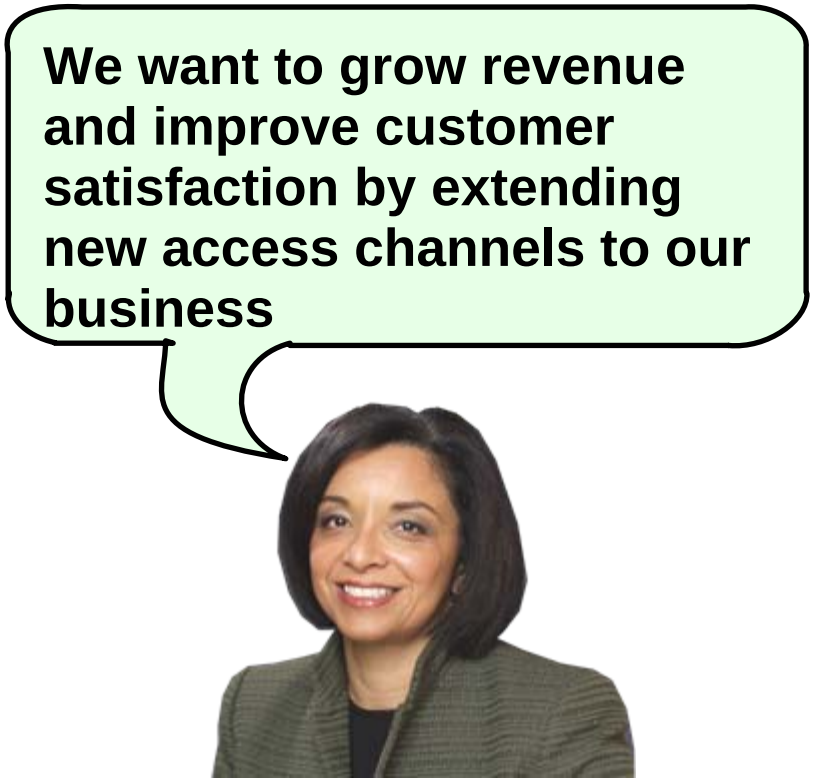
Extending Your Mainframe For More Business Value

Add New Workload –
Extend Access Channels With SOA

Service Oriented Finance's Business Problem



Service Oriented Finance CEO

Service Oriented Finance's Technical Challenges

Our core business processing runs on the mainframe

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Extend Access Channels

- **Key Access Channels**
  - Web access by customers and business partners
  - Call centers
  - Front offices
  - Enabled by internet technologies
- **Growing pains and requirements**
  - Leverage existing back end transaction systems
  - Connectivity is required
  - Increase in back end transactions is typical

Service Oriented Finance Solution Picture

Customer

Field Agent

Customer Service

Access via Portal

Optimize process

Reuse with SOA

WebSphere Portal Server

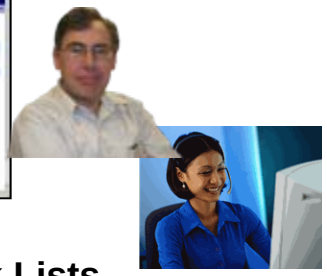
WebSphere Process Server

CICS Customer Management System

DB2

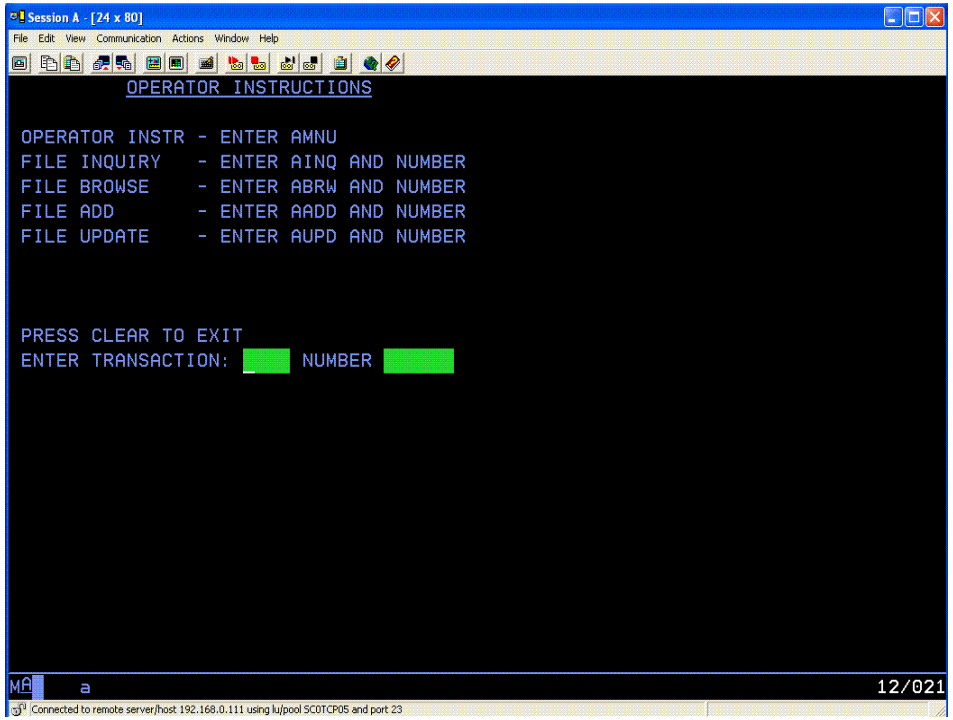
IMS Billing System

IMS DB



Employee Tasks Notified via Work Lists

Existing CICS Investment: Customer Management System



Existing application consists of CICS programs accessed via “green screen” terminals.

We have invested millions of dollars in this asset

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Use SOA To Extend Your Mainframe Assets

We want to make portions of this CICS application available to our new channels

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CICS TS Version 3 has built-in capabilities to expose programs as web services

IBM

The Basics: What Is SOA?

… a service?

