

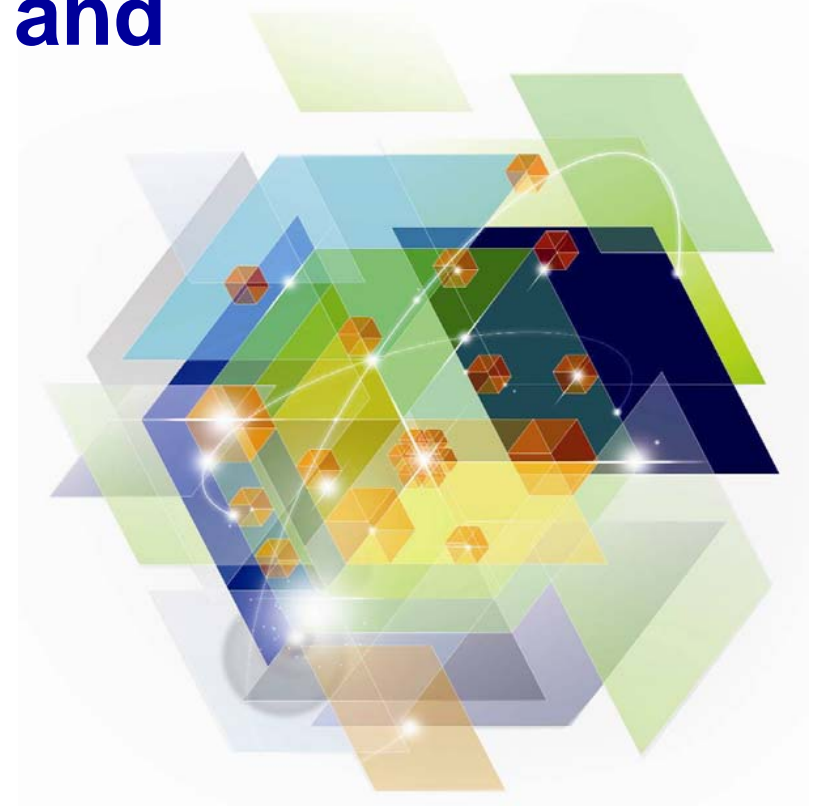


IBM zEnterprise Strategy and Direction

Ray Jones, Vice President

System z Software

August 2012



The Inefficiencies of Existing Computing Challenge Innovation

More than
70%

of budgets on average is spent on ops and maintenance – and this percentage is growing²

2/3
of companies

go over schedule on their project/ solution deployments³

IT complexity is
doubling

every two years at its current pace¹

“Our IT systems have become complex and difficult to manage, and as a consequence IT is increasingly finding itself in the position of being a barrier to innovation rather than an enabler of it.”

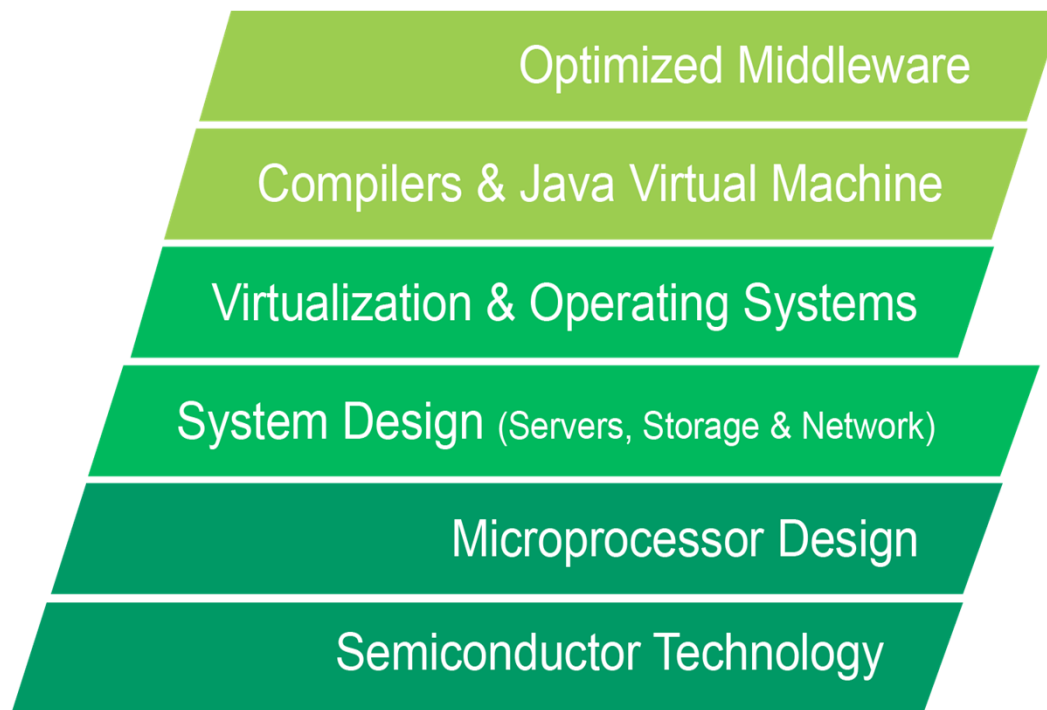
-The Bathwick Group, The road to Smarter Computing

