Keynote Presentation:
Driving the Value of SOA in an Enterprise Architecture

Paul Jenkins
Lead SOA Architect
IBM Software Group, Northeast Europe
Agenda

- SOA and Enterprise Architecture
  - SOA Enterprise Architecture Best Practices
    - SOA Reference Architecture
    - SOA Best Practices
  - What’s Next for SOA
- Summary
Innovation Impacts Business Models
Is Your Architecture Ready?

“On a flat earth, the most important attribute is creative imagination – the ability to be the first to figure out how all these enabling tools can be put together in new and exciting ways to create products, communities, opportunities, and profits.”

*Thomas Friedman, The World is Flat*

“Service orientation does not begin with technology; it begins with the mind-set of thinking about your business and the world around you in terms of functional components.”

*Steve Mills, SVP and Group Executive, IBM Software Group*

*The Future of Business* June 2007
“SOA Has Dramatically Grown in Popularity”
According to Gartner, Inc.

- SOA will be used in more than 50 percent of new mission-critical operational applications and business processes designed in 2007 and in more than 80 percent by 2010.

- SOA … will rapidly become the architectural foundation for virtually every new business-critical application.

- SOA has dramatically grown in popularity, and adoption has expanded across vertical industries, geographies and organization sizes.

- The practical benefits of a well-implemented SOA are greater adaptability, faster time to deployment and lower costs for application development and integration.

What Benefits Are Organizations Seeing With SOA?

**Benefits Reported by Leading Edge Adopters of SOA**

- **Cost savings**: 97%
- **Improved flexibility**: 100%
- **Reduced risk**: 71%
- **Increased revenue**: 51%

Source: IBM Institute for Business Value Study
“The end goal is to have an integrated enterprise with SOA in the middle of it,” Carvallo said. “We have been mapping out since last summer the key processes – 70-plus processes – that we want to bring into the SOA (environment) and help rationalize the infrastructure behind it.”

“This one is business-driven," Carvallo said. "This time around, when the business process is at the heart of the integration, change management happens much easier because the business user wants it to happen.”
The customer service implementation is a composite application with five Web services that verifies the customer location and generates a work order to repair the outage.

- The old system had a limitation of being able to process 4,000 work orders a day. The new SOA-based system processed more than 20,000 calls per day for three days during the storm, and has been tested for up to 50,000 work orders per day.

- Average customer call time processing outage reports dropped from 3-5 minutes down to 1.5 minutes.

- One of the keys to success was that 30 percent of the project was focused on planning and the architecture.
SOA Spans a Continuum From Basic to Advanced
Aligning Service Oriented Approaches

Smart SOA is about leveraging SOA principles at various levels to derive business value, applying them in a way that can grow as your needs evolve.
Distinct Value …
Regardless of Where You Choose to Engage

**Value to Business**

<table>
<thead>
<tr>
<th>Scope</th>
<th>Foundational</th>
<th>Extend End-to-End</th>
<th>Transform</th>
<th>Adapt Dynamically</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Collaboration within a line of business</td>
<td>Coordination across lines of business</td>
<td>Enterprise-wide organizational cooperation</td>
<td>Enact significant shifts without direct IT involvement</td>
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**Value to IT**

<table>
<thead>
<tr>
<th>Scope</th>
<th>Basic</th>
<th>Advanced</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Focused, proven, high-ROI projects</td>
<td>Technology becomes invisible</td>
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<tr>
<td></td>
<td>End-to-end business process management to innovate and optimize</td>
<td>IT for strategic advantage and business model innovation</td>
</tr>
<tr>
<td></td>
<td>IT for strategic advantage and business model innovation</td>
<td>Technology becomes invisible</td>
</tr>
</tbody>
</table>

- % functions expressed as services
  - <10%
  - <40%
  - <80%
  - >80%

- % of services reused
  - <5%
  - <20%
  - <50%
  - >50%

Based on 6550 customers using our SOA offerings
Leverage SOA Experience and Best Practices

*The SOA Entry Points*

- When selecting SOA projects, focus on solving **specific business problems** as part of an evolving enterprise architecture.

