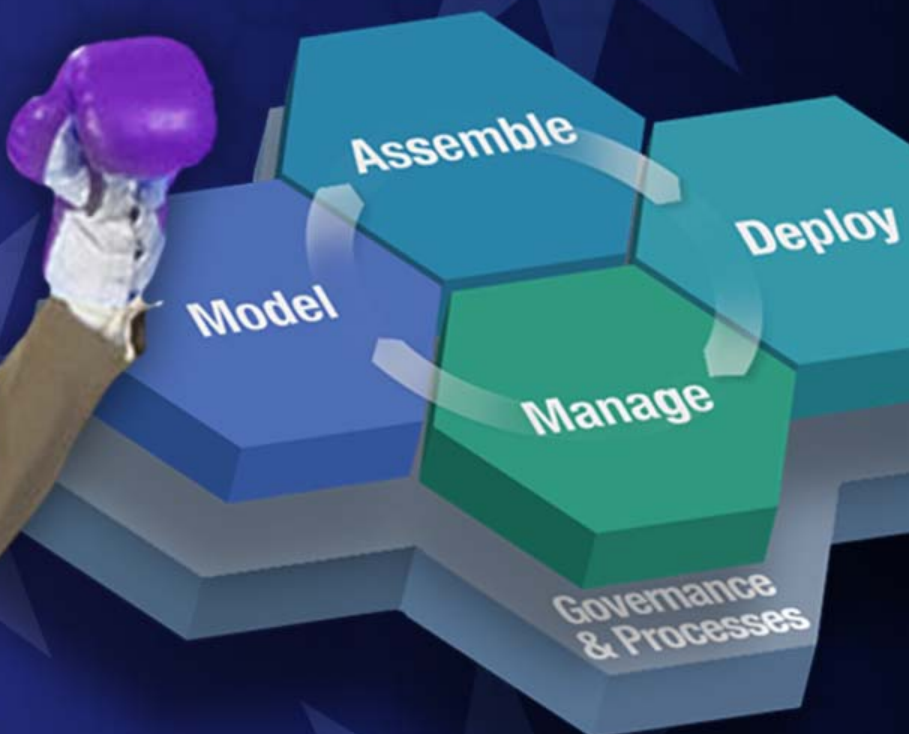


IBM SOA Architect Summit



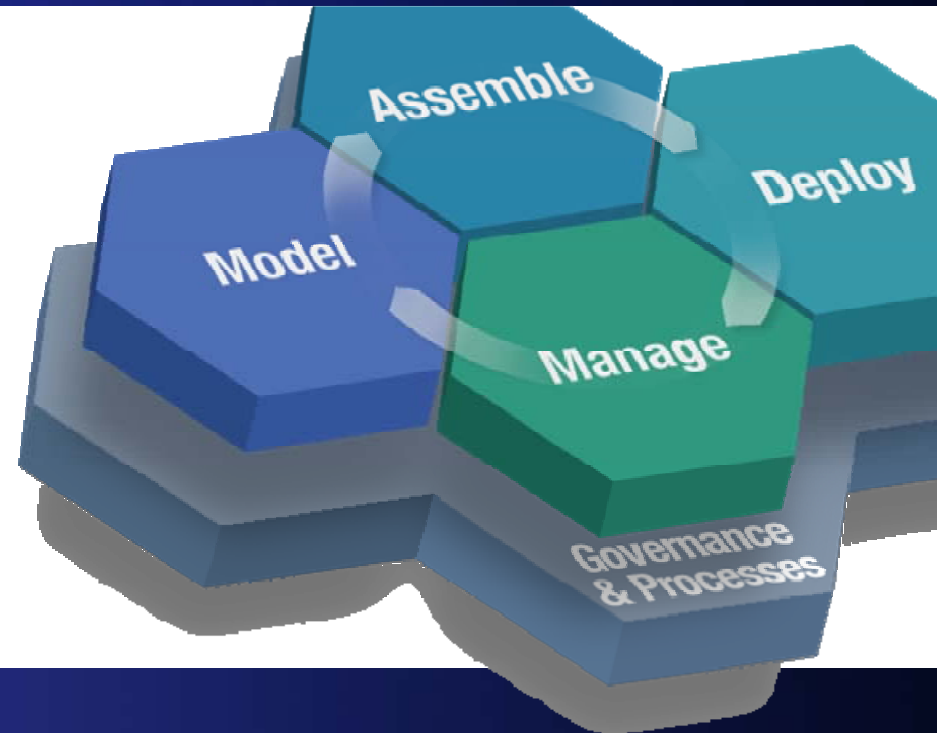
SOA on your terms and our expertise



IBM SOA Architect Summit

Deploy: The SOA Operating Environment

**A Presentation for the
Enterprise Architect**

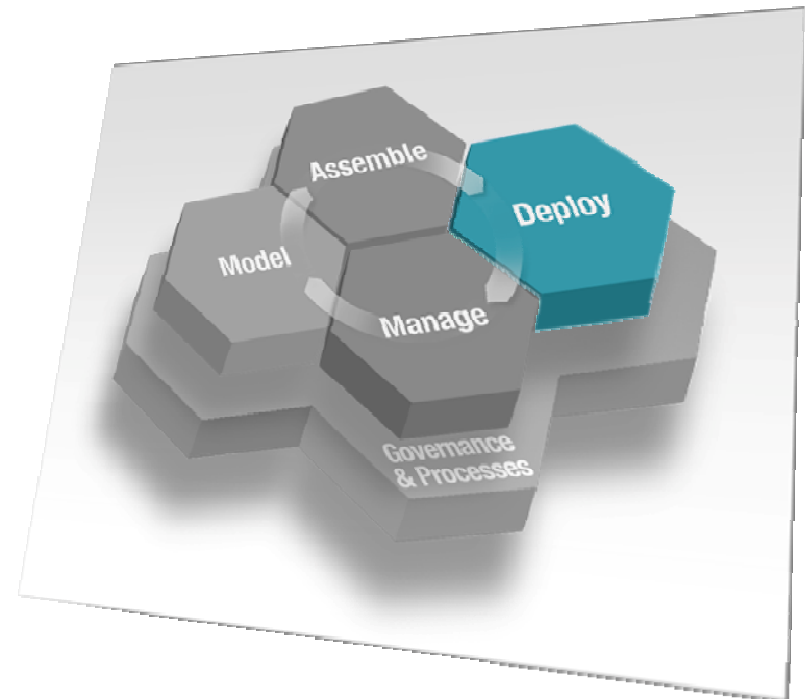


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Agenda

- SOA Operating Environment Requirements
 - What is unique about an SOA Operating Environment?
- SOA Operating Environment Key Principles
- Mapping to the IBM Products



SOA Brings New Operating Environment Requirements

Model

Assemble

Deploy

Manage



“What *new* capabilities do I need to deploy SOA solutions?”



“How can I manage the flexible work load, while keeping the SLA?”

“Why do I need an ESB? How is it different from EAI?”

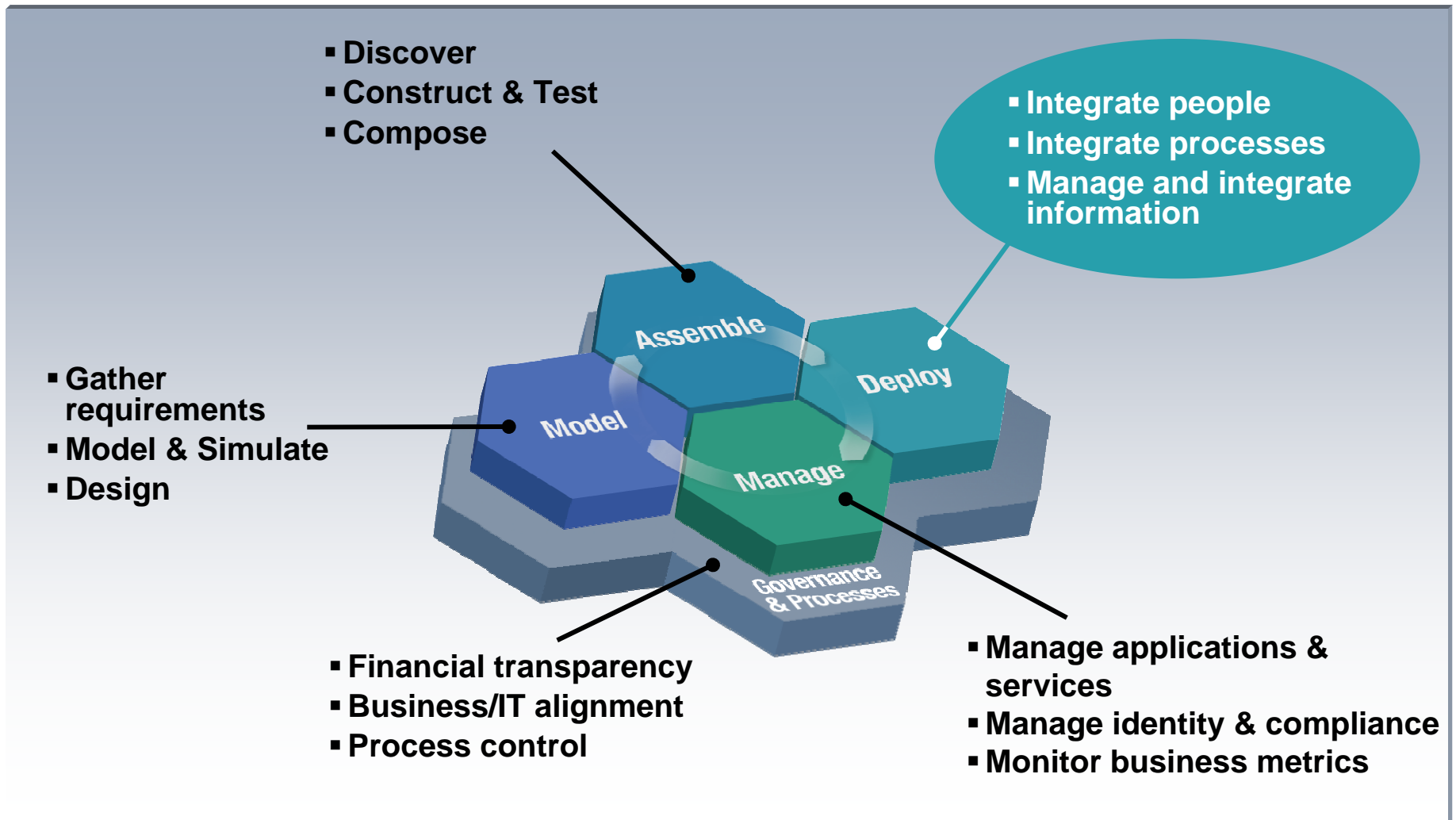
“How do I deploy services while adhering to *separation of concerns principle?*”



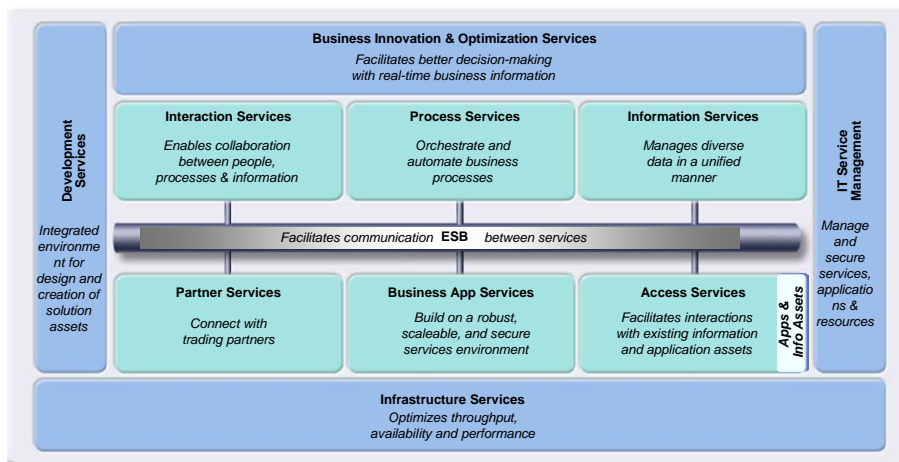
“Some of our services are used by our partners. Where do I place them in the Operating Environment?”