¹ Enterprise Systems Journal, “5 Best Practices for Reducing IT Complexity”

² IDC Analyst Matt Eastwood, IDC Directions Presentation, 2011

³ IBM Market Intelligence Time-To-Value Study, National Analysts, November 2011

IBM is pioneering advances in systems design



1) Expertise

- Workload Characteristics
- Workload interdependencies
- Architecture options


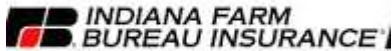


2) Software

- Full Stack integration
- Middleware tuned for hardware
- Integrated management across architectures

3) Hardware

- Enhanced Instruction set
- Advanced threading
- Transactional memory

Customers using System z software

Analytics	Transaction Processing	Enterprise Modernization	Cloud
			
<p><i>Providing broadcasting services for over two million homes in Hong Kong, TVB used analytics to provide insights between advertising and ratings and reduced TCO of the BI system by 20%</i></p>	<p><i>With the new z114, Indiana Farm Bureau Insurance has up to four different ways to run Java workload on the mainframe while handling a constant stream of around 11 transactions/second from 7 am to 7 pm daily and allowing for a 25% growth</i></p>	<p><i>IBM CICS team moved from waterfall development processes to agile development methods reducing meetings by one-third and increasing flexibility in resource pool</i></p>	<p><i>City and County of Honolulu migrated from a Windows environment to develop a cloud environment to offer software-as-a-service to other departments resulting in management of hardware and services in hours vs. weeks</i></p>

System z software addressing key business initiatives

Transactional Processing

Millions of transactions per day

Security

Advanced encryption and decryption software

Integrated service management

Single point of control

Operational Analytics

Secured right-time analysis

Business Rules and Processes

Create reusable services and processes



Enterprise Modernization

Single platform for development

Integrated Appliances

Packaged solutions for optimal performance

Data Warehousing

Unique temporal capabilities

Cloud Computing

SaaS solutions

Social Business

Integrating social business with enterprise computing

Transactional Processing with z software

Family of application servers, connectors, and tools that provide industrial-strength, online transaction management



Ability to process terabytes of data to provide valuable output

- Millions transactions per day with less than 1 second response occurring every day
- Millions of applications deployed using WebSphere Application Server and MQ middleware

Enablement of web services, standards and Big Data

- Better vertical and horizontal scaling
- More exploitation of industry standards
- More core TP capability (Email notifications, ID Prop, API)
- More comprehensive monitoring and statistics to improve operational metrics

New!

New transactional memory will improve application performance

New solutions for z include:

**CICS Transaction Server V5, CICS Tools
z/TPF 1.1 PUT 9**

Key Resources

- [Transaction Integrity article](#)
- [CICS Data sheet – Q4](#)

Cloud-style CICS applications and infrastructure

CICS Transaction Server for z/OS V5.1 Open Beta

- **Platform as a Service (PaaS)** capabilities that can be used to host Software as a Service (SaaS)-based CICS applications.
- **Policy-based management** to automatically modify the behaviour of tasks that exceed predefined thresholds, during runtime.
- **Fast and lightweight Java web container** combining Java Servlets and JSPs with fast local access to CICS applications.
- **Capability and scalability advancements** that allow CICS applications to do significantly more, with much greater ease.

New!

*Cloud-style CICS
development, deployment
and operations built on
WAS Liberty profile*

Available to download
at
ibm.com/cics/openbeta
from July 13th, 2012

***KPT/CPT implemented CICS in a cloud and now users
can perform transactions directly on their ERP system
saving time and money.***

Security with Next-generation zEnterprise

Manage risk, compliance issues and ensure secured data



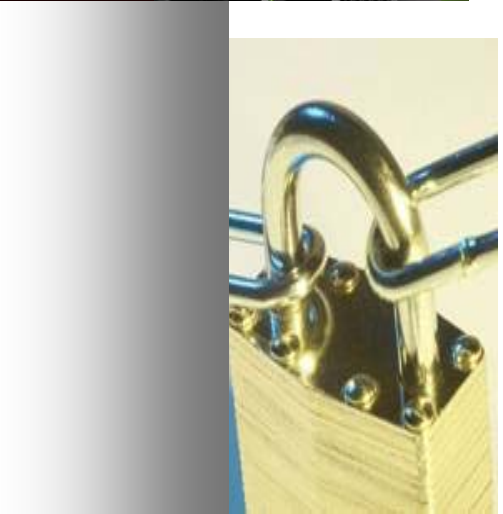
Advanced security and audit capabilities

- Granular access and segregation of audit and management functions to administer security, monitor threats, and provide audit usage
- Solutions to monitor privileged users, SMF data collection and built in intrusion detection, RACF integration, and industry compliances

New!

