



IBM Software Group

Next Generation Portal

Enterprise Portal in a Service Oriented Architecture

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Agenda

- **Business Integration**
- **Classic Portal Integration “on the glass”**
- **Application integration with SOA**
- **Portal and SOA together**
- **Process Portal**
- **Information integration and Portal**

GARTNER on Enterprise Portal

Gartner report published in October 2005:

"Through 2007, an enterprise portal will be the first major application of SOA concepts for more than 50 percent of enterprises (0.6 probability)."



Why business driven integration?

- Businesses need to be flexible
 - ▶ To meet fast shifting market trends and demands
 - ▶ Focus on customer centric solutions
 - ▶ To quickly create and change business processes
 - Reduce business process execution time
 - ▶ To reduce time to market and costs
- Business driven IT development
 - ▶ Increase IT responsiveness and flexibility
 - ▶ Increase re-use to reduce costs and risks
 - ▶ Break down existing silos

Service Oriented Architecture (SOA) is or will soon be the leading business integration trend!

How does portal fit in to this game?

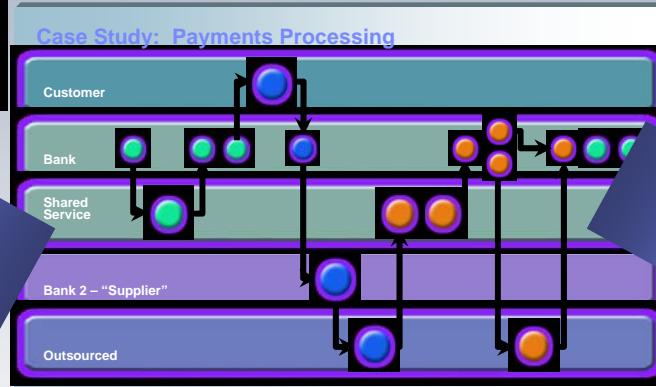


Flexible business requires flexible IT

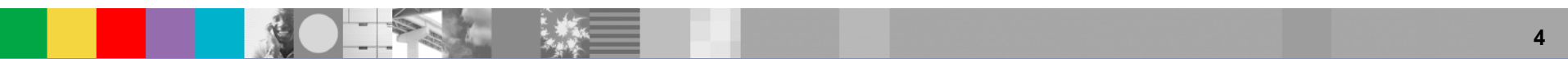
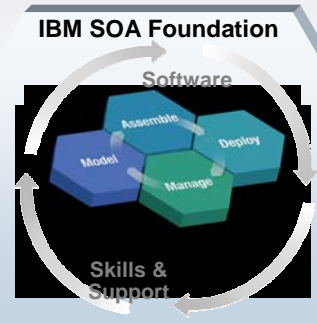
Full Business view



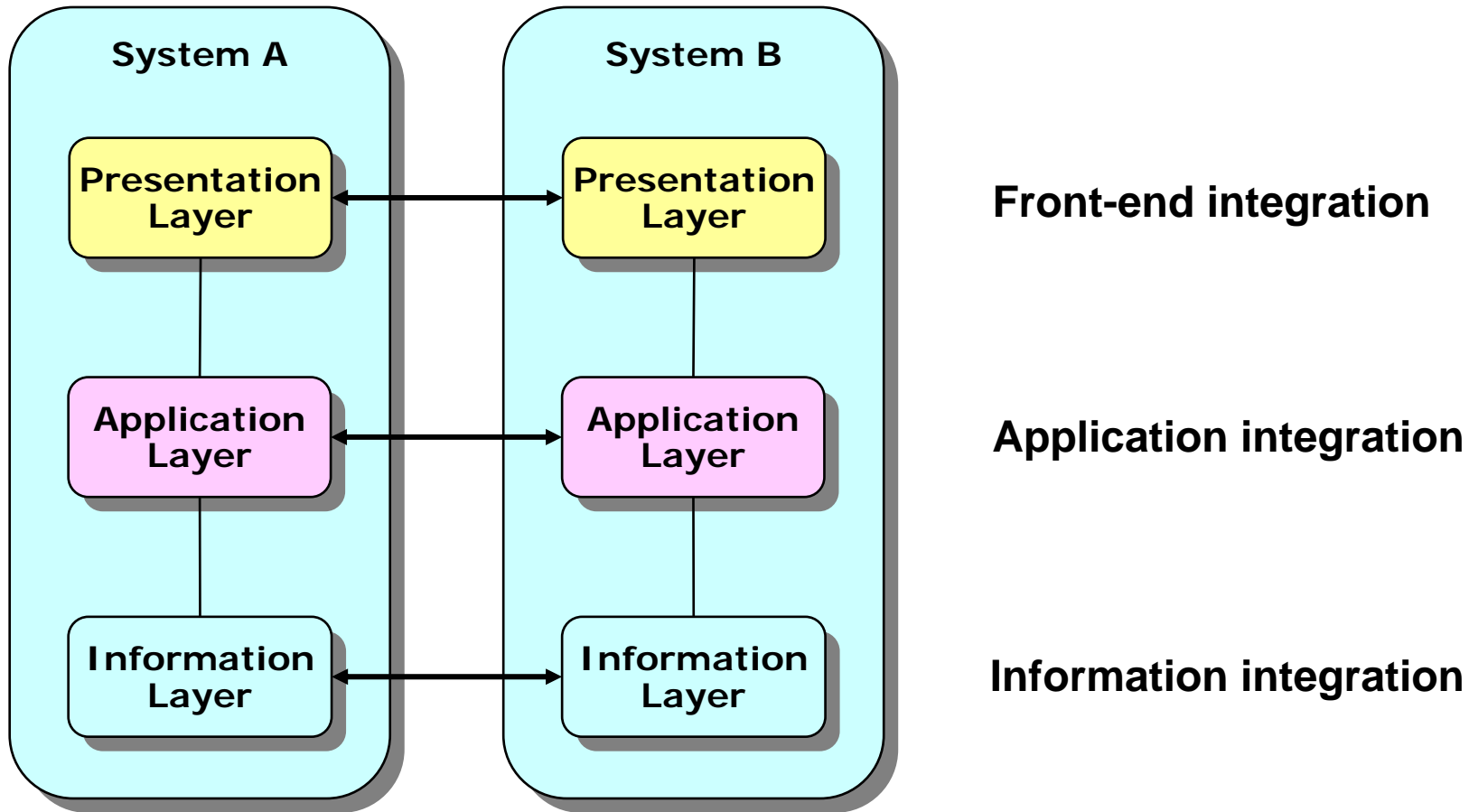
Process to optimize



Creating IT flexibility



How to integrate?



N-Tier application



Agenda

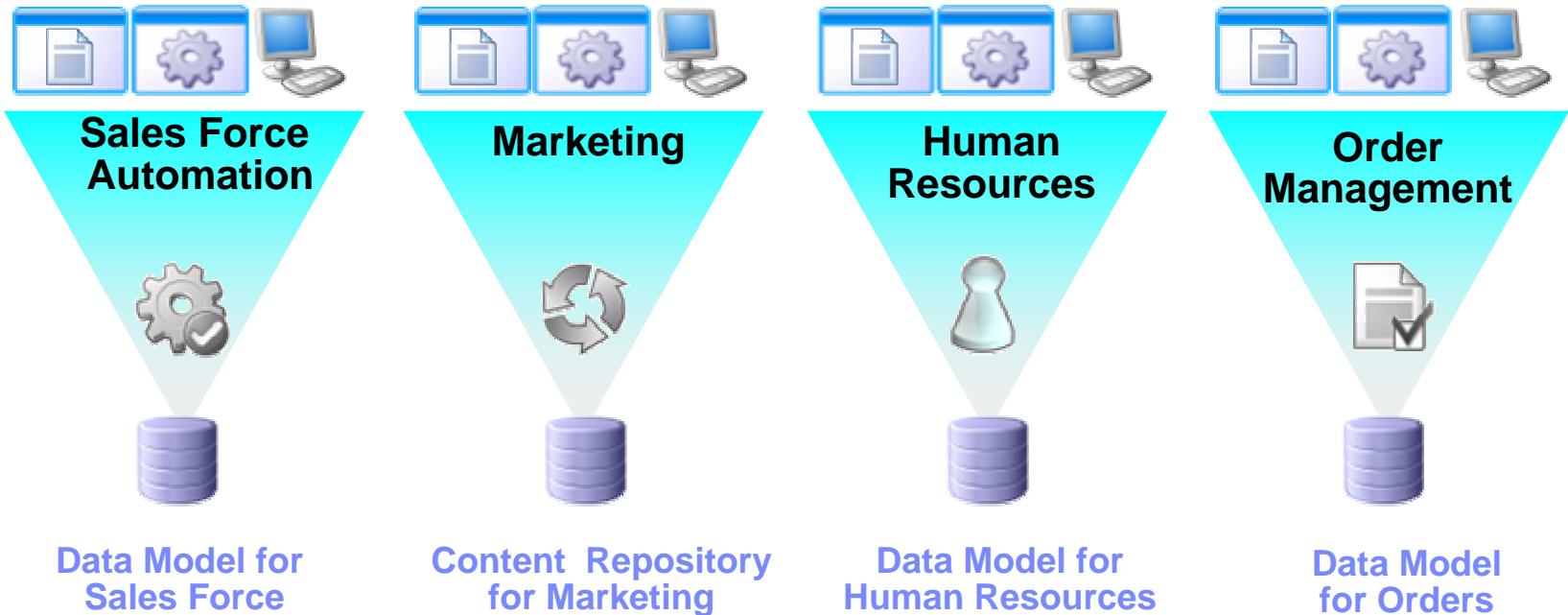
- Business Integration
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The Usability Challenge:

The traditional approach focuses on function



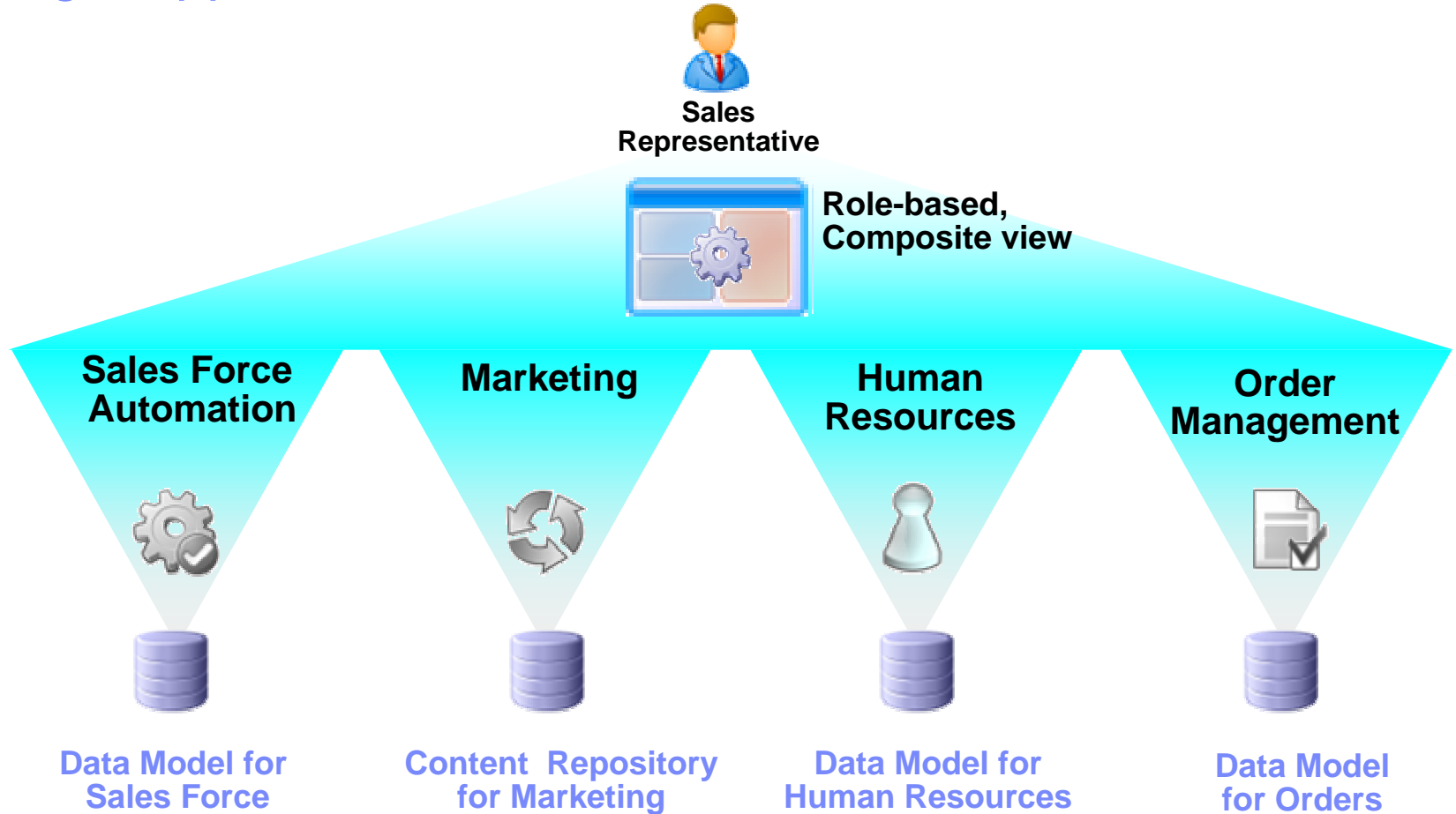
We need to break down the silos!



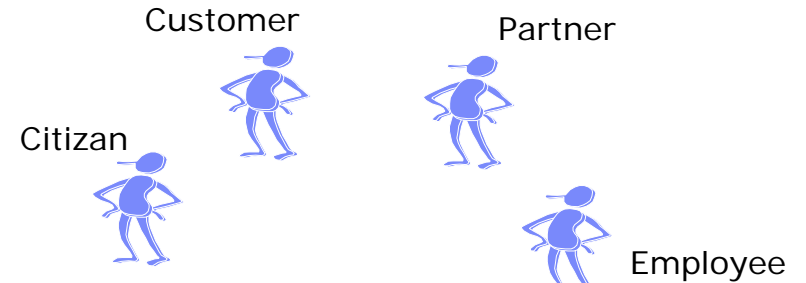
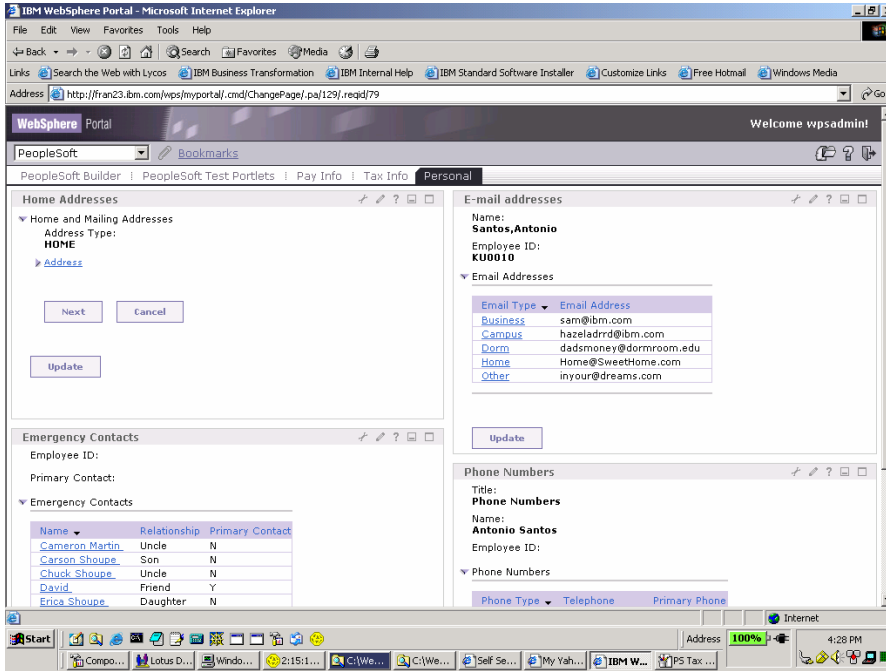


The Solution:

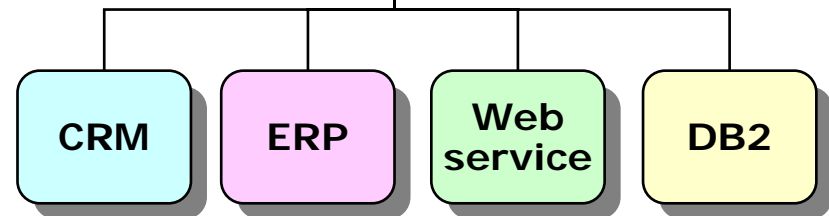
The right approach is to focus on audience



Portal Front-End Integration on the "Glass"



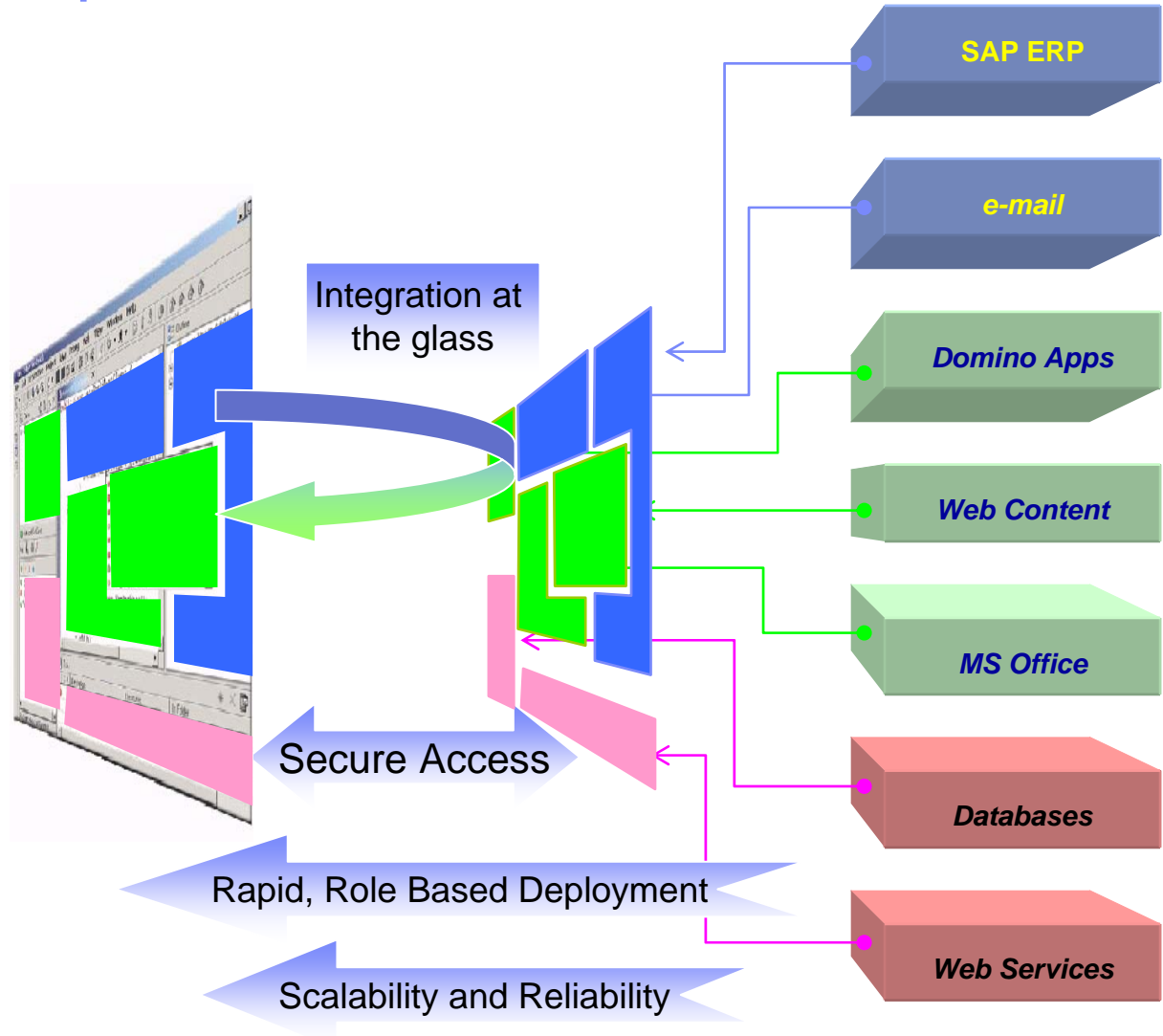
One Access Point



Capabilities of WebSphere Portal

User Perspective

- Personalization
- Customization
- Navigation
- Single Sign On
- People Awareness



