

zEnterprise.

A New Dimension in Computing

# IBM zEnterprise and System z Software



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## System z Software Exploits the Strengths of zEnterprise

### Capitalize on Traditional IBM System z<sup>®</sup> Strengths

- Batch and Transaction processing, Messaging, Quality of Service, Security, and Data Serving
- 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; Linux<sup>®</sup> on System z
- Simplify System z – make it easier to install and manage for better TCO

### Deliver Value through IBM Software

- SOA for reuse of Web services
- Unified application development
- Cross platform resource and service management
- Advanced integrated business analytics

**Continue to expand the System z Ecosystem, as of 1H 2010:**

- **1,650 unique ISVs have enabled more than 6,300 applications on the System z platform**
- **4,000 applications are enabled on z/OS<sup>®</sup>**
- **3,000+ Linux applications are supported on System z**

**Over 150 new and enhanced IBM Software products since IBM Systemz10<sup>™</sup>**

# Comprehensive Software Leveraging the Strengths of zEnterprise

## Information Management

**Strong information management platform built for business workloads**

*DB2, IMS, FileNet, InfoSphere Warehouse, InfoSphere MDM Server, Cognos, SPSS, Optim*

- NEW!** Smart Analytics System 9600
- NEW!** Smart Analytics Optimizer
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- NEW!** IMS 11, IMS Enterprise Suite 1.1,
- BETA!** DB2 10
- BETA!** InfoSphere MDM Server 9 for z/OS
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## Tivoli

**Visibility, control, security, and automation from System z across your business**

*IBM Service Management on System z, TSAM, System Automation and NetView® for z/OS, TWSz, OMEGAMON*

- NEW!** Tivoli Access Manager Family
- NEW!** Tivoli zSecure Manager for RACF z/VM
- NEW!** Tivoli Application Management for zEnterprise
- NEW!** Tivoli Application Resilience for zEnterprise
- NEW!** Tivoli Asset and Financial Management for zEnterprise

## WebSphere

**Application infrastructure, connectivity and dynamic business processes**

*WAS, CICS, BPM, WMQ, ESB, DataPower, ILOG, Lombardi*

- NEW!** WebSphere Application Server Feature Pack for Dynamic Scripting
- NEW!** CICS Deployment Assistance for z/OS
- ENHANCED!** WebSphere Business Monitor for z/OS

## Rational

**Application Development Tools and Software Delivery Platform**

*Compilers (C/C++, PL/I, COBOL), RDz, RTCz*

- NEW!** Rational Developer for System z
- NEW!** Unit Test
- NEW!** z/OS XL C/C++,
- NEW!** Enterprise PL/I for z/OS,
- NEW!** Eclipse EGL Development Tools project

