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Enterprisewide SOA Is Multiowned and Federated

Customer Support

SOA Domains

Customers
Suppliers
Contractors
Outsourcers

Enterprise SOA

SOA Federation

Administration

Production

Domestic Sales

International Sales
Key Issues

1. What will be the technical and business drivers for strategic SOA adoption?

2. How will organizations incrementally approach large-scale SOA initiatives?

3. What are the key hurdles on the way to enterprisewide SOA, and how can organizations get over them?
Irresistible Forces Push Organizations Toward SOA Adoption

**Inhibitors**

- IT cost reduction
- Escalating integration needs (A2A, B2B, SaaS)
- Immature standards
- More-complex application infrastructure
- Lack of governance
- Heterogeneous technology and conflicting vendors' strategy
- Cultural change

**Drivers**

- Need for business processes improvement
- Lowering cost and growing maturity of enabling technology
- Quest for greater business agility
- Packaged-application vendors' pressure
- Availability of best practices

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Adopting SOA-Enabled Packaged Business Applications

**Wrapped SOA**
- Pre-SOA packages/modules
- Vendor-provided standardized service-wrapped interfaces
- Packaged and custom processes and composite applications
- Minimalist SOA backplane
- Informal registry and governance

**Hybrid SOA**
- Coexistence of full-SOA and pre-SOA packages/modules
- Coexistence of vendor-provided standardized native and wrapped interfaces
- Packaged and custom processes and composite applications
- Full SOA backplane

**Full SOA**
- Full SOA packages/modules
- Vendor-standardized native interfaces
- Packaged and custom processes and composite applications
- Full SOA backplane
- Formal registry and governance

**2007**

**2008-2012**

**Post-2012**
Where Will Users Source Their Business Services?

**TCO Differentiation**

- **On-Demand Services (SaaS)**
- **Purchased Services (Packaged Applications)**
- **Custom Services (Built/Wrapped)**

**Business Impact of Services**

- **Composite Application/Mashup (Packaged/Custom)**
- **Composite Process (Packaged/Custom)**

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*Gartner*
**Bottom Line**

*What will be the technical and business drivers for strategic SOA adoption?*

- SOA hasn't been ordered by the doctor: You can live without it.
  - SOA adoption should be justified by balancing (certain) costs and (potential) benefits.

- However, most organizations will be forced to SOA by their packaged-application vendors.
  - Investigate the SOA strategy of your packaged-application vendors and plan for a gradual adoption.

- SOA services and applications will be multisourced. SaaS and SOA go hand in hand.
  - If you're planning for SaaS, you need to plan for SOA as well (and possibly vice versa).
### Stages of SOA Adoption

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<th>Business Goals</th>
<th>Stage 1 Introduction</th>
<th>Stage 2 Spreading</th>
<th>Stage 3 Exploitation</th>
<th>Stage 4 Plateau</th>
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<tr>
<td>IT Goals</td>
<td>Address Specific Pain (for example, Customer Portal)</td>
<td>Process Integration (for example, B2B)</td>
<td>Process Flexibility (for example, Time to Market)</td>
<td>Continuous Adaptation and Evolution</td>
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<tr>
<td>Scope</td>
<td>Single Application</td>
<td>Multiple Applications (Single BU)</td>
<td>Multiple Applications (Across BUs)</td>
<td>Virtual Enterprise</td>
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</table>

| No. of Published Services* | <25 | <100 | <500 | >500 |
| No. of Service Consumers*  | <5  | <25  | <50  | >50  |
| No. of Service Calls/Day*  | <10,000 | <100,000 | <1,000,000 | >1,000,000 |
| No. of Service Developers* | <10 | <20  | <100 | >100 |


*These figures represent typical scenarios, but they may vary considerably, depending on the specific organization’s requirements.*
Why SOA Initiatives Fail: Technology or Governance?

Introduction

Spreading

Exploitation

Plateau

Risk of SOA Project Failures

Time

More Risk

Technology Risk

Less Risk

Lack of Governance Risk

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Enterprisewide SOA is a long journey. Plan for multiyear incremental implementation steps, but look for short- and medium-term payback.

At each step, additional technology and organizational capabilities must be put in place.


SOA success is a 50-50 business between technology and governance (and good old management).

- Bad technology choices can kill even the best-run SOA initiative. Focus on governance from Day 1, but initially avoid "too much" governance.
The Seven Golden Rules for the Perfect First SOA Project

1. Set Goals and Collect Business-IT Requirements
2. Segregation of Duties
   - Application design teams:
     - Service consumers
     - Service implementations
   - Infrastructure Design Team (the future SOA COE)
3. Joint Design/Independent Implementations
   - Services jointly designed by application teams
   - Technically validated by the infrastructure team
4. Deliver Infrastructure (SOA Backplane) First
   - Design, implementation, testing
   - Validation against an agreed proof of concept
5. Deliver Services Before Consumer Applications
   - Plan for services to be available and tested before relevant consumers
6. Test, Test and Test Again
   - Plan for at least 25% of development effort on integration testing
7. Log, Log and Log Again
   - Multiple turn-on/off logs
Service-Oriented Architecture Entails Tackling Multiple Technology Challenges

"All-in-One" Application Platform Suite

Native SOA Application

Non-SOA Wrapped Application

Services

Application Logic

TPM, EAS

ESB, MOM, XML Appliances

Portal Product

Multichannel Portal

Composite Application (Mashup)

BPM Application

Adapters, Programmatic Integration Servers

BPM Technology

Portal Product, EAS, Composite Application Tools, Mashup Tools
The SOA Backplane Unveiled: Web Services and More

- Common Features
- Advanced Features
- Minimal Features

- Security Management Adapters
- Development Tools
- Life Cycle Management Tools
- Orchestration Policies
- Extensibility Framework
- Communication (SOAP, IIOP, JMS, MOM, RPC, ORB, TPM)
- Mediation/Transformation
  - Routing/Addressing
  - Naming
  - QOS

Spread
Standardized Business Objects Enable Interoperability and Reuse

Customer Data (Siebel Format)

Oracle Siebel CRM

Customer Data (SAP Format)

SAP ERP

Composite "Get Customer Data" Service

Interface

Customer Data (Standardized Format)

Customer Data (Custom Format)

Customer Data (ISV Format)

B2C E-Commerce Application

Branch Office Packaged Application

Spreading
# How Do You Know If You Are Doing It Right or Wrong?