A **repeatable business task** – e.g., check customer credit; open new account

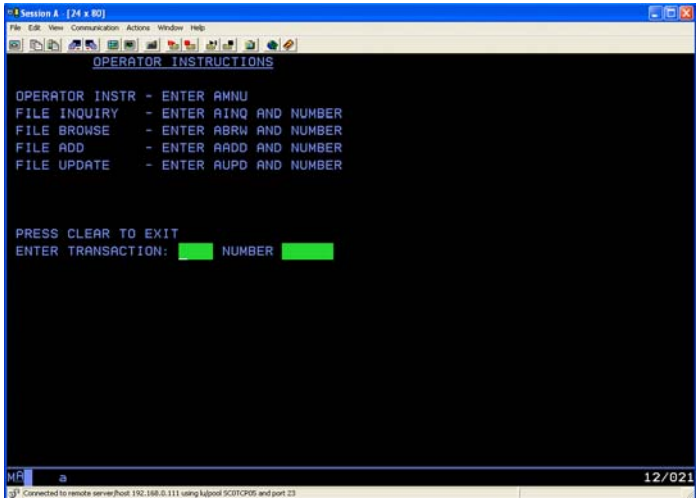
… service oriented architecture (SOA)?

An IT **architectural style** that supports integrating your business as linked services

"SOA impacts every aspect of IT and business."

Gartner

DEMO: Portal Calls CICS Program Using Web Services



- Customers accesses the Portal
- A portlet talks to the CICS Loan application using Web Services

Web Services expose CICS and IMS investments for a new generation of re-use

Customer

Portlet

SOAP / HTTP

CICS TS V3
Web Service

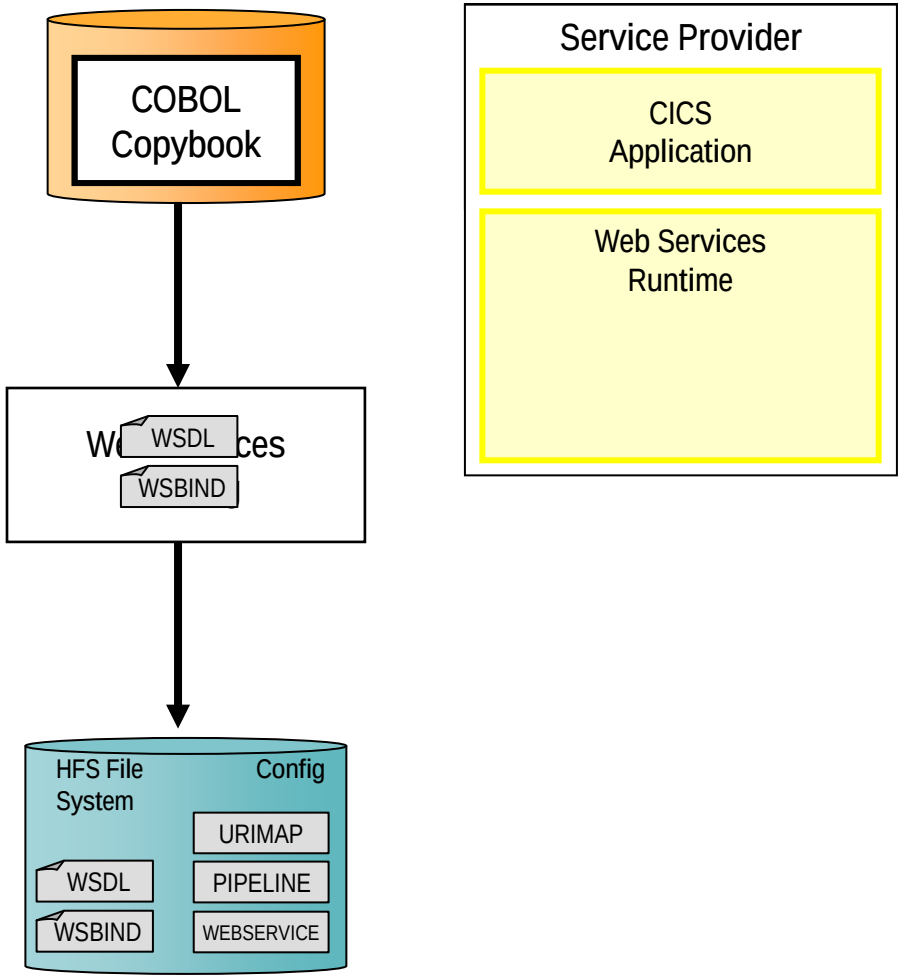
CICS Web Services

- Native Web Services capability offered by CICS
  - A CICS application can be a web service provider and requester
  - Fully integrated into CICS
    - Resource definition using CICS admin screen, problem determination, monitoring & statistics
    - New tooling support for easier application development
  - SOAP requests can flow over HTTP or WebSphere MQ transports

- Rich set of Web services standards supported
  - SOAP 1.1 and 1.2 -send and receive web service messages
  - WS-I Basic Profile 1.0 -interoperability with between providers and - requesters
  - WS-Coordination -transaction coordination
  - WS-AtomicTransaction -transaction coordination
  - WS-Security -authentication and encryption of messages