“What capabilities do I need to effectively reuse existing assets?”

SOA Operating Environment for Composite Applications



IBM's SOA Ref Arch and its Key Principles for IT Flexibility

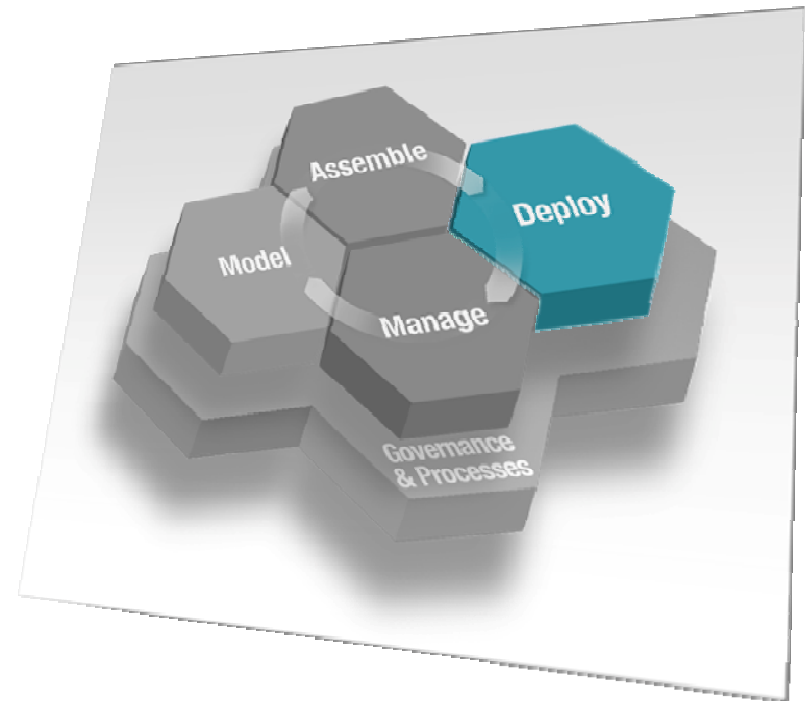


- Open Standards
- Linkage between business and IT
- Component based programming and solution development
- Separation of Concerns
- Connectivity and Loose Coupling
- Composite Applications & Reuse
- QoS
- Business and IT level monitoring and management

The IBM SOA Reference Architecture provides the level of **IT flexibility** required to meet the demands of **Business**

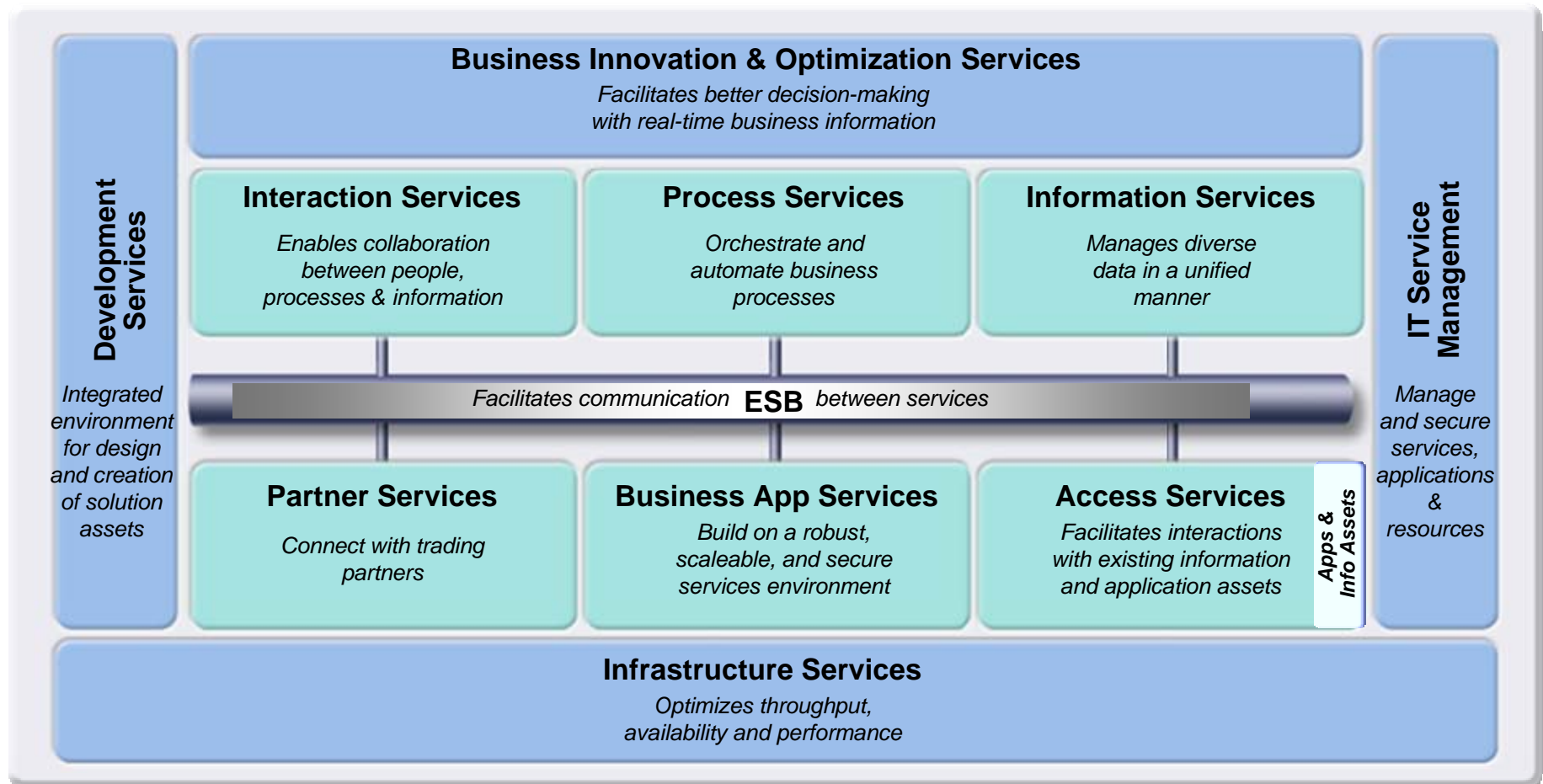
Agenda

- SOA Operating Environment Requirements
- SOA Operating Environment Key Principles
 - Separation of Concerns
 - Loose Coupling
 - Reuse
 - QoS
- Mapping to the IBM Products

