



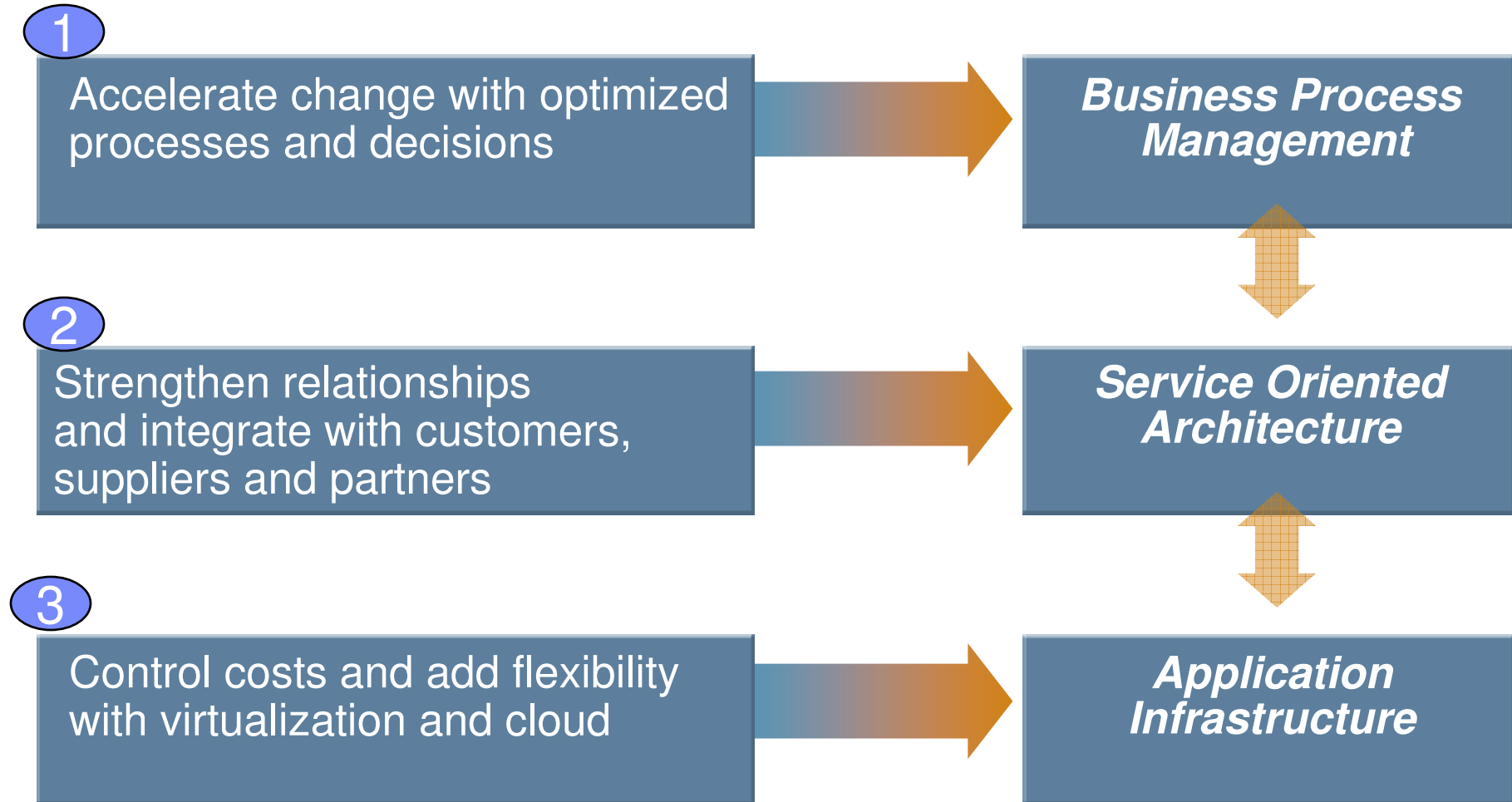
WebSphere Solutions on System z:

Maximizing the Value of Your Applications and Data

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Vice President,
Enterprise Platform Software
IBM Software Group



Successful CEOs Are Charting Their Roadmap to Agility



Across a Dynamic Business Network

Our customers are considering the zEnterprise as the foundation for all aspects of a dynamic business network

Strategic workload

- Transaction Processing
- Virtualization
- SOA/Connectivity
- Application Infrastructure

Why zEnterprise?

- Qualities of Service
- Capacity
- Efficiency
- Flexibility
- Leverage key assets



Scalable, dependable transaction processing must support hundreds of millions of end users in every business situation

Today's challenges

- Thousands of simultaneous users
- Infrastructure overload
- Data inconsistency

Why zEnterprise

- Highly reliable processing of tens of thousands transaction per second from hundreds of thousands of concurrent end users with sub-second response
- Maintains the integrity of the transaction against all types of failures.
- Intelligent, automated error processing

SOLUTIONS

WebSphere Application Server
IBM Transaction Processing Facility
CICS
IMS

“VISA transaction hit peak on Dec. 23” --Visa Viewpoints blog
<http://blog.visa.com/2011/01/12/visa-transactions-hit-peak-on-dec-23/>

Transaction processing capabilities can be combined to meet the changing demands of the business



Extreme Scale-Out

- Elastic distributed caching, in-memory databases, and XTP/Data Grid applications
- Performance and QOS focused

Broad Applicability in the Center

- Extensive standards and language support
- High ISV, application, and skill availability
- Broad platform and database support

Extreme Scale-Up

- Optimized for centralized data
- Database options affect scale
- Performance & QOS focused

