
SECTION 5

STEPS TO IMPLEMENT SOA

7 Steps to SOA

1. Create/Expose Services
2. Register Services
3. Secure Services
4. Manage (monitor) Services
5. Mediate and Virtualize Services
6. Govern the SOA
7. Integrate Services

Source: *SOA Software, Inc., 2008.*

1. Create & Expose Services

- Three primary choices
 - Rebuild existing applications using SOA paradigm
 - Expose existing application logic as a set of services
 - A combination of rebuild and expose
- Enterprises typically use a combination of rebuild & expose
 - Solutions exist that facilitate migration of mainframe applications such as CICS to Web Services
- **Granularity** is a key criterion for Web Service
 - Functionality must be sufficiently coarse-grained
 - If coarse-grained, potential to be useful to different applications

Source: *SOA Software, Inc., 2008.*

2. Register Services

- Application architects & developers need to know that a service exists
- Use a registry
 - UDDI compatibility important
 - Search and Browse capability
 - Facilitate quick and accurate discovery of services
 - Some vendors have extended registries to repositories

Source: *SOA Software, Inc., 2008.*

3. Secure Services

- ❑ May have inadvertently created gaping security holes
- ❑ My have exposed sensitive information
- ❑ 5 principles of security
 1. Authentication
 - ❑ Basic HTTP authentication, SAML, X.509 signature
 2. Authorization
 - ❑ Leverage solutions such as CA SiteMinder, IBM TAM
 3. Privacy
 - ❑ XML-Encryption
 - ❑ Key & certificate management & distribution capabilities
 4. Non-Repudiation
 - ❑ Requestor & Sender cannot deny activities
 5. Auditing
 - ❑ Accurate accounting of requests & responses

Source: SOA Software, Inc., 2008.

4. Manage Services

- Look for potential disaster
 - Too many applications consuming a service?
 - Is the load reasonable
 - Is there a degradation in performance?
- Need to be able to monitor for
 - Basic Availability
 - Performance
 - Throughput
 - SLA agreement

Source: *SOA Software, Inc., 2008.*

5. Mediate & Virtualize Services

- As SOA matures may need to:
 - Introduce new versions
 - Increase capacity by running multiple instances
 - Provision applications to use specific instances of services
- Solution is Virtualization
 - Virtual service is a new service
 - Own WSDL, network address, transport parameters
 - Doesn't implement business logic
 - Acts as proxy to one or more physical services
 - Routes, load-balances, transforms, mediates
- XML transformation can be used to allow consumers to use an old version of service that no longer exists
 - Request & response transformed

Source: *SOA Software, Inc., 2008.*

Mediate & Virtualize Services Cont'd

- ❑ Consumers can select specific operations from multiple different services & combine them into a single functional WSDL
- ❑ Consumers can provide different policy requirements for different classes of users
- ❑ Transport bridging can be provided
 - E.g. HTTP and JMS
- ❑ Mediation between different standards implementation or versions of standards
- ❑ Mediation between different messaging styles
 - RSS, SOAP, REST, Plain old XML (POX)
- ❑ Content-or-context-based routing to deliver advanced load-balancing and high-availability capabilities

Source: *SOA Software, Inc., 2008.*

6. Govern the SOA

- Use a governance framework
- Design Time Issues
 - What types of services can be published?
 - Who can publish them?
 - What types of schema and messages services can accept?
 - What are the rules for the services?
- Run Time Issues
 - Security
 - Reliability
 - Performance
 - Compliance with policies

Source: *SOA Software, Inc., 2008.*

Govern the SOA Cont'd

- ❑ Tools needed for active participants
- ❑ Service Developer needs tools to:
 - Publish, categorize, define meta-data, virtualize
 - Choose policy, participate in capacity planning & access workflow
- ❑ Service Consumer needs tools to:
 - Facilitate service discovery, selection & access workflow
- ❑ Operations Staff need to:
 - Monitor service performance
 - Troubleshoot problems, monitor dependencies
 - Version services, virtualization & proxy management

Source: *SOA Software, Inc., 2008.*

Govern the SOA Cont'd

- Security Staff needs tools to:
 - Manage policy, report policy, check compliance, audit security
- Enterprise Architect needs tools to:
 - Monitor application, manage relationships
 - Define & validate design policy
 - Assign services to proxy
 - Virtualize services
- Enterprise IT Management
 - Manage reuse metrics
 - Gather service reuse statistics
 - Gather SOA statistics

Source: *SOA Software, Inc., 2008.*