<table>
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<tr>
<th>Goal/Focus</th>
<th>Examples of SOA Technical Metrics</th>
<th>Optimal Trend</th>
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<tr>
<td><strong>Reuse</strong></td>
<td>- Number of Services Deployed&lt;br&gt;- Number of Consumer Applications Deployed&lt;br&gt;- Number of Services/No. of Consumers&lt;br&gt;- Number of Services Shared by at Least Two Applications&lt;br&gt;- Average Sharing Ratio</td>
<td></td>
</tr>
<tr>
<td><strong>QOS</strong></td>
<td>- Volume of Service Requests&lt;br&gt;- Number of Requests per Service&lt;br&gt;- Service Request Response Time</td>
<td></td>
</tr>
<tr>
<td><strong>Cost Reduction</strong></td>
<td>- Number of New Services Developed per Each New Consumer Application&lt;br&gt;- Time to Deployment for New Consumer Applications&lt;br&gt;- Cost of Application Maintenance</td>
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</table>
How Do You Enforce Sharing of Services?

- Service Definition Process
- Standardized Business Objects
- Service Registry and Life Cycle Management Tools
- Reward Policies
- Shareable Services "Chasing" Team

Exploitation
Mainstream
Aggressive
Gartner
SOA Domain: The Key Conceptual Enabler for Federated SOA

**Definition**
- Related set of consumers and services
- Single business ownership and span of technical management
- Single SOA center of excellence
- Common set of governance processes
- Unified domain SOA backplane (at least logically)
- Unified domain service registry (at least logically)

**SOA Domain**
- 30 to more than 300 services (depending on domain scope)
- >80% of service invocations are intradomain
- >75% of service consumer apps call only intradomain services
- Up to 35% of domain services shared by multiple consumers
- Up to 75% of domain services needed by a new domain application are already available

**Typical Characteristics***
*Figures are indicative of a mature domain in which most required consumer applications and service providers have already been implemented.*
Federated SOA Backplane Topologies

**Point-to-Point**
- Characteristics:
  - SOA backplanes connect to each other via point-to-point links.
  - Each link can be implemented using different protocols.
- Pros:
  - Simple to implement.
  - Low cost.
- Cons:
  - Accountability/responsibility.
  - Scalability.
- Best when:
  - Small number of SOA backplanes.
  - Semiautonomous, peer domains.

**Uber-SOA Backplane**
- Characteristics:
  - One specific domain SOA backplane also acts as a central "broker" linking all the other backplanes.
- Pros:
  - Simple to implement.
  - Well-defined responsibility.
- Cons:
  - Risk of uber-backplane overload.
  - Security/privacy.
- Best when:
  - One large domain and multiple smaller domains.
  - Hierarchical company organization.

**Intermediary SOA Backplane**
- Characteristics:
  - Each SOA backplane links into a central, enterprisewide backplane supporting only interbackplane mediation (routing, transformation).
- Pros:
  - Well-defined responsibility.
  - Noninvasiveness.
- Cons:
  - Higher costs.
  - Single point of failure.
- Best when:
  - Large number of SOA backplanes.
  - Semiautonomous, peer domains.
Coordinating Multiple SOA Centers of Excellence

**Virtual**

**Characteristics:**
Each SOA COE is independent, but there is a form of coordination to agree on a common set of technologies, standards and governance processes.

**Pros:**
- Technically noninvasive.
- Minimal organizational impact.

**Cons:**
- Vaguely defined responsibilities.
- Lowest common denominator approach.

**Best when:**
- Small number of SOA COEs.
- Semiautonomous, peer domains.

**Hierarchical (Uber-COE)**

**Characteristics:**
One domain SOA COE drives other COEs through recommendations for standards, technologies, products and governance and by providing support.

**Pros:**
- Well-defined responsibilities/roles.
- Minimizes technical and governance processes variations.

**Cons:**
- Risk of political resistance.
- Conflicting priorities for the uber-COE

**Best when:**
- One large domain and multiple small domains.
- Hierarchical company organization.

**Mediator**

**Characteristics:**
A dedicated Enterprise SOA COE mediates between COEs by reconciling standards and by providing an interdomain SOA backplane.

**Pros:**
- Well-defined responsibilities/roles.
- Noninvasiveness.

**Cons:**
- Higher costs.
- Organizational complexity and inertia.

**Best when:**
- Several strong and established COEs.
- Semiautonomous, peer domains.
Even in SOA, "Well begun is half done."

Leverage the first project to lay down the foundation for the SOA backplane, SOA governance and SOA center of excellence.

SOA doesn't happen by magic.

Use a sound combination of "stick" and "carrot" to achieve alignment with SOA goals and principles.

Federation is the most-natural approach to systematic, enterprisewide SOA.

Proactively adopt a federated approach to diffuse SOA benefits across the entire enterprise.