WCF

1 WCF and SOA Basics

Understanding SOA

What Is a Service?

Tenet 1: Boundaries Are Explicit

Tenet 2: Services Are Autonomous

Tenet 3: Services Share the Schema and Contract, Not the Class

Tenet 4: Service Compatibility Is Based on Policy

A Brief History of the Microsoft Distributed Stack

Why Are Web Services the Preferred Option?

What Does WCF Solve?

Unification of Existing Technologies

Interoperability Across Platforms

WCF As a Service-Oriented Development Tool

Exploring Features in WCF

Developer Productivity

Attribute-Based Development

Coexisting with Existing Technology

Hosting Services

Migration/Integration with Existing Technology

One Service, Multiple Endpoints

Integration Technologies

How Do You Unify All These Technologies?

2 Exploring the WCF Programming Model

Introducing the Technical Architecture

Introducing the Programming Approach

WCF Programming Model

- Addresses
- Bindings
- Contracts

Looking Inside the WCF Layers

- The Messaging Layer

Using ServiceHost and ChannelFactory

- ServiceHost
- ChannelFactory
- Service Description
- Service Runtime

Applying Behaviors

- Service Behavior
- Contract Behavior
- Channel Behavior
- Operation Behavior
- Service Metadata Behavior

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Configuring Diagnostics

Configuring Instrumentation

3 Installing and Creating WCF Services

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- Hardware Requirements
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Understanding Service Contracts

- Contract First or Code First?

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Programming Model

Hello World

Hello World with Interfaces

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ServiceBehavior Attribute

OperationBehavior Attribute

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Data Contracts

Message Contracts

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Hosting in Windows Services

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Configuring WCF Services in IIS

Accessing ServiceHost in IIS

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ASP.NET Compatibility Mode

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Windows Server 2003 and IIS 6.0

Hosting in IIS 7.0

WAS

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Consuming WCF Services

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Building Custom Code to Monitor Activity

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Using Tracing and Message-Logging Capabilities

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Enabling Message Logging

Enabling Tracing

Using SvcTraceViewer.exe

Using WCF Performance Counters

Enabling Built-In WCF Performance Counters

Creating Custom Performance Counters

Using WMI

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Business Drivers

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Security Features of Bindings

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Credentials and Claims

Presenting Credentials and Claims to WCF

Binding Support for Credentials

Transport-Level Security

Message-Level Security

Mixed-Mode Security

Federated Security Model in WCF

Authorization in WCF

Authorization Options for One-Way Communications

Auditing for Security Features in WCF

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How Windows CardSpace Works

Enabling Windows CardSpace in WCF

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Queue-Based Communications

The Need for Reliable Messaging

Challenges of Implementing Reliable Messaging

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Processing Issues

Reliable Sessions

Enabling WCF Web Services with Reliable Sessions

The ReliableSessionBindingElement Class

Some Pointers on Reliable Messaging

Queuing in WCF

Installing MSMQ

Microsoft Message Queues in Windows Server 2008

Transport Channels

Integration Channels

Some Pointers on Using MSMQ

8 Using Transactions in WCF

- What's a Transaction?
- Understanding the Types of Transactions in WCF
- Defining Transactions in WCF
  - Using the TransactionFlow Attribute
  - Using the ServiceBehavior and OperationBehavior Attributes
  - Defining Transactions in QuickReturns Ltd
- Working with Transactions and Queues

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- Why Integrate with COM+?
- Running a COM+ Application As a WCF Service
  - Visual Basic 6 COM+ Component Sample Setup
  - COM+ Application WCF Service Wrapper
  - .NET Enterprise Services and COM+ Components
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  - QuickReturns Ltd. Quote Service
  - Security Credentials with IChannelCredentials

10 Working with Data

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- Exploring the Serialization Options in WCF
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Introducing Message Contracts

Fine-Tuning SOAP

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11 Developing Peer-to-Peer Applications with WCF

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P2P Development Life Cycle

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