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# The WebSphere Software Platform

**WebSphere** software

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**ON DEMAND BUSINESS**

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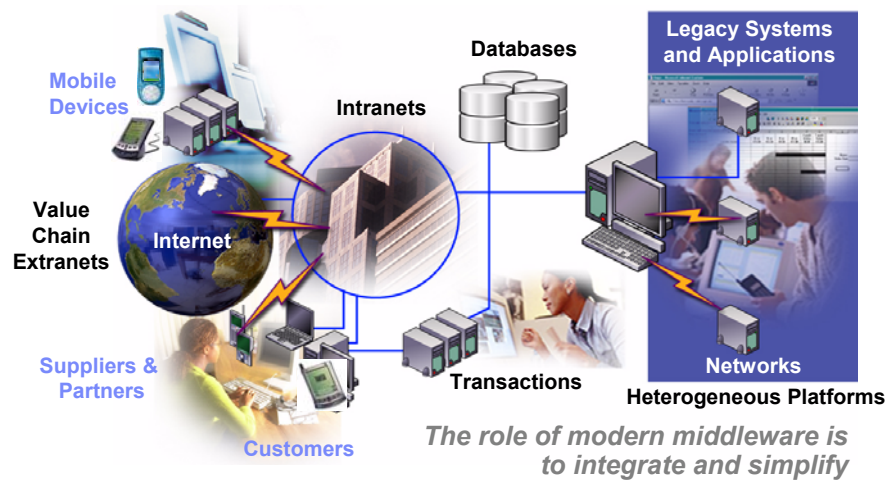
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## Agenda

- **Service Oriented Architecture**
- **WebSphere Family of Products**
  - Base technologies
- **WebSphere on zSeries - choices**
- **WebSphere Application Server on zLinux**

## Today's IT Environment

*IT environments are increasingly heterogeneous and complex*



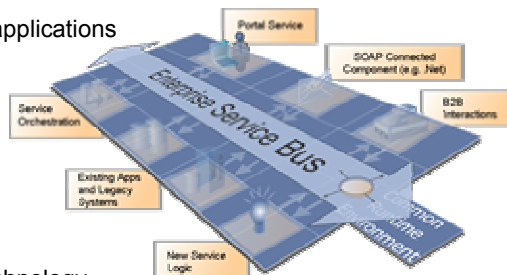
## A Service Oriented Architecture is Key

*The flexibility to treat business processes and the underlying infrastructure as defined components that can be mixed and matched at will*

### What is SOA?

SOA enables flexible connectivity of applications or resources by:

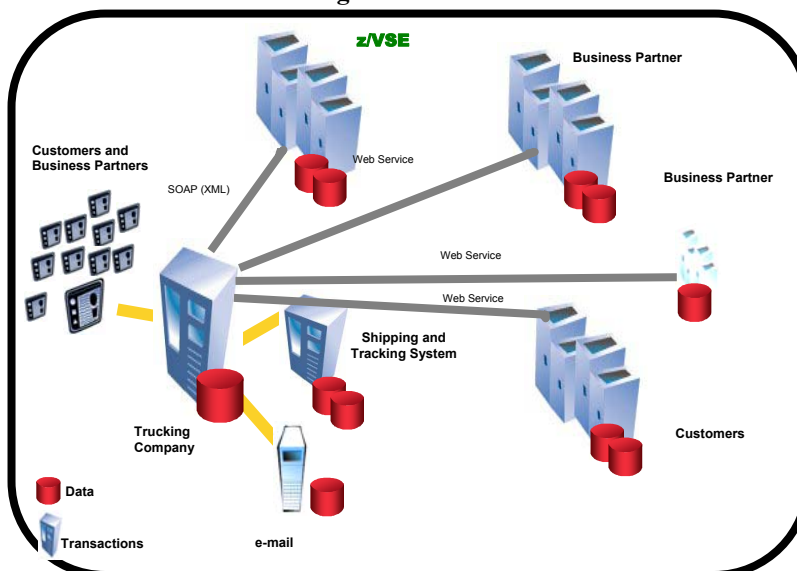
- Representing every application or resource as a service with a standard interface
- Enabling them to exchange structured information



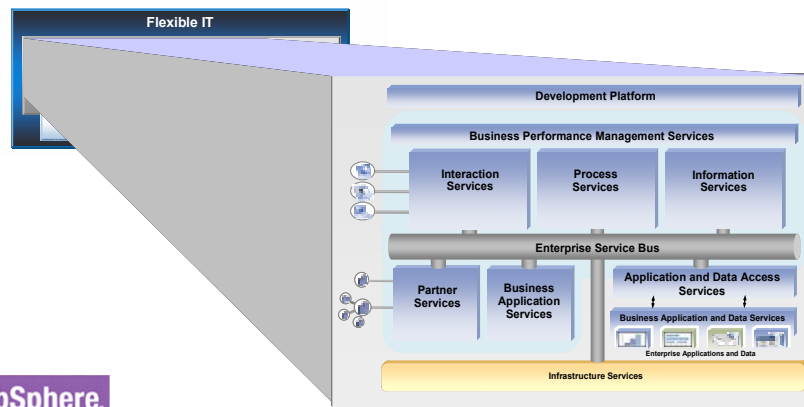
### Why do you care?

SOA helps introduce flexibility in a technology environment. There is growing acceptance of SOA as an approach to integration and to structure collections of interacting applications.

## Service Oriented Architecture(SOA) with z/VSE using Web Services

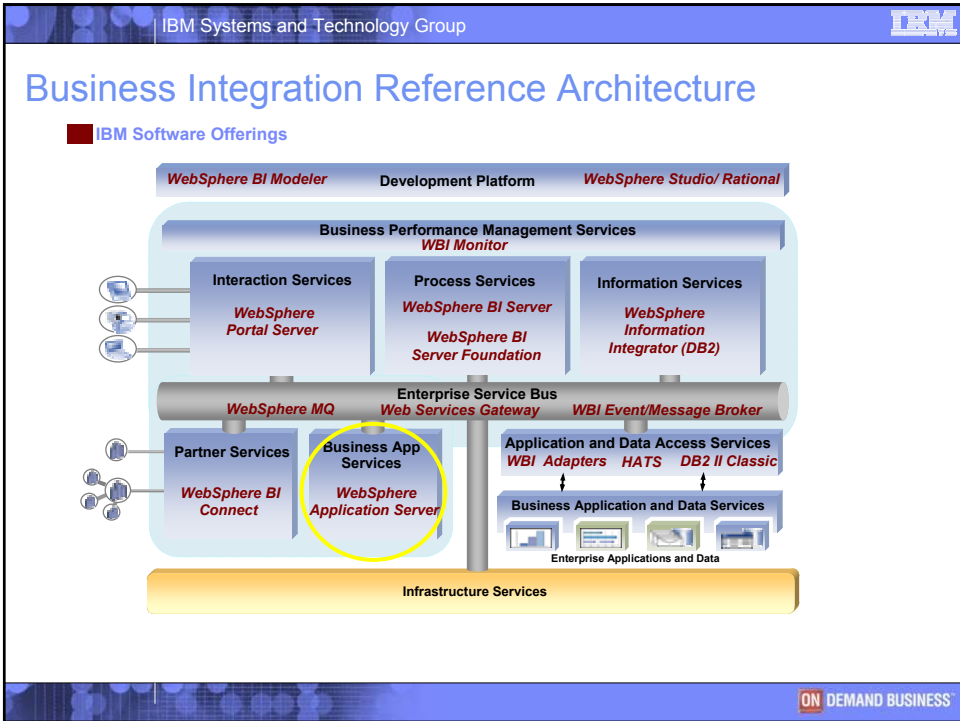
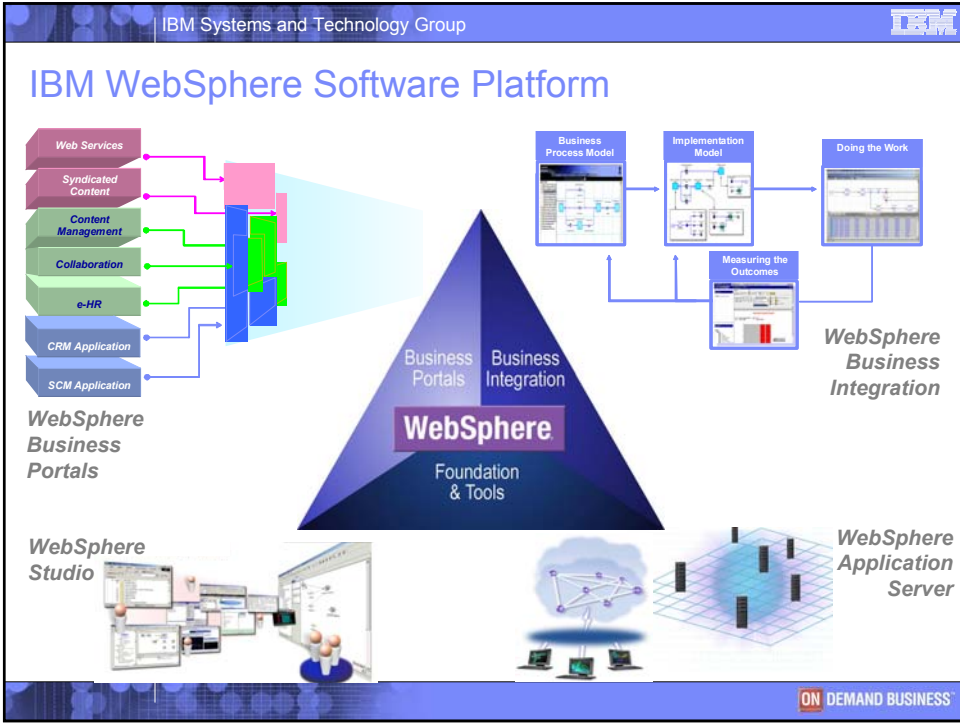


