



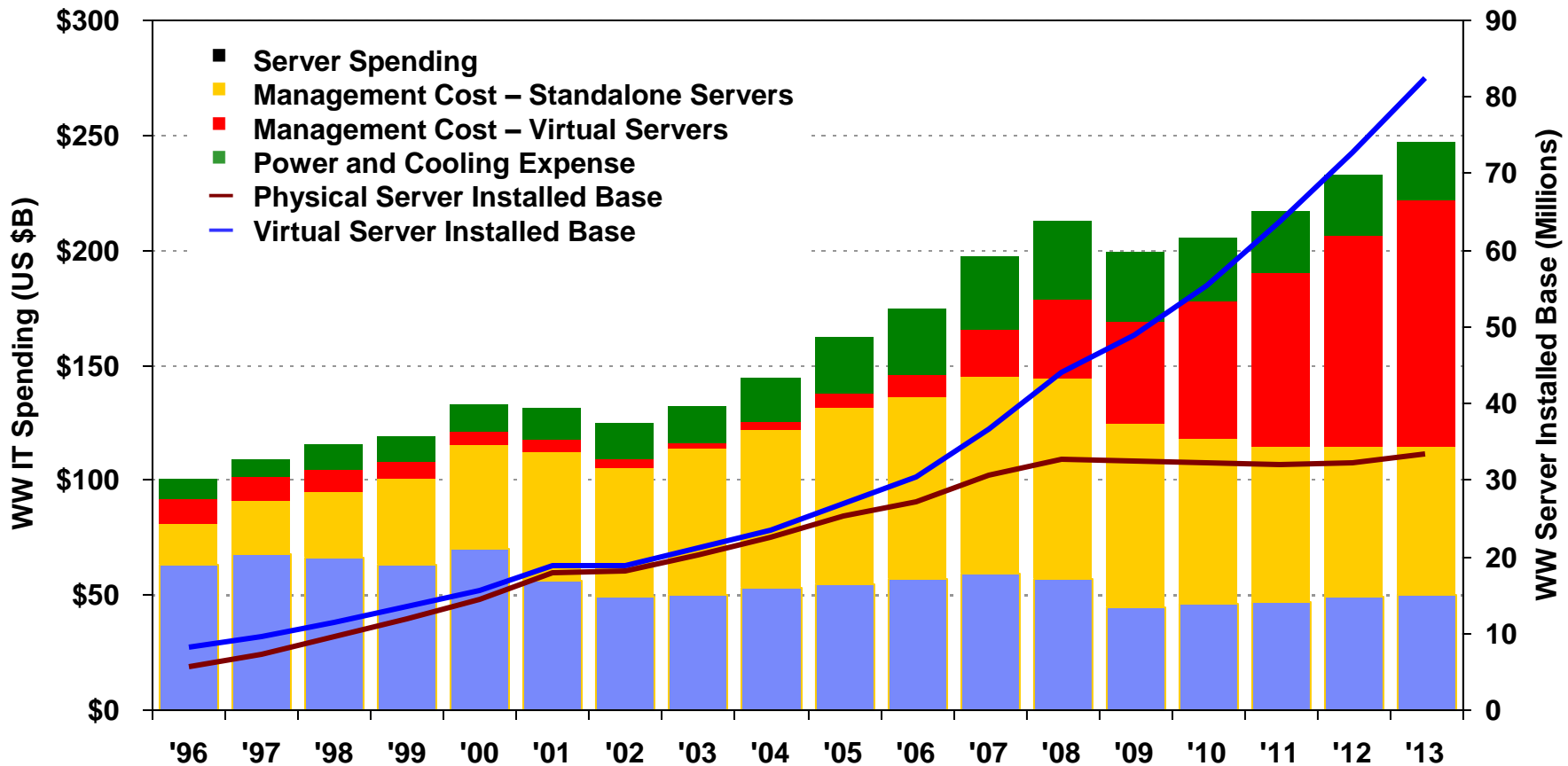
# zEnterprise Software Strategy and Direction - Maximizing productivity, performance and ROI