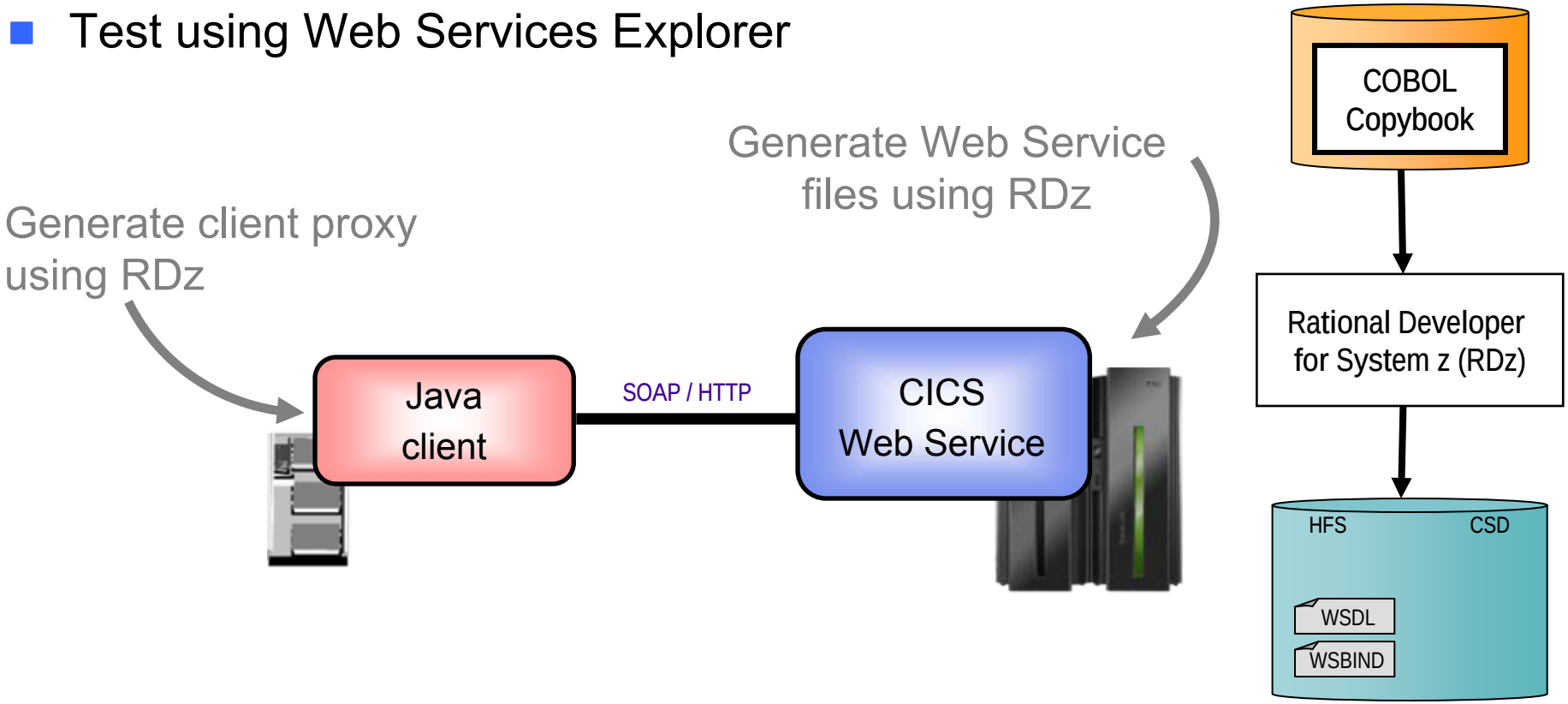
Development Steps To Expose CICS Application As A Web Service Provider

1. Start with COBOL copybook
2. Generate WSDL from copybook
3. Copy files to host file system.
    1. Use standard CICS supplied PIPELINE definition
4. CICS automatically installs other related definitions
5. CICS application is now web service enabled



DEMO: Use Rational Developer For System z To Expose CICS Program As Web Service

- Generate WSDL and WSBIND files
- Deploy files to host file system
- Test using Web Services Explorer



What About IMS Assets?

- Use the **IMS SOAP Gateway** and **IMS Connect** in IMS V10
- Integrates IMS assets into SOA by providing a standard Web Services interface
  - Expose your IMS application as a web service with easy deployment and configuration
    - No programming needed
- Same tooling support
  - IBM Rational Application Developer for System z generates Web Service artifacts like WSDL and XML converters
    - From COBOL copybook of IMS application
- Transforms XML data without changing IMS application
  - IMS Connect XML Adapter transforms XML data
    - No need to modify the IMS application code

Customer Self-Service Access

We want to provide a superior self-service experience for our customers…

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Use WebSphere Portal to build a customer facing portal

IBM

IBM WebSphere Portal Supports Extended Channels

Customers

Employees

Natural, Intuitive, Adaptive User Experience

WebSphere Portal Server

User interface to SOA services
Delivery of business information

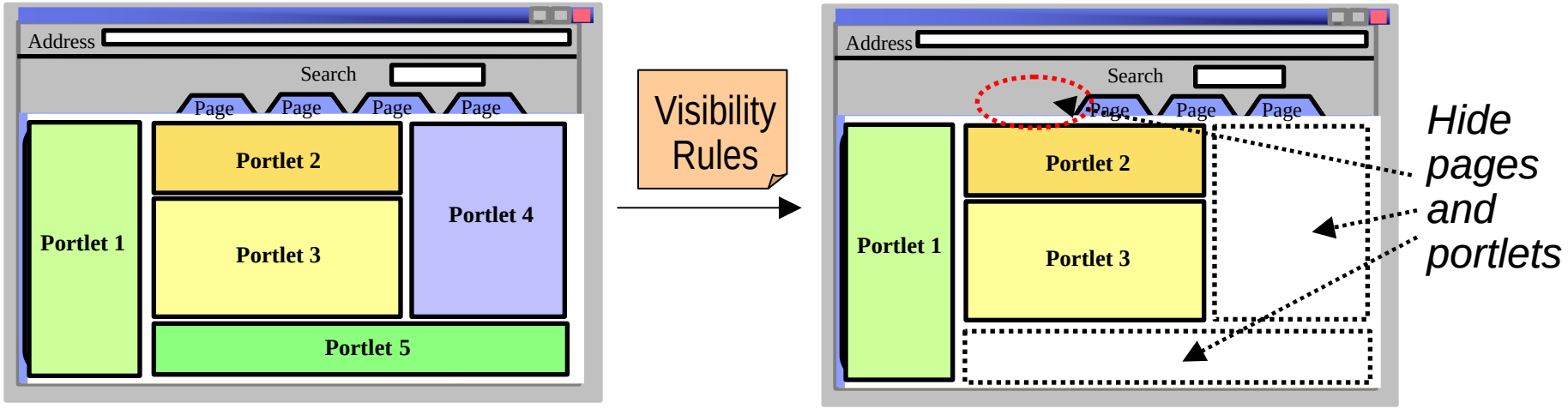
Services

Self-service Transactions	*Customized User Experience*
E-forms	*Initiate Business Process Requests*
Employee Tasks	*Mobile Access*
Management Dashboards	*Customer Relationship Mgmt.*
In line Analytics	*Collaboration*

add value to extended channels with

in line analytics, collaboration, …

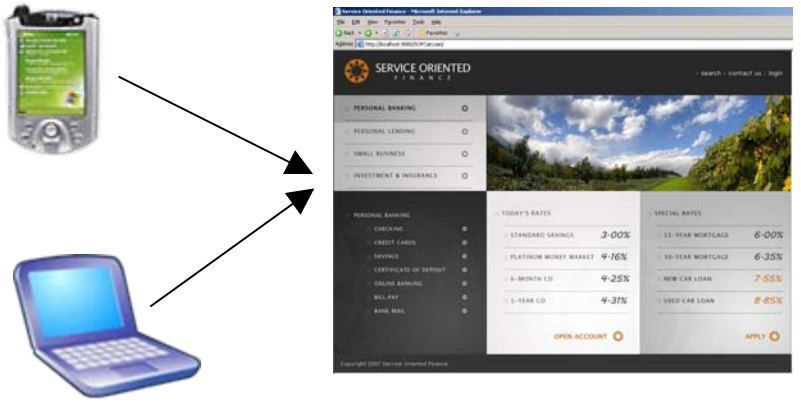
Create a Customized User Experience With Advanced Personalization