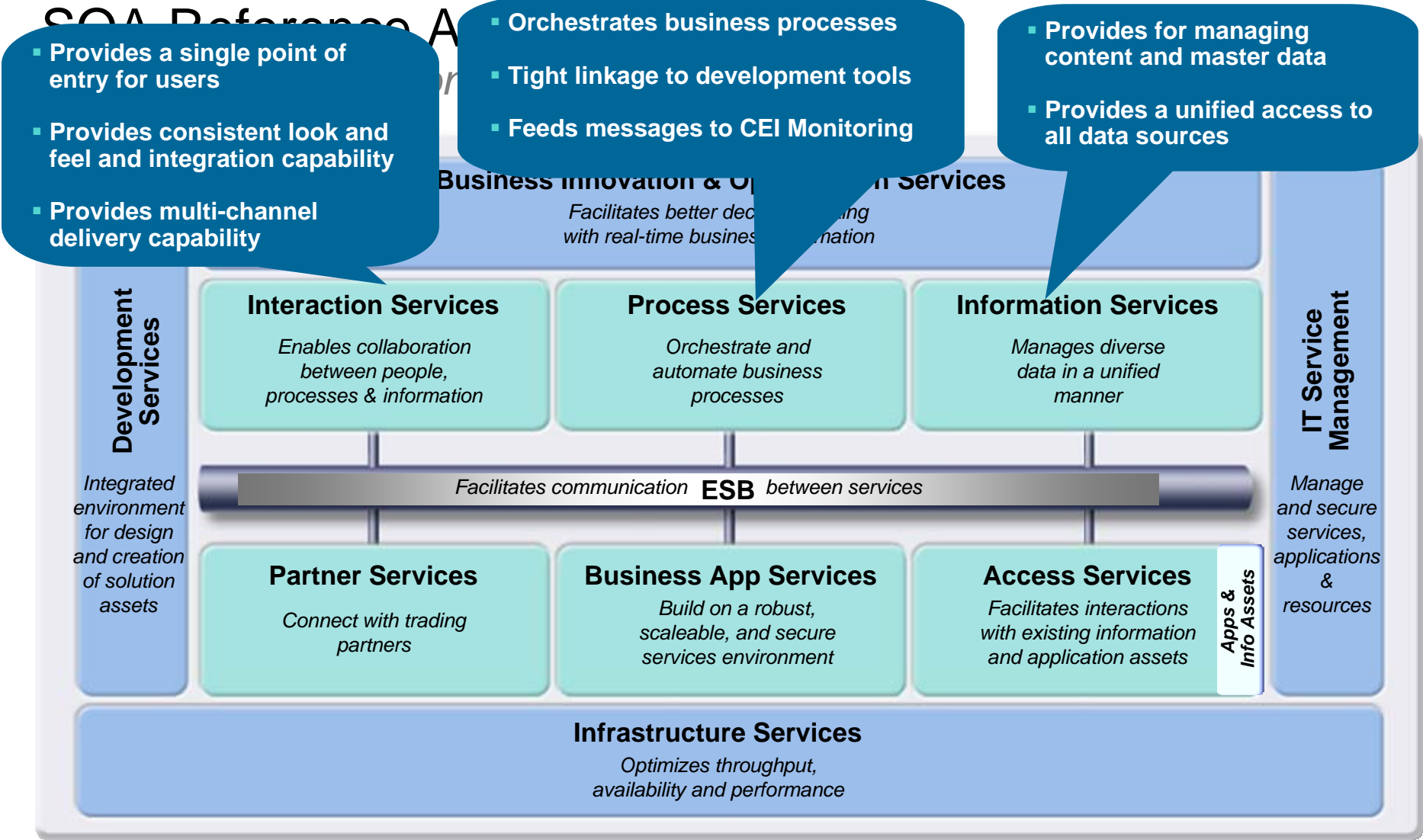


SOA Reference Architecture

Supporting Separation of Concerns

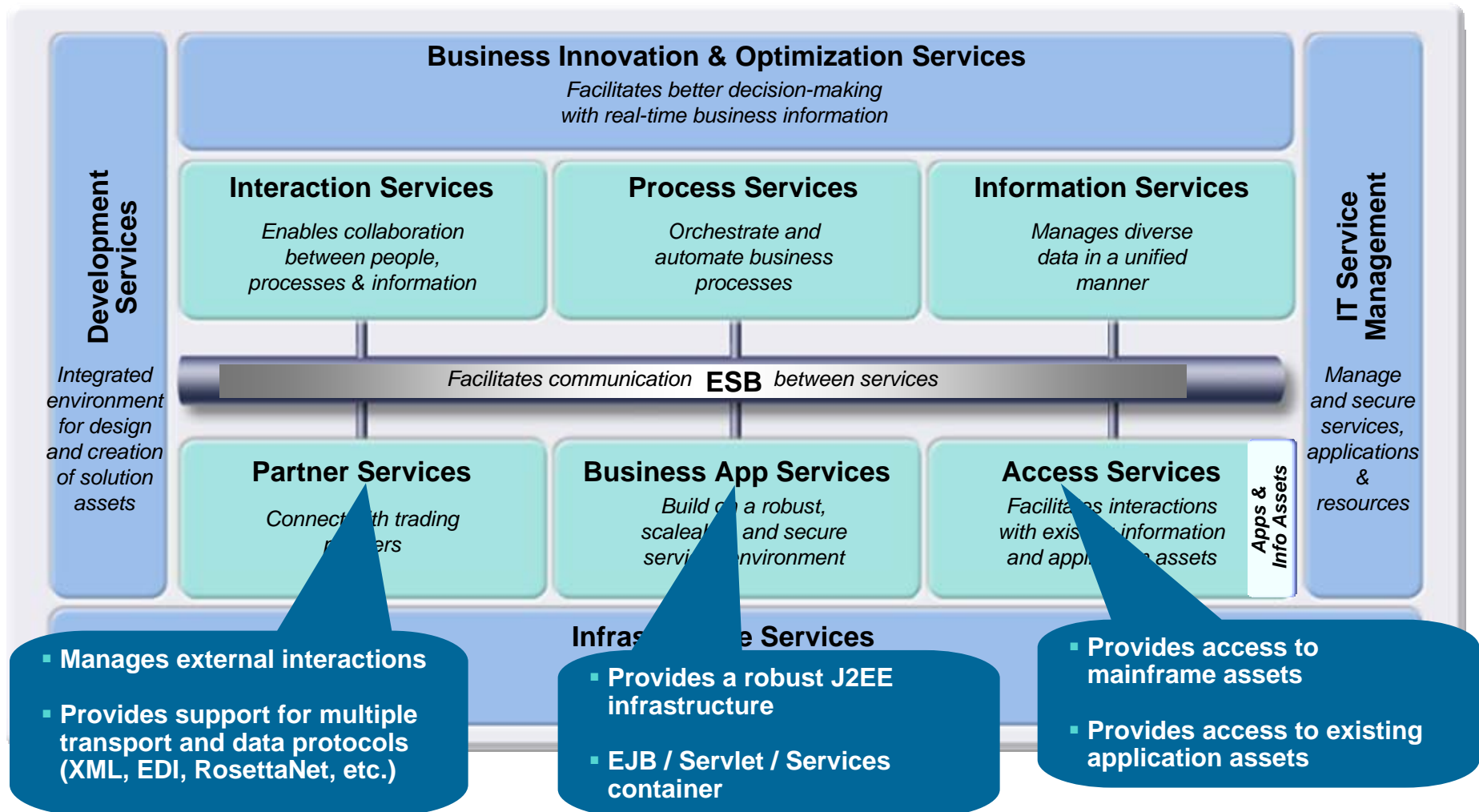


SOA Reference Architecture



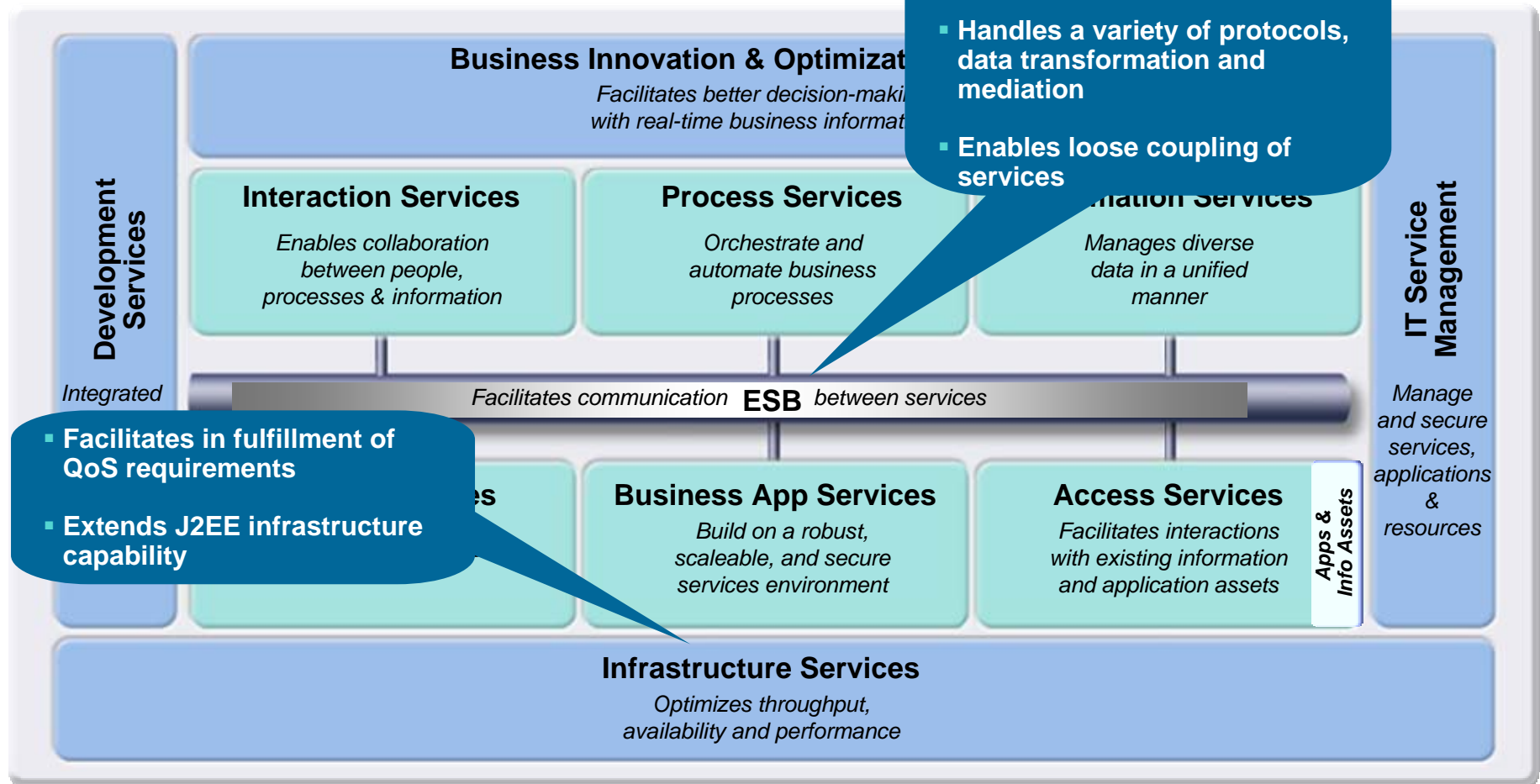
SOA Reference Architecture

Supporting Separation of Concerns



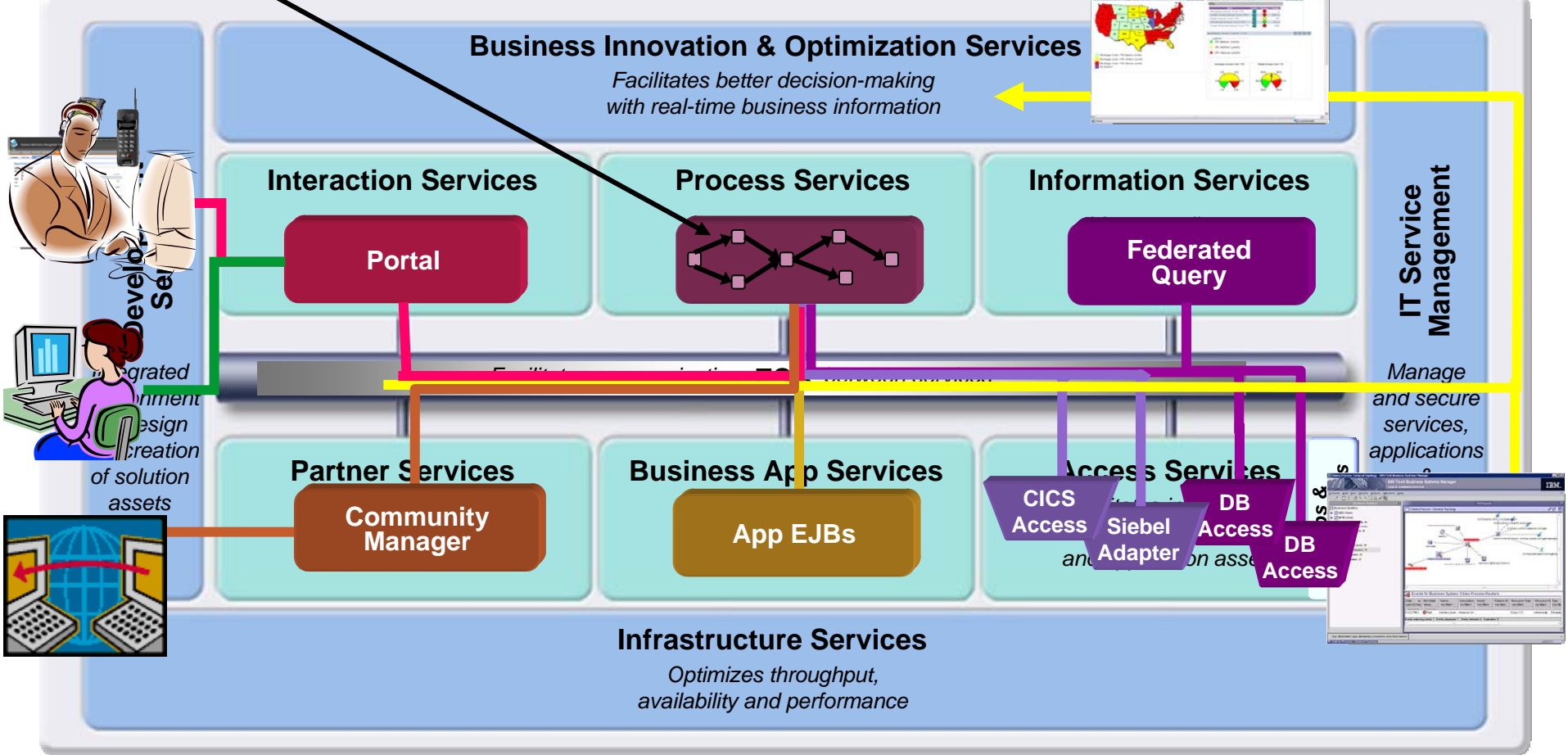
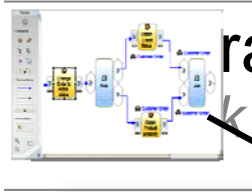
SOA Reference Architecture

