IBM zEnterprise Strategy and Direction

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System z Software

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The Inefficiencies of Existing Computing Challenge Innovation

More than 70%
of budgets on average is spent on ops and maintenance – and this percentage is growing[2]

2/3 of companies
go over schedule on their project/ solution deployments[3]

IT complexity is doubling
every two years at its current pace[1]

"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."
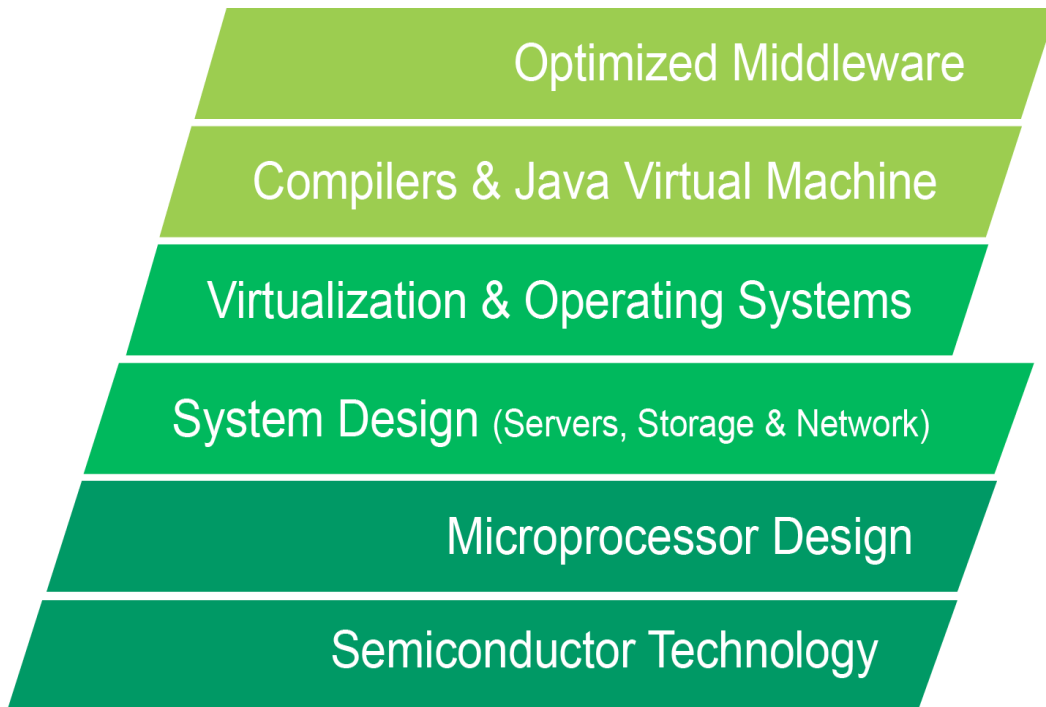
-The Bathwick Group, The road to Smarter Computing

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

Optimized Middleware

Compilers & Java Virtual Machine

Virtualization & Operating Systems

System Design (Servers, Storage & Network)

Microprocessor Design

Semiconductor Technology

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

IBM Software for zEnterprise solves key Business Initiatives

Cloud	Data	Security
Delivering high value secured applications and services to create the ideal private cloud environment	**Delivering predictive and operational analysis** of real-time enterprise data to deliver insights	**Providing advanced data security and audit capabilities** for managing risk, data leaks, and compliance issues

Enterprise Modernization
Providing optimal development, productivity, and deployment of all applications

"The new zEnterprise is the heart of our health insurance system, ….We have grown from 400,000 to 1.7 million transactions per day, and we continue to enjoy full availability of services and data around the clock." *Mirjana Kregar, CIO at ZZZS*

ZZZS
ZAVOD ZA ZDRAVSTVENO
ZAVAROVANJE SLOVENIJE

The fastest cloud ready application infrastructure

Up to

15% CPU cost savings immediately with CICS

Up to

27% Performance improvement with CICS and zEC12

- **Reduced complexity** with new application and platform constructs

- **Standardize deployment and operations** with new policy attributes and autonomics

