IBM SOA Architect Summit

SOA on your terms and our expertise
An Overview for the Enterprise Architect

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Service Oriented Architecture

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Agenda

- Introduction
- SOA Reference Architecture
- SOA Roadmap
- SOA Governance
- Summary
<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Description</th>
<th>Overview</th>
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<tbody>
<tr>
<td>SOA Reference Architecture</td>
<td>The SOA Reference Architecture defines a reference framework and corresponding IT principles for SOA implementation projects</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>SOA Roadmap</td>
<td>The Roadmap is used to create a tailored transition plan for moving toward the SOA Reference Architecture</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>SOA Governance Model</td>
<td>The SOA Governance Model defines the decision rights along with the associated measurements and controls</td>
<td><img src="image" alt="Diagram" /></td>
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IT’s Architectural Evolution: Making IT More Responsive

Pre 1950’s To 1960’s
- Monolithic Architectures

1970’s to mid 1980’s
- Sub-routines/Remote Procedure Calls

1980’s to mid 1990’s
- Remote Object Invocation

Mid 1990’s to early 2000’s
- Message Processing

Late 1990’s
- Enterprise Application Integration (EAI)

Today
- Services (SOA)

Increasing Modularity to Achieve Flexibility
### Service Oriented Architecture

*Different Things to Different People*

<table>
<thead>
<tr>
<th>Capabilities that a business wants to expose as a set of services to clients and partner organizations</th>
<th>Roles</th>
</tr>
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<tbody>
<tr>
<td>An architectural style that requires a service provider, requestor and a service description. It addresses characteristics such as loose coupling, reuse and simple and composite implementations</td>
<td>Business</td>
</tr>
<tr>
<td>A programming model complete with standards, tools, methods and technologies such as Web services</td>
<td>Architecture</td>
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<tr>
<td>A set of agreements among service requestors and service providers that specify the quality of service and identify key business and IT metrics</td>
<td>Implementation</td>
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SOA Adoption Considerations

- **Business Drivers**
  - Accelerate time to market
  - Reduce costs
  - Increase revenue
  - Reduce risk and exposure

- **Organizational Readiness**
  - Executive support and sponsorship
  - Skills

- **Current Architecture and Environment**
  - Build and Runtime
  - Degree of heterogeneity

- **Operational Readiness**
  - Ability to monitor and manage current operations
  - Integration of monitoring functions into production environments
Agenda

- Introduction
- **SOA Reference Architecture**
  - Providing a comprehensive model
- SOA Roadmap
- SOA Governance
- Summary
SOA Reference Architecture
Supporting the SOA Lifecycle
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SOA Solution Layering
Leveraging the SOA Reference Architecture

- Consumers
- Business Process: Composition; choreography; business state machines
- Services: atomic and composite
- Service Components
- Operational Systems

Service Consumer
Service Provider

Channel B2B

Integration (Enterprise Service Bus)

Data Architecture (meta-data) & Business Intelligence

Governance

- Packaged Application
- Custom Application
- OO Application

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The SOA Reference Architecture and its Key Principles

Providing IT Flexibility to Meet the Demands of Business

- **Linkage between business and IT through support of the entire SOA Lifecycle**
- **Connectivity and Service Isolation through the Enterprise Service Bus**
- **Separation of Concerns/Modularity for incremental adoption**
- **Component-based Programming and Solution Development**
- **Business and IT Monitoring and Management**
- **Open Standards**
The SOA Lifecycle

- Discover
- Construct & Test
- Compose

- Integrate people
- Integrate processes
- Manage and integrate information

- Gather requirements
- Model & Simulate
- Design

- Manage applications & services
- Manage identity & compliance
- Monitor business metrics

- Model
- Assemble
- Deploy
- Manage

- Financial
- Business/IT alignment
- Process control

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Agenda

- Introduction
- SOA Reference Architecture
- **SOA Roadmap**
  - Relating business and IT objectives
- SOA Governance
- Summary
# Service Integration Maturity Model (SIMM)

