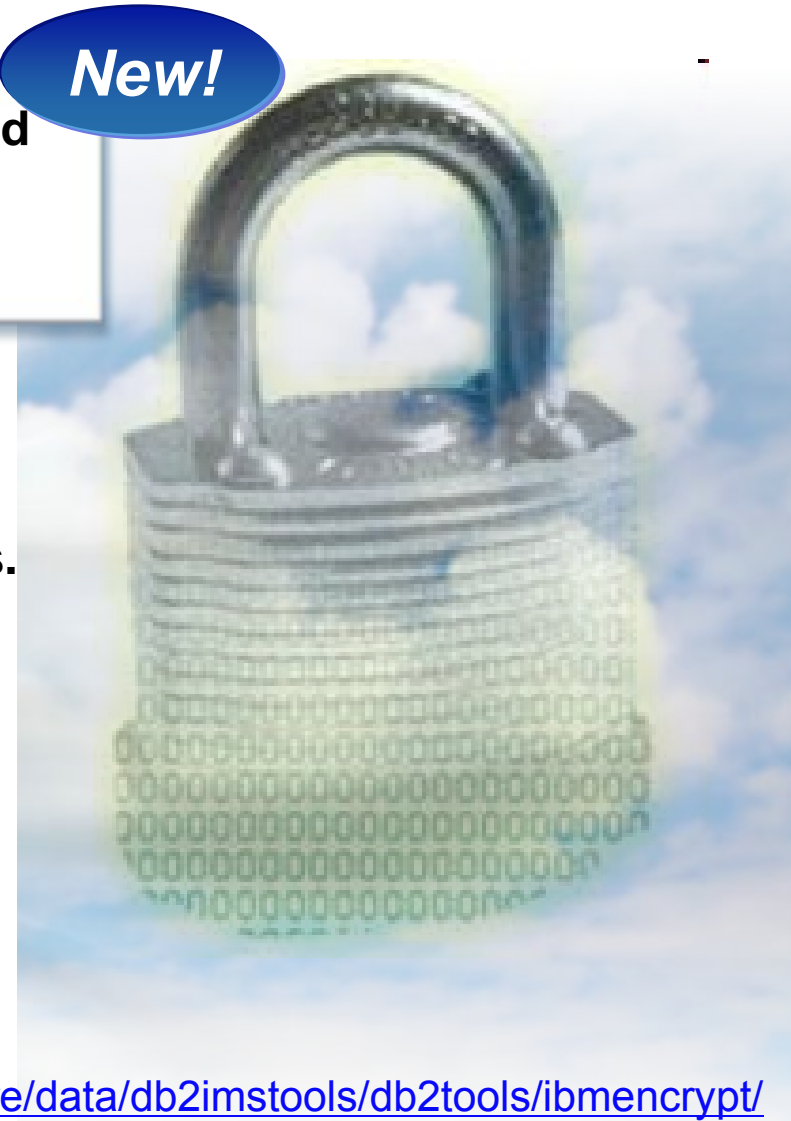
- **Performance & TCO**
  - Reduce high third party software costs
  - Reducing CPU and elapsed time to achieve lowest TCO
  - Meeting or exceeding SLA's and/or chargeback
- **Data Access & Availability**
  - Fast retrieval of information
  - Reducing the amount of down time or minimizing batch window for maintenance
- **Automation & Standardization**
  - Reducing repeated tasks, manual effort and error
  - Ensuring consistency at company level
- **Continuity & Resiliency**
  - Ensuring data integrity
  - Ensuring Day-1 support of new versions of DB2 for z/OS and IMS

## Superior Data Encryption with IBM InfoSphere Guardium Data Encryption for DB2 and IMS Databases

**New!**

**Protect sensitive and private data** for DB2 and IMS with data encryption for both IBM DB2 Database for z/OS and IBM IMS databases

- Offers **data privacy** by encrypting and decrypting data
- **Single tool** for both DB2 and IMS databases.
- Leverages the power of storage area networks (SANs) more safely while **complying with privacy and security regulations** that are in place or that are being enacted worldwide.
- Requires **no changes to applications** and supports all DB2 and IMS databases



<http://www-01.ibm.com/software/data/db2imstools/db2tools/ibmencrypt/>

# CICS TS V4.2

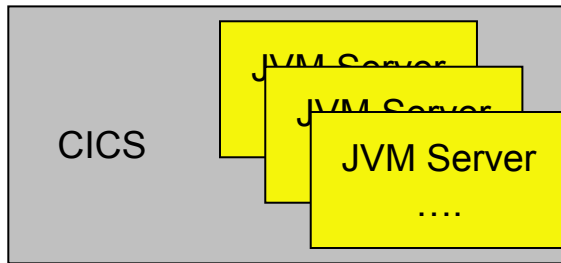
**Improved visibility via business event enhancements** – **New system** health and availability **events**, new event inclusion within a unit-of-work and improved management of event and application code

CICS Events



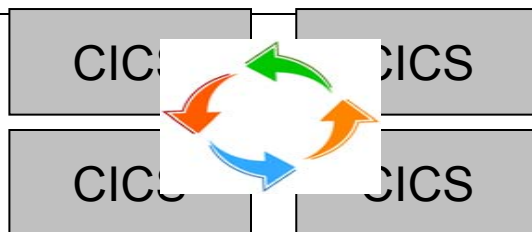
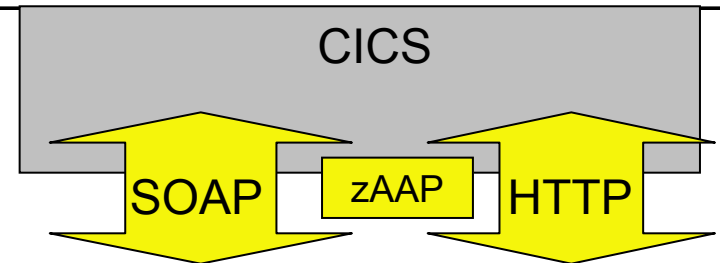
Apps, Resources, Systems