- **Maximize platform** value with complementary integrated tools

- **Centralize administration** with integrated provisioning, monitoring, and service management

Enhanced IBM CICS Transaction Server for z/OS V5.1 and tools

NEW IBM OMEGAMON Family V5.1

Linux on System z Roadmap

5

WebSphere Profile for System z

- **The WAS for z/OS Liberty profile is a composible 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"

Cloud-style CICS Applications and Infrastructure
CICS Transaction Server for z/OS V5.1

Enhanced

- Simpler and faster development, deployment and operations with cloud-style CICS

- New CICS web application capability, built on the WAS Liberty Profile

  - **NEW!** Platform as a Service (PaaS) capabilities that can be used to host Software as a Service (SaaS)-based CICS applications.

  - **NEW!** Policy-based management to automatically modify the behaviour of tasks that exceed predefined thresholds, during runtime.

  - **NEW!** Fast and lightweight Java web container combining Java Servlets and JSPs with fast local access to CICS applications.

  - **NEW!** Capability and scalability advancements that allow CICS applications to do significantly more, with much greater ease.

Cloud Applications

Solid Foundations

*DATEV enhances response times for the CICS Transaction Server software by a **factor of five***

Simplify problem determination while reducing resource usage
OMEGAMON V5.1 Product Family

Reduce system and application outages with increased productivity

Simplify monitoring with ability to view enterprise summary of multiple sysplexes and subsystems

Decrease resource usage by taking advantage of zIIP specialty processor

Improve availability with enhanced monitoring support across zEnterprise and zBX

NEW! OMEGAMON XE for Mainframe Networks V5.1
NEW! OMEGAMON for z/OS Management Suite V5.1

Up to **75%** improvement in the ability to find and fix performance problems

Up to **73%** of CICS SLA processing offloaded

Develop a cloud infrastructure with System z
Linux on System z Cloud Roadmap

1

Integrate

"Take out cost"
Consolidate and Virtualize

Differentiation

zEnterprise System

z/VM 6.2

Linux on System z

2

Automate

"Simplify"
Automate and Manage Better

Standardization

Tivoli Provisioning Manager 7.2

zEnterprise Starter Edition for Cloud

Cloud Ready for Linux on z

SmartCloud Provisioning 2.x

SmartCloud Entry 2.3

3

Orchestrate

"Seamless"
Service Lifecycle Management

Service Management

Tivoli Service Automation Manager 7.2.4

System z Solution Edition for Cloud Computing

Modernize System z by moving to Private Cloud in a stepwise approach

2013

- Updated! SmartCloud Provisioning
- Updated! SmartCloud Entry
- New! Smart Cloud Orchestrator (includes TPM and TSAM)

9

Superior Data and Analytics Solutions

Up to
95%
Reduction in data warehousing storage costs

NEW
IBM DB2 Analytics Accelerator V3

High volume operational and complex queries with new Incremental update and storage savers to deliver up to

2000x in performance

Blending applications with analytics with new Netezza MPP and System z SMP technologies

NEW
IBM zEnterprise Analytics System 9700/9710

Comprehensive query and reporting with new dashboard capability extending to mobile devices

Enhanced
Cognos BI 10.2

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

Customer Interaction

Data In

Real-Time Score/ Decision Out

Part of an extensive Business Analytics solution on System z!

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Accelerating decisions to the speed of business
IBM DB2 Analytics Accelerator V3

Best of both worlds
System z + Netezza technology

Delivers unparalleled, mixed workload performance for complex analytic business needs.