<table>
<thead>
<tr>
<th>Business View</th>
<th>Silo</th>
<th>Integrated</th>
<th>Componentized</th>
<th>Services</th>
<th>Composite Services</th>
<th>Virtualized Services</th>
<th>Dynamically Re-Configurable Services</th>
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<tbody>
<tr>
<td>Function Oriented</td>
<td>Function Oriented</td>
<td>Function Oriented</td>
<td>Service Oriented</td>
<td>Service Oriented</td>
<td>SOA and IT Governance</td>
<td>Service Oriented</td>
<td>Service Oriented</td>
</tr>
<tr>
<td>Ad hoc IT Governance</td>
<td>Ad hoc IT Governance</td>
<td>Ad hoc IT Governance</td>
<td>Emerging SOA Governance</td>
<td>SOA and IT Governance Alignment</td>
<td>SOA and IT Governance Alignment</td>
<td>Service Oriented Modeling</td>
<td>Grammar Oriented Modeling</td>
</tr>
<tr>
<td>Structured Analysis &amp; Design</td>
<td>Object Oriented Modeling</td>
<td>Component Based Development</td>
<td>Service Oriented Modeling</td>
<td>Service Oriented Modeling</td>
<td>Process Integration via Services</td>
<td>Process Integration via Services</td>
<td>Dynamic Application Assembly</td>
</tr>
<tr>
<td>Modules</td>
<td>Objects</td>
<td>Components</td>
<td>Services</td>
<td>Service Oriented Modeling</td>
<td>SOA</td>
<td>Grid Enabled SOA</td>
<td>Dynamically Re-Configurable Architecture</td>
</tr>
<tr>
<td>Monolithic Architecture</td>
<td>Layered Architecture</td>
<td>Component Architecture</td>
<td>Emerging SOA</td>
<td>SOA</td>
<td>Platform Specific</td>
<td>Platform Neutral</td>
<td>Dynamic Sense &amp; Respond</td>
</tr>
<tr>
<td>Infrastructure Specific</td>
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<tr>
<td>Level 1</td>
<td>Level 2</td>
<td>Level 3</td>
<td>Level 4</td>
<td>Level 5</td>
<td>Level 6</td>
<td>Level 7</td>
<td>Level 7</td>
</tr>
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</table>

**SOA on your terms and our expertise**
Roadmaps: Building Plans In Context

Business Goals and Imperatives

Scope of Services

- Assess current state
- Determine future state
- Identify required capabilities and initiatives
- Develop Roadmaps

Domain of Capability:
- Business Function Services
- Information Services
- Common IT Services
- Infrastructure Services

Discrete → Partial Integration → Enterprise Integration → Partner Collaboration → Dynamic Partner Collaboration
SOA Roadmap: A Plan for Adopting SOA

SOA Goal
- Market return through transformation: quicker time to production, lower costs, competitive differentiation

Two Primary Roadmap Perspectives
- **Strategic Vision**
  Business and IT statement of direction which can be used as a guideline for decision making, organizational buy-in, standards adoption
- **Project Plans**
  Implementation projects to meet immediate needs of the current business drivers
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- SOA Governance
  - Executing for success
- Summary
What is Governance?

**SOA Governance is a catalyst for improving overall IT Governance**

- **IT Governance**
  - Establishing decision making rights for IT
  - Establishing mechanisms and policies to measure and control the way IT decisions are made and carried out

- **SOA Governance**
  - Extension of IT governance focused on the lifecycle of services to ensure the business value of SOA
Enterprise Architecture and SOA Governance
SOA Governance Challenges

- Establishing decision rights
  - Allow independent development of services
  - Empower innovation
  - Maintain control
  - Enforcement

- Managing the lifecycle of assets
  - How will a service manage its upgrade or retirement
  - How will new capabilities and technology enter the architecture

- Measuring effectiveness
  - Maintaining alignment with business
  - Improving team effectiveness
  - Measuring the right things and building trust
  - Maintaining standards and quality
SOA Governance & Management Method

**Plan**
- Determine the Governance Focus
  - Understand current governance structures
  - Create IT governance baseline
  - Define scope of governance
  - Conduct change readiness survey