## WebSphere Delivers an Integrated IT Environment Comprised of IT Service Components



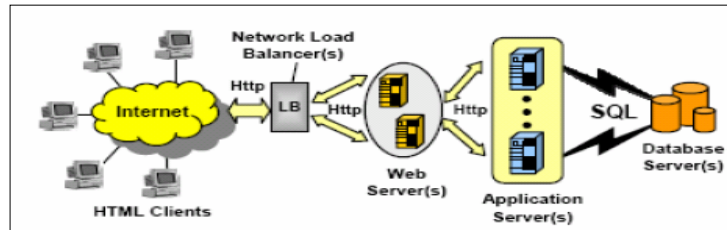
## Agenda

- Service Oriented Architecture
- **WebSphere Family of Products**
  - Base technologies
- WebSphere on zSeries - choices
- WebSphere Application Server on zLinux



## Application Services

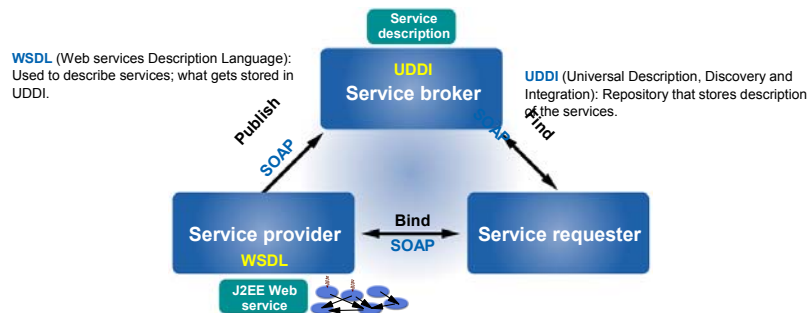
- Standard support for J2EE, XML, Messaging and Web Services programming model
- Autonomic administration and management
- High transaction performance
- High availability and scale
- Advanced Service Oriented Architecture (SOA) capabilities



## ... and Web services

– a key technology for service oriented architecture (SOA)

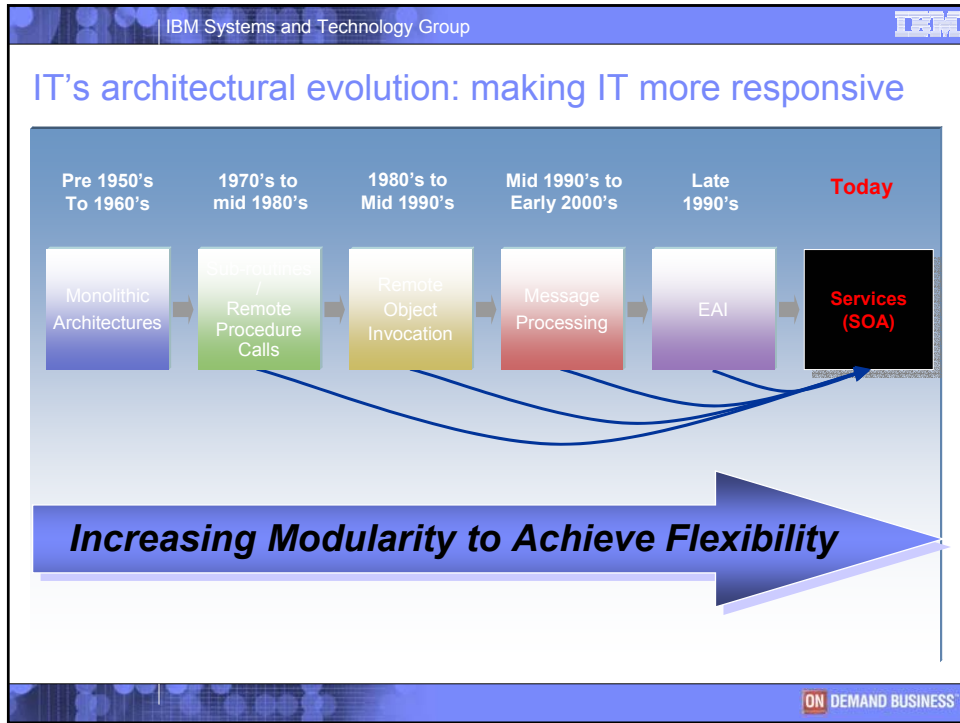
- Realizing distributed applications and business processes based on open standards
- Publish, Find and Use Web services in the net



**WSDL** (Web services Description Language): Used to describe services; what gets stored in UDDI.

**UDDI** (Universal Description, Discovery and Integration): Repository that stores description of the services.

**SOAP** (Simple Object Access Protocol): Transport mechanism that is independent of the underlying platform and protocol. Two disparate processes can communicate without the intimate knowledge of the systems and platforms on which both are running.



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## Why SOA for business flexibility and reuse?

- **Economics:** globalization demands flexibility
- **Business processes:** changing quickly and sometimes outsourced
- **Growth:** at the top of the CEO agenda
- **Reusable assets:** can cut costs
- **Information:** greater availability
- **Crucial for flexibility and becoming an On Demand Business**

*Traditional Business\**

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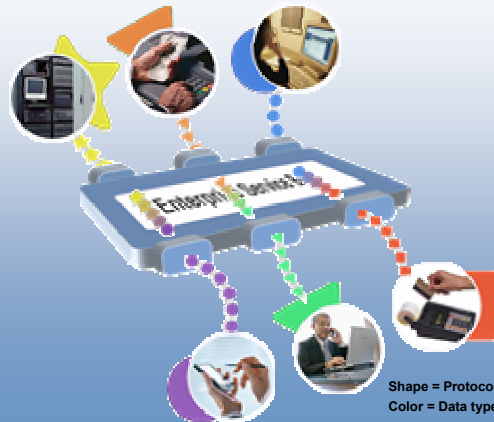
## What is an Enterprise Service Bus?

*Infrastructure for integrating applications and services.*

*An ESB powers your SOA by reducing the number, size, and complexity of interfaces.*

*An ESB performs the following between requestor and service*

- **ROUTING** messages between services
- **CONVERTING** transport protocols between requestor and service
- **TRANSFORMING** message formats between requestor and service
- **HANDLING** disparate sources



## What Are We Announcing?

**1**

**ESB: WebSphere ESB**, a new product that delivers an Enterprise Service Bus.

**New product**


**2**

**Advanced ESB: WebSphere Message Broker**, a new version of our proven product that delivers an *advanced* Enterprise Service Bus.

**New version**

*Only IBM delivers the most comprehensive Enterprise Service Bus solutions to power your SOA!*



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## WebSphere ESB and WebSphere Message Broker

**ESB:**  
**WebSphere ESB**

**Advanced ESB:**  
**WebSphere Message Broker**

Web Services connectivity and data transformation


↔


Universal connectivity and data transformation

HTTP JMS  
WebSphere MQ  
Web Services XML  
WebSphere Adapters

HTTP JMS WebSphere MQ  
Web Services XML WebSphere Adapters  
*Plus the following:*  
Weblogic JMS® Biztalk® TIBCO Rendezvous®  
MQe Multicast Tuxedo® FTP TIBCO EMS JMS®  
COBOL HIPAA EDI-FACT HL7 SonicMQ JMS®  
Copybook ACORD Real-time IP AL3 Word/Excel/PDF  
SWIFT FIX ebXML EDI-X.12 MQTT Custom Formats

*Customers face a range of ESB requirements. As a result, any given project might require an ESB or an Advanced ESB... OR BOTH.*



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## New Product! WebSphere ESB

### Delivering an Enterprise Service Bus to power your SOA

**Provides Web Services connectivity, JMS messaging and service oriented integration**

- Improve flexibility through the adoption of service oriented interfaces
- Minimize disruption by using an ESB to handle integration logic

**Ease of use**

- Integrated, interactive, and visual development experience requires minimal programming skills
- Simple to development, build, test, deploy and manage

**Improve time to value**


- Cost effective solution for services integration
- Support for over hundreds of ISV solutions
- Save time and development costs by utilizing pre-built mediation.
- Dynamically re-configure to meet changing business needs


**Seamless integration with the WebSphere platform**

Leverages WebSphere qualities of service: clustering, fail-over, systems management, security

Easily extends to leverage WebSphere Process Server as needs dictate

Integrates tightly with IBM Tivoli security and systems management offerings





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## New Version! WebSphere Message Broker

*Delivering an advanced ESB to power your SOA*

**Provides universal connectivity**

- Provides Web Services connectivity and non standard interface connectivity
- Unmatched ability in integrating many systems, platforms, devices, and APIs
- Facilitates service oriented integration

**Provides universal data transformation**

- Advanced message transformation, enrichment, and routing
- Option to use WebSphere DataStage TX
- Support for industry standard data formats (AL3, HL7, SWIFT, HIPAA, EDI, etc.)

