

SOA Benefits

DRQ S.A.

Kraków 21st November 2006

Agenda

- Introduction
- The Problem
- The Idea
- The Solution
- Summary

A large, faint, white graphic in the background. It features a central vertical line that branches out into a complex, circular, and somewhat chaotic pattern of lines, resembling a stylized globe or a network diagram. The lines are thin and light, creating a subtle watermark effect.

Introduction

- Top management
 - Overall company strategy
- Business line
 - Business offer according to strategy
- IT line
 - IT infrastructure fulfilling business offer requirements
- Suppliers
 - Developing of IT infrastructure

- Have the necessary authority to support our work
- Almost always don't know anything related to IT
- Usually knows business
- Have good and bad advisors

- Should be a long-breath people

- Define business offers and their requirements
 - Being competitive means to introduce new offer *at least every three months*

- IT line clients
 - Describe requirements to get products that can fulfill them
 - They are ONLY in
 - Delivery time
 - Functionality
 - Price
 - They are NOT in
 - Architecture stuff
 - SOA

- Define the overall company IT infrastructure model
 - Maintain it
 - Recover it

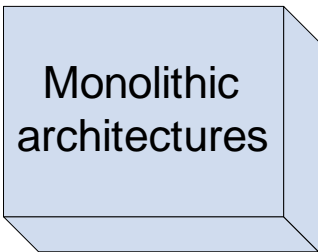
- Suppliers coordination
 - Arbitration
 - Projects synchronizations

- Describe project together with IT line
 - They develop systems that will become a part of the client's IT infrastructure

- Supplies IT/software product
 - Documentation
 - Implementation
 - Support
 - Warranty

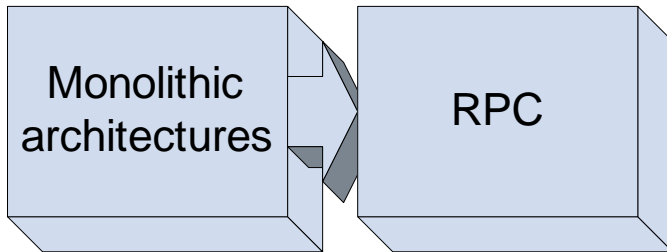
The Problem

The evolution of systems



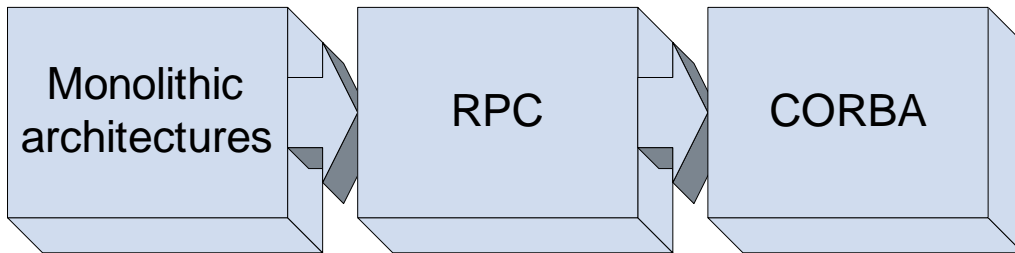
- Batch processing
- Mainframe systems
- No external interfaces

The evolution of systems

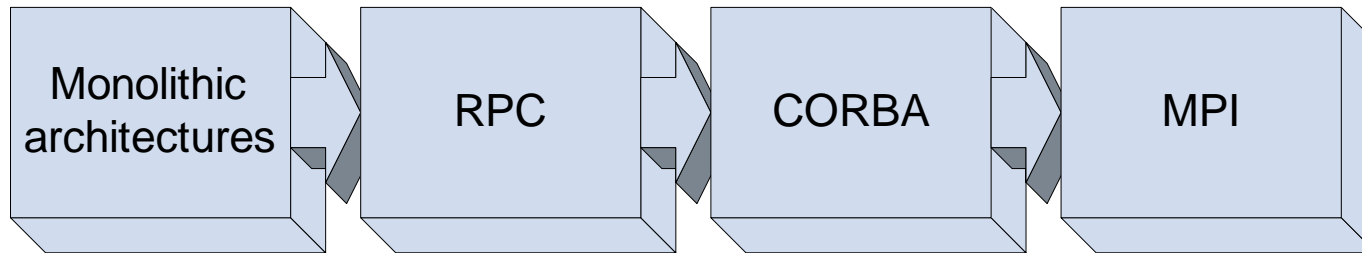


- RFC (1976)
- Xerox – Courier (1981)

- Frederick Brooks – *Mythical Man-Month*

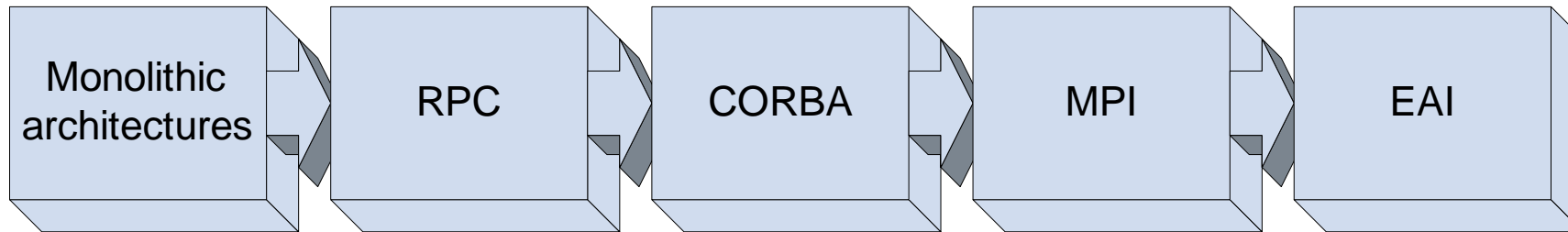


- CORBA 1.0 – 1991
- Language independent
- Support for distributed computing
- *Heavy* and problematic solution



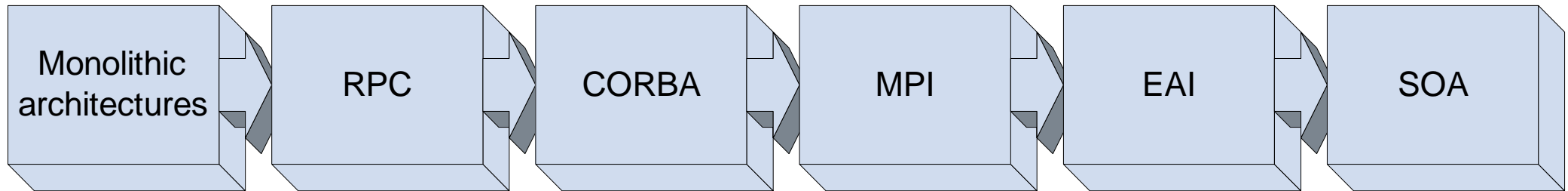
- MPI 1.1 – 1995
- Dedicated for a small set of languages
- Distributed, asynchronous computing
- GoF – *Design Patterns*

