Service-Oriented Architect and Application Developer 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.
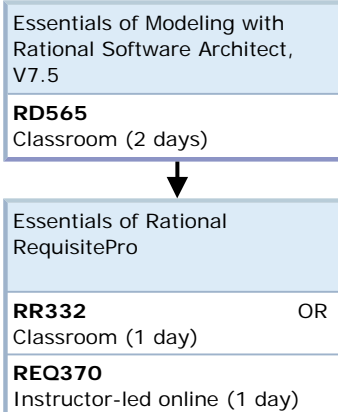
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1 Prerequisite skills for Architect

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

START HERE...

Essentials of Modeling with Rational Software Architect, V7.5
RD565 Classroom (2 days)

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Essentials of Rational RequisitePro	
RR332 Classroom (1 day)	OR
REQ370 Instructor-led online (1 day)	

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
- Fundamentals of cloud computing

Getting Started with SOA

WS007	OR
Classroom (2 days)	
VS007	OR
Instructor-led online (2 days)	
ZS007	
Self-paced virtual classroom	

Introduction to the Value and Governance Model of Service-Oriented Architecture

VW003
Web-based (4 hours)

Designing SOA Solutions with Project, Technical, and Operational Governance

VW004
Web-based (6 hours)

Technologies and Standards for SOA Project Implementation

VW005
Web-based (6 hours)

Fundamentals of Cloud Computing

WS009	OR
Classroom (1 day)	
VS009	OR
Instructor-led online (1 day)	
ZS009	OR
Self-paced virtual classroom	

Certification test
See certification Web site for test preparation
Test 669
IBM Certified SOA Associate

SOA Fundamentals

Do you only need implementation skills?

Yes

Proceed to:

5 SOA application development

7 Skills for SOA governance

No

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
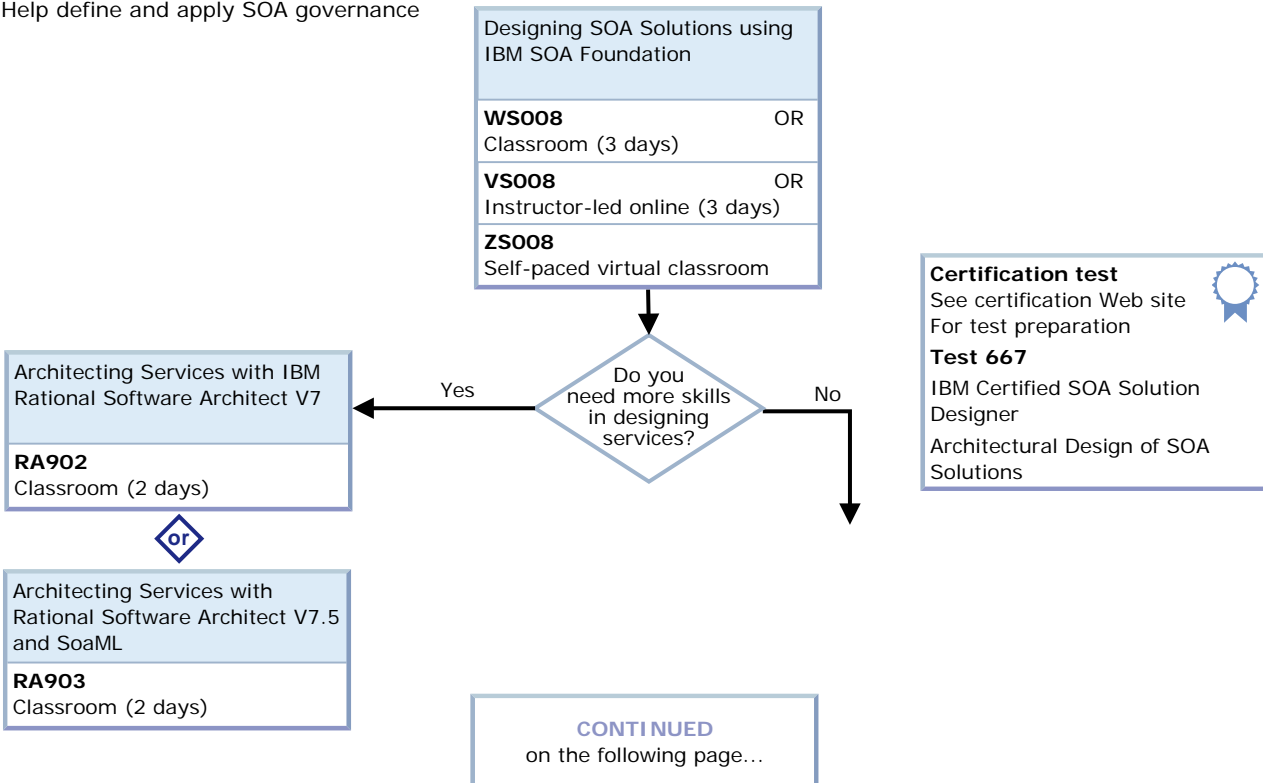- Explain the role of a registry in SOA