**New & improved pre-built capabilities to improve ROI**

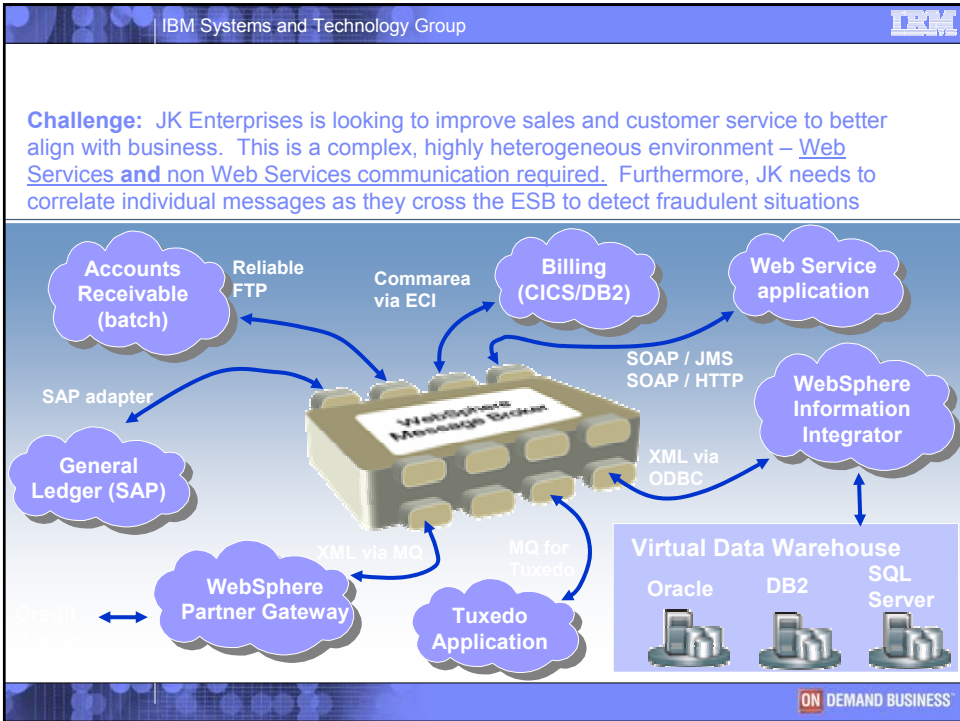
- Leverage existing skills with rich Java and XML support
- Implement complex event processing with no programming
- Offers simple and easy to use tools with advanced capabilities

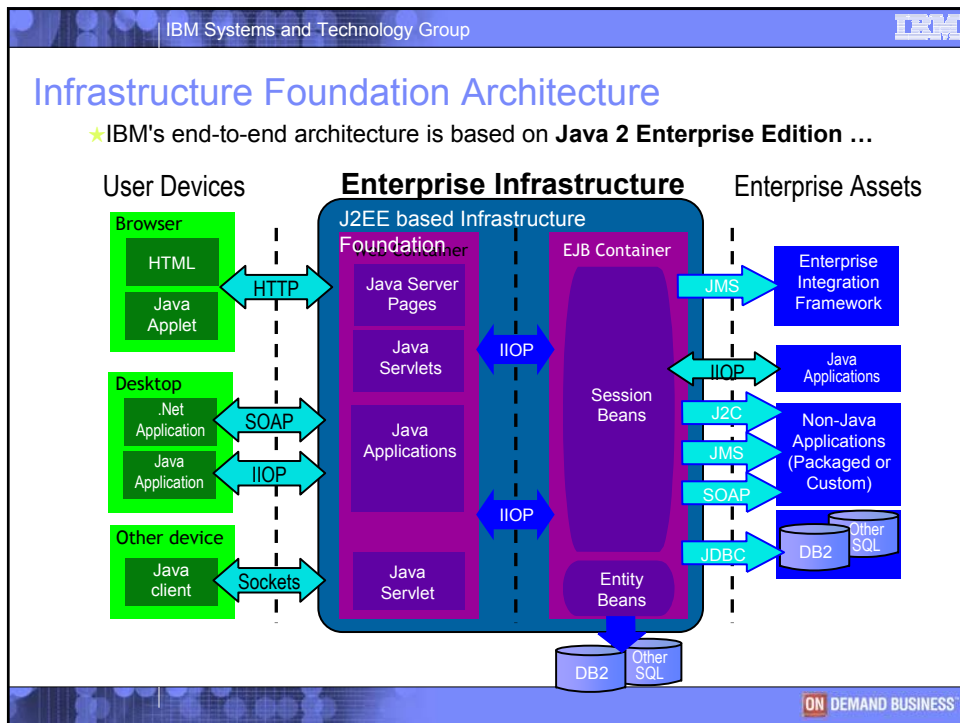
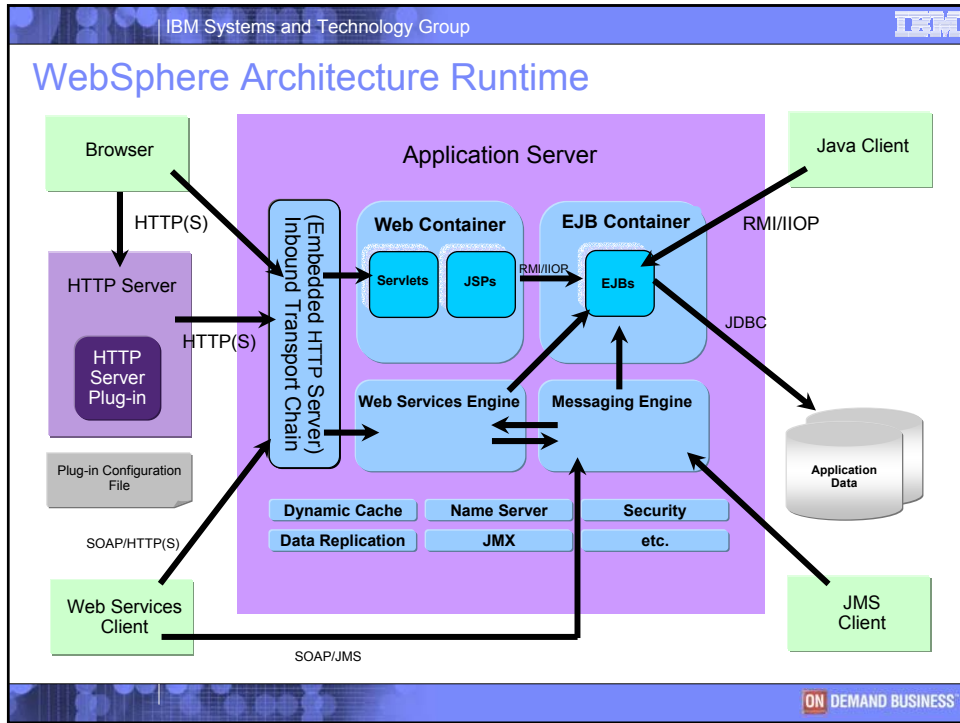
**Leverage the performance**


Offers performance of traditional transactional processing environments

*Integrate standards-based as well as existing non-service enabled applications into an SOA*

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## The WebSphere Application Server V6 Family

The leading core J2EE application server optimized to leverage z/OS qualities of service in a mainframe environment.

**WebSphere Application Server for z/OS**

**WebSphere Extended Deployment**

Delivers a dynamically scalable, easily manageable, and high performance environment for distributed applications.

The industry's leading J2EE and Web Services application server, delivering a high-performance and extremely scalable transaction engine for dynamic e-business applications.


**WebSphere Application Server**


**WebSphere Application Server Network Deployment**

Provides advanced deployment services that include clustering, edge-of-network services and high availability for distributed configurations.

**WebSphere Application Server - Express**

An out-of-the-box solution for managing simple yet dynamic Web sites with an easy-to-use Web application server and a development environment.




