Mission Critical SOA with Connectivity and Reuse

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Pain Points for the IT Exec

Business Challenge

- How flexible and responsive are you in addressing new business opportunities?
- What is your productivity rate in rolling out new projects?
- Can you show how IT functions deliver value to business?
- Can you reduce the risk associated with IT projects?

Technical Challenge

- How much are you spending on your IT budget today, and where is it spent?
- What is your plan for creating new IT assets using the latest standards
- How can you make the modernize existing assets to increase return on investment?
- How much reuse are you currently achieving?
- Can our key business applications exchange information with other critical systems?

Personal Challenge

- How do you make the most of your current IT skills and resources?
- How can you improve your Service Level Agreements?
- Can you demonstrate effective governance and control of your infrastructure?

Mission Critical SOA from IBM

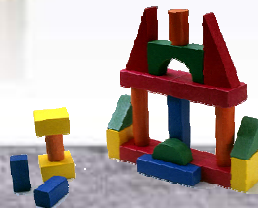**Take your SOA from Playtime…   …to Showtime!**

SOA from IBM

Mission Critical SOA from IBM

- **Scalable**
- **Flexible**

- **Robust**
- **Connected**

- **Secure**
- **Governable**

- **Reusable**
- **Manageable**

Can your SOA be described as Mission Critical if it can't match your business needs?
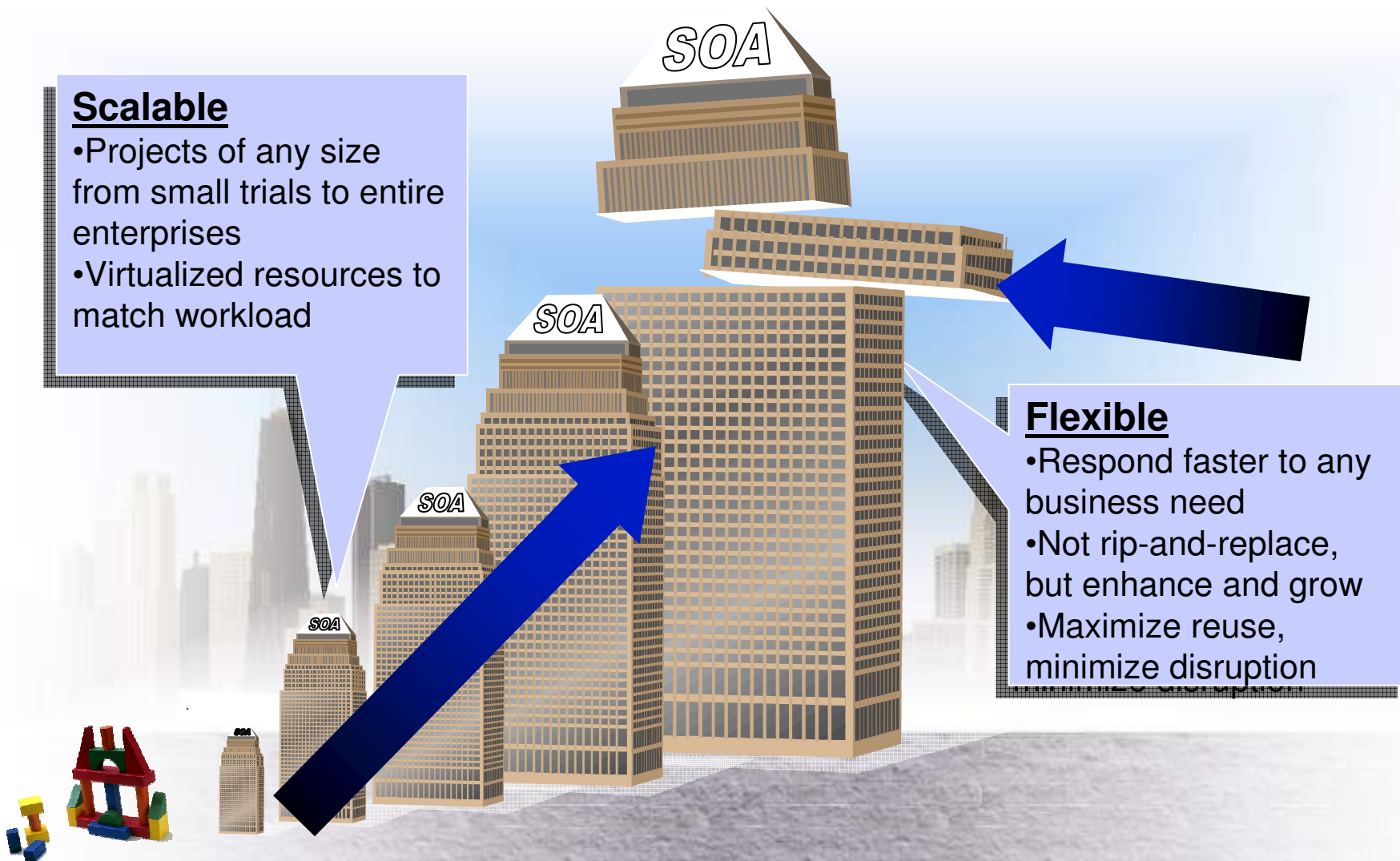
Will it stay as a toy in the sandbox?

Mission Critical SOA from IBM

Scalable
- Projects of any size from small trials to entire enterprises
- Virtualized resources to match workload

SOA

SOA

SOA

SOA

Flexible
- Respond faster to any business need
- Not rip-and-replace, but enhance and grow
- Maximize reuse, minimize disruption

Mission Critical SOA from IBM

SOA

Robust
•Founded on market leading technologies
•Transactional co-ordination offering end-to-end integrity across multiple resources
•Proven by 10000's of customers

Well Connected
•Universal connectivity to virtually any commercial IT system from sensors to mainframes
•Hardware and software ESB deployment options optimised for SOA

ESB

Mission Critical SOA from IBM

SOA

Secure
- Secure information end-to-end between applications and systems
- Visibility to security operations and management

Planned & Governable
- Assets located and accessible seamlessly anywhere in the enterprise
- Policy based definition and control of services

Mission Critical SOA from IBM

Manageable
• Audit trails for compliance reporting without complexity
•Increased application management with reduced operator workload

Reusable
• Maximized reuse of IT assets and skills
•Service enable more of your existing assets
•Not just new standards but any existing assets

SOA

Qualities of Service for Mission Critical SOA

Key attributes for Mission Critical SOA using Reuse and Connectivity

- Ensure end-to-end integrity with built-in transactional coordination

- Simplify your applications by connecting using an ESB

- Grow your business by modernizing existing applications leveraging latest standards for both new and old assets

- Match Workload to Resources with Virtualized SOA Infrastructure

- Qualities of Service matching the business need and transaction content

- Flexible robust and secure infrastructure created using best practices and maintained with available skills
  Build your SOA on poor foundations and your efforts could be wasted

The SOA approach brings together IT and business

With an SOA, you can create a more flexible business. An SOA allows you to:

Connect business processes

Business processes and applications should be:

- Integrated
- Reused to lower costs and improve efficiency
- Used to help employees collaborate and find information

Manage IT like a business

IT services should be:

- Aligned with business demands
- Supportive of the reuse of assets
- Able to support business growth
- Accountable and used to support smart IT decisions
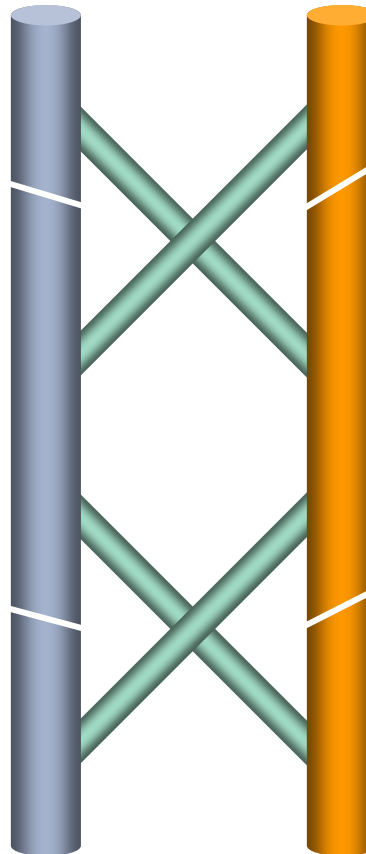
Manage information more effectively

Information should be:

- Your most strategic asset
- Structured to provide insights
- Managed according to business value
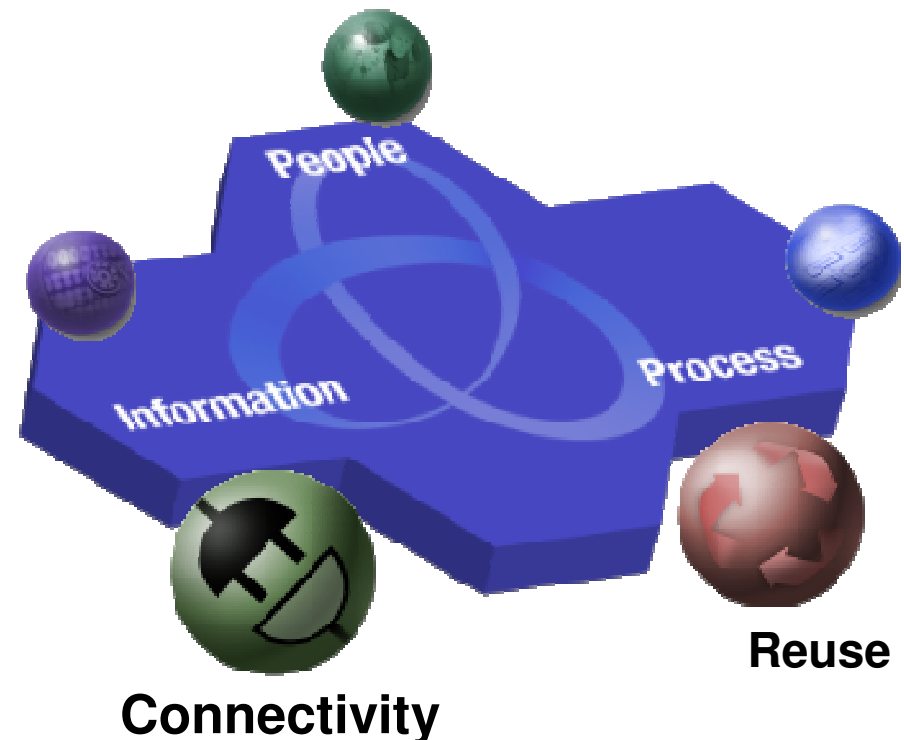- Conducive to forecasting

Maximize performance

IT assets should be:

- High performing
- Fully utilized
- Able to support varying demands
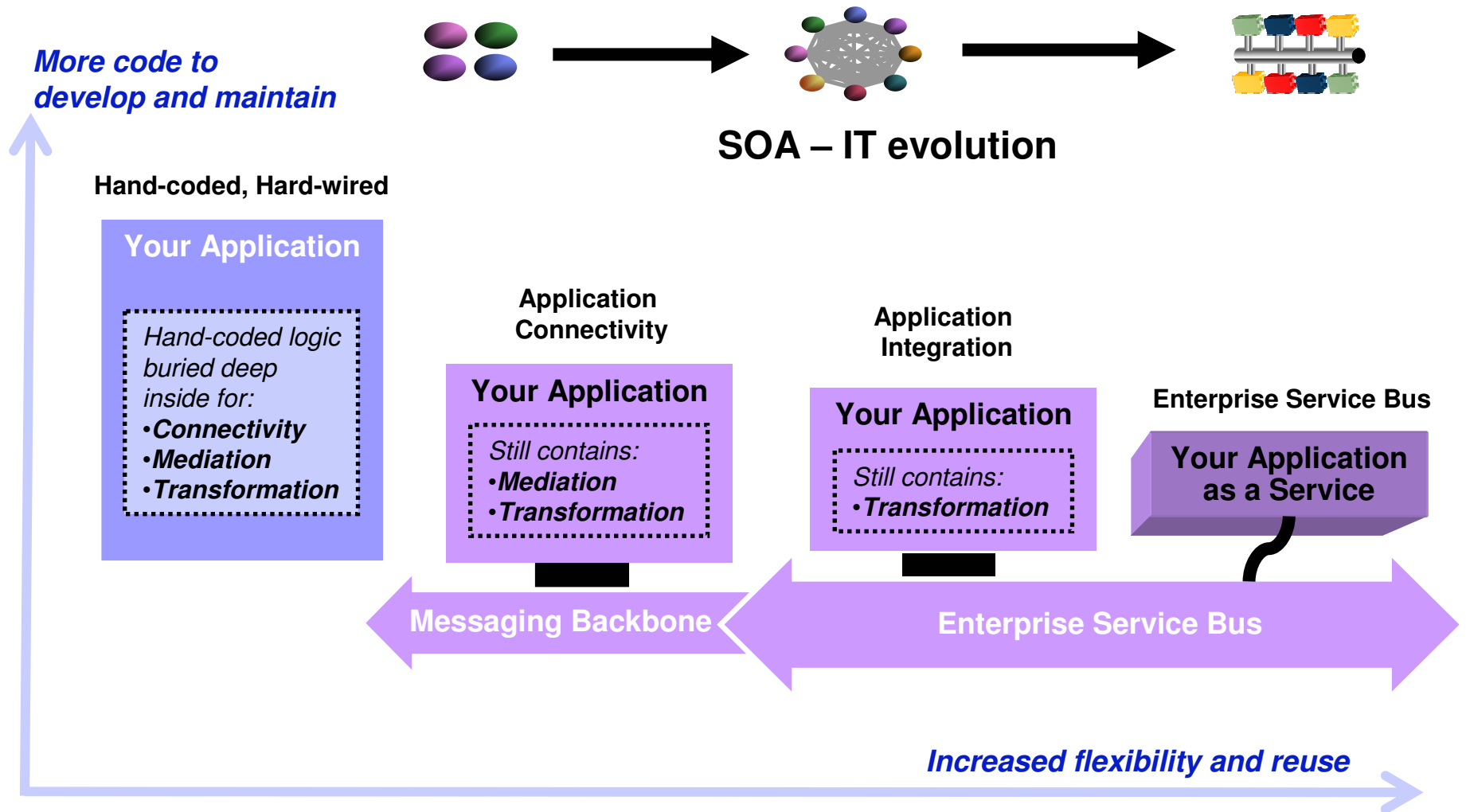- Tested to reduce risk