Decision Engine



**Transaction volume and performance improvements** via improved support for Java – **New JVM** multi-threading, New 64 bit support, enhanced web services for Java applications

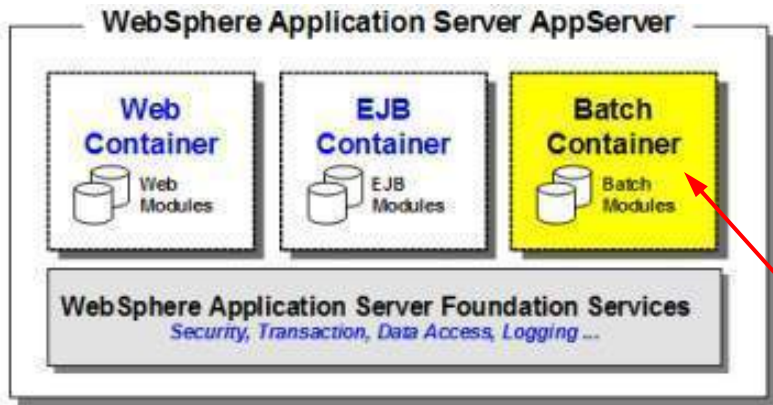
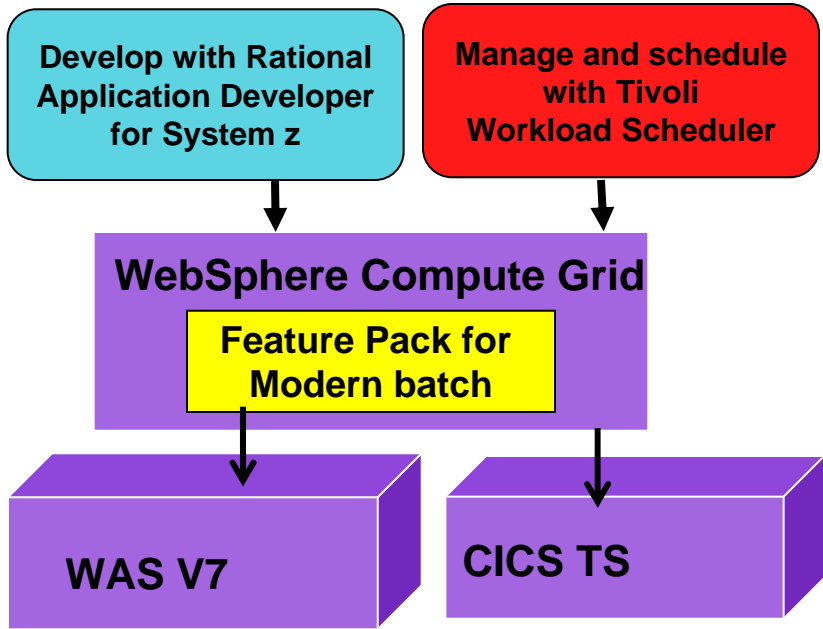
**Better connectivity with improved web services support** (SOAP and HTTP) – **New web services internal processing** consistent with WAS, portions of processing **now zAAP eligible**, and improved HTTP connection management



**Improved management of transactions and workload within a CICSplex** – New transaction tracking, new workload balancing capabilities, storage constraint relief, VSAM performance improvements, more multi-threading and improved password security

# Modernize batch applications for workload optimization

**New!**



- Enterprise scheduling of web services with new executors by leveraging *Tivoli Workload Scheduler (TWS) 8.5.1.1 and TWSz 8.5.1 SPE*
- Modernize CICS with new ability to schedule and manage Java job steps with *CICS TS SupportPac CN11 for WebSphere Compute Grid*
- Simplify file conversion for faster processing with **WebSphere MQ File Transfer Edition**
- Easy to use offering tools and operational controls for **Batch workload execution supporting a Java Batch programming model with** *WebSphere Application Server V7 Feature Pack for Modern Batch*
- Extends business flexibility, simplification, and growth of mission-critical applications and data with *IMS 12 Beta*
- Easy development of new batch applications using enhanced creation wizards and zJCL editing with *Rational Developer for System z v8.0*