The evolution of systems



- Hub and spoke approach
- Message Oriented Middleware

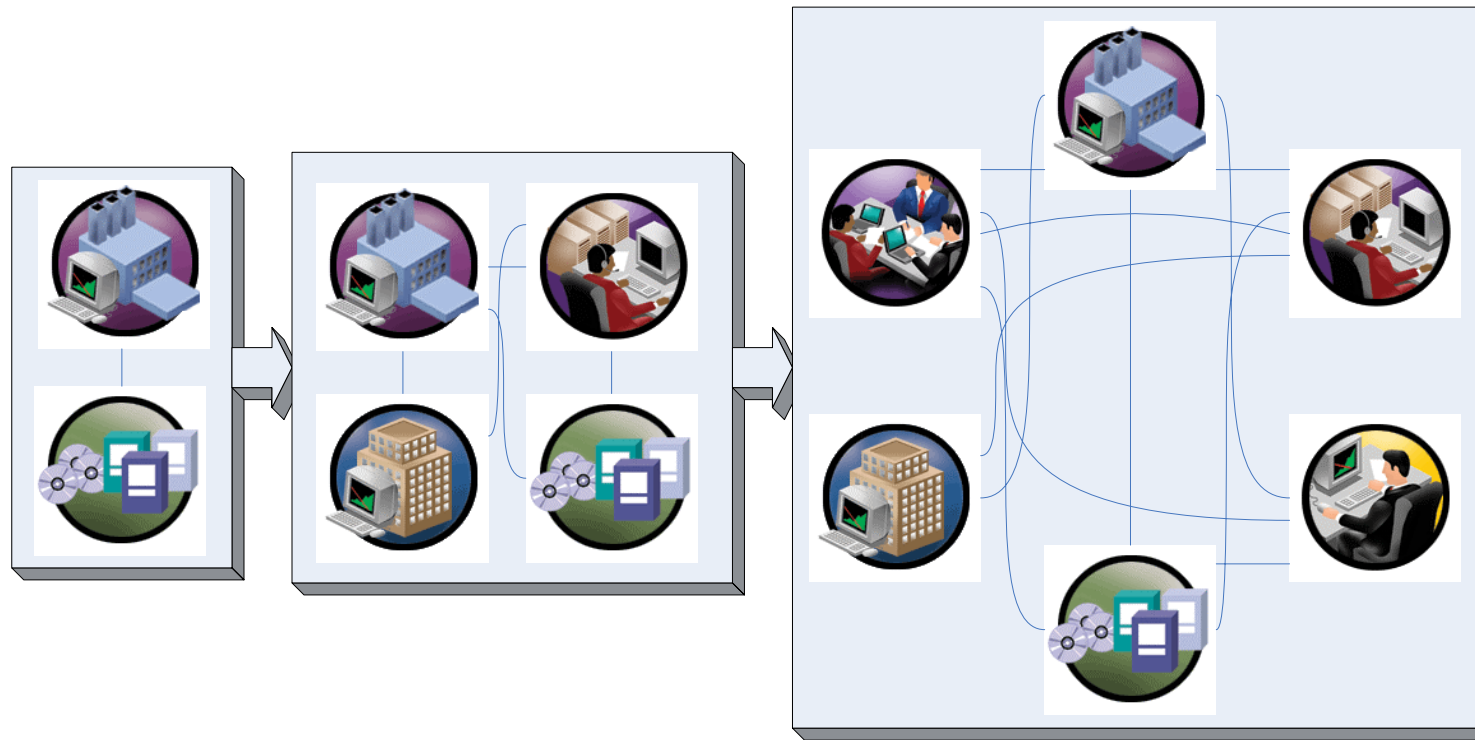
- Ed Yourdon – *Death March*



- Not a technology, a religion
- Component (service) related
- Based on EAI

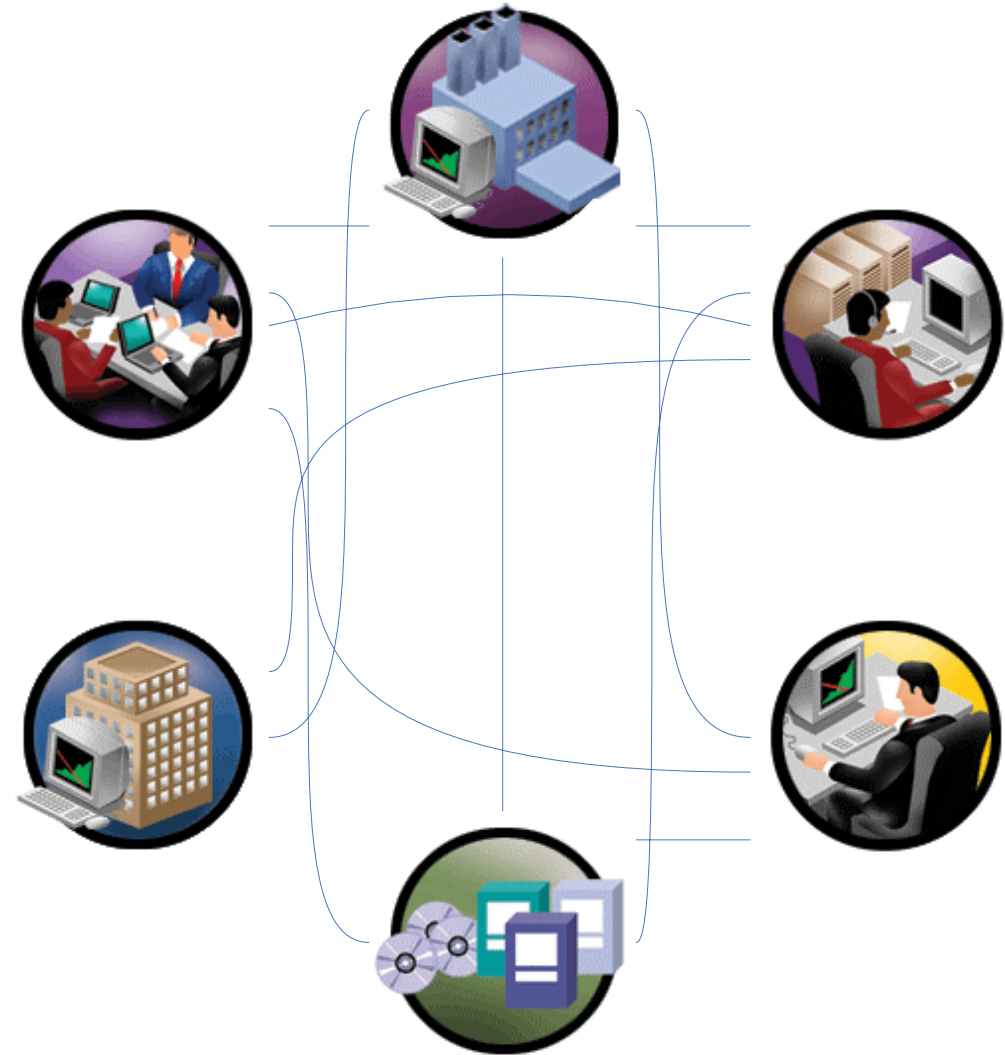
- Reusability is the KEY

The evolution of systems' dependencies



- Introduction of a new $(N+1)$ system means to create N new connections to other systems
- The number of possible connections grows exponentially
- It is very hard to maintain such an infrastructure

- Usually many point-to-point connections
- Many applications with redundant logic and data
 - Synchronization
 - Implementation effort
- ***Lack of logic reusability***
- ***Lack of agility***



The Idea

What is Service Oriented Architecture ?

An architecture design principle for application development and integration.

IBM

A framework able to expose building Integrated Systems applications with standard and reusable business service structure.

webMethods

A SOA is a software architecture that is based on the key concepts of an application frontend, service, service repository, and service bus. A service consists of a contract, one or more interfaces and an implementation.

Krafzig, D., Banke, K, Slama, D. – Enterprise SOA

What Service Oriented Architecture implies ?

- *Open standards*
- Focus on application assembly
 - Implementation is necessary evil
- The integration of applications and information sources
- A set of architectural principles and patterns
 - Modularity
 - Encapsulation
 - Loose coupling
 - SoC

What Service Oriented Architecture offers ?