Protect Data from unauthorized users

- Simple, robust solution for preventing data leaks including dashboards
- Performance and resiliency enhancements for DB2 and IMS
- Support for additional platforms including zBX and Project Apollo



Up to 70% in security audit savings

New solutions for z include:

InfoSphere Guardium V9.0
zSecure

Key Resources

- [Information Governance: Audit and Protection on the System z platform](#)

Integrated Service Management with z software

Centrally monitor, control and automate operations across heterogeneous environments



Central point of control for enterprise computing

- Integrated service management encompassing multiple technologies across System z and zEnterprise



Reduces administration and operations overhead

- Now e3270 UI and improved installation and configuration
- Improved support for DB2, IMS and WebSphere
- Significant improvements in productivity and availability



New solutions for z include:

- **OMEGAMON for IMS V5.1, OMEGAMON for Messaging V7.1, OMEGAMON for Storage V5.1,**
- **Tivoli System Automation Application Manager 3.4**
- **zAware**

z can manage up to 6060 virtual servers

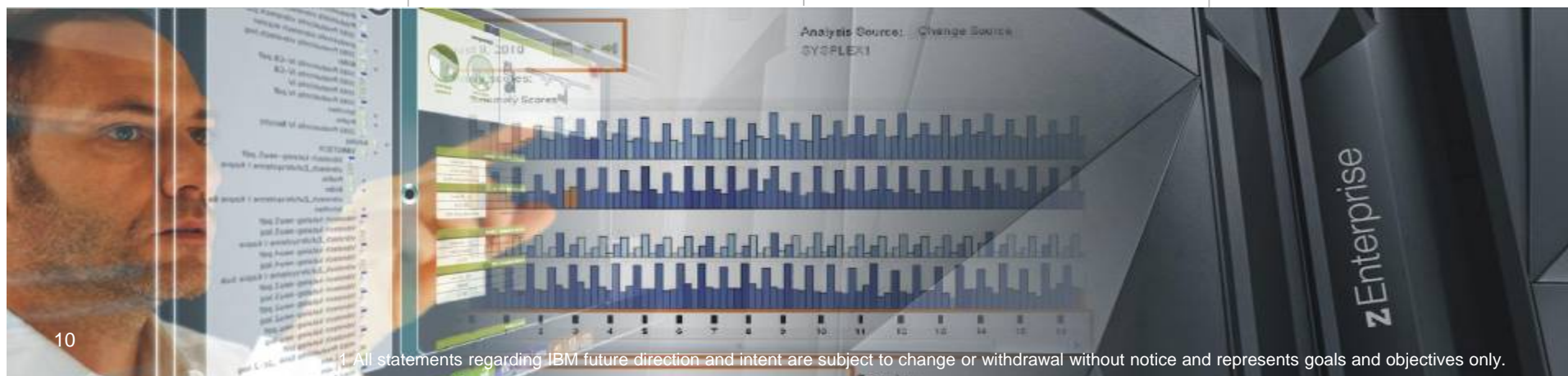
Resources

- [OMEGAMON Brochure](#)
- [OMEGAMON Article](#)

IBM zAware - Identifies Unusual System Behavior

IBM zAware contains sophisticated analytics, applies IBM insight, and machine learning to understand your unique system.

Monitoring	Detection	Frequency	Reporting
<ul style="list-style-type: none"> Supports IBM & non IBM middleware and applications Monitors OPERLOG in a sysplex or monoplex Assigns a message anomaly score to help identify potential issues 	<ul style="list-style-type: none"> Detects anomalies other solutions might miss Analyzes suppressed or rare messages Can detect a trend in messages to identify a possible problem in the making 	<ul style="list-style-type: none"> Samples every 2 minutes 10 minute interval Uses 90 day rolling baseline; a utility provided to populate baseline; flexibility provided 	<ul style="list-style-type: none"> Near real time analysis Intuitive reporting – both high level and drill down Color coded browser display XML output can feed ISVs or processes <ul style="list-style-type: none"> Tivoli intends to provide alert and event notifications¹



Business Rules and Processes with z software

Discover, document, automate and continuously improve business processes and rules



Provides business value with effective business process management

- Analyzes current processes to identify those that will deliver the greatest ROI

New!

Enables organizational policies and the operational decisions associated with those policies

- Improve maintainability and visibility of decision logic in mainframe applications
- Streamlined rules development and processes.



IBM is the leader in SOA and BPM for the past 5 years.