WebSphere Application Server

WebSphere eXtreme Scale

TXSeries

CICS

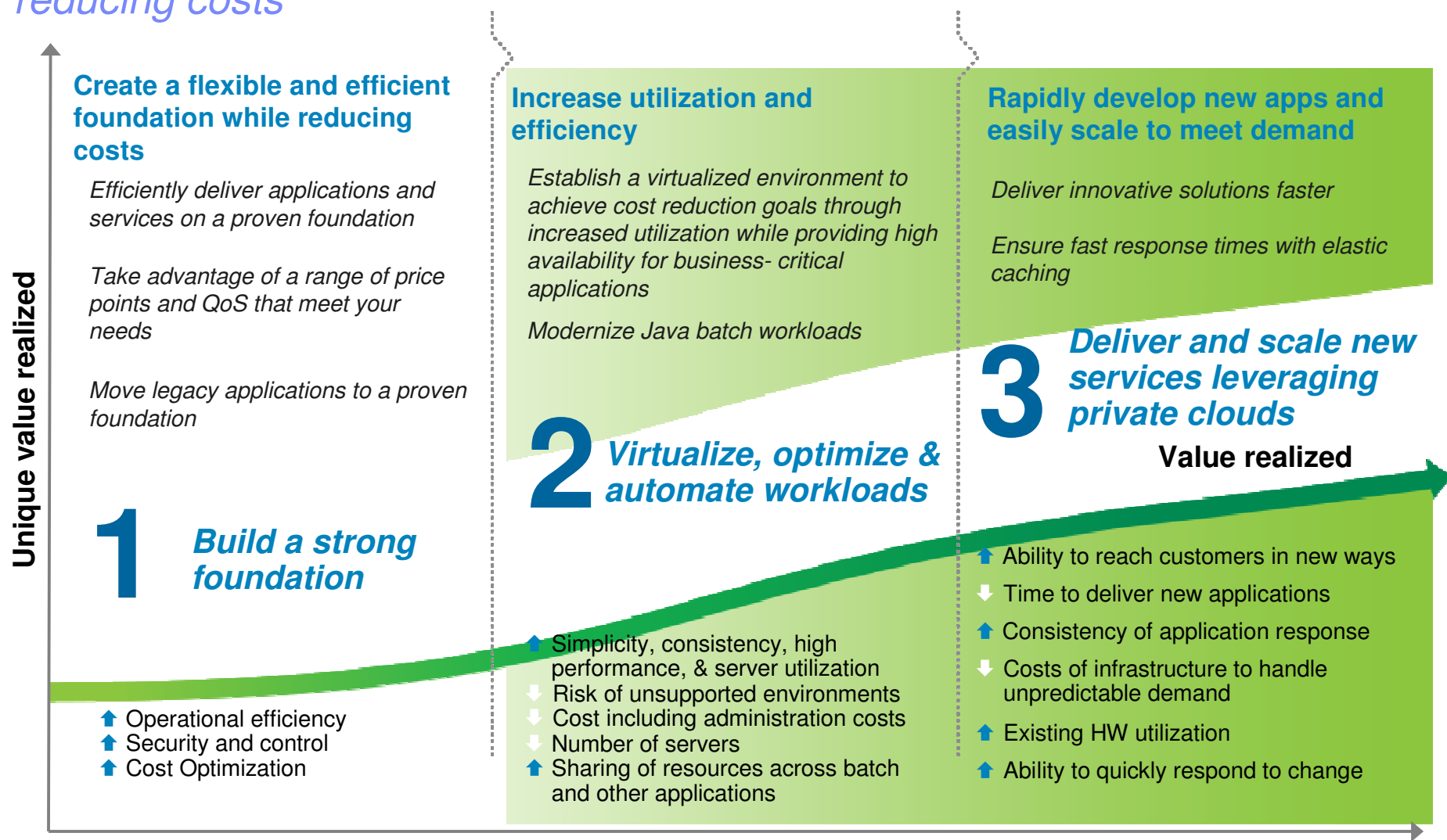
IMS

ALCS

z/TPF

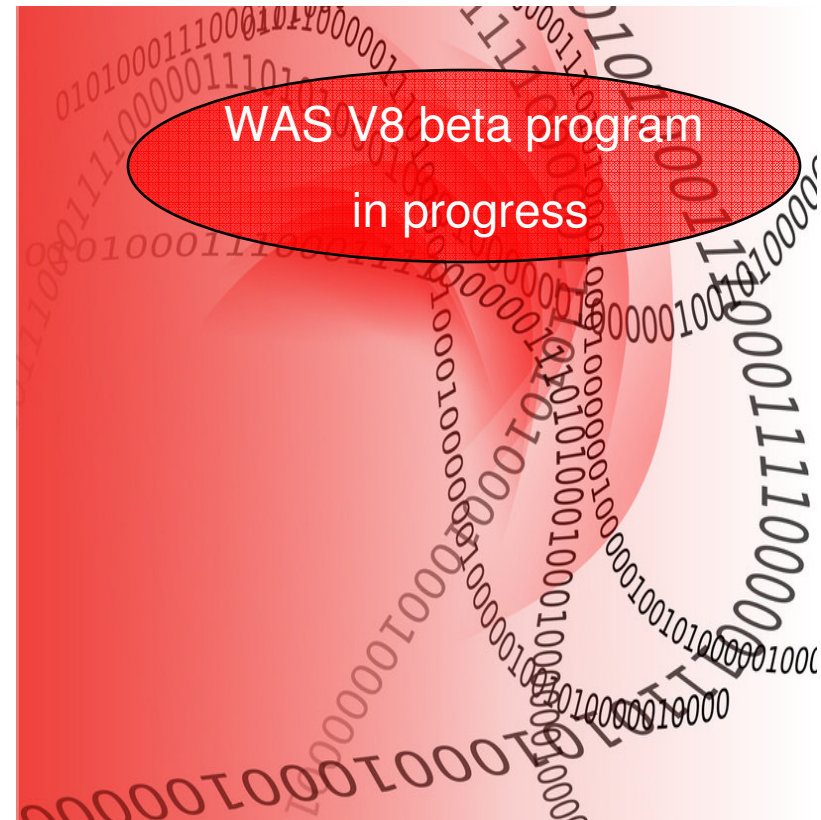
Application Foundation, Virtualization and Cloud