Supporting Separation of Concerns

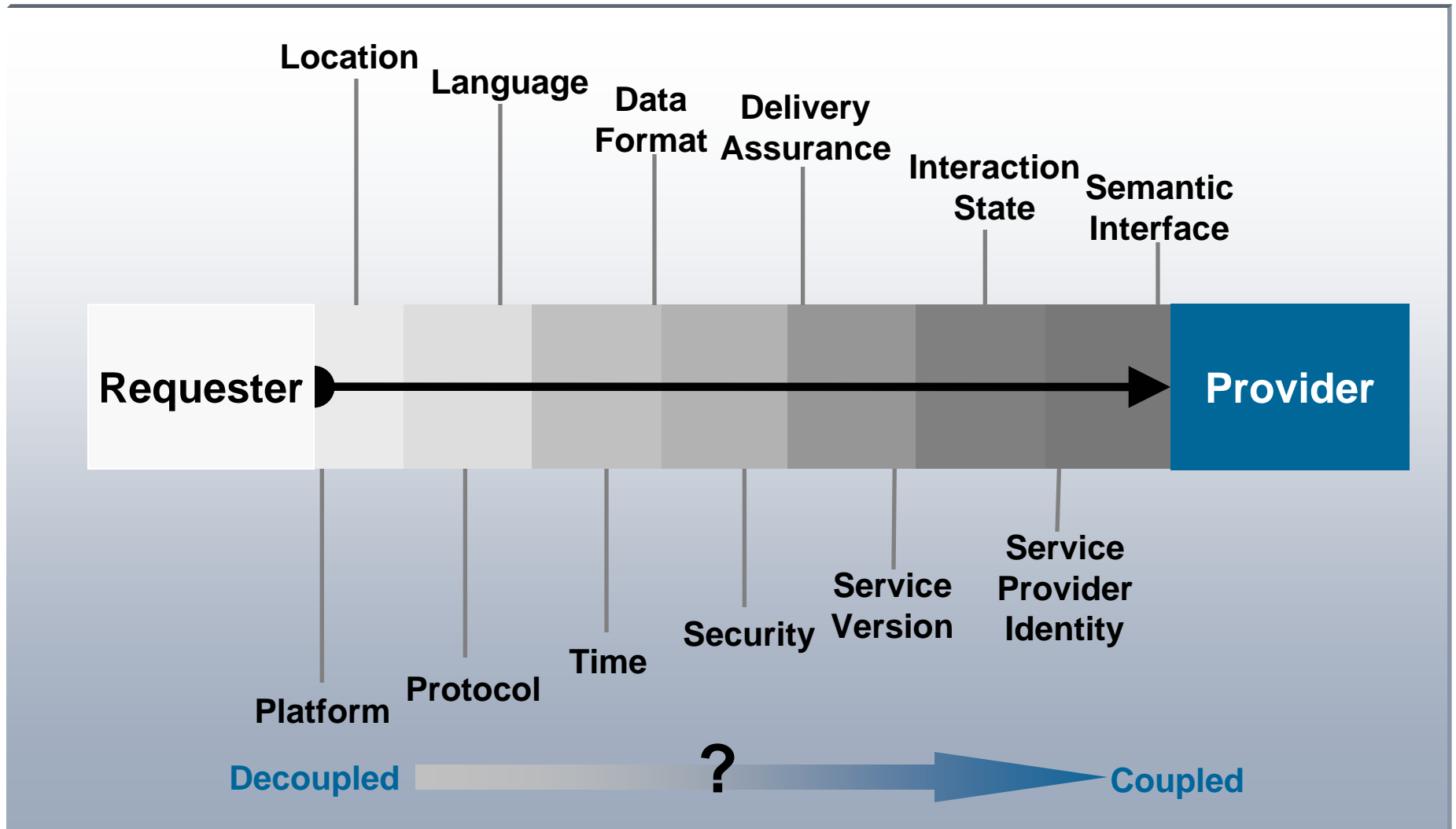


Integration of Concerns

Walk thru using JK Enterprises – Account Open



Loose Coupling Impacts Services Interactions



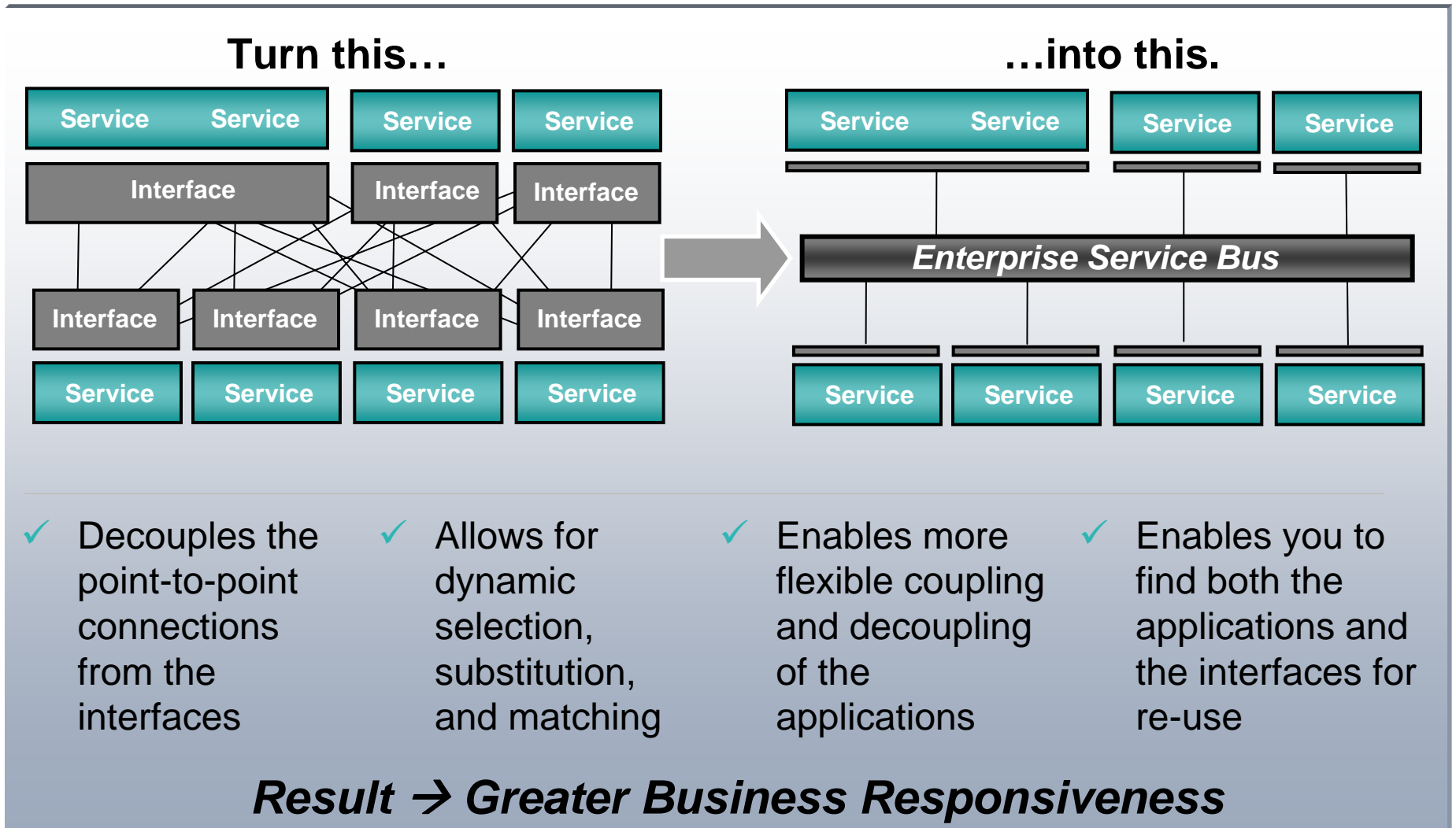
Why Loose Coupling?

- Tighter coupling tends to cost more over time:
 - Synchronizing multiple organizations on change
 - Adapting, redeploying updated components without affecting others
 - Making changes is hard and expensive, or impossible:
 - Knowledge is distributed throughout the code
 - Same people are solving business and infrastructure problems
 - Different parts of the solution are difficult to manage separately
 - Hard to move, hard to scale, hard to distribute, hard to replace
 - More coupling implies more expensive testing
- Looser coupling requires greater investment up front:
 - More design work
 - More implementation work