Ray Jones,  
Vice President,  
System z Software Sales,  
IBM Software Group



# New economic model for the datacenter

## Management costs shift to virtualized servers



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

# IBM Software for System z

## Smart Computing for Smart Businesses

Scalability	Availability	Security	Flexibility
			
<p>On Dec 23rd, 2010, VisaNet processed on System z an average of almost <b>24,000 transactions a second</b> during the busiest minute of the year</p>	<p>IBM solutions enabled Fiserv to grow and meet our business needs without paying a lot to support that infrastructure. Other platforms can grow but cost a lot more, and <b>in terms of availability they are still trying to catch up with System z</b></p>	<p>The intelligence and flexibility gained with a new fraud solution has dramatically <b>improved Westpac New Zealand's ability to identify—and ultimately neutralize—new fraud schemes as they emerge</b></p>	<p>As a result of the solution, local businesses have <b>decreased time-to-market, minimized transportation costs, and can quickly and accurately assess demand</b>, increase profits and avoid waste.</p>

## z/OS Release 13 – Scalable and Secure

### z/OS V1.13

- Shorter batch windows
- Faster application programming
- Early warning for system issues
- Improved I/O performance
- Scalable encryption
- Better control for system backups

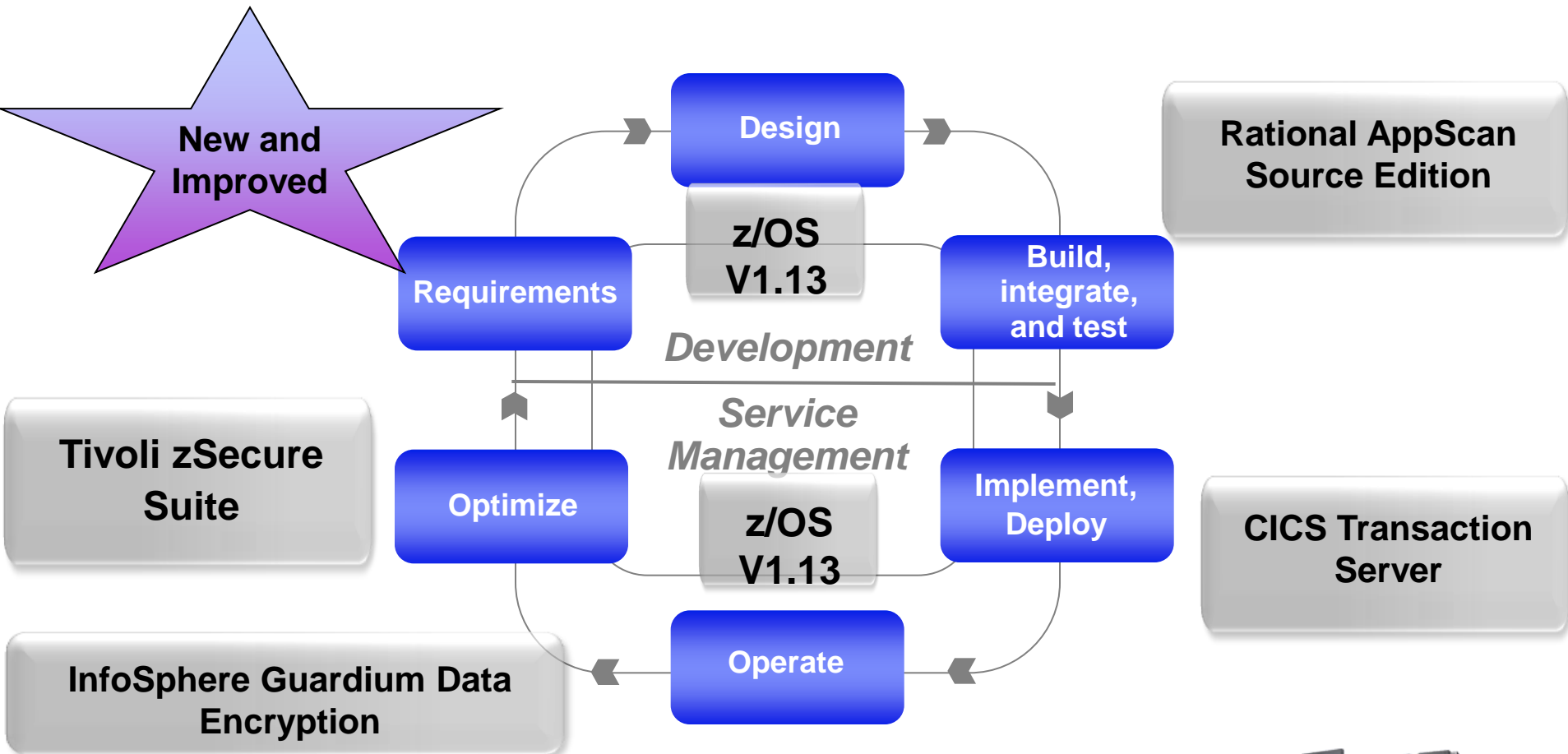
### z/OS Management Facility V1.13

- Easy and fast image deployment
- Better storage management
- Easy to maintain secure network connections

***z/OS - Most scalable and secure operating system on the planet***



# Security for the Enterprise Lifecycle



*System z – the most secure system on the planet*



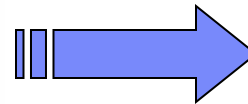