Portlet Co-operation

WebSphere Portal Welcome | Edit my profile | Help | Log off

Home | Work with Pages | Portal Administration | **C2A Demos** | Wiring Demos

Shipping

Order Summary

Orders for October			
Order_ID	Customer_ID	Status	Broadcast
102001000001	3542877	ON_TIME	
102001000002	3045388	COMPLETE	
102001000003	8266472	COMPLETE	
102001000004	2867377	ON_TIME	
102001000005	2867377	DELAYED	

Select month:

Account Details

Accounts Information		
Order_ID	Total Value	Outstanding Balance
102001000001	\$922,005	\$700,000

Enter order id:

Order Details

Order Details				
Order_ID	SKU	Quantity	Status	Tracking_ID
102001000001	BB-128933	7000	ON_TIME	52787953

Enter order id:

Customer Details

Customer Details	
Customer_ID	3542877
Name	John Segal
Address	MoreProfit Widgets Corp., 101, Mayfield Av, Atlanta, GA
Contact	i_segal@moreprofit.com

Enter customer id:

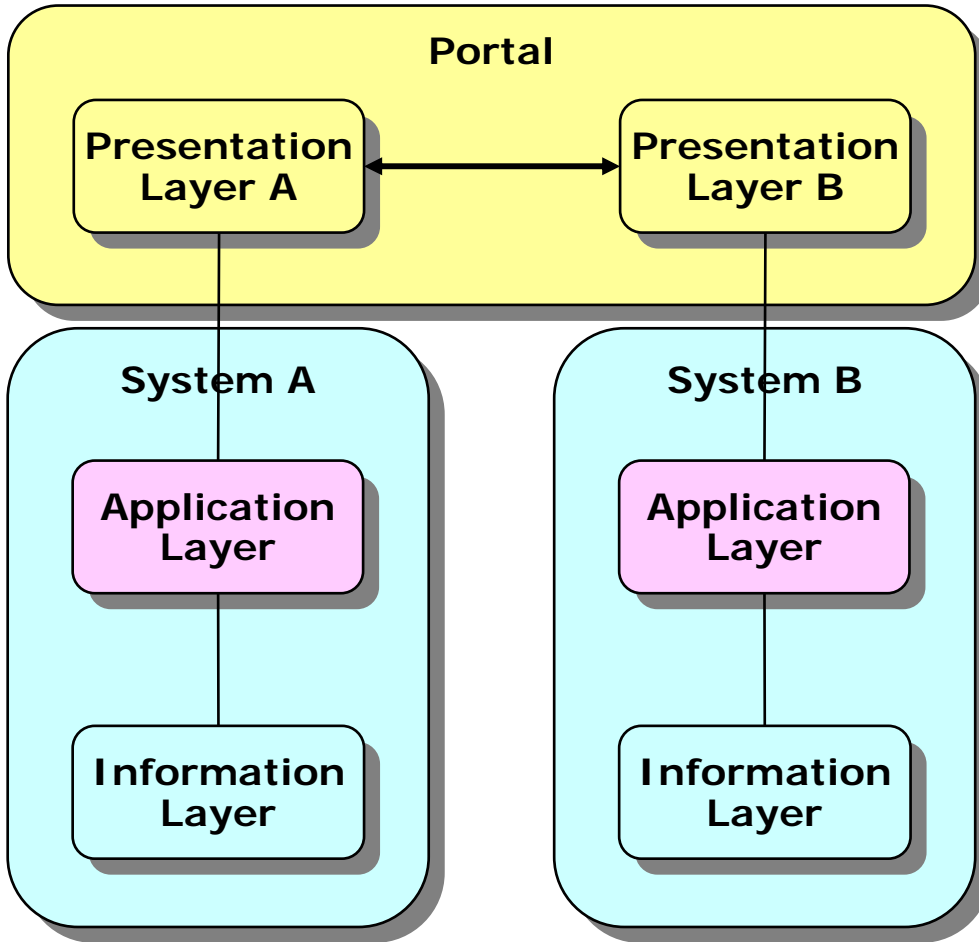
Tracking Details

Tracking Information			
Tracking_ID	Status	Name	Ship Address
52787953	TRANSIT	John Segal	MoreProfit Widgets Corp., 101, Mayfield Av, Atlanta, GA

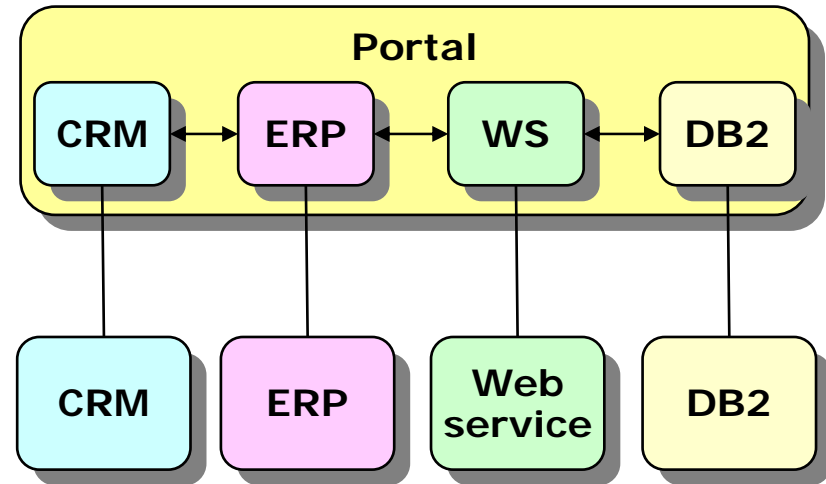
Enter tracking id:



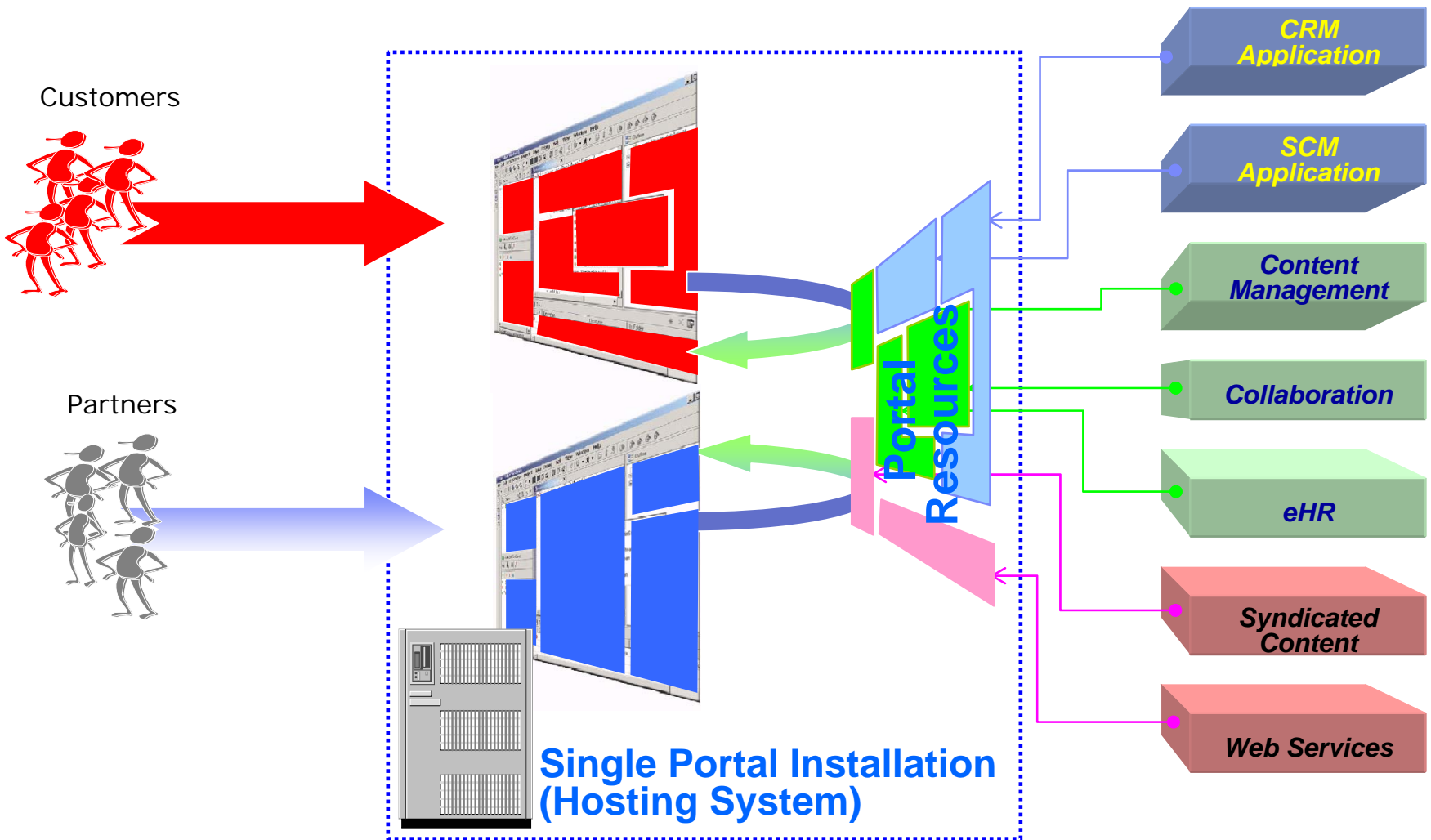
Portal Front-End Integration



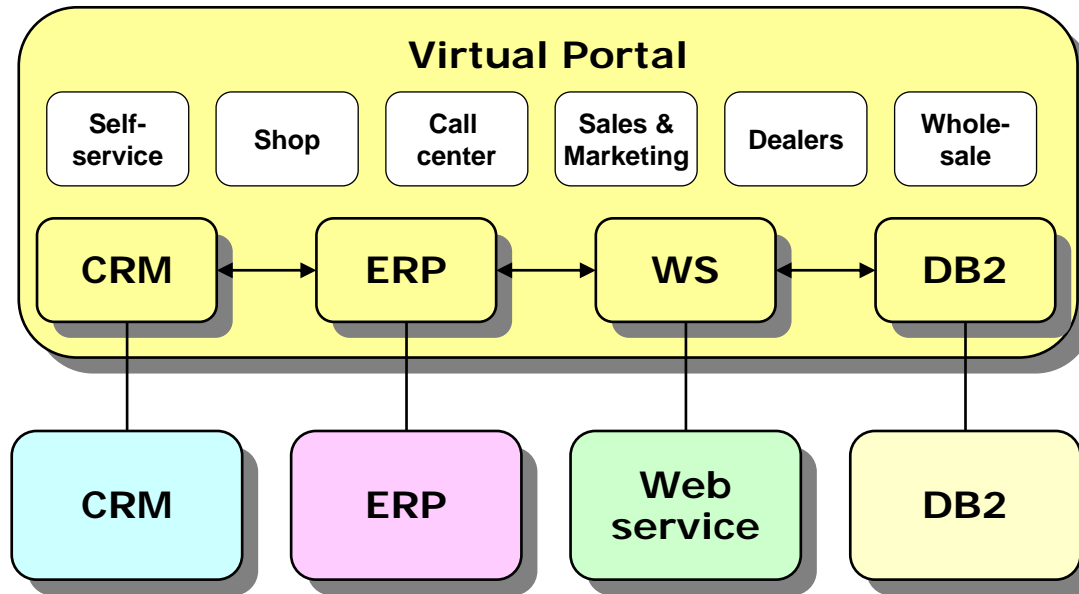
One access point = portal
 Portlets = page fragments
 Portlet co-operation



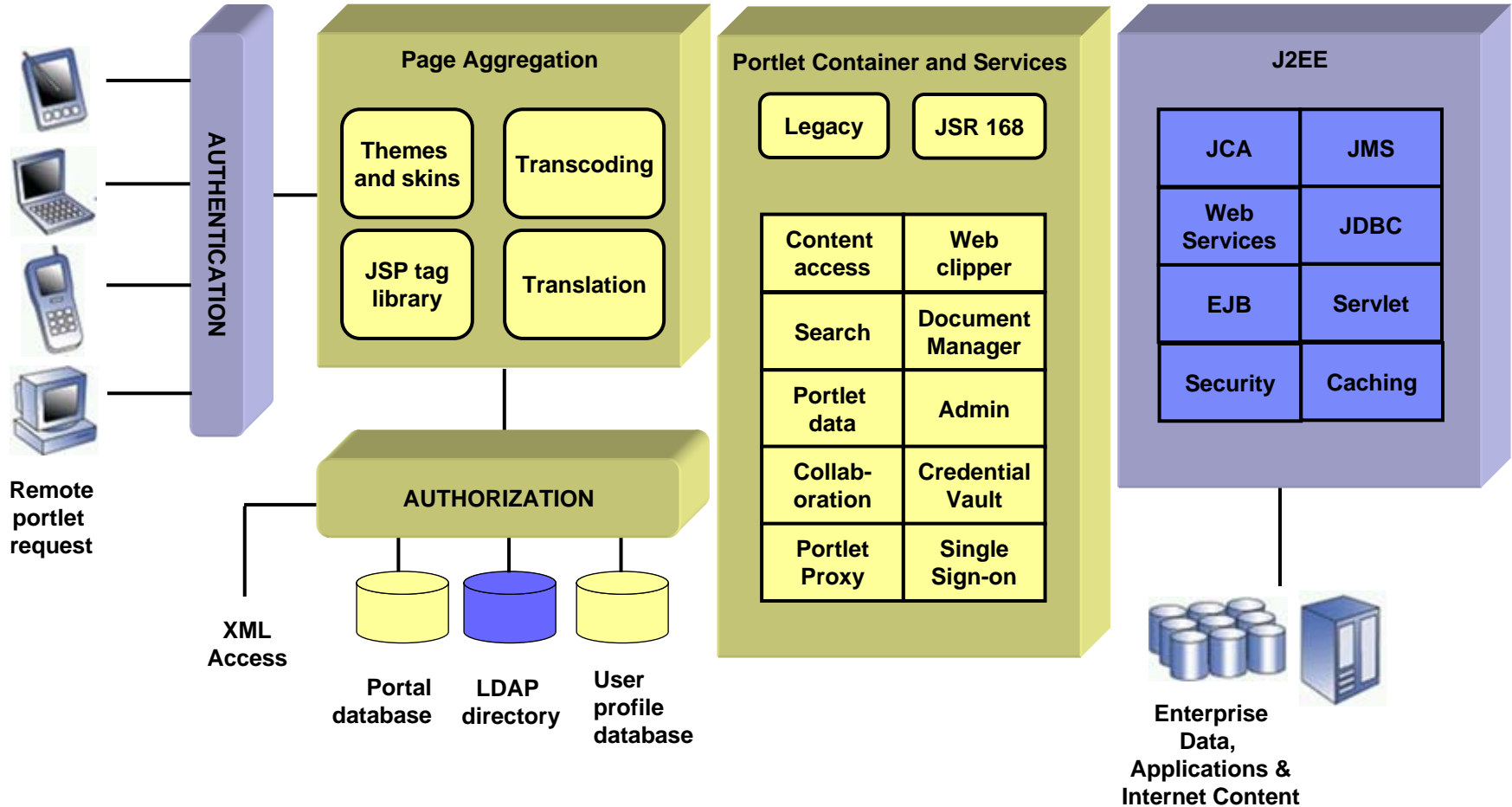
Multi-Channels through Virtual Portals



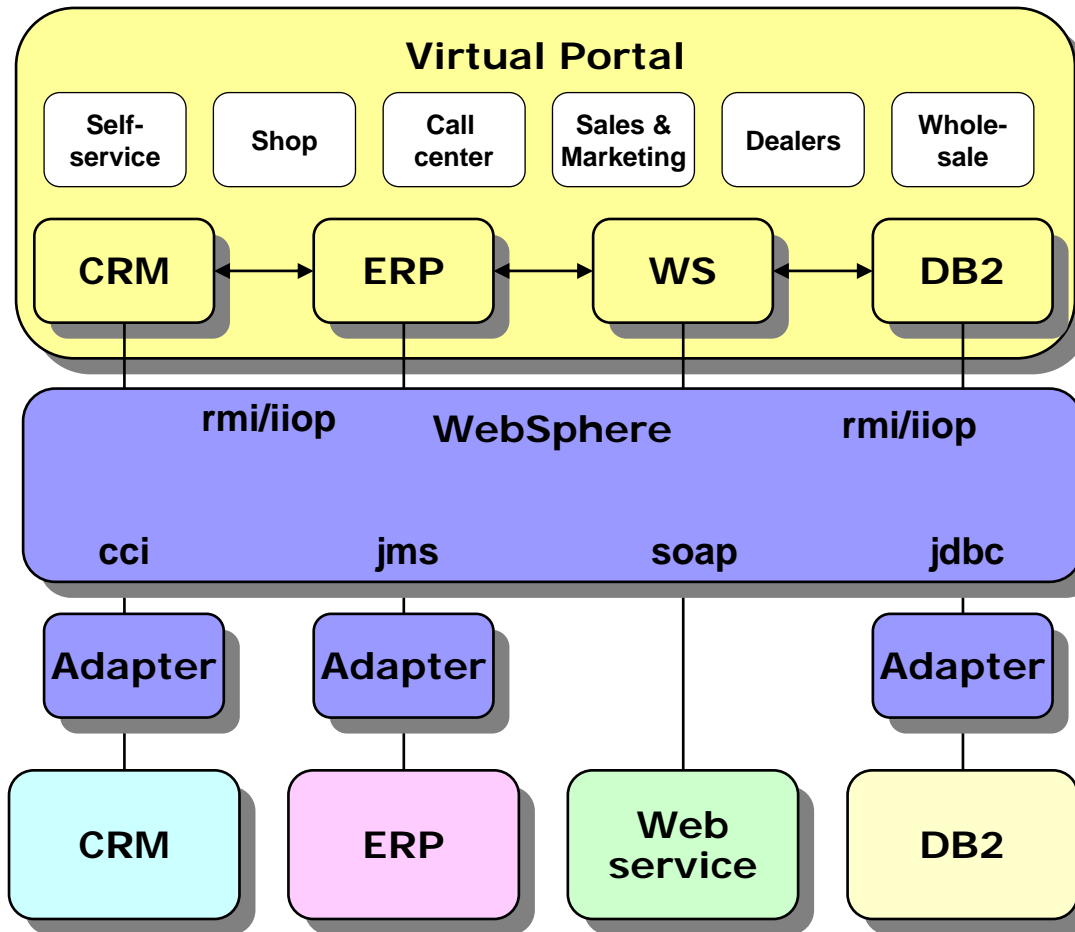
Multi-Channels through Virtual Portals



WebSphere Portal Conceptual Architecture



Portal Back-End Integration via WebSphere



- Many protocols
- Many message types
- Tight coupled
- Point-to-point

- OK in-house
- OK in department
- OK with few integrations

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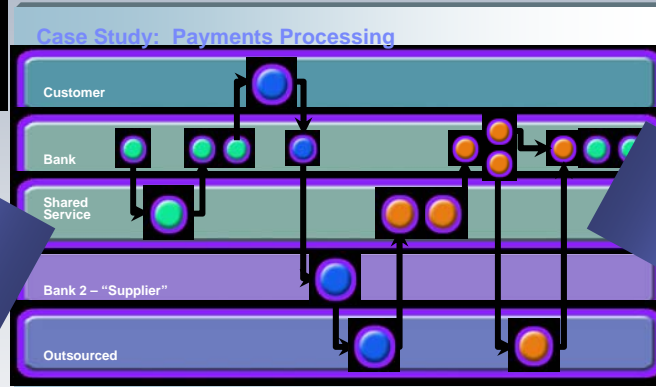
Flexible business requires flexible IT