Efficiently deliver innovative applications while optimizing resources and reducing costs



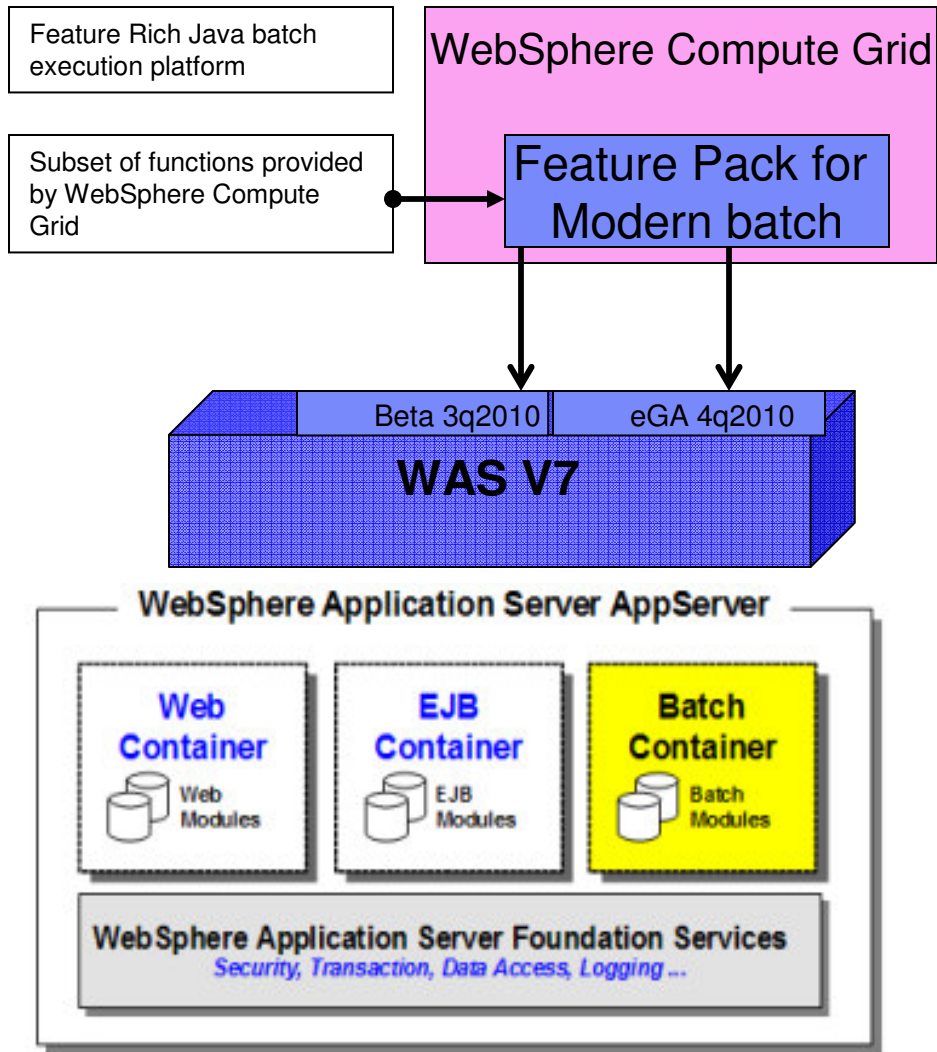
WebSphere Application Server offers unique capabilities for z/OS now and in continuous development for the future

- Expanded support for productivity enhancing programming models
- Faster time to value through a simplified and centralized product install
- Faster time to application development completion
- Enhanced security and governance capabilities
- Improved administration and migration capabilities
- Performance improvements
- Enhanced collocation



¹ <https://www14.software.ibm.com/iwm/web/cc/earlyprograms/websphere/wsaso/index.shtml>

WAS enables concurrent execution of Java batch and OLTP for faster output, cost savings



What is it?

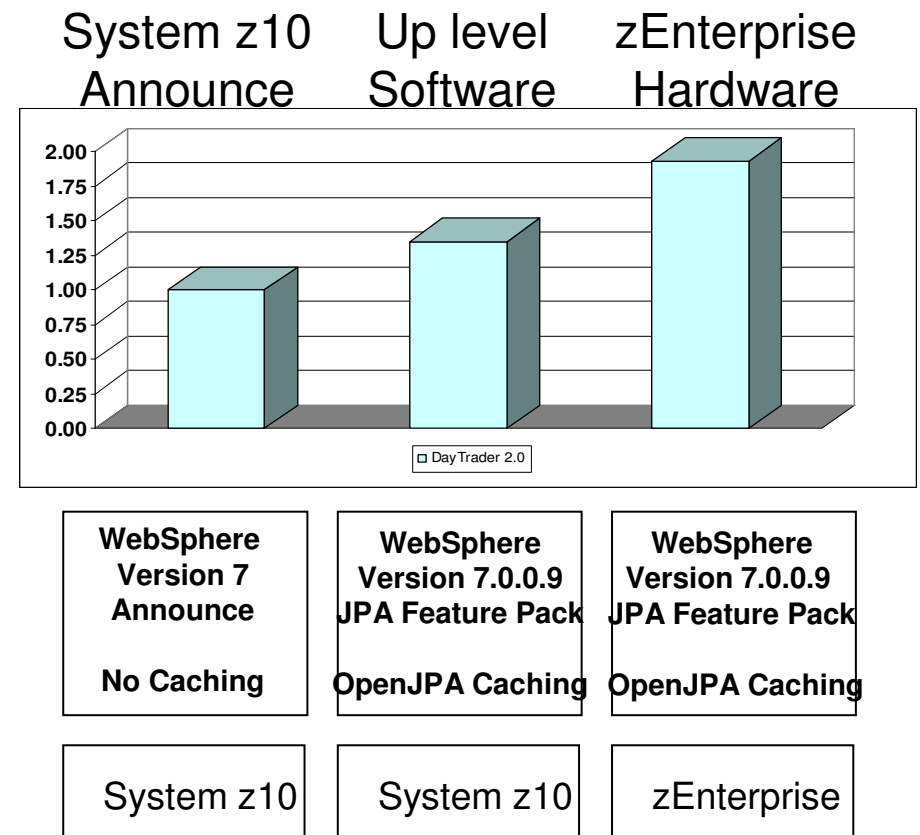
Pre-integrated application framework to help increase developer productivity and time to value for Java batch applications allowing sharing of business logic between batch and OLTP applications