# Fighting Crime with Ones and Zeros with a virtualized system

*Developed a Property Evidence Tracking System using System z virtualized technology, DB2 for z/OS software and SAP Warehouse Management software*



## NYPD Environment

- *Process approx. 1.6 million invoices a year*
- *10 million+ pieces of property in storage*



*Needed software to track and record property from police custody through final disposition*

## Benefits:

- ✓ System can now handle more than **10 million pieces of property**... and counting
- ✓ **Eliminated manual process** supporting maximum productivity for thousands of users
- ✓ **24X7 availability** prevents loss of evidence
- ✓ **Best level of security** which prevents data leaks or losses that could jeopardize NYPD
- ✓ **Avoided hardware and energy costs** of data center expansion and licensing costs if expanded their distributed environment

## Superior virtualization for today and the future: z/VM 6.2

### The most virtualized operating system to enable new workloads

- **Increased flexibility** with Live Guest Relocation (LGR) to move virtual servers without disruption.
- **Increased management** of resources with multi-system virtualization to allow up to four z/VM instances to be clustered as a single system image.
- **Increased scalability** with up to four systems horizontally, even on mixed hardware generations.
- **Increased reliability** through non-disruptively moving work to available system resources and non-disruptively moving system resources to work.

“LGR is the very best z/VM software enhancement since 64-bit support became available.”

– [Mark Shackelford, Vice President, Information Services, Baldor](#)

**BALDOR**  
A MEMBER OF THE ABB GROUP



*“CSL-WAVE 3.0 will provide day-one support for z/VM 6.2 ... allowing users to harness its powerful new features in an easy, graphical and very intuitive manner.”*

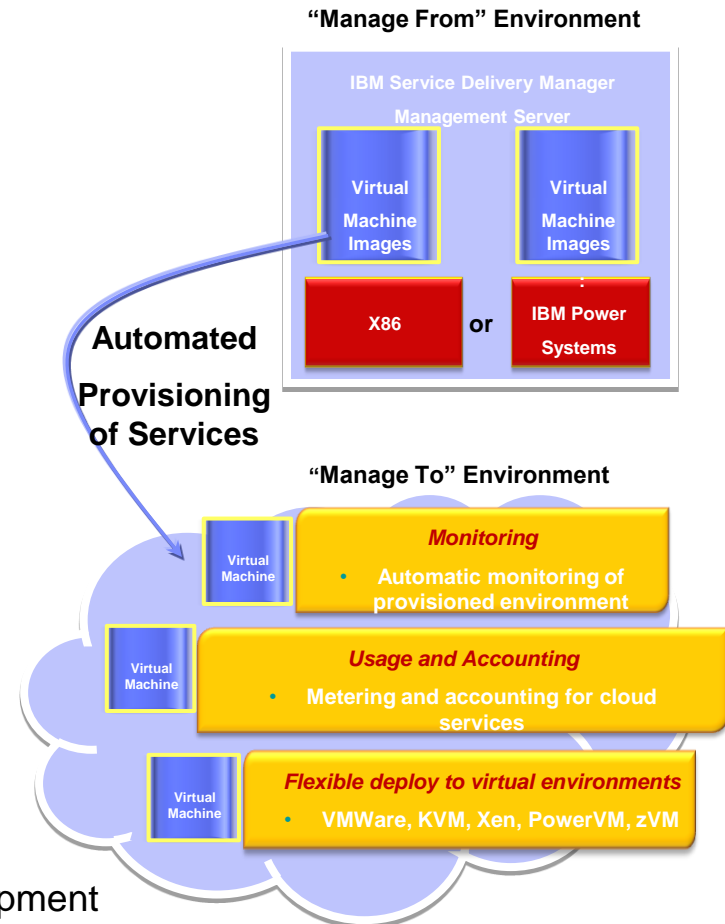
– [Sharon Chen, Founder and CEO, CSL International Ltd](#)

