



# Service-Oriented Architect skills roadmap

## Role

The service-oriented architect is expected to articulate business and technical values of service-oriented architecture (SOA), help determine return on investment, be familiar with new industry standards, design patterns, and be able to craft service-oriented architecture solutions using existing assets and new components. Such an architect should also understand and be able to contribute to governance issues related to service development, deployment and management within the organization.

## Assumptions

It is assumed that the individual following this roadmap has architect skills and needs to learn about service-oriented architecture, design concepts and SOA implementation technologies.

## 1 Prerequisite skills for Architect

### Objectives

After completing this step, students should be able to:

- Describe the organization of use-case, analysis, design, and deployment models.
- Generate an analysis model from a requirements model and elaborate on the model.
- Generate a design model from an analysis model and elaborate on the model.
- Incorporate existing code and reusable assets in the development of a new application.
- Add elements used for testing and verification to the design.
- Model a service in Rational Software Architect using the UML Profile for Software Services.
- Create a User Experience model and generate JSF elements from that model.
- Incorporate the IBM Patterns for e-business in the design of a system
- Define and customize RequisitePro project structure and components
- Create and build a project
- Create, import, and revise requirements, attributes, and requirement documents
- Define hierarchies of requirements
- Trace requirements to one another
- Manage changing requirements through views, queries, metrics, and revision notification

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Mastering IBM Rational Software Architect	
<b>DEV496</b>	
Classroom (3 days)	



Essentials of Rational RequisitePro	
<b>REQ370</b>	OR
Classroom (1 day)	
<b>RR331</b>	OR
Instructor-led online (1 day)	

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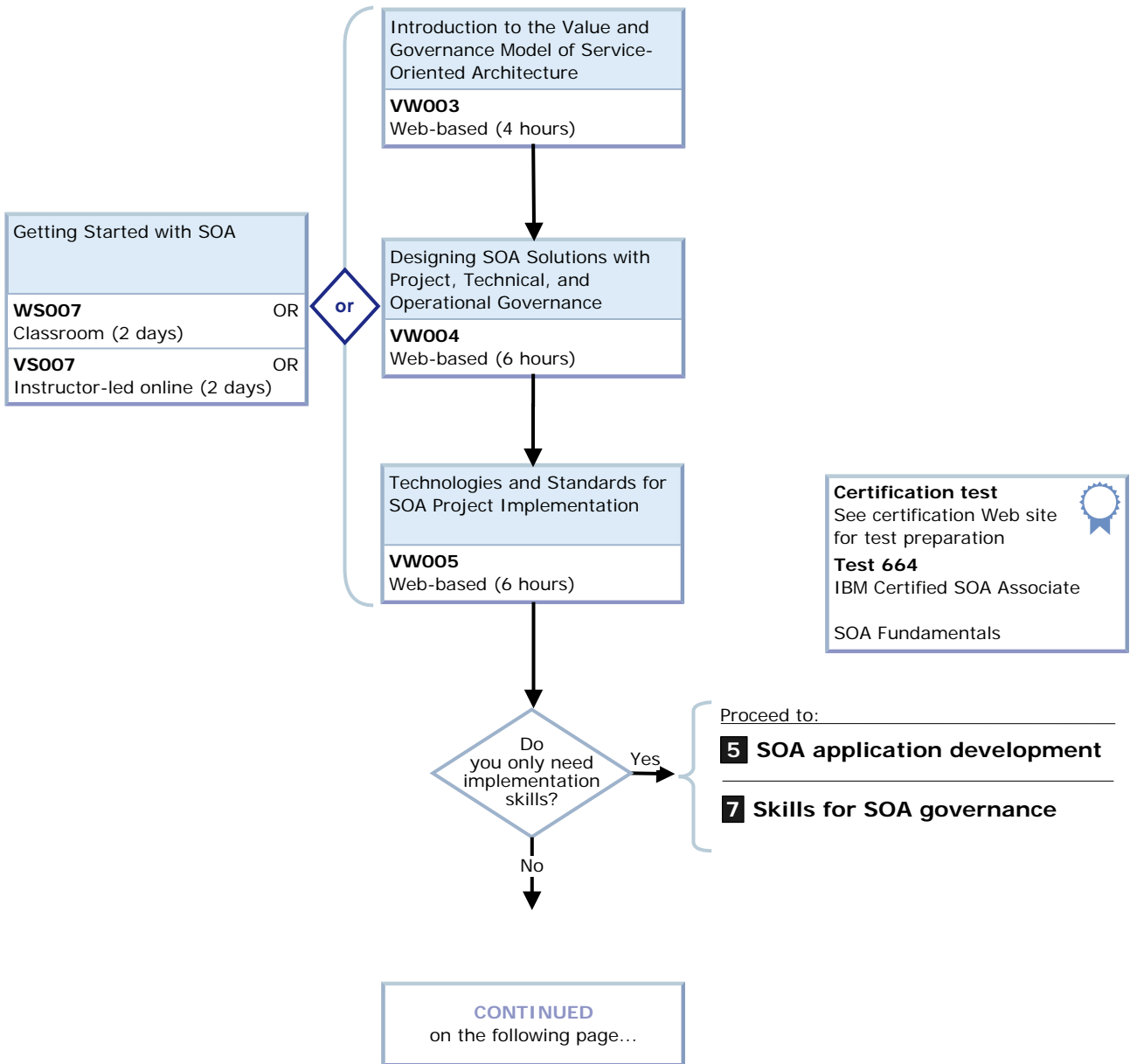
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## 2 SOA fundamentals