- **Add-on appliance technology** integrated and managed with DB2 for z/OS LPAR and transparent to applications

- **Designed for long-running queries** with optimal performance

  - **NEW!** High Performance Storage Saver provides the performance of the Accelerator, while removing the cost of storage on the zEnterprise

  - **NEW!** Incremental Update, which propagates data changes for high-speed use as they occur, enabling current information to be made available immediately

  - **NEW!** Sophistication of the System z workload manager down to the individual queries within the Accelerator
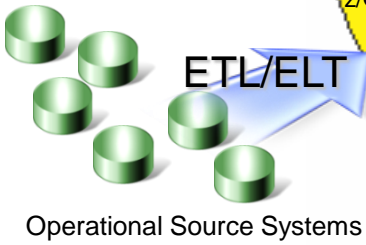
Flexibility in Critical Data Decision Systems
IBM zEnterprise Analytics System 9700/9710

NEW

Blending Netezza MPP and System z SMP technologies

Data Integration Pack

Data Analytics Pack

Fast Start Services Pack

System z z196 / EC12
z/OS Operating System Stack

DS8870

Or z/OS

Data Warehouse Data Mart ODS

DB2 for z/OS

DB2 Analytics Accelerator

Or z/OS

NEW inclusion of DB2 Analytics Accelerator.

ETL/ELT

Operational Source Systems

Gain value from Business Information
IBM Cognos Business Intelligence 10.2 for Linux on System z and z/OS

- Deeper understanding of trends, opportunities, weaknesses and threats

  - **Query & Reporting**: Comprehensive query and reporting capabilities.

  - **Analysis**: Drive better, smarter business decisions with wide-ranging analysis capabilities

  - **Dashboarding**: Monitor, measure and manage corporate performance at a glance.

  - **Real-time Monitoring**: View up-to-the second relevant information in context with BI information
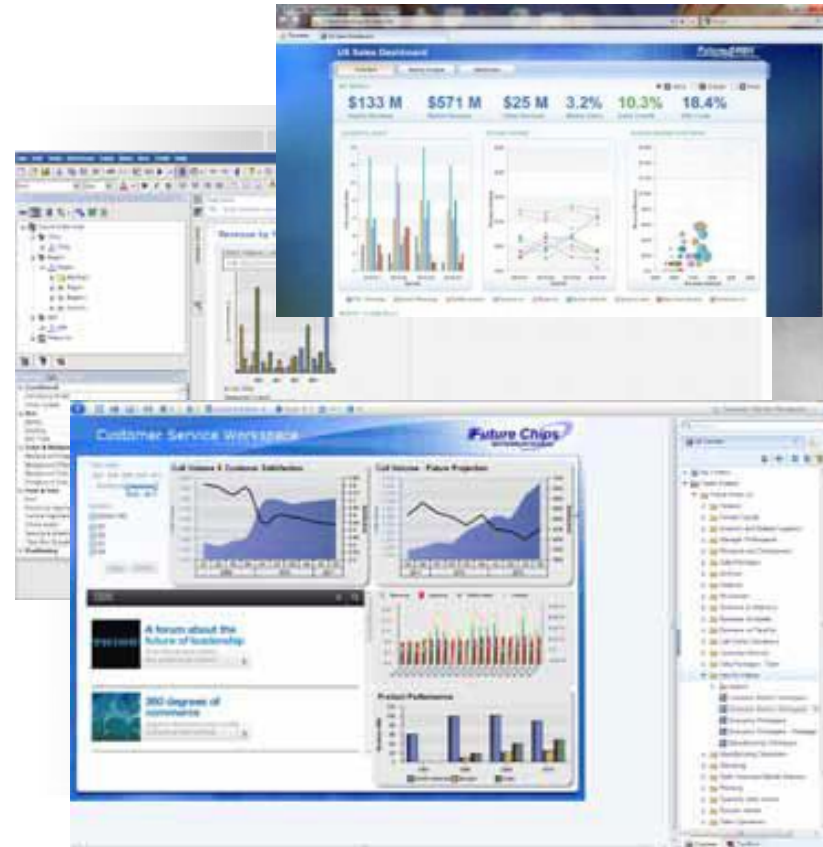
NEW!
- Merge of external data into Cognos reports
- Full fidelity publish capability to publish and share content
- Visualization coach to assist in viewing relevant information
- Mashup services