- Attribute-based personalization based on “visibility rules” allows for a more flexible and dynamic user experience
- Visibility rules instruct the portal to:
  - Show or hide pages and portlets…
  - …based on dynamic characteristics that are determined at runtime…
  - …according to business rules

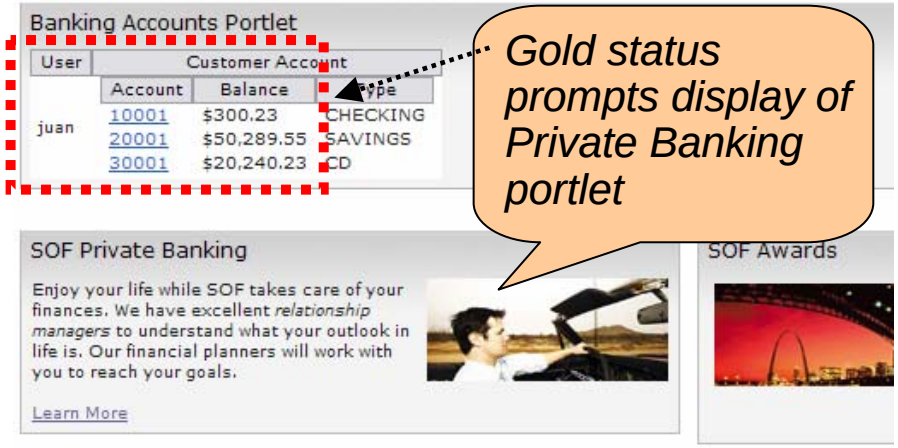
DEMO: Service Oriented Finance Customer Portal

- Customer Portal:
  - Access using Browser and Mobile Client

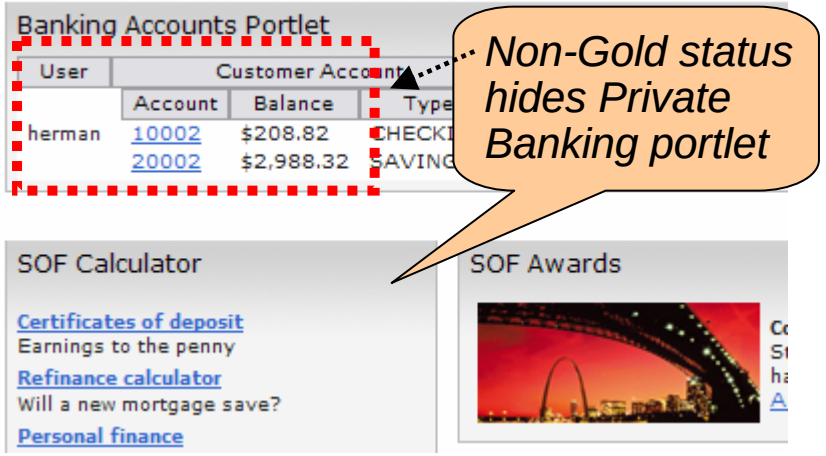


- Content Personalization:

Juan's Portal / Portlet View



Herman's Portal / Portlet View



Optimize Processing Of Car Loan Applications

The new channel is generating more new business! Our current manual processing can't keep up.

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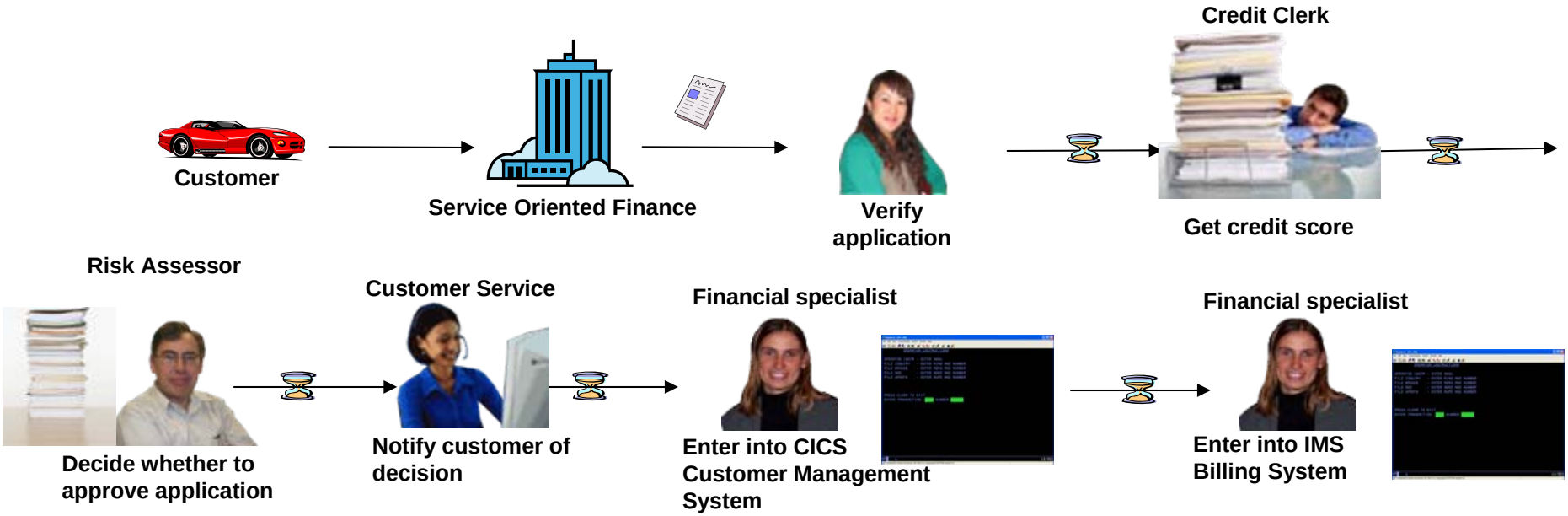
Create an improved process with WebSphere Process Server

