WCF receive adapters

Exposing BizTalk as a service

Overview

- **WCF receive adapter architecture**
- **Configuring message handling**
- **Using the WCF service publishing wizard**
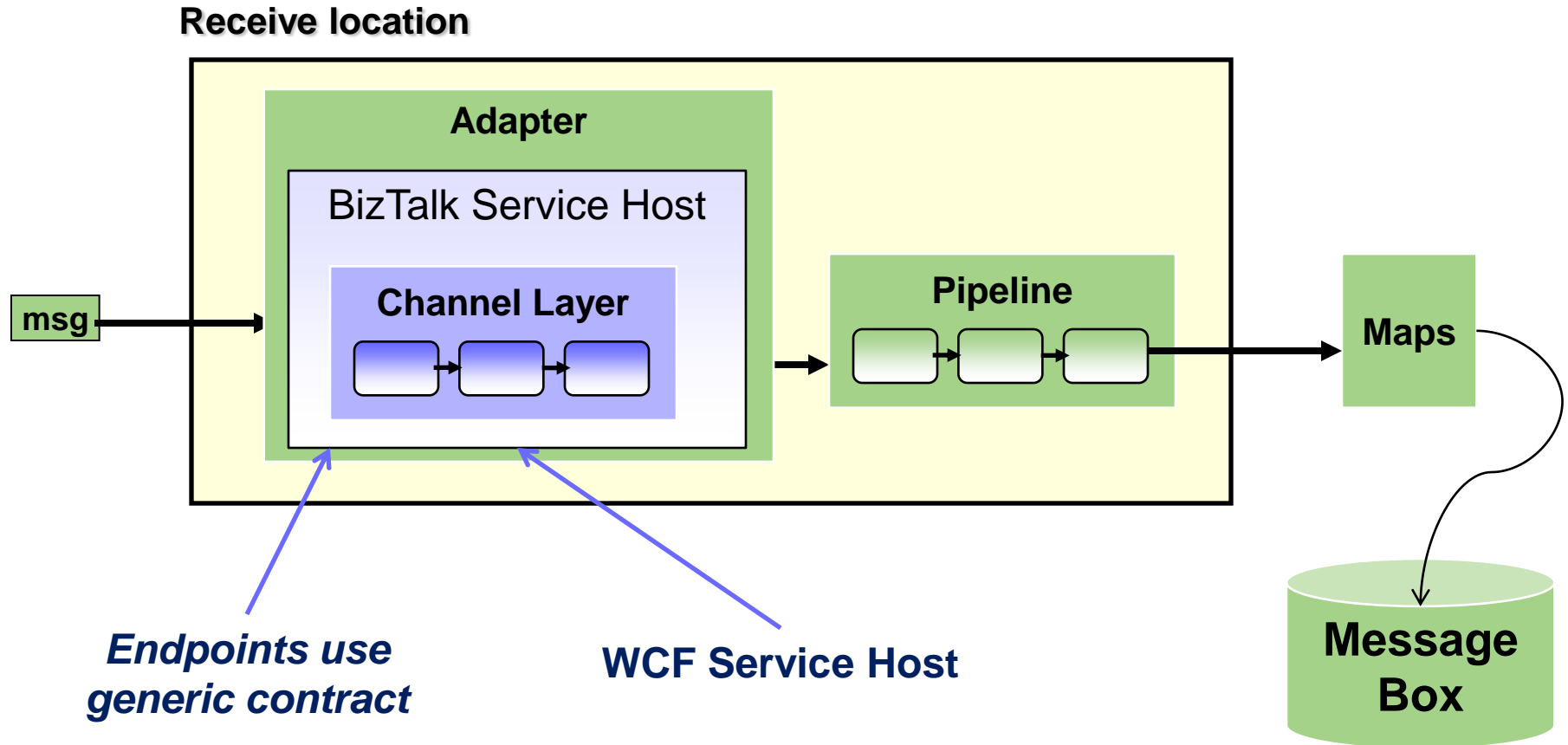- **Working with SOAP headers**

WCF Adapters and BizTalk

- **Receive adapters create WCF endpoints for BizTalk**
  - Enables message submission using web services
- **Multiple WCF adapters**
  - Simplifies configuration for common WCF bindings
  - Custom adapters provide support for other bindings / configurations
- **In-process and isolated adapters included**
  - Isolated adapters used for HTTP – hosted in W3WP.exe (IIS)