SOA Entry Points – Connectivity and Reuse

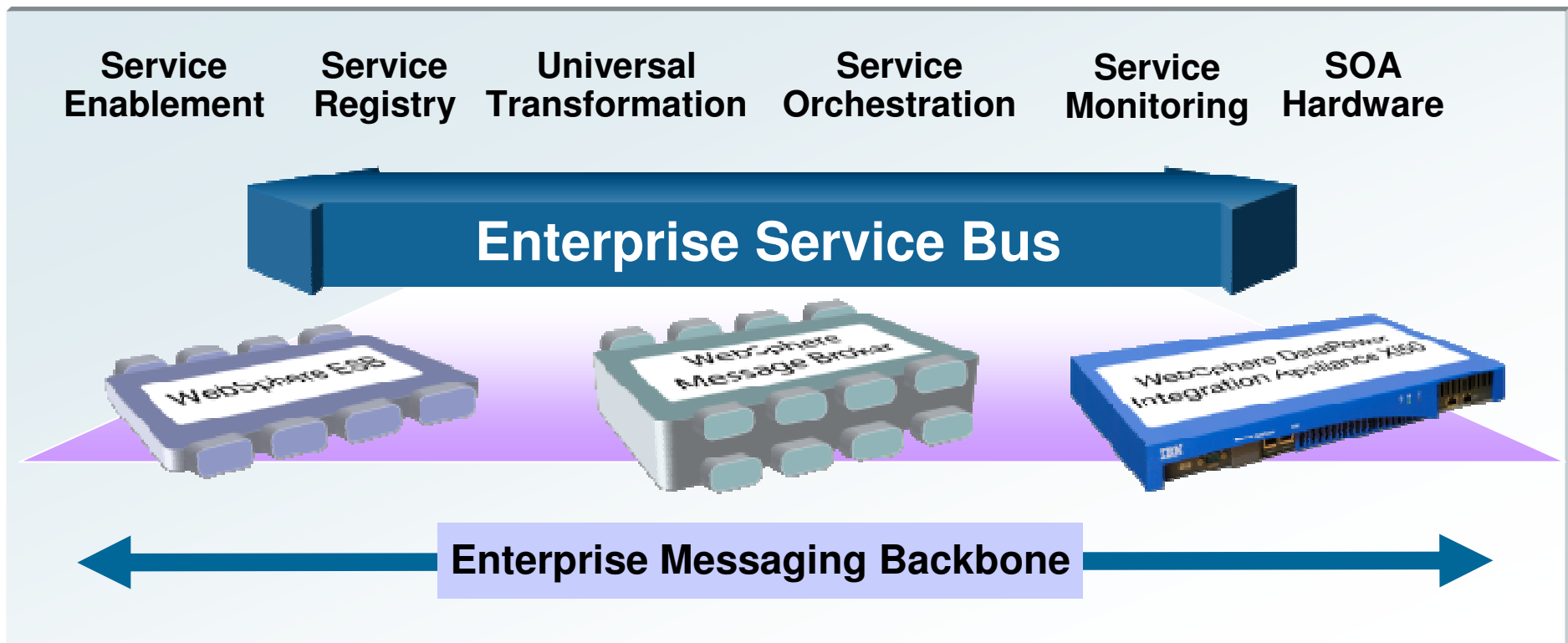*IT focused entry points to enable Flexible IT and deliver benefits to Business and IT*

- **Connectivity** establishes links between applications and services using an Enterprise Service Bus to:
  - Deliver a robust and resilient connectivity infrastructure
  - Provide integration between different Lines of Business without adding complexity
  - Bring together new and existing IT assets with high performance, available everywhere

- **Reuse** creates new services from legacy assets to:
  - Extend the value of legacy systems by modernizing application infrastructure
  - Reduce development costs by reusing the decoupled services and connections
  - Leverage existing systems and infrastructure to provide new functionality

People

Information

Process

Reuse

Connectivity

SOA and ESB – Connecting your Business

SOA – IT evolution

More code to develop and maintain

Hand-coded, Hard-wired

Your Application

Hand-coded logic buried deep inside for:
•*Connectivity*
•*Mediation*
•*Transformation*

Application Connectivity

Your Application

Still contains:
•*Mediation*
•*Transformation*

Application Integration

Your Application

Still contains:
•*Transformation*

Enterprise Service Bus

Your Application as a Service

Messaging Backbone

Enterprise Service Bus

Increased flexibility and reuse

Extending Connectivity for Mission Critical SOA

Service Enablement	Service Registry	Universal Transformation	Service Orchestration	Service Monitoring	SOA Hardware

Enterprise Service Bus

WebSphere ESB

WebSphere Message Broker

WebSphere DataPower Integration Appliance XI50
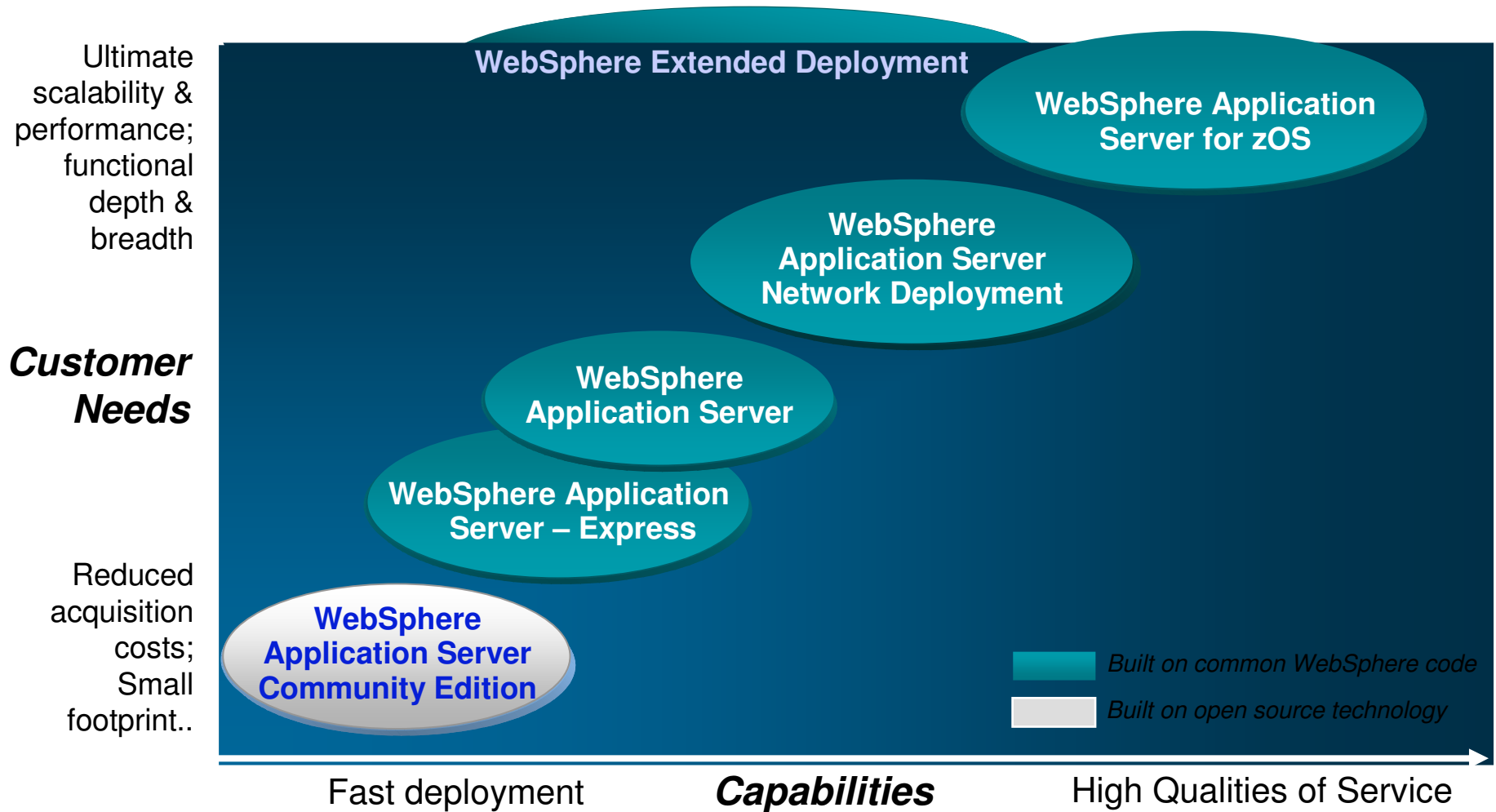
Enterprise Messaging Backbone