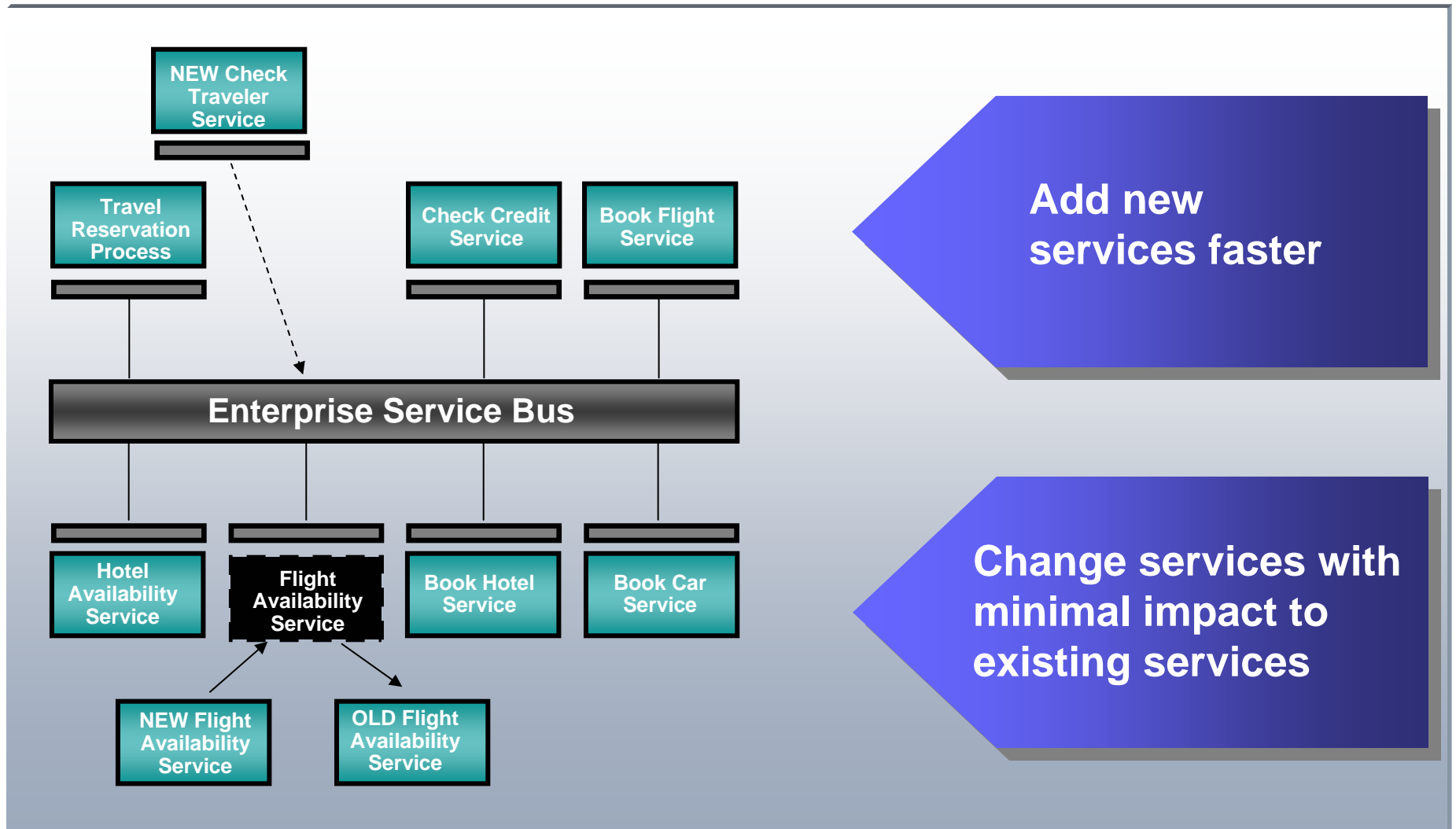
Several service elements must be considered when thinking about coupling:

- Service
- Message
- Interface
- Contract
- Policy
- Conversation
- State
- Transactions
- Process

Loose Coupling is Enabled By an “ESB”



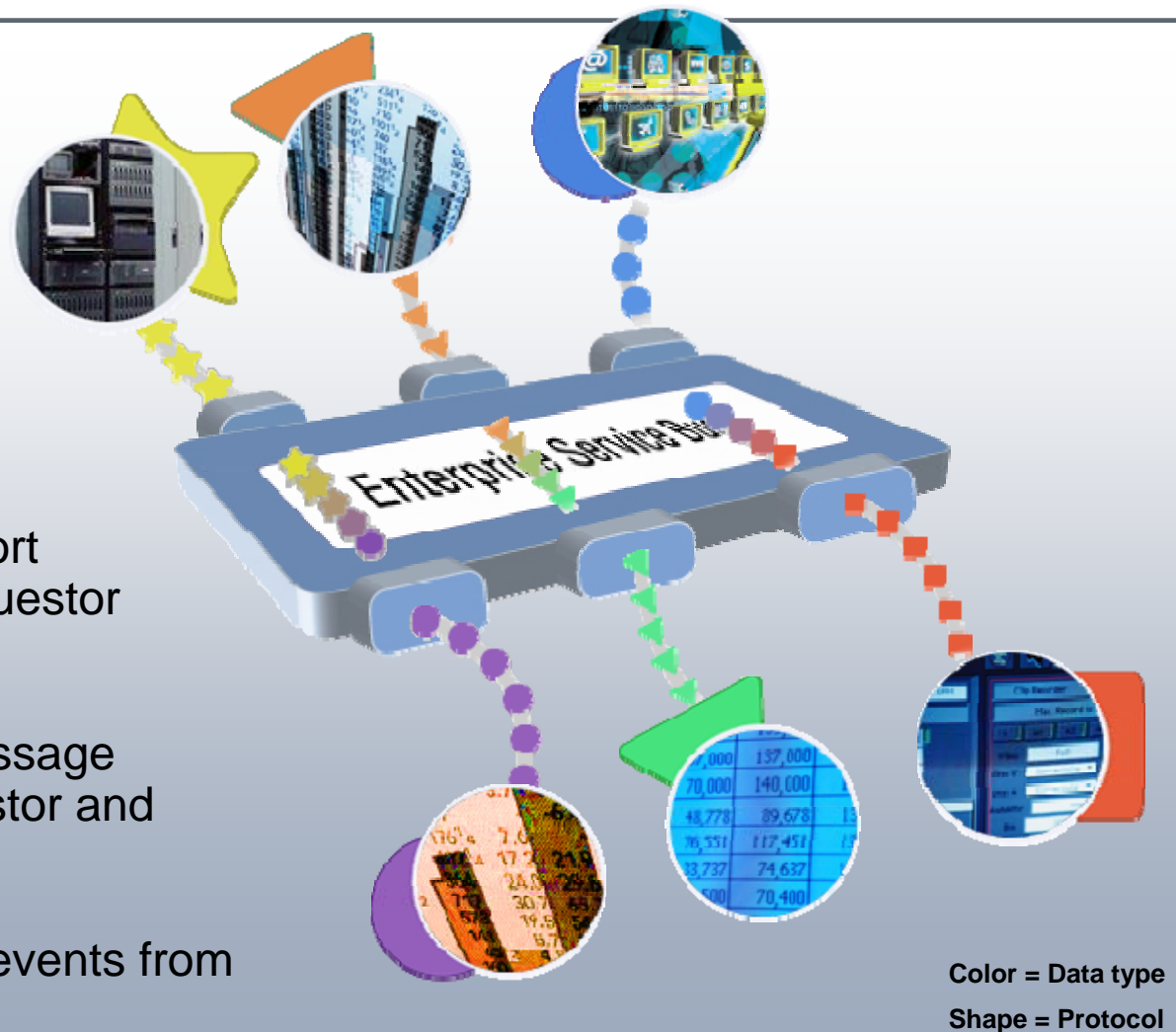
An “ESB” Provides for Flexibility & Reuse



What is an Enterprise Service Bus (ESB)?

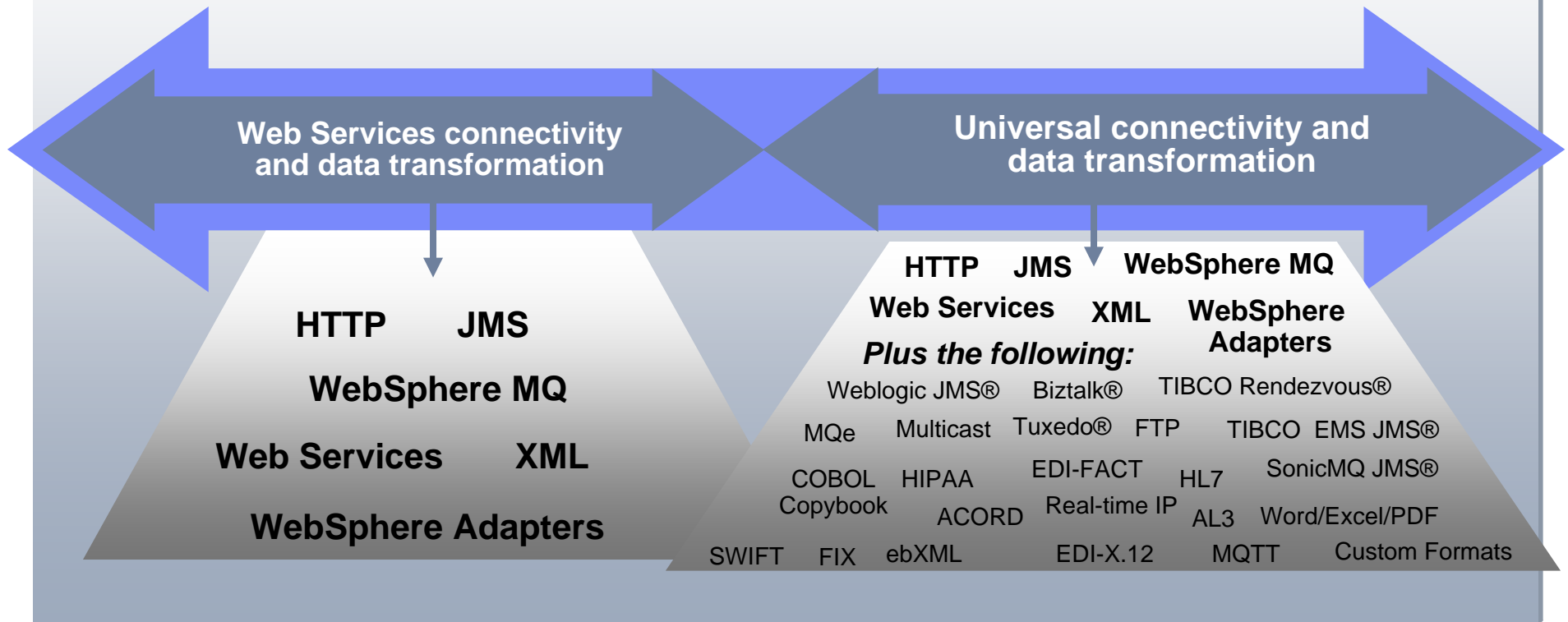
Flexible connectivity infrastructure for integrating applications and services to power your SOA

