

## Programming WCF Web Services for .NET: A Comprehensive Hands-On Introduction - 4 Days

### Course 2601 Overview

- You Will Learn How To**
- Create Windows Communication Foundation (WCF) services for .NET 3.x/4
  - Integrate RESTful services into Ajax applications with WCF data services
  - Create WCF Rich Internet Application (RIA) services for Silverlight client applications
  - Harness advanced WCF features for service routing and discovery
  - Orchestrate long-running business processes with WCF Workflow services and Windows Workflow Foundation
  - Deploy services with the Windows Process Activation Service (WAS) and Windows Server AppFabric
- Course Benefits** WCF web services connect isolated data sources to create powerful distributed applications. .NET includes several complementary WCF service frameworks that allow enterprise applications to gain online access to critical business information. In this course, you learn to program WCF web services with C# or Visual Basic that harness each of these frameworks. You gain the knowledge and skills to maximize these technologies for your organization.
- Who Should Attend** Those who want to create WCF web services using .NET. Programming experience at the level of Course 503, "Visual Basic Programming for .NET," or Course 419, "C# Programming," is assumed.
- Hands-On Training** You gain hands-on experience building web services with .NET. Exercises, completed in either C# or Visual Basic, include:
- Coding WCF services and clients
  - Building interoperable and performant WCF services
  - Locating services dynamically with discovery
  - Connecting WPF, Silverlight, ASP.NET and Ajax clients to .NET services
  - Mapping long-running business processes to services with WF
  - Deploying and managing services with Windows Server AppFabric

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## Course 2601 Outline

### Web Services Overview

#### Web service architecture

- Dividing responsibilities in n-Tier distributed applications
- Determining service and operation granularity
- Comparing operation- and resource-based services
- Options for serializing data: change set, simple entities, self-tracking entities, data transfer objects

#### Web service support in .NET

- The spectrum of WCF service toolkits
- WCF
- WCF Data Services
- WCF RIA Services
- Workflow Services

### Designing Operation-Oriented Services

#### Programming WCF services

- Creating the service interface and implementation
- Applying attributes to the service and operations
- Connecting clients with service references
- Hosting WCF services with IIS and Windows services

#### Configuring WCF services

- Authoring service and client configuration
- Leveraging bindings for interoperability and performance
- Harnessing service and endpoint behaviors
- Simplifying configuration with .NET 4

### Constructing Resource-Oriented Services

#### Services

##### Syndicating WCF services

- Returning simple XML to clients
- Delivering RSS content feeds from WCF

#### Leveraging WCF data services

- Mapping HTTP actions into service operations
- Supporting RESTful access to entity framework data
- Partitioning data with projections and query expressions
- Sharing information with the open data protocol (oData)
- Integrating diverse data sources: SharePoint 2010, Azure and Excel 2010

- Accessing WCF data services from .NET and Ajax clients

### Developing WCF RIA Services

#### Simplifying n-Tier service development

- Standardizing service design patterns for Silverlight clients
- Exposing domain logic with LINQ
- Coding a domain service for query and update
- Benefiting from the authentication service

#### Integrating Silverlight clients

- Enabling rapid application development with the business application template
- Retrieving data efficiently with generated domain contexts
- Validating input consistently with shared code

### Leveraging WCF Features

#### Service routing

- Routing architecture and scenarios
- Protocol bridge
- Service fallback
- Multicast

#### Service discovery

- Announcing service availability
- Automating dynamic client connection to services

#### Duplex services

- Bidirectional communication infrastructure
- Controlling duplex channels in client and service code

### Delivering Long-Running Services with Workflow

#### Employing Windows Workflow Foundation 4

- Mapping business processes to flowchart workflows
- Designing declarative workflows with XAML
- Exploiting built-in and custom Workflow activities

#### Workflows as WCF services

- Representing service operations and ReceiveAndSendReply
- Linking client calls with content-based correlation

#### Customizing workflow behaviour

- Ensuring workflow resilience with persistence
- Observing workflow execution with tracking

### Deploying WCF Services

#### Integrating WCF with IIS

- Building WCF deployment packages with Visual Studio
- Benefiting from Windows Process Activation Service (WAS)

#### Managing services with Windows Server

##### AppFabric

- Manipulating running workflows
- Monitoring service and workflow operations

#### Securing Web Services

- Security defaults across the .NET service spectrum
- Transfer vs. message security
- Applying SSL and basic authentication to external services
- Authorizing access to service operations