An ***ESB without limits*** breaks down the barriers by providing a solution with greater…

- Breadth: Three ESB product offerings optimized for various connectivity scenarios

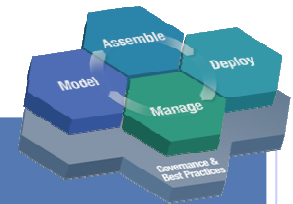- Depth: Complete set of connectivity capabilities beyond those delivered by an ESB

Flexible Infrastructure
Meeting the Broadest Range of Quality of Service Needs

Ultimate scalability & performance; functional depth & breadth

Customer Needs

Reduced acquisition costs; Small footprint..

WebSphere Extended Deployment

WebSphere Application Server for zOS

WebSphere Application Server Network Deployment

WebSphere Application Server

WebSphere Application Server – Express

WebSphere Application Server Community Edition

Built on common WebSphere code

Built on open source technology

Fast deployment   **Capabilities**   High Qualities of Service

Connecting Systems, offering new services HypoVereinsbank AG (HVB)

▶ Business Challenge:
Improve ability to offer new services to customers
Lack of a standard integration solution impacted response time to new market opportunities, customer demand and business strategies

▶ Solution: Deployed an ESB-based infrastructure using WebSphere and Tivoli Software. Delivers a cost-effective connection environment to simplify the trading process and gain a competitive advantage through time to market

▶ Results: Achieved 35% reduction in time to implement integration scenarios linking new and existing applications. Rapidly connected to Euronext Stock Exchange. Implementation and operational costs down and ROI up.

▶ Implementation Details: WebSphere Application Server on z/OS, WebSphere Message Broker for Multiplatforms, WebSphere MQ, WebSphere MQ for z/OS; Tivoli Monitoring for Business Integration, Tivoli Monitoring

"The ESB provides a flexible infrastructure for HVB's agile investment banking. Our business is changing very fast, and the ESB enables us to support upcoming business opportunities immediately by connecting new market places and new dealing systems to our existing system landscape. The ESB accelerates the adaption of new business processes and the launch of new products and services." Michael Dietze, Head of Business Development
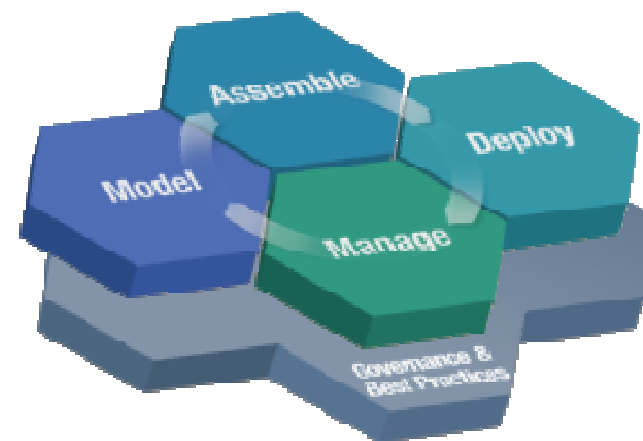
Creating New Services for Reuse
Fill gaps in your portfolio

- Use visual tools to simplify the design and construction of new reusable services

- Reduce complexity of managing deployed assets through virtualization

- Manage the entire service development process throughout the lifecycle

- Build it once & reuse widely in a robust runtime

What is the Value of Reuse ?

- As SOA moves out of the sandbox, results become critical to business

- SOA results have been successful in early studies
  - 100% of customers show increased flexibility
  - 97% show reduced costs

- Reuse is key to benefits of SOA
  - Cost-savings multiply with ongoing reuse
  - Each reuse saves additional amounts

24% Faster ROI using SOA!

24% Faster!

SOA Components   **Non-SOA Components**
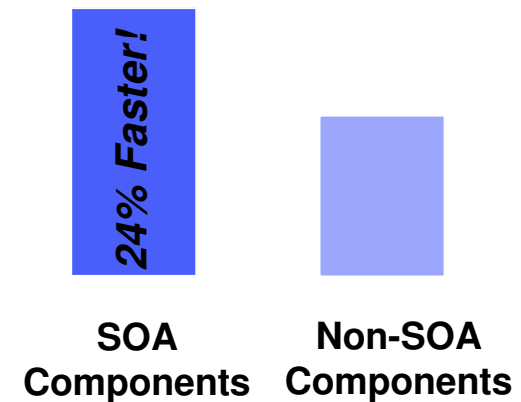
Source: The ROI of SOA. Poulin & Himler – LogicLibrary Inc White Paper 2006 - http://www.logiclibrary.com/pdf/wp/ROI_of_SOA.pdf

"I can guarantee there's a cheaper way to build your next product, but there's no cheaper way to build your next 20 products."
Christopher Crowhurst, vice president and principal architect at Thomson Learning.