# IBM Service Delivery Manager

A pre-integrated software stack, deployed as a set of virtual images, that automate IT service deployment and provide resource monitoring, cost management, and high availability of services in a cloud

## Benefits of IBM Service Delivery Manager

- **Leverage existing hardware** - allows businesses to leverage existing hardware while reducing capital expenditures and generate greater ROI
- **Improved time to value** - Reduces the amount of integration work required to deploy a cloud by offering a pre-bundled and integrated service delivery software stack
- **Accelerated deployment** - Automated image deployment, cross connection and activation of components. Allows clients to shorten deployment times.
- **Reduce complexity** - Self service, standardization and automation simplify use and minimize errors



Note: zVM Managed from Environment under development



# IBM Compilers Exploit System z for Maximum Performance

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

## z/OS XL C/C++

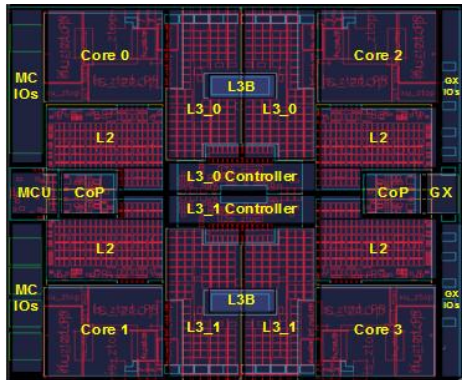
## Enterprise COBOL for z/OS

## Enterprise PL/I for z/OS

## 135 new / changed instructions

## NEW! z/OS XL C/C++

- Up to 5% improvement on applications
- Metal C optimization
- Portability enhancements for multiple languages
- Productivity enhancements for complex applications



## IBM Sets World Record Running SAP Banking Solution on zEnterprise with DB2 10!

### Benchmark Environment

- zEnterprise 196 with IBM BladeCenter and zEnterprise BladeCenter Extension (zBX)
- Configured in two-way data sharing mode, integrated coupling facilities for DB2 buffer pool management, and IBM System Storage DS8800 with Solid State Drive technology
- Huge SAP database load of **150 million accounts** and based on SAP for Banking 7.0

### Record results:

- Day processing **achieved throughput of more than 59 million account postings per hour.**
- Night processing **settled more than 37 million accounts per hour** balanced in night processing scenarios.

## zEnterprise System is designed for data

### Optimized technology

An integrated platform that enables new insight to be delivered within the timeframe of the business transaction.

### Enterprise data serving

Highly secure and scalable corporate data repository

### Comprehensive business intelligence

A full portfolio of analytics and data warehousing solutions



Generating valuable **data in real-time to support more than 3.5 million patients** per year and business units across the spectrum of healthcare.

# Unprecedented value in deploying new business analytics



## **NEW! Smart Analytics System – 9700/9710**

End-to-end BI environment that can support a data distribution hub and transactional analytics platform for modernized reporting and predictive analytics.

## **NEW! Cognos 8 Business Intelligence for z/OS 8.4.1**

Broad range of BI capabilities including advanced reporting, multi-dimensional analysis, sophisticated dashboards, customized self-service personal alerts, and system health and administration of devices.

## **NEW! Tivoli Analytics for Service Performance V1.1**

Helps identify performance issues in an organization's IT and network infrastructure prior to a costly service disruption or outage.