### Objectives

After completing this step, students should be able to:

- Explain the business and technical value of adopting SOA
- Describe SOA and explain how it relates to contemporary software architectural styles
- Explain the principles and characteristics of services within SOA, and identify various service types
- Explain Information Services, and how and when to apply it
- Describe service-oriented integration (SOI) and explain how it differs from contemporary integration approaches
- Identify methodologies for service-oriented analysis and design
- Describe programming models and standards that support the realization of SOA and SOI
- Describe Web services, and explain how they support the realization of SOA solutions
- Describe IBM's SOA Foundation, and identify IBM offerings that support IBM's SOA life cycle
- Explain the need for SOA governance
- Explain IBM's SOA governance offerings for establishing SOA governance within an organization
- Explain IBM's SOA scenarios and describe how these support adoption of SOA within an organization



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### 3 Basic Web services skills

#### Objectives

After completing this step, students should be able to:

- Articulate the role of Web services in SOA
- Describe the purpose of WSDL
- Read, describe and create WSDL document
- Explain the role of XML in Web services
- Explain the purpose of SOAP
- Describe the transports commonly used in Web services, such as HTTP and Java Messaging Service (JMS)
- Summarize the role of an Enterprise Service Bus (ESB) and how it relates to Web services
- Describe issues in Web services interoperability
- Explain the role of a registry in SOA