**Common batch container & programming model across our WebSphere and CICS runtime**



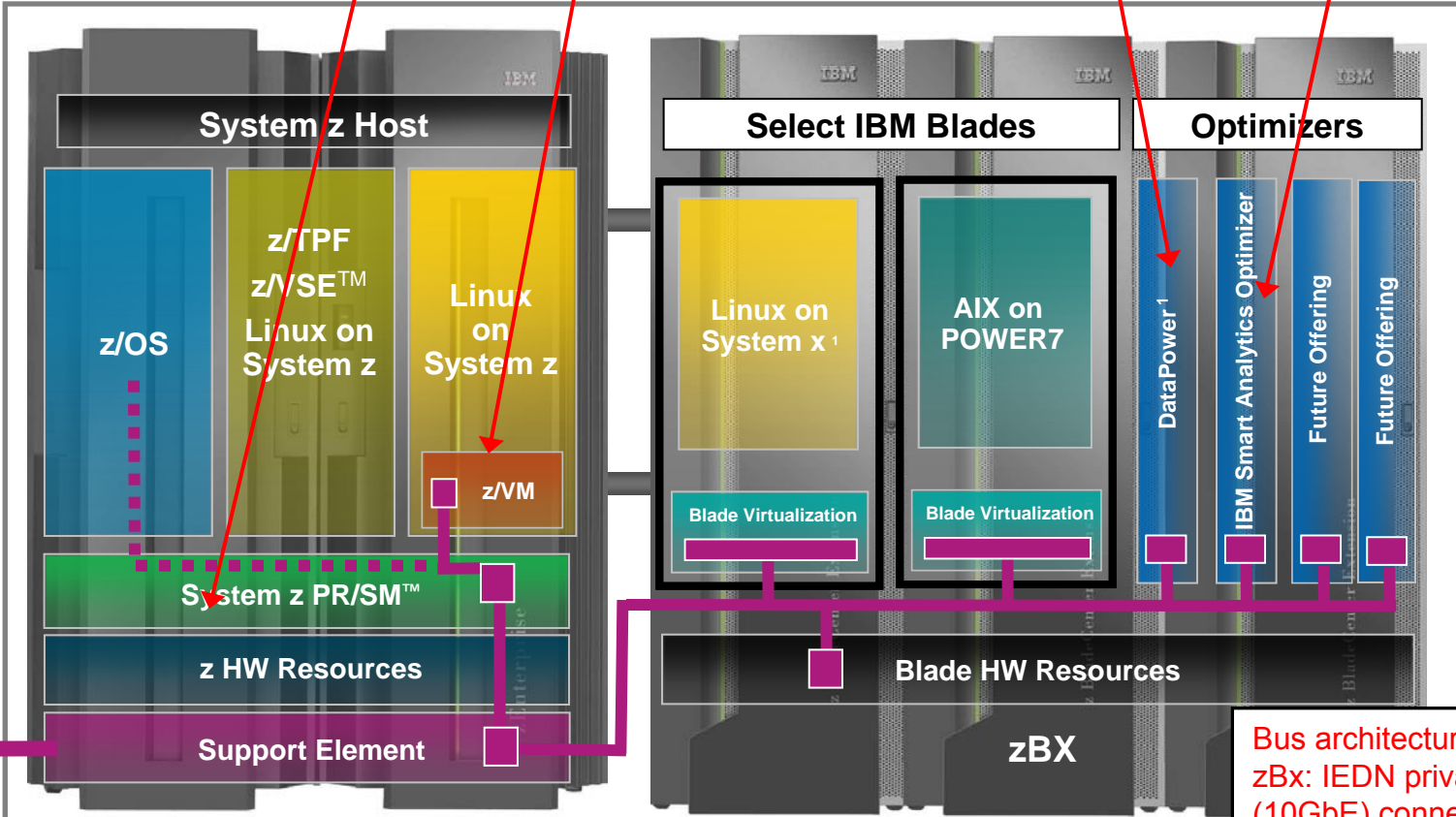
# Why z196 or z114 and zBx?

EAL 5, z/VM EAL 4+

Most cost effective ESB

Accelerates DB2 performance for Complex Queries

System z Hardware Management Console (HMC) with Unified Resource Manager



takes care of network virtualization management including provisioning of IEDN

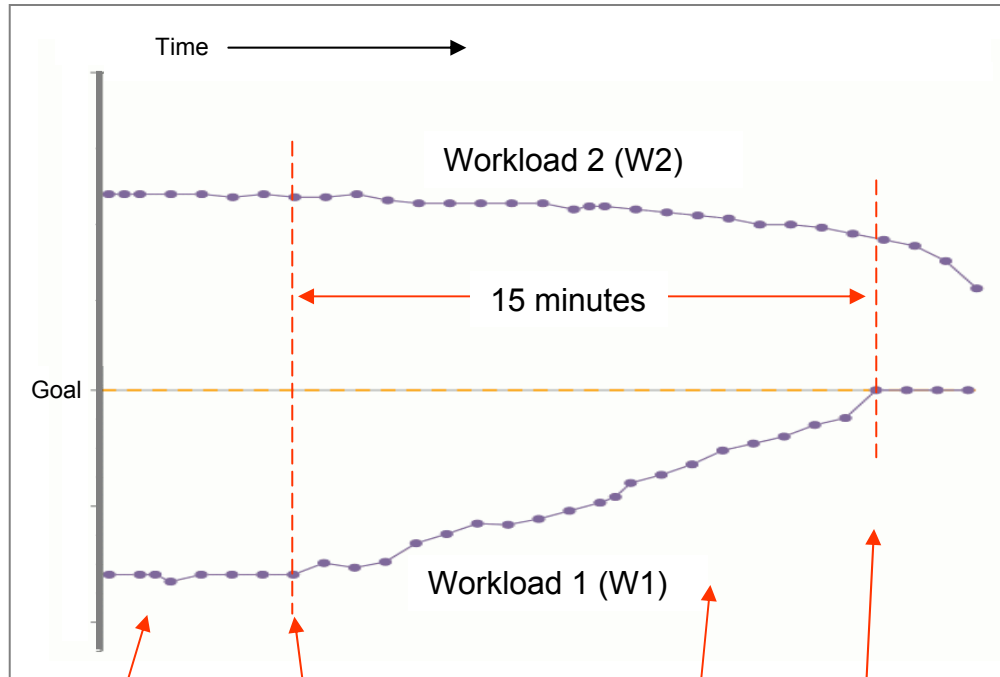
Bus architecture to connect zBx: IEDN private, high speed (10GbE) connectivity designed to ensure the safety, security and isolation of network traffic into and out of applications running within this environment.