## Lotus

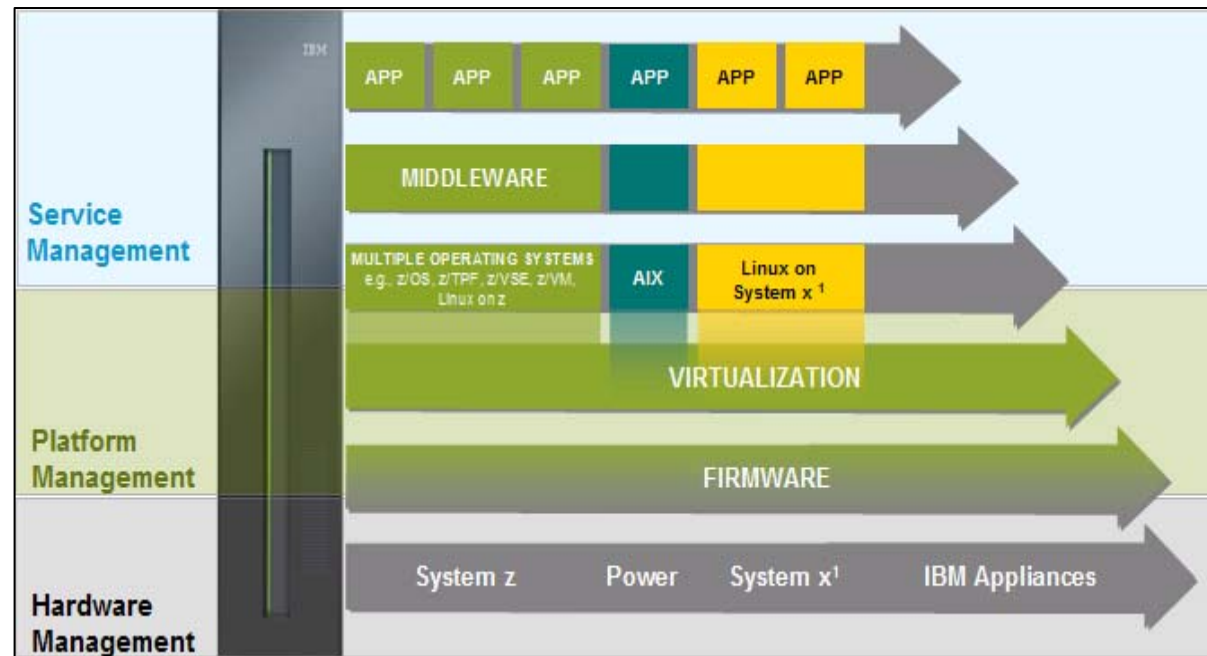
**Productivity and Collaboration**

*Portal, Connections, Notes Domino, Sametime*

- NEW!** Lotus Quickr 8.5 for WebSphere Portal
- NEW!** Lotus Sametime 8.5.1

## zEnterprise – An Opportunity to Integrate Service Management

- zEnterprise provides a strong base for centralizing management of the hardware, firmware and hypervisor management across z, Power and x86
- Tivoli Integrated Service Management provides the capabilities to centralize management of the operating systems, middleware, storage, networks, and other resources composed to deliver *business services*

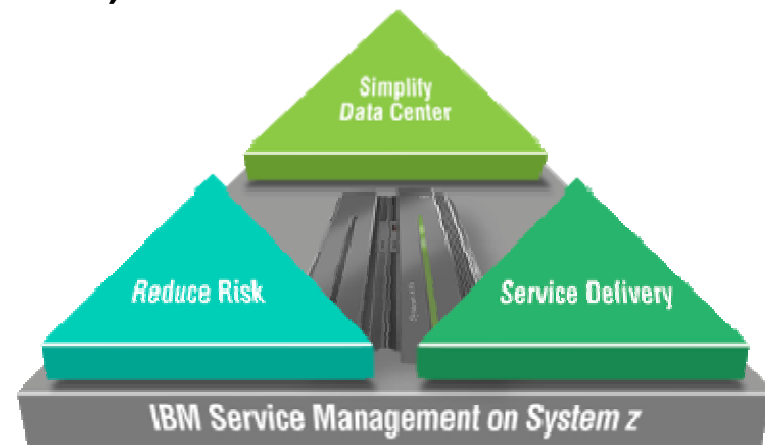


*Tivoli offerings extend the capabilities of the zEnterprise Unified Resource Manager*