Full Business view

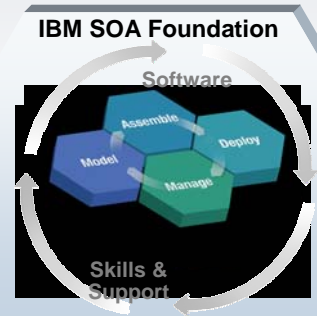


SOA is a mean provide:
 - process optimization
 - IT flexibility

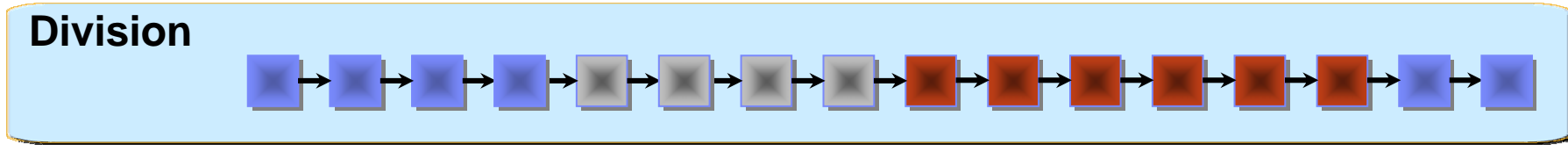
Process to optimize



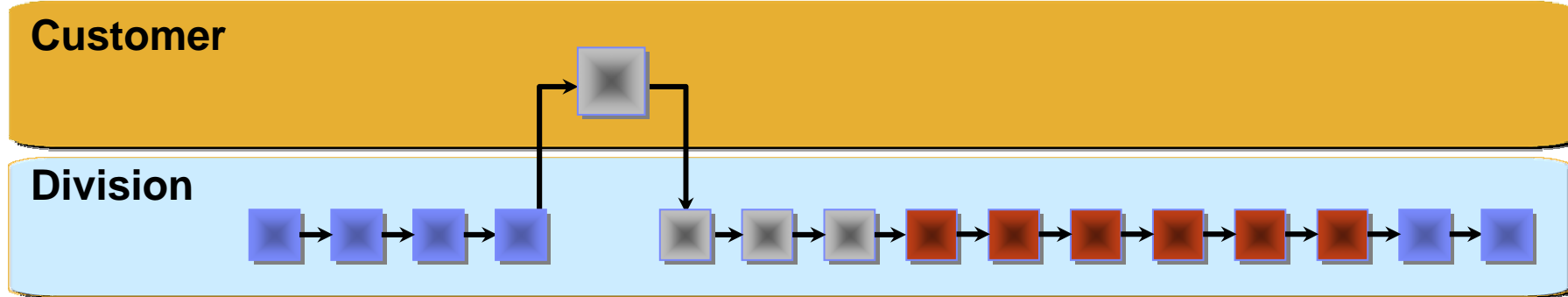
Creating IT flexibility



SOA in Action – It's All About the Business

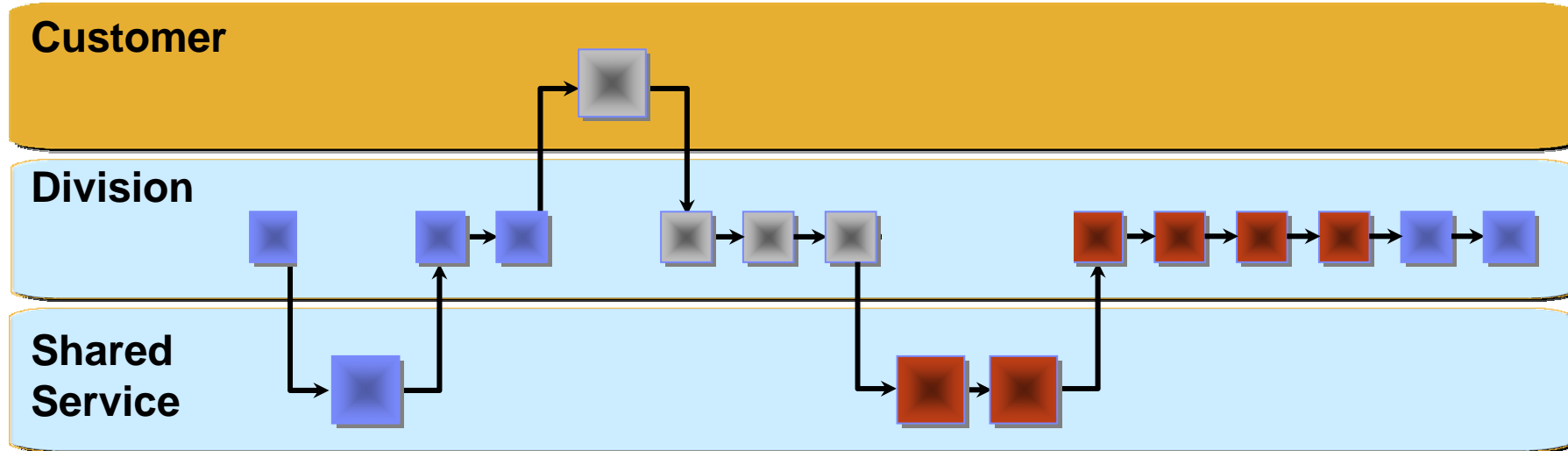


SOA in Action – It's All About the Business



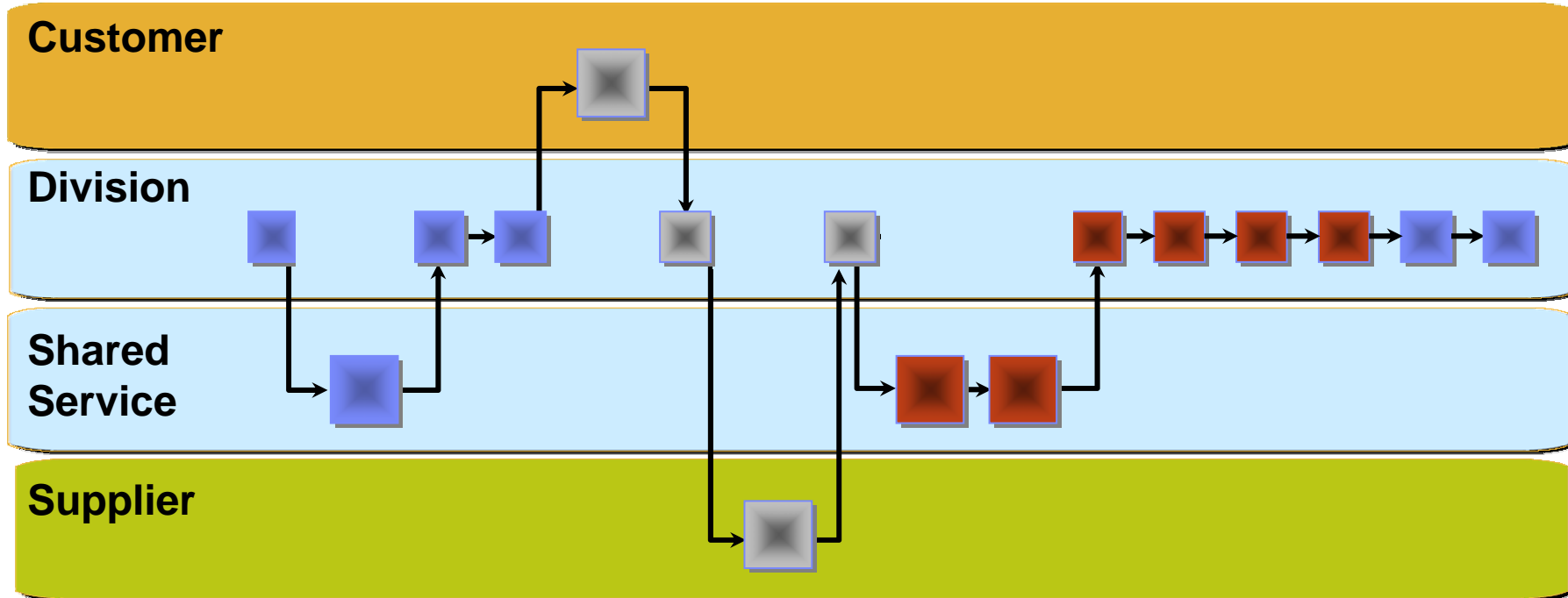
Change: Customer Order Entry

SOA in Action – It's All About the Business



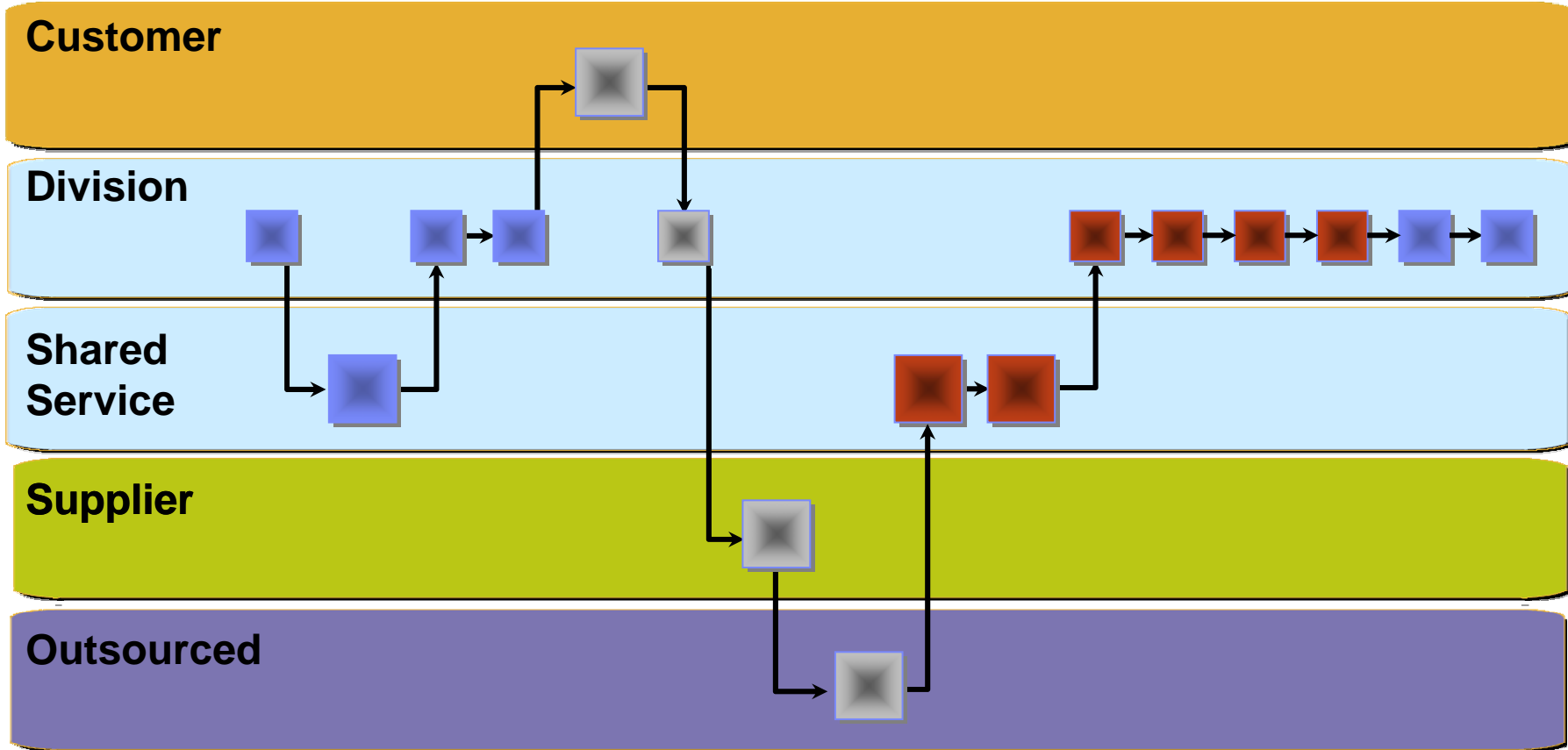
Change: Shared Service – Marketing, Billing, Receivables

SOA in Action – It's All About the Business



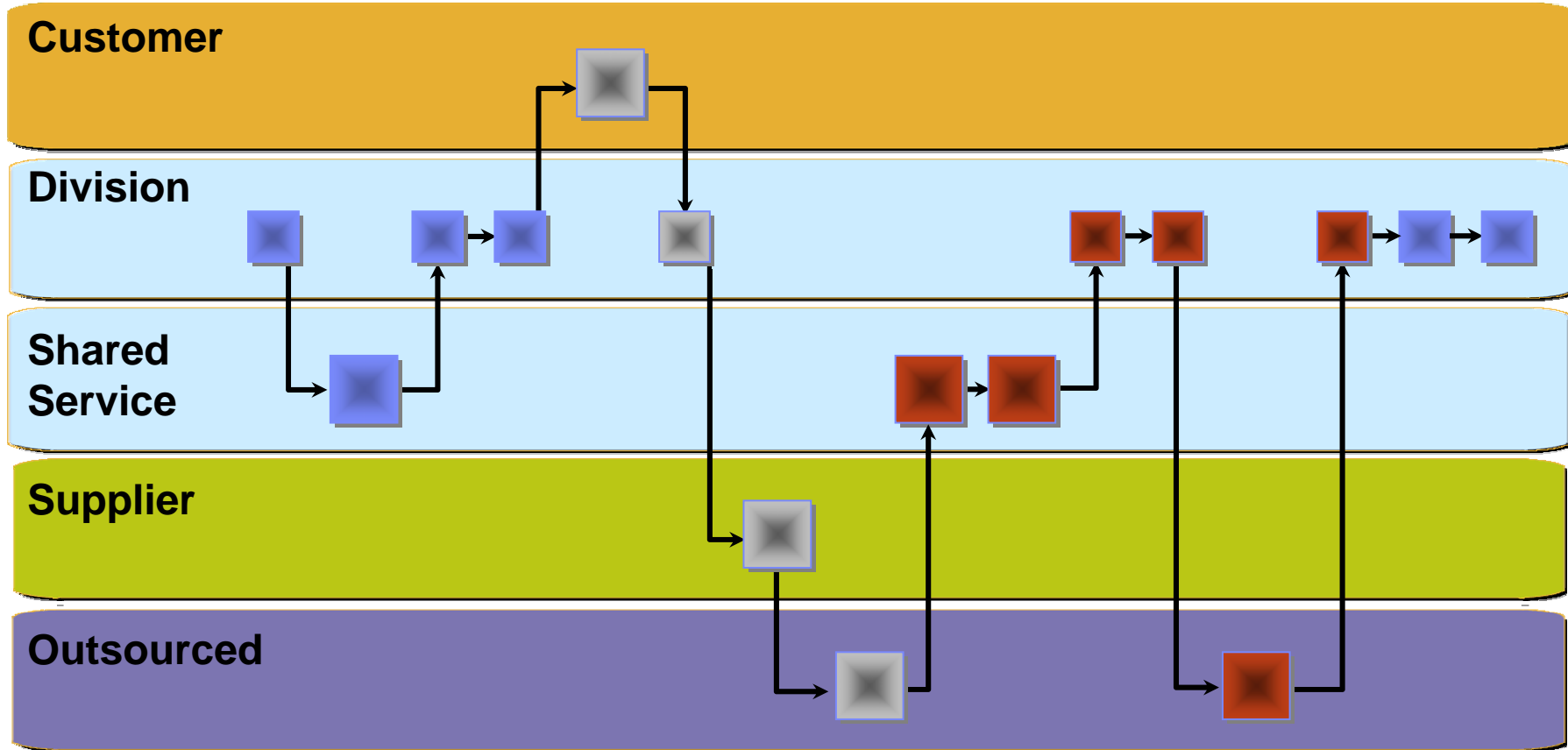
Change: Supplier Handles Inventory (VMI)

SOA in Action – It's All About the Business



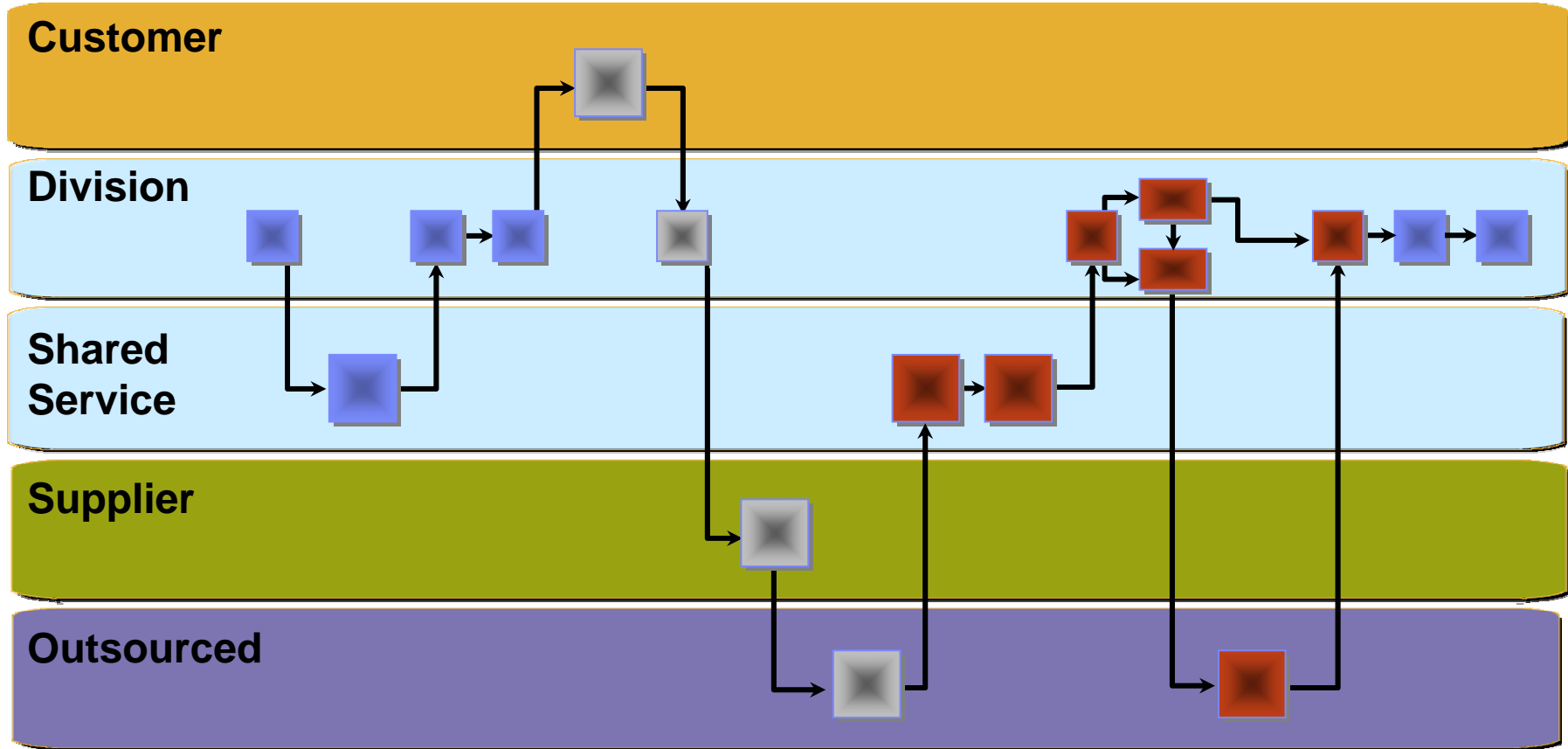
Change: Shipping by FedEx, DHL, or UPS

SOA in Action – It's All About the Business



Change: Collections Outsourced

SOA in Action – It's All About the Business

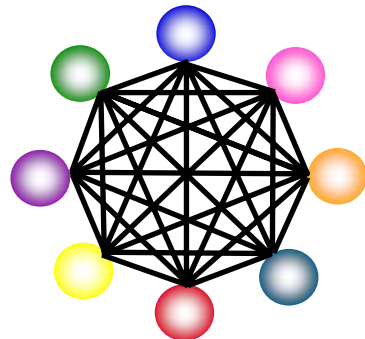


Change: Process Optimization

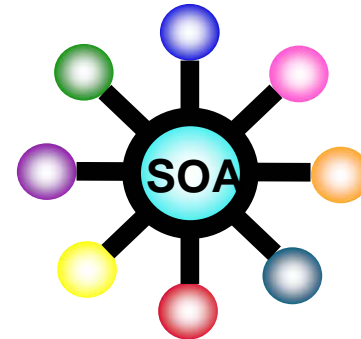
What is Service Oriented Architecture

A system architecture where applications functions are build as components ("services") that are **loose coupled** and **well-defined** to be able to communicate (**interoperability**) and to support **flexibility** and **re-use**.

- f **Loose coupled** means that the the implementation of the service is hidden by the user of the service.
- f **Well-defined** shared, standard definition of services, which is technology independent.
- f **Flexibility** and **re-use** is obtained through new combinations ("choreography") of services.



