



Extending Your Mainframe For More Business Value

Add New Workload –
Extend Access Channels With SOA

Service Oriented Finance's Business Problem

We want to grow revenue and improve customer satisfaction by extending new access channels to our business



**Service Oriented Finance
CEO**

Service Oriented Finance's Technical Challenges

Our core business processing runs on the mainframe



**Service Oriented Finance
CIO**

Extend Access Channels

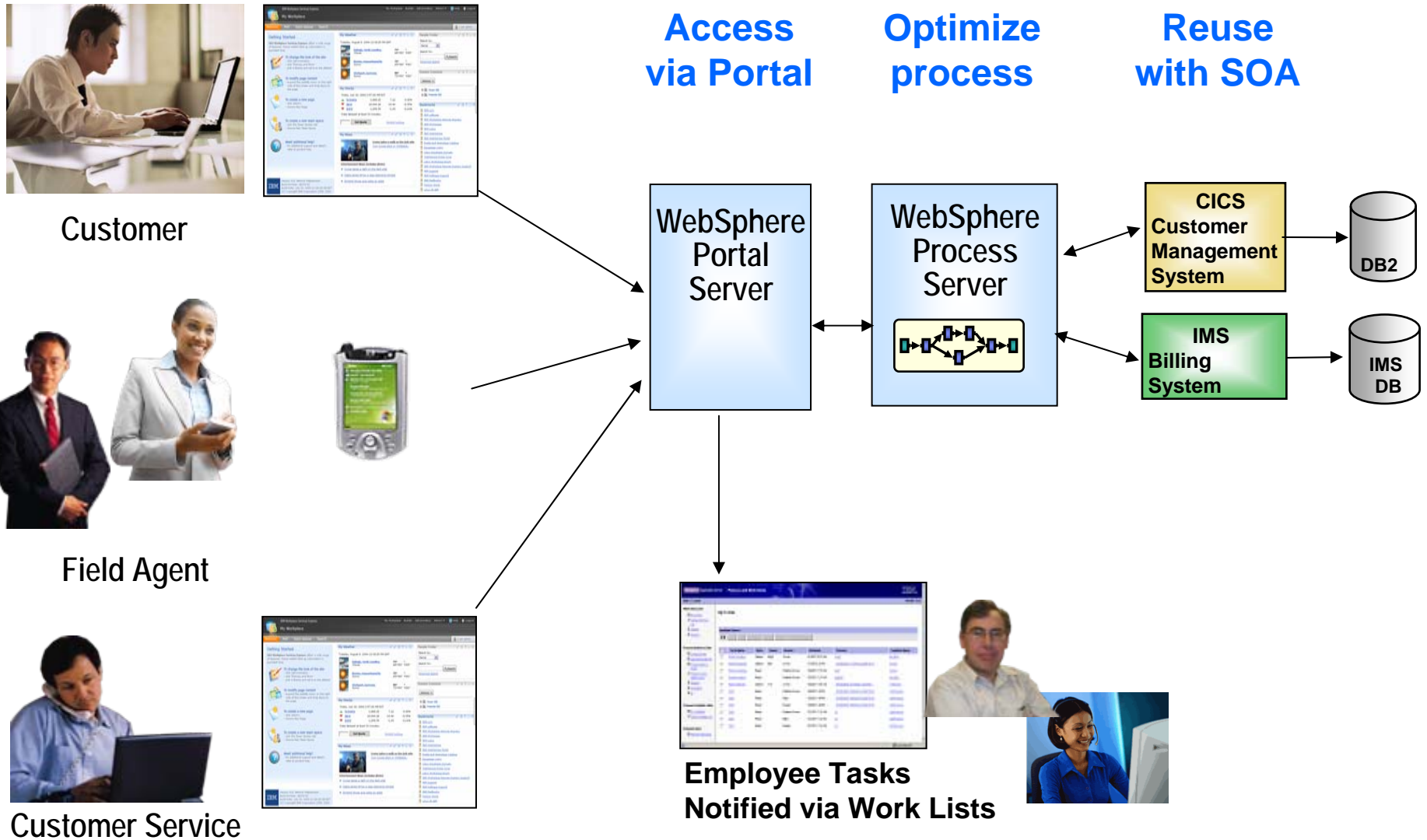
■ Key Access Channels

- ▶ Web access by customers and business partners
- ▶ Call centers
- ▶ Front offices
- ▶ Enabled by internet technologies