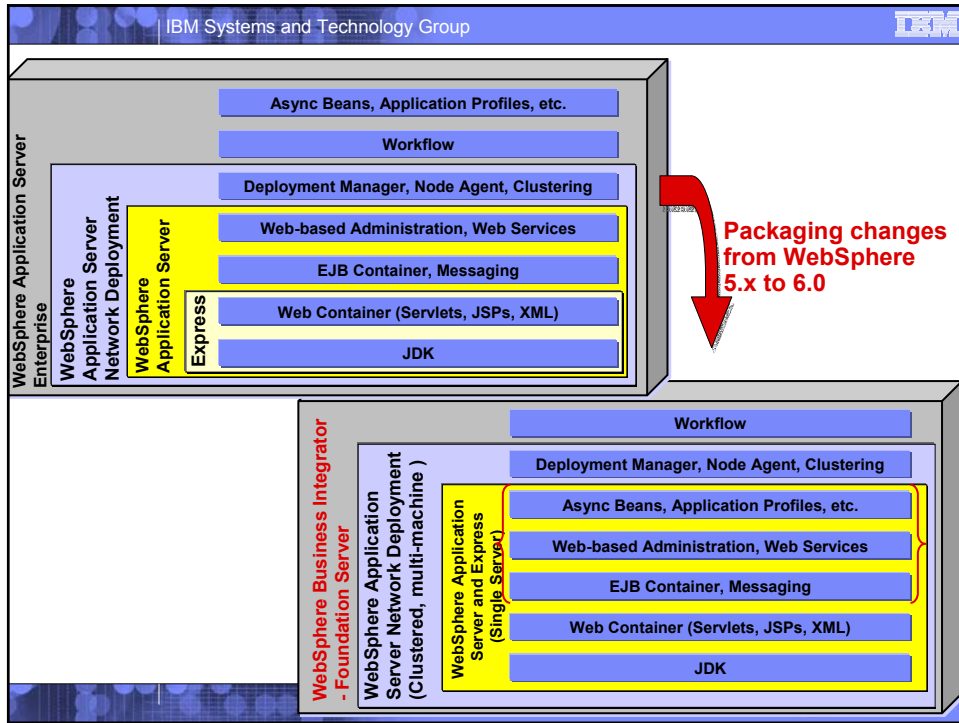
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## WebSphere Application Server 6.0 – Focus Areas

### What is new – Overview

- **Platform Enablement**
  - *Developing the eBusiness operating system for enterprise integration*
    - Packaging and Product Install Improvements (e.g. new 'Server Profile')
- **Standards Based Architecture**
  - *Building on the latest Java standards and Web Services in an integrated development and deployment environment to reduce time to value*
    - J2EE 1.4, Web services standards, PMEs into base, Service Data Objects (SDO), Java Server Faces (JSF)
- **Ease of Use**
  - *Reducing and simplifying skill requirements by reducing complexity and extending the integration of application development, deployment, administration, and maintenance*
    - Rapid Deployment (e.g. single artifact, fine grained application changes, ASTK)
    - Administration (Mixed Version cells, New Admin Console Look and Feel)
- **Enterprise Class Deployment**
  - *Building the "Next Generation" application server with the qualities of service required by enterprise class deployment*
    - Transport Channel Service, JMS support, Unified Cluster Framework, High Availability Services, Enhanced Data Replication Service





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## J2EE 1.4

### Web Services and XML support

- Standards / Portability - XML Schema definitions for all deployment descriptors
- JAX-P 1.2 - New properties for XML parsers
- JAX-R - XML registry API
- JAX-RPC - APIs for representing WSDL-based services as RPCs in Java (and vice-versa)
- JSR 109 - Web services programming and deployment model
- SAAJ 1.1 - SOAP Attachments API for Java

### Messaging

- EJB 2.1
  - Typed message beans (used for any inbound JCA including pluggable JMS provider)
  - Timer service Web service end-point support
- JMS 1.1
  - Unification of point-to-point and pub-sub interfaces

### ISV Enablement

- JMX 1.2 / JSR-077 (J2EE Management)
  - Notification emitters, and standard patterns
  - Information model representing J2EE application server concepts
- JSR-088 (J2EE Deployment)
  - XML-based deployment interfaces for J2EE
- JACC 1.0
  - Java Authorization Contract with Containers
  - APIs for registering J2EE component authorization policies

### Other

- Servlet 2.4
  - Extensible deployment descriptors
  - Request/response listeners
- JSP 2.0
  - Expression Language
  - Simple Tag Extension
- EJB 2.1
  - Timer Service
- JDBC 3.0
  - Meta data and cursor support
- JavaMail 1.3 updates
- J2CA 1.5
  - In-bound connections
  - RA lifecycle support
  - Work manager (threads for resource adapters)

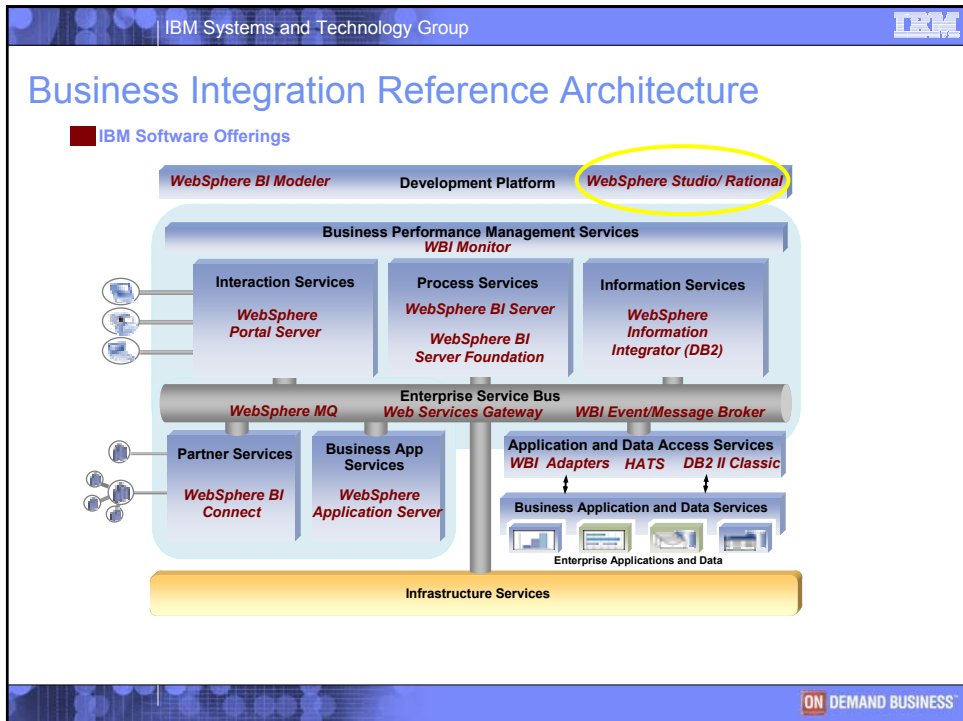
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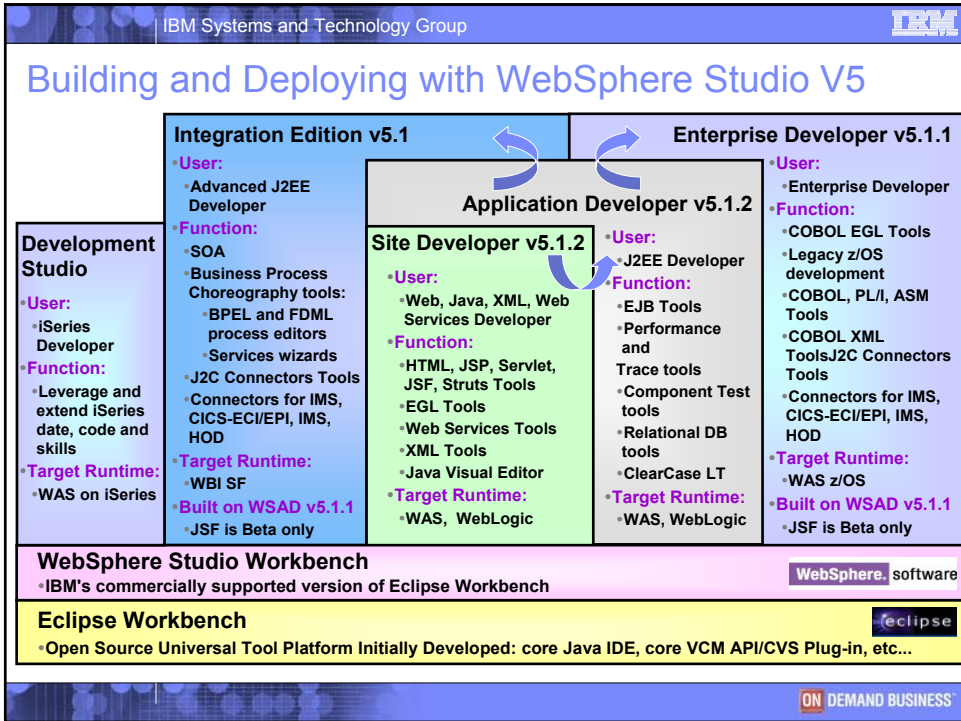
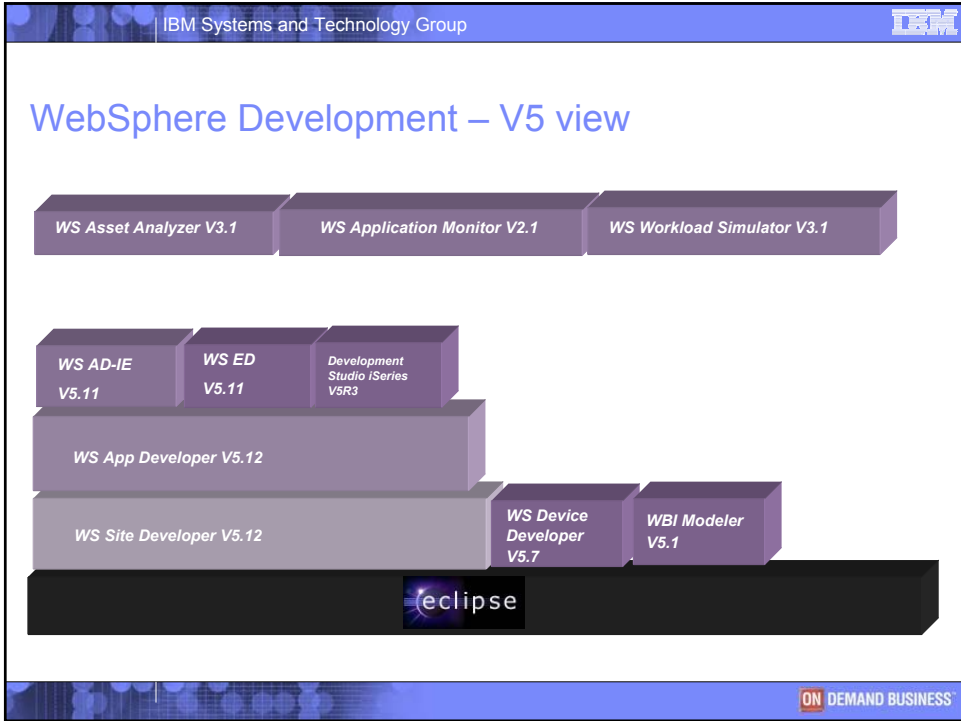
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## Changes in Web Services