- IBM has a variety of assets and best practices around the SOA entry points, based on our **extensive experience with customers**.

**People Entry Point:** Interaction and Collaboration

**Information Entry Point:** Information as a Service

**Process Entry Point:** Process Automation

**Reuse Entry Point:** Creating and reusing proven, high-value assets

**Connectivity Entry Point:** Securely and flexibly interconnecting
Process Integrity Takes SOA to the Next Level

Enabled Integrity of Transactions, Interactions and Information

SOA Entry Points

Process Integrity
Process Integrity is Critical to Advanced SOA Projects

To Achieve Business Agility without Sacrificing Integrity

Critical end-to-end processes require an SOA environment that can provide:

- Full transactional support across distributed systems
- Automated compensation and resynchronization
- Recovery at all levels (service bus, application, database, server…)
- Enterprise-class scalability to handle 1000’s service calls per minute
According to WinterGreen Research:

**SOA Market Leadership**

Unparalleled Client Experience

46% YTY customer growth  
145% YTY growth in client speakers  
440+ public customer references

World’s largest SOA partner community

Customers across Smart SOA Continuum and Industry

#1 in Marketshare

2007 Total: $2.0B

Agenda

- SOA and Enterprise Architecture

- **SOA Enterprise Architecture Best Practices**
  - SOA Reference Architecture
  - SOA Best Practices

- What’s Next for SOA

- Summary
SOA Reference Architecture

Supporting the SOA Lifecycle

- Business Services: Supports enterprise business process and goals through businesses functional service
- Interaction Services: Enables collaboration between people, processes & information
- Process Services: Orchestrates and automates business processes
- Information Services: Manages diverse data and content in a unified manner
- Partner Services: Connects with trading partners
- Business App Services: Build on a robust, scaleable, and secure services environment
- Access Services: Facilitate interactions with existing information and application assets
- Infrastructure Services: Optimizes throughput, availability and utilization

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SOA and Enterprise Architecture

- Business Opportunity
- Technology Availability
- Transition Planning
- Architecture Governance
- Business Strategy
- Information Technology Strategy
- Enterprise Architecture
- Business Architecture
  - Processes
  - Information
  - People
- IT Architecture
  - Applications
  - Information
  - Technology
- Business Operating Environment and IT Infrastructure
- Change Initiatives: Programs and Projects

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SOA Portfolio Strategy, Analysis and Planning

Creating the roadmap for your SOA implementation

**Analysis**

- Document current architecture
- Blueprint target SOA architecture – aligned with business goals
- Enable business collaboration to define requirements
- Create roadmap for SOA transformation, manage change

**Business Outcome:**
Evaluate enterprise needs vs. best ways of fulfillment

**Planning**
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Executing the SOA roadmap

- Transition Planning
- Architectural Governance
- Enterprise Architecture Blueprints
- Project Prioritization & Planning

Are we still moving in the right direction?
Are our target architectures compliant with guidelines?
Are we doing these things the way we said we want them done?

This is the way things should be architected

SGMM

Projects

SOMA
The SOA Lifecycle

- Discover
- Construct & Test
- Compose
- Gather requirements
- Model & Simulate
- Design
- Assemble
- Deploy
- Manage
- Governance & Best Practices
- Model
- Financial transparency
- Business/IT alignment
- Process control
- Integrate people
- Integrate processes
- Manage and integrate information
- Manage applications & services
- Manage identity & compliance
- Monitor business metrics

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SOA Solution Layering

*Leveraging the SOA Reference Architecture*

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**Consumers**

**Business Process**
Composition; choreography; business state machines

**Services**
atomic and composite

**Service Components**

**Operational Systems**

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**Channel**

**B2B**

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**Integration (Enterprise Service Bus)**

**QoS Layer (Security, Management & Monitoring Infrastructure Services)**

**Data Architecture (meta-data) & Business Intelligence**

**Governance**

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**Service Consumer**

**Service Provider**

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**Atomic Service**

**Composite Service**

**Registry**

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Key Standards for SOA

SOA and Web Service Standards

Business Services: Service Offerings and Components
(ACORD, HL7, eTOM, ARTS…)