zManager (URM) Private Management Network INMN Private High Speed Data Network IEDN

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

# Performance Manager Lab Test

## Automatic Allocation Of CPU Resource



1. No performance management. W1 is underperforming, and W2 is over-performing.

2. Performance Manager is turned on. zManager detects W1 is underperforming.

3. Over time, zManager adjusts CPU resources, taking from W2 and giving to W1.

4. W1 reaches performance goal.

- **zManager monitors virtual machine performance and automatically adjusts CPU resources as needed**
- **Considers priority and performance relative to service level agreement goals**
- **Reduces the need to over-provision CPU resources**

# IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise

Very cost effective ESB

*Simplify, govern, and enhance the security of XML and IT services by providing connectivity, gateway functions, data transformation, protocol bridging, and intelligent load distribution.*

## Benefits of zBx:

- **Improved support:** Monitoring of hardware with “call home” for current/expected problems and support by System z Service Support Representative.
- **Security:** VLAN support provides enforced isolation of network traffic with secure private networks. And integration with RACF® security.
- **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 a single console. Time coordination with System z. Consistent change management with Unified Resource Manager.



**New!**

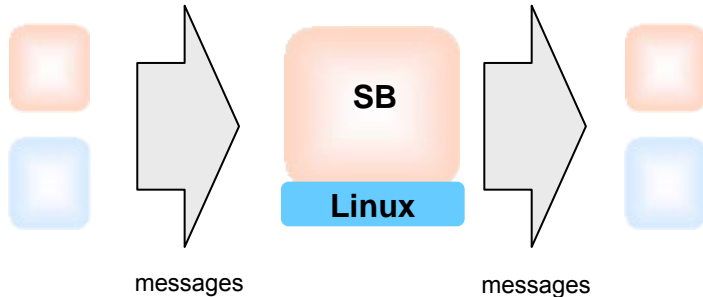
# DataPower XI50z – Built For Purpose Appliance

*Enterprise Service Bus benchmark comparison*



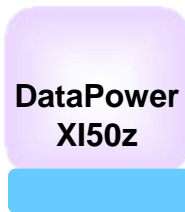
Microsoft BizTalk Server  
Windows on Intel Server  
4 sockets, 32 cores  
128 GB

492 messages per sec  
**\$764 per mps**



Competitive Service Bus  
Linux on HP DL380  
2 sockets, 12 cores  
128 GB

5,839 messages per sec  
**\$120 per mps**



**DataPower**  
XI50z in zBX  
HS 22, 8 cores

5,117 messages per sec  
**\$33 per mps**

Tests consists of measuring maximum throughput of ESB while performing a variety of message mediation workloads: pass-through, routing, transformation, and schema validation



# Connect and Collaborate

*Enable the most valuable corporate asset – people - to be as productive and responsive as possible*

*Transform the way organizations define and deliver value through project portfolio management and performance management*

## WebSphere Portal

- Delivers a personalized, single access point to Web content and applications for your users.

## Lotus Notes and Domino

- Easy-to-use e-mail, calendaring, and collaborative business applications for your users.

## **NEW!** Lotus Quickr 8.5 for WebSphere Portal

- Flexible, scalable, security-rich environment for online content sharing and collaboration



## Lotus Connections

- Brings social computing and knowledge sharing through blogs, communities, profiles, activities and shared bookmarks.

**2.5x cost savings for consolidated collaboration environments**

## **NEW!** Lotus Sametime

- Easy for people to find, reach and collaborate effectively with others

*Entire social networking portfolio available on Linux on zEnterprise allows for consolidations on z!*

# IBM zEnterprise Provides a New Dimension in Cloud Computing

The world's fastest and most scalable system:  
**IBM zEnterprise™ 196 (z196)**  
**New! zEnterprise 114 (z114)**

Unified management for a smarter system:  
**IBM zEnterprise Unified Resource Manager (zManager)**

Scale out to a trillion instructions per second:  
**IBM zEnterprise BladeCenter® Extension (zBX)**

**Broad Network Access**  
 Very large number of end user access from multiple sources including mobile devices

**Rapid Elasticity**  
 A new dimension of Scale. Most efficient platform for Large-scale Linux consolidation



**Resource Pooling**  
 1000s of virtualized systems across a heterogeneous resource pool

**Measured Service**  
 Meter, monitor, and track workloads for chargebacks and capacity expectations

**On Demand Self-Service**  
 Automate provisioning and service requests reducing provisioning cycles from weeks to minutes

# Integrated Service Management on IBM zEnterprise provides automated services to various user groups while equipping IT with visibility and control over these services