New solutions for z include:

IBM WebSphere Operational Decision Management for z/OS and Linux on z

IBM Business Rules for z/OS

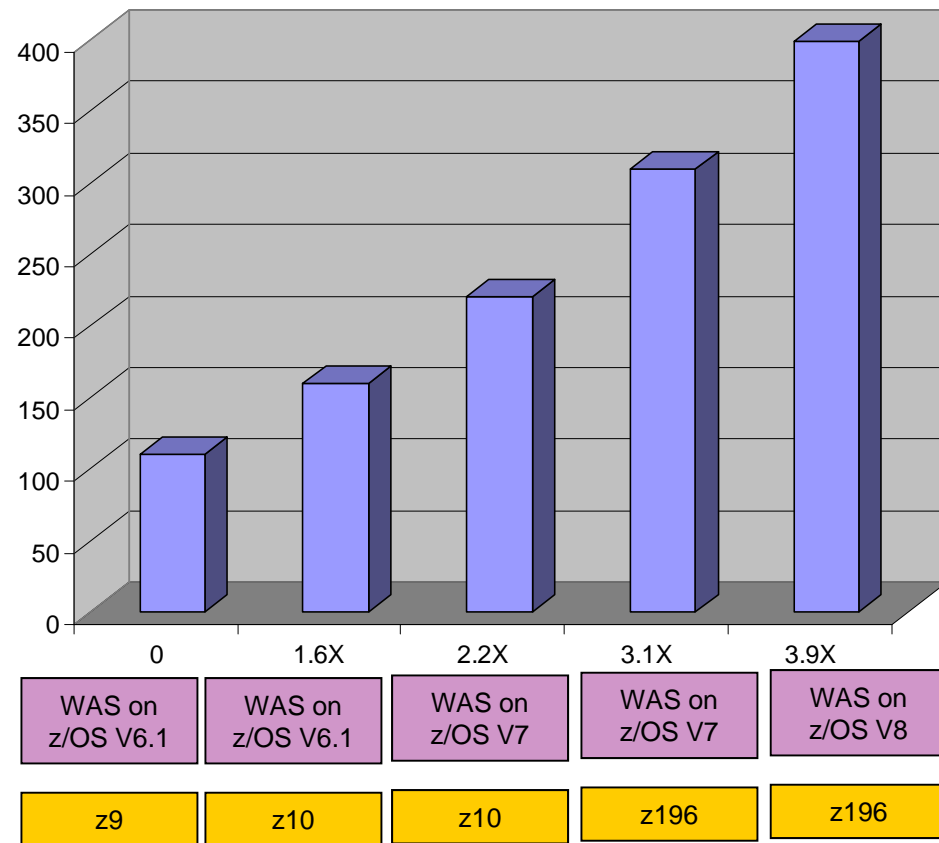
IBM BPM Advanced for z/OS

Key Resources

- [Using business rules with CICS for greater flexibility and control](#)
[Organic web asset - Lustratus](#)

Constant Optimizations for WebSphere

Steady improvements to hardware and software now yields almost **4X more performance than just 6 years ago**



WebSphere Application Server on z/OS example

WebSphere Profile for System z

- **The WAS for z/OS Liberty profile is a composable application server profile of WAS with *optional* extensions for z/OS**
 - New architecture from prior version, full profile still available to allow for all existing apps to run
 - Liberty is not full WAS, the rest will come over the next few years, initial focus Web Apps
 - Applications written for Liberty run in full profile unchanged
 - Simplified and reduced configuration for both WAS and zOS
 - Getting new applications up and running on WAS for zOS now much quicker
 - Greater consistency enables improved internal development for SWG and STG products building on Liberty, an example is zOS Management Facility
- Significantly improved performance
- Continued exploitation of System Z and z/OS through ***optional*** extension to components (WLM, HA, Security)
 - Server startup time for simple applications is < 5 seconds
 - Projected throughput for simple web-apps +20%
 - Significantly reduced real storage and disk requirements
 - ~20-25 MB disk footprint
 - ~50-75MB real storage per server
- Expected use cases for Liberty on zOS:
- **Test of Web Applications using zOS Resources (DB2, IMS(future), CICS(future))**
 - **Lightweight production**
 - **Cloud production where server density matters**
 - **Imbed Servers**

Customer feedback after viewing demos

"It has to be a demo trick, it can't start that fast. Its like the moon landing, it never happened"

I can see how I can include WAS for zOS in my cloud now"

Enterprise Modernization with z software

Modernize and reuse assets for optimal development productivity and deployment



Single unified platform for development and team collaboration

- Develop once, distribute to appropriate platforms
- Team collaboration, sharing of code and resources all available through Rational tools
- Use common tools across development projects - increase team flexibility and agility

New!