Industry Semantics
(SWIFT, FIXML, OTAXML, UCCNet…)

Infrastructure Standards

Service Interaction
(WSRP, JSR 168, AJAX)

Service Orchestration
(WS-BPEL)

Service Discovery
(UDDI, Reusable Asset Specification)

Service Invocation & Messaging
(SOAP, WS-Addressing, REST)

Service Description
(WSDL)

Data Exchange
(XML, JSON)

Network Protocol
(HTTP, SMTP)

Profiles
WS-I Basic Profile, WS-I Basic Security Profile, WS-I Reliable Secure Profile

Programming Model
(SCA, SDO)

Security
(WS-Security)

Transactions
(WS-Atomic Transaction, WS-Business Activity)

Management
(IT Information Library)
## Service Integration Maturity Model (SIMM)

<table>
<thead>
<tr>
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<th>Organization</th>
<th>Methods</th>
<th>Applications</th>
<th>Architecture</th>
<th>Information</th>
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**Level 1**
- Modules
- Objects
- Components
- Services

**Level 2**
- Objects
- Components
- Services
- Processes

**Level 3**
- Components
- Services
- Processes
- SOA

**Level 4**
- Services
- Processes
- SOA
- Emerging SOA

**Level 5**
- Processes
- SOA
- Emerging SOA
- SOA and IT Governance

**Level 6**
- SOA
- Emerging SOA
- SOA and IT Governance
- SOA and IT Infrastructure Governance

**Level 7**
- Emerging SOA
- SOA and IT Governance
- SOA and IT Infrastructure Governance
- SOA and IT Infrastructure Governance Alignment

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**SOA on your terms and our expertise**
# Service Integration Maturity Model (SIMM)

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<td>Specific Skills</td>
<td>Analysis &amp; Design</td>
<td>Objects</td>
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## Levels
- Level 1: **Silo**: Business Process Integration
- Level 2: **Integrated**: Business Service Decomposition
- Level 3: **Componentized**: Componentized Business offers Services
- Level 4: **Services**: Processes Through Service Composition
- Level 5: **Composite Services**: Geographically Independent Service Centers
- Level 6: **Virtualized Services**: SOA and IT Governance Alignment
- Level 7: **Dynamically Re-Configurable Services**: Governance through Policy

**Methods**:
- **Object-Oriented Modeling**: Move to SOA-based Design Methodology
- **Structured Analysis & Design**: Service Oriented Modeling

**Applications**:
- **Modules**: Process Integration via Services
- **Objects**: Dynamic Application Assembly

**Architecture**:
- **Monolithic Architecture**: Objects
- **Layered Architecture**: Components

**Information**:
- **Application Specific**: Component Architecture
- **Enterprise Specific**: Focus on SOA Foundation

**Infrastructure**:
- **LOB Platform Specific**: Deploy Common Information Services
- **Enterprise Standards**: Information As a Service

**SOA**:
- **SOA Infrastructure Standard**: Common SOA Environment

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**SOA on your terms and our expertise**
IBM SOMA 3.1: Service Oriented Architecture and Modeling

Methodology that provides in-depth guidance on how to move from business strategy and analysis to a successful SOA implementation.
SOMA 3.1: Service Oriented Modeling and Architecture
Bridges the gap from business intent to IT implementation

SOMA is all about the identification, specification, realization, implementation, and deployment of services, components, and flows.
SOA Governance & Management Method (SGMM)