*One* integrated service management engine to manage your entire data center

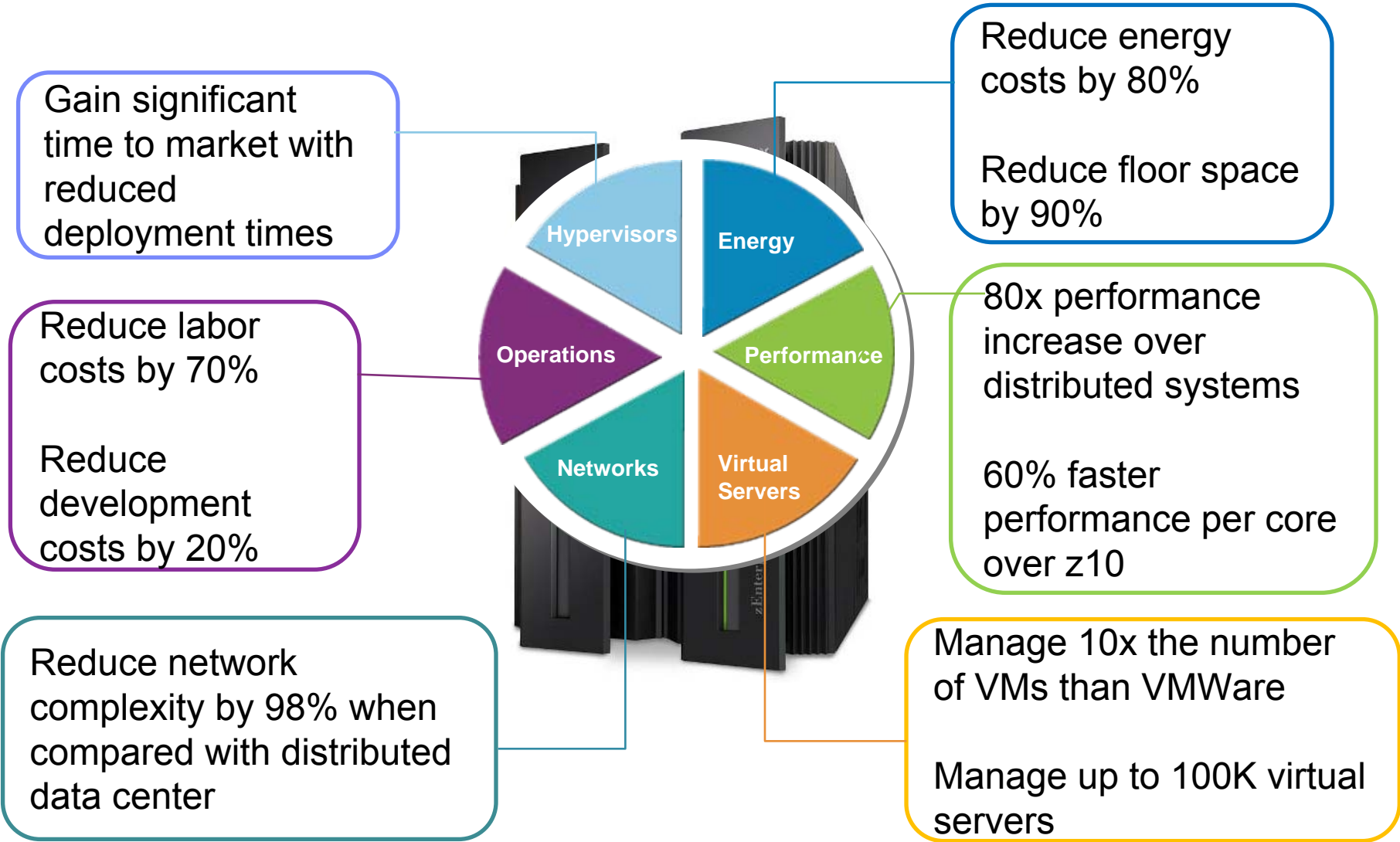


*One* integrated policy for managing service availability and data protection

*One* integrated workflow to optimize service delivery

***On average, 81% of cloud payback is driven by savings enabled by service management***

# Unified Resource Manager (zMgr) simplifies workload management across multiple application environments

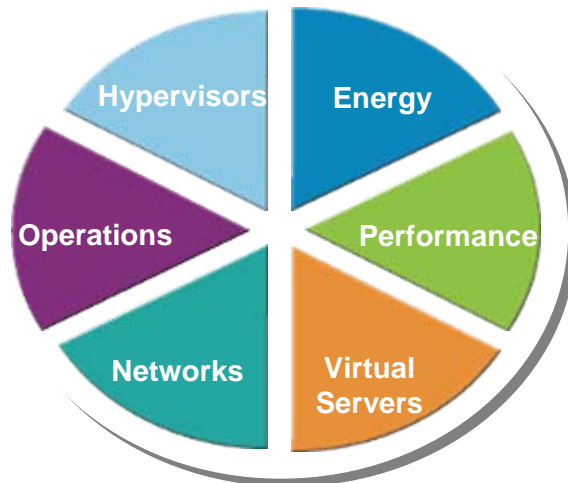




# Extending zManager with Integrated Service Management

## IBM zEnterprise Unified Resource Management

- Workload-based resource allocation and provisioning for zEnterprise
- Physical and Virtual Resource Management
- Goal Oriented Management of zEnterprise resources (Availability, Performance, Energy, Security)
- Faster transaction processing with reduced network latency
- Operational Controls for Hardware/Firmware
- Service and Support for Hardware/Firmware
- Hardware configuration management



## Tivoli and Integrated Service Management

Visibility, Control and Automation for Applications, Transactions, Databases, all Datacenter Resources

- **Integrated Operational Dashboards to monitor and manage service impacting events**
- **Key Performance Indicators (KPI) applied to Business Services for impact analysis**
- **Heterogeneous data in ONE**
- **Business Service Modeling for planning**
- **Contextual Correlation to reduce Mean time to repair (MTTR)**
- **Establish and automate service level agreement (SLA) tracking**



