10 Ways to Build Web Services in .NET
WCF REST Web Services

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Module Outline

- **Introduction to WCF REST**
- **Understand WCF Rest Configuration**
- **Create and test a WebGet method**
- **Create and test a WebGet method with a URI Template Parameter**
- **Create a WebInvoke POST method with an object parameter**
- **Test the POST method using Fiddler2**
- **Create and test a WebInvoke PUT method**
- **Create and test a WebInvoke DELETE method**
- **Call our web service using WebClient**
- **Call our web service using HttpWebRequest**

WCF REST Web Service

- **Windows Communication Framework**
  - Framework for message-based communication on both client and server
- **… with a specific configuration**
  - WebHttp behavior
    - provides XML and JSON serialization instead of SOAP
    - binds custom routes to each individual method
    - allows multiple HTTP verbs (GET, PUT, POST, DELETE)
  - WebHttpBinding service binding
    - binds endpoints to behaviors and methods in the web service

WCF REST Web Service

- **Web API Web Service**
  - Can use several HTTP verbs (GET, PUT, POST, DELETE)
  - Uses a different verb and/or endpoint for each service call
  - Sends data in one or more formats (XML, JSON)
  - No generated Web Service Definition Language file

WCF REST Web Service

- **REpresentational State Transfer**
  - Uses HTTP specific verbs for specific actions
    - Read = GET
    - Create = POST
    - Update = PUT
    - Delete = DELETE
  - URIs represent resources
    - service.com/Customer/3/Invoices instead of service.com/GetInvoicesForCustomer?CustomerId=3

Review

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Review – WCF REST Configuration

- **webHttp Behavior**
  - Enables XML and/or JSON serialization of input and output parameters
  - Allows methods to define their own custom routes
  - Binds different HTTP verbs to methods (GET, PUT, POST, DELETE)
  - automaticFormatSelectionEnabled allows for content negotiation using the Content-Type and Accept headers
- **WebHttpBinding**
  - Binds methods tagged with WebGet or WebInvoke to handle incoming web requests from the server

Review – WCF REST Attributes

- **WebGet**
  - Access the method using a GET verb
  - Change default route by using UriTemplate
  - Can accept parameters from route or query string
- **WebInvoke**
  - Access the method using PUT, POST, or DELETE verbs
  - Change default route by using UriTemplate
  - Can accept parameters from route or query string

Review – WCF REST Clients

- **Use WebClient to make GET calls**
  - Set the Accept header by adding it to the Headers collection
- **Use HttpWebRequest to make PUT, POST, DELETE calls**
  - Set the Accept, ContentType headers by setting the properties on the web request object
  - Use serializers to translate to and from data formats to .NET objects
    - DataContractJsonSerializer for JSON
    - XmlSerializer for XML