Value proposition

- Reduce cost of infrastructure due to concurrent execution of batch and OLTP workloads using shared business logic on a shared infrastructure integrated with WebSphere Application Server
- Reduced operational cost due to integrated administration of OLTP applications and batch jobs
- High throughput and low resource consumption on z/OS for Java Batch when collocated with data subsystems

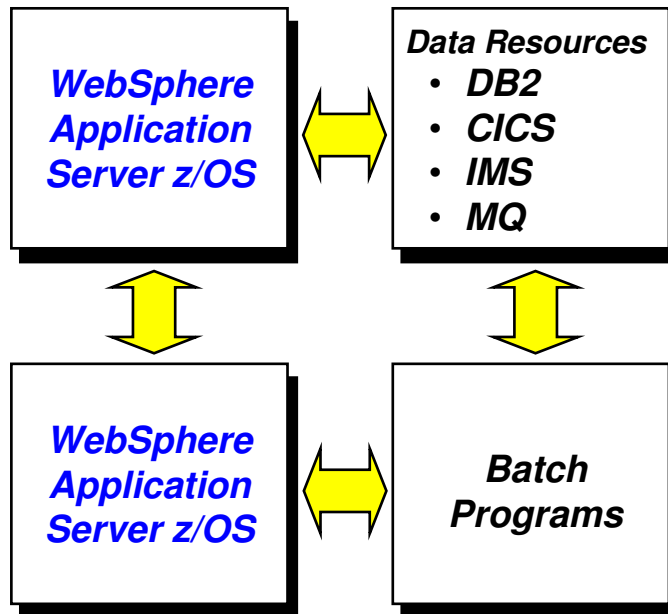
WAS performance is enhanced and optimized on zEnterprise

- **Continued investment to optimize WebSphere software for z/OS environment**
 - 1.35 times performance improvement for JPA 2.0 applications that exploit the OpenJPA caching facilities available in the WebSphere Version 7 JPA Feature Pack.
 - Up level to zEnterprise hardware produces 1.43 times performance improvement
 - Combined hardware and software - **1.93 times performance improvement**



Consolidate workload via collocation in the zEnterprise for faster, streamlined performance

z/OS Operating System Instance



- *Extremely* fast data transfer
- Tightly controlled by z/OS authorization processes
- Eliminate need to serialize and deserialize data and objects
- Eliminate need for encryption overhead
- Propagate several forms of user identity

Efficient -- very low overhead so scalability can be addressed

Secure -- no network, can't be sniffed or hacked

Fast -- for very high volume workloads

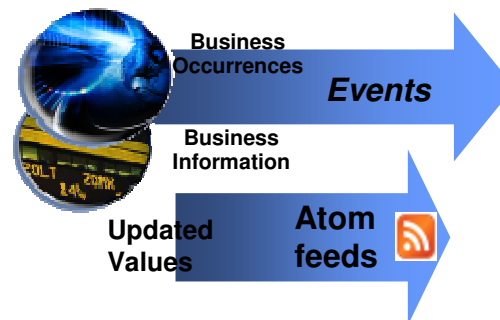
CICS is at the heart of smart business

Revitalize Business

“Real-time visibility for smarter decisions and actions”

Event source for Dynamic Business Networks

CICS Business Applications

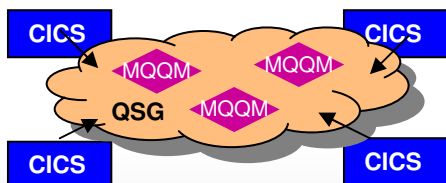


Integration for LOB and COBOL business rule mgmt.

Integrated Tool Solutions



CICS EXPLORER



Tighter MQ Integration



Revitalize Infrastructure

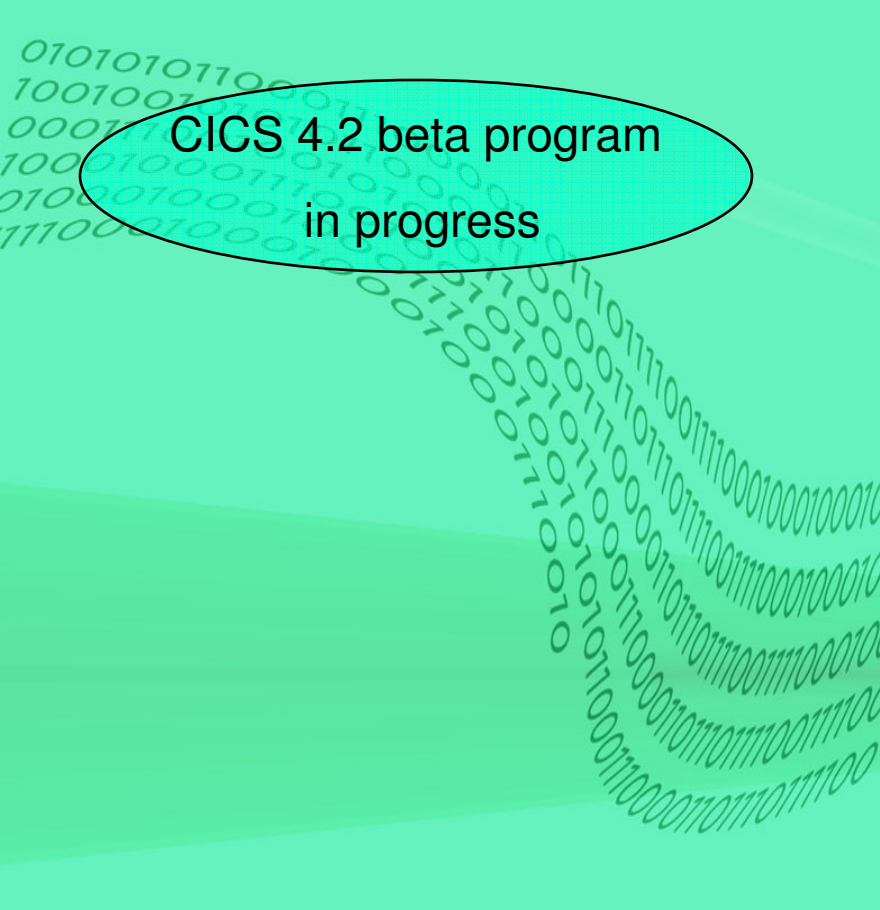
“Greater efficiency and reduced costs”