## Drive Enterprise Operations Effectiveness and Efficiency Through Integrated Service Management

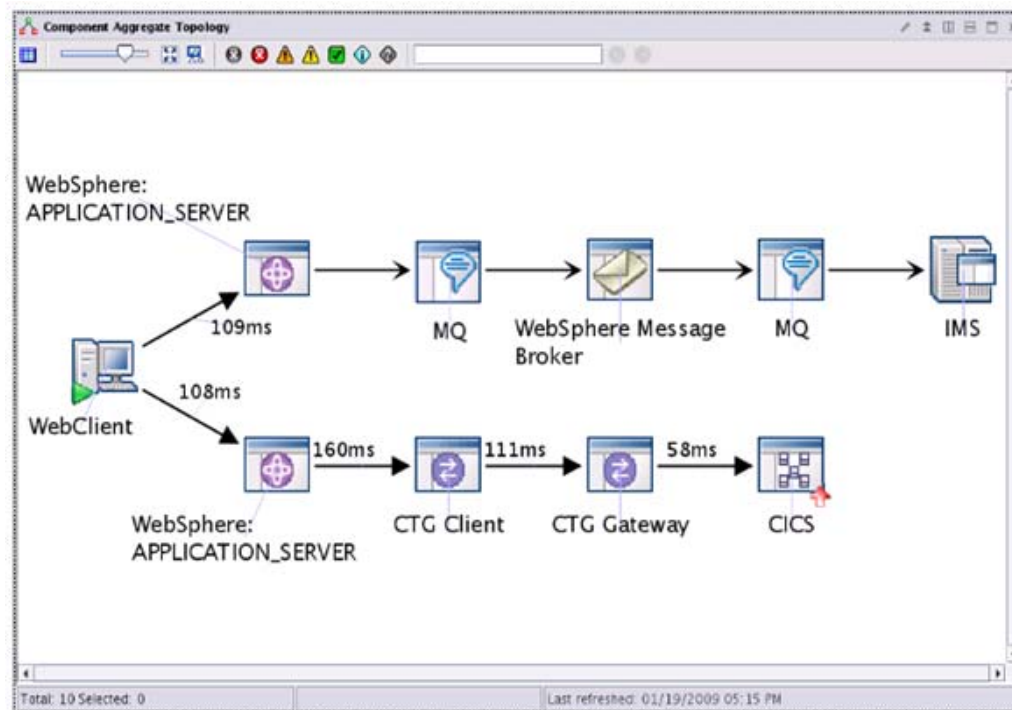
- **New Offering extends full transaction visibility** across z/OS, Linux and AIX® blades
  - Identify performance issues, diagnose root cause from industry unique single user interface
- **Introducing new solution that provides full usage visibility**
  - Featuring high speed scanning of SMF records and custom application tagging captures detailed inventory and usage information
- **Extreme virtualization enabled by IBM zEnterprise™ and structured management**
  - Unique capabilities to automate workload scheduling and availability policies in sequence with knowledge of dependencies across heterogeneous applications and workloads
- **Virtualization, standardization and automation (cloud)**

**NEW!** Tivoli® Application Management for z Enterprise  
**NEW!** Tivoli Asset and Financial Management for z Enterprise  
**NEW!** Tivoli Application Resilience for z Enterprise  
 Tivoli Business Service Manager  
 Tivoli OMEGAMON® Family