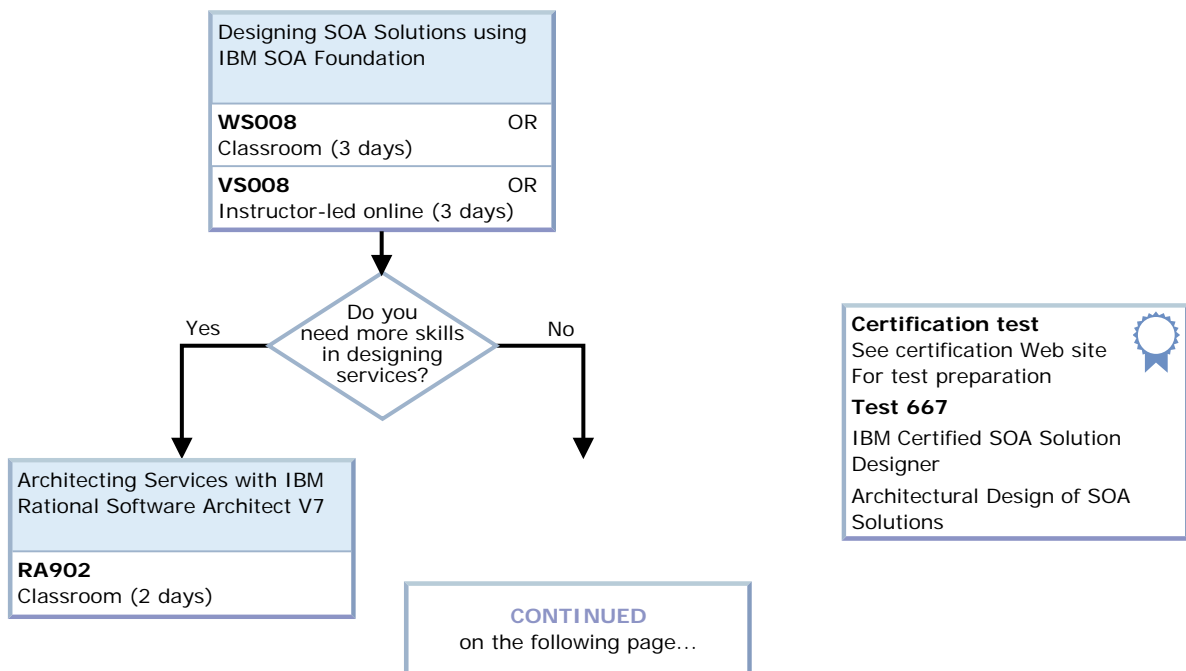
A Technical Introduction to Web Services	
<b>WD503</b> Classroom (1 day)	OR
<b>VD503</b> Instructor-led online (1 day)	OR

### 4 SOA design, modeling and realization skills

#### Objectives

After completing this step, students should be able to:

- Define the functional, data and operational aspects of a service-oriented architecture
- Specify IBM software and Web services technologies to fulfill a service-oriented architecture
- Identify issues that arise when defining service-oriented architectures, by handling a variety of difficulties in the case studies and working with other experienced IT professionals to resolve them