Identify and Modernize existing IT assets using SOA
Making increased and effective use of past investments
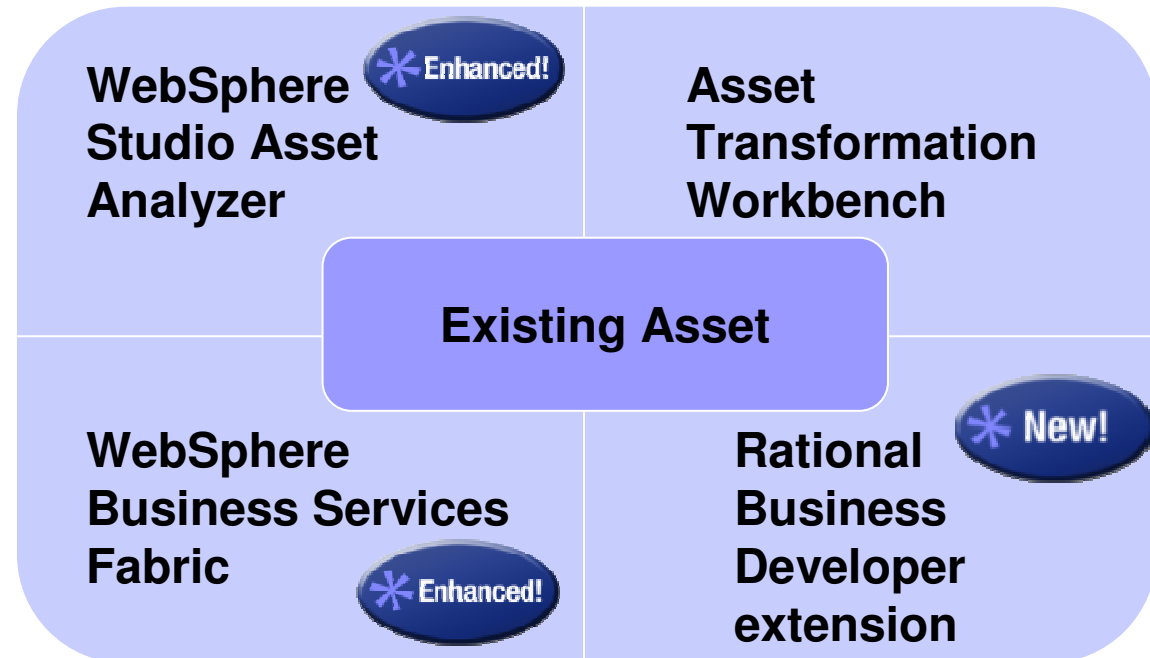
Key Benefits of Modernization

- Eliminate expense, confusion, and risk associated with redundancy

- Make systems that previously required specialized skills accessible to a broader pool of users

- Combine functions that come from several sources and treat them as a single logical reusable service

- Automatically identify candidate assets for service-enablement
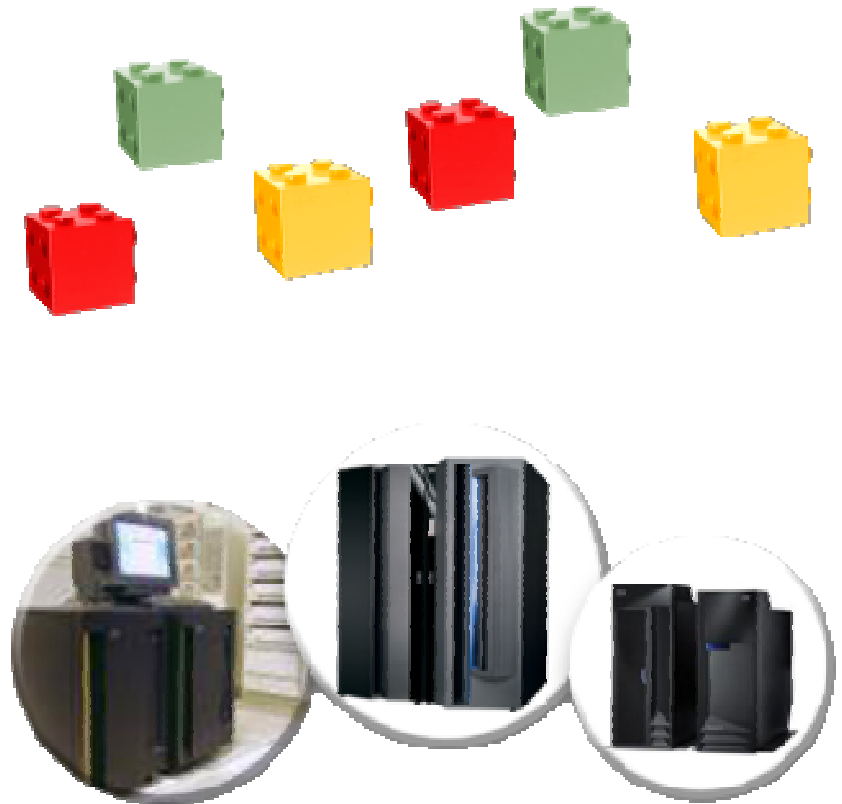
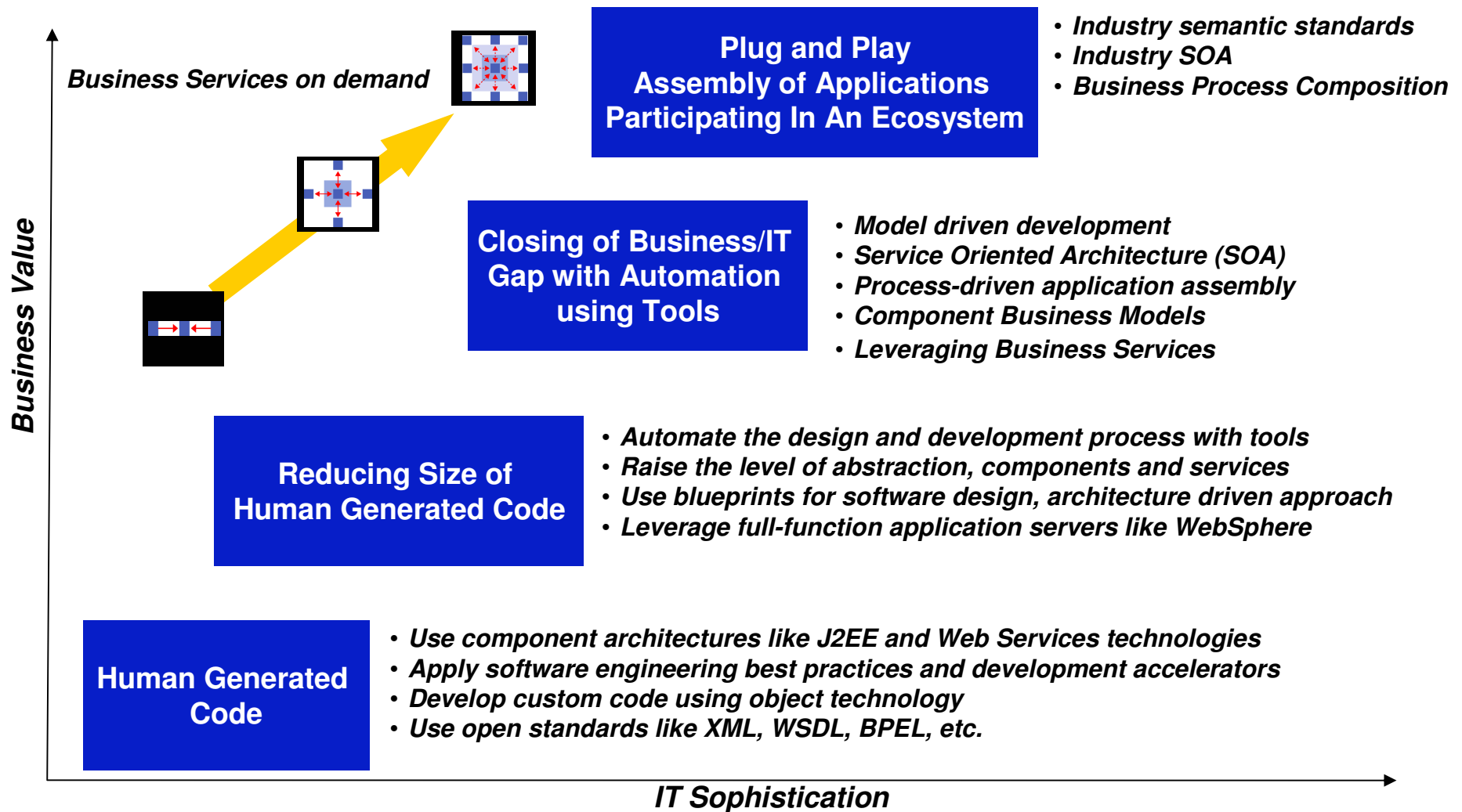Obtain the services you need to support your business process by service-enabling existing assets