Compilers optimized for the technology

- Obtain increased performance without re-coding by using the newest compiler levels
- Compilers for all programming languages

Compilers will improve performance by up to 30% + in part by taking advantage of innovative architecture additions in z

New solutions for z include:

Enterprise PL/I for z/OS
C/C++ Enhancements

Key Resources

- [Jazz/EM Demo](#)

Modernizing Enterprise COBOL infrastructure

COBOL Vnext Beta Compiler

- Improve delivery of z/Architecture exploitation
- Incorporate leading-edge optimization and code-generation technology to Enterprise COBOL for z/OS
 - Improve performance, maximize machine utilization, and reduce cost of ownership
 - Provide solid foundation to support new hardware features (e.g. decimal floating point, 64 bit...), and future System z processors
- Source and binary compatibility
 - No need to recompile old code
 - Support linking together of “old” and “new” code for correct programs
 - Plan to remove some old/obsolete syntax and report if old syntax is found



Beta – contact rkoo@ca.ibm.com if interested in participating

* IBM reserves the right to change strategy and plans at any time. This information should not be widely shared

Integrated Appliances with z software

Packaged solutions of hardware and software for superior IT functionality



Rapid implementation and configuration

- Current three appliances available
 - DataPower XI50 - provides XML hardware acceleration, streamline and secure valuable SOA applications
 - Smart Analytics System - comprehensive data management system consisting of hardware, software and services
 - DB2 Analytics Accelerator - System z and Netezza technologies for complex analytic business needs



Advanced integration with z

- Coordination with System z and Netezza technologies for complex analytic business needs

New solutions for z include:

**IBM DB2 Analytics Accelerator
Smart Analytics System**



Queries provided in seconds vs. minutes or days on DB2 Analytics accelerator

Key Resources

- *DB2 Analytics Accelerator V3 Brochure – Q4*

Data Warehousing with z software

Delivering predictive and operational analysis of real-time enterprise data to deliver insights



New!

High performance database

- DB2 10 for z/OS adds unique temporal capabilities to support business and system time within the database itself, making application development and maintenance significantly simpler and more cost effective

Deep understanding of trends, opportunities, weaknesses and threats

- Comprehensive query and reporting capabilities to make smarter decisions.
- Monitor, measure and manage corporate performance at a glance.
- Up-to-the second relevant information in context with BI information.



DB2 use of pageable 2GB pages, available on systems with Flash memory, improves transaction CPU consumption

Key Resources

- [IBM Delivers on the Promise of Business Analytics 3D presentation](#)

New solutions for z include:

DB2 for z/OS 11 QPP
IMS for zOS 13 QPP
InfoSphere Optim

Preview: New Analytics Technology on System z

Real time scoring of transactional data in DB2 10 for z/OS

- **Delivers better, more profitable decisions at the point of customer impact**
 - Enables more informed customer interaction
 - Improves customer service
 - Increases revenue per customer ratio
 - Heightens customer retention
 - Improves fraud identification and prevention
 - Reduces risk and exposure
- **With improved accuracy, speed and performance while reducing cost and complexity**
 - Improves accuracy by scoring new and relevant data directly within the OLTP application
 - Scales to large data volumes to improve accuracy of data models
 - Delivers the performance needed to meet and exceed SLAs of OLTP applications
 - Minimizes demand on network, HW, SW and resources



*Part of an extensive
Business Analytics
solution on System z!*

DB2 Utilities: Delivering Day 1 Support and more !

Significant reductions in CPU and elapsed time with more zIIP offload

Using leading-edge technology to break performance barriers

- *Virtual elimination of CPU & elapsed time through use of FlashCopy technology*
- *Complete elimination of CPU & elapsed time through improved utility avoidance techniques in engine & IBM's DB2 Tools*
- *DB2 Sort can cut CPU cost & elapsed time by over 33%*
- *Customers can address one of their biggest cost challenges – utility ISV costs*
- *More features to come, more customers re-evaluating how to save \$\$\$*

Swiss Re



Ameriprise
Financial



Operational Analytics with z software

Delivering predictive and operational analysis of real-time enterprise data to deliver insights



High performance operational analytics

- Allows real-time intelligent interactions during the lifecycle of business transactions on z/OS and Linux on z



Deep understanding of trends, opportunities, weaknesses and threats

- Comprehensive query and reporting capabilities to make smarter decisions.
- Monitor, measure and manage corporate performance at a glance.
- Up-to-the second relevant information in context with BI information.



30% performance increase in queries & reporting build

New solutions for z include:

IBM Cognos Business Intelligence V10 on z

Key Resources

- [IBM Delivers on the Promise of Business Analytics 3D presentation](#)
- [Expanding Business Analytics - Supporting ALL Information Workers](#)

Cloud Computing with Next-generation zEnterprise software

Delivering high value secured services to create the ideal cloud environment



Advanced virtualization

- Huge economies of scale through consolidation of workloads from distributed to Linux on System z supporting thousands of workloads on a single system

Highest availability and security

- Unmatched resource and application sharing
- Delivers level of service required for mission critical services

New!