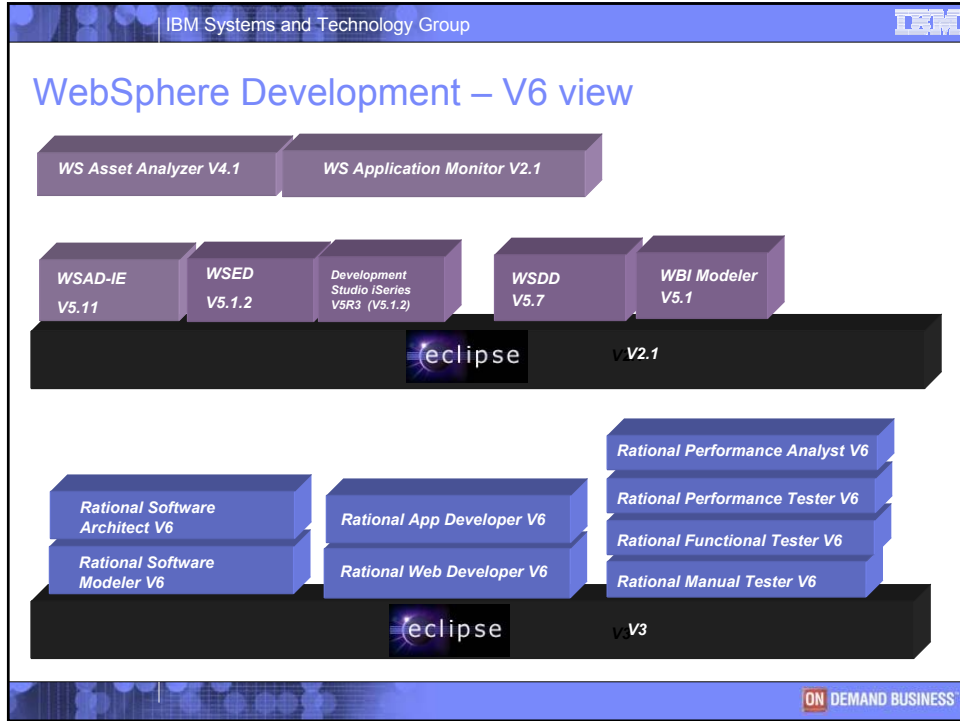
WebSphere V4	WebSphere V5.02	WebSphere V6
<p><b>Apache SOAP</b></p> <ul style="list-style-type: none"> <li>The programming model, deployment model and engine</li> </ul> <p><b>Proprietary APIs</b></p> <ul style="list-style-type: none"> <li>Because Java standards for Web services didn't exist</li> </ul> <p><b>Not WS-I compliant</b></p>	<p><b>JAX-RPC (JSR-101) 1.0</b></p> <ul style="list-style-type: none"> <li>New standard API for programming Web services in Java</li> </ul> <p><b>JSR-109 1.0</b></p> <ul style="list-style-type: none"> <li>New J2EE deployment model for Java Web services</li> </ul> <p><b>SAAJ 1.1</b></p> <p><b>WS-Security</b></p> <ul style="list-style-type: none"> <li>Extensions added</li> </ul> <p><b>WS-I Basic Profile 1.0</b></p> <ul style="list-style-type: none"> <li>Profile compliance</li> </ul> <p><b>UDDI4J version 2.0 (client)</b></p> <p><b>Apache Soap 2.3 enhancements</b></p> <p>The engine is a new high performance SOAP engine supporting both HTTP and JMS</p>	<p><b>JAX-RPC (JSR-101) 1.1</b></p> <ul style="list-style-type: none"> <li>Additional type support</li> <li>xsd:list</li> <li>Fault support</li> <li>Name collision rules</li> <li>New APIs for creating Services</li> <li>isUserInRole()</li> </ul> <p><b>JSR-109 – WSEE 1.1</b></p> <ul style="list-style-type: none"> <li>Moved to J2EE 1.4 schema types</li> <li>Migration of web services client DD moving to appropriate container DDs</li> <li>Handlers support for EJBs</li> <li>Service endpoint interface (SEI) is a peer to LIRI</li> </ul> <p><b>SAAJ 1.2</b></p> <ul style="list-style-type: none"> <li>APIs for manipulating SOAP XML messages</li> <li>SAAJ infrastructure now extends DOM (easy to cast to DOM and use)</li> </ul> <p><b>WS-Security</b></p> <ul style="list-style-type: none"> <li>OASIS draft 17</li> <li>Following WS-I Security Profile</li> </ul> <p><b>WS-I Basic Profile 1.1</b></p> <ul style="list-style-type: none"> <li>Attachments support</li> </ul> <p><b>WS-TX (WS transactions)</b></p> <p><b>JAXR support</b></p> <p><b>UDDI v3 support</b></p>

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## “Modern” 4<sup>th</sup> Generation Language AD Approach ...

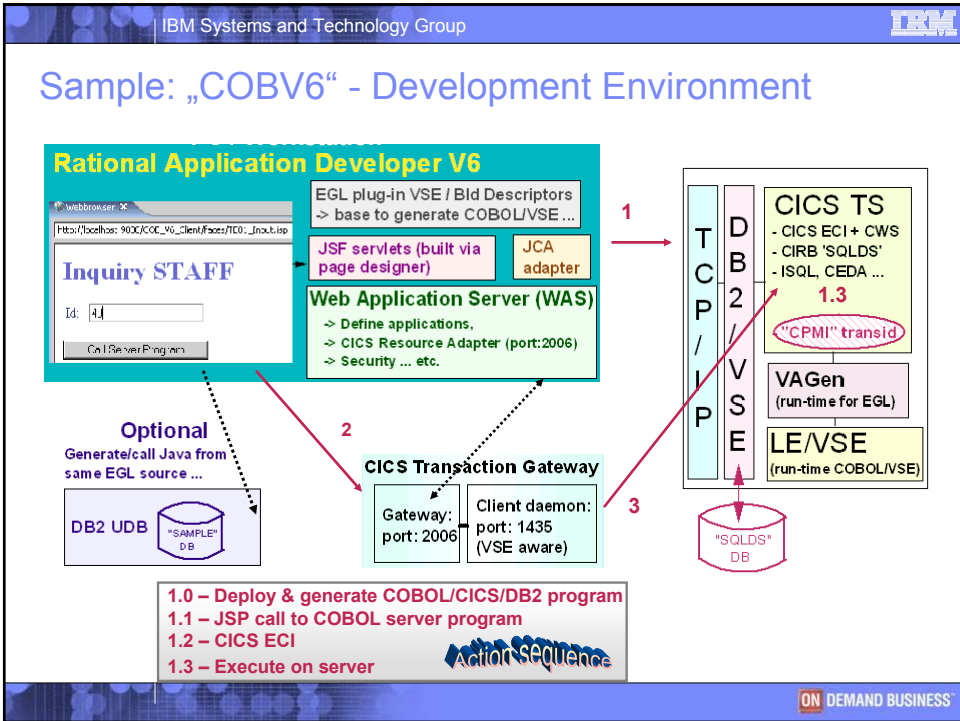
- VisualAge Generator EGL Plug-in VSE + Rational Application Developer V6
  - ▶ Greatly missed for VSE, now available for generation of **COBOL/VSE code** (batch+CICS)
    - <http://www.ibm.com/software/awdtools/visgen/vse/index.html>
  - ▶ Useful when intending to write VSE applications based on latest technology in an integrated development environment (aim for platform independence)