A Technical Introduction to Web Services	
WD503 Classroom (1 day)	OR
VD503 Instructor-led online (1 day)	OR
VW503 Web-based	

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

Designing SOA Solutions using IBM SOA Foundation	
WS008 Classroom (3 days)	OR
VS008 Instructor-led online (3 days)	OR
ZS008 Self-paced virtual classroom	

Architecting Services with IBM Rational Software Architect V7
RA902   Classroom (2 days)

or

Architecting Services with Rational Software Architect V7.5 and SoaML
RA903   Classroom (2 days)

Do you need more skills in designing services?

Yes

No

Certification test
See certification Web site
For test preparation
Test 667
IBM Certified SOA Solution Designer
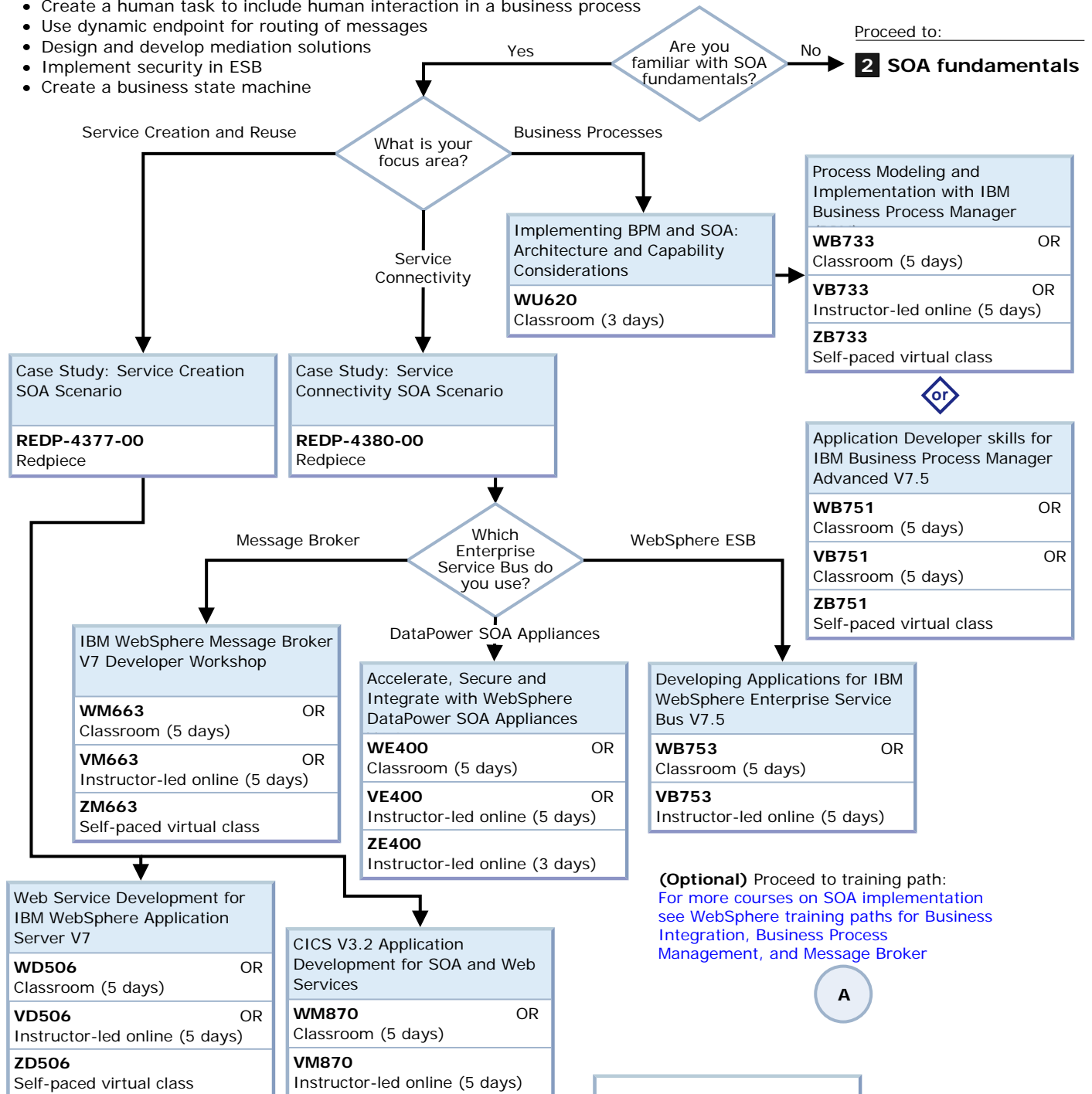Architectural Design of SOA Solutions