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



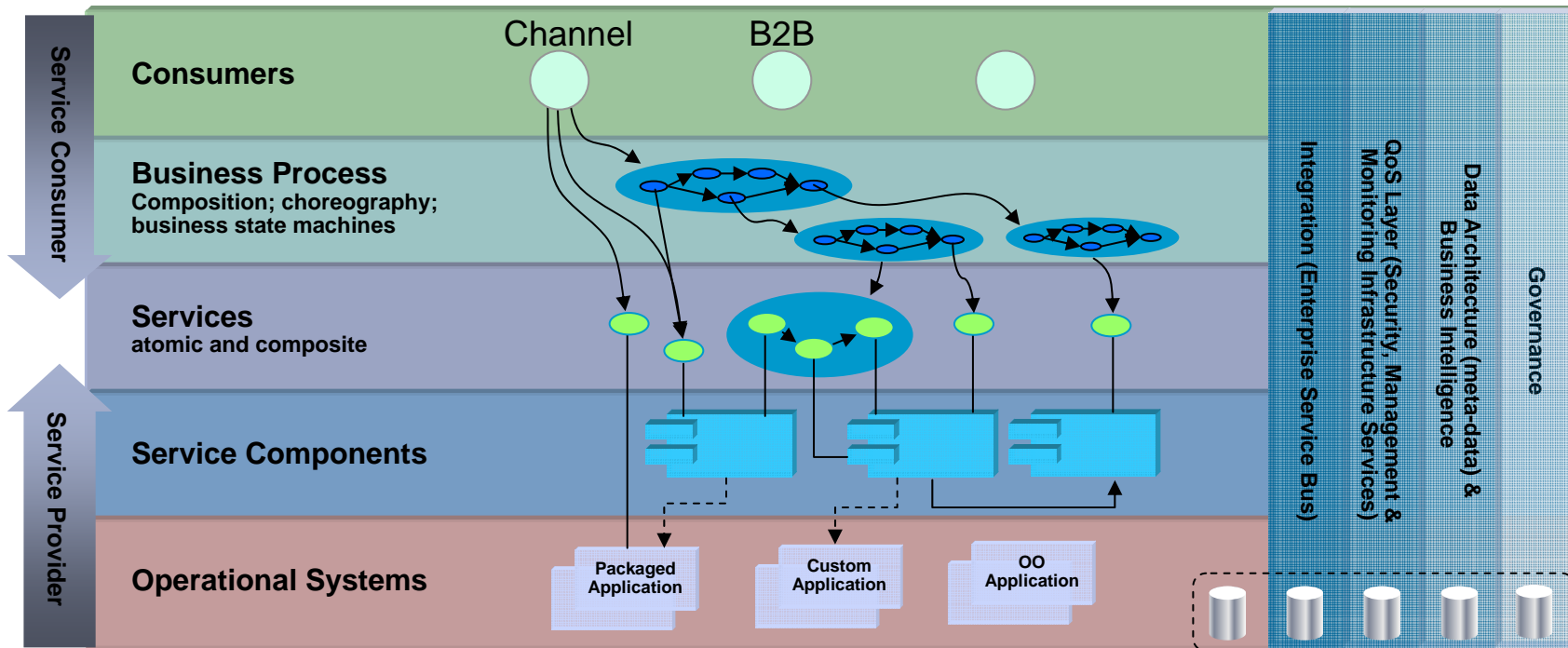
ESB Capabilities

Develop ESB Infrastructure capability in a continuum on an as-needed basis



SOA Solution Abstraction Layering

Leveraging the SOA Reference Architecture



Composite Applications and Reuse

Multiple Platforms



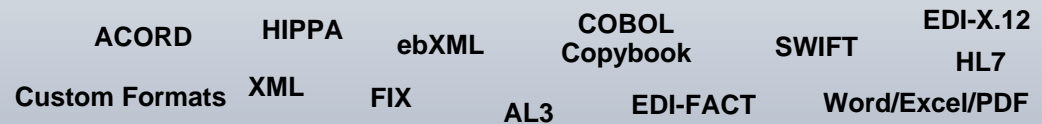
Programming Models



Programming Languages



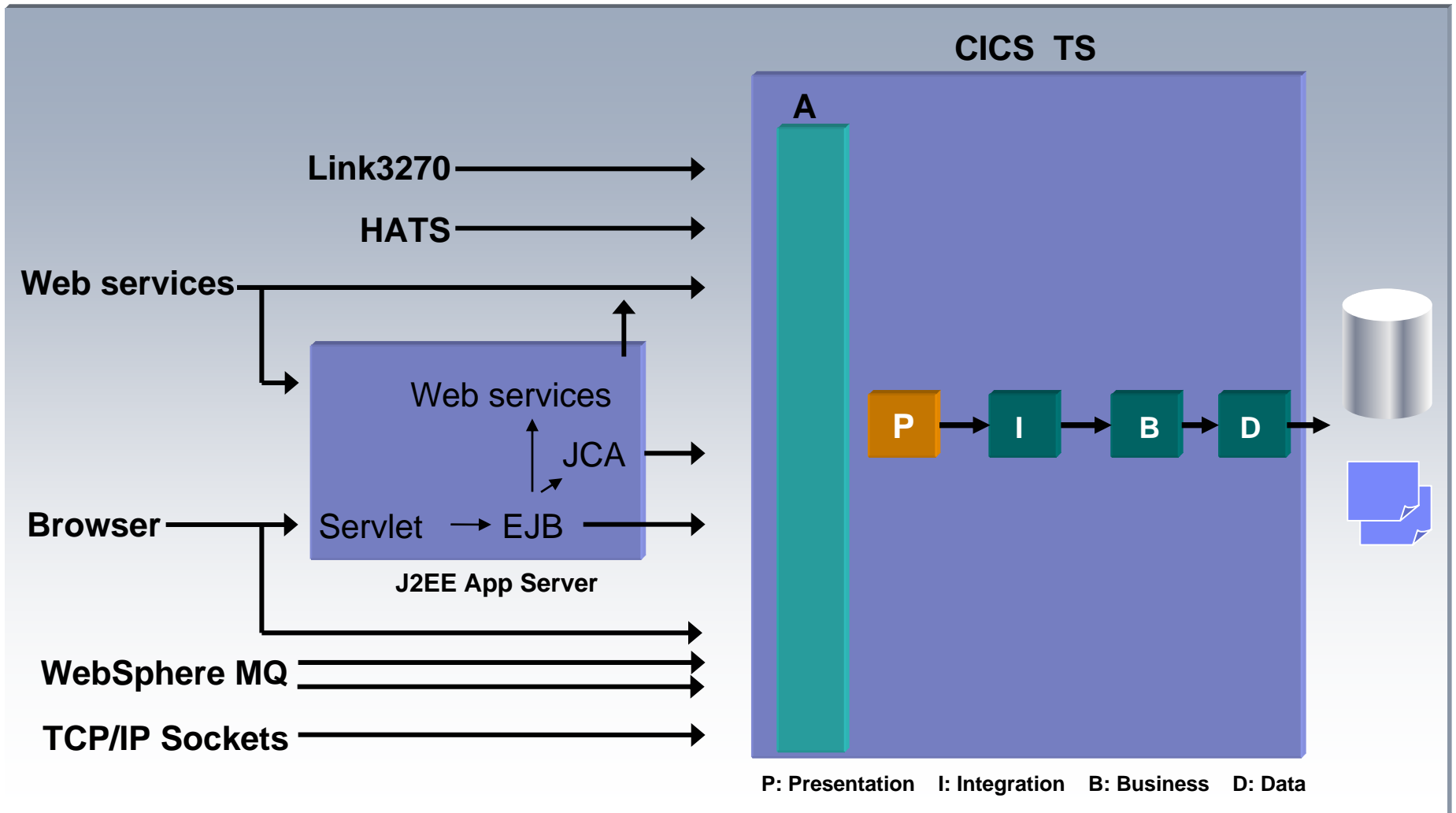
Variety of Standards & Message Formats



Range of Scale and Scope

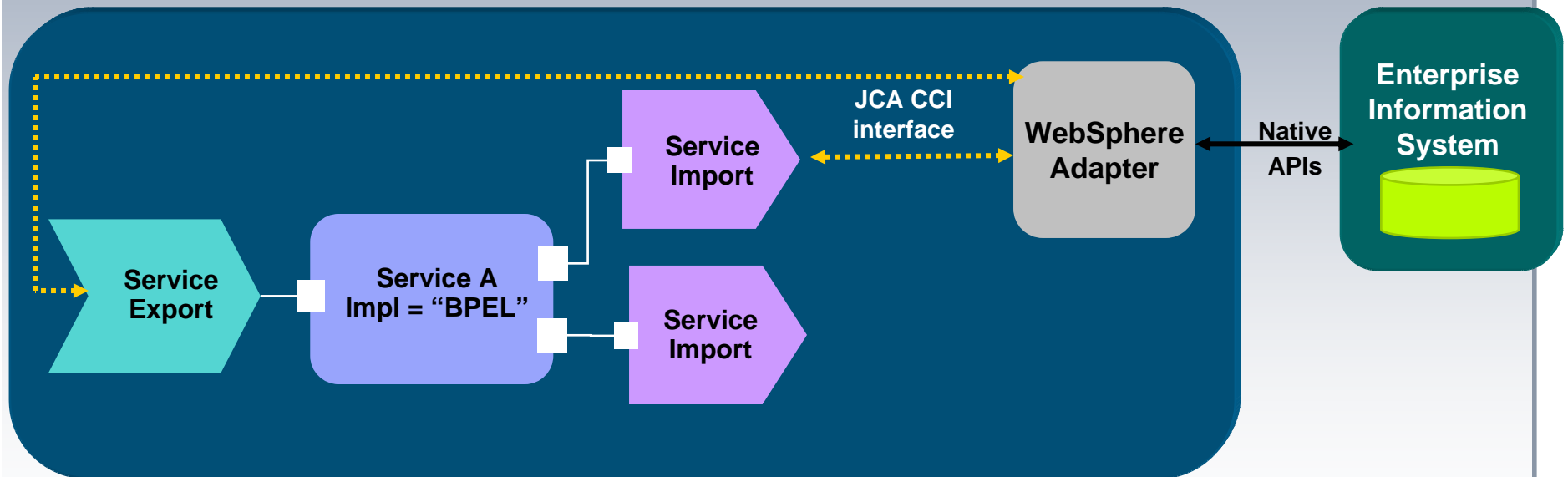
Levels in Service Quality

Integrating with CICS Applications



Integrating with Disparate Applications Using Adapters

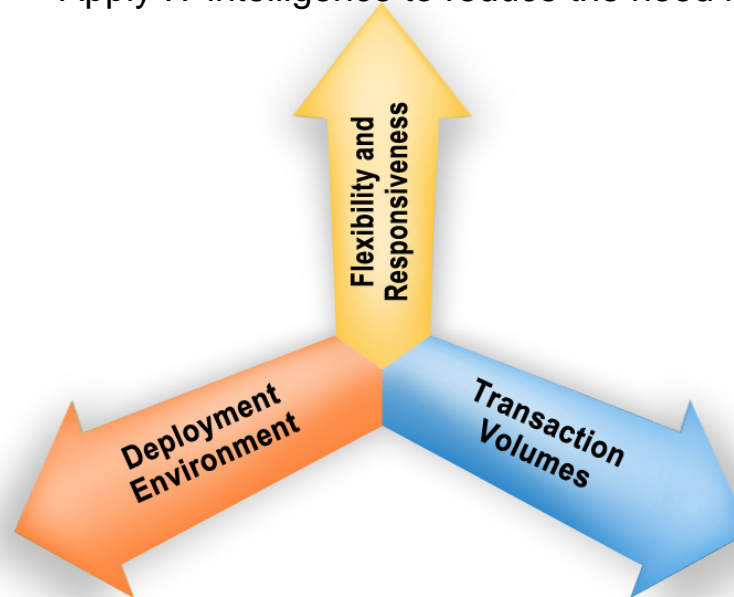
JCA 1.5 Adapter Deployment Architecture



QoS Considerations

Dynamic Operations

- Adapt to business changes automatically
- Performance goals for differing workloads
- Apply IT intelligence to reduce the need for manual intervention