Up to 32% **Performance improvement with Cognos and zEC12**

14

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

Phoenics

Ameriprise Financial

Nationwide

UniCredit

BANCO DO BRASIL

DB2 Next - Enhanced analytics.
More availability. Better performance

- Continuous Availability Features

  – Online REORG: less disruption, better handling of very large tables/indexes

  – DROP COLUMN, other online schema change improvements

  – Extended log record addressing capacity (1 yottabyte)

  – Improved autonomics which reduces costs and improves availability

- Enhanced business analytics

  – Temporal and SQLPL enhancements

  – Transparent warm/cold archiving

  – IDAA enhancements

  – More efficient inline database scoring enabling predictive analytics

- Simpler, faster DB2 version upgrades

  – No application changes required for incompatible SQL

  – Access path stability improvements

  – Improved quality, product stability at ESP start and at GA

Performance Improvements

Up to **30%** **for query workloads**

Up to **10%** **for TPC-E like workloads**

Up to **5%** **for OLTP (including SAP day posting)**

IMS V Next - Reduce cost. Simply transactions. Improve performance

- Reduce TCO and complexity

    - Reduce MIPS usage across IMS and system generation complexity

    - Extend TCP/IP support to InterSystems Communication (ISC)

    - Improve IMS Shared Queues processing

- Application Simplification and Enablement

    - Allow alter of High Availability Databases and Data Entry Databases without a DB outage

    - Support database versioning

    - Extend SQL support

    - Extend IMS application callout capabilities

    - Expand connectivity for IMS Java applications (host)

    - Improved usability for application calls to WebSphere MQ

- Availability, Scalability and Performance

    - Reduce bottlenecks and general performance improvements

    - Increase maximum number of concurrent application threads/regions

    - User exit enhancements to refresh without an outage

Securing your data and applications

Customers have seen…..

Up to
70% savings in audit and compliance overhead

Up to
52% lower security administrator efforts

Secure critical information

Enhance security intelligence of the mainframe with new integration with QRadar SIEM

Complete, cross platform, solution to address database security and compliance requirements with new Database Activity Monitoring capabilities

NEW **IBM Security zSecure Suite V1.13.1**

NEW **IBM InfoSphere Guardium V9.0**

Enhance security intelligence, automate compliance reporting, and simplify administration
IBM Security zSecure suite V1.13.1

- Enhance mainframe security intelligence
- Automate audit and reporting to detect potential threats and exposures, issue real-time alerts, and initiate remediation
- Integrate application security with DB2, IMS and CICS for compliance reporting
- Simplify security administration to improve productivity and ROI
- Perform RACF database cleanup to remove unused or obsolete authorizations
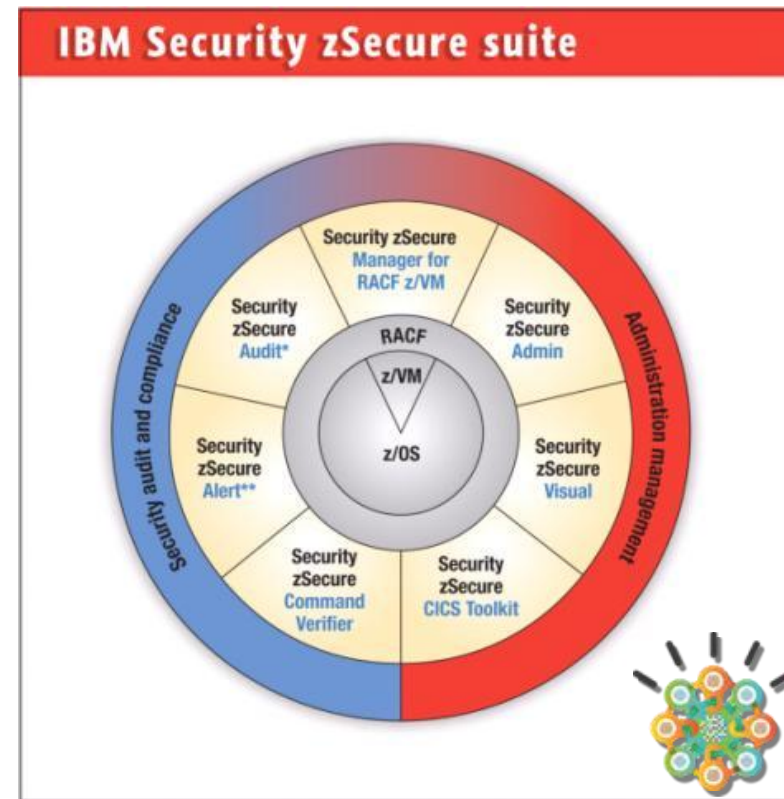
NEW!
- Integration with QRadar
- Expand integration points with DB2
- Enhanced RACF data base cleanup capabilities
- Support for CICS Transaction Server V5.1