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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 (SOAP/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
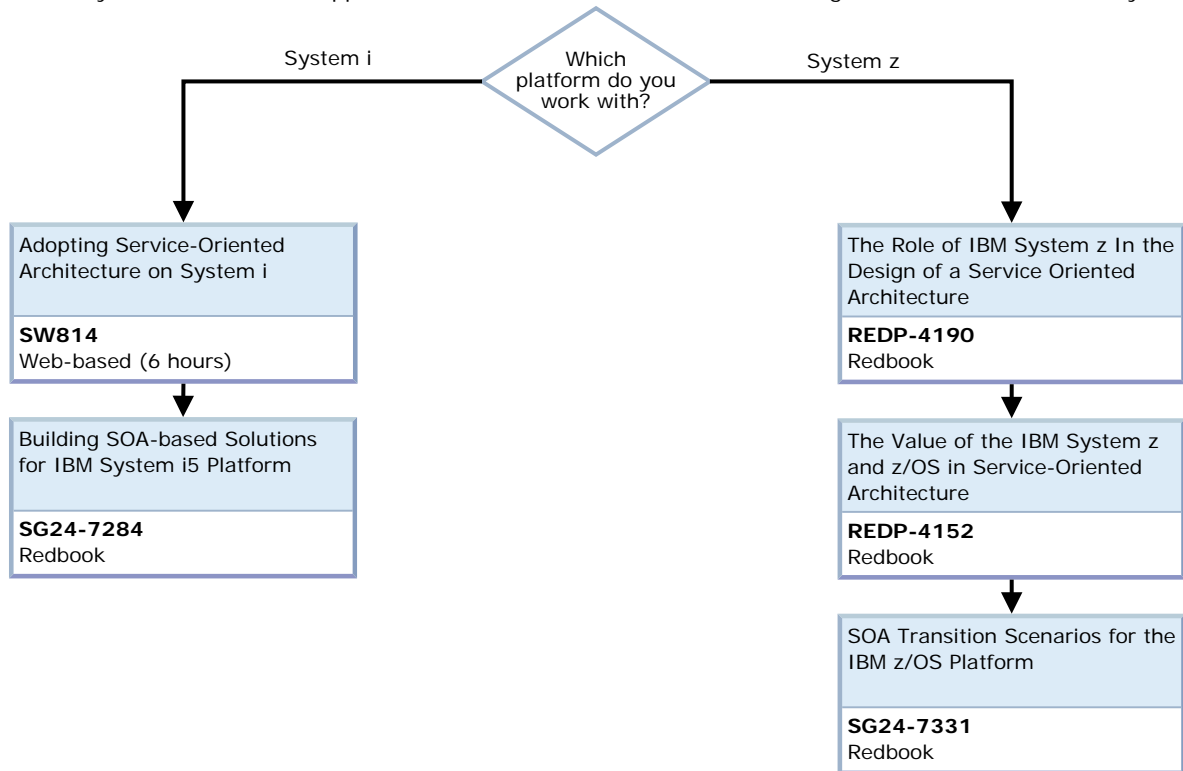- Create a business state machine