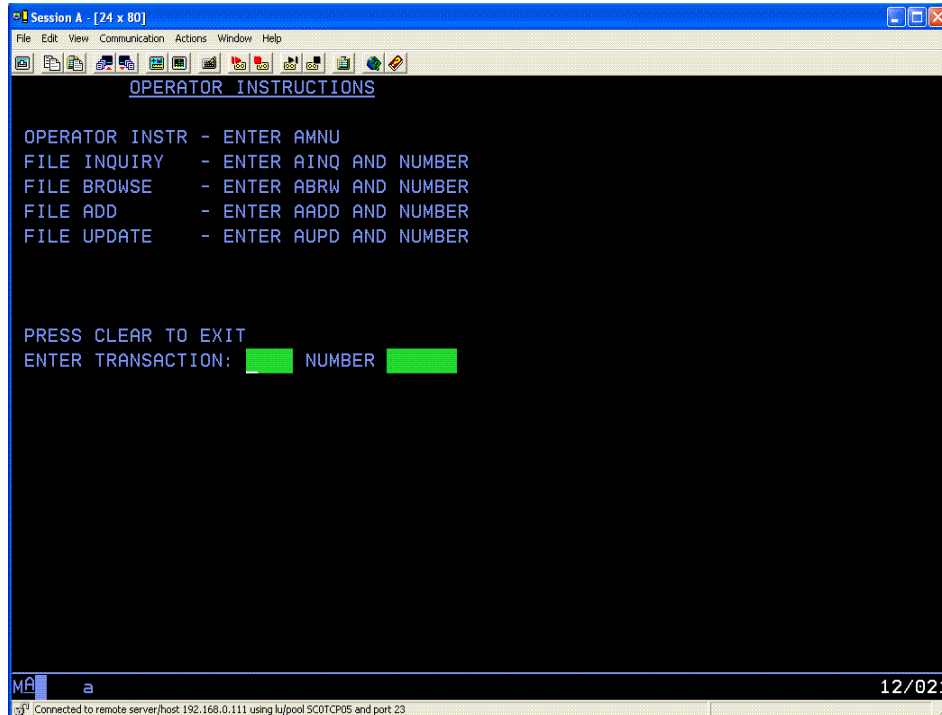
■ Growing pains and requirements

- ▶ Leverage existing back end transaction systems
- ▶ Connectivity is required
- ▶ Increase in back end transactions is typical

Service Oriented Finance Solution Picture



Existing CICS Investment: Customer Management System



The screenshot shows a terminal window titled "Session A - [24 x 80]". The menu bar includes "File", "Edit", "View", "Communication", "Actions", "Window", and "Help". The main content area displays "OPERATOR INSTRUCTIONS" with the following list:

- OPERATOR INSTR - ENTER AMNU
- FILE INQUIRY - ENTER AINQ AND NUMBER
- FILE BROWSE - ENTER ABRW AND NUMBER
- FILE ADD - ENTER AADD AND NUMBER
- FILE UPDATE - ENTER AUPD AND NUMBER

Below the list, it says "PRESS CLEAR TO EXIT" and "ENTER TRANSACTION: [green box] NUMBER [green box]". The status bar at the bottom shows "MA a" and "12/021". A small text at the very bottom reads "Connected to remote server/host:192.168.0.111 using lu/pool:SC01CP05 and port:23".

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



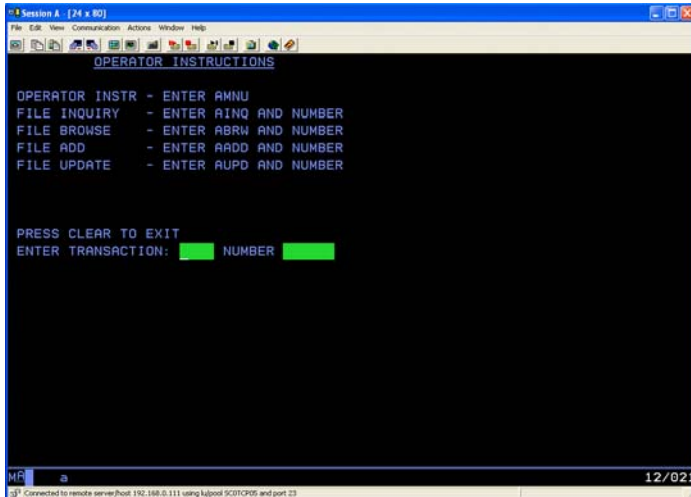
... **service oriented architecture (SOA)?**

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

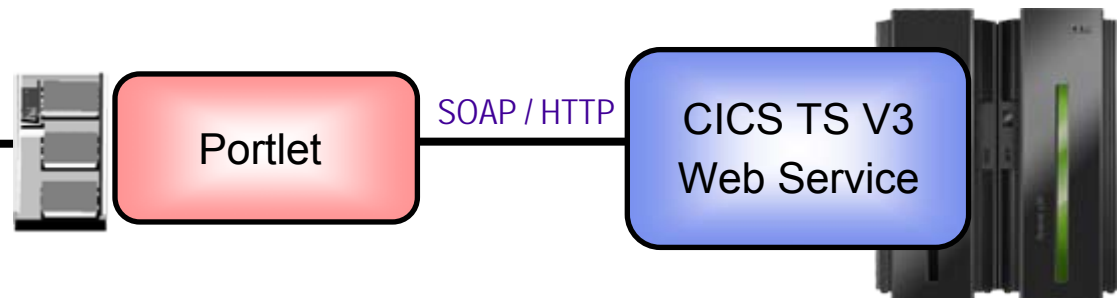


- Customers accesses the Portal
- A portlet talks to the CICS Loan application using Web Services