WCF Adapters

Adapter	Host Type	Description
WCF-NetTcp	In-process	Uses the WCF NetTcpBinding, allows integration with WCF clients
WCF-WsHttp	Isolated	Uses the WCF WsHttpBinding, allows integration with compatible WS-* stacks
WCF-NetNamedPipe	In-process	Uses WCF NetNamedPipes binding – single machine binding
WCF-BasicHttp	Isolated	Uses the WCF BasicHttpBinding, allows integration with WS_BaseProfile1 compatible stacks
WCF-NetMsmq	In-process	Uses the WCF NetMsmqBinding, allows integration with WCF MSMQ clients (MSMQ adapter for legacy - msmgIntegration Binding disallowed)
WCF-Custom	In-process	Allows you to use any Binding
WCF-CustomIsolated	Isolated	Allows you to use any Binding in an Isolated Host (only receive)

WCF receive adapter architecture

Receive location

Adapter

BizTalk Service Host

Channel Layer

msg

Pipeline

Maps

Endpoints use generic contract

WCF Service Host

Message Box

Message handling

- **SOAP:Body (default)**
  - Xml in the body is published to the message box
- **SOAP:Envelope**
  - Entire SOAP message is published
  - Encryption / signing remain intact
  - Use with PassThrough Pipeline or body will be extracted
- **XPath (relative to SOAP:body)**
  - No namespace prefixes
  - Specify node content type

XPath Encoding Values

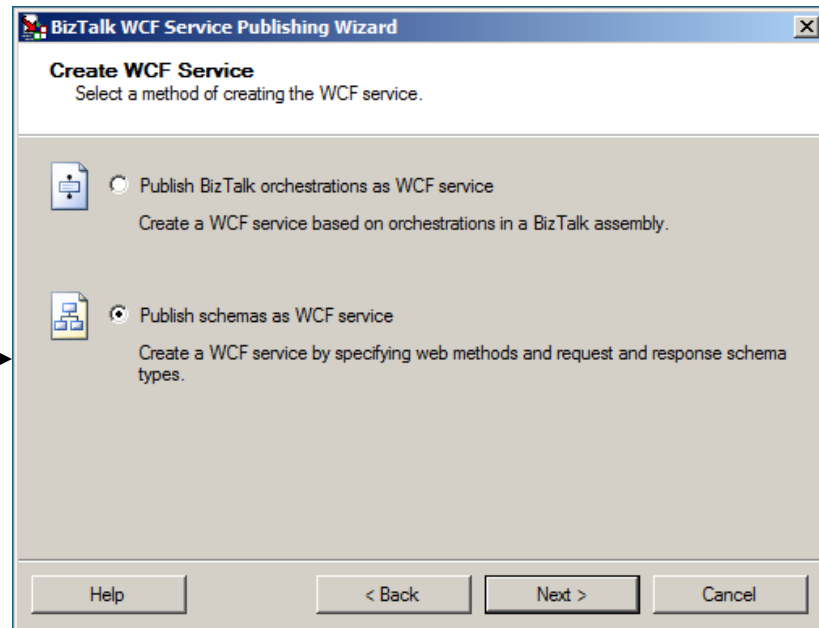| Value	Effect
Xml	OuterXml value of selected node goes to MessageBox
Base64	Binary value is published
Hex	Binary value is published
String	String value will be published (if Xml encoded it will be converted back to Xml)

Response message handling

- **Request / response ports include outbound processing**
    - Send BizTalk Message as body (default)
- **Template**
    - Define XML template for wrapping the message
    - Use bts-msg-body element to specify location of message body
    - Specify encoding

Publishing WCF HTTP endpoints

- **You can generate the SVC endpoint for the WCF HTTP adapters**
  - Use the *BizTalk WCF Service Publishing Wizard*
- **Wizard allows you to generate SVC from two starting points**
  - An *XSD schema*
  - A BizTalk orchestration
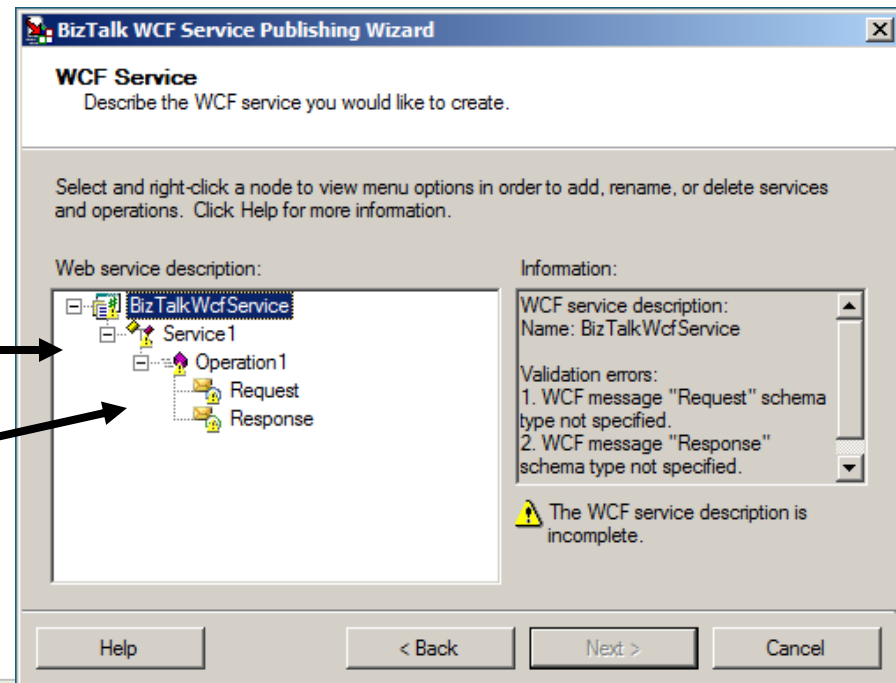
Publish schema as Web service →