Are you familiar with SOA fundamentals?

Yes → What is your focus area?

No → Proceed to: **2** **SOA fundamentals**

Service Creation and Reuse / **Business Processes**

Service Connectivity

Implementing BPM and SOA: Architecture and Capability Considerations

WU620
Classroom (3 days)

Process Modeling and Implementation with IBM Business Process Manager

WB733	OR
Classroom (5 days)	
VB733	OR
Instructor-led online (5 days)	
ZB733	
Self-paced virtual class	

or

Application Developer skills for IBM Business Process Manager Advanced V7.5

WB751	OR
Classroom (5 days)	
VB751	OR
Classroom (5 days)	
ZB751	
Self-paced virtual class	

Case Study: Service Creation SOA Scenario

REDP-4377-00
Redpiece

Case Study: Service Connectivity SOA Scenario

REDP-4380-00
Redpiece

Which Enterprise Service Bus do you use?

Message Broker / **WebSphere ESB**

DataPower SOA Appliances

IBM WebSphere Message Broker V7 Developer Workshop

WM663	OR
Classroom (5 days)	
VM663	OR
Instructor-led online (5 days)	
ZM663	
Self-paced virtual class	

Accelerate, Secure and Integrate with WebSphere DataPower SOA Appliances

WE400	OR
Classroom (5 days)	
VE400	OR
Instructor-led online (5 days)	
ZE400	
Instructor-led online (3 days)	

Developing Applications for IBM WebSphere Enterprise Service Bus V7.5

WB753	OR
Classroom (5 days)	
VB753	
Instructor-led online (5 days)	

Web Service Development for IBM WebSphere Application Server V7

WD506	OR
Classroom (5 days)	
VD506	OR
Instructor-led online (5 days)	
ZD506	
Self-paced virtual class	

CICS V3.2 Application Development for SOA and Web Services

WM870	OR
Classroom (5 days)	
VM870	
Instructor-led online (5 days)	

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

A

4

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

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                    System i     ╱ Which ╲     System z
               ◄─────────────────  platform do you  ─────────────────►
                                 ╲ work with? ╱
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System i branch:

Adopting Service-Oriented Architecture on System i
SW814 Web-based (6 hours)

Building SOA-based Solutions for IBM System i5 Platform
SG24-7284 Redbook

System z branch:

The Role of IBM System z In the Design of a Service Oriented Architecture
REDP-4190 Redbook

The Value of the IBM System z and z/OS in Service-Oriented Architecture
REDP-4152 Redbook

SOA Transition Scenarios for the IBM z/OS Platform
SG24-7331 Redbook

7 Skills for SOA governance

Objectives

After completing this step, students should be able to:

- Describe the role of a service registry and repository within a service-oriented architecture (SOA)
- Describe the architecture of WebSphere Service Registry and Repository
- Explain how WebSphere Service Registry and Repository supports SOA governance and service life cycle management
- Explain the need for a federated registry/repository strategy within SOA, and describe how WebSphere Service Registry and Repository supports this strategy
- Describe the topology considerations for planning a WebSphere Service Registry and Repository deployment configuration
- Configure security for WebSphere Service Registry and Repository
- Customize the information metamodel in WebSphere Service Registry and Repository to suit the SOA governance model for an organization
- Implement governance policies and service life cycles
- Describe how to integrate WebSphere Service Registry and Repository with IBM WebSphere Enterprise Service Bus (ESB) solutions such as WebSphere Enterprise Service Bus, WebSphere Message Broker, and DataPower to perform dynamic lookup of service metadata and service policies
- Describe the benefits of runtime integration between WebSphere Service Registry and Repository and IBM Tivoli Composite Application Manager for SOA V6.1

IBM WebSphere Service Registry and Repository V7 Workshop	
WU665	OR
Classroom (5 days)	
VU665	
Instructor-led online (5 days)	

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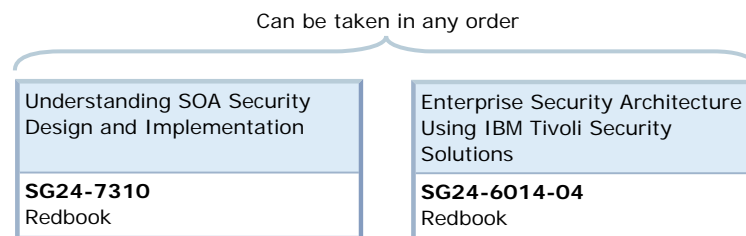For more courses on WebSphere Registry and Repository

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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
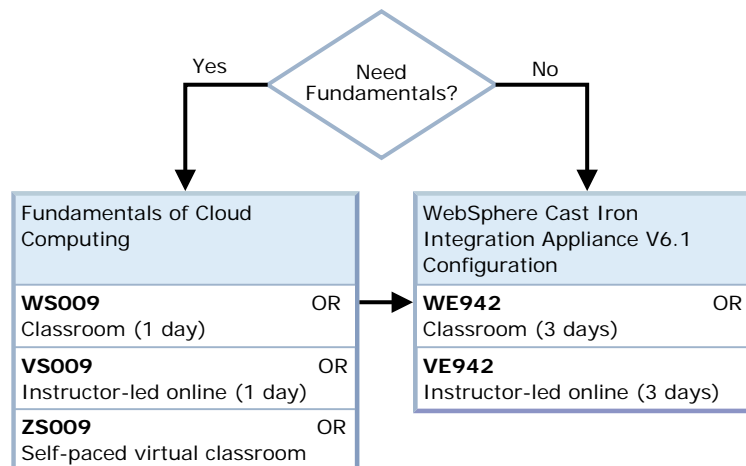- Recommend appropriate products to address security requirements

Can be taken in any order

Understanding SOA Security Design and Implementation	Enterprise Security Architecture Using IBM Tivoli Security Solutions
SG24-7310	**SG24-6014-04**
Redbook	Redbook

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9 Skills for Software-as-a-Service (SaaS) with WebSphere Cast Iron

Objectives

After completing this step, students should be able to:
- Transform data
- Implement business logic
- Receive data from and deliver data to our most commonly used endpoints including: File servers, Web servers (by using HTTP or web services), Email servers, Database management systems

Need Fundamentals?

Yes → / No →

Fundamentals of Cloud Computing		WebSphere Cast Iron Integration Appliance V6.1 Configuration	
WS009	OR	**WE942**	OR
Classroom (1 day)		Classroom (3 days)	
VS009	OR	**VE942**	
Instructor-led online (1 day)		Instructor-led online (3 days)	
ZS009	OR		
Self-paced virtual classroom			

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