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



Customer



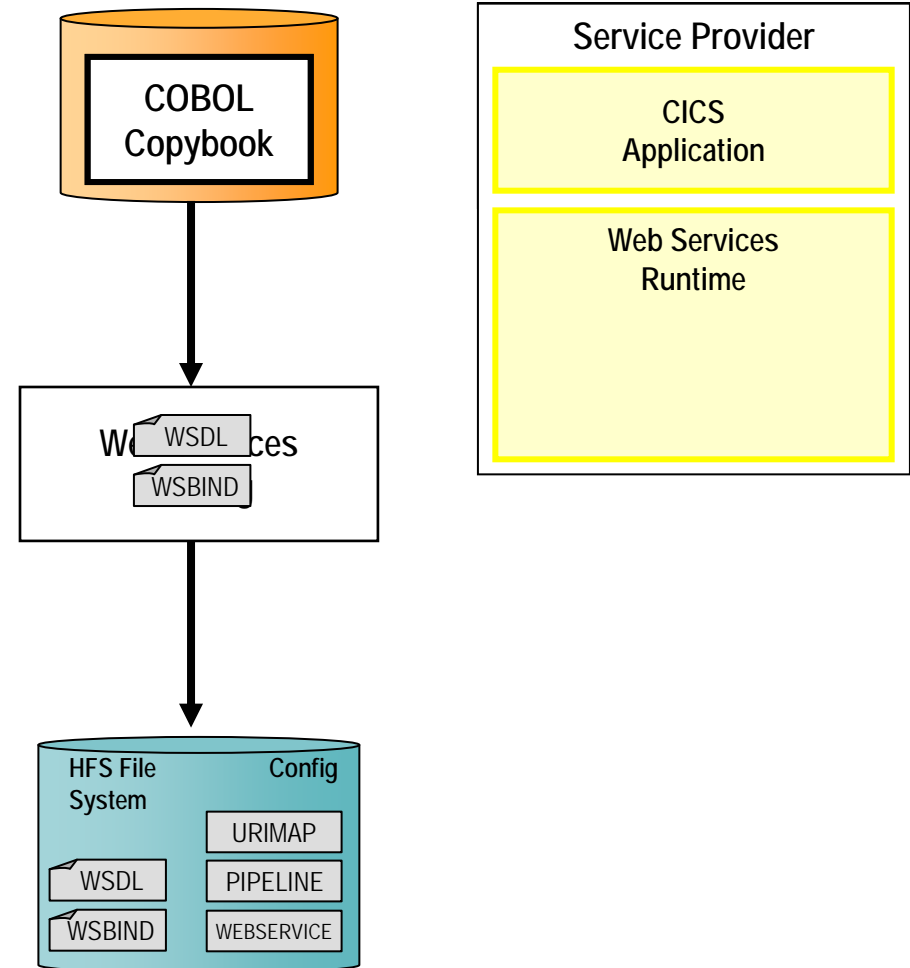
CICS Web Services

- 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

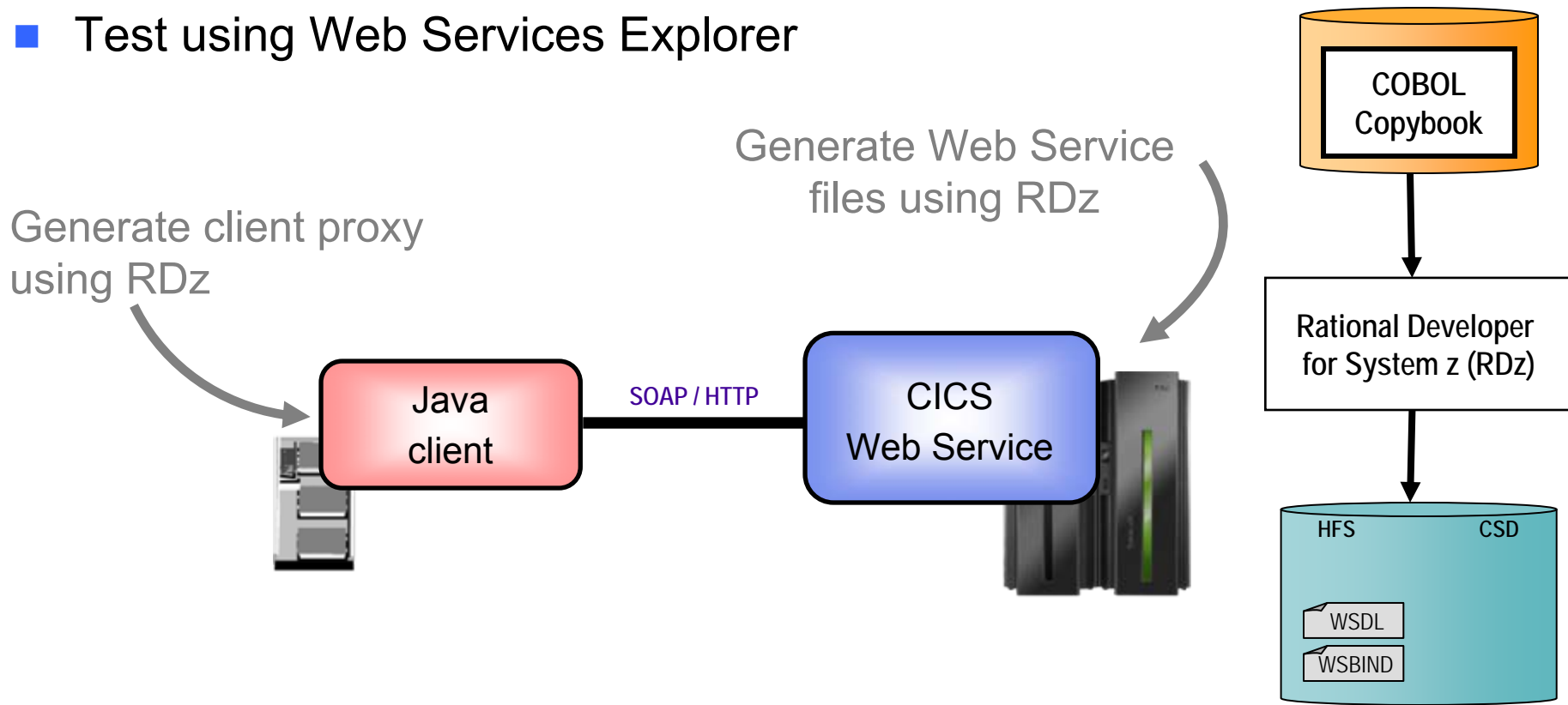
Development Steps To Expose CICS Application As A Web Service Provider