- Sample: „COBV6“ ... based on
  - ▶ **Generating COBOL using EGL and JSF with WebSphere Studio Enterprise Developer**
    - [http://www.ibm.com/developerworks/websphere/library/techarticles/0502\\_barosa/0502\\_barosa.html](http://www.ibm.com/developerworks/websphere/library/techarticles/0502_barosa/0502_barosa.html)
  - ▶ Tailored for **RAD V6** generation, deployment + execution on z/VSE 3.1 ...

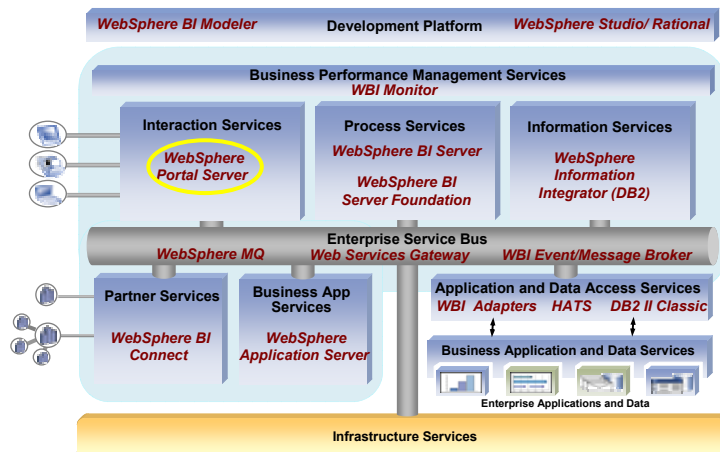
● **COBOL/VSE back-end code, generated from EGL front-end ...**

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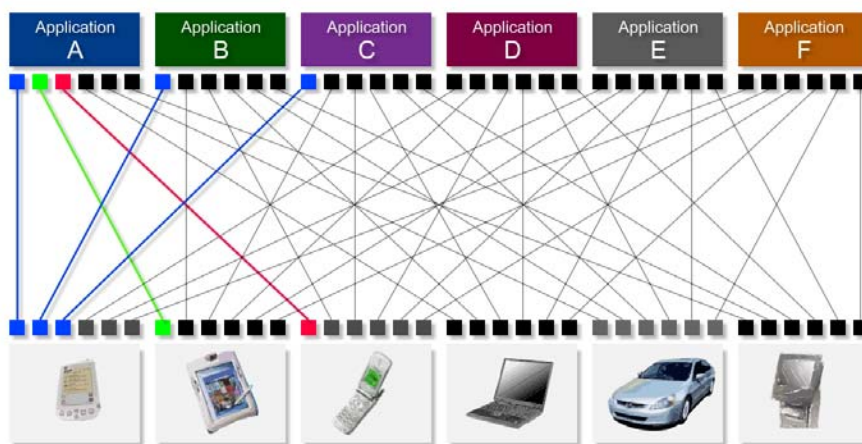
# Business Integration Reference Architecture

IBM Software Offerings

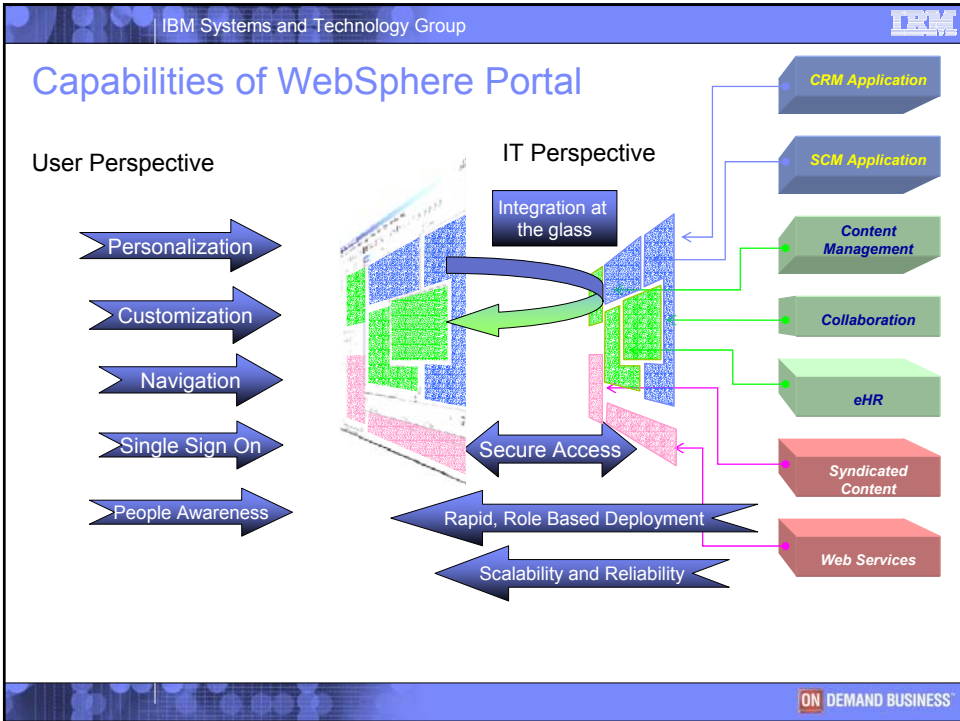
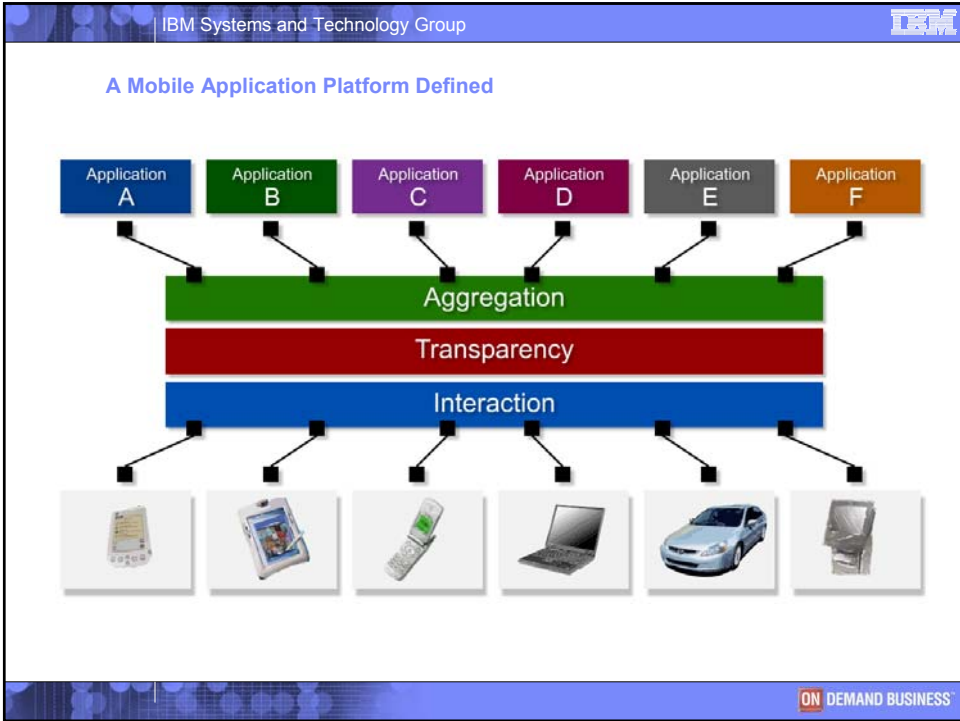


## Application integration and Enterprise Modernization

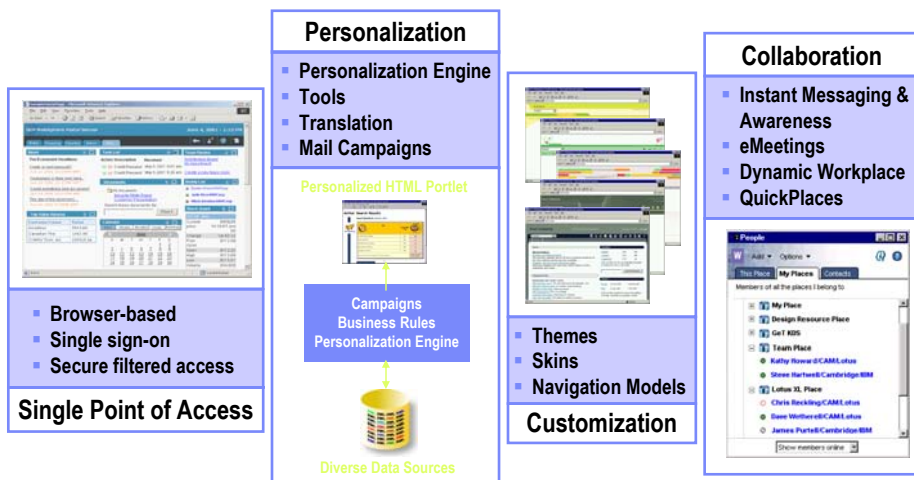
M applications...