IBM Software Products to Assist Identifying IT Assets for Reuse and Modernization

- Selecting your key assets for reuse is a critical task

- Help reduce the time and cost of the analysis phase of a project

- Show dependencies within and among applications

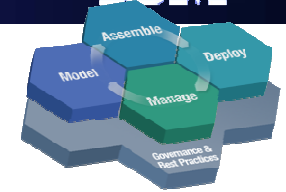- Enhance productivity for analysts and developers

WebSphere Studio Asset Analyzer *Enhanced!*

Asset Transformation Workbench

Existing Asset

WebSphere Business Services Fabric *Enhanced!*

Rational Business Developer extension *New!*

- Provide a means to move from today's monolithic applications to architectures that make composite applications possible

Business Flexibility enhanced through evolving infrastructure & methods

Business Value (vertical axis)

IT Sophistication (horizontal axis)

Business Services on demand

**Plug and Play
Assembly of Applications
Participating In An Ecosystem**

- *Industry semantic standards*
- *Industry SOA*
- *Business Process Composition*

**Closing of Business/IT
Gap with Automation
using Tools**

- *Model driven development*
- *Service Oriented Architecture (SOA)*
- *Process-driven application assembly*
- *Component Business Models*
- *Leveraging Business Services*

**Reducing Size of
Human Generated Code**

- *Automate the design and development process with tools*
- *Raise the level of abstraction, components and services*
- *Use blueprints for software design, architecture driven approach*
- *Leverage full-function application servers like WebSphere*

**Human Generated
Code**

- *Use component architectures like J2EE and Web Services technologies*
- *Apply software engineering best practices and development accelerators*
- *Develop custom code using object technology*
- *Use open standards like XML, WSDL, BPEL, etc.*

Integrating Airport Operations with IBM's SOA Platform - Malaysia Airports Technologies

▶ **Business Challenge:**
Existing disparate solutions no longer sustainable with growth in passenger numbers, flight frequencies and carrier numbers
Need to flexibly roll out new applications to run alongside existing infrastructure

▶ **Solution:** A SOA solution to interconnect all the applications required to support their world-wide airport operations – without compromising security, reliability, or scalability. IBM GBS developed a roadmap for MAT to migrate to this new flexible service oriented approach.

▶ **Results:** Real-time information distribution from disparate sources; Replace individual components without compromising airport operation integrity; Unify employees across the entire organization

▶ **Implementation Details:** IBM Global Business Services – Application Innovation Services; IBM's Airport Integration Solution, built on IBM WebSphere and the SOA Foundation

"MAT can now distribute real-time information from disparate sources, communicating accurate and timely resource, planning, and operations information to essential departments." — YBhg Dato' Azmi Murad,Senior General Manager

Infrastructure Architecture requires End-to-end Approach along with Implementation of Key Technologies

Strategy and Planning → **Architecture and Design** → **Implementation And Test**

- *Identify opportunities to apply SOA innovations to meet business and IT objectives?*

- *Understand how SOA infrastructure management and service management will support the SOA environment?*

- *Determine IT readiness to incorporate SOA technologies into the environment?*

How do you :

- *Create an architectural framework and the infrastructure designs to support SOA?*

- *Accelerate and refine the SOA architecture and design process and transition plan?*

- *Develop SOA infrastructure solution plan including business case, detailed designs, operational model ?*

- *Integrate siloed applications and value net through an extensible infrastructure foundation*

- *Optimize, scale and automate your SOA foundation?*

- *Integrate with your existing middleware infrastructure?*

- *Ensure your new SOA services respond under normal and peak conditions?*

Professional Services from IBM applying expert SOA knowledge anywhere in the lifecycle enabling reuse of assets.

End to End Lifecycle

| Strategy & Planning | Process & System Change | Maintenance & Optimization |

Typical Client Entry Points

BPM on SOA

SOA Diagnostic

SOA Management

SOA Strategy

SOA Design, Development & Integration Services

SOA Implementation Planning

Typical Client Entry Points
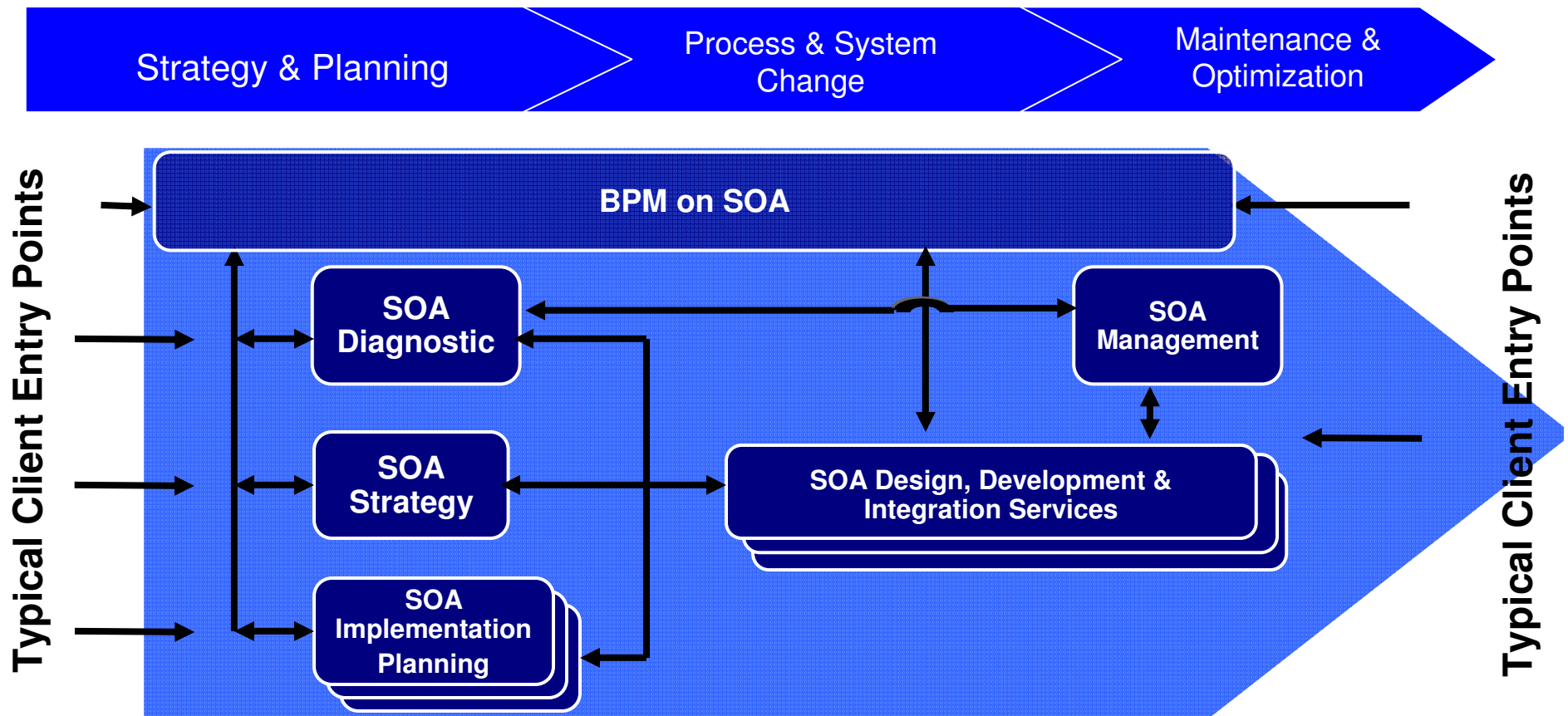
Infrastructure services from IBM bringing in expert SOA skills everywhere in the lifecycle