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

Natural, Intuitive,
Adaptive User Experience

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

WebSphere
Portal
Server

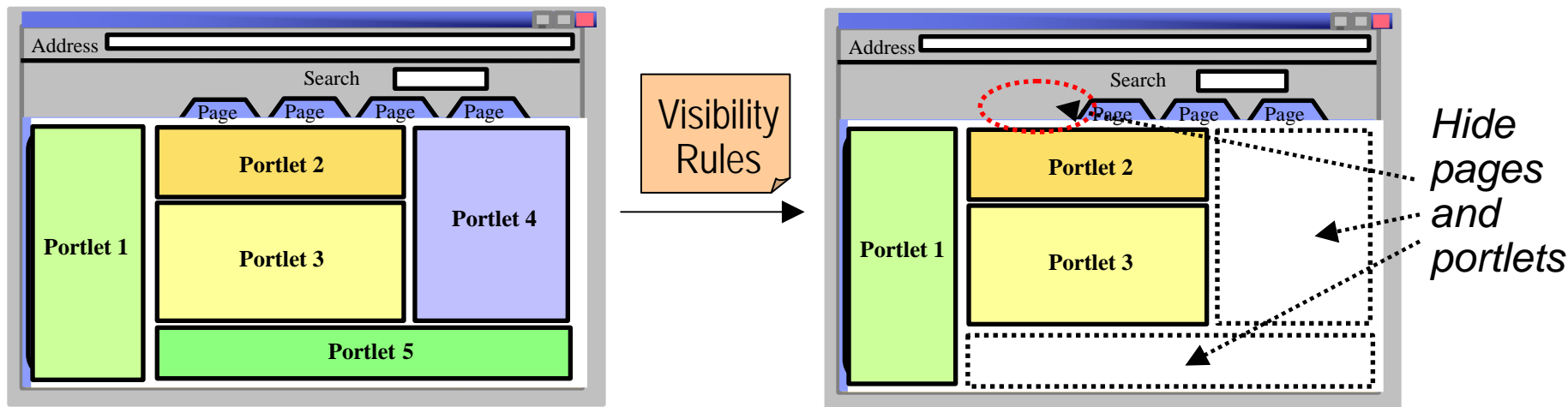
User interface to SOA
services
Delivery of business
information

*add value to extended
channels with
in line analytics,
collaboration, ...*

Customers

Employees

Create a Customized User Experience With Advanced Personalization

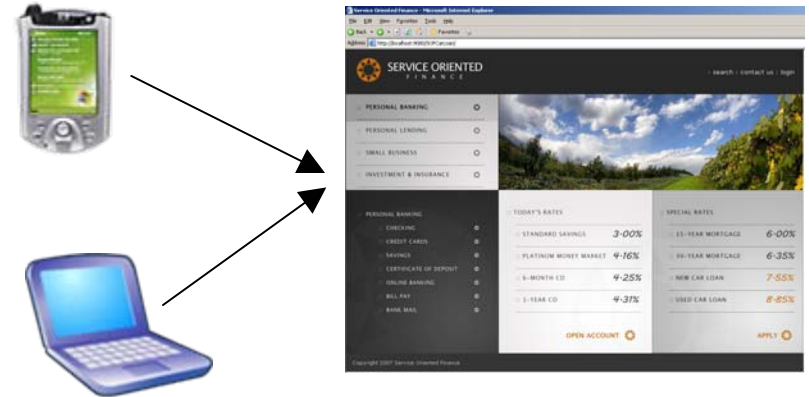


- Attribute-based personalization based on “visibility rules” allows for a more flexible and dynamic user experience
- Visibility rules instruct the portal to:
 - ▶ Show or hide pages and portlets...
 - ▶ ...based on dynamic characteristics that are determined at runtime...
 - ▶ ...according to business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

DEMO: Service Oriented Finance Customer Portal

Customer Portal:

- ▶ Access using Browser and Mobile Client



Content Personalization:

Juan's Portal / Portlet View

Banking Accounts Portlet

User	Customer Account		
	Account	Balance	Type
juan	10001	\$300.23	CHECKING
	20001	\$50,289.55	SAVINGS
	30001	\$20,240.23	CD

Gold status prompts display of Private Banking portlet

SOF Private Banking
Enjoy your life while SOF takes care of your finances. We have excellent *relationship managers* to understand what your outlook in life is. Our financial planners will work with you to reach your goals.
[Learn More](#)

SOF Awards

Herman's Portal / Portlet View

Banking Accounts Portlet

User	Customer Account		
	Account	Balance	Type
herman	10002	\$208.82	CHECKING
	20002	\$2,988.32	SAVINGS

Non-Gold status hides Private Banking portlet

SOF Calculator
[Certificates of deposit](#)
Earnings to the penny
[Refinance calculator](#)
Will a new mortgage save?
[Personal finance](#)