- Maximization of business agility
 - Support for quick change of offer according to rapid business needs

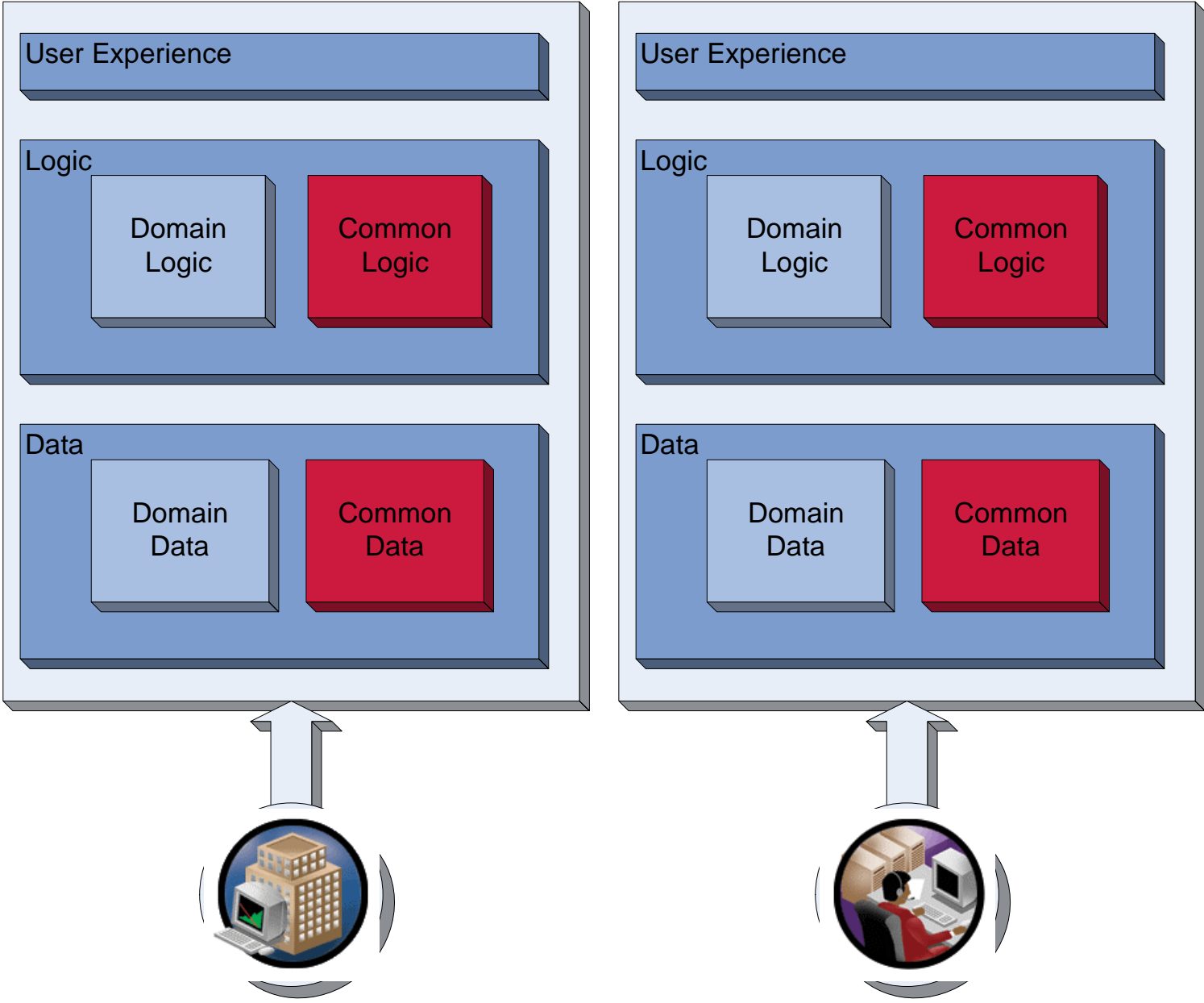
- Business processes integration within enterprise
 - Departments integration

- Integration with partners
 - By using standard based protocols it is easier to connect to partners

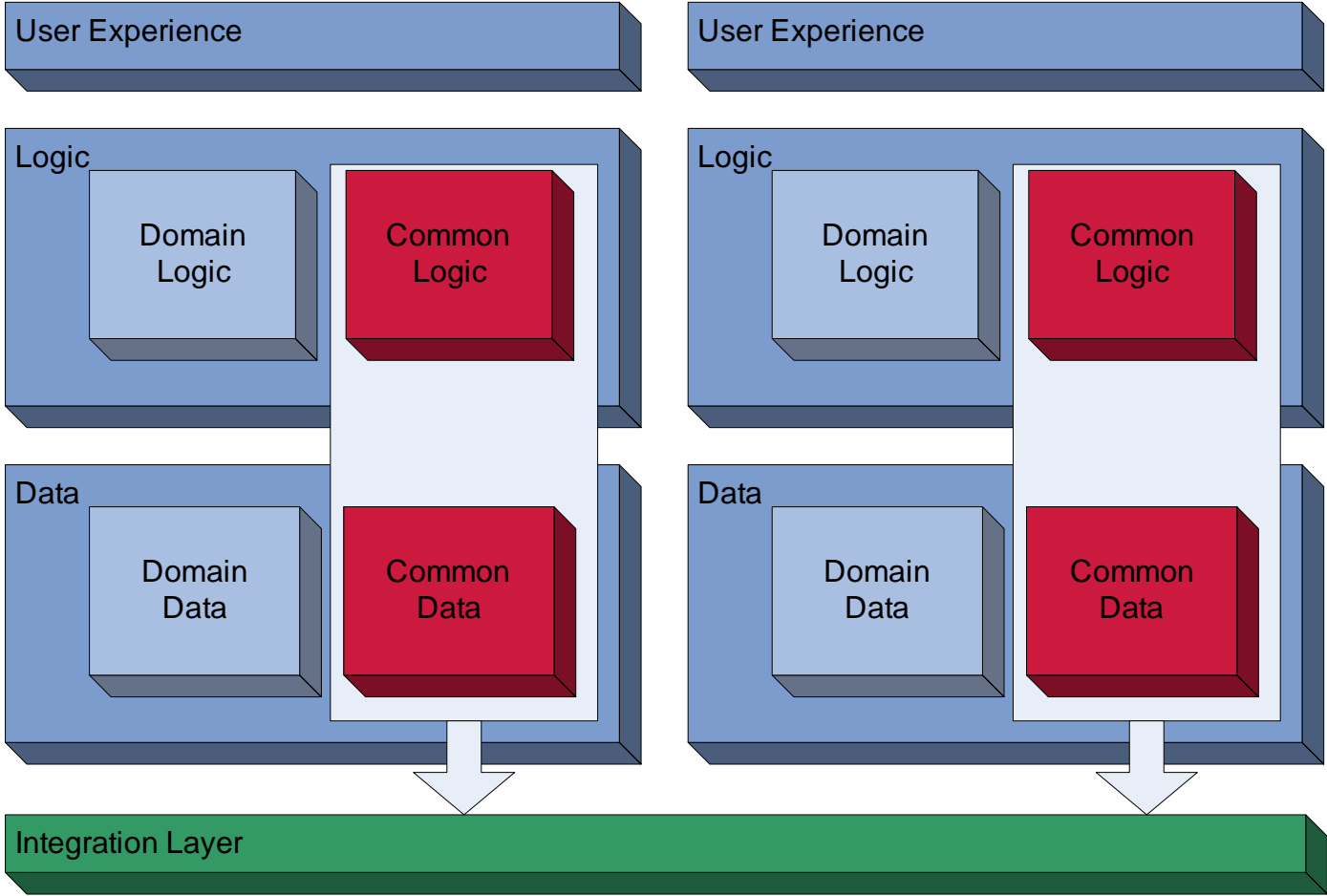
- Less need of low-level coding
 - Because of reusability

The Solution (?)

