Instructor Notes:

WCF 4.5

Lesson 04 : Named Pipes

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Instructor Notes:

Explain the lesson
coverage

Lesson Objectives

➢ In this lesson, you will learn:
  • WCF Named Pipes

Instructor Notes:

What are Named Pipes in WCF?

➢ A named pipe is an object in the Windows operating system kernel, such as a section of shared memory that processes can use for communication.

➢ A named pipe has a name, and can be used for one-way or duplex communication between processes on a single machine.

➢ When communication is required between different WCF applications on a single computer, and you want to prevent any communication from another machine, then use the named pipes transport.

Instructor Notes:

NetNamedPipeBinding

➢ The NetNamedPipeBnding class is designed for efficient intra-machine communication; that is, for processes running on the same computer, although named pipe channels can be created between two computers on the same network.

➢ This binding provides only transport-level security. When creating applications using this binding, the endpoint addresses must include "net.pipe" as the protocol of the endpoint address.

➢ This binding provides secure and reliable binding environment for on-machine cross process communication.

➢ It uses NamedPipe protocol and provides full support for SOAP security, transaction and reliability.

➢ By default it creates communication stack with WS-ReliableMessaging for reliability, transport security for transfer security, named pipes for message delivery and binary encoding.

Instructor Notes:

NetNamedPipeBinding

➢ <endpoint
address="net.pipe://localhost/ServiceModelSamples/service"
binding="netNamedPipeBinding"
contract="Microsoft.ServiceModel.Samples.ICalculator" />

<bindings> <!-- Following is the expanded configuration section for a NetNamedPipeBinding. Each property is configured with the default value. --> <netNamedPipeBinding> <binding name="Binding1" closeTimeout="00:01:00" openTimeout="00:01:00" receiveTimeout="00:10:00" sendTimeout="00:01:00" transactionFlow="false" transferMode="Buffered" transactionProtocol="OleTransactions" hostNameComparisonMode="StrongWildcard" maxBufferPoolSize="524288" maxBufferSize="65536" maxConnections="10" maxReceivedMessageSize="65536"> <security mode="Transport"> <transport protectionLevel="EncryptAndSign" /> </security> </binding> </netNamedPipeBinding> </bindings>

Instructor Notes:

WCF TCP/IP Binding
- TCP is a connection-based, stream-oriented delivery service with end-to-end error detection and correction.
- TCP is Connection-based , which means that a communication session between hosts is established before exchanging data.
- A host is any device on a TCP/IP network identified by a logical IP address.
- TCP notifies the sender of packet delivery, guarantees that packets are delivered in the same order in which they are sent, retransmits lost packets, and ensures that data packets are not duplicated.
- The WCF TCP transport is optimized for the scenario where both ends of the communication are using WCF.
- This binding is the fastest WCF binding for scenarios that involve **communicating between different machines.**
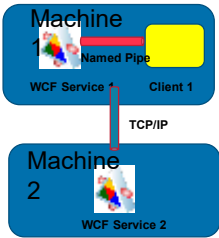
Named Pipes Binding
- A named pipe is an object in the Windows operating system kernel, such as a section of shared memory that processes can use for communication.
- A named pipe has a name, and can be used for one-way or duplex communication **between processes on a single machine**.
- When communication is required between different WCF applications on a single computer, and you want to prevent any communication from another machine, then use the named pipes transport.
- An additional restriction is that processes running from Windows Remote Desktop may be restricted to the same Windows Remote Desktop session unless they have elevated privileges.

Instructor Notes:

TCP/IP Binding

Machine 1

Named Pipe

WCF Service 1　　　Client 1

TCP/IP

Machine 2

WCF Service 2

Named Pipe Binding

Machine

Named Pipe

WCF Service 1　　　Client 1

Named Pipe

Named Pipe

WCF Service 2　　　Client 2