N devices *How do you solve an expanding "M x N" matrix?*



## Functionality of IBM WebSphere Portal

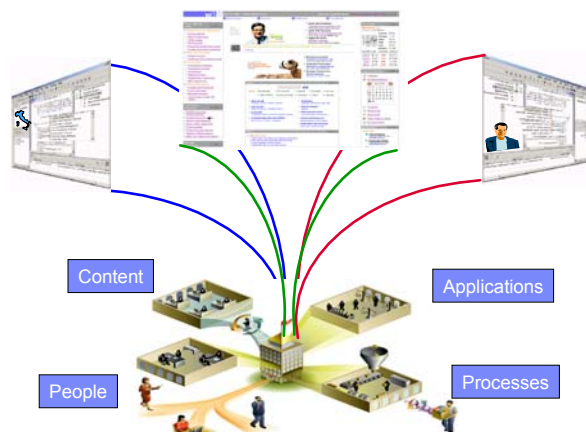


## Portals are being deployed today to meet these challenges

B2E Portals improve employee productivity and speed decision making

B2C Portals increase customer loyalty and cross-sell revenue





B2B Portals build partner relationships through integration with your business processes



Common portal framework reduces costs and meets changing requirements

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## Real results with WebSphere Portal

**Prudential's B2C Portal**

- Enhanced customer experience through real time information access
- Lowered call center costs by reducing call volumes through self-service
- 300,000 registered users

**IBM's B2E Portal**

- \$6.2B in savings over 4 years via self-service, productivity and operational costs
- Instant messaging and e-meetings created a more responsive culture
- 72% of employees rate the portal as most preferred information source

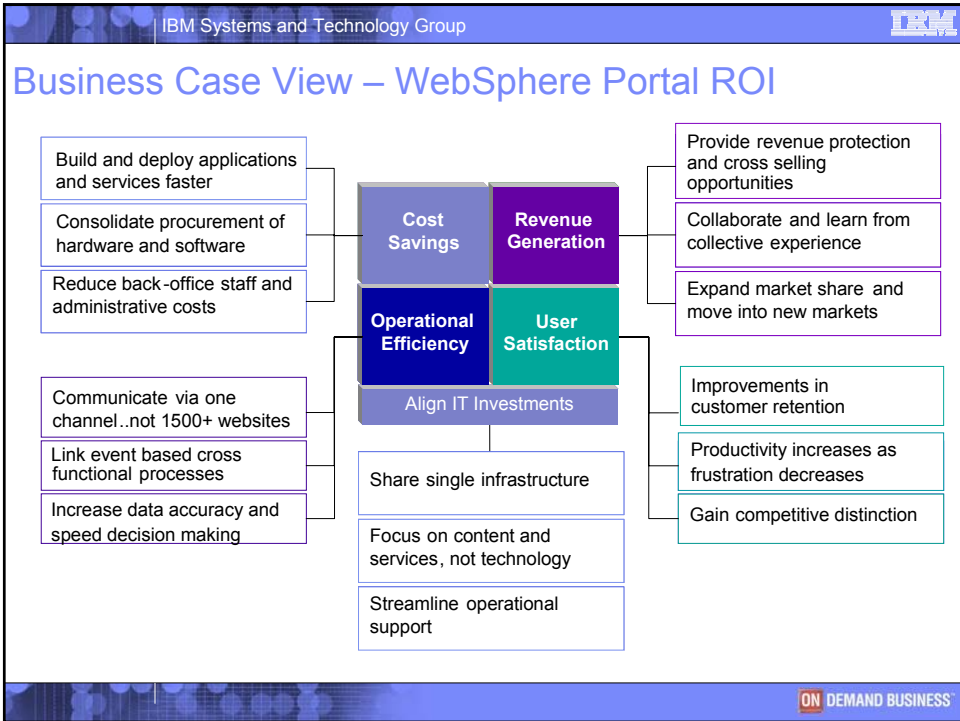
**Bekin's B2B Portal**

- Increased revenue by \$75M with an online marketplace for trading partners
- Reduced operating costs/improved profitability by \$1M
- Reduced cycle time 25 percent and improved customer satisfaction and loyalty

**Schneider Electric's B2E, B2C, and B2B Portal**

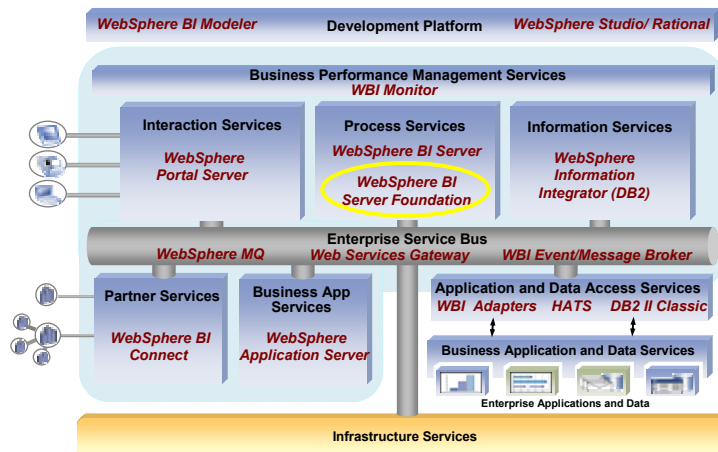
- Supports SAP, PeopleSoft, Documentum, Lotus Notes applications
- Web site infrastructure is shared: cost are reduced, performance is improved

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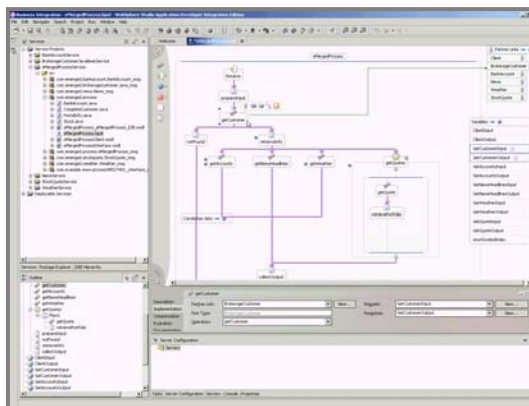
## Business Integration Reference Architecture

IBM Software Offerings



## IBM WebSphere Business Integration Server Foundation and IBM WebSphere Studio Application Developer Integration Edition

- ✓ Service oriented architecture
- ✓ BPEL4WS process choreography
- ✓ Human workflow support
- ✓ Business rules support
- ✓ Application adapters
- ✓ Programming model extensions
- ✓ Common Event Infrastructure
- ✓ J2EE Application Server
- ✓ Integrated J2EE development environment
- ✓ Support for WebSphere Business Integration Modeler and Monitor



## Agenda

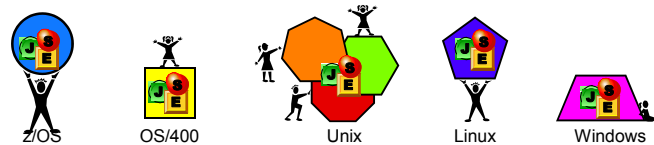
- WebSphere Family of Products
  - Base technologies
- **WebSphere on zSeries - choices**
- WebSphere Application Server on zLinux