## Operational Advantage: Enable business service & product innovation

**Provide the *visibility, control & automation* needed to design, deliver, manage differentiated services - Improve software delivery and lifecycle traceability from requirements through deployment to enable innovation**

### Tivoli Application Management for zEnt

- Ability to view, monitor and manage workloads for physical and virtual machines, groups, response times
- Alerting capabilities for early detection of costly slow downs or outages

IT CAM for Transactions + add on OM Mainframe Network (IEDN)

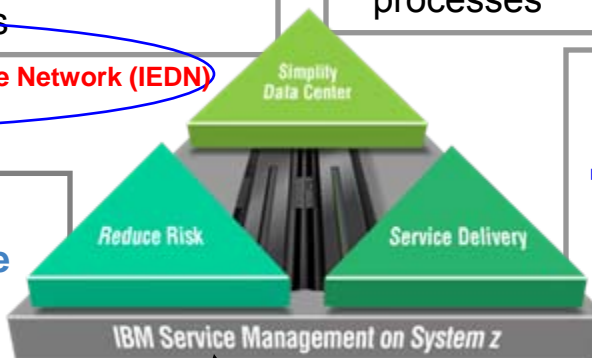
### Integrated Service Management

- Centralized management from System z
- Seamless and tight integration across service mgmt and business delivery processes

### Tivoli Application Automation and Resilience for zEnterprise

- Automated High Availability and Disaster Recovery operations across multi-tier, composite application environments
- Central view and management of critical business processes

TWS+TSA



### Tivoli Asset and Financial Management for zNext

- Visibility into software usage and compliance across heterogeneous resources
- Greater efficiency of resource usage
- Central view and management of requirements and costs

TAD + TUAM

### Tivoli Security & Compliance for zEnt

- zSecure suite for security administration and auditing activities
- Complemented by Tivoli Security Information Event Manager for centralized management of security compliance at enterprise level

## Our Agenda:

- IBM System z Software Strategy
  - Helping customers with Smarter Computing



# Why clients are moving to System z

## Oracle Consolidation

- Up to 80% reduction in TCO for Linux environments compared to a traditional distributed x86 server environment

- Reduce server footprints, reduce costs, simplify infrastructure

## Tier 2 Core Banking

- Flexibility in the overall environment to meet changing business requirements and peak demand

- Integrated system-wide security to protect customer data and lower the cost of compliance

- Delivers continuous availability and best in class disaster recovery

## SAP Infrastructure Optimization

- Fully integrated solution across hardware, firmware, OS and applications

- Delivers continuous availability and best in class disaster recovery

## Cloud

- Predictable monthly expense via pay as you go model

- Dynamic resources expansion to handle demand

- Comprehensive system monitoring and workload management for services management and billing

# Vietin Bank: Sun consolidation to Linux on System z

- One of the largest banking institutions in Vietnam with 800 offices and 1,200 ATMs
- Transaction banking workloads increasing with business growth
- Consolidating Sun servers to the Enterprise Linux Server to run a new operational risk management solution



## Needs business innovation to remain competitive

- Expansion of banking businesses
- Deliver premium services to customers

## Università di Bari: Innovative cloud solutions for local businesses

- University that built a system to sustain economic development in the southern Italian region of Puglia
- Strategy provides computing services to local community, enabling fishermen, wine growers and others to contract for services through a portal
- Cloud-based solution that leverages Linux on System z, IBM WebSphere and DB2, storage and Global Technology Services.

### Needs heavy-duty computing power at minimal cost

- Multiple entities tapping into the system
- Decrease time-to-market, reduce transportation costs, reduce the amount of wasted products and improve overall product quality



# IBM Tivoli Service Automation Manager, a key component of ISM, supports Service Lifecycle Management of Cloud workloads on IBM zEnterprise

## Service Subscription

- Request a service
- “Sign” contract

## Offer Service

- Register services and resources
- Add to service catalog

## Service Creation

- Scope of service
- SLAs
- Topologies, best practices management templates



## Deploy Service

- Request-driven provisioning
- Management agents and best practices
- Application / service on boarding
- Self-service interface

## Manage Service Operation

- Visualize all aggregated information about situations and affected services
- Control operations and changes
- Event handling
- Automate activities to execute changes
- Include charge-back

## Service Termination

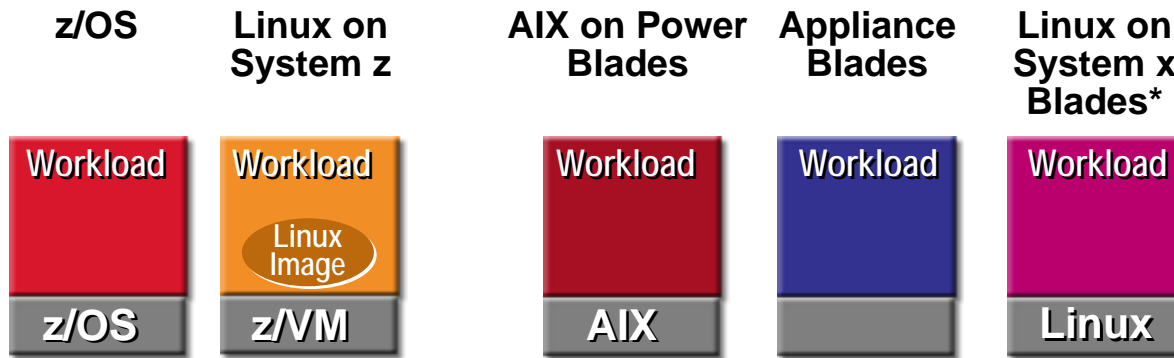
- Controlled clean-up

**IBM Tivoli Service Automation Manager**

Supports Linux and z/VM

# zEnterprise

## Broadest Architectural Support for Private Clouds



zEnterprise z196  
zEnterprise z114

zEnterprise BladeCenter Extension (xBX)