IBM

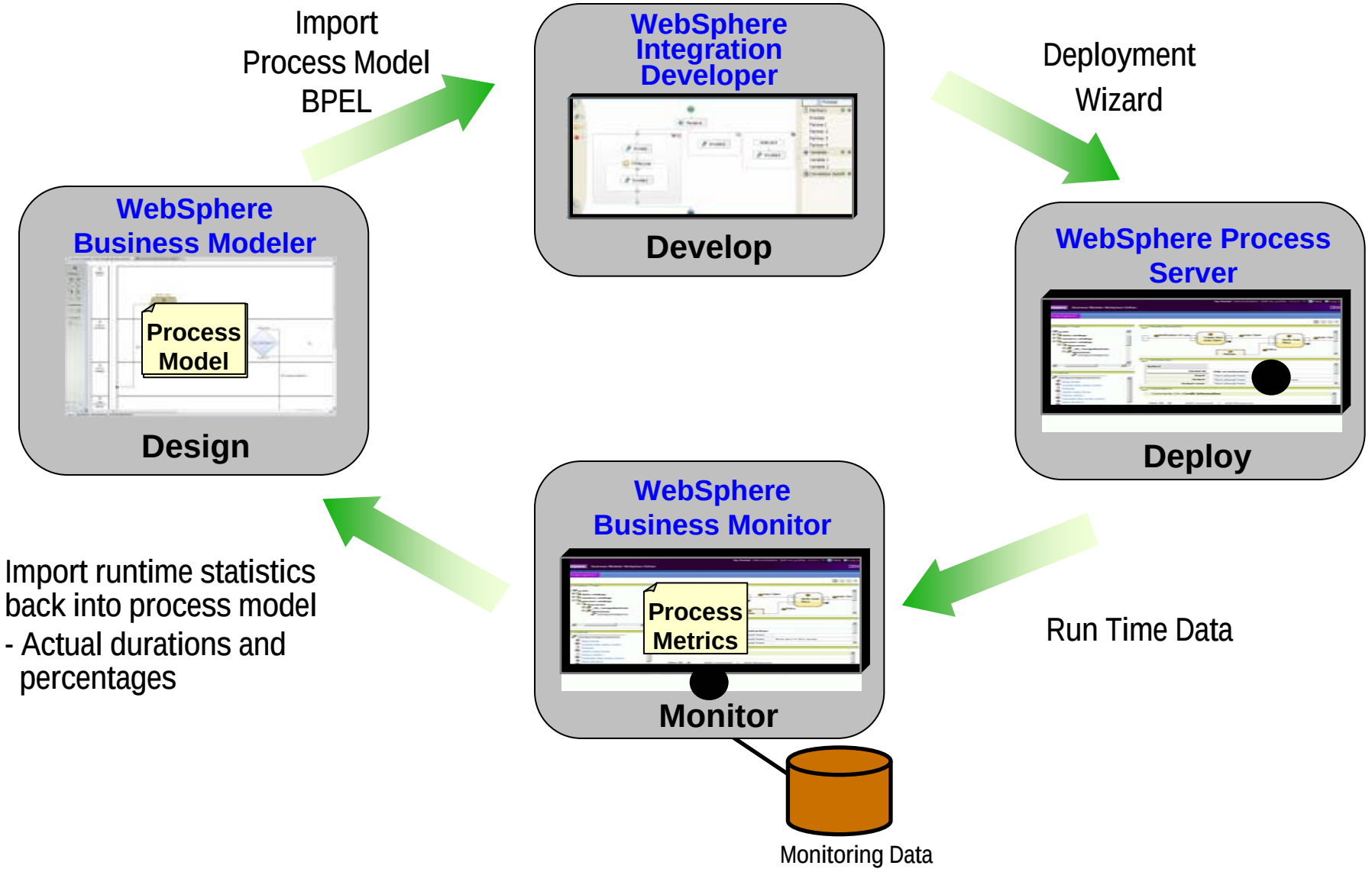
Current Process For New Car Loans



Issues with the current process:

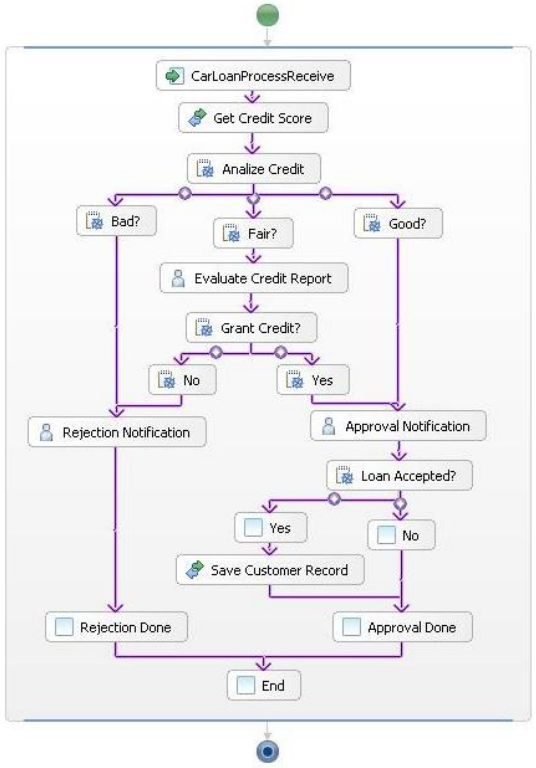
- Manual process won't scale
- Manual data entry results in errors
- Sequence of handoffs makes it difficult to determine status of any particular loan request