Strategy and Planning

Infrastructure Strategy and Planning Workshop for SOA

✴ New!

Infrastructure Readiness for SOA

✴ Enhanced!

Architecture and Design

Infrastructure Architecture and Design for SOA

✴ Enhanced!

Testing and Implementation

SOA Integration Services

✴ Enhanced!

Application Infrastructure Services:
- Portal infrastructure
- Web Application Server
- Web infra Opt & Virt

✴ New!

Testing Center of Excellence for SOA

✴ New!

SOA Deployment Best Practices & Lessons Learned from 200+ Projects

Methodical, cross-IBM, global approach to capture, analyze, feedback SOA deployment experiences

- SOA Deployment Lessons Learned / Best Practices Conference executed through IBM Academy of Technology

- Applied standardized Case Study Template
  - incl. client situation, project, architectural work products, intellectual capital, lessons learned, best practices)

- Structured into 10 domain categories
  - BPM, ESB, Information, Methods, Solutions, NFRs, PoCs, Development, Testing, Organization

- 200+ submissions resulted in ~100 completed case studies, with 750 lessons learned/650 best practices
  - analyzed and fed back to product and services organizations
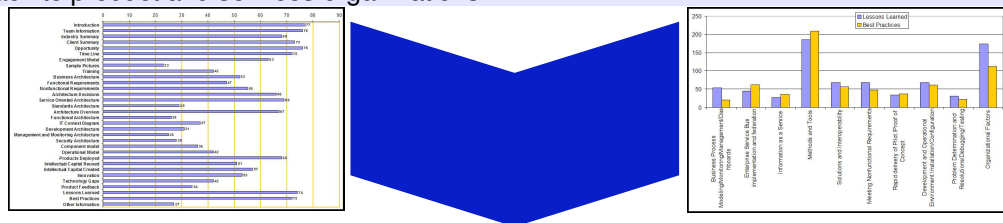
Architecting the right SOA Infrastructure is a core activity of SOA deployments

- <u>Early consideration of infrastructure</u> requirements is essential, to avoid an out-of-synch situation between functional and non-functional requirements

- SOA infrastructure may be project specific in early stages, often real benefits to be gained from <u>standardization at a broader enterprise level</u>, with its own adoption path/maturity model

- Paradigm shift visible in IT organizations from being resource providers to becoming service providers, with an <u>infrastructure becoming service-based</u> itself

- <u>Virtualization and provisioning</u> capabilities enable a service-oriented infrastructure

- The right <u>balance between flexibility and complexity</u> is an important architectural consideration

Mission Critical SOA – the foundation for your infrastructure

Flexible robust and secure infrastructure planned and deployed using best practices and maintained with available skills

- Qualities of Service matching the business need and transaction content

- Ensure end-to-end integrity with built-in transactional coordination

- Simplify your applications by connecting using an ESB

- Grow your business by modernizing existing applications leveraging latest standards for both new and old assets

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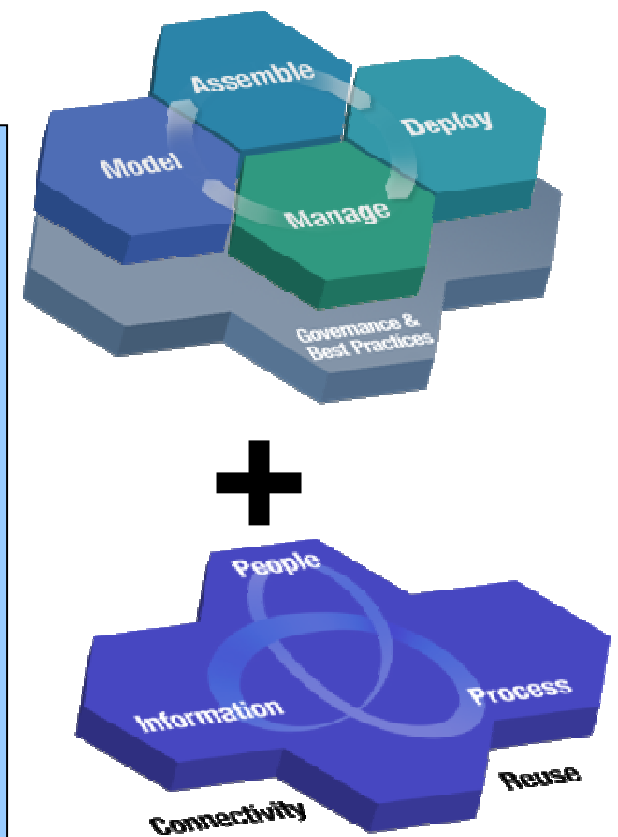
The right foundations will boost your SOA implementation.

Summary of Key Enhancements for IBM SOA Connectivity & Reuse

New and Enhanced!

Enhanced!

Reuse enhancements
Rational Business Developer extension
WebSphere Business Services Fabric
WebSphere Studio Asset Analyzer
WebSphere Extended Deployment
WebSphere Application Server V6.1 Feature Pack for Web Services

Connectivity enhancements
WebSphere MQ
WebSphere Message Broker
WebSphere Transformation Extender
WebSphere DataPower Integration Appliance
WebSphere Service Registry and Repository

IBM Global Technology Services
SOA Integration Services – connectivity and reuse
Application Infrastructure Services – web application server
Application Infrastructure Services – Portal infrastructure, Web infrastructure optimization and virtualization

New and Enhanced!