Traditional integration
Point-to-point via many interfaces



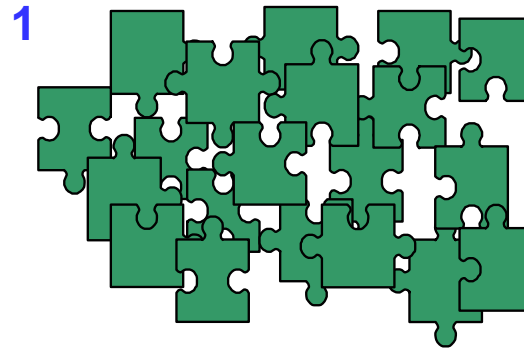
SOA
Hub-and-spoke via few, shared interfaces

SOA – breakdown of applications into services

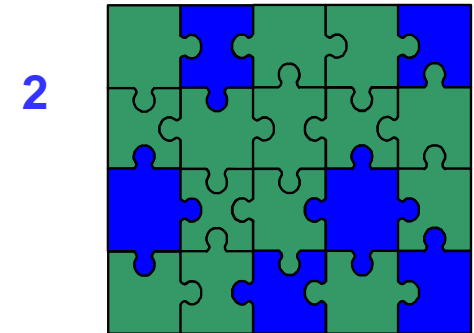
Traditional Application



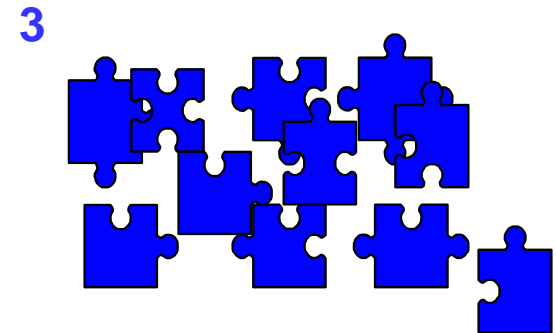
Componentized Application



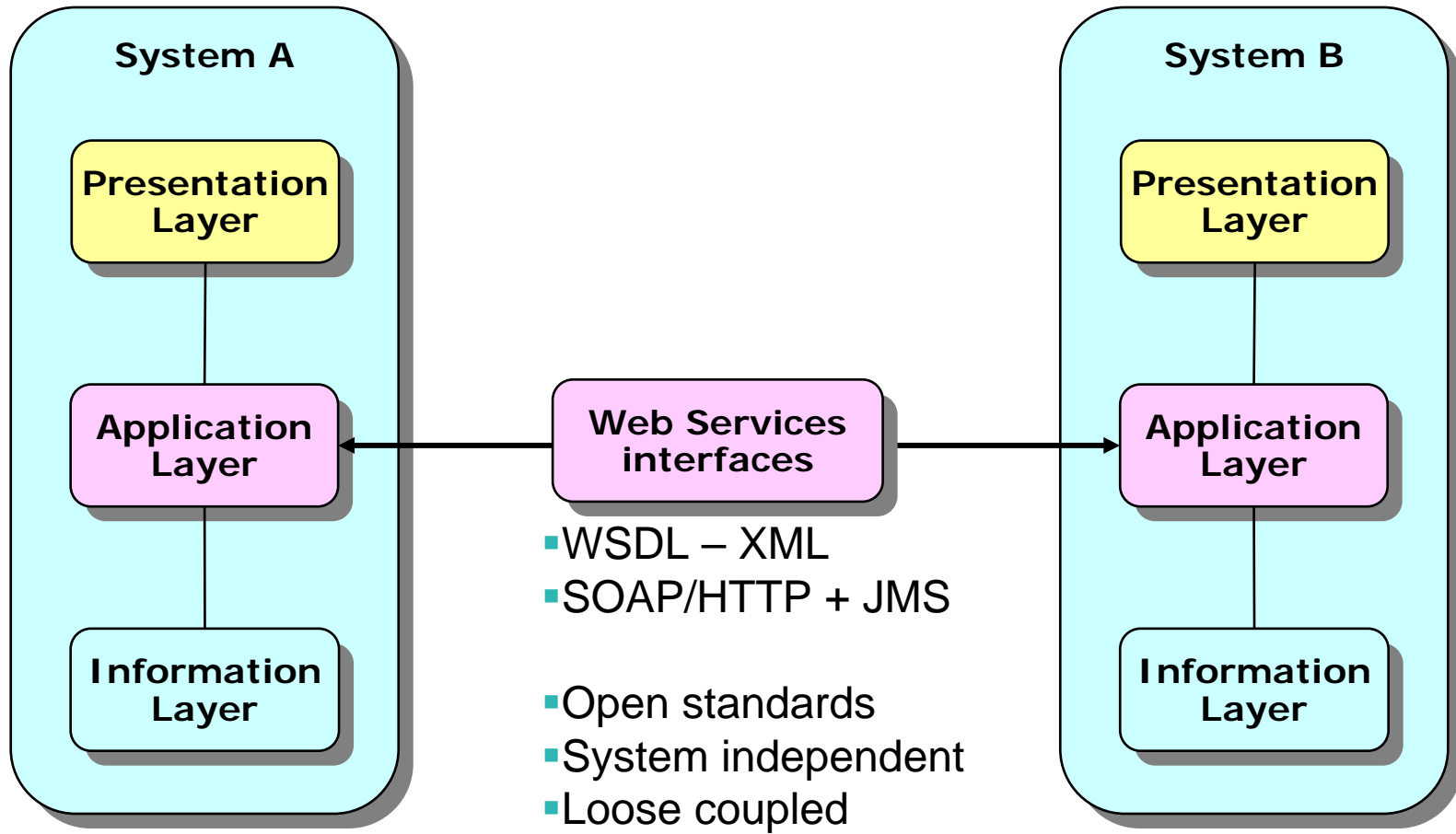
Composite Application



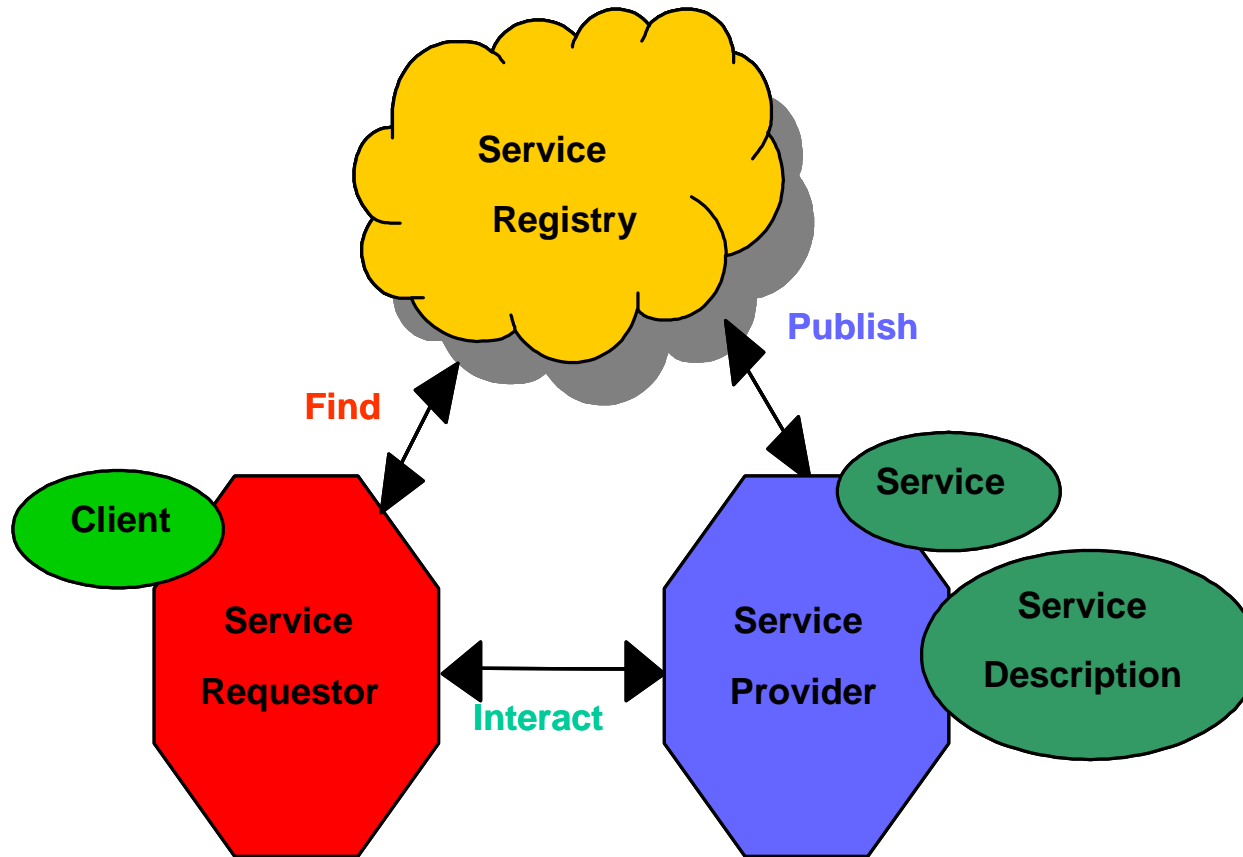
1. Breaks down business applications into dynamic and re-usable functions and services
2. Combines business services to meet the business demands
3. Re-uses services to meet the business demands both
4. Combines internal and external services



Web Services based Application Integration



Service Key Concepts



What is an Enterprise Service Bus?

An ESB is a flexible connectivity infrastructure for integrating applications and services.

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

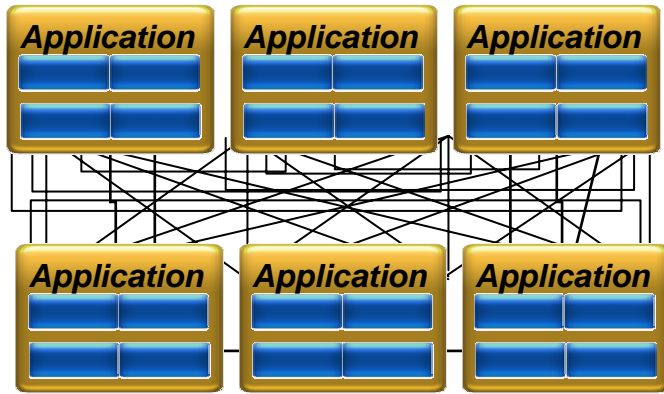
An ESB performs the following between requestor and service

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

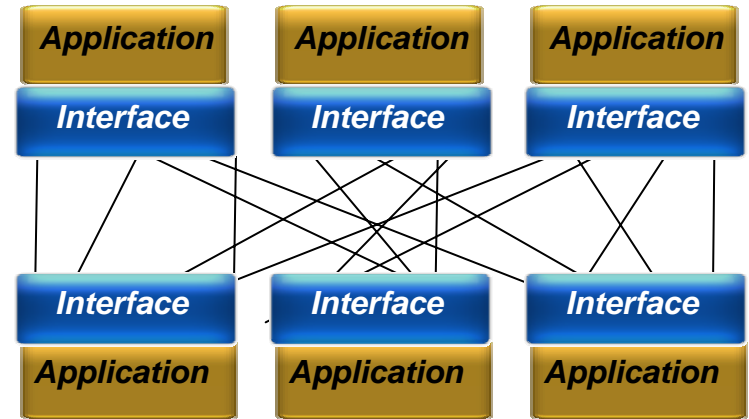


Web Services decouples interfaces from their applications...

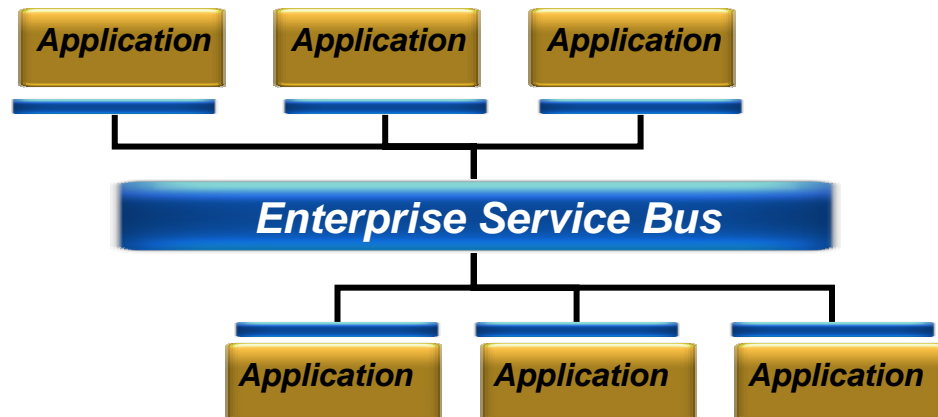
Turn this



...into Web Services



...and Web Services into an SOA

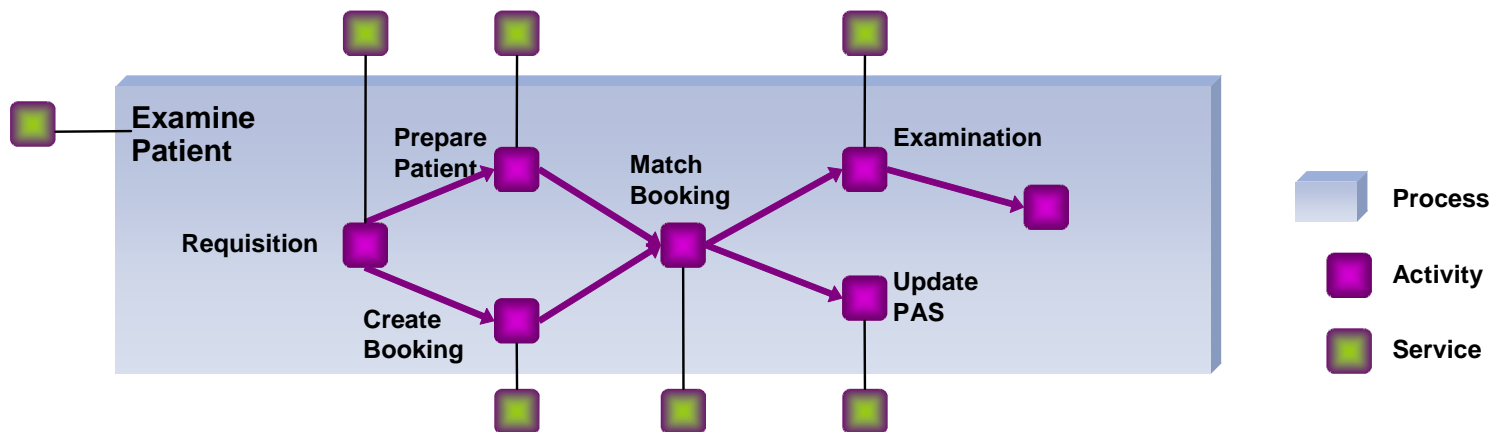


- ✓ The number and complexity of the interfaces is reduced
- ✓ Business applications and their interfaces become reusable

- ✓ Allows for dynamic selection, substitution, and matching
- ✓ Result = Greater Business Responsiveness

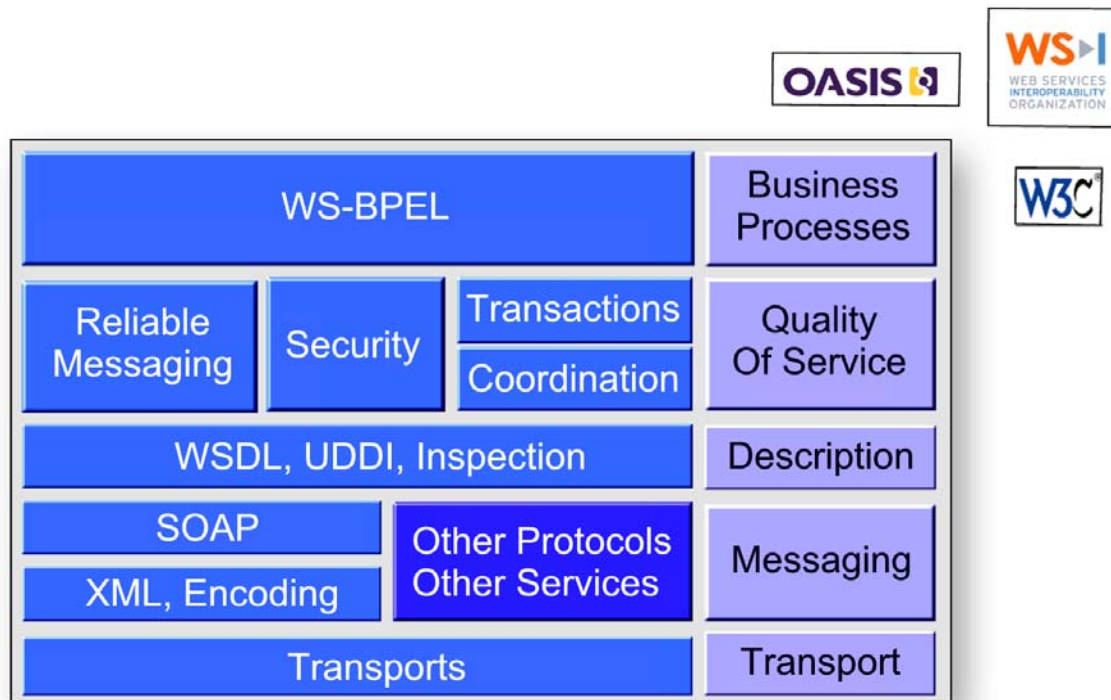
Service Choreography – Business Processes

- Service interaction can be **choreographed** to implement a business **process**
- **Business processes** define a **set of activities** carried out in a sequence to realize a business objective
- **Process activities are implemented by services (web services)**
- The business process is itself defined as a service
 - ▶ A process can e.g. act as a subprocess in another process
- Service choreography is defined by the standard **WS-BPEL**

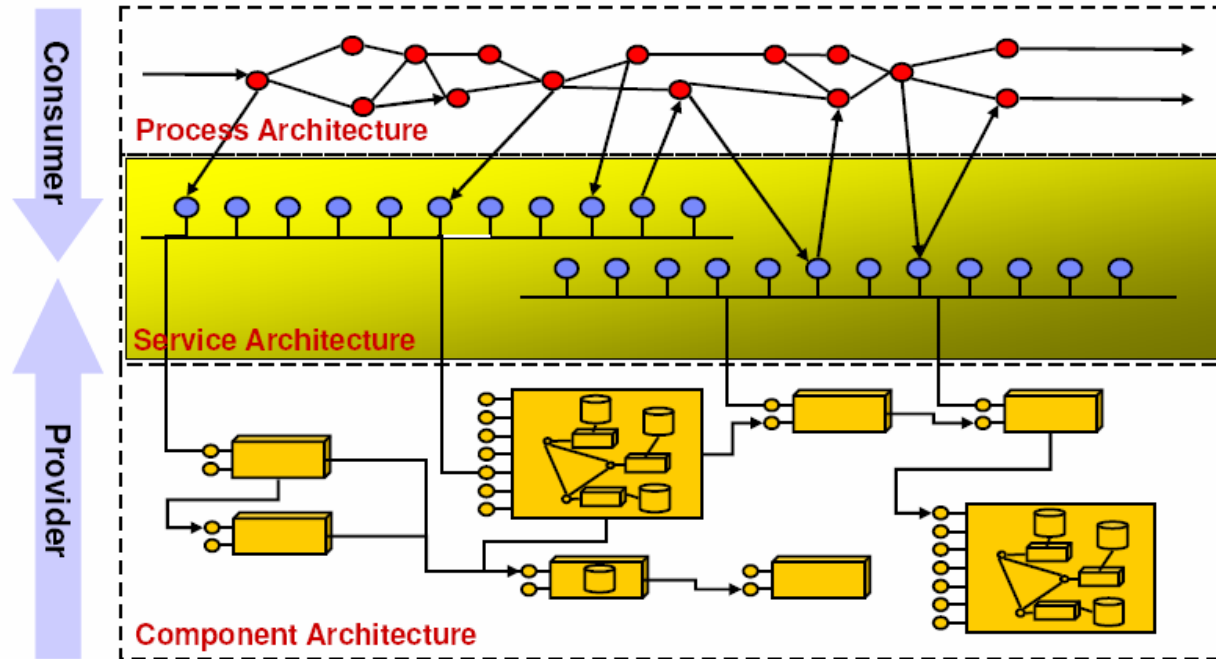


Web Services Standards Stack

- Web Services defines a complete stack of standards to fulfil an SOA.
- However, they are at varying stages of maturity ...