## Tivoli Application Management for zEnterprise

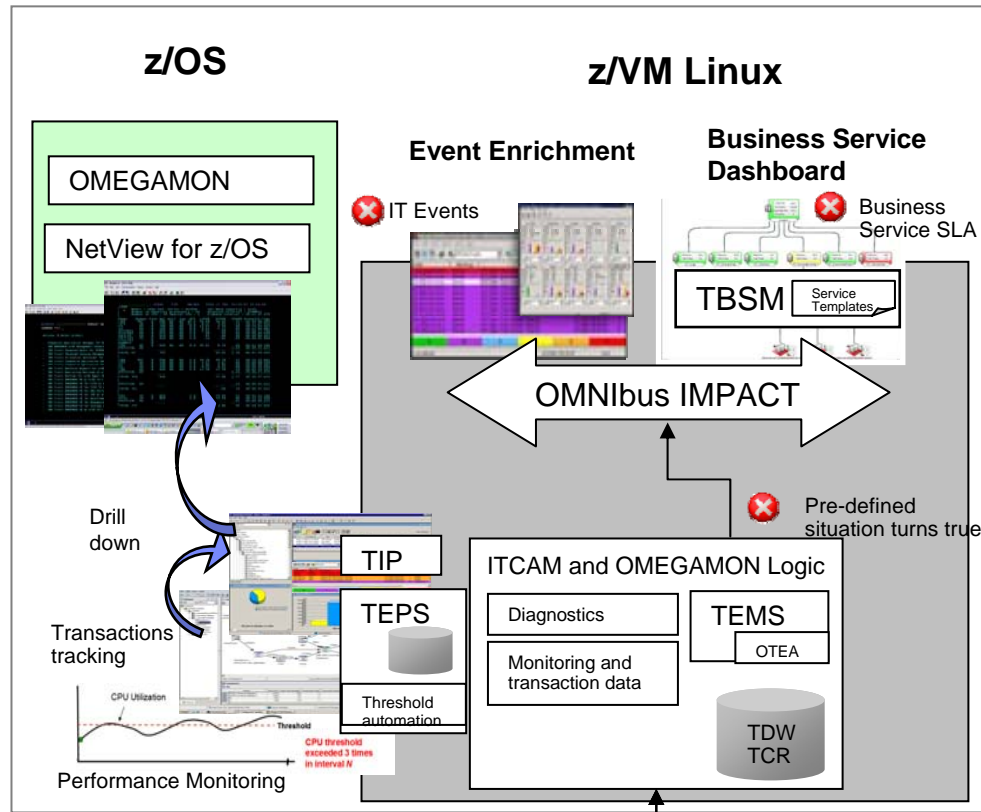
- For customers who have deployed critical **business service application workload** such as SAP or Core Banking to their zEnterprise environment and who need **rapid problem isolation and resolution** to maintain business service levels, the Tivoli Application Management offering provides a **true end-to-end transaction breakdown across AIX, Linux and z/OS environments**, along with industry-leading integration to deep-dive problem resolution tools.



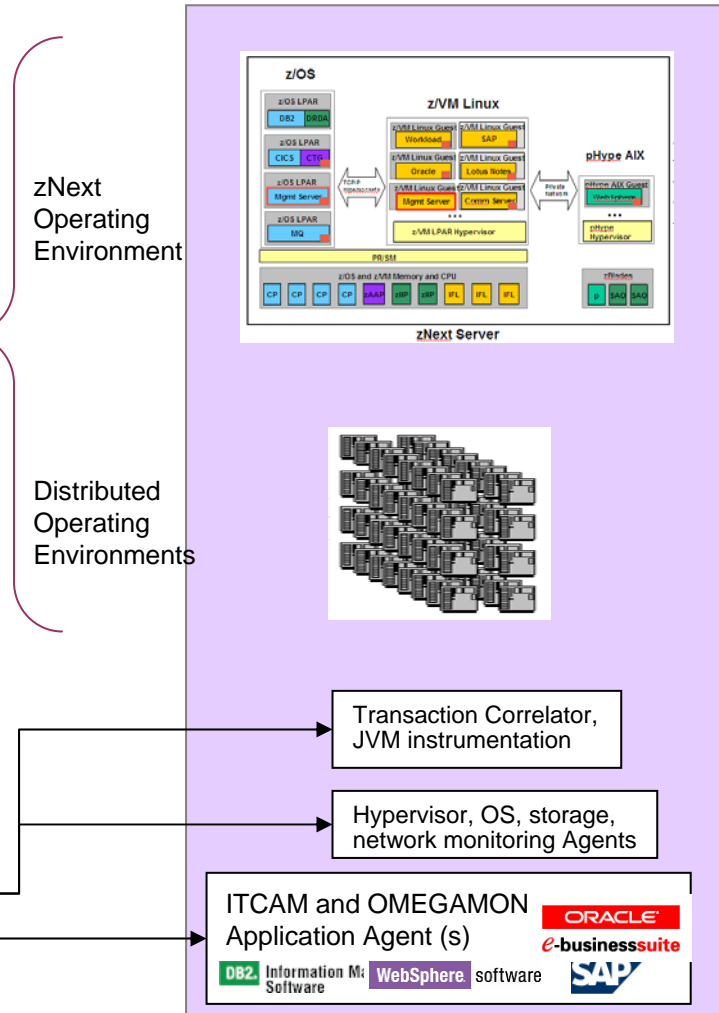
# zEnterprise Application Management Reference Deployment