Recap: Key Attributes for Mission Critical SOA

1 End-to-end transactional integrity across and beyond your business

2 Connecting everything, everywhere without complexity with an ESB

3 Modernize and reuse existing assets as well as leverage new standards

4 Maximize reuse of skills, and accelerated access to core business assets

Leadership in SOA Connectivity and Reuse

*Uniquely providing **Mission Critical SOA** through depth and breadth of SOA software products, complemented by Business and Technical Services adding value by delivering SOA enabled solutions throughout the lifecycle*

Broad Management Expertise Across Industries

55,000 employees trained as IT infrastructure experts in 164 countries

Contributors to over 50 SOA-based standards committees

More than 3,600 SOA Business Partners

#1 SOA Marketshare (Wintergreen 2006)

Nobody invests more

$1B increase in investment over next 3 years

300+ SOA related patents

Over 4500 SOA Engagements

Primary SOA Research

IBM Institute of Business Value

Questions?

Product offerings from IBM for SOA Connectivity

WebSphere Adapters **WebSphere Service Registry and Repository** **WebSphere Transformation Extender** **WebSphere Process Server** **Tivoli Composite Application Manager for SOA** **WebSphere DataPower SOA Appliances**

**Enterprise Service Bus**

WebSphere MQ
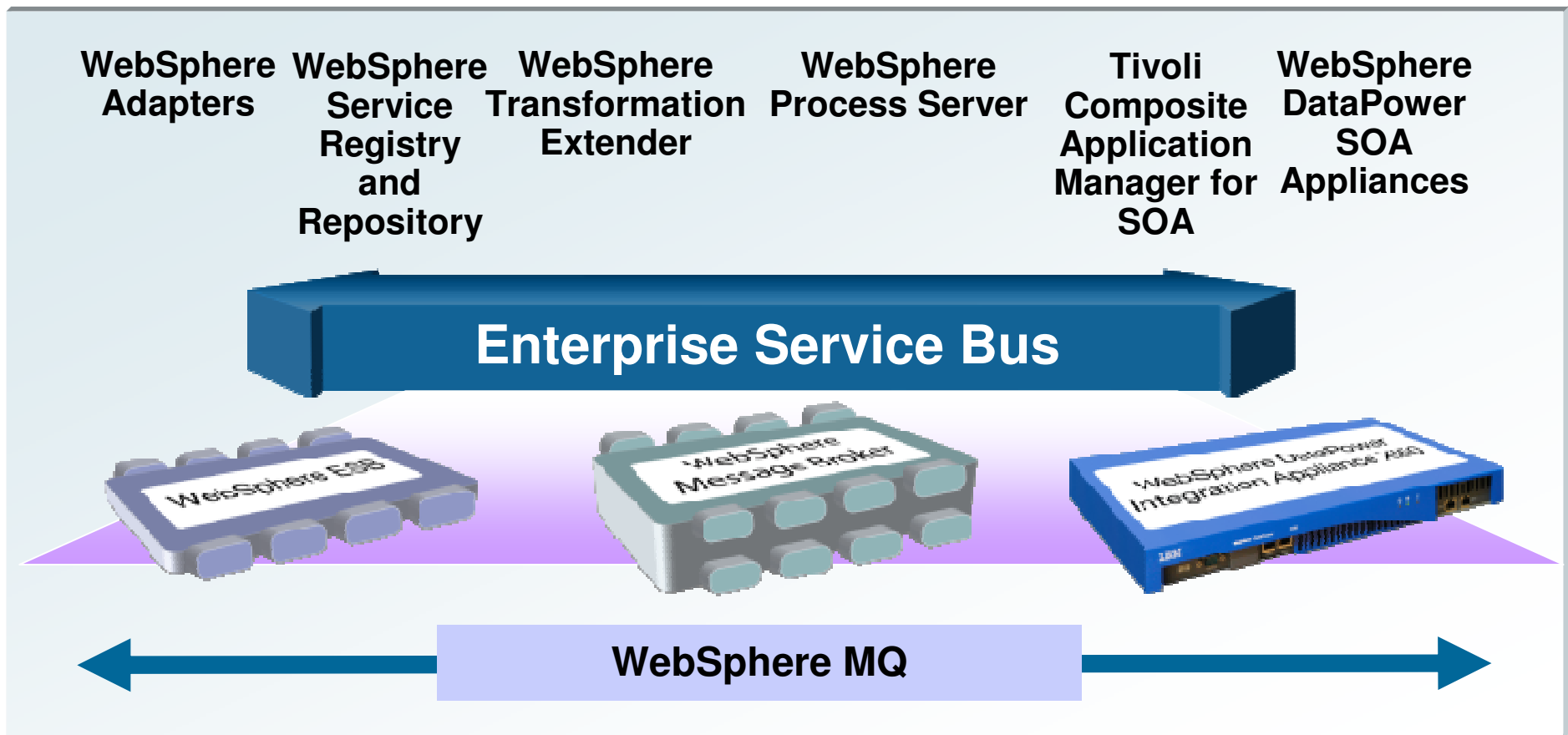
SOA Strategy and Planning Workshop

Up to 1 week IBM facilitated, collaborative session to help IT executives quickly understand how SOA infrastructure management technologies and service management creating:

- SOA Value Proposition for the organization

- IT infrastructure impacts

- High-level project plan

Assessment Roadmap Tool (ART)
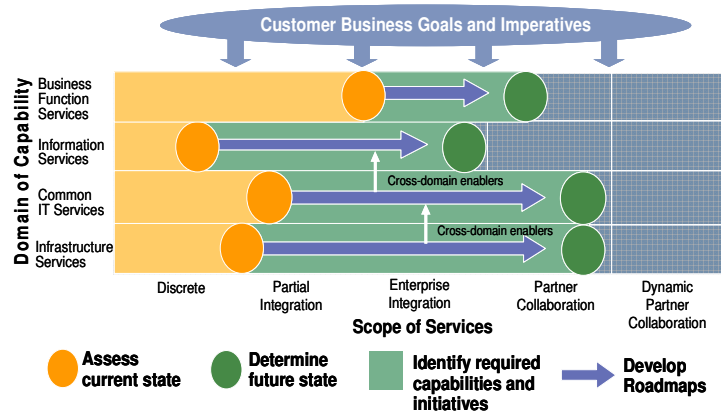
Service Integration Maturity Model (SIMM)
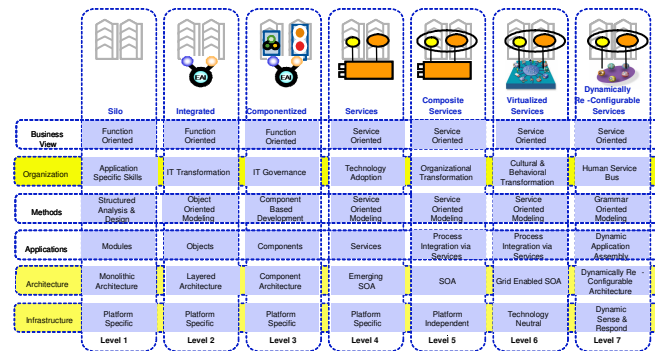
IBM Process Reference Model for IT