Service Oriented Architecture Framework

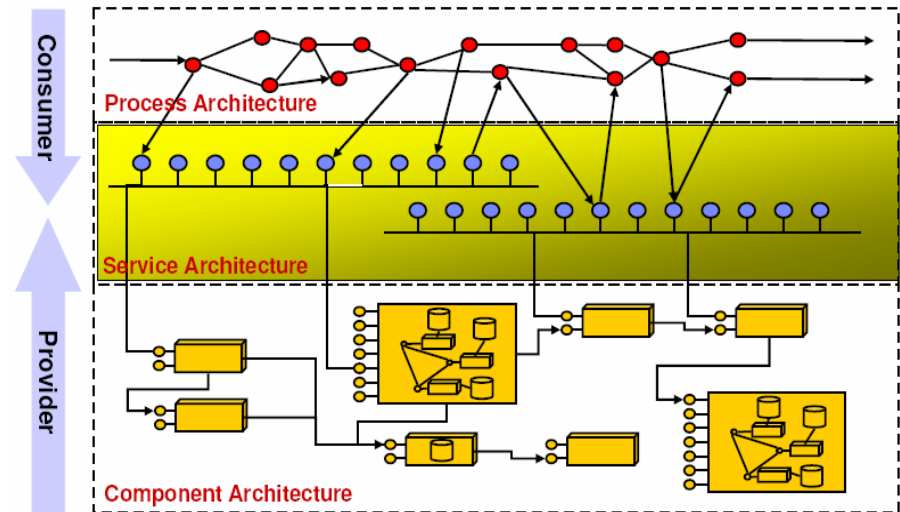
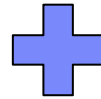
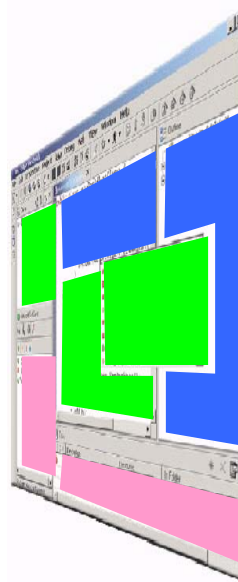


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Portal and SOA Together

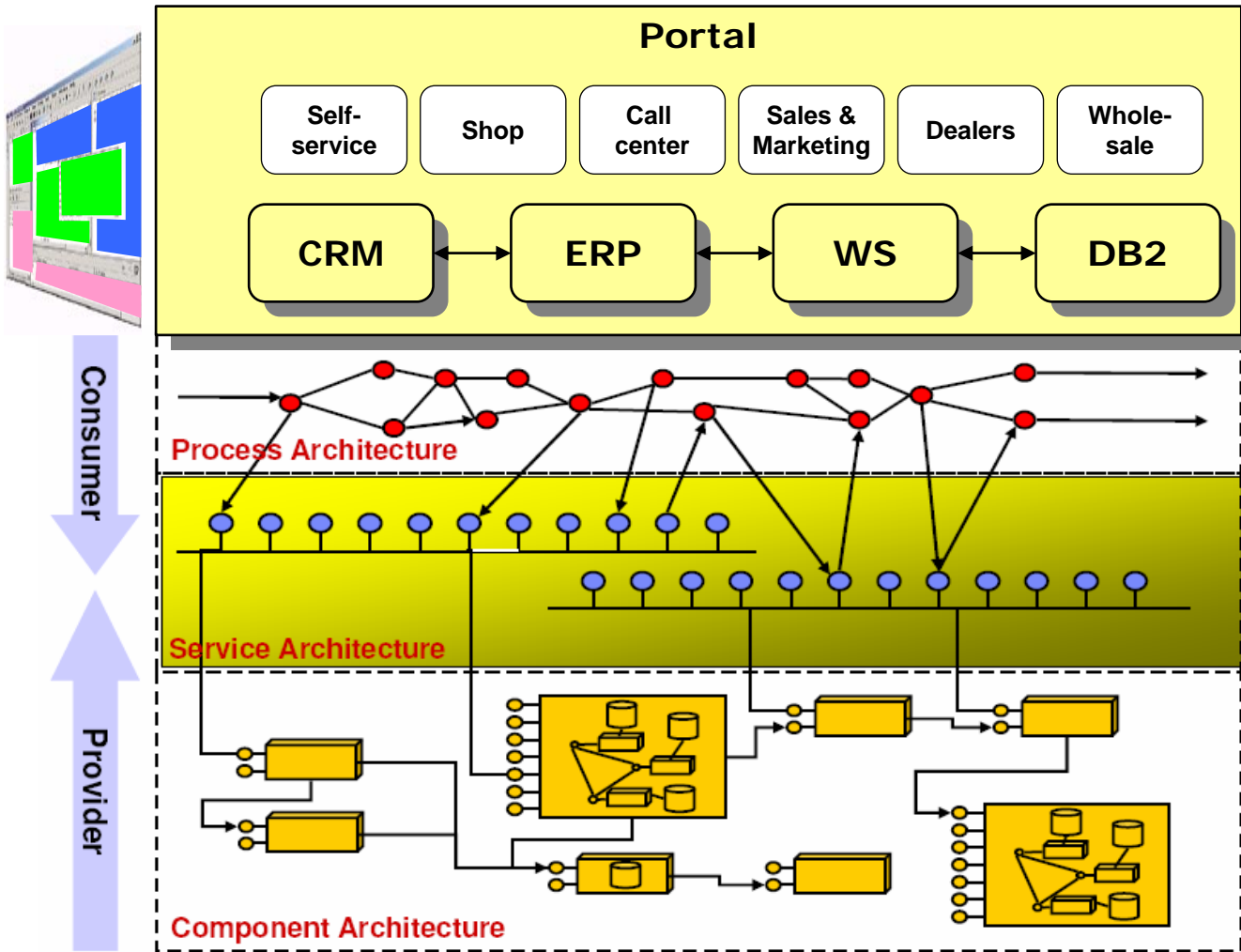


Front-end
Integration
“at the glass”

Application and Business
Integrations Service
Oriented Architecture

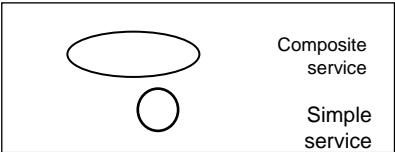
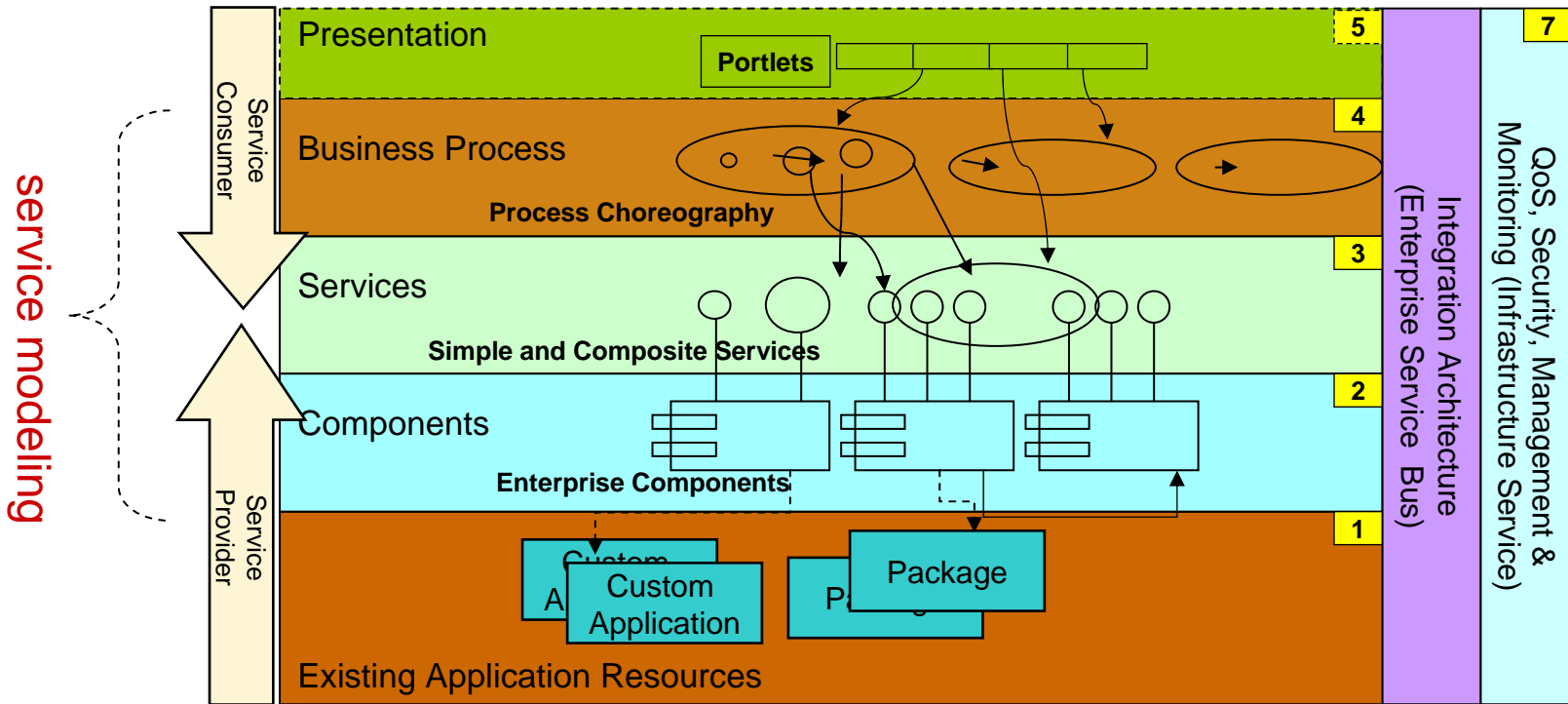


Portal provides user interaction with SOA

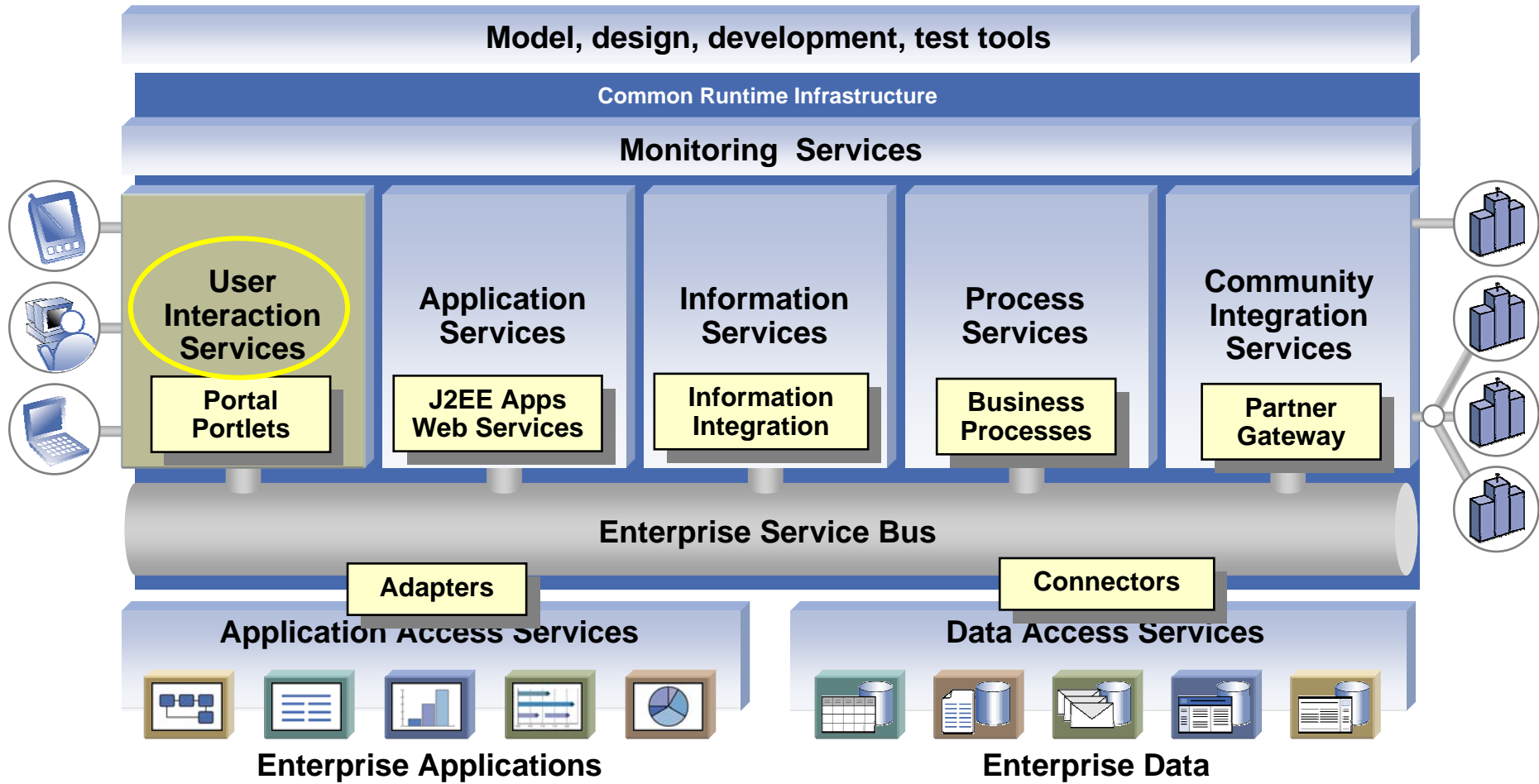


Portal in Service Oriented Modeling and Architecture

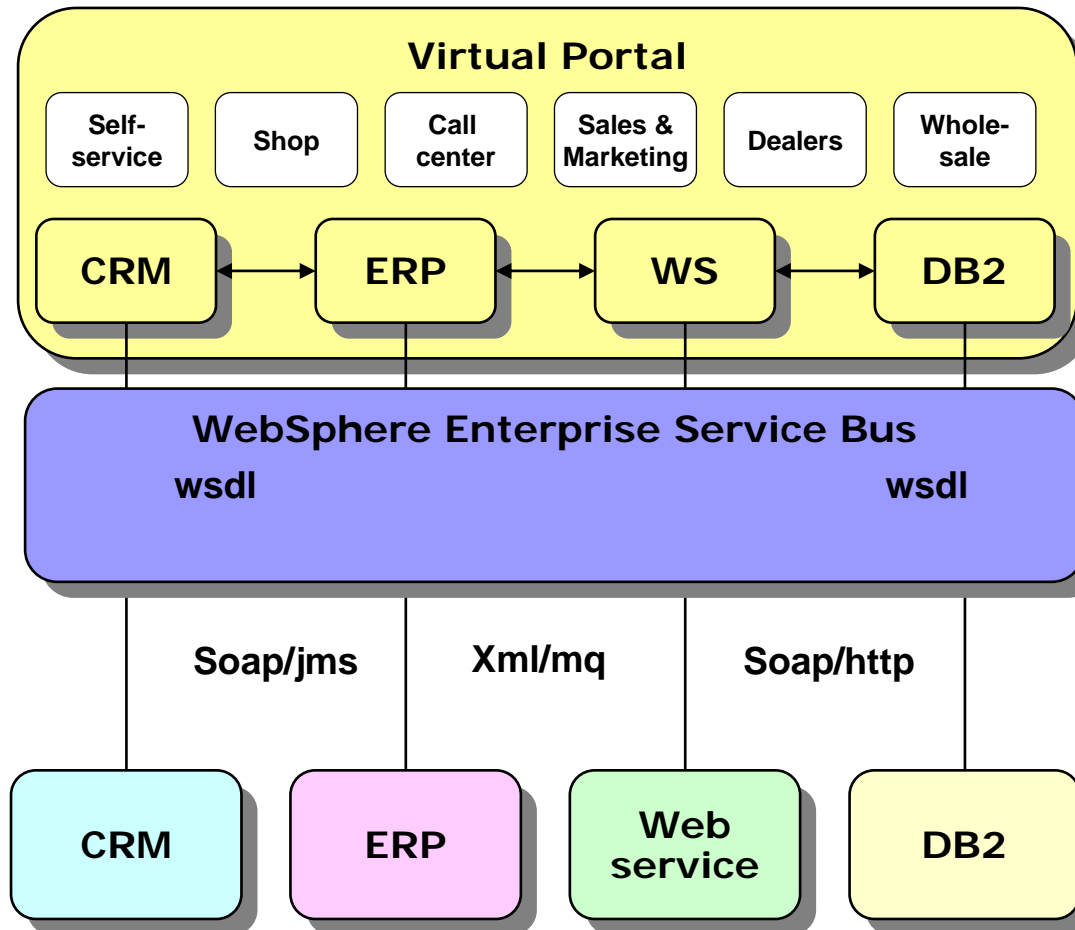
In SOA Portal provides the presentation layer for user interaction with SOA



Portal and SOA Reference Architecture



Portal Back-End Integration via SOA ESB

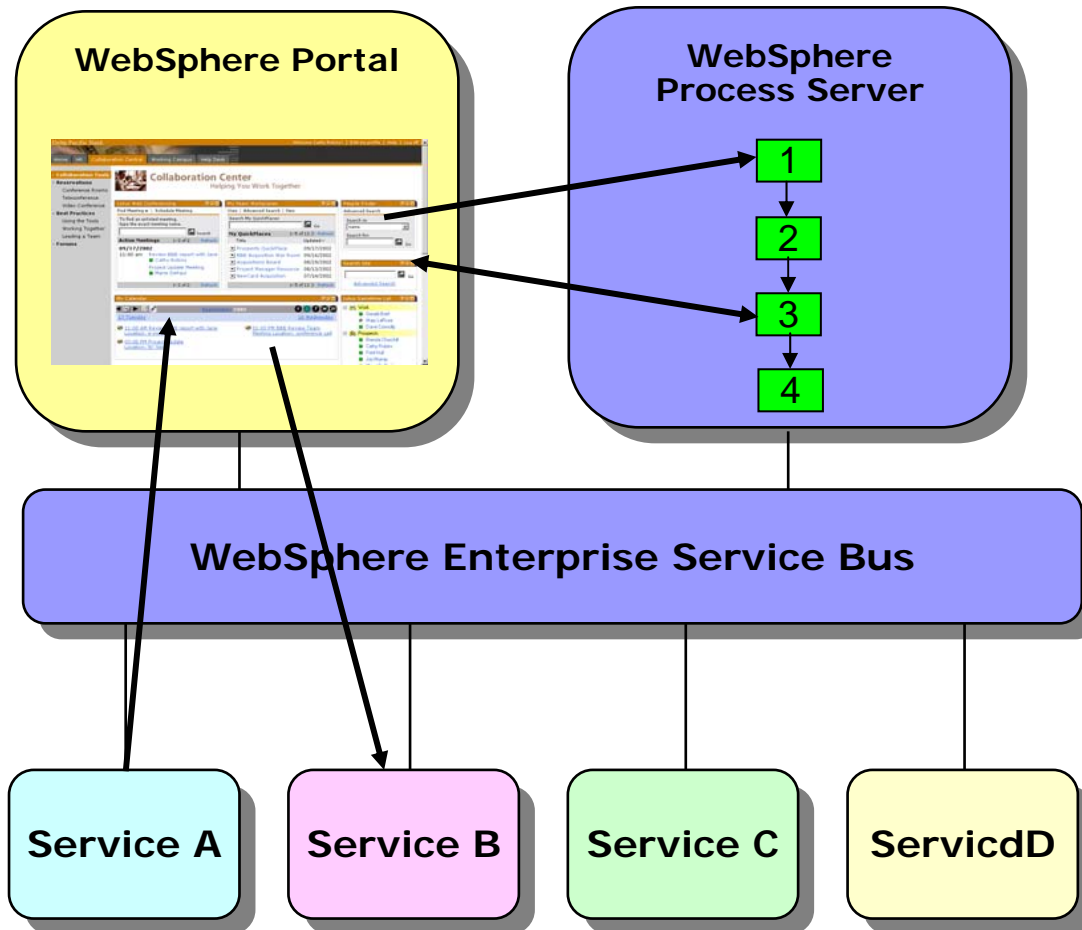


- Front-end integration combined with
- SOA appl. integration

- Few protocols
- Generic message types
- Loose coupled
- Hub-and-spoke

- Internal and external
- Enterprise level
- Many integrations

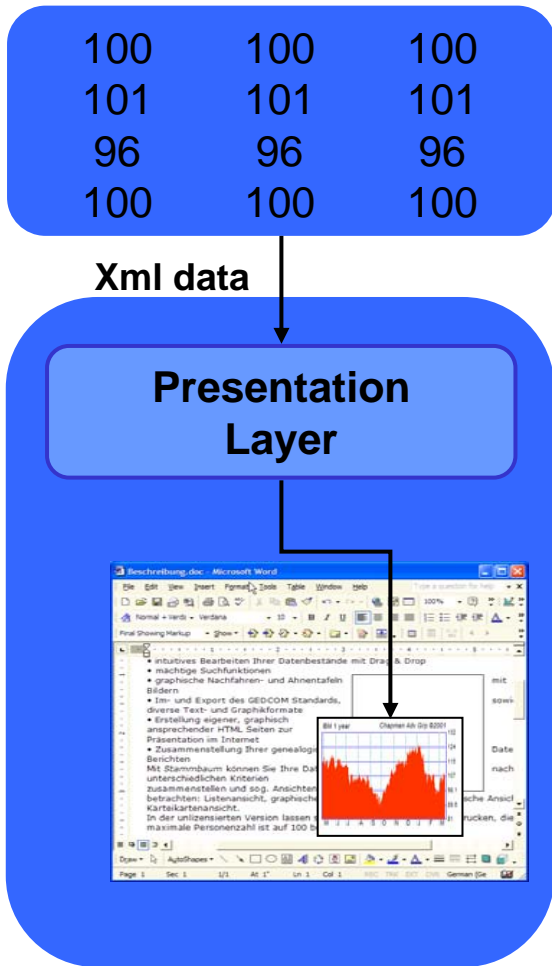
Portal Back-End Integration via SOA ESB



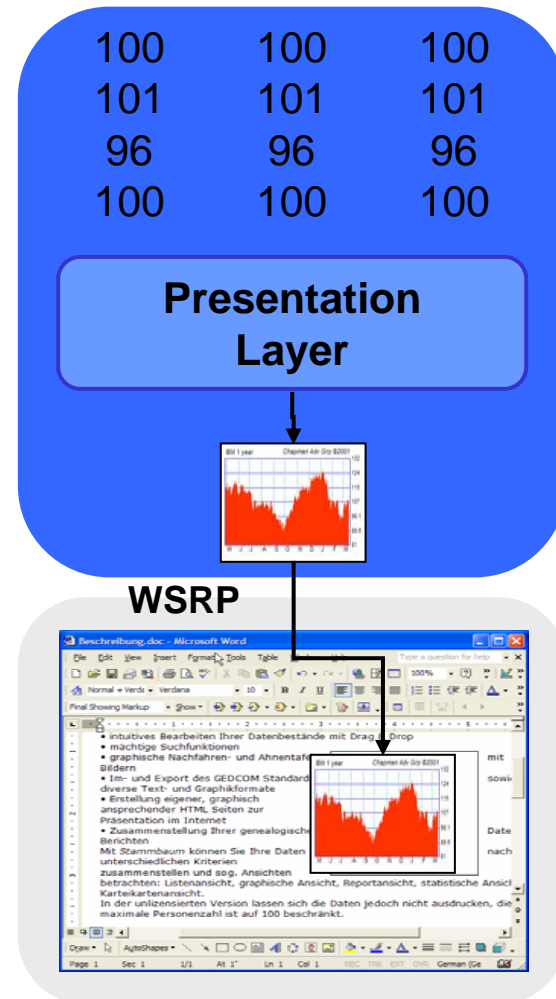
- Portlets can be
 - A Service Consumer
 - A Service Provider
- Portlets can
 - Initiate business processes
 - Participate in a process