Revitalize Applications

“Faster and easier to respond to change”

CICS Transaction Server provides real-time visibility for smarter decisions and actions today and tomorrow

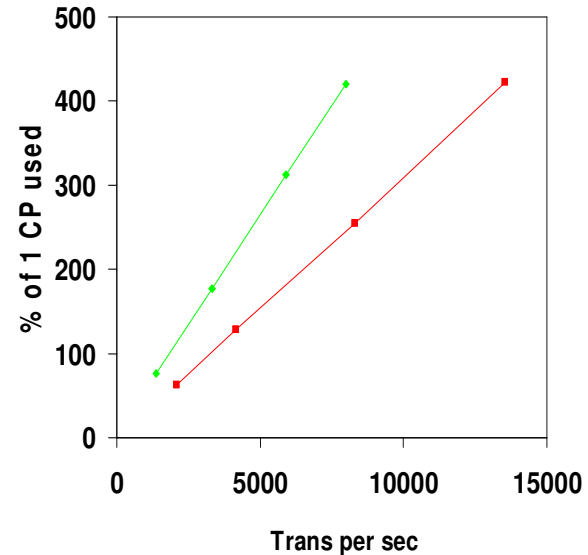
- *Events: including system health events to warn of potential problems*
- *Java: including 64-bit, multithreaded JVM, optimized for zEnterprise*
- *Connectivity: including option to offload Web services parsing to zAAPs*
- *Management: including cross system transaction tracking capabilities*
- *Scalability: including threadsafe and 64-bit exploitation*



CICS 4.2 beta program
in progress



CICS delivers enhanced price/performance on z196

- **Workload**
 - Representative of a customer CICS WebServices Workload
 - Based on SOA Benchmark
 - XML SOAP messages directly into CICS via TCPIP
 - 5 CICS regions
 - 500 TCPIP clients per region
- **The Application**
 - Fairly complex XML
 - 3K and 69 elements inbound
 - 10K and 321 elements outbound
 - Back end application
 - COBOL Threadsafe OPENAPI
 - 1 additional link to another COBOL program
 - Average of 20 VSAM Reads
 - Data in memory
- **Hardware**
 - Systems under comparison
 - z10 2097-763 and z196 2817- 772
 - LPARs with 5 dedicated CPs
 - Separate LPAR for Network simulation
 - 4 data points highlighted on each machine



- Comparing 2097-705 with 2817- 705
- ITRs 9365 vs 16274 gives 73% improvement

Improve application performance with tools for development, tuning, and deployment

<p>Session and user views, Configuration, Broadcast, User and Admin commands</p> <p>ISM</p>	<p>Daemon & Connection Status & Test</p> <p>TG</p>	<p>Develop Test Etc</p>  <p>RDz</p>	<p>Configuration Status Control, Test</p> <p>MQ</p>	<p>Status Situations Topology</p> <p>XE</p>												
<p>Threadsafe, File, CPU, Response Time, Statistics, Alerts, Graphical and Sheet views</p> <p>PA</p>	<p>Deployment, Discovery, Visualization, Cloning, Automation & Control</p> <p>DA</p>		<p>CICS, IMS, DB2, & z/OS Application Debugging</p> <p>DT</p>	<p>CICS, IMS, DB2, & z/OS Abend Reporting & Diagnosis</p> <p>FA</p>												
<p>Execution Tree Dependencies Queries Command Flow</p> <p>IA</p>	<p>CRUD/Install History, Audit Backout Search, Compare</p> <p>CM</p>	<p>CRUD/Install Control, Filter Topology Events, ATOM</p> <p>SM</p>	<p>CICS, IMS, DB2, & z/OS Observation Requests & Reporting</p> <p>APA</p>													
<p>ibm.com/cics/tools</p> <p>ibm.com/cics/explorer</p> <p>ibm.com/cics/explorer/download</p>																
<p>SM CICS Transaction Server</p> <p>IA CICS Interdependency Analyzer</p> <p>PA CICS Performance Analyzer</p> <p>CM CICS Configuration Manager</p> <p>DA CICS Deployment Assistant</p> <p>TG CICS Transaction Gateway</p> <p>ISM IBM Session Manager</p>																
			<table border="1"> <tr> <td>APA</td> <td>Application Performance Analyzer</td> </tr> <tr> <td>FA</td> <td>Fault Analyzer</td> </tr> <tr> <td>DT</td> <td>Debug Tool</td> </tr> <tr> <td>MQ</td> <td>WebSphere MQ</td> </tr> <tr> <td>XE</td> <td>OMEGAMON XE for CICS</td> </tr> <tr> <td>RDz</td> <td>Rational Developer for System z</td> </tr> </table>	APA	Application Performance Analyzer	FA	Fault Analyzer	DT	Debug Tool	MQ	WebSphere MQ	XE	OMEGAMON XE for CICS	RDz	Rational Developer for System z	
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Virtualization solutions specific to a single platform can cause more complexity, while zEnterprise provides simplification

Today's challenges

- Simple workloads on single platforms can cause virtual server image proliferation
- Initiatives for hybrid applications with heterogeneous architectures are daunting

Why zEnterprise?