## SMCz Mgmt Hub for Application Performance



"Manage to" Environment



TEPS = Tivoli Enterprise Portal Server  
 TEMS = Tivoli Enterprise Management Server  
 TIP = Tivoli Integrated Portal  
 TBSM = Tivoli Business Service Management  
 TCR = Tivoli Common Reporting  
 TADDM = Tivoli Application Dependency Discovery Manager

TDW = Tivoli Data Warehouse  
 OTEA = OMEGAMON TEC Event Adapter  
 TSRM = Tivoli Service Request Manager  
 DLA = Discovery Library Adapter

ITCAM = IBM Tivoli Composite Application Monitoring  
 SA AM = Systems Automation Application Manager  
 SA MP = Systems Automation Multiplatform  
 TDI = Tivoli Directory Integrator



## Simplify Multi-platform Application Development and Deployment

- **Multi-platform development and team collaboration for zEnterprise** through an integrated and collaborative software delivery platform
  - *Improve developer productivity, team efficiency, skills transfer and speed delivery of traditional and modern workloads across all zEnterprise operating environments*
  
- **New rapid development and testing of z/OS applications** with RDz UT, offering a more affordable development and test environment on x86 Linux
  - *Frees up development MIPS for production capacity*
  
- **New zEnterprise compilers speed application performance** by exploiting new zEnterprise hardware instructions with C/C++ and PL/I compilers
  - *Faster performance for new and existing applications*

**NEW!** Rational® Developer for System z Unit Test  
**NEW!** z/OS XL C/C++, **NEW!** Enterprise PL/I for z/OS, **NEW!**  
 Eclipse EGL Development Tools project  
 Rational Team Concert for System z and POWER®, Rational  
 Developer for System z and POWER, Rational Asset Analyzer