Portal as Web Service Consumer / Provider

Data-oriented Web Service



Presentation-oriented Web Service



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Business Value of Process Portal

Business flexibility

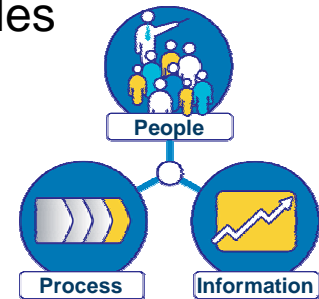
- ▶ Quickly integrates business processes with people - the most flexible part of a business process

■ Improves productivity of employees

- ▶ Employees can execute tasks faster because they are aware of the tasks and have easy access to all resources to make the decision

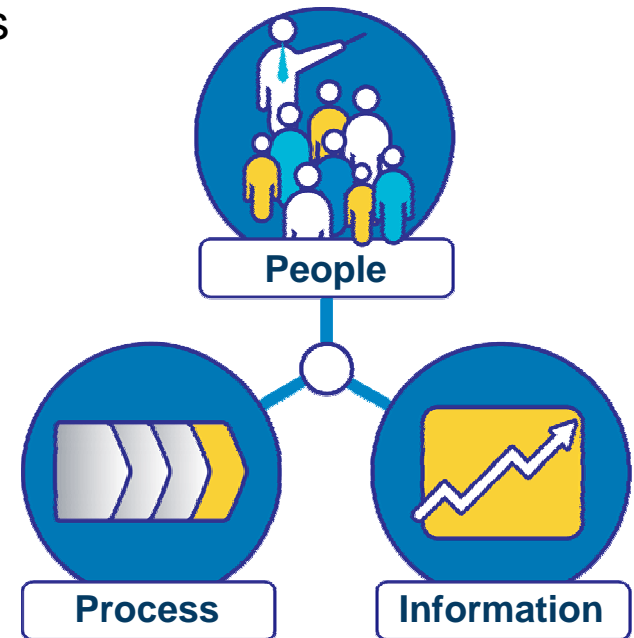
■ Improves productivity of development teams

- ▶ Utilize a rich set of services (user interface, role-based access, orchestrated workflow, content...) to build powerful composite applications
- ▶ Reuse existing assets that can be deployed to different roles



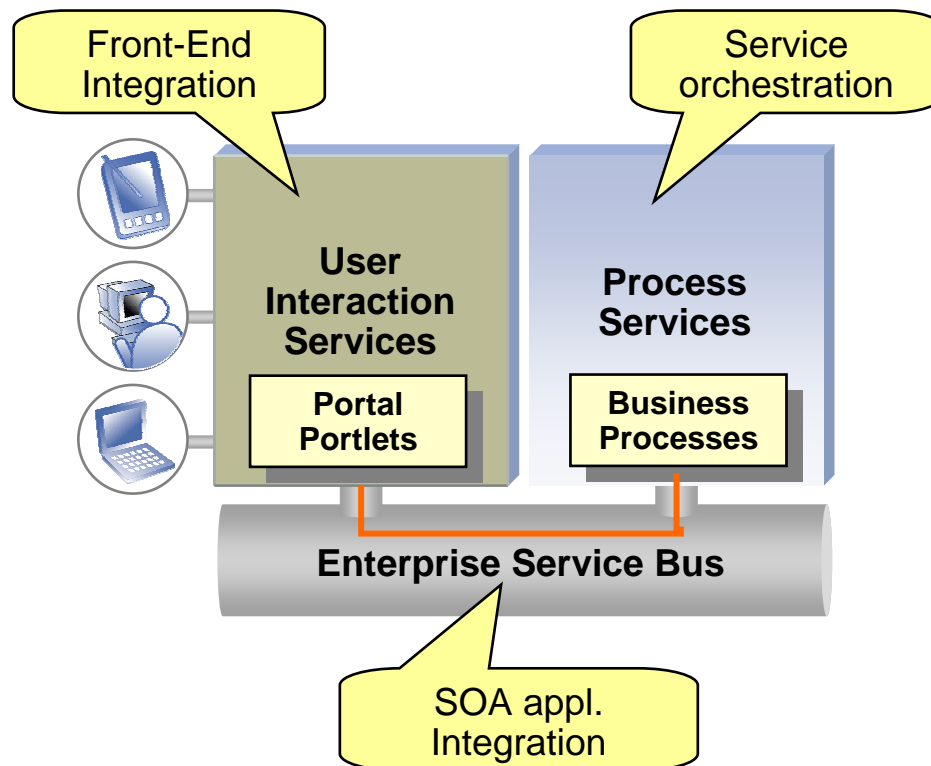
Motivation

- Having good business processes is not enough
- Efficient execution is becoming a key factor of success
 - ▶ Provide controlled access – employees, customers, suppliers
 - ▶ Present the staff tasks to the right people at the right time
 - ▶ Automatic person fail-over for approvals
- Standards coming together
 - ▶ JSR 168 – Portlet Specification
 - ▶ JSR 170 – Java Content Repository
 - ▶ JSR 172 – Web Services
 - ▶ BPEL4WS (now BPEL)

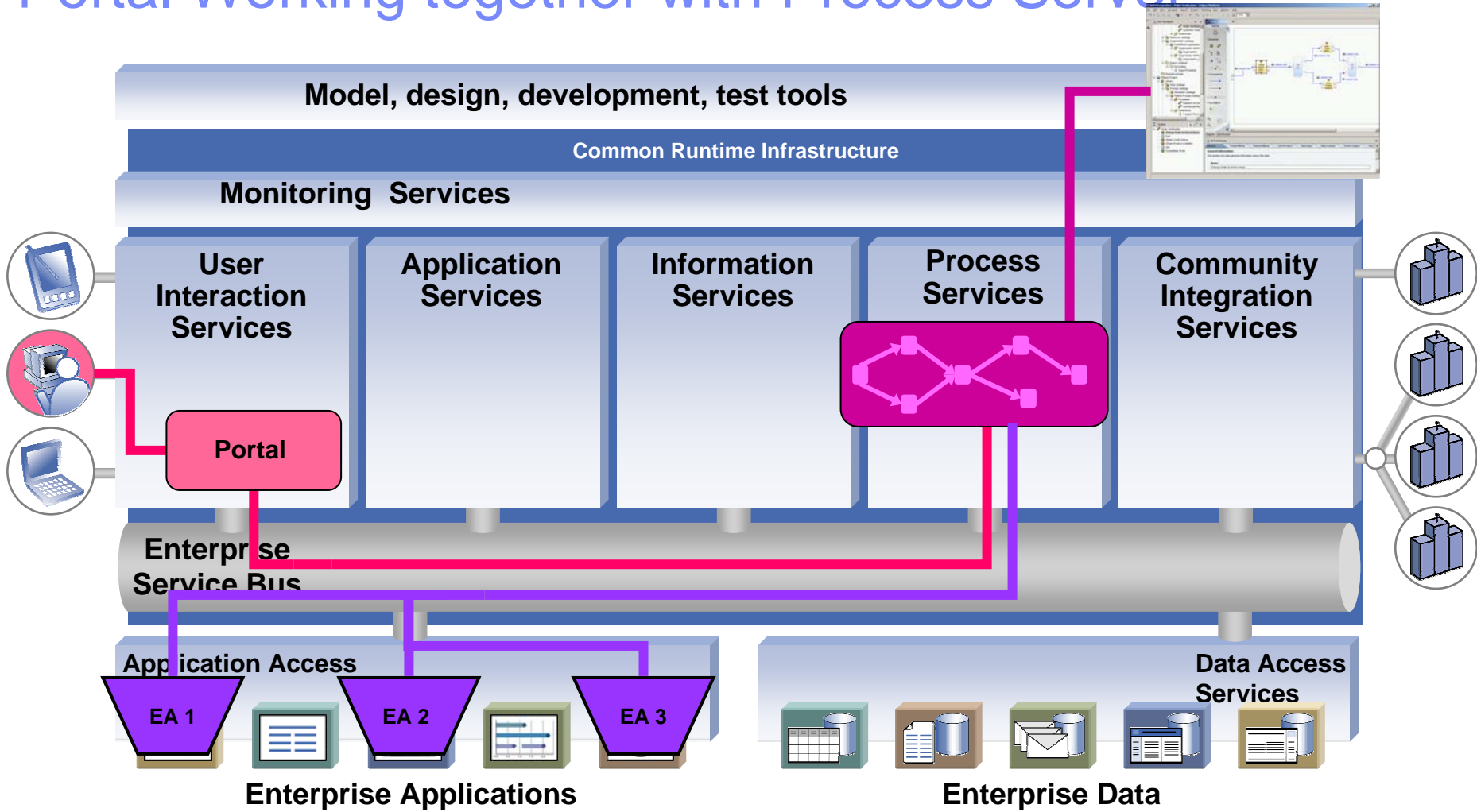


Process Portal - Definition

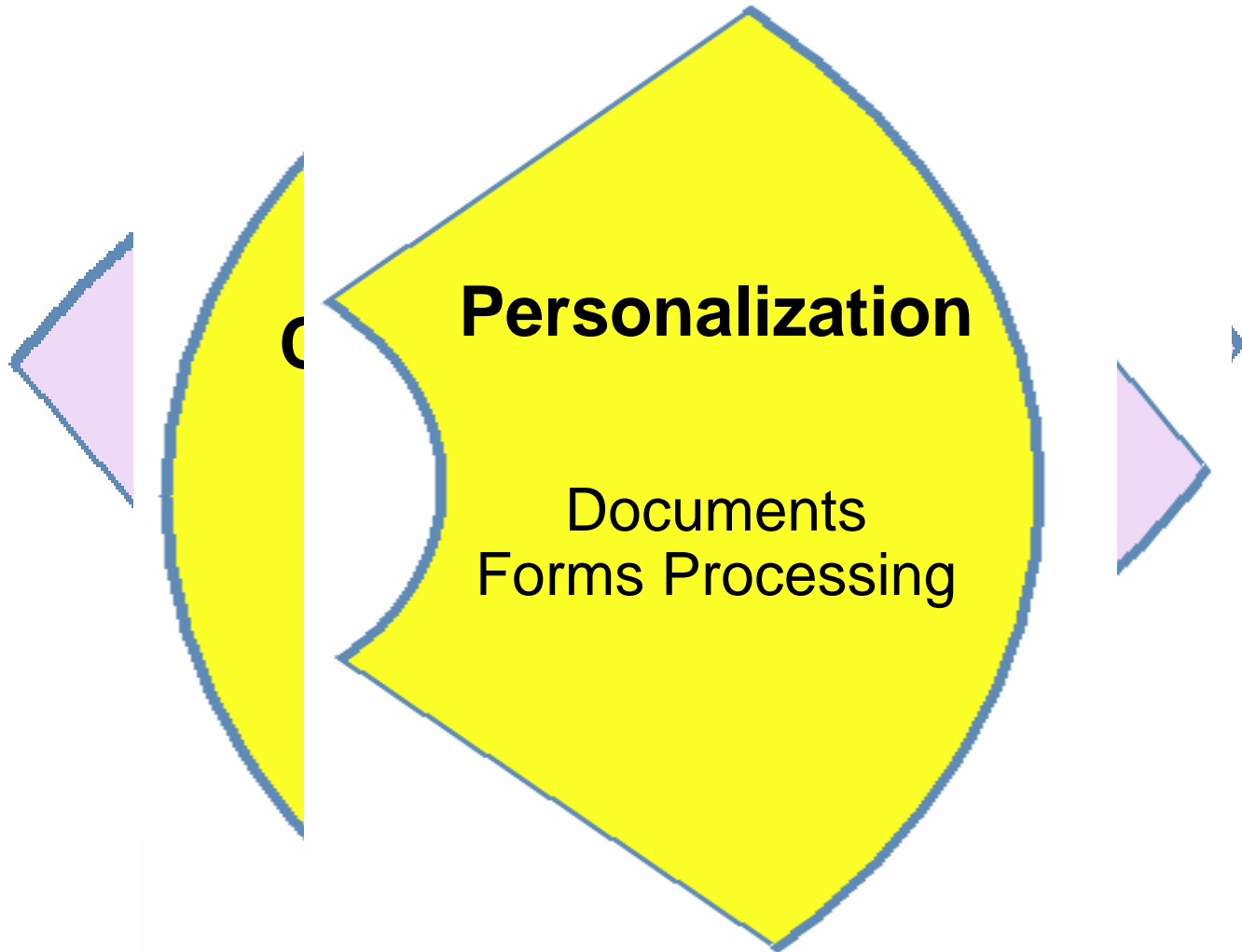
- A corporate portal that is designed to present
- the **right tasks** to the **right people** at the **appropriate time**
- through a **consistent** and **easy-to-use personalized** interface



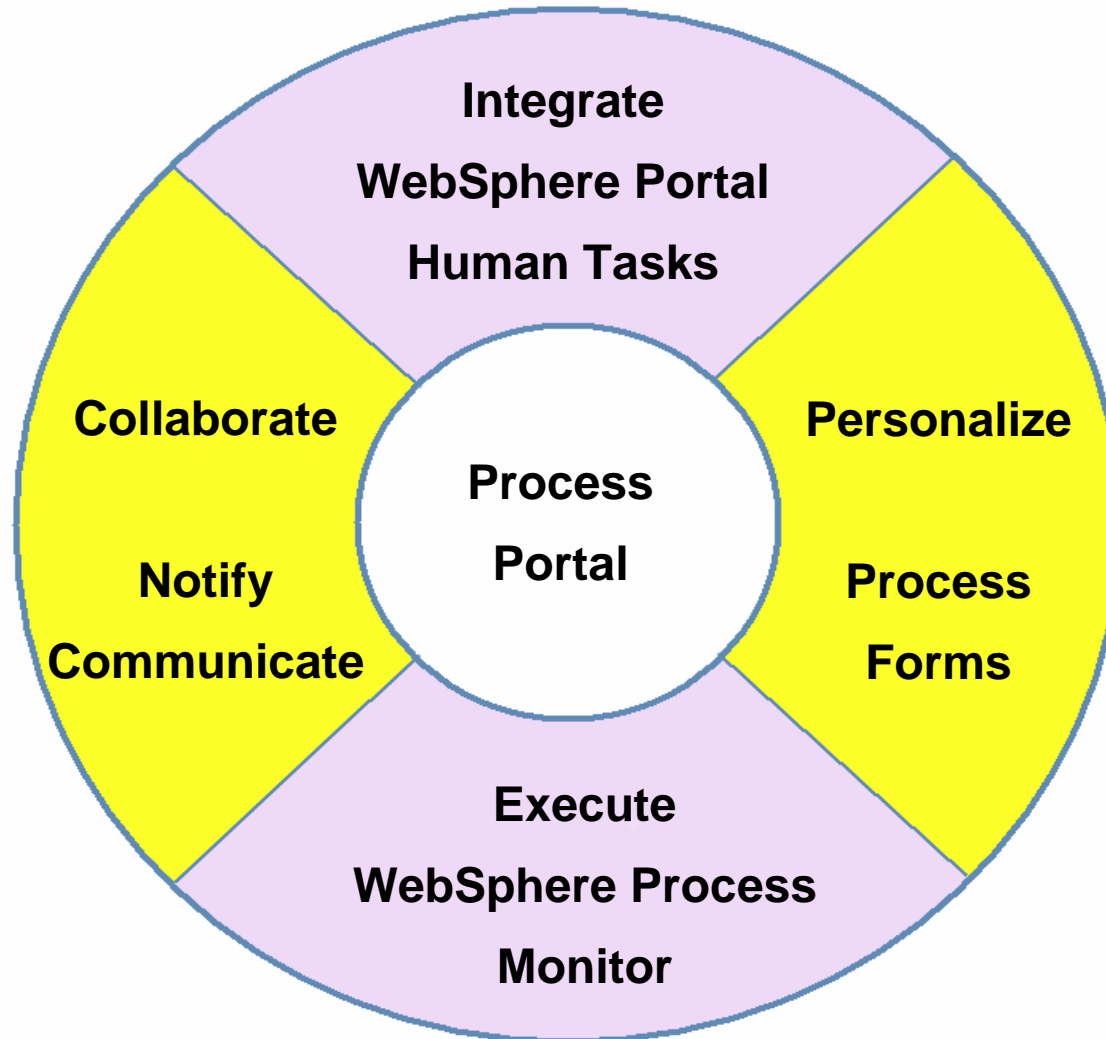
Portal Working together with Process Server