- Most efficient virtualization capabilities of any server platform
 - For mission-critical or customer-facing business applications; ISV applications
- Cost-effective to run Java and Linux-based applications on the same platform
- Application and services are deployed to the best matching virtualized resources

SOLUTIONS
Linux on System z
WebSphere Application Server
WebSphere Virtual Enterprise

Linux on the mainframe is helping Atos Origin develop an on-demand computing model for its customers, enabling them to pay for computing power on a transactional basis.



zEnterprise helps to address the risks introduced into the complex business environment

Today's challenges

- Massive amounts of data to collect, transfer, and integrate increase bottlenecks
- Complexity induces operational errors, expands security exposures and downtime.

Why zEnterprise

- Unmatched levels of security inherent in the System z mitigate exposure
- QoS (qualities of service) extended to other platforms
- Reduced points of failure through private network
- Data integrity preserved and available for compliance

SOLUTIONS

WebSphere DataPower X150z

WebSphere Application Server

WebSphere Enterprise Service Bus

WebSphere Process Server

WebSphere Business Rules for z/OS

CICS

The University of North Carolina Health Care System found the ability to quickly analyze data improves regulatory compliance





Hardware ESB offers universal connectivity capability to help enable Web 2.0 and Cloud

What is it?

The *IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise* can help simplify, govern, and enhance the security of XML and IT services by providing connectivity, gateway functions, data transformations, protocol bridging, and intelligent load distribution.



- Consumable hardware ESB



- “Any-to-any” conversion at wire-speed
- Dynamic routing; intelligent load distribution

How is it different?

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

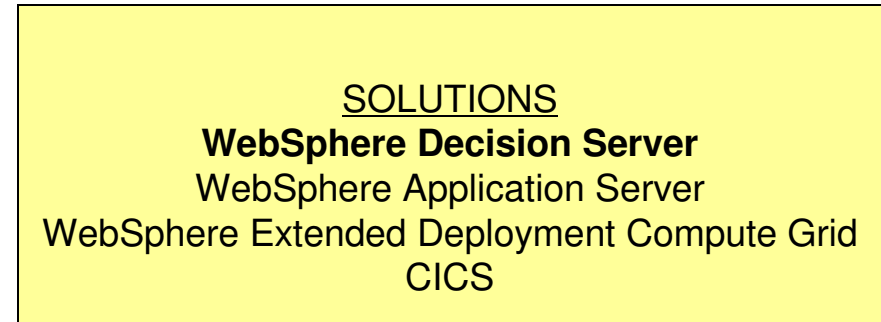
Application integration plays a critical role in enabling new business opportunities and innovation

Today's challenges

- Lacking business and IT alignment
- Waning customer satisfaction
- Spikes in demand are unpredictable
- Siloed resources inhibit information sharing
- Systems inflexible to change

Why zEnterprise?

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

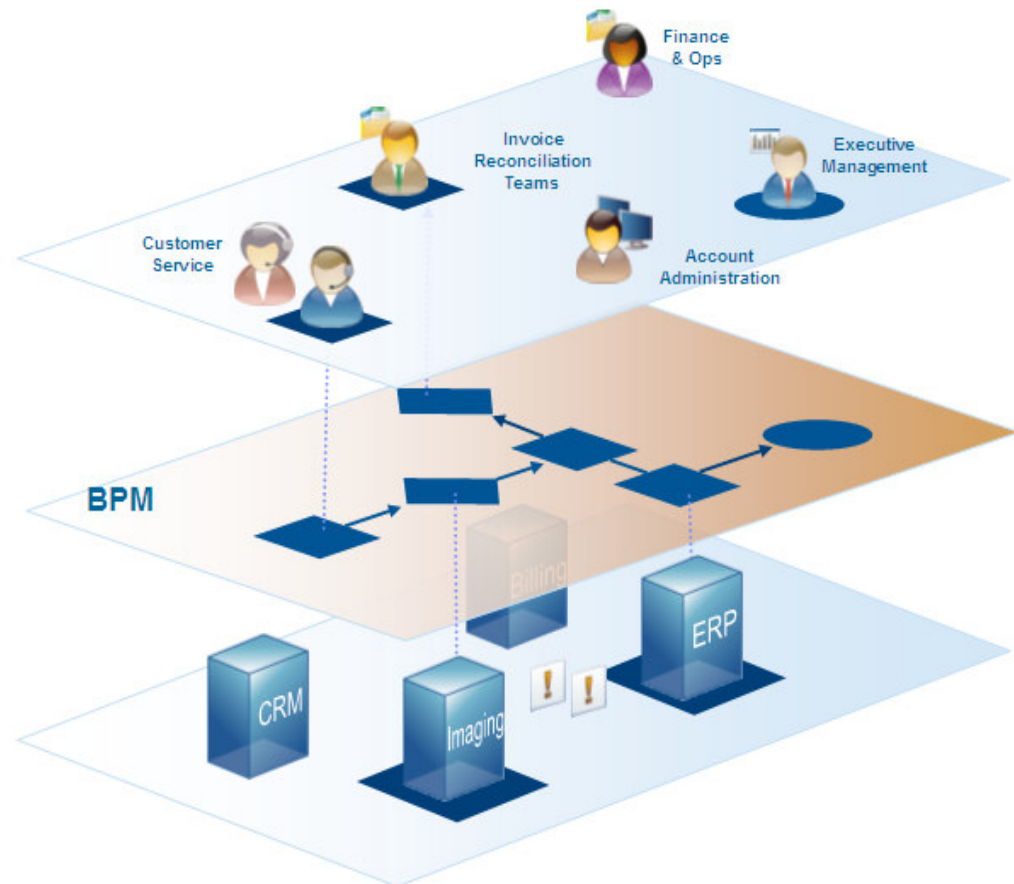


If you require high-volume, high efficiency, high reliability and unlimited scalability, this system is highly recommended --H.H. Yang, E Sun Bank