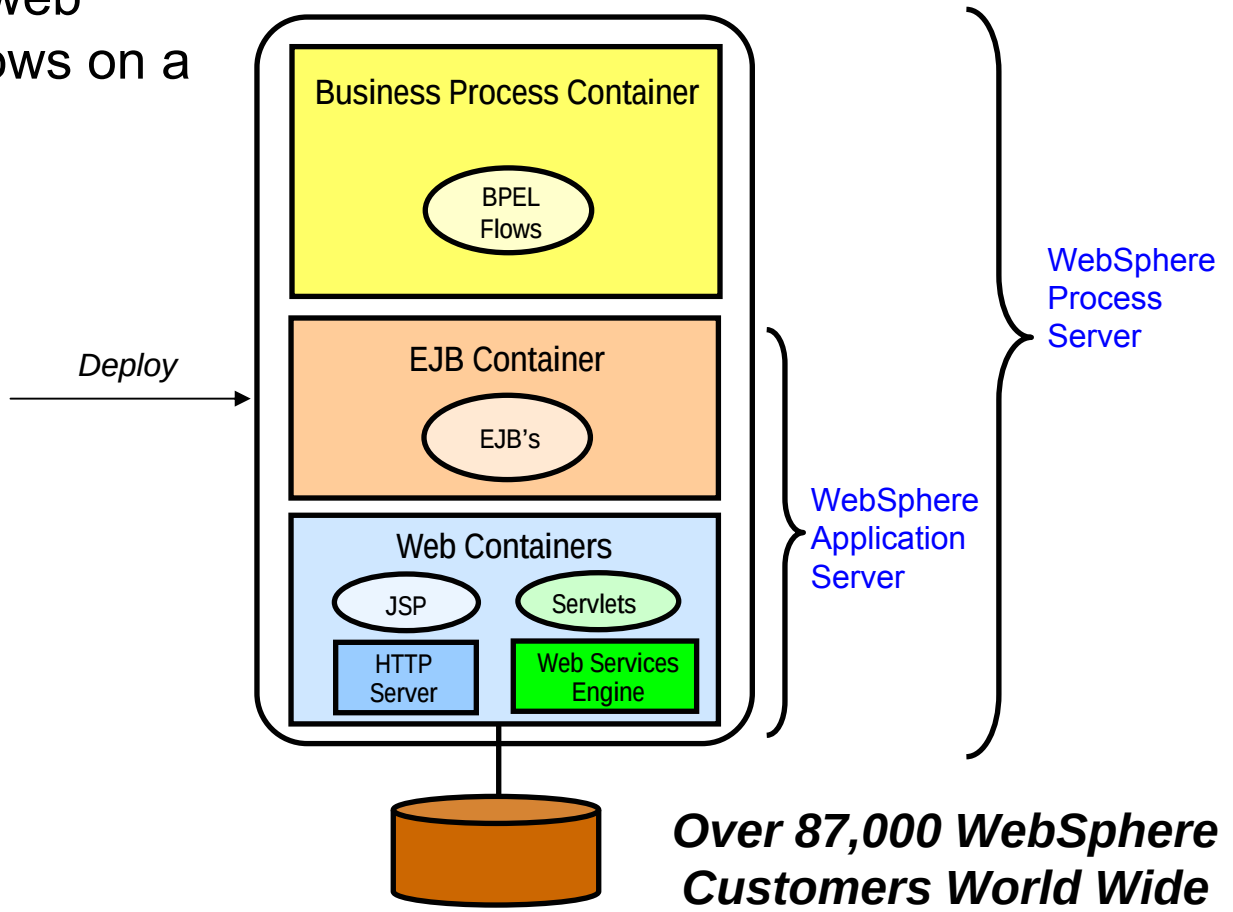
Design, Develop, Deploy, And Monitor The New Process With WebSphere



The Completed Process Runs On WebSphere Process Server (WPS)

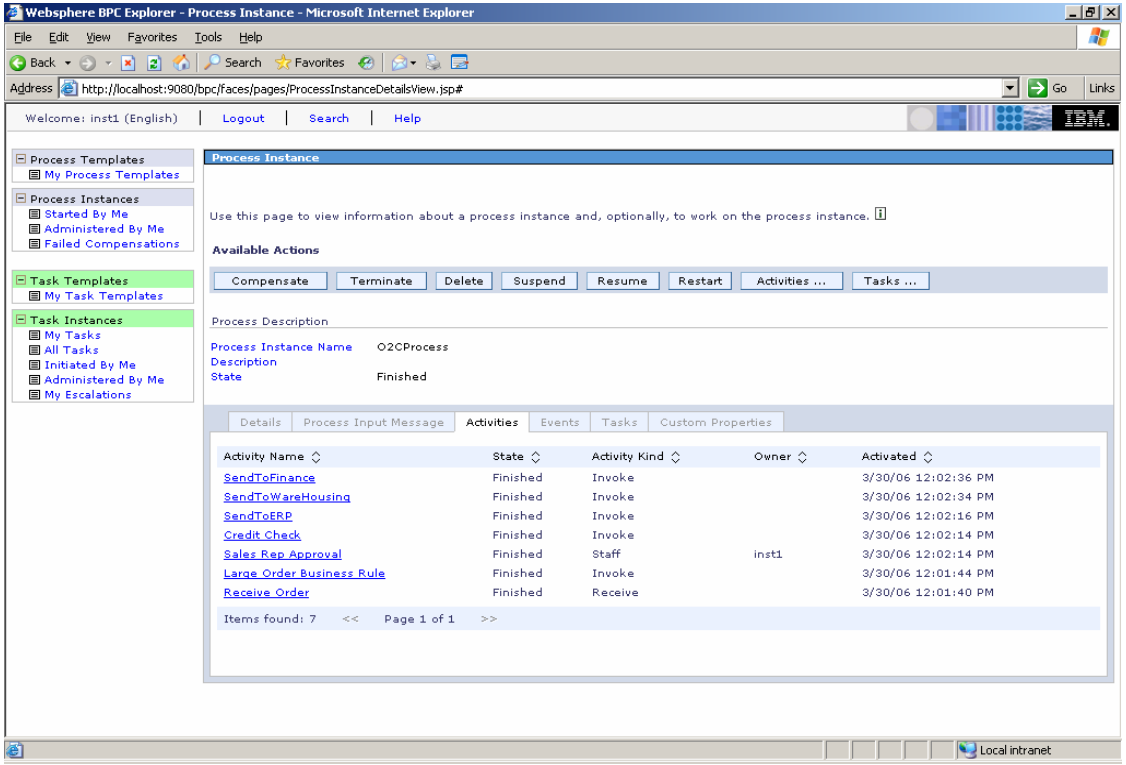
- The completed BPEL process can be deployed easily to WPS
- WPS supports J2EE, web services, and BPEL flows on a unified code base