### Fit-for-Purpose Strategy

- Assign workloads to the environment that best satisfies requirements

### Integrated Service Management

- Visibility
- Control
- Automation

*Achieves overall lowest cost per workload*



## Key Takeaways ...about Cloud

- **IBM has been in the Cloud Business for over 45 years**

*Beginning with Mainframe Virtualization, IBM has been innovating on the technology underpinnings of Cloud*

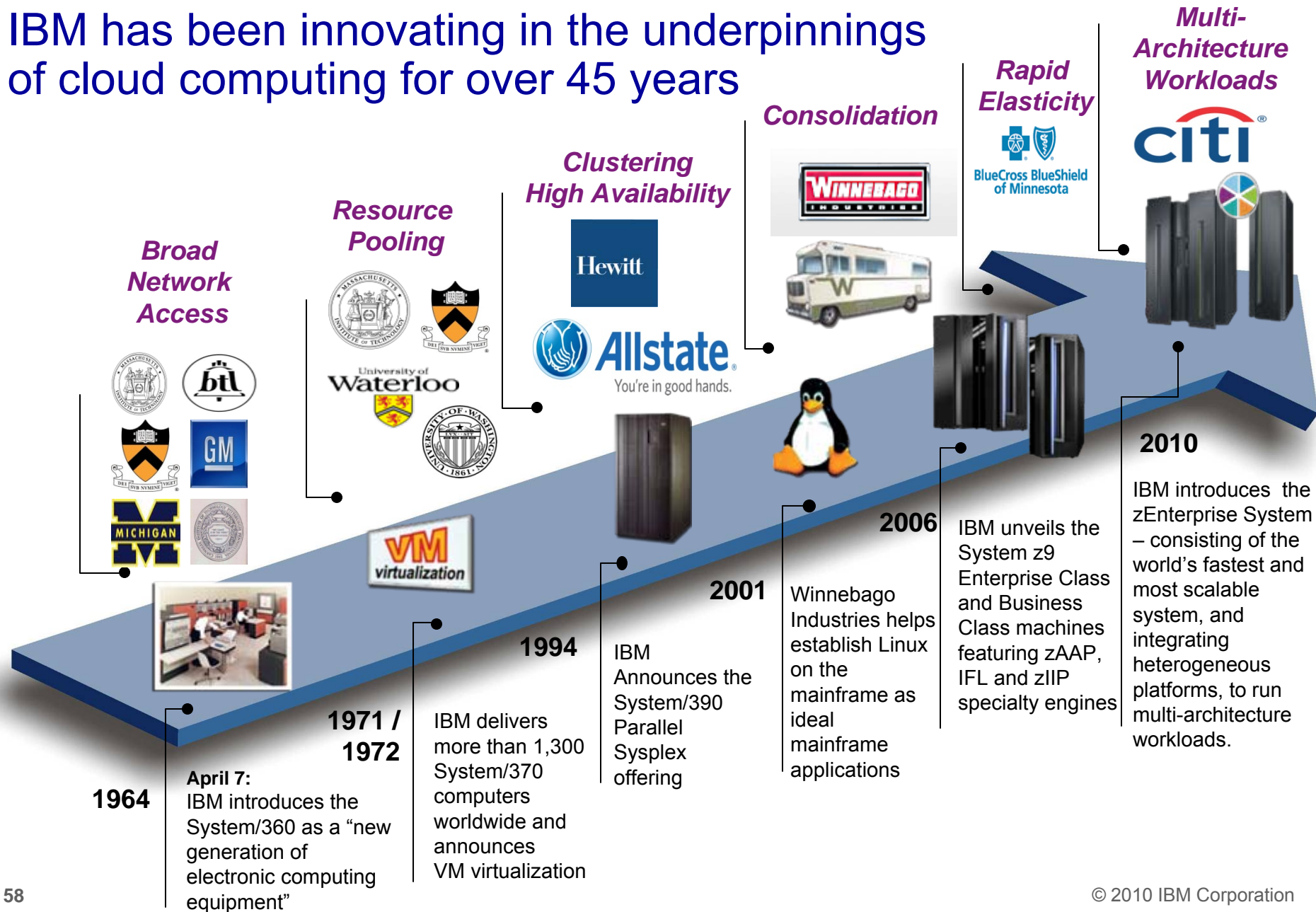
- **IBM zEnterprise is the industry's only heterogeneous cloud solution**

*Combines cloud characteristics with System z's leading capabilities for efficiency, manageability, scalability, and security*

- **IBM Cloud Computing on System z is transforming the business**

*Better qualities of service, advanced workload optimization, and efficient resource consolidation*

# IBM has been innovating in the underpinnings of cloud computing for over 45 years



# Clients like Blue Cross Blue Shield of Minnesota are leveraging Cloud on System z today



BlueCross BlueShield  
of Minnesota

- Lead time for server provisioning reduced to 99%
- IT deploys new Linux Virtual Servers for test and dev within 20 mins
- Not a single incidence of unplanned downtime or underperformance
- With Linux on IBM System z, BCBSM can achieve near-continuous availability by reducing the need for planned downtime

## Business Problem:

The Microsoft Windows and Intel processor-based server landscape at Blue Cross and Blue Shield of Minnesota (BCBSM) was inflexible and costly to operate and maintain.