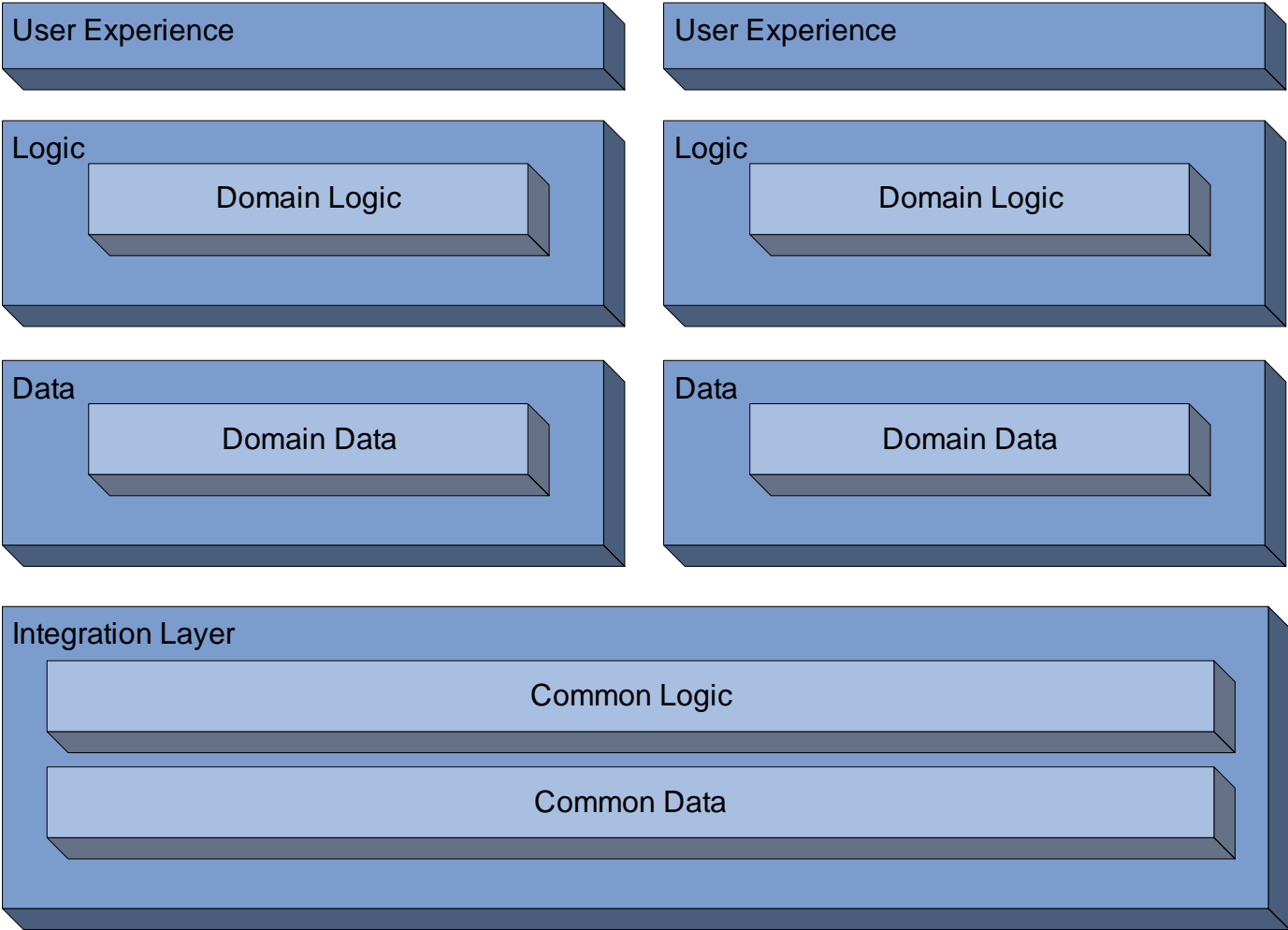
Redundancy



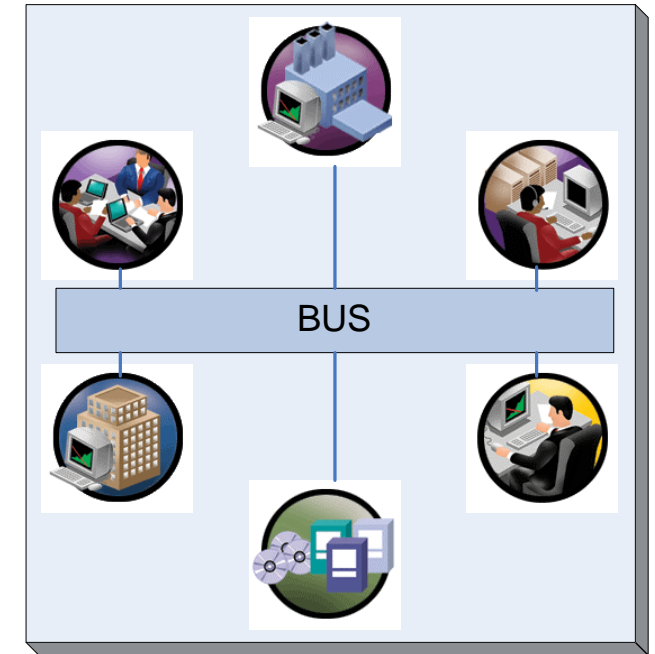
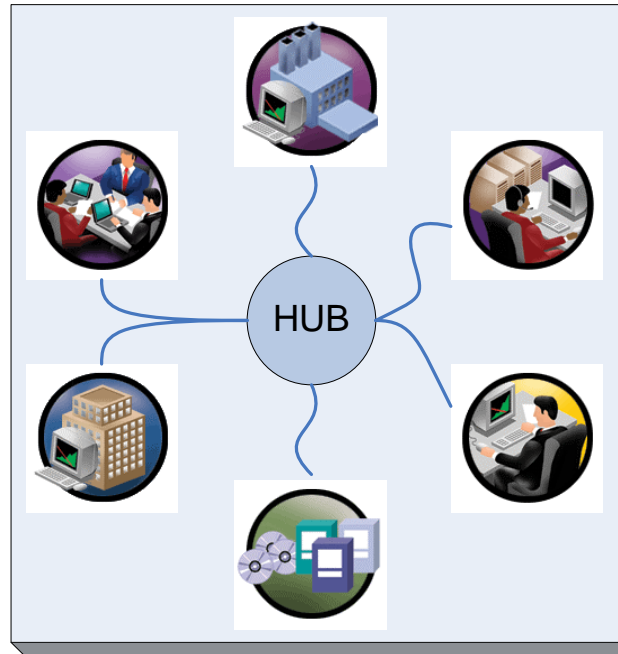
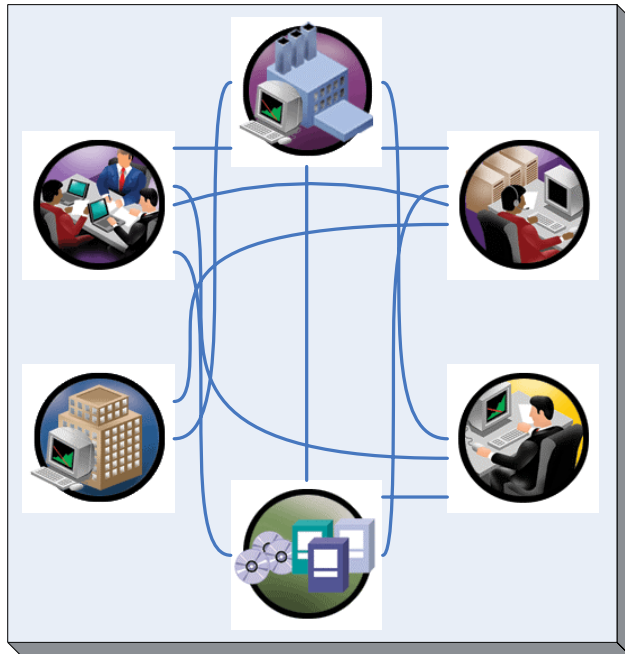
Integration



Integrated applications



Integration Platform Evolution



- A component architecture definition for business integration purpose

- Based on
 - plug-in technology
 - message exchange
 - J2EE

- Facilitated by web-services standards

Goal - standardization

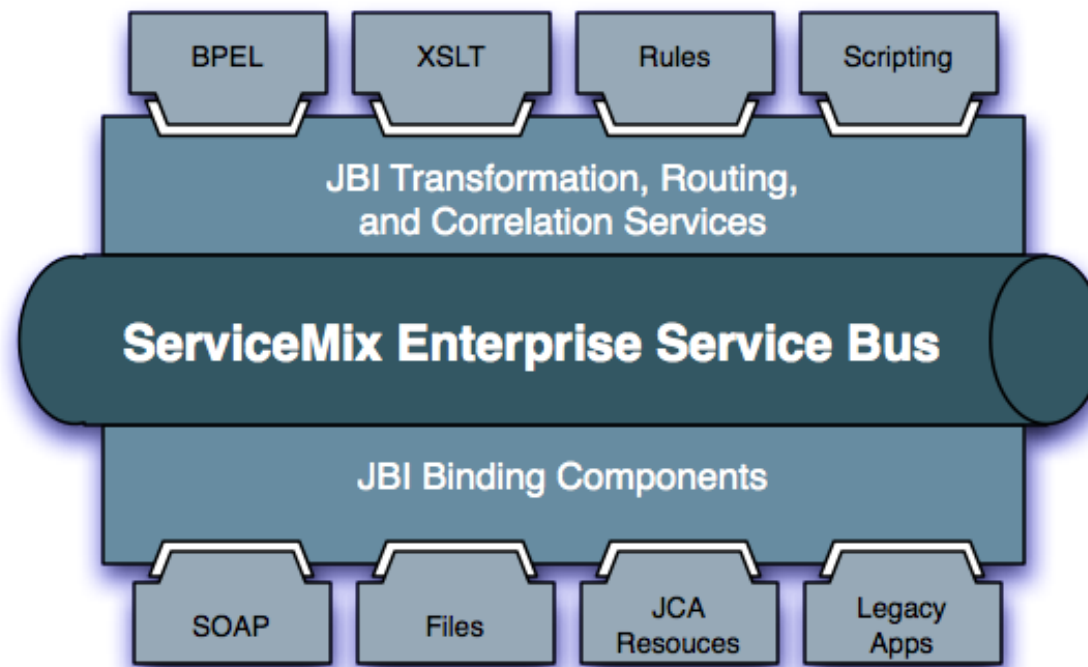
- Components
 - *Service Engines* – business logic
 - *Binding Components* – adapters