IBM Security zSecure suite

Security audit and compliance

Administration management

Security zSecure Manager for RACF z/VM

Security zSecure Audit*

Security zSecure Admin

RACF z/VM z/OS

Security zSecure Alert**

Security zSecure Visual

Security zSecure Command Verifier

Security zSecure CICS Toolkit

Address database security and compliance requirements
IBM InfoSphere Guardium V9.0

NEW

- Simplest, most robust solution for assuring the privacy and integrity of trusted information in the data center

  – NEW! Database Activity Monitoring (DAM) capabilities to address both security and compliance needs, prevent data breaches, monitor privileged users, ensure data integrity, and reduce cost of compliance

  – NEW! Database Vulnerability Assessment (VA) capabilities for database configuration, operating system parameters, and analysis based on database activity

Now support for zBx

Solutions to modernize the Enterprise

Up to 31% improvement to PL/I and C/ C++based CPU intensive applications

"Metal C in z/OS XL C/C++ is yet another powerful tool helping turn the economics of System z software development into a complete equation"
..Rocket Software

- **Accelerate mainframe application delivery** with new features to automate unit testing of COBOL , PL/I, and CICS application test regions

- **Unified environment for multiplatform development and team collaboration** with new capabilities to help automate development of high quality code with a z/OS unit test framework, code review, and code coverage

- **Compilers optimized for the zEC12** with new Enterprise PL/I for z/OS and updated C/C++ compilers

- **Automate event and rule-based decision logic** with new options to host within your CICS, IMS Batch and COBOL Batch applications

NEW IBM Continuous Integration for System z

IBM Integrated solution for System z development

NEW Enterprise PL/I for z/OS compiler

IBM Operational Decision Management for z/OS

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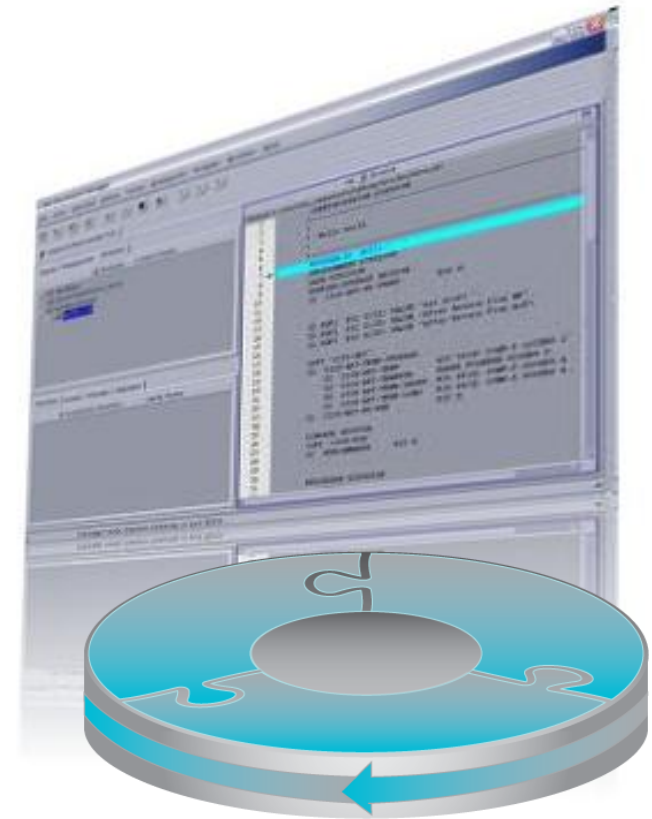
Beta – contact rkoo@ca.ibm.com if interested in participating