PaaS and SaaS capabilities

- More scalable and functional transaction processing foundation, enabling more applications, to do more, more easily.
- Advanced service monitoring in a cloud environment

New solutions for z include:

Cloud Ready solutions

SmartCloud Control Desk, Tivoli Provisioning Manager

IBM Tivoli Monitoring, System Automation for MultiPlatforms

Tivoli Storage Manager



A private cloud on z can lower server TCA by up to 79%

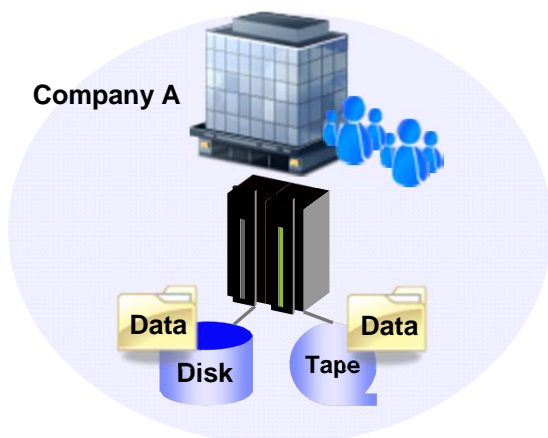
Key Resources

- [Cloud \(Edison Group\) whitepaper](#)

Mainframe services with dynamic capacity, usage-based pricing and high availability - IBM SmartCloud Enterprise+ for System z – z/OS

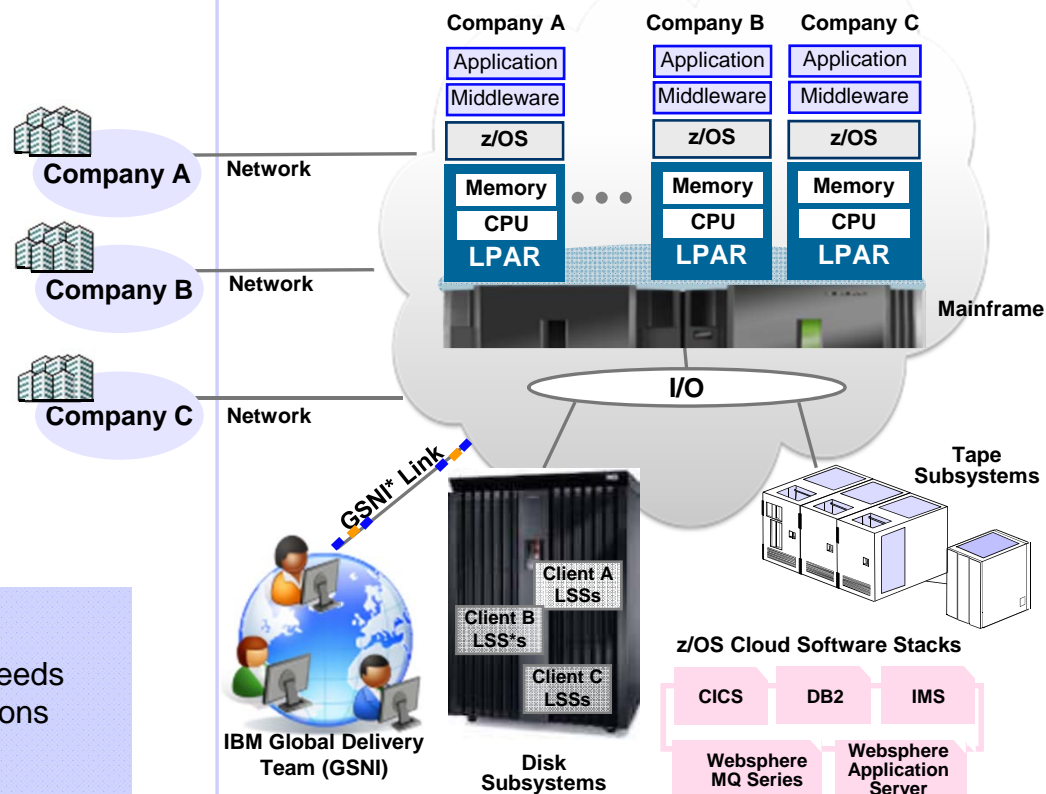
BEFORE

Dedicated IT resource



AFTER

IBM SmartCloud Enterprise+ for System z



Benefits

- Flexibility and scalability that meets your business needs
- Secure design and high availability configurable options
- Standard software and state of art technologies
- Cost effective delivery model
- Skills and expertise delivered by mainframe experts

Available in US and UK only

Announced at IBM Cloud Innovation Forum

Social Business with Next-generation zEnterprise Software

The coming of age for social business as social computing and social media are integrated into enterprise design



Optimize interactions between people to gain a competitive advantage

- Social business software enabled through Linux on z
- Bringing social to WebSphere Portal

New!