- Messages
 - Message Routing – *Normalized Message Router*
 - *WSDL Messaging*

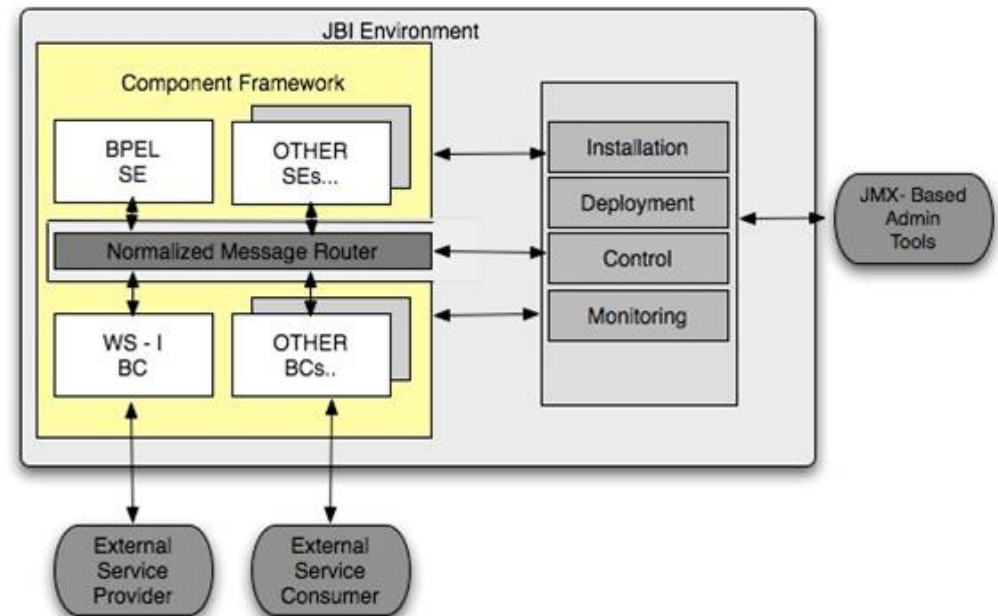
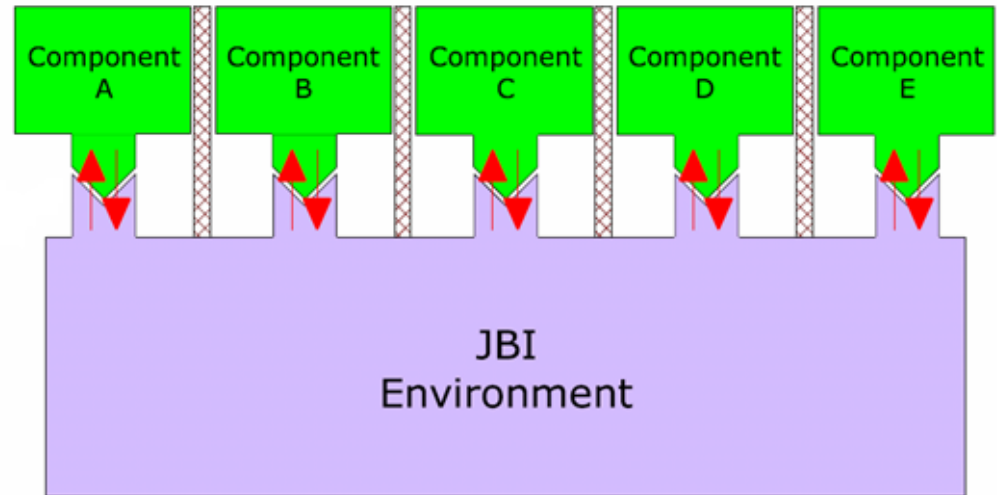
- Deployments
 - Application server based

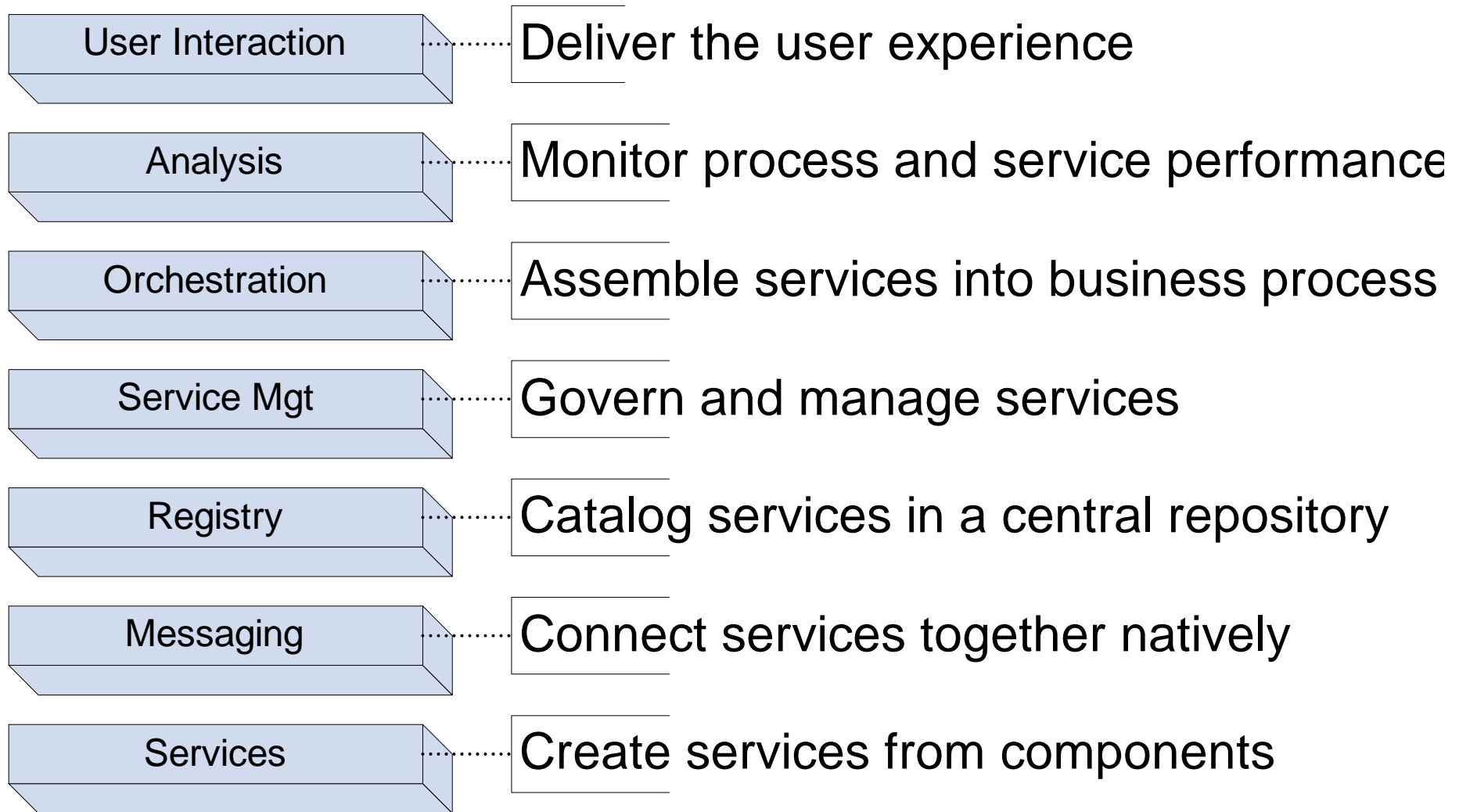
- Administration
 - *JMX* technology

- Apache *ServiceMix*
 - Open source
 - JBI compliant
 - SOA support
- Based on the J2EE application server (*Geronimo*)