- Apply Service design principles such as the use of explicit interfaces, the use of loose coupling, and the passing of data by value rather than by reference.
- Perform service identification and modeling
- Categorize services
- Apply SOA design patterns
- Craft SOA adoption roadmap for an organization
- Help define and apply SOA governance



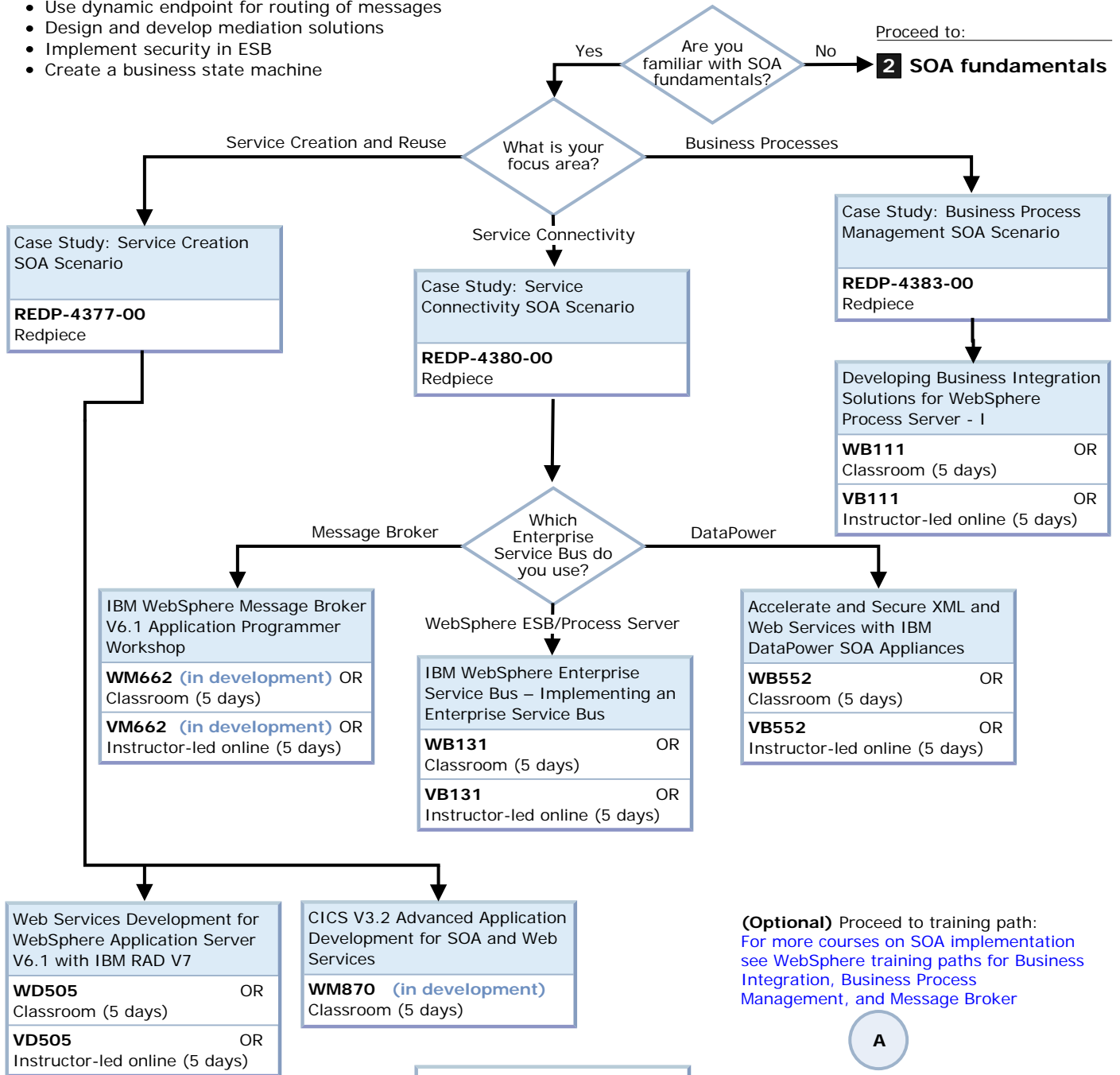
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**5 SOA application development skills using WebSphere Enterprise Service Bus (WESB), WebSphere Message Broker (WMB), WebSphere Process Server (WPS) and WebSphere Integration Developer (WID)**