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Expedite mainframe application delivery
IBM Continuous integration for System z

New!

- A complete solution for planning, automating, and monitoring application quality and testing, as well as linking testing to build and provisioning of application environments as a seamless process

  - **Efficient mainframe and multiplatform application interface testing** including test case result reporting

  - **Determine status of cross-platform application testing progress and quality** in real-time prior to test execution

NEW!
- Inclusion of Rational Test Workbench to automate and drive application testing of mainframe interfaces including web services
- Unit testing enhancements for COBOL, CICS, and PL/I applications
- Automated provisioning of test data into VSAM

# Modernize and Manage Your zEnterprise Decision Logic
IBM Operational Decision Management for z/OS v8.0.1

Enhanced

- Improves the quality of transaction and process-related decisions in critical mainframe applications
  - Provides multiple z/OS specific runtimes to automate event and rule-based decision logic with options to host within your CICS, IMS Batch, COBOL Batch applications
  - Optimize rule execution to address competitive native COBOL execution to ensure adoption with COBOL application

NEW!

- Provide support for IMS transactional applications with rule execution

- Optimize rule execution to address competitive native COBOL execution

- Support for zEC12
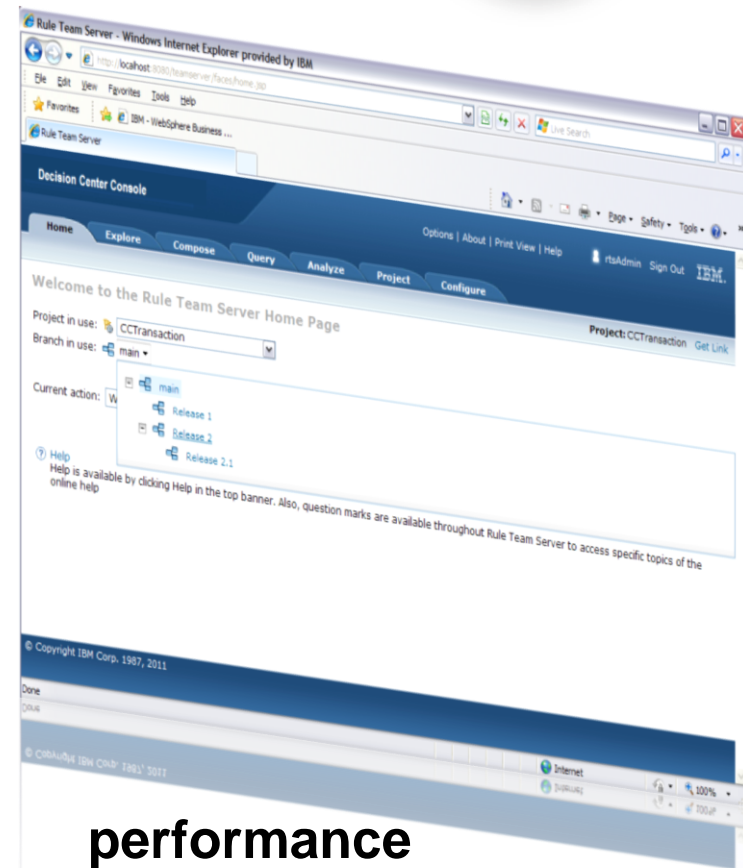
Up to **30%** **performance improvement with ODM and zEC12**