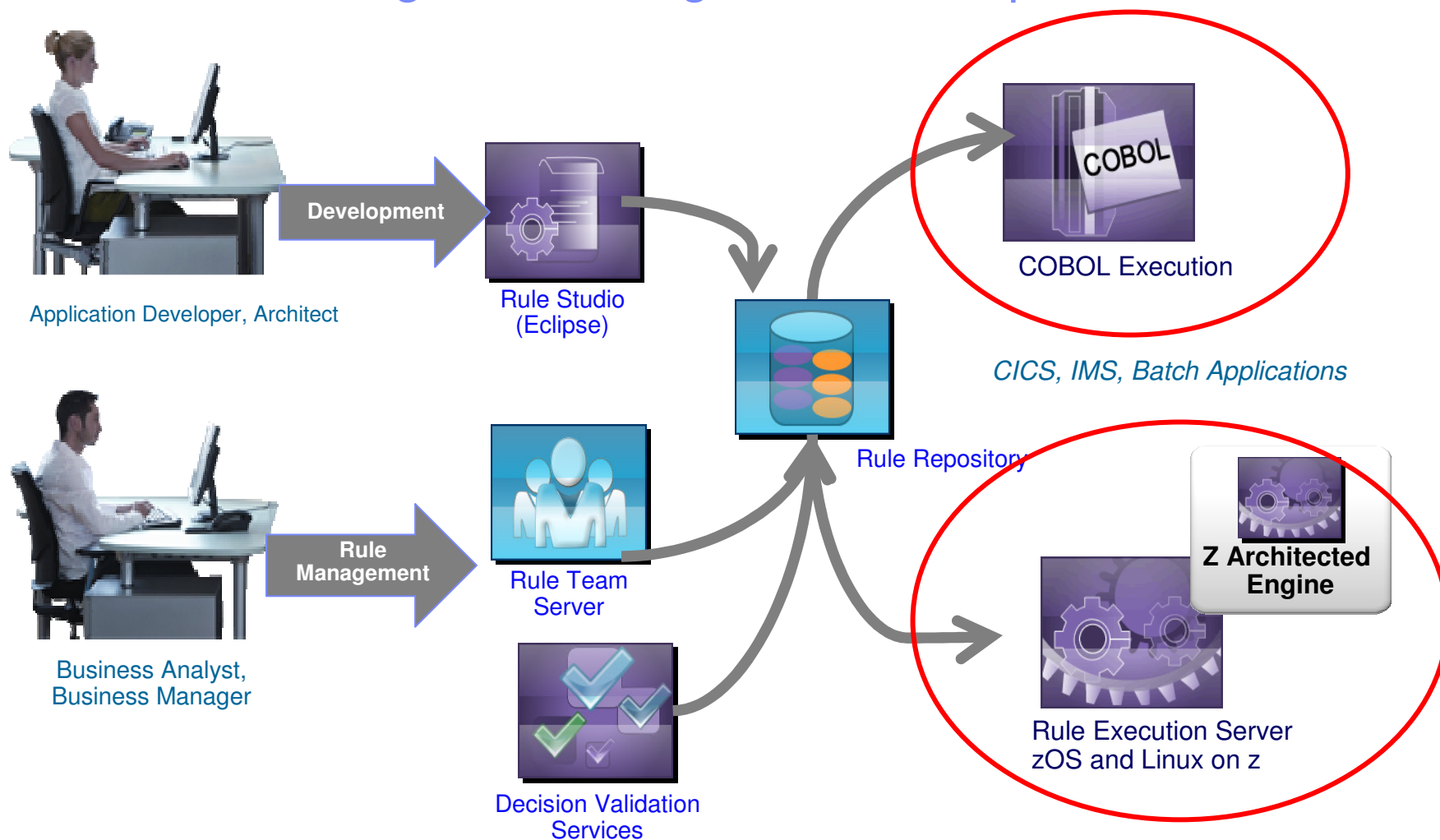


Business Process Management facilitates automatic prioritization and routing of work requests

- Reduces manual interaction
- Guides users through decisions
- Standardizes resolution across geographies
- Leverages existing systems and data
- Monitors for business events and initiates actions
- Real-time visibility and process control



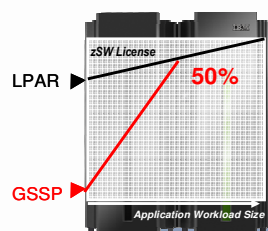
WebSphere ILOG Rules for COBOL enables easy, safe and reliable rule changes, reducing cost and implementation time



Continuous price/performance enhancements for zEnterprise improve total cost of ownership



Enhanced Sub-Capacity Pricing for the z196



Getting Started Sub-capacity Pricing (GSSP)



zAAP on zIIP



Solution Edition for WebSphere



New!
Integrated Workload Pricing on zEnterprise

Example zEnterprise Performance Improvements:

- CICS 75% throughput improvement over z10 for web services workload
- WebSphere 93% performance over z10 via hardware and software improvements

End-user growth and product innovation are two drivers of application infrastructure expansion

SDV provides IT solutions for banks throughout Germany

- Founded in 1983; Independent cooperative association
- Bank data center in Nuremberg
 - zEnterprise
 - Two redundant data center locations; IT service provided to 10,000 users; 500 servers



BUSINESS CHALLENGES

- Accommodate new levels of customer care
- 24/7 access to products and services via the Internet
- Frequent introduction of new products
- Customer and end-user growth

SDV selects zEnterprise for Internet banking application and ATM business

Quality of Service

- New applications are built on a rock-solid mainframe z/OS core banking system. That keeps risks low and allows for fast implementation times of new applications
- Our Linux for System z environment has become one of the most flexible and agile application environment at SDV.