Access everyone in professional networks

- Faster task execution through quick access to information from an expanded professional network
- Increased efficiency and effectiveness of business processes using existing skills discovered through professional networks

New solutions for zNext include:

IBM Connections 4
 IBM Lotus Notes 8.5.4 and Lotus Notes Social Edition
 Worklight Mobile Support for zLinux

The global mobile worker population will represent nearly 35% of the worldwide workforce in 2013

Key Resources

- [WebSphere Portal and Social Business](#)

Native, web or hybrid mobile-app development

Worklight Mobile Platform 4.2.1 on Linux on z

New!

- **The Worklight Mobile Platform 4.2.1** helps manage HTML5, hybrid, and native applications using a powerful and flexible mobile IDE. Next-generation mobile middleware, end-to-end security, and integrated management and analytics capabilities are built in.
 - ✓ Uses a standards-based technologies and tools, mobile-optimized middleware, a variety of security mechanisms and integrated management and analytics capabilities.
 - ✓ Enables the creation of rich, cross-platform apps without the use of code translation, proprietary interpreters or unpopular scripting languages

[FREE 30 day download trial here -](http://www.ibm.com/developerworks/mobile/worklight.html)

<http://www.ibm.com/developerworks/mobile/worklight.html>



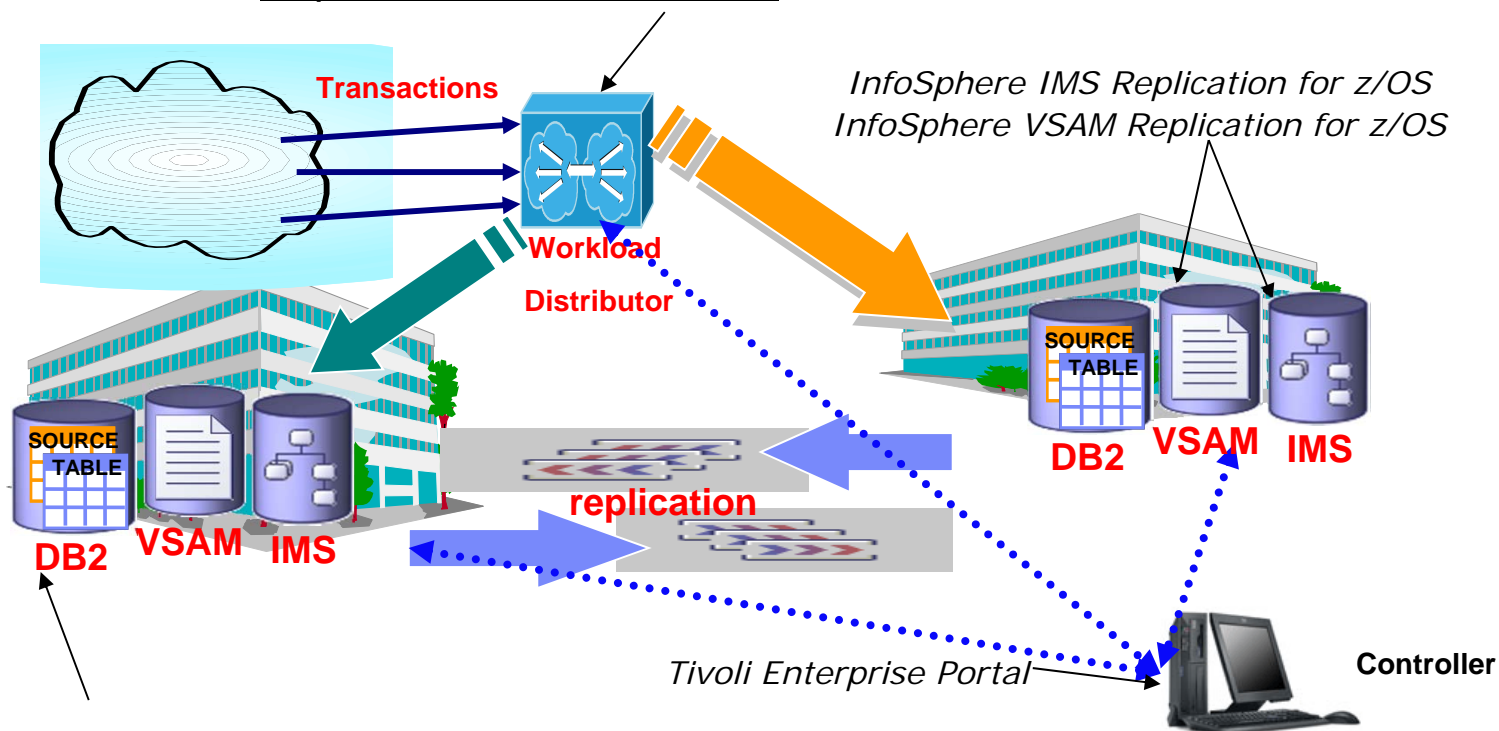
Coming soon....