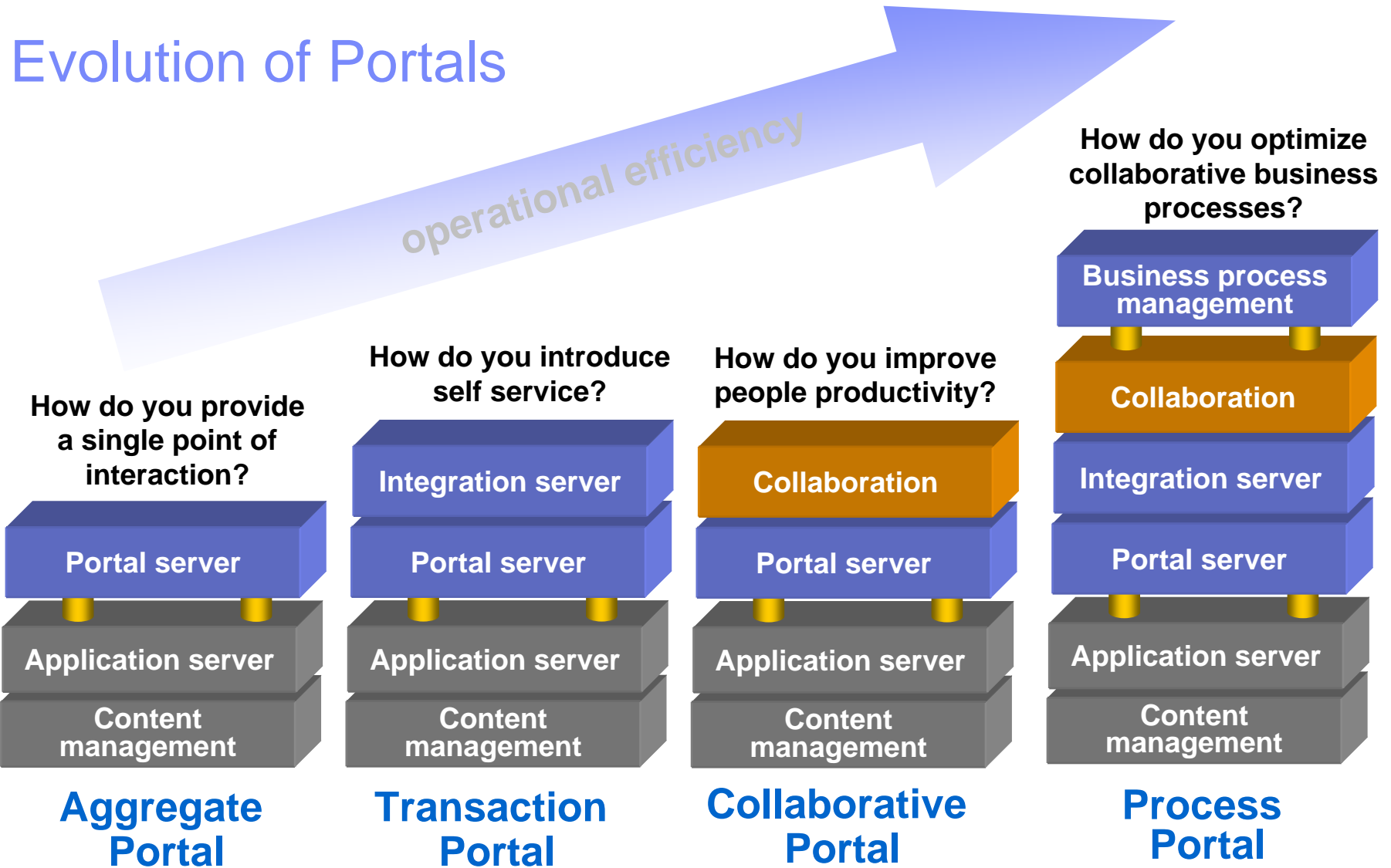
Motivation



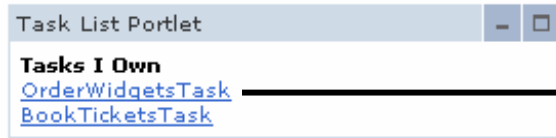
Motivation for Process Portals



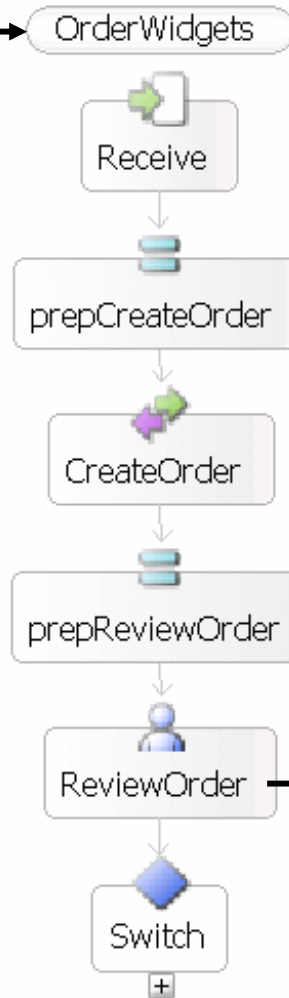
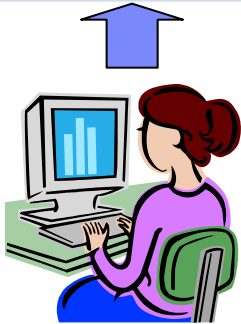
Evolution of Portals



Shop Floor Scenario



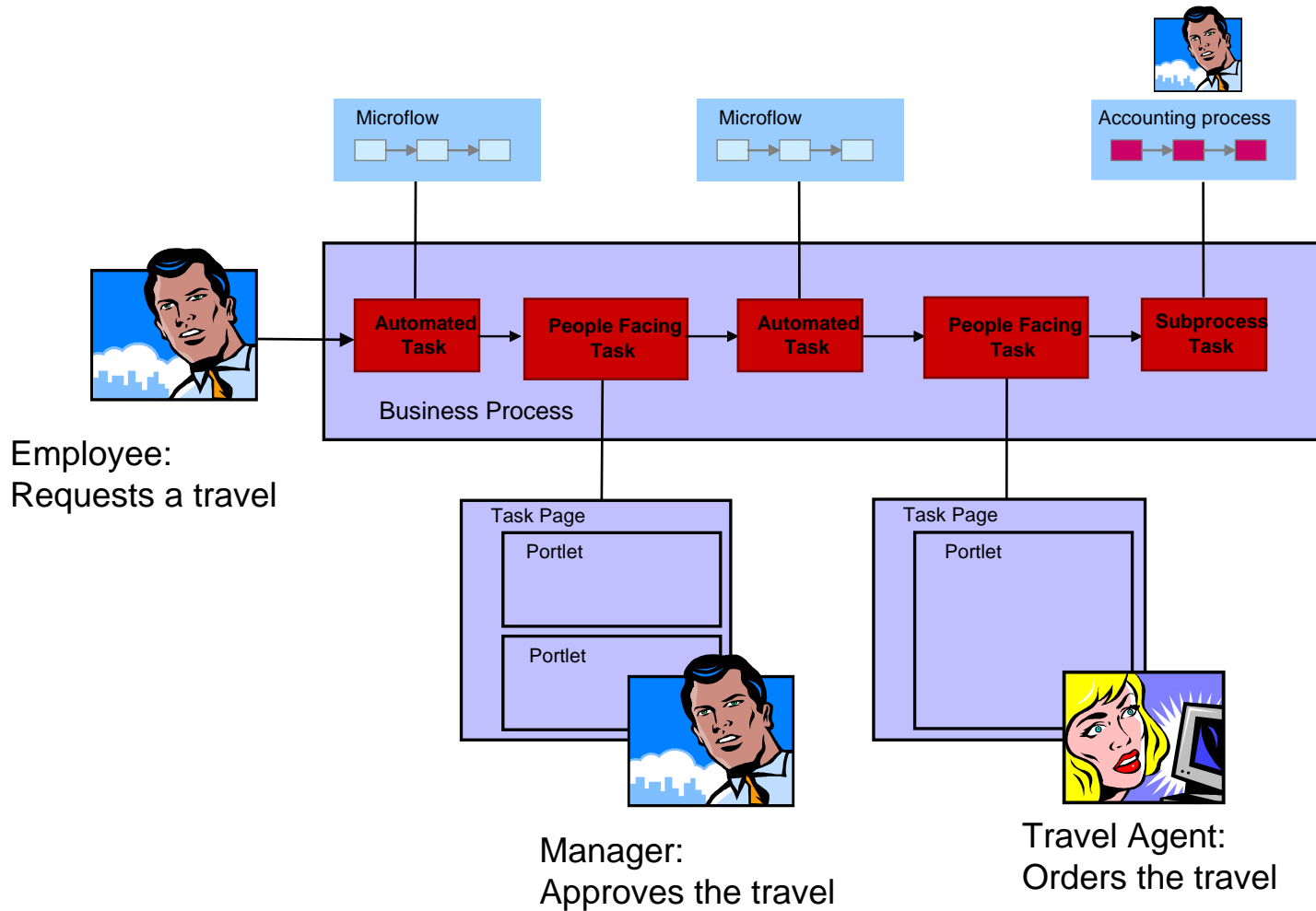
Initiate process



Participate in process



Process Flow: Travel Request



Travel Request – Starting a process

The screenshot shows a Microsoft Internet Explorer browser window displaying the IBM WebSphere Portal. The address bar shows a URL with parameters for destination (New York) and date (5.10.2002). The portal has a navigation bar with 'Welcome', 'Work with Pages', and 'Travels'. A 'Travel Request' tab is active. Two portlets are visible:

- Travel Request Portlet:** Contains a form for entering travel data. The 'Traveller' field is populated with 'Juergen Employee'. Other fields include 'Destination' (New York), 'Departure Date' (5.10.2002), and 'Reason' (Conference). A 'Submit' button is at the bottom.
- Travel Request Status Portlet:** Displays a table of pending requests. The table has columns for 'Destination', 'Status', and 'Processor'. One entry is shown: 'New York: 5.10.2002'. There are 'Terminate' and 'Details' buttons next to the entry.

Callout boxes provide context:

- A box pointing to the 'Submit' button states: "The employee makes a travel request using the Travel Request Portlet."
- A box pointing to the status portlet table states: "The Travel Request Status Portlet lists pending travel requests. This request has not yet been decided on."

Accepting the Travel Request



The screenshot shows the IBM WebSphere Portal interface. At the top, a navigation bar includes 'Welcome Manager!', 'Edit Layout', and 'New Page'. A yellow warning icon and the text 'You have 1 pending task' are prominently displayed. Below this, a 'My Task List' section is visible, containing a table of tasks.

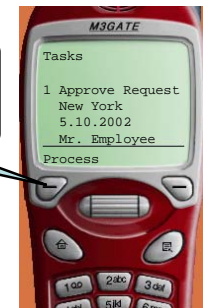
Name	Requestor	Description
Approve request	JUERGEN	New York 5.10.2002
Task	MDavis	Chicago 6.30.2002
Approve request	JUERGEN	New York 5.10.2002
Task	MDavis	Chicago 6.30.2002
Approve request	JUERGEN	New York 5.10.2002
Task	MDavis	Chicago 6.30.2002
Approve request	JUERGEN	New York 5.10.2002
Task	MDavis	Chicago 6.30.2002
Approve request	JUERGEN	New York 5.10.2002
Task	MDavis	Chicago 6.30.2002

Task Alerts notify users when tasks are pending

When a user clicks on the alert, the portal displays the user's task list in the **MyTasks Portlet** which lets the user launch **Task Pages**.

Portal can also send e-mail task notifications with links. Will launch the corresponding task page

The manager approves the travel request using the smart cell phone.



Booking the Flight – on a Task Page

The screenshot shows a web browser window titled "IBM WebSphere Portal - Microsoft Internet Explorer" displaying a flight booking application. The interface is divided into several sections:

- Travel Request:** A summary of the current task context, including Employee (Juergen Employee), Reason (Conference), Departure Date (5.10.2002, 9:00 am), Origin Airport (Frankfurt), Destination Airport (New York), Airline (Lufthansa), and Class (Economy).
- Flight Select Portlet:** A list of flight options with columns for route, class, and price. Options include Economy Air Pakistan (450.00\$), Economy Air France (450.00\$), Business Lufthansa (1,400.00\$), Business Lufthansa (1,299.00\$), and Business American Airlines (900.00\$).
- Form Fields:** Input fields for origin and destination airports (FRA, JRA), departure and return dates (2002/10/05, 2002/10/09), and departure/return times (19:05, 07:30). A dropdown menu for "Airport selection list" is open, showing options like Aalesund, Norway (AES) and Aberdeen, Scotland (ABZ).
- Buttons:** "don't book" and "book" buttons are visible at the bottom left.
- Right Side Portlets:** A "Process starter" portlet shows "Juergen Employee" as the process starter, and a "Private contacts" portlet shows "Andreas Nauerz" as a contact.

Annotations on the screenshot include:

- A speech bubble pointing to the "Travel Request" section: "The portlets on the task page are automatically provided with the task context".
- A speech bubble pointing to the "Process starter" portlet: "The Sametime portlet shows people involved in previous task of the process.".
- A speech bubble pointing to the "book" button: "The assistant books the flight.".
- A blue arrow labeled "C2A" points from the "book" button area towards the flight options.

Subprocess: Travel Expense Accounting

The screenshot shows a web browser window displaying an IBM WebSphere Portal. The main content area is titled "Travel Request" and contains several portlets:

- User Info Portlet:** Displays employee information for Juergen Employee, including destination (New York), departure date (5.10.2002), and reason (Conference).
- Flight Reservation:** A table showing flight details for a roundtrip from Frankfurt, Germany to New York City, NY, USA.
- Car Reservation:** A table showing car rental details for a roundtrip in New York City.
- Currency Conversion Portlet:** Shows a table of items with their costs in dollars (\$) and euros (€). A "Start" button is visible below the table.
- Previous workers, Process starter, and Private Contacts:** Lists other users and contacts related to the process.

A callout bubble points to the "Start" button in the "Travel Expenses Accounting" section of the Currency Conversion Portlet.

Travel expense accounting triggers creation of new process instance

Simplicity from an individual user's perspective ...

- The Portal becomes the user interface for working on user facing tasks of a process.
- To each user, the portal presents the right page for the right task at the right time:
- The Portal displays **Task Alerts** for users when tasks are pending.
- When a user clicks on the alert, the portal displays the user's task list in the **MyTasks Portlet** which lets the user launch **Task Pages**.
- Alternatively, the portal can send e-mail task notifications with URLs, which will launch the corresponding task page automatically.

The image shows three sequential screenshots of the IBM WebSphere Portal interface, illustrating the user's experience with pending tasks.

Top Screenshot: Shows the portal home page with a notification bar at the top right stating "You have 1 pending task". A red arrow points from this notification to the middle screenshot.

Middle Screenshot: Shows the "My Task List" portlet. It displays a table of pending tasks:

Name	Requester	Description
Approve request	JUERGEN	New York 5.10.2002
Task	MDavis	Chicago 6.30.2002
Approve request	JUERGEN	New York 5.10.2002
Task	MDavis	Chicago 6.30.2002
Approve request	JUERGEN	New York 5.10.2002

A red arrow points from the "Approve request" link in the first row to the bottom screenshot.

Bottom Screenshot: Shows the "Flight Select Portlet" for a specific task. It displays flight details for a travel request from Frankfurt, Germany (FRA) to New York City, NY, USA (EBA) on 2002/10/05. The interface includes fields for origin and destination airports, departure date, time, and class, along with a list of available flights and their prices.

Portlet Development: Web Service presentation

Web - test.jsp - IBM Rational Software Development Platform

File Edit Toolbar Insert JSP Format Table Frame Page Tools Navigate Search Project Run Window Help

Project Explorer Gallery

test.jsp - Untitled *

Place content here.

Id:	{ID}
StartDate:	{startDate}
Reason:	{reason}
Destination:	{destination}
Name:	{name}
[Error Messages]	

WSDL message presentation is generated

Modify the presentation

Palette Snippets

- HTML Tags
- JSP Tags
- Faces Components
- Data Table
- Panel - Group Box
- Panels - Tabbed
- Panel - Menu Bar
- Command - Button
- Command - Hyperlink
- Link
- Input
- Input - Text Area
- Rich Text Area
- Input - Password
- Check Box
- Check Box Group
- Radio Button Group
- Combo Box
- List Box - Single Select
- List Box - Multiple Select
- File Upload
- Output
- Output - Formatted Text
- Image
- Label
- Display Error
- Display Errors
- Page Template
- Portlet
- Data
- SAP BAPI
- SAP RFM
- Siebel Record
- Siebel Record List
- Web Service
- EJB Session bean
- Relational Record
- Relational Record List
- JavaBean