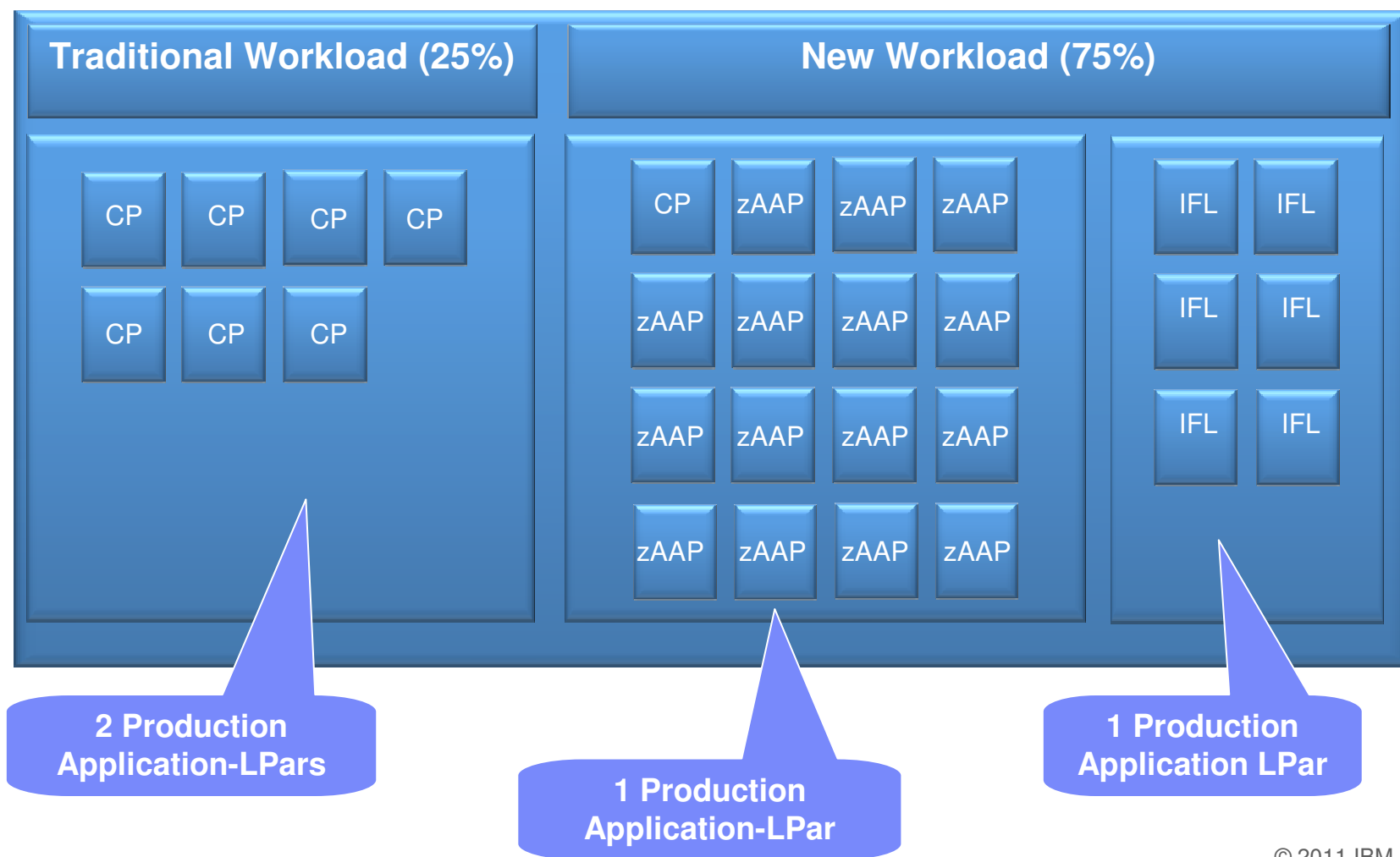
Capacity

- Increased network capacity allows us to place bandwidth-heavy Java z/OS and Linux applications on z196
- System z196 has shown tremendous increase in CPU power for all workloads.
- Powerful disaster recovery functions like capacity backup in System z196 helps us to fulfill our availability targets easily
- IFL – I/O-bandwidth seems to be endless and clock-speed is appealing

Efficiency

- WebSphere on z/OS in comparison to x86 was clearly more efficient
- WebSphere Portal on z/OS has shown an excellent growth path. We can grow this environment extensively and keep costs and administration efforts low.

SDV allocates $\frac{3}{4}$ of zEnterprise capacity to new workload



Forward thinking companies are making strategic investments in zEnterprise to propel business growth

Qualities of Service

- Ability to extend the z/OS legendary qualities of service to the entire enterprise

Capacity

- Accommodates 50 billion instructions per second

Efficiency

- End-to-end management of the hybrid computing environment

Flexibility

- Freedom to deploy applications based on business objectives instead of platform



z doctor is in!

Visit the z Solution Suite for 1-1 consultations; see the zEnterprise in action

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Resources

- White papers
 - **Considerations for making System z your ESB deployment platform**
 - http://download.boulder.ibm.com/ibmdl/pub/software/solutions/soa/websphere/app_integration/WSW11335-USEN-01_Final_Nov6_10.pdf
- Redbooks
 - **IBM zEnterprise System: Smart Infrastructure for Today's Heterogeneous Business Applications**
 - <http://www.redbooks.ibm.com/redbooks.nsf/RedbookAbstracts/redp4645.html?Open>
- Case studies
 - **SDV delivers innovative banking solutions with a Web solutions build on IBM WebSphere Portal software**
 - http://www-01.ibm.com/software/success/cssdb.nsf/CS/LMCM-7YZR5B?OpenDocument&Site=default&cty=en_us
 - **IBM zEnterprise/z196 case study: JD Williams- *z196 enables new mainframe workloads***
 - <ftp://submit.boulder.ibm.com/sales/ssi/ecm/en/zsl03116usen/ZSL03116USEN.PDF>



▪ BACK UP