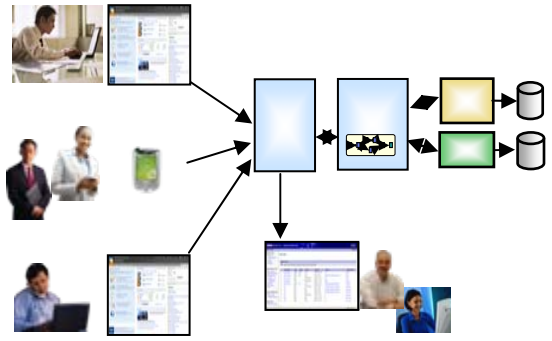
Over 87,000 WebSphere Customers World Wide

DEMO: Run The New Car Loan Process



- Submit new loan application through Portal
- Process-level monitoring
- Human workflow – Work list gets populated with tasks

Deployment Decisions



What platform should I use to deploy these channel solutions?

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System z is an ideal platform for your SOA solutions

IBM

Why SOA On System z?
1. Qualities Of Service

- An effective SOA implementation requires very high Quality of Services (QoS) from the underlying environment
  - Continuous Availability/Disaster Recovery
  - Scalability and Clustering
  - Rock-solid Security
  - Workload Management to handle peak demand

- *These are fundamental characteristics of System z, making it an ideal platform to deploy an SOA solution*

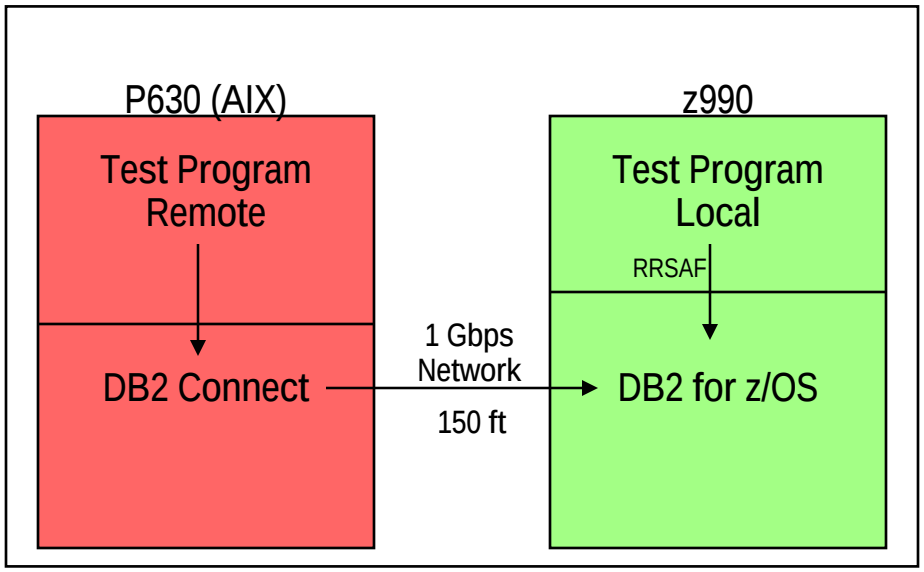
- IBM's core SOA framework runs on z/OS
  - WebSphere Application Server
  - WebSphere Process Server
  - WebSphere Portal Server
  - WebSphere Enterprise Service Bus

Why SOA On System z?
2. Co-Location

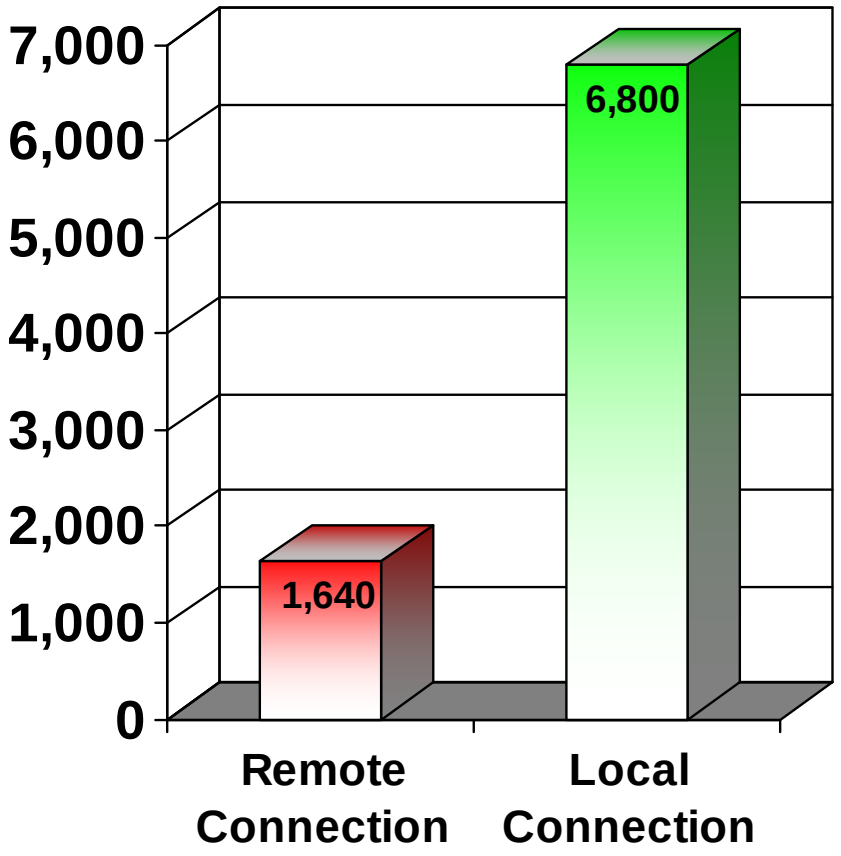
- The mainframe already houses the core CICS and IMS applications and data for the business
  - Quickly expose them as services, and continue the QoS the business depends on
- Having the Process Server and Portal Server in close proximity to each other and the assets they access provides better performance and throughput
- HiperSockets technology means less network overhead
  - Memory to memory communication