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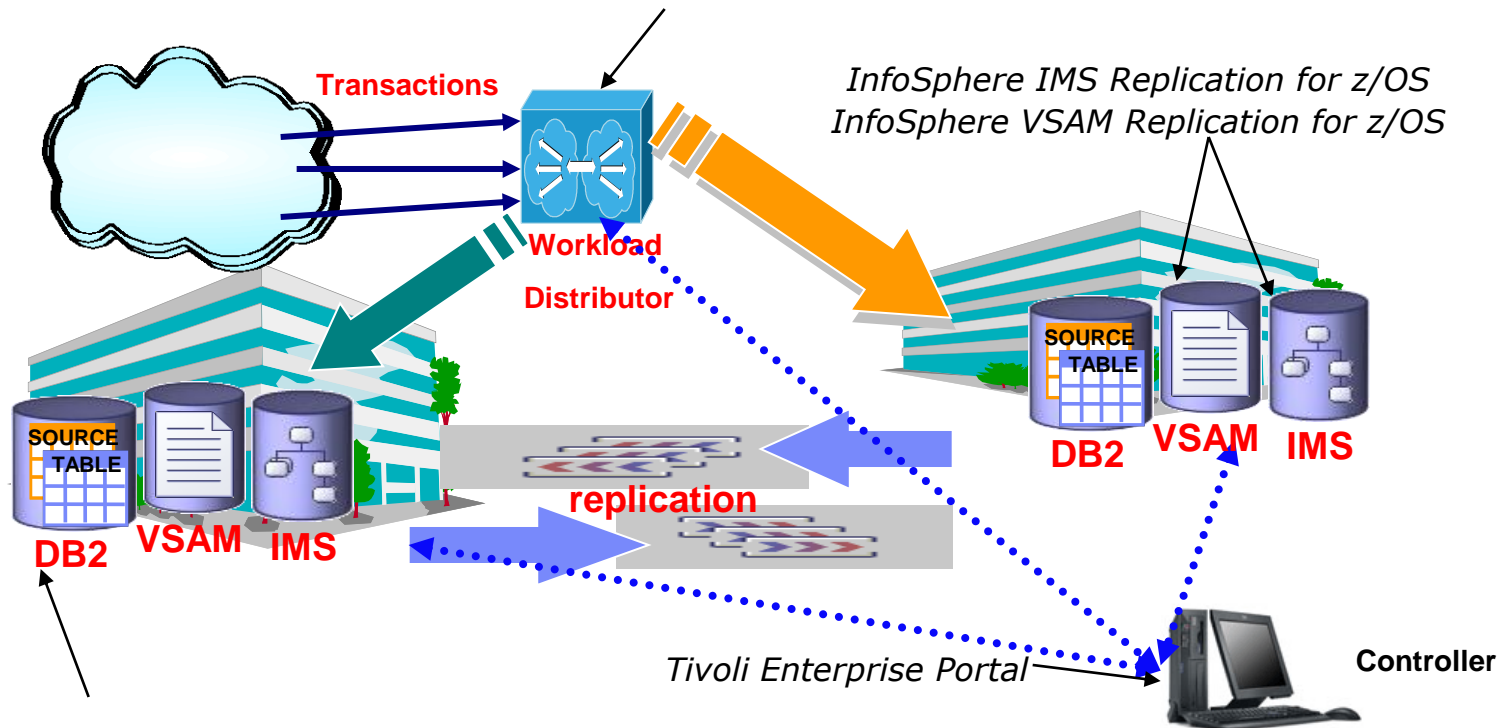
  FREE 30 day download trial here -
  http://www.ibm.com/developerworks/mobile/worklight.html

Coming soon….