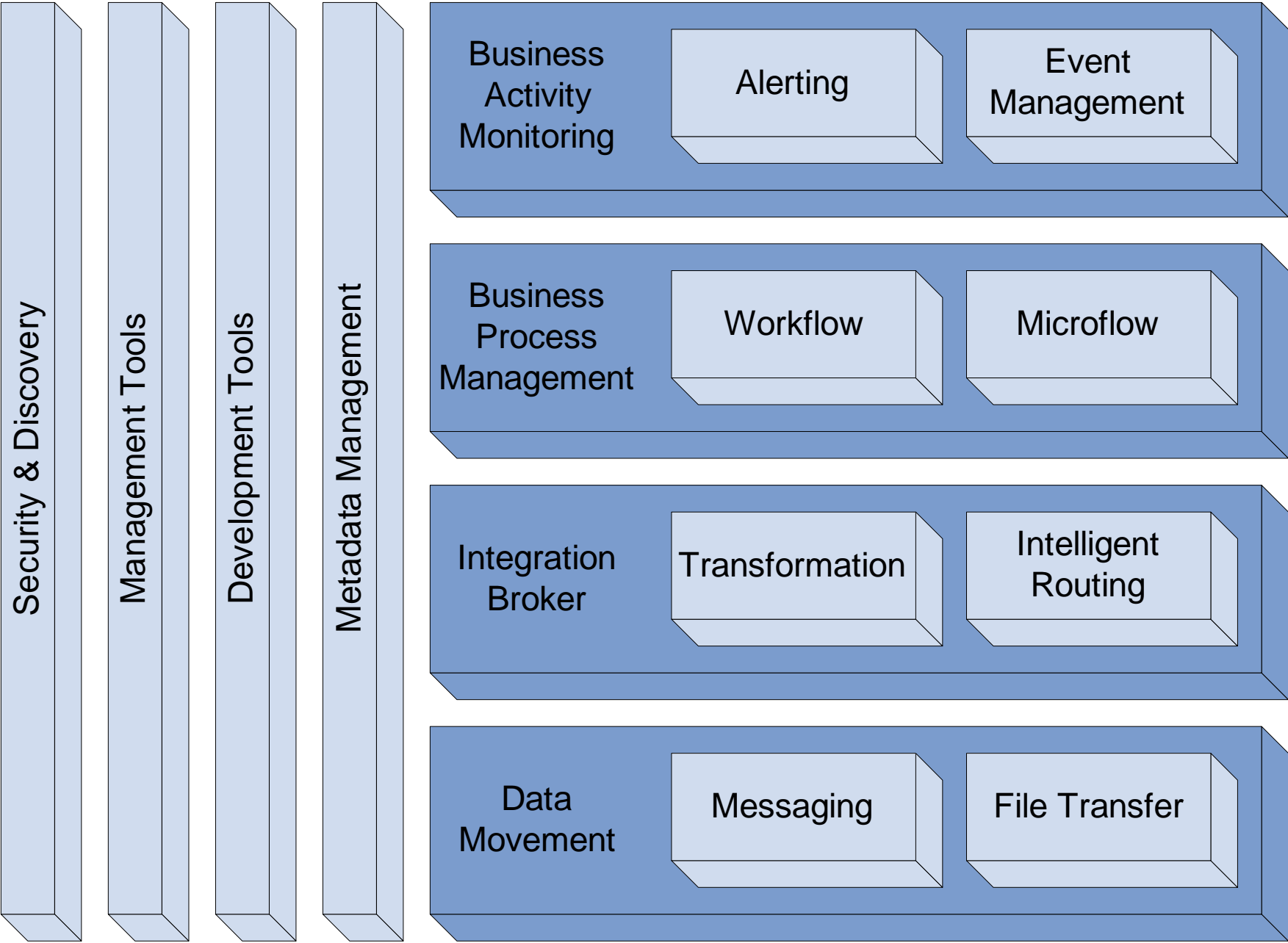


- Component *plug-in* architecture
 - Separation of Concerns
- JBI Environment
 - BUS architecture
 - Communication: *Normalized Message Router*
- *BPEL* support
- Service Engine
 - Business Logic





Gartner *Logical Architecture of Middleware Infrastructure*



Benefits

- Telco industry

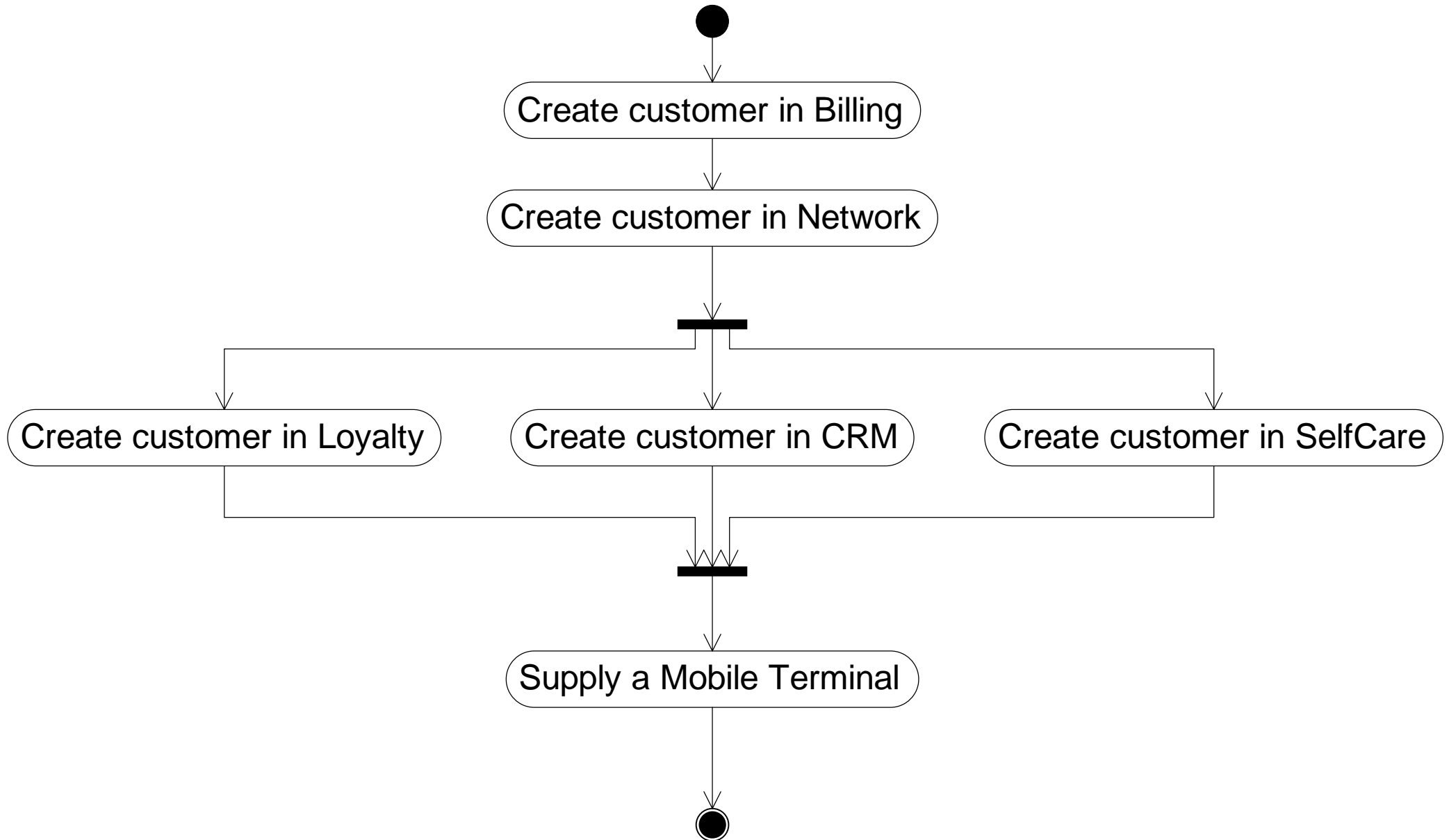
- Business activities
 - Selling mobile subscriptions