**Objectives**

After completing this step depending on the selected path, students should be able to:

- Describe IBM ESB products and capabilities such as WESB, WMB, DataPower, DataStage, WebSphere Information Integrator
- Articulate ESB design patterns and its role in IBM SOA Reference Architecture
- Design ESB Solutions and select appropriate products to use as ESB
- Apply best practices for product integration and federation
- Integrate WebSphere Business Integration adapter with ESB
- Use Web services bindings (SOASP/HTTP and SOAP/JMS) for access to the bus
- Describe the security features and key capabilities of IBM DataPower SOA Appliances
- Configure key security services on an IBM DataPower SOA Appliance
- Create a human task to include human interaction in a business process
- Use dynamic endpoint for routing of messages
- Design and develop mediation solutions
- Implement security in ESB
- Create a business state machine



**(Optional)** Proceed to training path: [For more courses on SOA implementation see WebSphere training paths for Business Integration, Business Process Management, and Message Broker](#)



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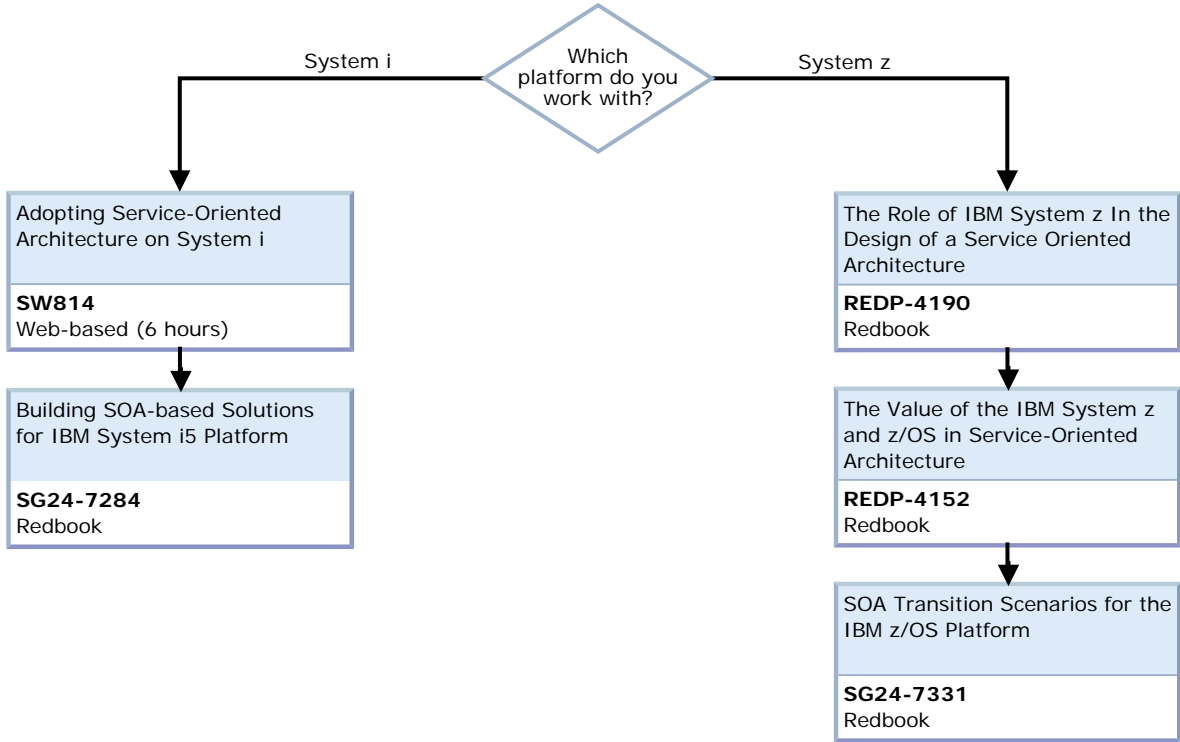
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**6 Skills for SOA on systems i and z**

**Objectives**

After completing this step, students should be able to:

- Explain how SOA can be extended to Systems i and z
- Describe how the existing assets can participate in an SOA solution in Systems i and z
- Prescribe ways to modernize the application and infrastructure environment using IBM SOA Foundation on Systems i and z



**7 Skills for SOA governance**

**Objectives**

After completing this step, students should be able to:

- Describe the concept of SOA governance in the SOA life cycle
- Describe the purpose and scope of WebSphere Registry and Repository (WSRR)
- Find, publish, and manage service metadata using the WSRR Web interface (Web UI)
- Create relationships and properties, and apply classifications to service metadata
- Implement dynamic service selection with WSRR mediation components in WESB
- Implement dynamic service selection with WSRR mediation nodes in WMB
- Design validation and notification plug-ins for WSRR
- Customize the behavior of the WSRR Web UI

IBM WebSphere Service Registry and Repository for Application Developers	
<b>WB521</b>	OR
Classroom (3 days)	
<b>VB521</b>	OR
Instructor-led online (3 days)	

**(Optional)** Proceed to training path:  
[For more courses on WebSphere Registry and Repository](#)



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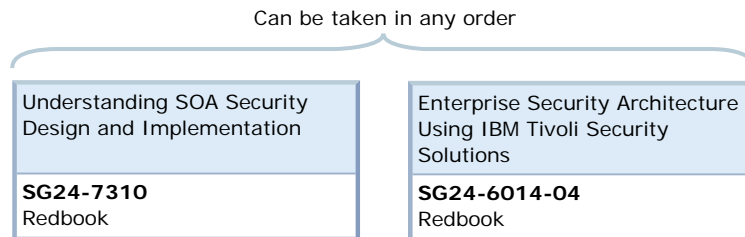
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## **8 Skills for SOA security**

### **Objectives**

After completing this step, students should be able to:

- Describe common security architectures and network models
- Describe security standards and technologies
- Apply security to SOA design as a business requirement
- Articulate integrated security management for SOA
- Explain the impact of security requirements on SOA design
- Recommend appropriate products to address security requirements



### **Supplemental resources**

- + Building SOA Solutions Using the Rational SDP – Redbook - SG24-7356-00
- + Patterns: SOA Design using WebSphere Message Broker and WebSphere ESB – Redbook - SG24-7369-00