Page Data Styles 3

Scripting Variables

Portlet

inputMessage (com.ibm.wps.wfi.Tr

Design Source Preview

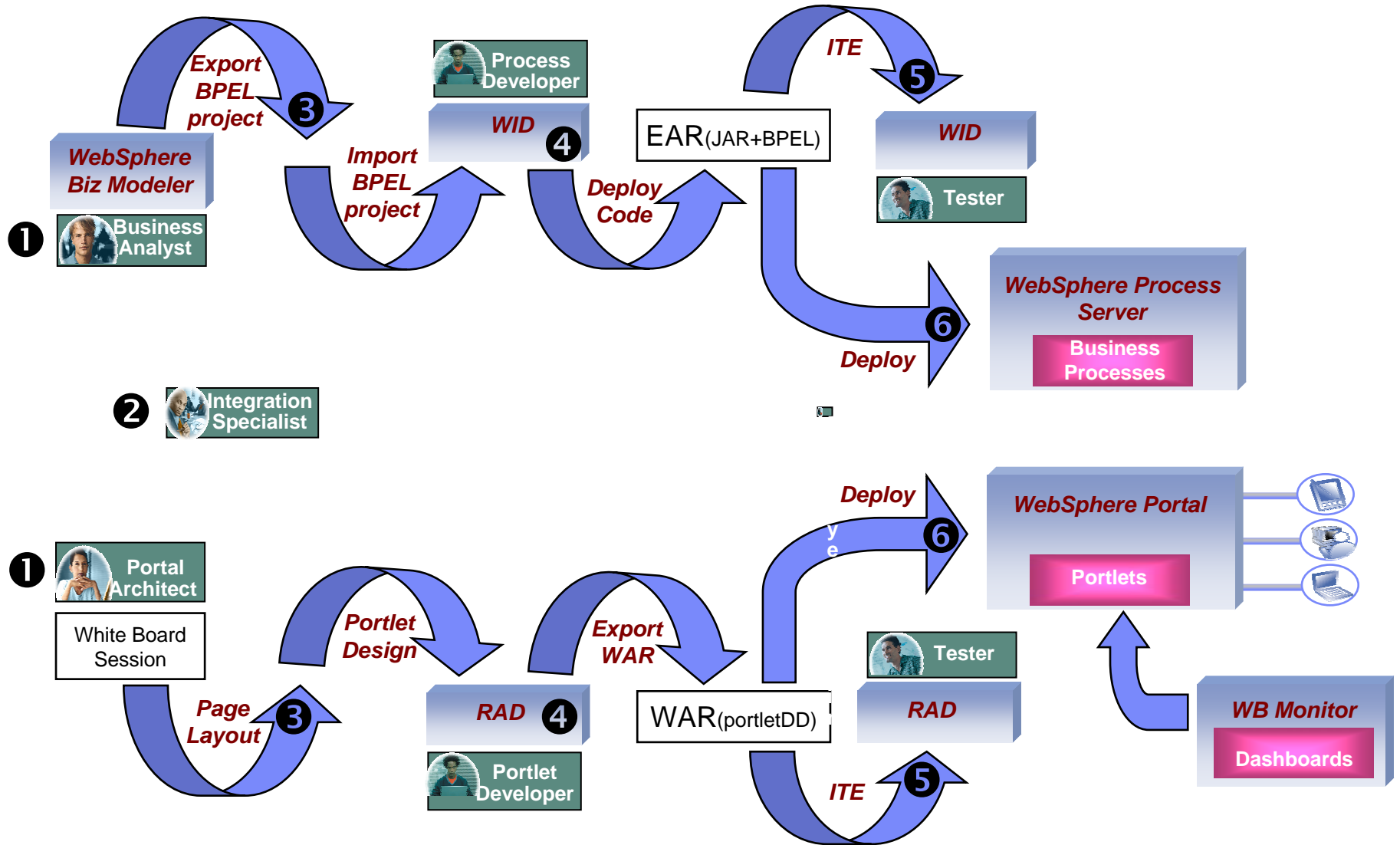
Properties Quick Edit Servers Problems

Server	Host name	Status	State

JSFTaskPortlet/WebContent/test.jsp

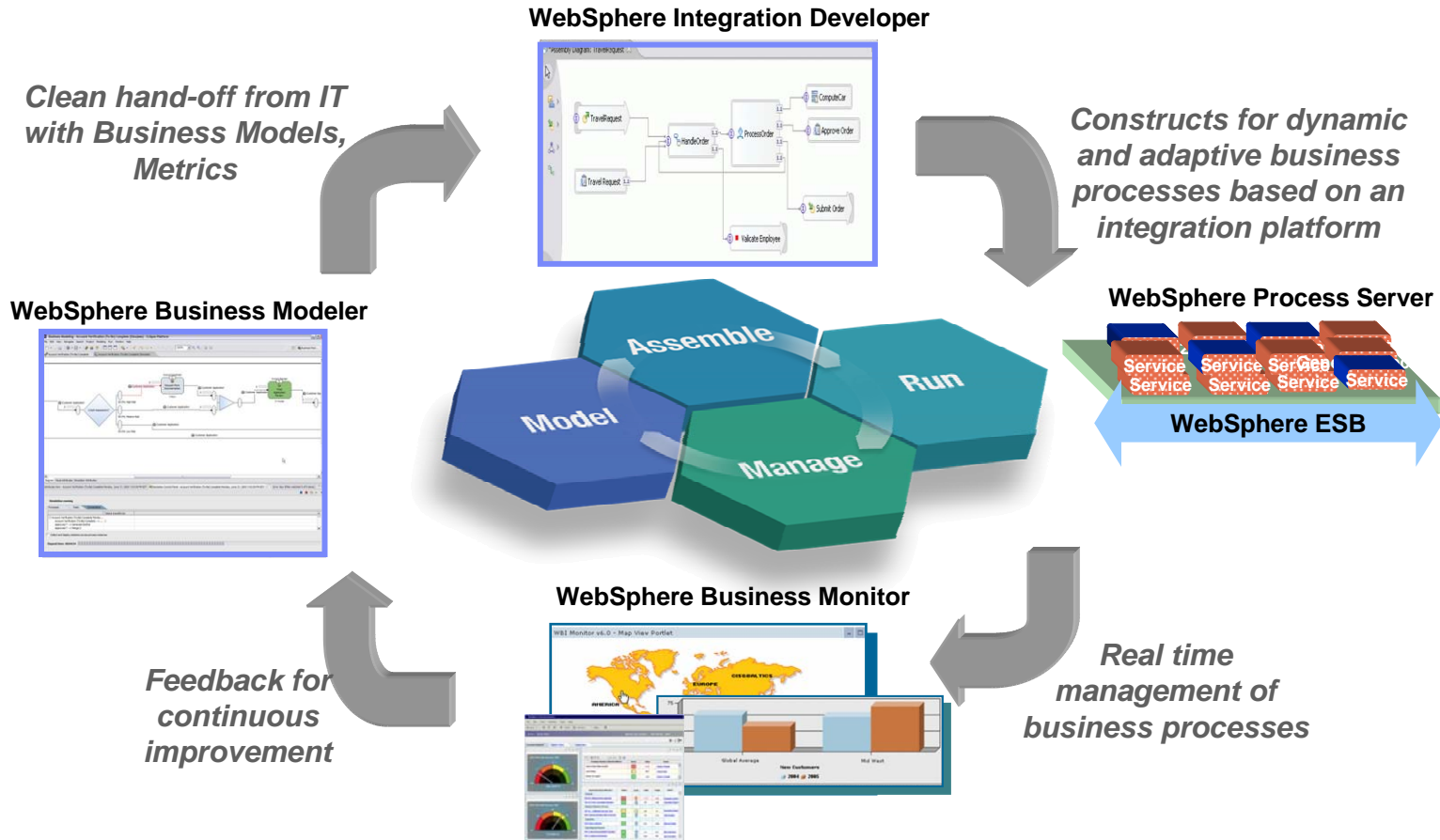
Select and Drop web service

Process Portal Methodology



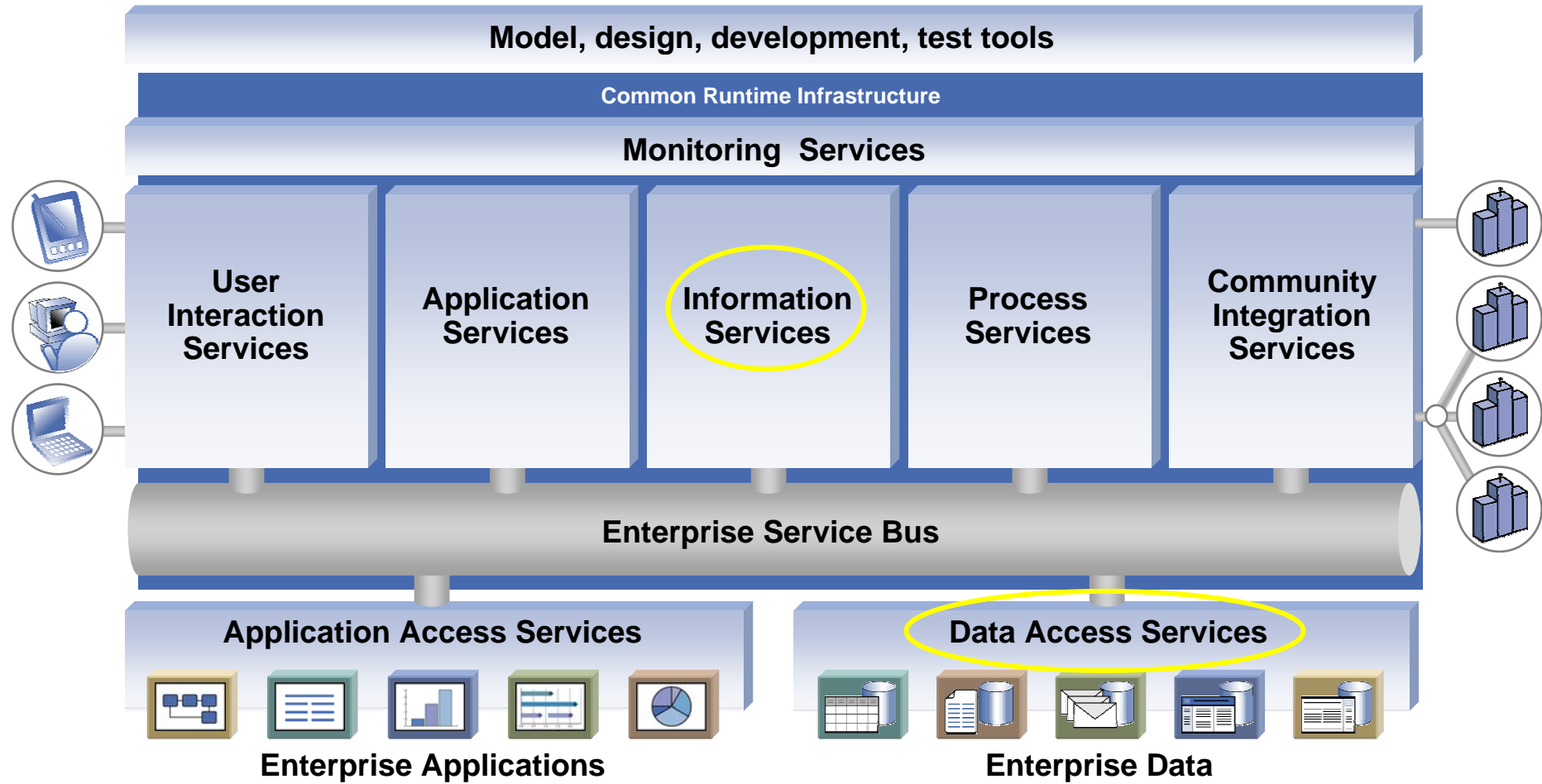
Managing Business Processes with SOA

Enabling complete life cycle of business process

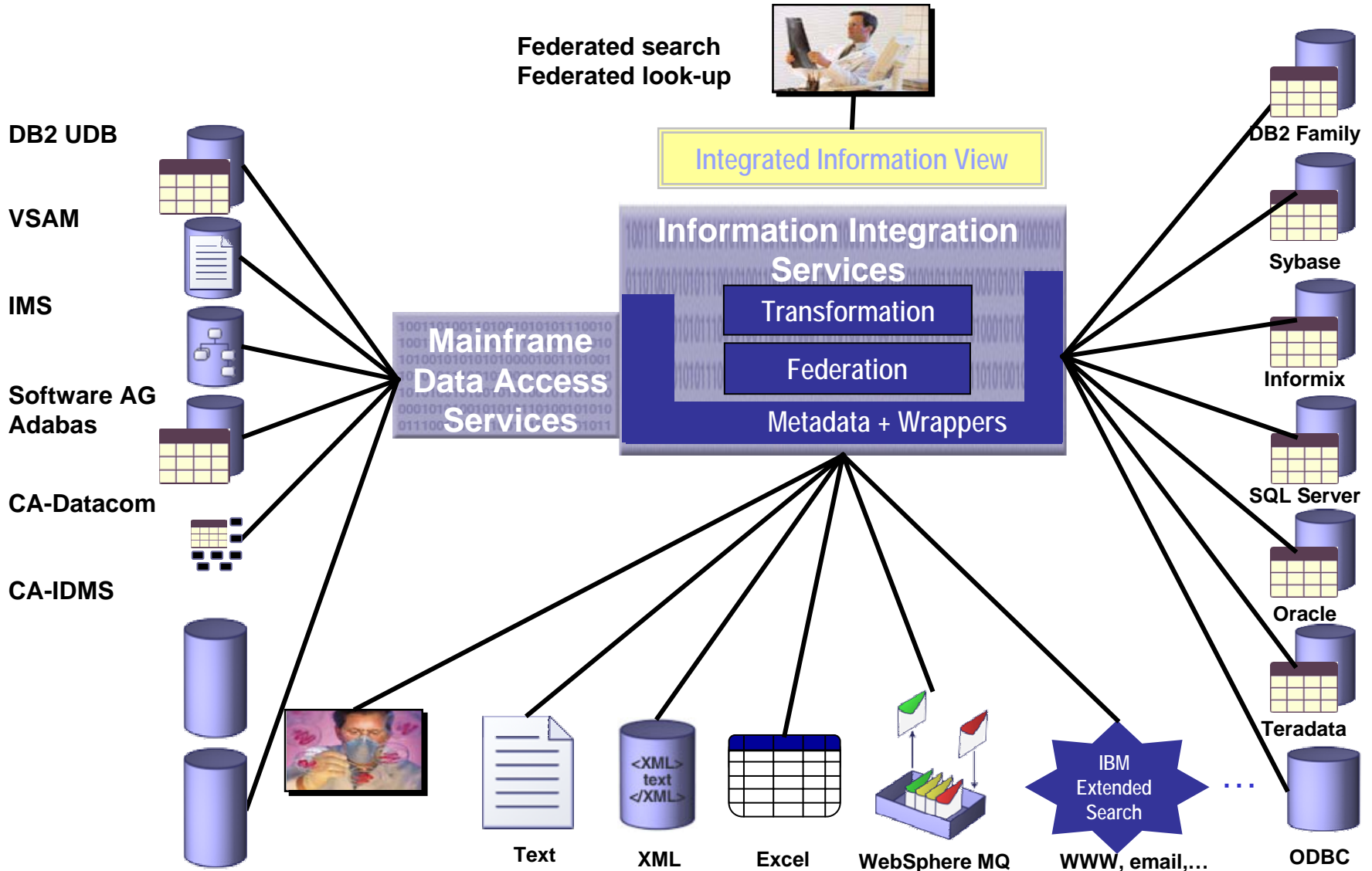


SOA Reference Architecture

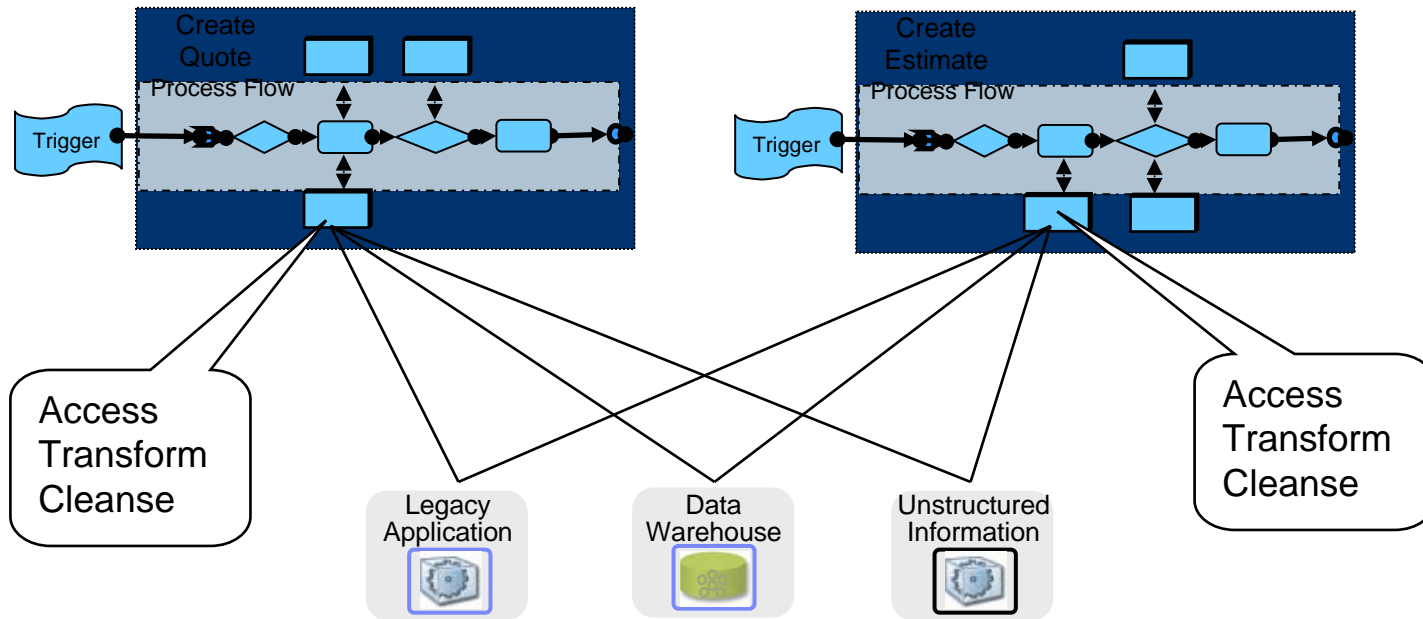
Information Services



Information Integration Services

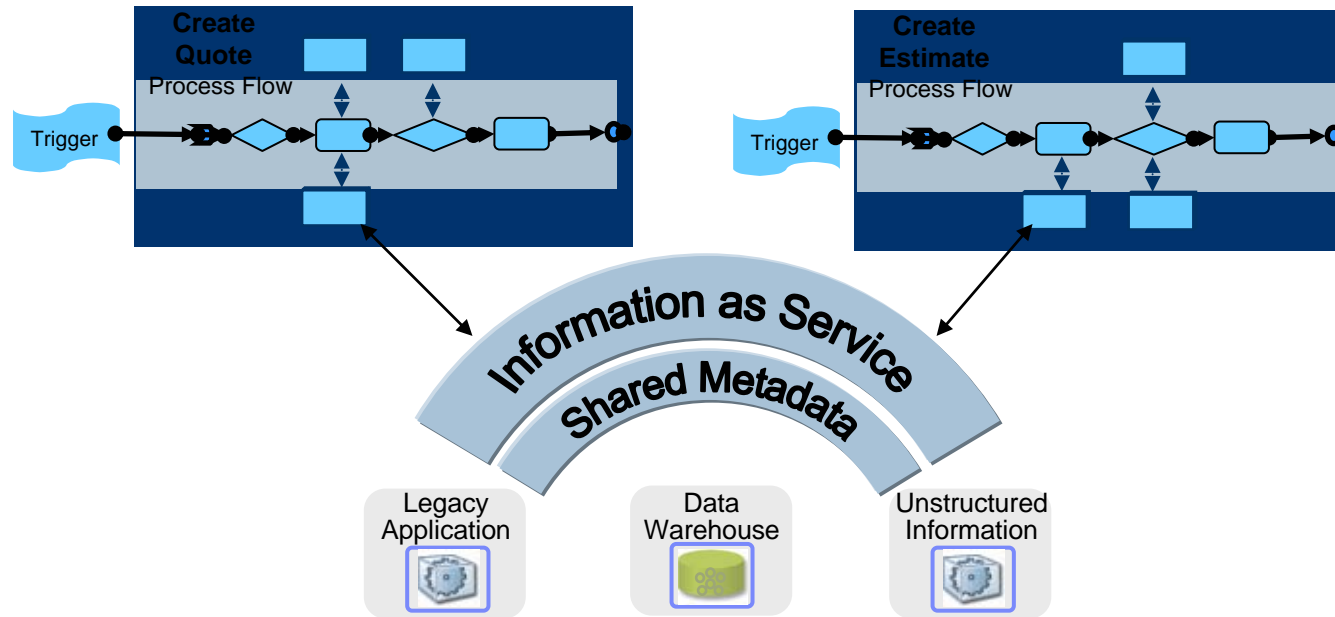


Tight Coupling of Data to Workflow Locks You In



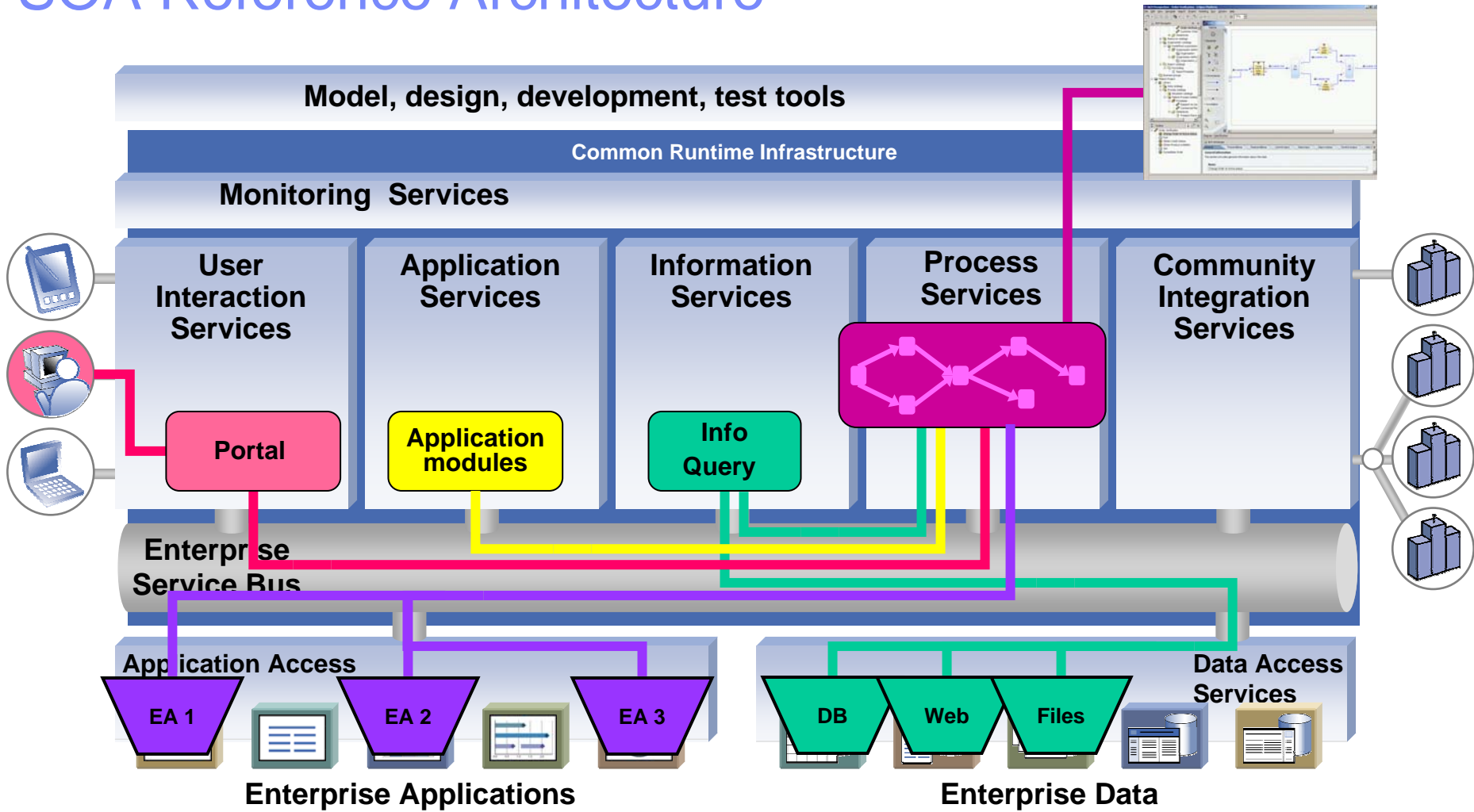
- Inconsistency in the “view” of the data
- Inconsistency in sources and how data is derived
- Inconsistency in rules applied to data
- Multiple points of maintenance
- No flexibility to change information sources and formats

Information as a Service Improves Flexibility

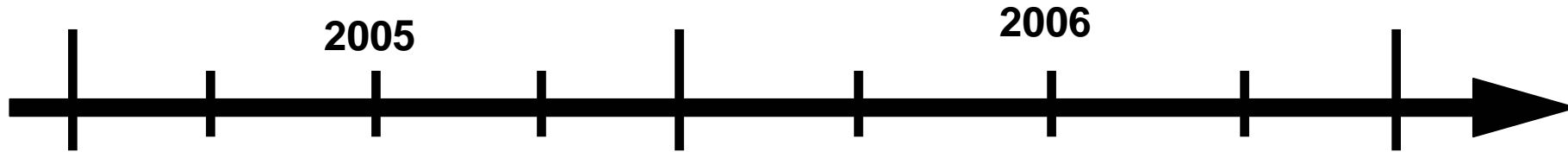


- Consistent packaging of data
- Leverages understanding of metadata relationships
- Applies consistent rules to data
- Centralized control and maintenance
- Flexibility to change information sources and formats

SOA Reference Architecture



Portal and Process Server Roadmap



WebSphere Portal 5.1
Includes restricted License of WSBISF 5.1

WebSphere Portal 5.1.0.3
Adds Support for Process Server 6.0.1
eGA 3/3/06

WebSphere Portal 6.0
Includes restricted license of Process Server 6.0.1

WebSphere Portal 6.0.1
Support for Future versions Process Server

WebSphere BISF 5.1

WebSphere Process Server 6.0.1

WebSphere Process Server 6.1





Thank you

GARTNER on Enterprise Portal

According to a Gartner report published in October 2005, "Through 2007, an enterprise portal will be the first major application of SOA concepts for more than 50 percent of enterprises (0.6 probability)."