# Double-digit gains for mission critical, high volume data systems

*NEW IMS 12 , Enterprise Suite for z/OS V2.1, and Tools*

**Extend IMS access and use with standard tools/interfaces to modernize, speed deployment, enrich functionality and ease use**

## NEW! **IMS 12**

- TCP/IP support extended to Multiple IMS Systems Coupling
- Expanded Communication between IMS Systems
- Additional RACF Security codes
- Dynamic Definitions and Simplified Interfaces
- Better Problem Analysis and Enhanced RAS
- 64-bit Log and Fast Path Buffer manager support

**Derive value from trusted IMS data and transaction assets**

## NEW! **Enterprise Suite for z/OS V2.1**

- Enable service-oriented architecture (SOA) with enhanced IMS SOAP and Java tools
- New IMS Explorer Eclipse-based tools for application development

## NEW! **IMS for z/OS Tools**

## NEW! **DB2 for z/OS Tools**

## NEW! **InfoSphere Optim Tools**



**30%** more transactions on IMS 12 Fast Path Single Image

**60%** faster access to IMS data using Fast Path Secondary Indexes

Up to **50%** faster deployment of IMS resource definitions and changes

Database logging up to **2x** faster

*GAD in production 100 days before GA!*

# Scaling with Java Applications

## Java 6.0.1

### zEnterprise and Java 6.0.1: Engineered Together

- Up-to 2.1x improvement to Java throughput
- Reduced footprint
- Tighter integration with z/OS facilities
- Improved responsiveness in application behavior
- Extends Enterprise applications to mobile devices

### J9 R2.6 Virtual Machine

- Significant enhancements to JIT optimization technology
- zEnterprise exploitation of instructions and new pipeline
- New Balanced GC policy to reduce max pause times
- Default GC policy changed to gencon

### z/OS Unique Enhancements

- JZOS 2.4.0
- z/OS Java unique security enhancements

### Performance

- **2.1x** improvement to multi-threaded workload
- **1.93x** improvement to CPU-intensive workload



# Business Process Management now on z/OS

*NEW IBM Business Process Manager V7.5 and WebSphere Operational Decision Management*

**Modernize business processes with a unified BPM platform co-located with IBM system z programs**

## NEW! Business Process Manager V7.5 on z/OS

- Built-in SOA components for enterprise-wide service integration and orchestration
- In-process rules authoring with WebSphere ILOG JRules technology
- Streamlined installation of BPM within IBM WebSphere Application Server on z/OS

**Unify rules-based contextual decisions with time-based situational awareness**

## NEW! WebSphere Operational Decision Manager on z/OS

- Combines business rules management and business event processing technologies
- New COBOL Management capabilities and a new standalone zRules Execution Server for z/OS



“ We now automatically prioritizes and routes work with unmatched scalability and 85%-100% utilization ”

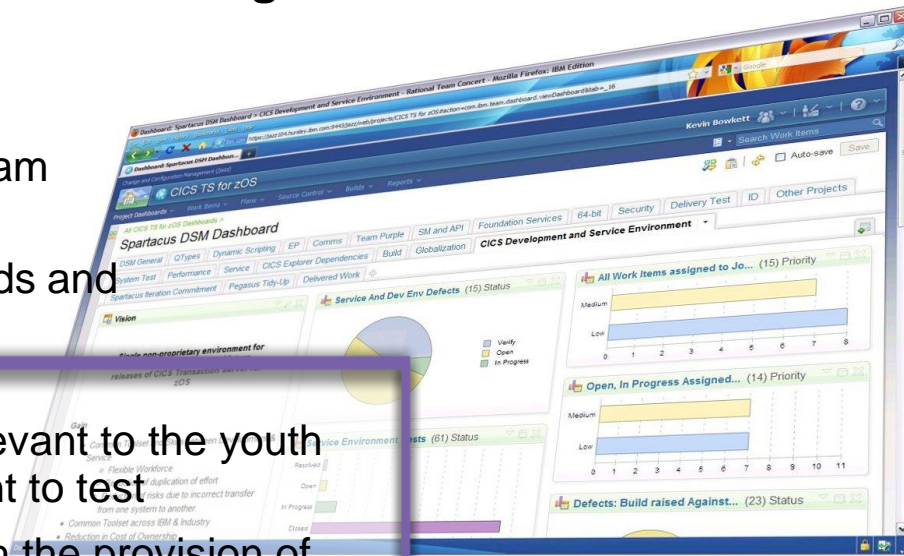
– Citigroup

# Modern Development and Service with Modern Tooling

*CICS development team adopts Rational Tooling*

## Case Study – Using Rational tooling to create an agile environment for CICS

- Rational Team Concert and Rational Quality Management - work item management
- Rational Team Concert - source code and stream management
- Rational Developer for System z - product builds and service environments