Extended Manageability

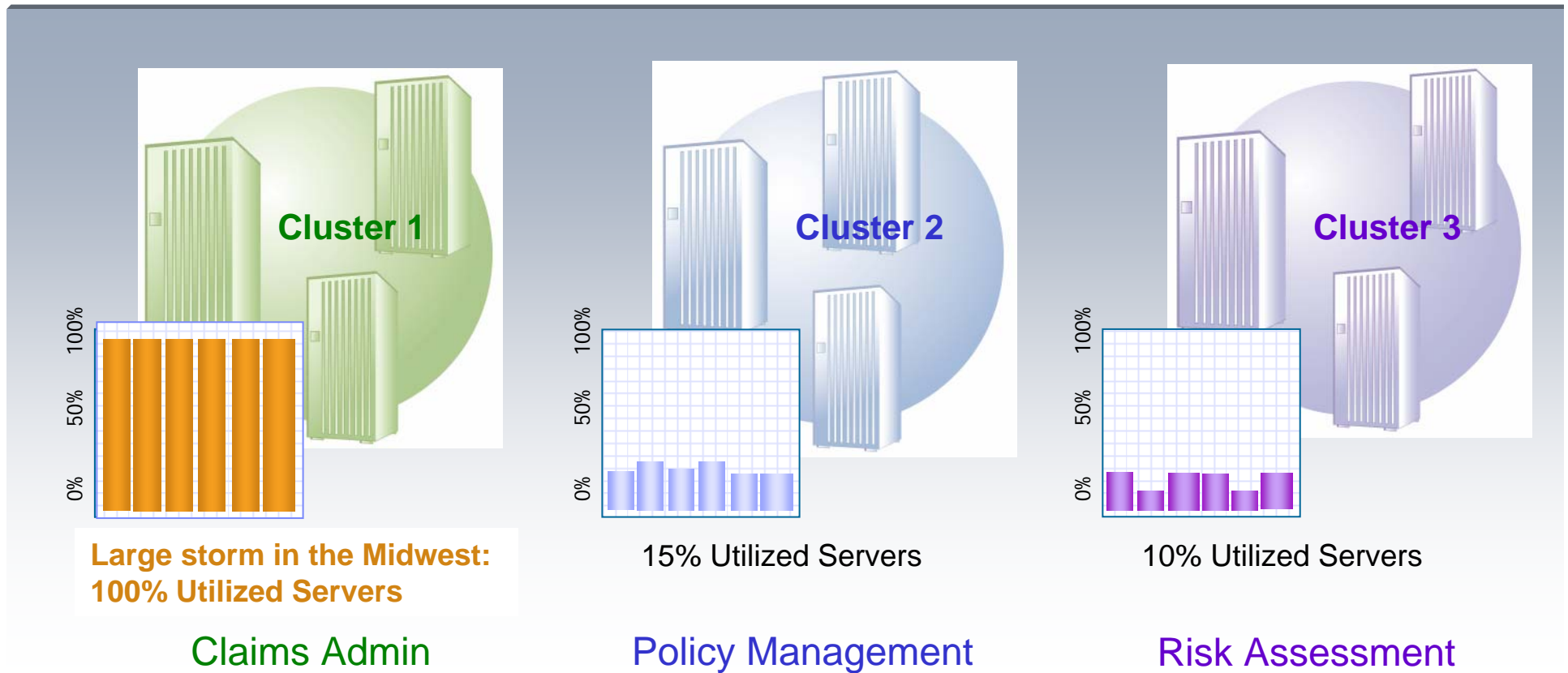
- At-a-glance system assessments for health and vitality

High Performance Computing

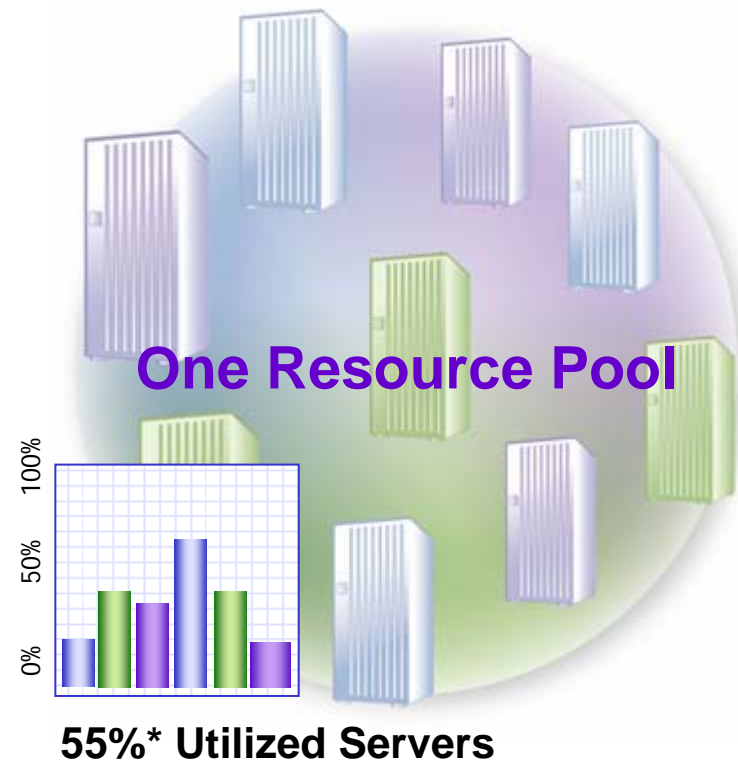
- Optimize your transactions for improved performance and availability

Traditionally, We Have Implemented Solutions in Static Clustered Environments

Insurer sees a surge in claims during the summer driving season



Resource Virtualization Maximizes Utilization *And Improves Responsiveness of SOA Solutions*



Claims Admin

Policy Management

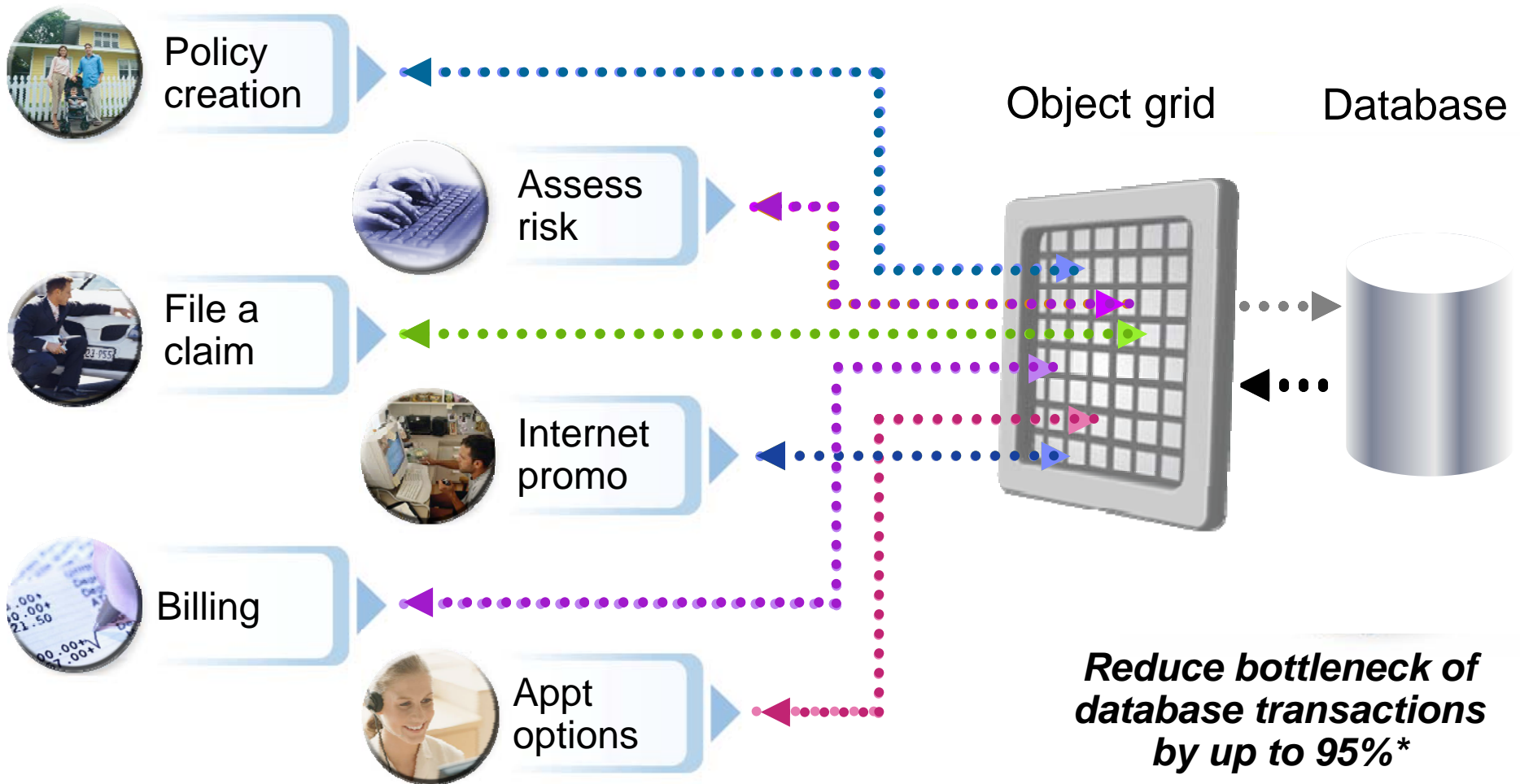
Risk Assessment

Customer Support

Billing

* Hypothetical, for illustrative purposes only

Maximizing Transaction Throughput, Reliability, and Performance Thru Caching/Object Grid Technology



Reduce bottleneck of database transactions by up to 95%*

* Based upon IBM customer experience

High Performance Computing – Bottleneck Scenario

Customer Scenario: Equity Trading System

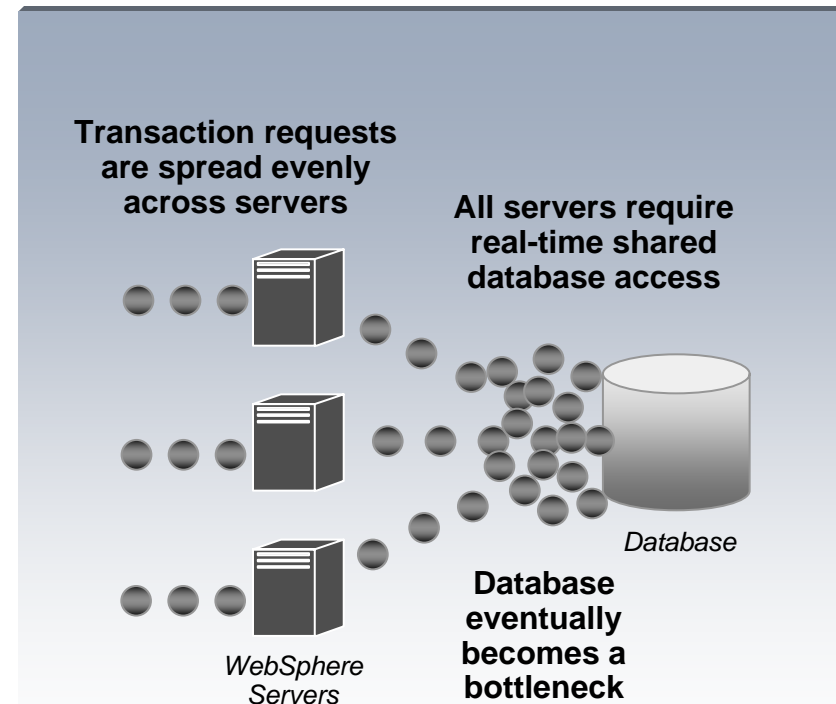
Conventional Distributed Environment

■ Environment

- High application transaction volumes and database hits
- High growth rate
- Large number of distributed servers, prefer to scale linearly for additional capacity
- Continuous availability