IBM Rational Enterprise Modernization solutions

## 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++ (V1.12 GA Sept 2010)**

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

### **Enterprise COBOL for z/OS (V4.2 GA Sept 2009)**

- 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 (V4.1 GA Sept 2010)**

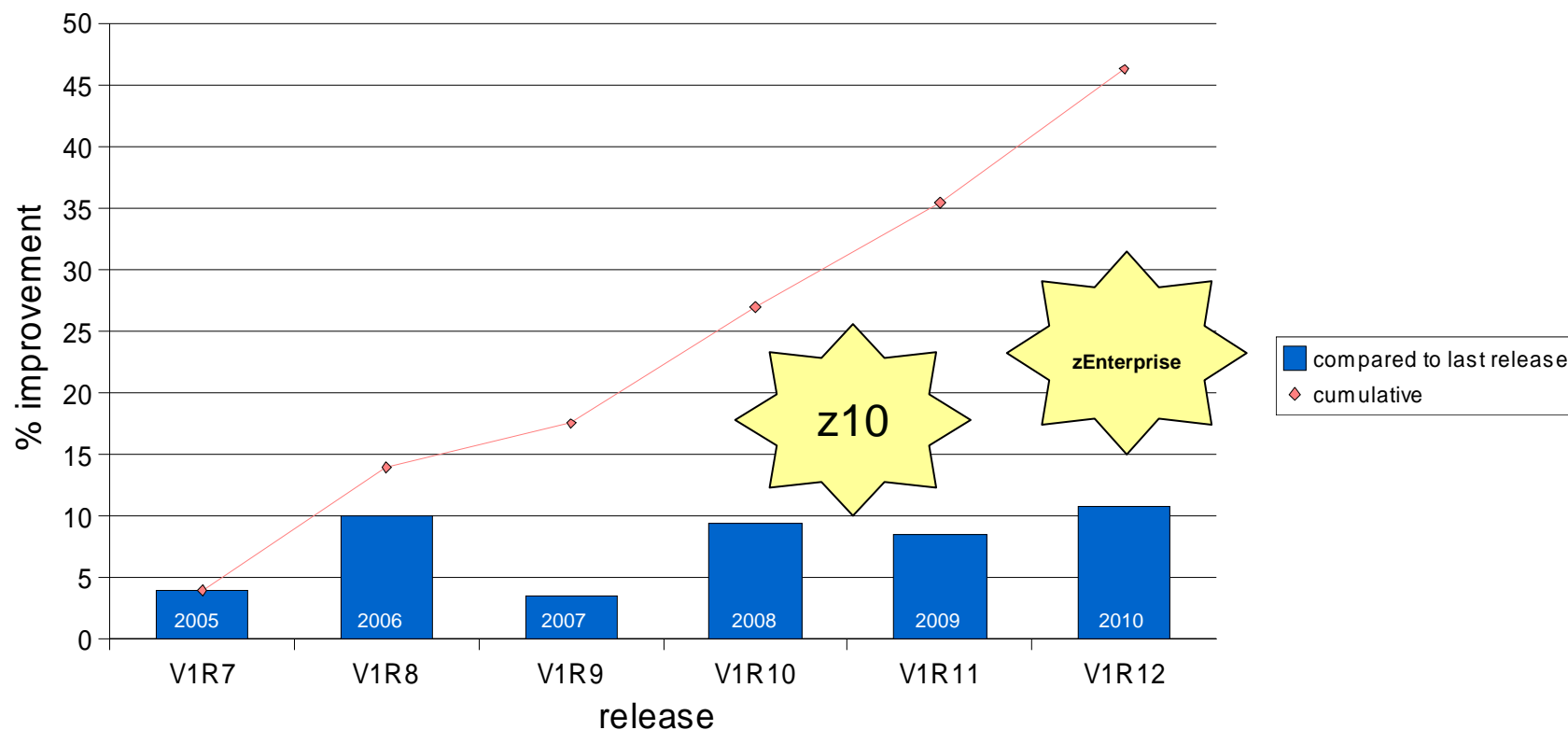
- Facilitates repurposing of existing business processes into new business models
- Integration with IBM middleware (CICS, DB2, and IMS)

#### **135 new/changed instructions**

- 30 high-word facility
- 12 interlock-update facility
- 6 load/store –on-condition facility
- 22 distinct-operands facility
- 1 population-count facility
- 51 enhanced-floating point facility
- 7 MSA-X4 facility
- 6 Miscellaneous

# C/C++ Historical Improvements

## ■ CPU Intensive Integer computation

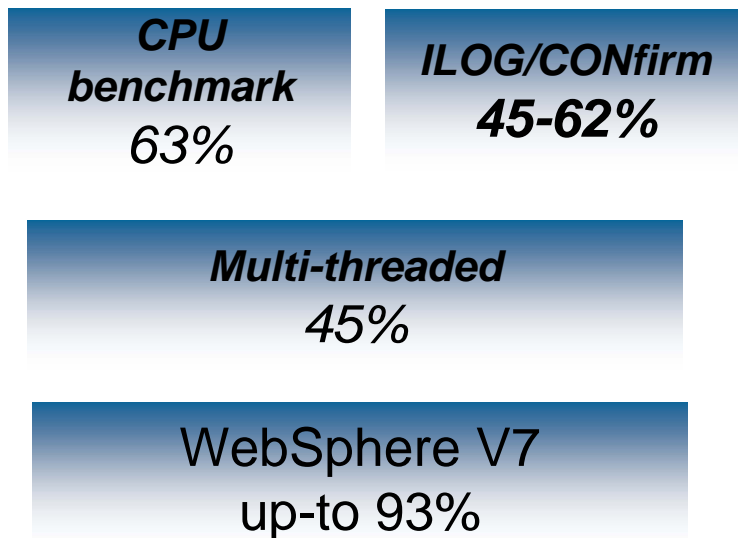


PL/I realizes approx. 50% of the gains due to sharing the same optimization technology