## Solution:

- IBM consolidated 140 HP Intel-architecture servers to a single IBM System z with six Integrated Facility for Linux (IFL) engines.
- Key applications now run in SUSE Linux Enterprise virtual servers, while IBM DB2 databases run on z/OS on the same physical machine



*“Even without factoring in the maintenance and support costs—which would be considerable for a large estate of physical servers—we found that running a virtualized Linux environment on System z would be somewhere between 30 and 50 percent less expensive than a distributed architecture.”*

— Ted Mansk, Director of Infrastructure Engineering and Databases at BCBSM

# Nationwide consolidates and virtualizes with Linux on IBM System z



- US\$15 million cost savings anticipated over three years
- 85-90% server utilization
- 80% reduction in environmental costs
- Web hosting costs lowered by 50 percent
- Migrated to z10 in 45, upgrading hundreds of virtual servers, with 0 application breakage

## Business Problem:

With server proliferation, limited floor space, high cooling and electricity costs, and lengthy server provisioning times, Nationwide was **faced with a need to build a multi-million dollar data center**

## Solution:

- Nationwide made a strategic decision to move to a flexible, virtualized IT environment.
- Running hundreds of virtual servers on two IBM System z10 Enterprise class machines
- Virtual server images are deployed in minutes after a request is submitted using Linux on z/VM
- Services are monitored and managed
- Applications move from zLinux to AIX back to zLinux depending on requirements



## Our Agenda:

- IBM System z Software Strategy
  - Growing the System z Ecosystem



# Developers are collaborating around System z

developerWorks counted 16,000 unique visitors per month across communities with System z-related artifacts in 2010

- **IBM's premier information and collaboration site for Linux**
- Over **200+** technical resources on system z - technical articles, wikis, blogs and more
- 4,600 downloads, an increase of more than 20% from previous year

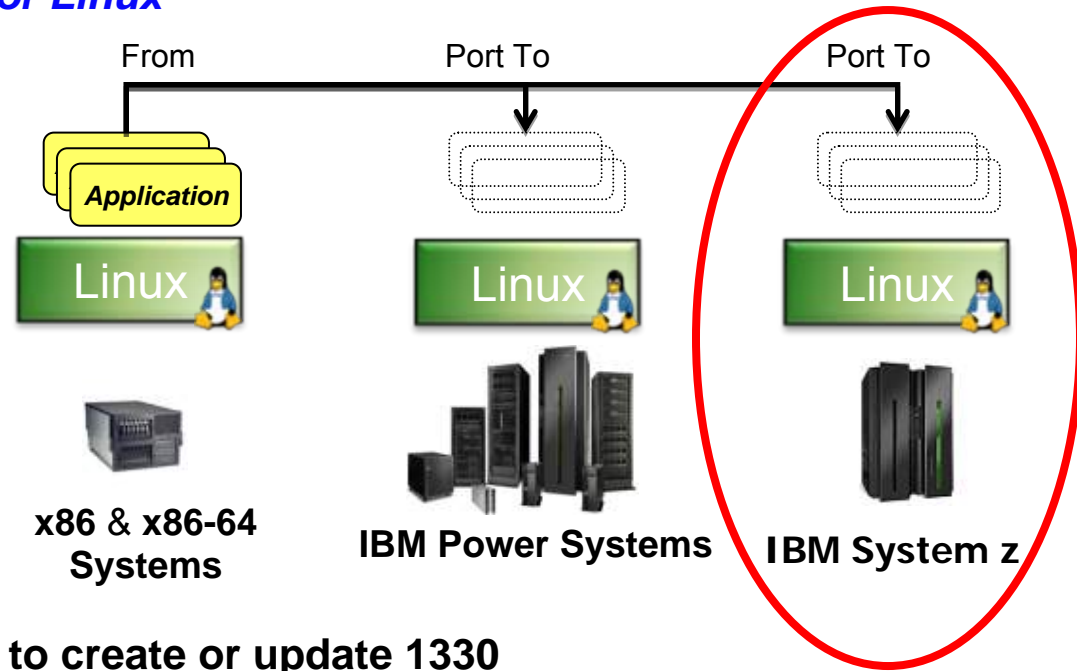
<http://www.ibm.com/developerworks/>



# “Chiphopper” helps developers port their solutions to Linux on System z

## IBM Systems Application Advantage for Linux

- ✓ **No charge** access to remote IBM Systems with Linux - Red Hat & Suse
- ✓ Technical assistance during the port
- ✓ 18 months System Assurance Statement from IBM
- ✓ Ready for IBM Systems with Linux mark for marketing



- ❖ Chiphopper has enabled 278 ISVs to create or update 1330 applications for IBM Systems with Linux
- ❖ Chiphopper assisted 32 ISV's with 105 applications in 2010
  - ✓ 42 for POWER Systems
  - ✓ **63 for System z**



[www.ibm.com/isv/go/chiphopper](http://www.ibm.com/isv/go/chiphopper)

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**Sponsored by the IBM Academic Initiative and System z**

- Free, secure, and easy to use
- Specialized audience of mainframe educated students and experienced professionals
- Global pool of mainframe talent

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DB2*	Optim		
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