SOF Awards

Optimize Processing Of Car Loan Applications

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



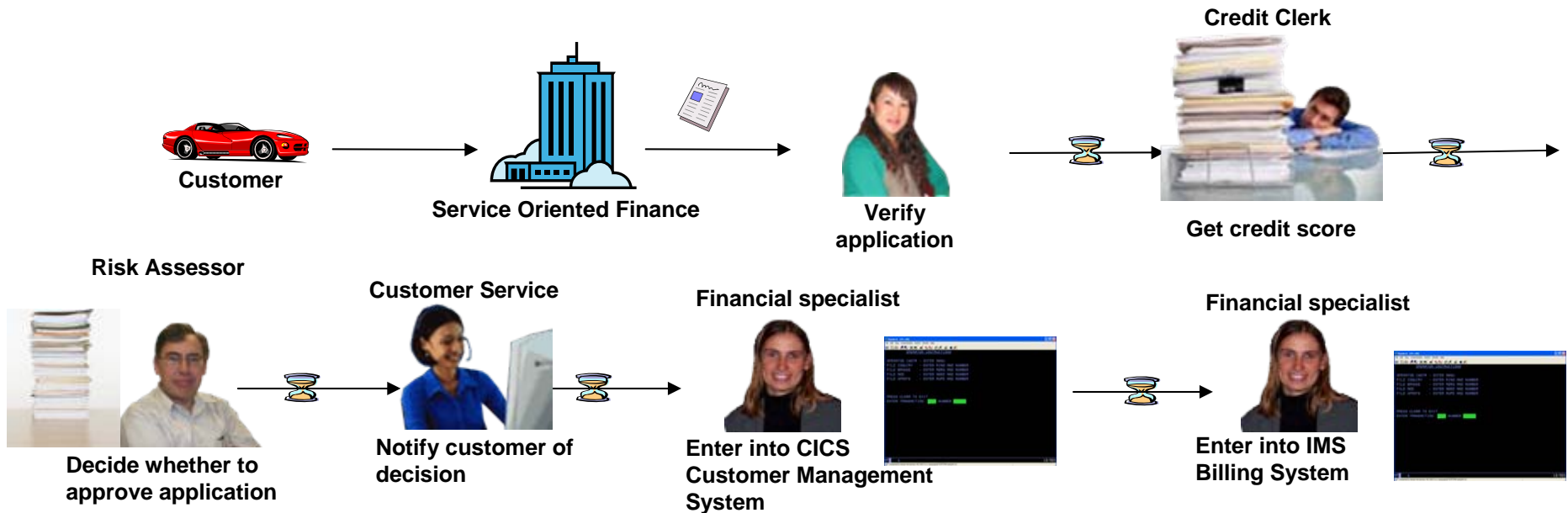
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Create an improved process with WebSphere Process Server



IBM

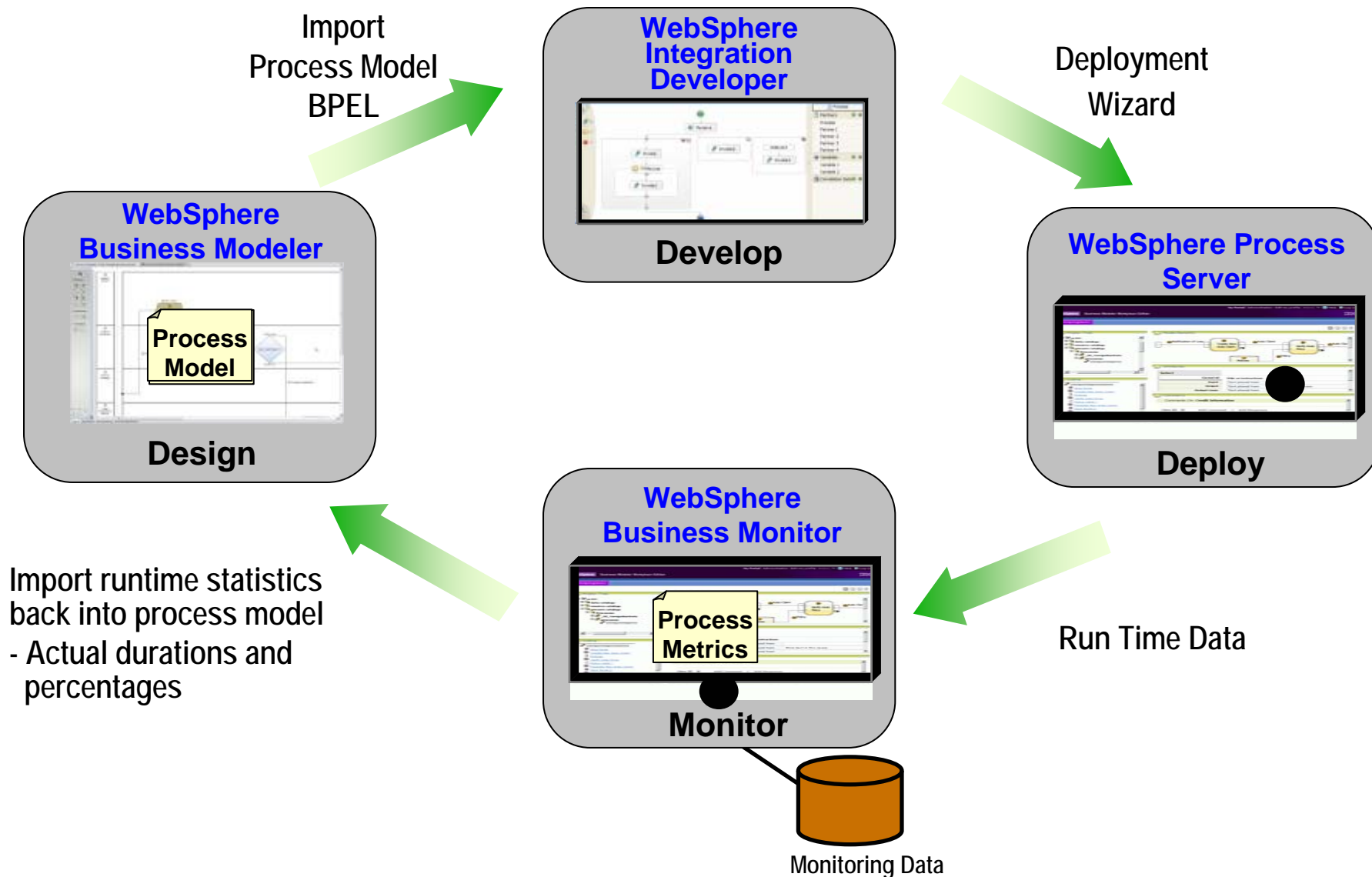
Current Process For New Car Loans



Issues with the current process:

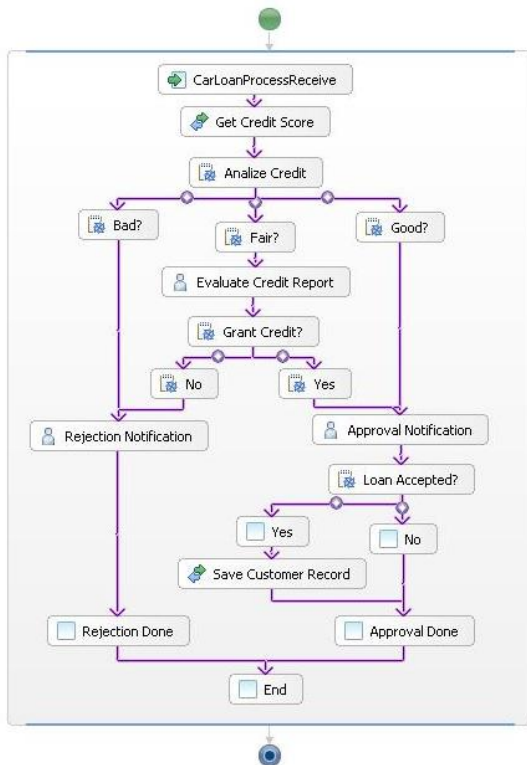
- Manual process won't scale
- Manual data entry results in errors
- Sequence of handoffs makes it difficult to determine status of any particular loan request

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

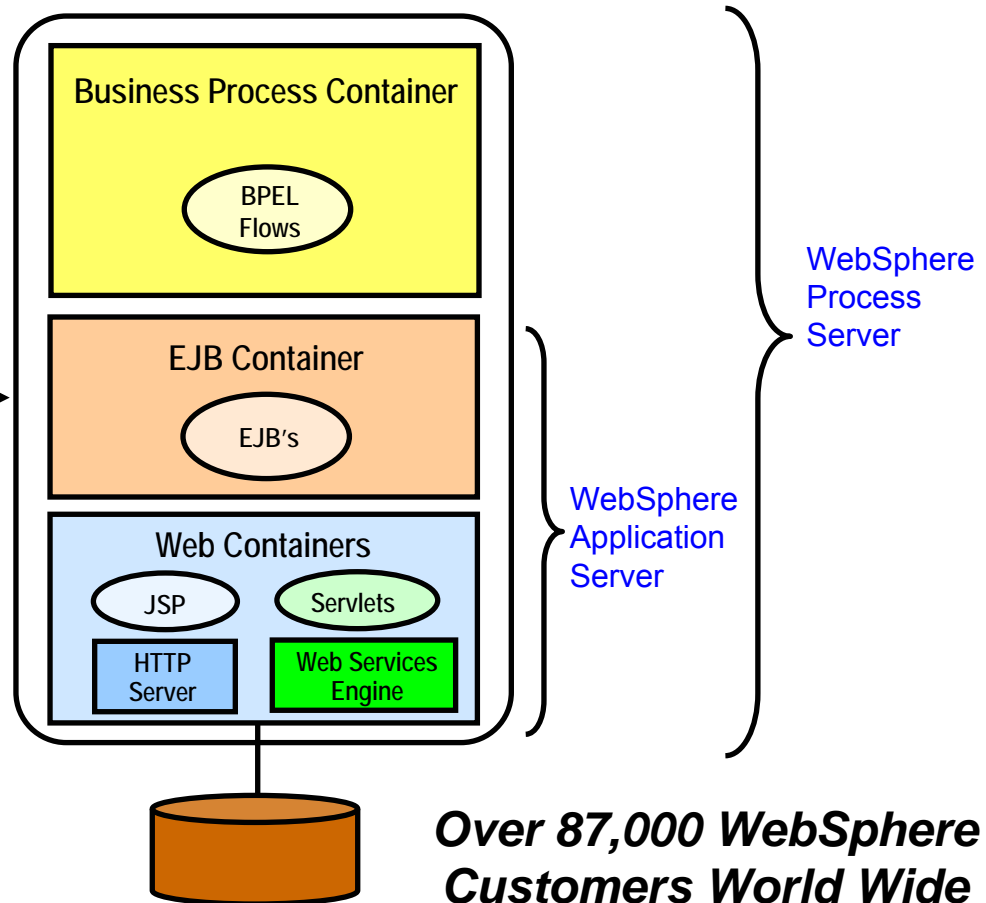


The Completed Process Runs On WebSphere Process Server (WPS)

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



Deploy



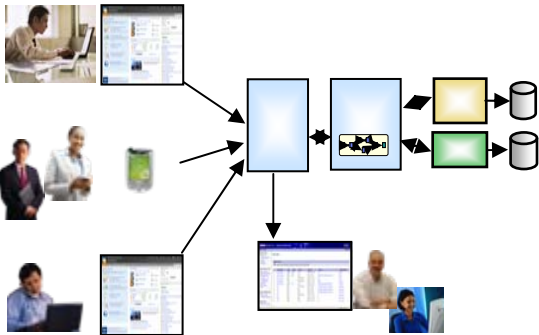
DEMO: Run The New Car Loan Process

The screenshot shows a web browser window titled "Websphere BPC Explorer - Process Instance - Microsoft Internet Explorer". The address bar shows "http://localhost:9080/bpc/faces/pages/ProcessInstanceDetailsView.jsp#". The page content includes a navigation menu on the left with categories like "Process Templates", "Process Instances", "Task Templates", and "Task Instances". The main content area is titled "Process Instance" and contains a description of the process instance, "O2CProcess", which is in a "Finished" state. Below the description, there are tabs for "Details", "Process Input Message", "Activities", "Events", "Tasks", and "Custom Properties". The "Activities" tab is selected, displaying a table of activities.