**Disclaimers:** Performance statements for zEnterprise are preliminary and will change when final test validation starts

# Java and WAS Performance with zEnterprise

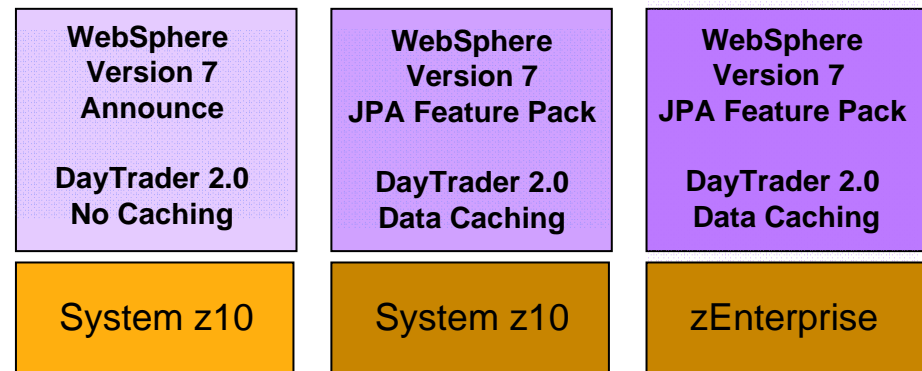
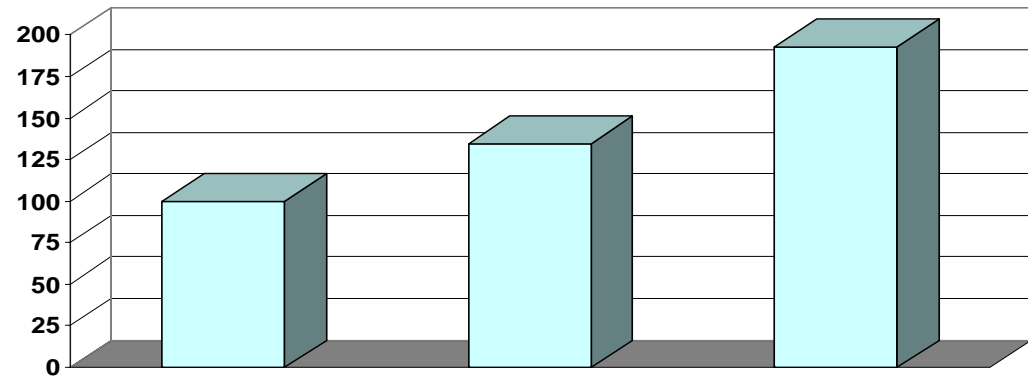
World class per-thread performance yields outstanding results:



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



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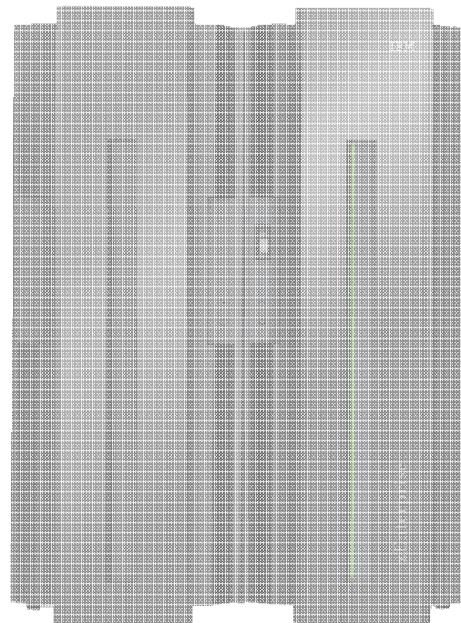
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