- Departments
 - Customer relationship
 - Finance
 - Supplies

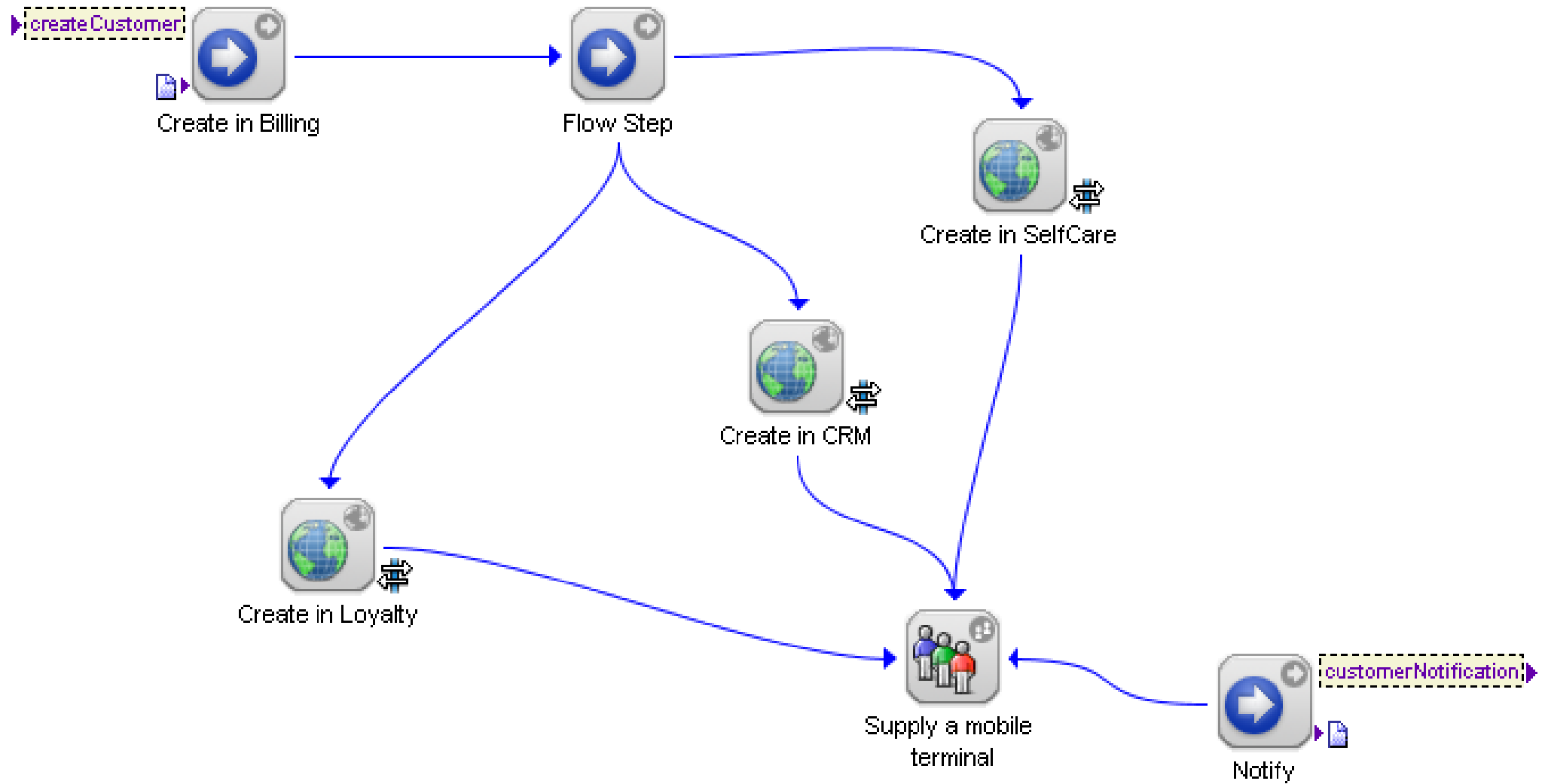
- Billing
- Customer Relationship Management
- Network management
- Self Care
- Loyalty

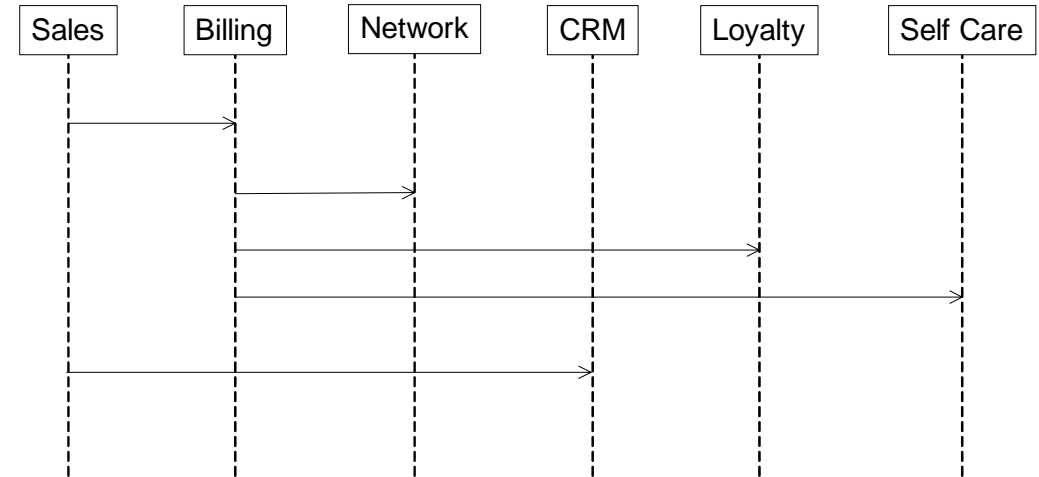
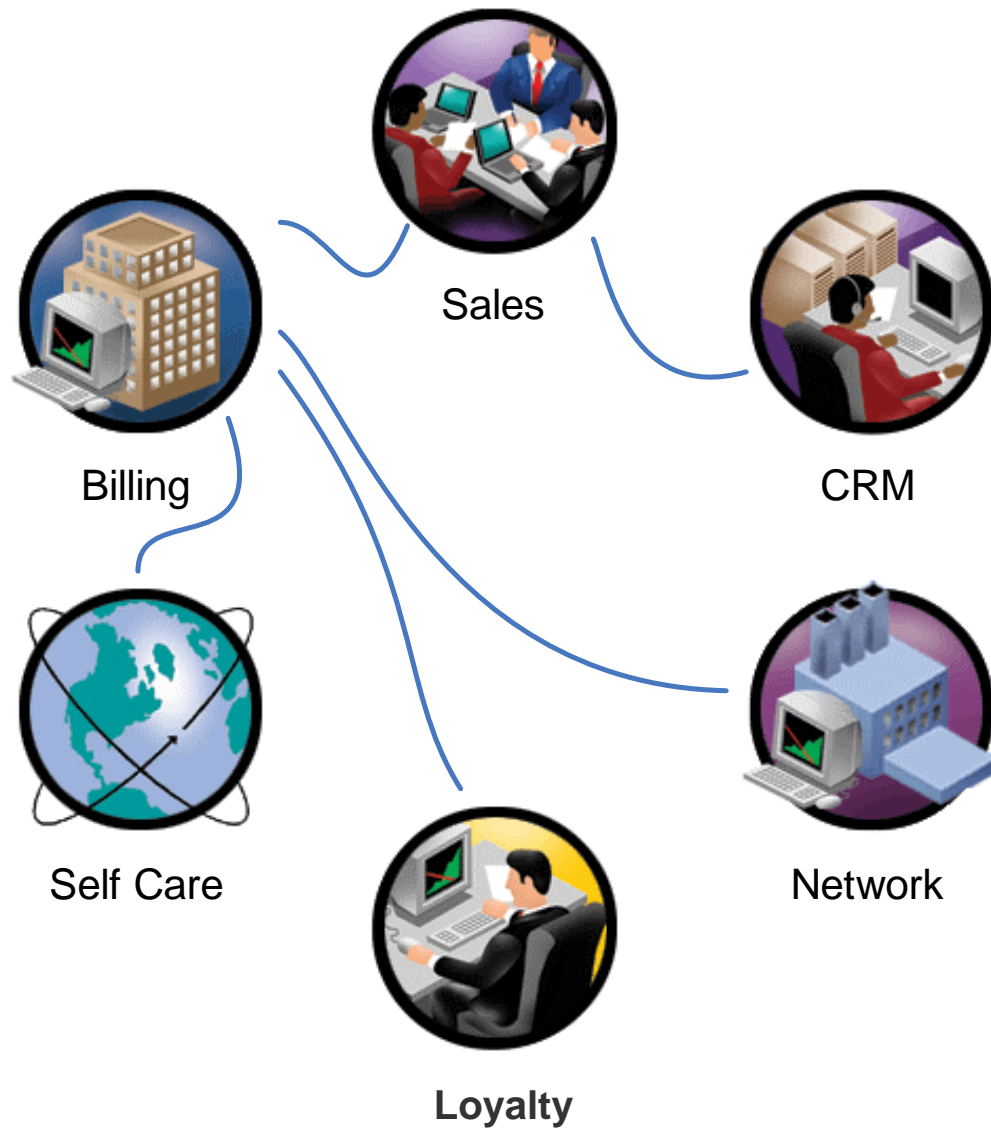
- Every system has its own clients database
 - With specific data
 - With common data