Activity Name	State	Activity Kind	Owner	Activated
SendToFinance	Finished	Invoke		3/30/06 12:02:36 PM
SendToWarehousing	Finished	Invoke		3/30/06 12:02:34 PM
SendToERP	Finished	Invoke		3/30/06 12:02:16 PM
Credit Check	Finished	Invoke		3/30/06 12:02:14 PM
Sales Rep Approval	Finished	Staff	inst1	3/30/06 12:02:14 PM
Large Order Business Rule	Finished	Invoke		3/30/06 12:01:44 PM
Receive Order	Finished	Receive		3/30/06 12:01:40 PM

- 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?

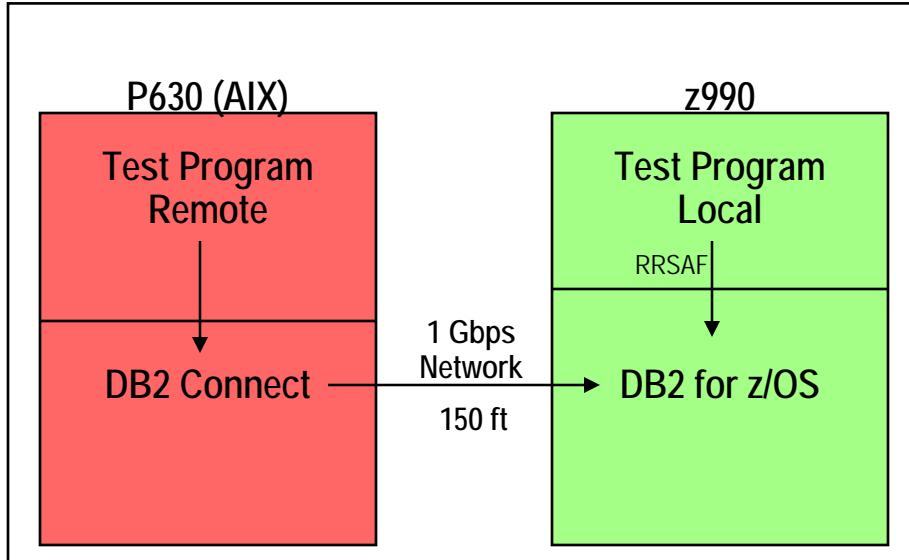
2. Co-Location

- 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

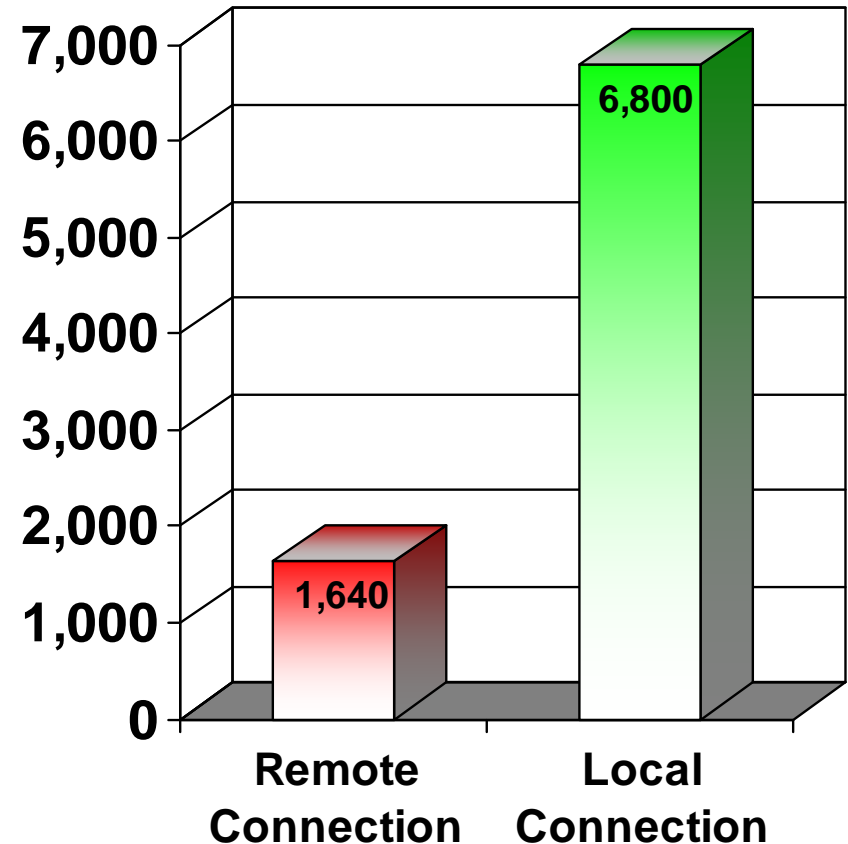


Why the big difference in SQL throughput?