NEW! Redguide

*“Transaction Processing:
Past, Present and Future”*

IBM GDPS/Active-Active for Continuous Availability

- Provides continuous availability for *two or more sites separated by unlimited distances*
 - Planned workload switch - **20** seconds from active site to standby site
 - Unplanned workload switch - **120** seconds from active site to standby site
 - Planned site switch - (9 * CICS-DB2 and 1 * IMS workloads) **20** seconds
 - Unplanned workload switch - **107** seconds



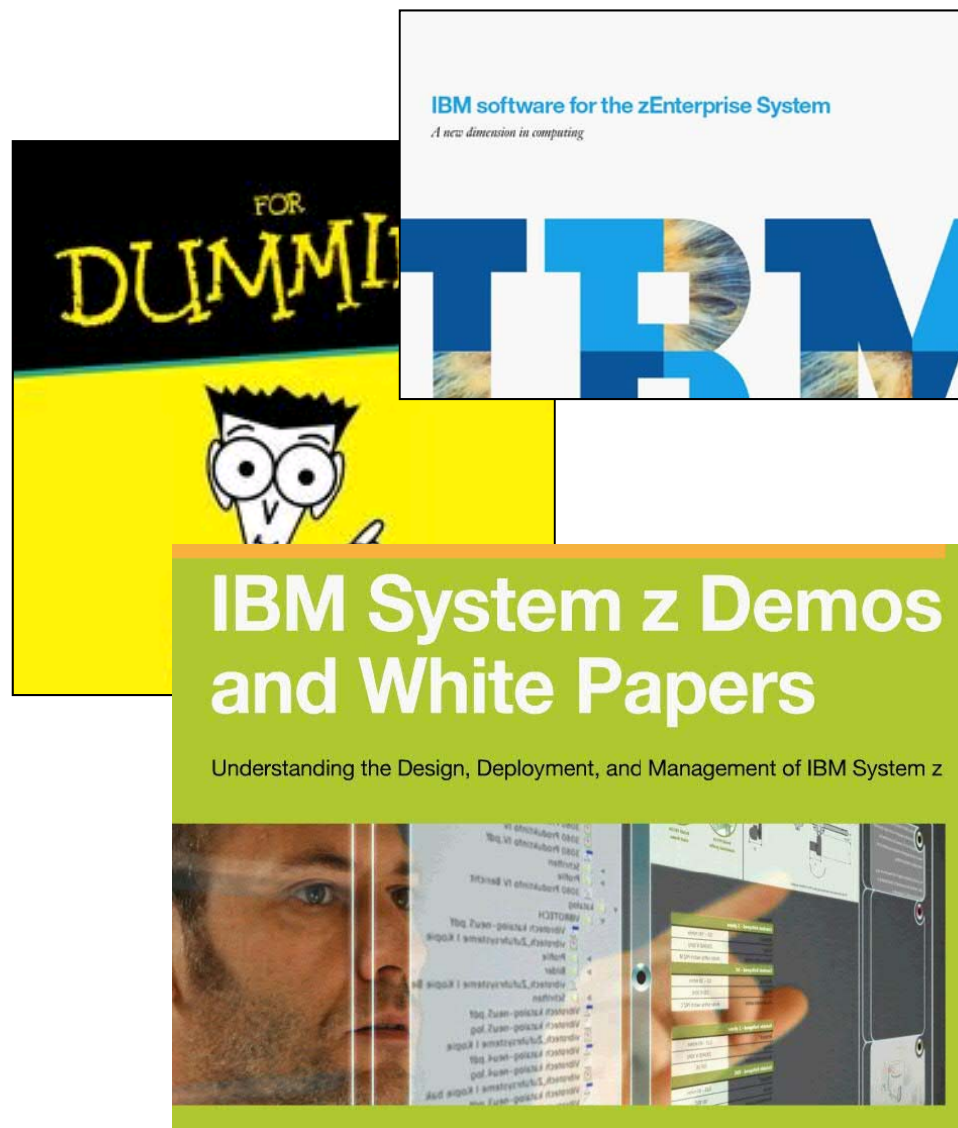
Innovative assets for z software

Available now!

- [System z learning for growth](#)
- [System z software sales acceleration plays](#)
- Free [redbooks](#)
- Free [courseware](#) for customers
- [The Value of System z in 60 Minutes or Less Podcast Series](#)
- [System z Demonstration Systems](#)

Coming in 4Q

- z for dummies ebook
- z software brochure
- z whitepapers and demos ebook (translation included)
- Mobile role-based “flashcards”
- Z Technology presentations



System z – 45+ years in the making

- **The world's most trusted transaction processing and data server for business critical applications**
- **The world's most cost-efficient platform for data center consolidation and virtualization**
- **The world's most dependable and scalable hardware and middleware platform for new business applications**
- **A thoroughly modern application environment for traditional and Cloud delivery models**



The zEnterprise is the world's fastest and most scalable enterprise system. (50 BIPS)

Based on 5.2GHz core processor speed

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Notes:

Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.

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