Co-Located Environments Maximize Throughput
IBM Study Shows Effects Of Network Latency On SQL Processing

Test Configuration



Results:
SQL Statements / Second

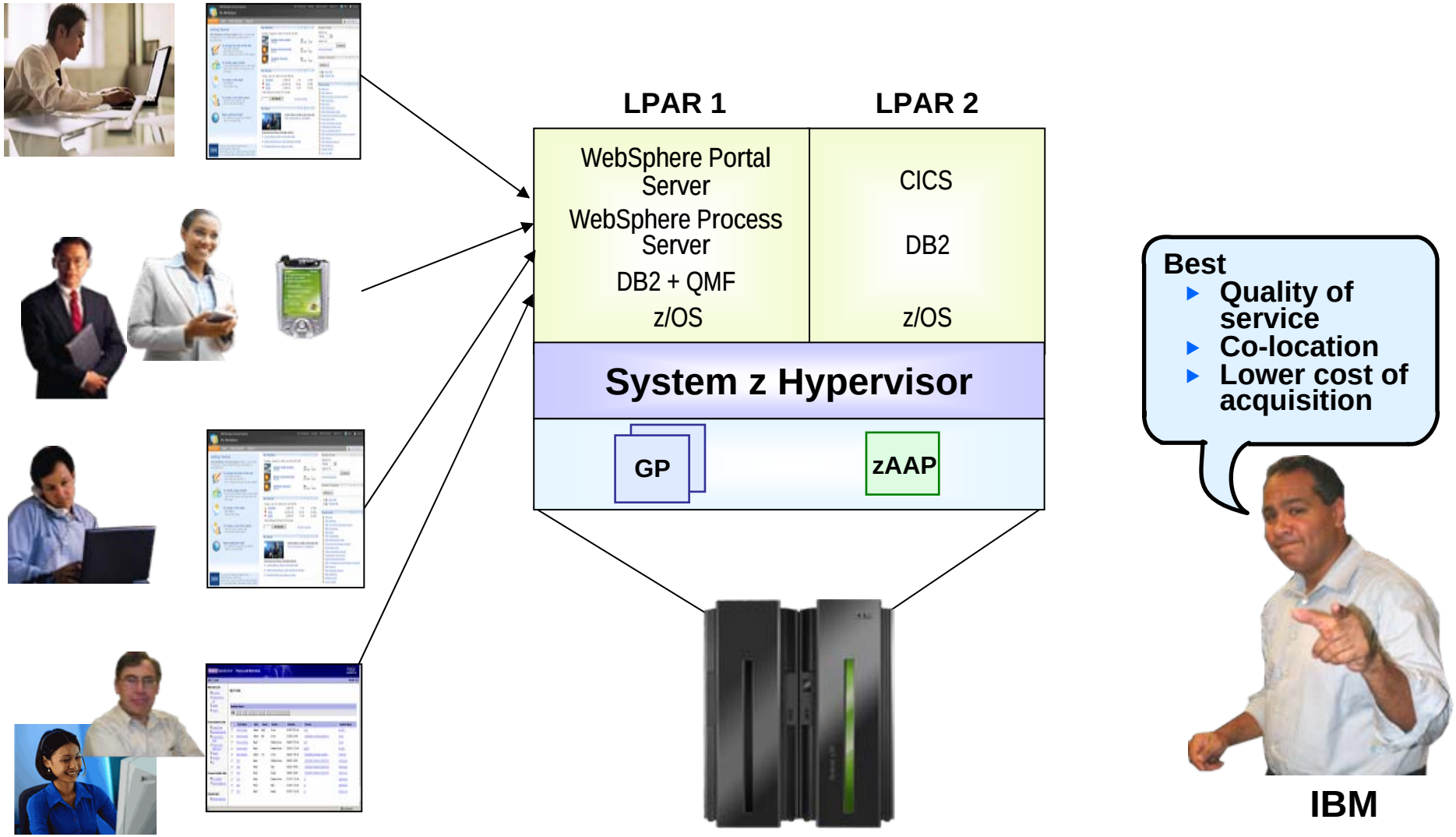


Why the big difference in SQL throughput?

- Elimination of network latency incurred by remote database connections increased SQL throughput **4x!**
- Hipersockets provide this benefit for consolidated applications on zLinux

IBM Study: "Local versus Remote Database Access: A Performance Test", 2005
http://publib-b.boulder.ibm.com/abstracts/redp4113.html

Mainframe Extension Solution – Access Channels



Deploy WebSphere Process Management Application on Mainframe vs. HP Servers

Existing Mainframe

Existing z10:
2 GP 1,720 MIPS
DB2 and utilities
With 20TB storage

Existing Disaster Recovery Site

Existing:
1 GP processor for hot disaster switch-over
1 "dark" DR processor
With 20TB storage

Add 3 LPARs for New Web Application w 1.28 TB storage

Prod

1,624 MIPS additional workload

Incremental:

1 zAAP	920 MIPS WPS & Portal (85%)
1 GP	541 MIPS DB2
	163 MIPS WPS & Portal (15%)

2 GB memory

And Add Disaster Recovery w 1.28 TB storage

Prod

Capacity Backup:
1 GP
1 zAAP

3 year cost of acquisition $4.06M

Or Add HP Integrity Superdome 9140 Server w 1.67 TB storage

Prod

201,977 Performance Units*

And Add Disaster Recovery w 1.67 TB storage

Prod

201,977 Performance Units*

3 year cost of acquisition $14.36M

**Production Perfomance Units required = 1,624 x 122 = 198,128*

Deploy WebSphere Process Management Application on Mainframe vs. SUN Servers

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Or Add SUN SPARC M9000 Server w 1.67 TB storage

Prod

200,082 Performance Units*

And Add Disaster Recovery w 1.67 TB storage

Prod

200,082 Performance Units*

3 year cost of acquisition $39.32M

**Production Performance Units required = 1,624 x 122 = 198,128*