**Define**
- Define the SOA Governance Model
  - Define and refine governance processes
  - Define organizational change
  - Define IT changes in SOA development

**Enable**
- Implement the SOA Governance Model
  - Implement the transition plan
  - Initiate SOA organizational changes
  - Launch the SOA Center of Excellence
  - Implement infrastructure for SOA

**Measure**
- Refine the SOA Governance Model
  - Measure effectiveness governance processes
  - Measure effectiveness of organization change
  - Review and refine operational environment

*Continuous SOA Governance Process Measurement & Improvement*

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SOA Center of Excellence (COE)
*A Proven Organizational Model for Governance and Management*
Plan

SOA Governance: planning
- What control does the centre need?
- What are the critical aspects?
- What information do we need to make decisions?
- What power, people, processes, tools are required to perform the planning?

- Understand the business need
  - SOA is “Service” oriented
    - The Service is the unit of control
    - Governing body interested in emergent characteristics not internals
    - Ownership is assigned on a service by service basis
    - Services should have independent implementation (reality may dictate otherwise)
  - Don’t try to make everything a service;
    - Some things are tool kits; for example logging, validation

- Service owners responsible for changes and adherence to governing policies
  - Governing body must have jurisdiction
Define

SOA Governance: Define
- How will changes be managed
- What technology is “standard”
- What are the processes to manage the SOA
- How does SOA and business interlock

Establish
- Change management
- Policies for publishing, using and retiring services
- Infrastructure to help organize and discover services assets, govern access and monitor service vitality
Enable

SOA Governance: Enablement
- Financing
- Education
- Tools
- Regression testing
- Information gathering
- Organization (structure)
  - Design boards
  - Representation

Capabilities Needed
- Visibility to usage and project information
- Business and IT dashboards
SOA Governance Challenges

- Measuring service utilization and cost
- Measuring project cost
- Measuring business benefit and alignment
- Access and visibility to information
- Decision rights and governance process

Measures drive behavior
Choose carefully and review.
Example:
10R per message. → Big messages
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SOA for the Enterprise Architect …

- Understand your business goals, drivers, and context

- Understand your current environment
  - Development, Runtime, and Management

- Establish a reference

- Establish a Roadmap
  - Find appropriate starting point
  - Determine the development and runtime requirements
    - Leverage Separation of Concerns and the SOA Programming Model

- Establish Governance
  - Appropriate for your company culture and environment
Guidelines in Making SOA Decisions

**Strategic**

- Business agility for competitive advantage is the fundamental business requirement – and is enabled by SOA

- The most important and far-reaching SOA Governance best practice is for the CIO to report to the CEO

- Successful enterprises consistently demonstrate a willingness to sacrifice function to sustain architectural integrity (preserve Structure)

- Behaviors, not strategies, create value

- Without an IT investment approval process within an enterprise-wide IT governance plan, IT investments invariably build toward localized rather than enterprise goals

- If a peer relationship between IT and the business units cannot be forged, SOA will not be successful
Guidelines in Making SOA Decisions

**Tactical**

- **Governance is not management.**
  - Governance determines who makes the decisions. Management is the process of making and implementing the decisions.
  - Within a business process, each interaction with an IT asset is a potential service.

- **Vitality depends on financing; SOA can use “pay as you go” self financing.**
  - A service that mirrors (and executes) a business process, can be used to allocate IT costs and provide IT justification by correlating costs with business process results.
  - A company’s SOA gives IT a definitive way to prove business value through business results measurements.

- **Competitive business agility is achieved when a change in business process no longer requires a change to application programming logic.**

- **Business-savvy IT architects are the bridge between IT and the company’s business units.**
IBM Enables SOA Governance by providing

- Services and expertise to assist across the entire service lifecycle
- Methods, process, tools and technology for:
  - Defining/refining governance approach
  - Identifying high value business services and instantiating policy and standards
  - Managing the lifecycle of services and other assets
  - Gaining visibility to performance against goals
Thank You

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