### Benefits

- ✓ **Modern extensible platform** which is more relevant to the youth skills and provides a solution from development to test
- ✓ **More open and collaborative environment** with the provision of instant feedback and status, with end-to-end traceability for each requirement and field problem
- ✓ **Reduced need for specialist tooling and skills**, leading to lower cost of ownership of our platform
- ✓ **Reduced cost of entry for new joiners** to the product development teams

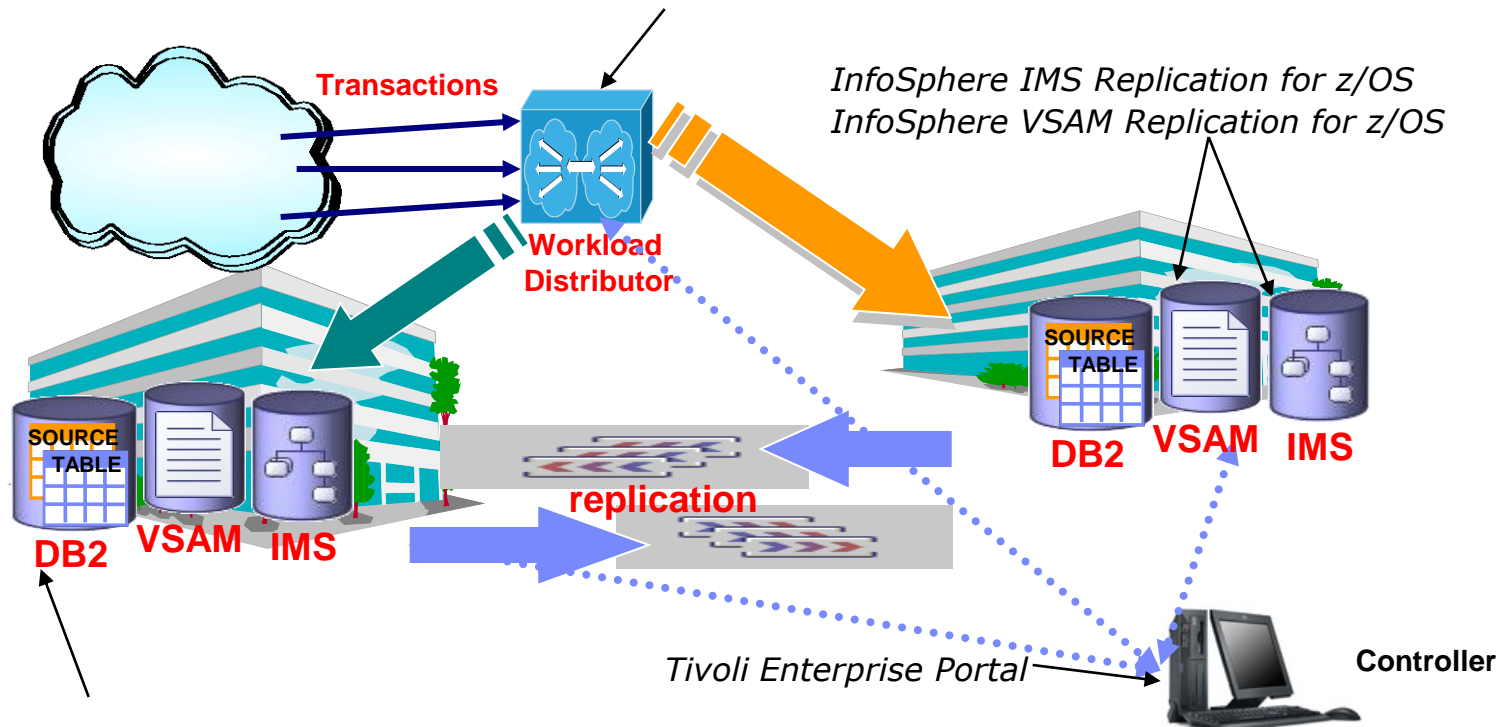


*CICS – one of the top 35 technologies that shaped our industry... Computerworld*