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

Results:

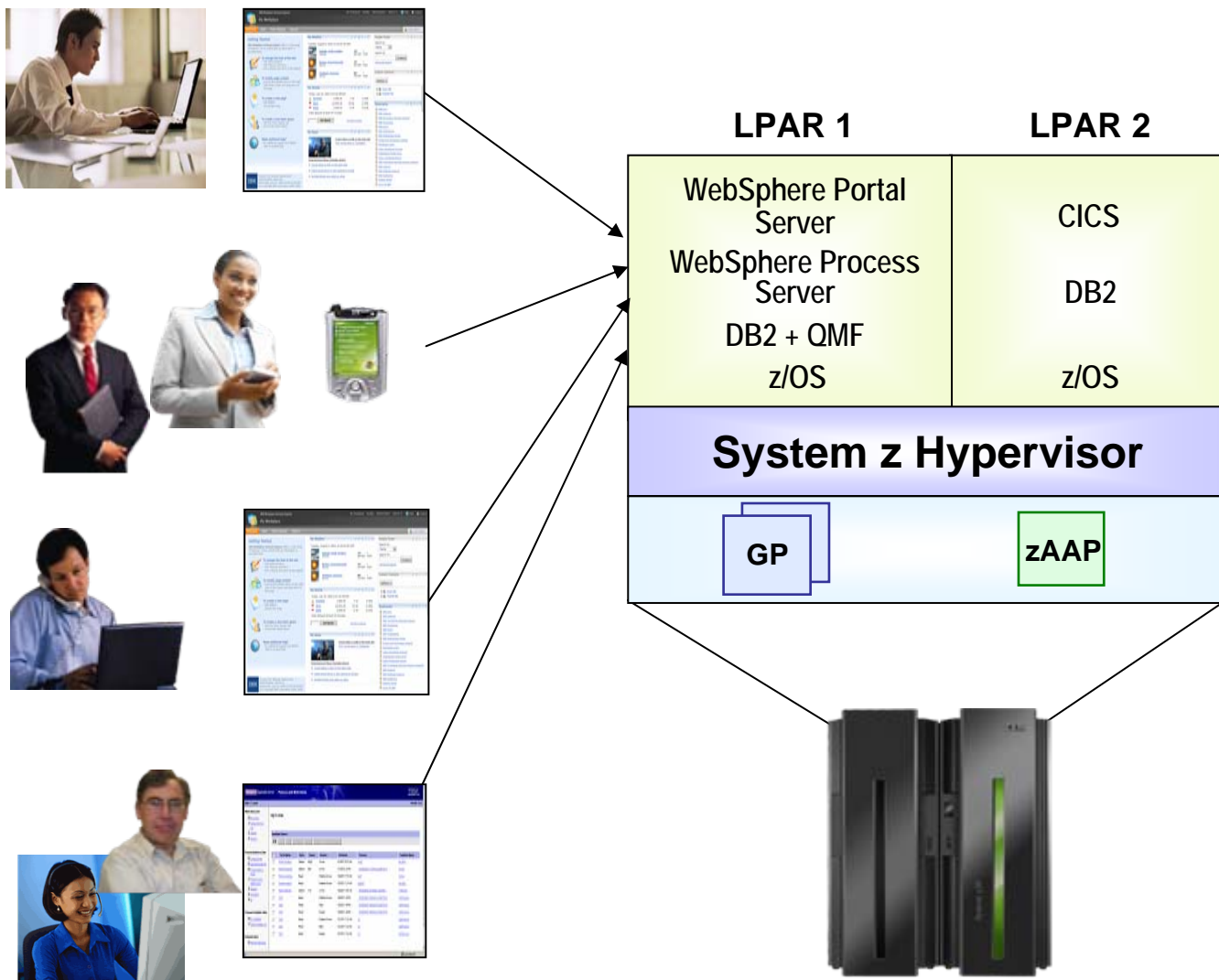
SQL Statements / Second



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



Best

- ▶ Quality of service
- ▶ Co-location
- ▶ Lower cost of acquisition



IBM

Deploy WebSphere Process Management Application on Mainframe vs. HP Servers

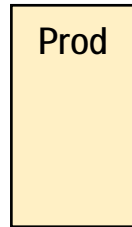
Existing Mainframe



Existing Disaster Recovery Site

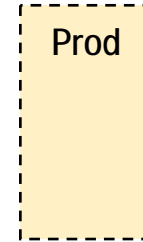


Add 3 LPARs for New Web Application w 1.28 TB storage



1,624 MIPS additional workload

And Add Disaster Recovery w 1.28 TB storage



3 year cost of acquisition \$4.06M

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

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

Incremental:
1 zAAP 920 MIPS WPS & Portal (85%)
1 GP 541 MIPS DB2
163 MIPS WPS & Portal (15%)
2 GB memory

Capacity Backup:
1 GP
1 zAAP

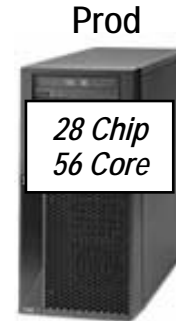
Or Add HP Integrity Superdome 9140 Server w 1.67 TB storage



201,977*

Performance Units

And Add Disaster Recovery w 1.67 TB storage



201,977*

Performance Units

3 year cost of acquisition \$14.36M

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

01 - Extend Access Channels With SOA v7.2.ppt

Deploy WebSphere Process Management Application on Mainframe vs. SUN Servers

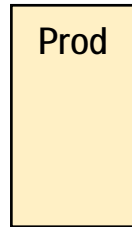
Existing Mainframe



Existing Disaster Recovery Site

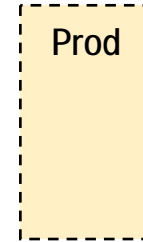


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163 MIPS WPS & Portal (15%)
2 GB memory

Capacity Backup:
1 GP
1 zAAP

Or Add SUN SPARC M9000 Server w 1.67 TB storage



200,082*
Performance Units

And Add Disaster Recovery w 1.67 TB storage



200,082*
Performance Units

3 year cost of acquisition \$39.32M

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

01 - Extend Access Channels With SOA v7.2.ppt