The most important business process



Modelled process (*webMethods*)



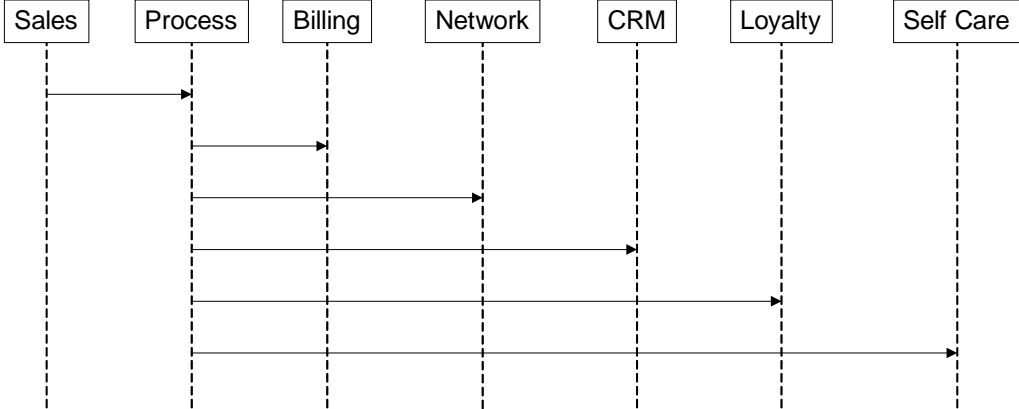
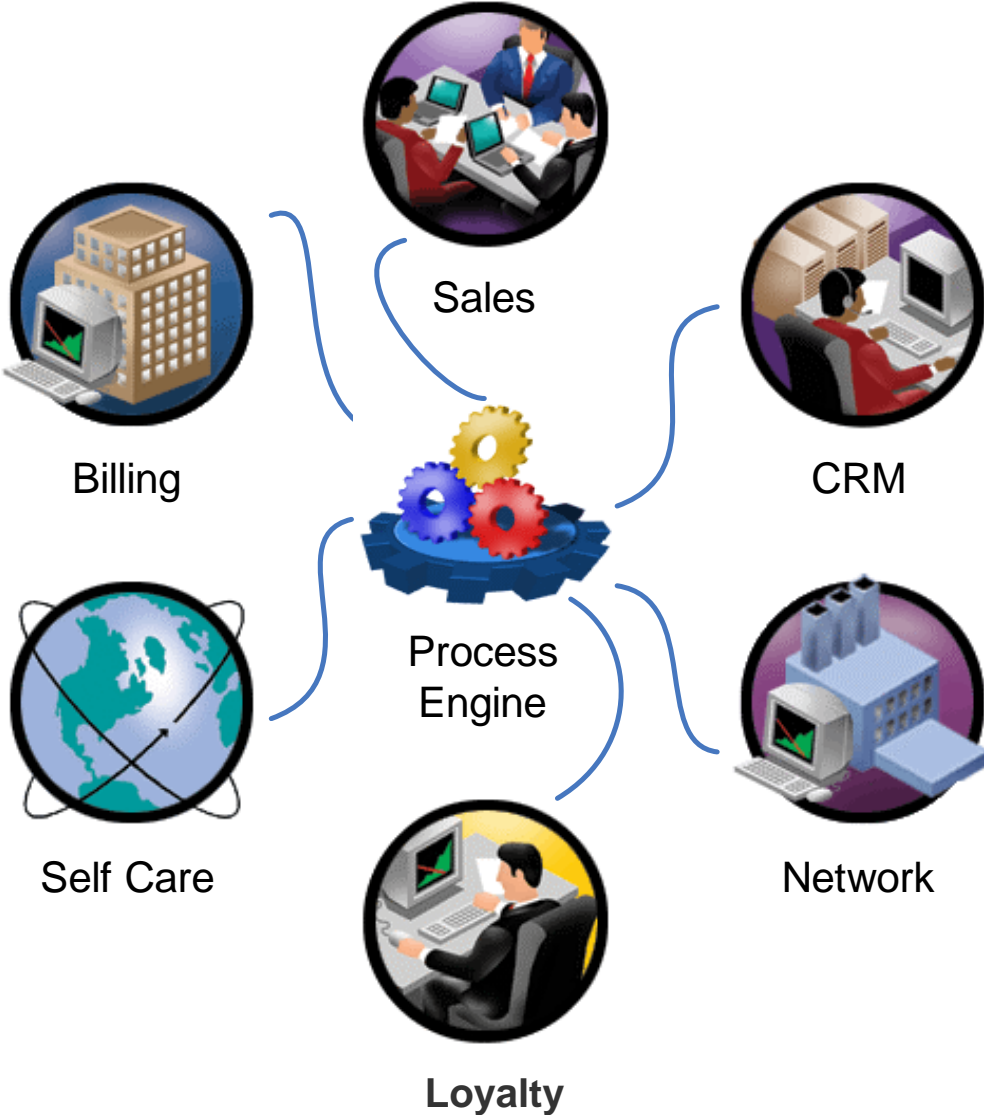


- Tightly coupled objects
 - DB links
 - RPC
 - CORBA
 - etc.

- No monitoring information

- Change in the process implies change in many (all) systems

SOA Realization



- Loosely coupled objects
 - Message Broker
 - Adapters

- Full monitoring information – Process Engine

- Only Process has to change

- Increase of agility
 - Another system can be introduced just by providing an adapter and redefining the process

- Clear architecture design
 - Every system communicates only with ONE element – Process Engine (Integration Platform)

- Real-time Audit
 - Board see how the business is going on IN THE REALTIME
 - Marketing see is the offer successful

A large, faint, white graphic in the background. It features a central vertical line that is thicker at the top and bottom, resembling a stylized pen or pencil. This line is surrounded by several concentric circles and a complex, scribbled pattern of lines, suggesting a technical drawing or a network diagram.

Summary

What is the problem ?

- The problem is in lack of IT agility
- The problem is in lack of reusability
- ***The problem is in lack of discipline***

What is SOA ?

- SOA is a religion
- Is the *whole organization* architecture vision
- Is a method that changes the way the IT works

What may we get by introducing SOA ?

- Nothing...
- Everything...



Thank you!

DRQ S.A.
office@drq.pl
tel.+48 12 423-09-69