## NEW! 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 - **150** seconds



# What's New: Delivering innovation and value at all levels



## Central Processing Complex

- *New I/O subsystem for improved system connectivity*
- *Security enhancements*
- *Clustering improvements*
- *New IBM zEnterprise 114 (z114) for mid-sized businesses*

## zEnterprise Unified Resource Manager

- *Delivering APIs to enable management of Unified Resource Manager from external tools<sup>1</sup>*

## zEnterprise BladeCenter Extension (zBX)

- *Introduction of select System x blades into zBX*
- *Support for Linux & in the future Windows<sup>1</sup> to broaden application support and integration.*

## Virtualization and Optimization - NEW APIs

*Consolidation, virtualization and energy efficiency to reduce cost, complexity and help align IT resources*

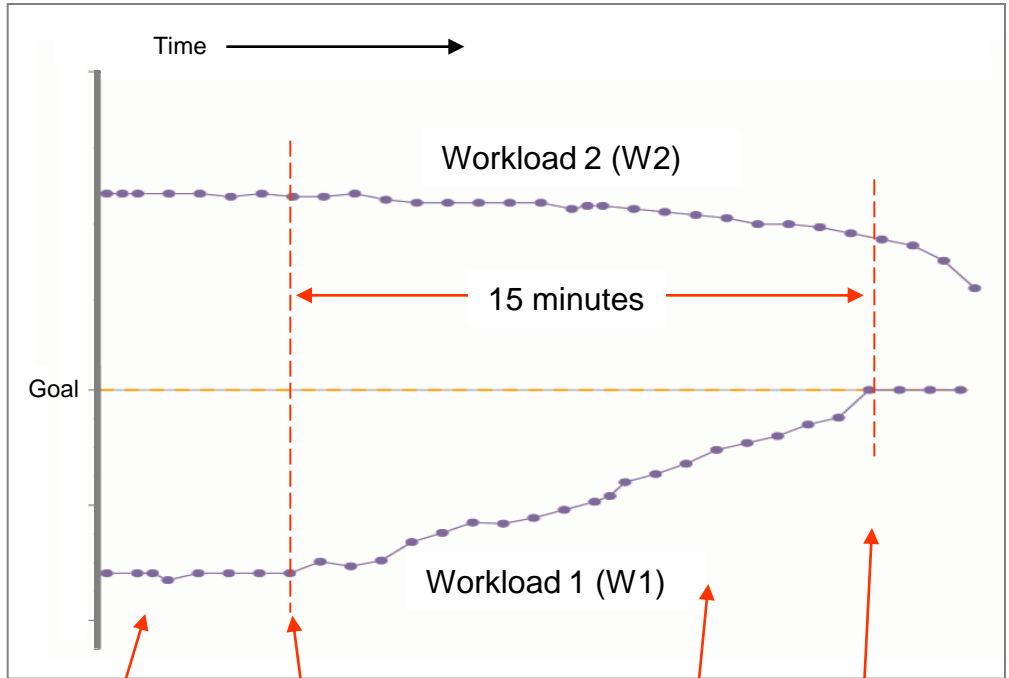
- Statement of Direction<sup>1</sup> - **Application Program Interfaces (APIs) for Unified Resource Manager**
  - Provide access to the same underlying functions that support the Unified Resource Manager user interface
  
- Statement of Direction<sup>1</sup> - **Tivoli Integrated Service Management for zEnterprise API Support**
  - Today, Tivoli products provide significant functionality that supports zEnterprise environments. Tivoli intends to provide additional capabilities made possible with Unified Resource Manager APIs.



<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 overperforming.

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

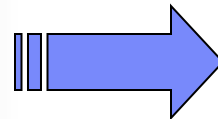
## Italian Utility Company Using SAP

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



### Client Requirement

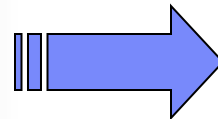
- *Achieve 200K bills per hour*



Provide up-to-date technology

- z196+ p770

- ✓ Results: achieved **250K** bills per hour
- ✓ **70+%** 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

# Thank you