*IBM’s Comprehensive Approach to SOA Governance*

<table>
<thead>
<tr>
<th>Plan</th>
<th>Define</th>
<th>Enable</th>
<th>Measure</th>
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</thead>
<tbody>
<tr>
<td><strong>Determine the Governance Focus</strong></td>
<td><strong>Define the SOA Governance Model</strong></td>
<td><strong>Implement the SOA Governance Model</strong></td>
<td><strong>Refine the SOA Governance Model</strong></td>
</tr>
<tr>
<td>Tailor method for goals/environment</td>
<td>Define and refine governance processes</td>
<td>Implement the transition plan</td>
<td>Measure effectiveness governance processes</td>
</tr>
<tr>
<td>Understand current Governance structures</td>
<td>Define organizational change</td>
<td>Initiate SOA Org Changes</td>
<td>Measure effectiveness of organization change</td>
</tr>
<tr>
<td>Define scope of governance</td>
<td>Define IT changes in SOA development</td>
<td>Launch the SOA Center of Excellence</td>
<td>Review and refine operational environment</td>
</tr>
<tr>
<td>Conduct change readiness survey</td>
<td></td>
<td>Implement infrastructure for SOA</td>
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**Continuous SOA Governance Process Measurement & Improvement**

- Define the scope of governance: business, development governance or service management or all of the above
- Define new governance processes for services and define SOA governance mechanisms such as the SOA Center of Excellence
- Begin implementation of the SOA Center of Excellence, Skills Enablement, Organizational Change, Infrastructure Change, etc.
- Monitor composite application performance and adjust; Monitor effectiveness of governance changes
Agenda

- SOA and Enterprise Architecture
  - SOA Enterprise Architecture Best Practices
    - SOA Reference Architecture
    - SOA Best Practices
- What’s Next for SOA
- Summary
Extending the SOA Platform

- “Light weight” consumer platform
- Robust infrastructure for Enterprise QoS
- Service management and governance
- Enables dynamic, industry-specific business services
- “Light weight” consumer platform
- Robust infrastructure for Enterprise QoS
- Service management and governance
- Enables dynamic, industry-specific business services
- Facilitates creation of situational service-based applications
- Facilitates creation of composite applications
- Facilitates creation of next generation applications
- “Light weight” consumer platform
- Robust infrastructure for Enterprise QoS
- Service management and governance
- Enables dynamic, industry-specific business services
- Facilitates creation of situational service-based applications
- Facilitates creation of composite applications
- Facilitates creation of next generation applications

Web 2.0 Platform

SOA Foundation

Business Services Platform

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Extending the SOA Consumer Platform: Web 2.0

Mash-ups and Situational Applications

Composite Applications

Employee

Customer

Partner

Services

Web 2.0 Platform
Extending The SOA Provider Platform: Business Services

**Business Level Agility**
- Dynamic assembly and delivery of services based on business context
- Reusable building blocks at a business level
- Incremental approach to business solutions that lowers risk

**SOA-Enabled Process Automation**
- Process driven choreography of services
- Process automation with associated business logic encapsulated within the business process
- Improved flexibility and manageability with your SOA

**Simplify Integration**
- Easier integration and connectivity
- Standardized components and Web services
- Based on well accepted technical standards

**Service Oriented Applications**

**Service Orchestration**

**Standards-based Integration**

**Business Services Platform**
Agenda

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Summary

- SOA establishes an enterprise architecture that enables business flexibility and agility

- SOA is an important foundation of enterprise architecture
  - Companies are using SOA today to drive tangible business value
  - Investments in SOA will continue to drive competitive differentiation

- SOA is not one-size fits all
  - Implementation of SOA varies according to the company’s business / IT environment and goals
  - Companies should leverage well defined best practices derived from SOA experiences to make the SOA journey effective
  - Start small, grow fast, and drive successful implementation through effective governance
SOA Architect Summit Roadmap

What is the impact of SOA on current Enterprise Architectures?
- Alignment of Business and IT Architectures
- SOA Reference Models
- SOA Governance

How do you develop SOA with a business focus?
- Portfolio Strategy, Analysis and Planning
- Business Components
- SOA Design
- Business Process Management

How do you reuse applications in the context of SOA?
- Asset Discovery
- Application Reuse

How do you leverage information in an SOA?
- Information as a Service
- Master Data Management

How does my infrastructure support SOA?
- Service Management / QoS
- Security
Thank You