■ Challenges:

- Transaction volumes are limited by database access
- Scaling to accommodate growth requires significant system reconfiguration to ensure high transaction speeds



High Performance Computing Using Partitioning Facility

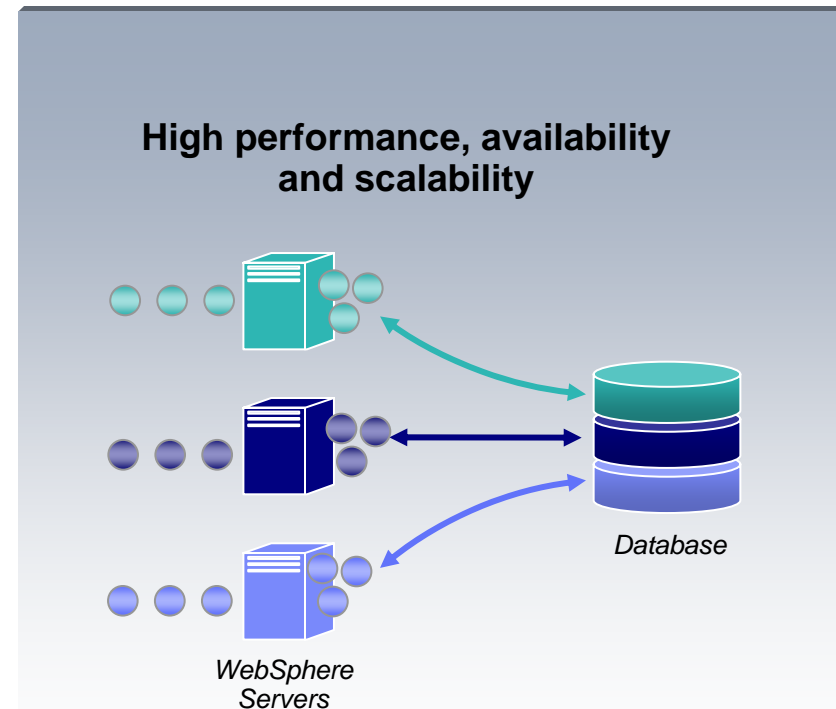
Customer Scenario: Equity Trading System

■ High Performance Computing Capabilities

- Dynamic data partitioning and re-partitioning
- High end caching
- Workload management
- Autonomic high availability management

■ Results

- Consistently low response times
- 99.999% availability (Class 5)
- Linear scalability on commodity hardware



SOA Operating Environment

Quality Considerations

Flexibility for heterogeneous environment

- Efficiently support mixed workloads
- Effectively enable quality of service management for a mixed application servers and data sources

Optimizing the performance and throughput of transactions

- ObjectGrid, a caching fabric which enables object data to be shared among multiple clients
- Partitioning facility enables the development of highly scalable, high performance J2EE applications

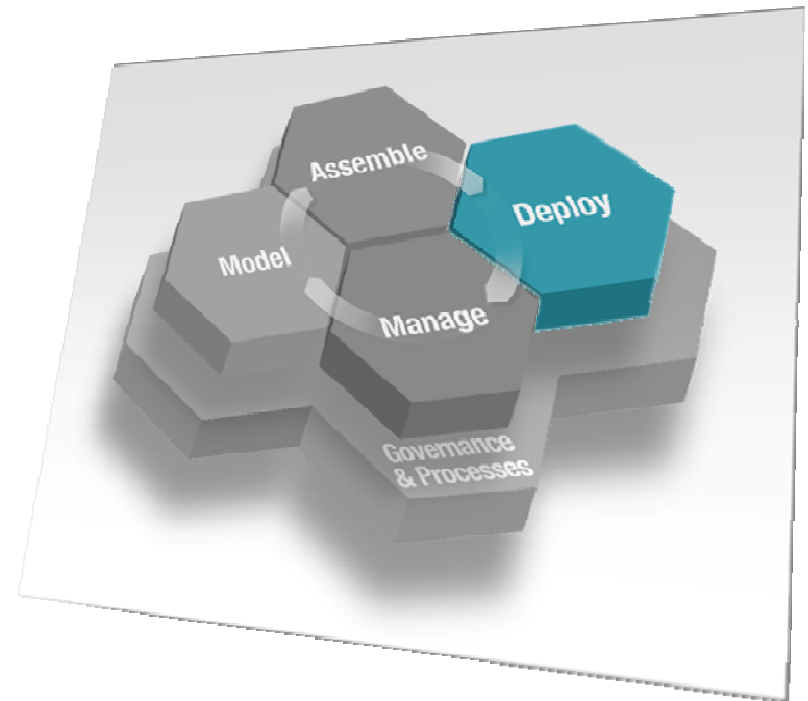
Enhanced manageability

- At-a-glance assessments of system vitality and improved application manageability
- Interruption-free application updates to manage the deployment of multiple application versions

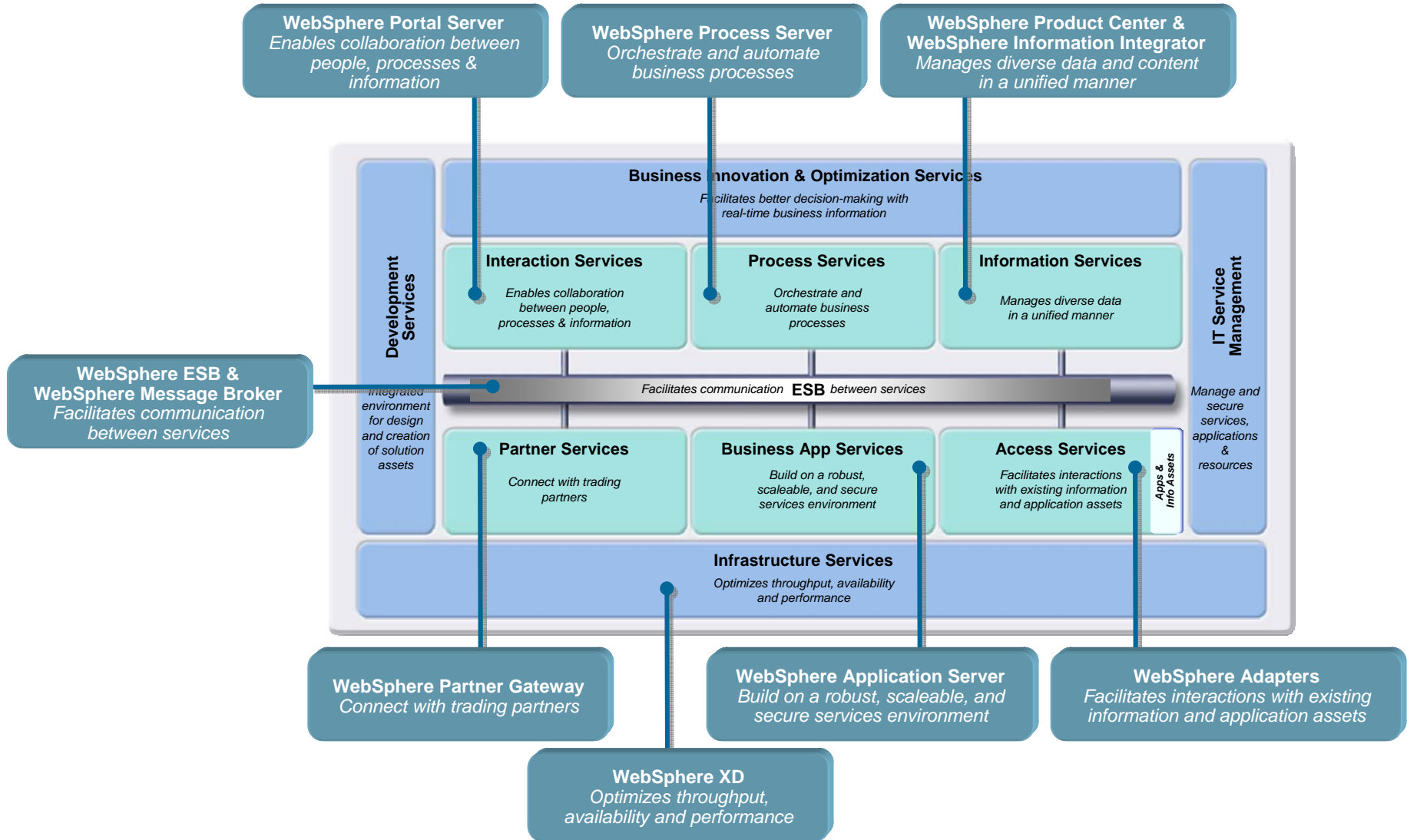


Agenda

- SOA Operating Environment Requirements
- SOA Operating Environment Key Principles
- Mapping to the IBM Products
 - WebSphere Products in the Operating Environment
 - Unique “runtime” demands



SOA Operating Environment – Mapping to IBM Offerings



Summary

- SOA Operating Environment brings in new considerations at deploy time
- SOA reference architecture enables separation of concerns
- ESB provides for loose coupling & flexibility
- Composite Applications enable the reuse of existing assets
- SOA QoS considerations are same as traditional applications but may manifest differently in the infrastructure

धन्यवाद

Hindi

多謝

Traditional Chinese

ขอบพระคุณ

Thai

Спасибо

Russian

Gracias

Spanish

شكراً

Arabic

Thank You

Obrigado

Brazilian Portuguese

Danke

German

Grazie

Italian

多谢

Simplified Chinese

Merci

French

நன்றி

Tamil

감사합니다

Korean

ありがとうございました

Japanese

IBM SOA Architect Summit



SOA on your terms and our expertise

Useful Links

Primary resources:

www.ibm.com/services/soa

IBM On Demand Operating Environment and SOA

<http://www.ibm.com/software/info/openenvironment/soa>

IBM Web services portal

<http://www-3.ibm.com/software/solutions/webservices/>

WebSphere Web services zone

<http://www7b.software.ibm.com/wsdd/zones/webservices/>

Web services training and education

<http://www-3.ibm.com/software/solutions/webservices/education.html>

DB2 and Web services developer domain

<http://www7b.software.ibm.com/dmdd/zones/webservices/>

Web services documentation and white papers

<http://www-3.ibm.com/software/solutions/webservices/documentation.html>

SOA and Web services zone

<http://www.ibm.com/developerworks>

Redbooks

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Speed-start Web services

<http://www.ibm.com/developerworks/offers/we-speed-start/>