## Which WebSphere platform is best ?

*If you build applications using the J2EE programming model ...*



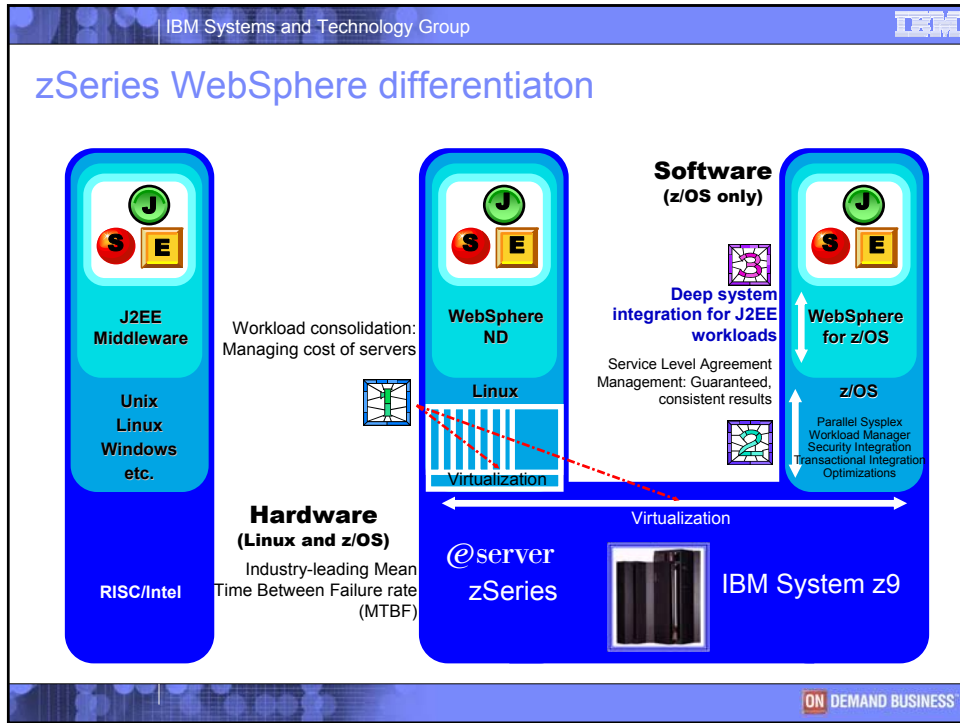
*... you can deploy them virtually anywhere ...*



***... but which option will best suit your needs??***

*During development, J2EE components are not optimized to any deployment platform  
The server, operating system and WAS determine how well those components meet business objectives in production*





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## WebSphere Application Server on zSeries

**The distributed consolidation deployment**

**Linux on zSeries**

- Applications that scale out
- Large number of smaller appls
- Lowest TCO
- Speedy deployment
- Less stringent requirements
- Align with distributed WebSphere family
- Unrivaled virtualization
- Centralized management
- No z/OS Skills
- Web Serving
- Presentation Services
- Development Platform
- Test/Migration/Prototyping Platform

*The zSeries customer requiring speedy deployment with less stringent QOS/integration requirements will be attracted to WAS for Linux on zSeries.*

**WebSphere. software**

**The integration deployment**

**z/OS**

- Applications that scale up
- Highest QoS production environment
- Full exploitation of zSeries and z/OS
- Tight integration with DB2, CICS, IMS
- Service level agreement management
- Dynamic load balancing
- Strict security requirements
- Highest availability
- Disaster recovery
- Dynamic I/O configuration
- Storage management
- Enterprise Modernization capability

*The zSeries customer requiring high QOS and significant integration with CICS, IMS or DB2 will be best served by WAS for z/OS.*

**WebSphere. software**

A self managing server environment with the versatility and power to help integrate your business

ON DEMAND BUSINESS

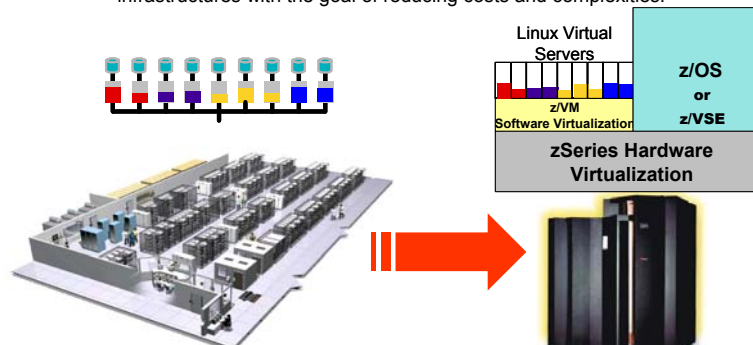


## Agenda

- Overview
  - WebSphere Family of Products
  - Base technologies
- WebSphere on zSeries - choices
- **WebSphere Application Server on zLinux**
- Usage scenarios with zLinux

## Why deploy on zSeries Linux? Consolidation

Server Consolidation is about simplifying and optimizing existing end-to end IT infrastructures with the goal of reducing costs and complexities.



The zSeries Linux value proposition is consolidation of **underutilized, non-concurrently peaking** servers through our unique ability to co-share idle capacity across deployed Linux instances via **best of breed virtualization capabilities** of LPAR & z/VM.

## Positioning against 'distributed'

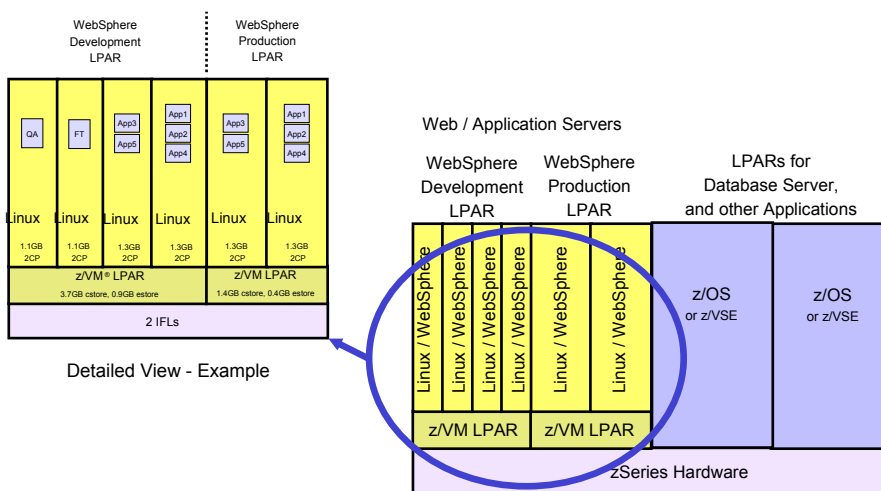
### ■ WebSphere on z/Linux ...

- ▶ is functionally, exactly the same as WebSphere on any other distributed platform (same code base)
- ▶ benefits from in-memory networking technologies (hipersockets) between other z/Linux instances and z/OS
- ▶ benefits from the greatly improved zSeries hardware
- ▶ benefits from best-of-breed virtualization technologies for hardware consolidation
- ▶ is operated and managed in a similar manner to WebSphere on any other distributed platform

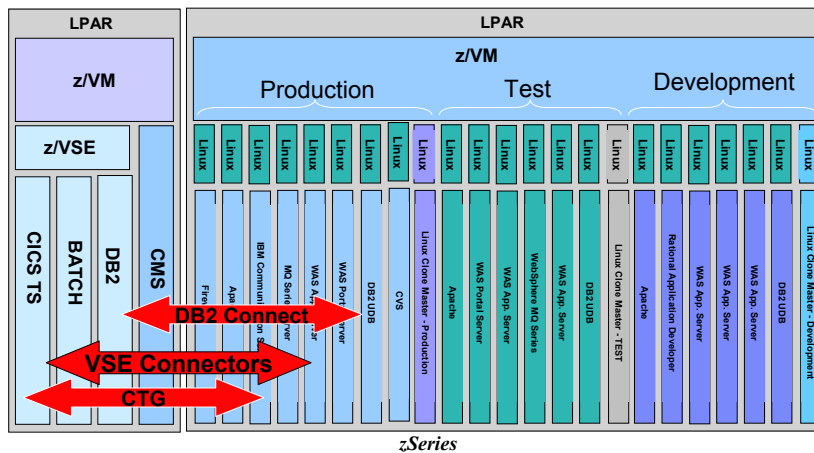
### ■ WebSphere on z/Linux is best...

- ▶ In **server consolidation** situations where applications use only a small percentage of the available resources (CPU, disk, memory) where virtualization will better utilize resources.
- ▶ Where a large number of **virtual servers** are required and each server is lightly use or servers are not concurrently used, development environments, testing environments, hot standby environments, or where there is a need to rapidly add virtual servers.
- ▶ When connecting to other zSeries based systems (databases, applications, etc) where **networking efficiencies** will benefit the application
- ▶ Where organizational **culture** is suited to Linux and / or Open Source technologies and has experience with distributed Unix technologies.

## Typical Architecture – zSeries with Linux and z/VM



## Sample Customer Environment with Linux on zSeries



### Linux Cloning for server provisioning:

- deployment in minutes (no extra investment)
- deployment as needed – On Demand
- deployment with flexible configurations

## For More Information

- WebSphere Home Page [ibm.com/websphere](http://ibm.com/websphere)
- Portal Home Page [ibm.com/websphere/portal](http://ibm.com/websphere/portal)
- Portlet Catalog [ibm.com/websphere/portal/portlet/catalog](http://ibm.com/websphere/portal/portlet/catalog)
- VSE Solutions [ibm.com/servers/eserver/zseries/zvse](http://ibm.com/servers/eserver/zseries/zvse)