NEW! Redguide

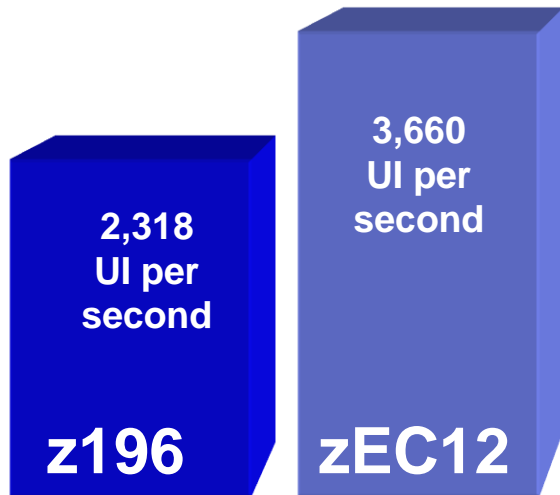*"Transaction Processing: Past, Present and Future"*

IBM GDPS/Active-Active for Continuous Availability

– *Provides continuous availability for <u>two or more sites separated by unlimited distances</u>*

  – <u>Planned workload switch</u> - **20** seconds from active site to standby site

  – <u>Unplanned workload switch</u> - **120** seconds from active site to standby site

  – <u>Planned site switch</u> - (9 * CICS-DB2 and 1 * IMS workloads) **20** seconds

  – <u>Unplanned workload switch</u> - **107** seconds

Transactions

InfoSphere IMS Replication for z/OS
InfoSphere VSAM Replication for z/OS

Workload Distributor

SOURCE TABLE
DB2 **VSAM** **IMS**

SOURCE TABLE
DB2 **VSAM** **IMS**

replication

Tivoli Enterprise Portal   **Controller**

Optimized for critical data workloads

+58%

+75%

+32%

z196 — 2,318 UI per second

zEC12 — 3,660 UI per second

DB2 10

z196 — 2,240 UI per second

zEC12 — 3,920 UI per second

WAS

z196 — 2,410 UI per second

zEC12 — 3,142 UI per second
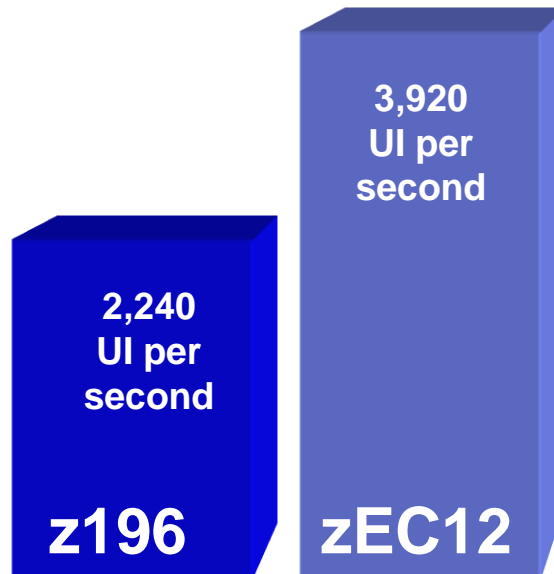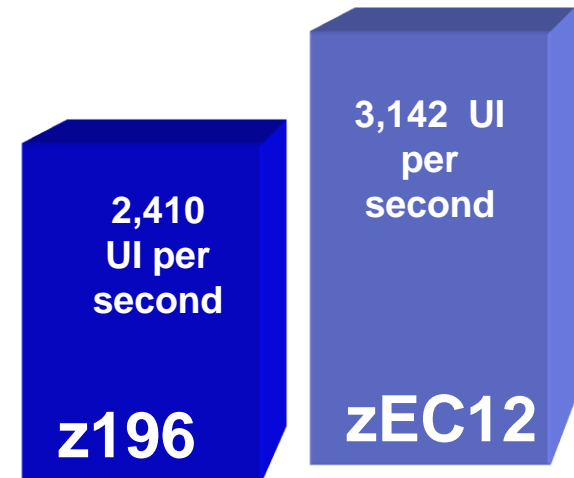
Cognos

Innovative assets for z software

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Coming in 4Q

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

IBM software for the zEnterprise System
A new dimension in computing

IBM System z Demos and White Papers

Understanding the Design, Deployment, and Management of IBM System z

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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