Publishing schema as Web service

- **When you publish a schema as a Web service**
  - There isn't enough information in the schema to produce a full service contract (service name, operation names, etc)
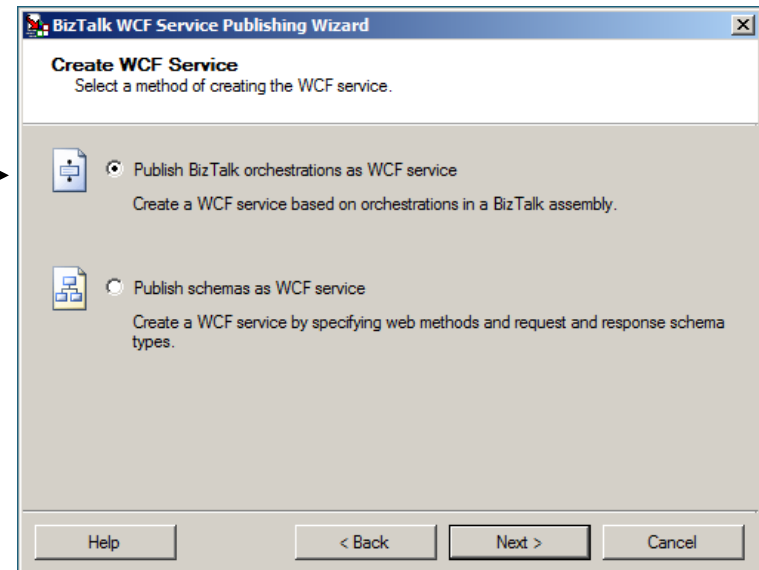 - You must provide these additional details via the wizard

Specify service name

Specify operation name and exchange pattern, map to schema types

pluralsight
see what you can learn

Publishing orchestrations as services

- **You can *publish* orchestrations as Web services**
  - Makes them available to any SOAP-aware app
- **Orchestration ports and operations map to service ports**
  - Schemas for operation parameters included in generated service

Publish orchestration as Web service →

Wizard generated files

*.svc file

- Links svc endpoint to ServiceHostFactory

ServiceDescription.xml

- Contains description of endpoint for metadata

Web.config

- ASP.NET configuration file with BizTalk elements

Web.config - bizTalkSettings

- **webServiceHostFactory : debug attribute**
  - ▫ True will cause Debugger.Break on creation of Servicehost
  - ▫ False is default
- **isolatedReceiver : disable attribute**
  - ▫ True - will stop BizTalk EMP registration, use when BizTalk Receive Location isn't created or enabled
  - ▫ False – default
- **btsWsdlExporter : disable attribute**
  - ▫ True – will stop strongly-typed WSDL
  - ▫ False - default

BizTalk isolated hosts

- **HTTP adapters must run in a *BizTalk Isolated Host***
  - An external process not managed by BizTalk (e.g. IIS processes)
  - Offers isolation protection and security
- **Configure WCF services to run in their own IIS *AppPool***
  - Create a new Application Pool in IIS
  - Define it to run under an identity with limited privileges
  - Ensure that the user is a member of BizTalk Isolated Host Users
  - Assign the new virtual directory to run in the new app pool

Publishing metadata endpoint

- **In process endpoints do not enable metadata by default**
- **Service Publishing Wizard can generate metadata endpoint**
  - Schema or orchestration source – just like HTTP endpoint
  - Address of service is still the adapter address (not .svc file)
- **Enables clients to generate proxies (svcutil.exe e.g.)**

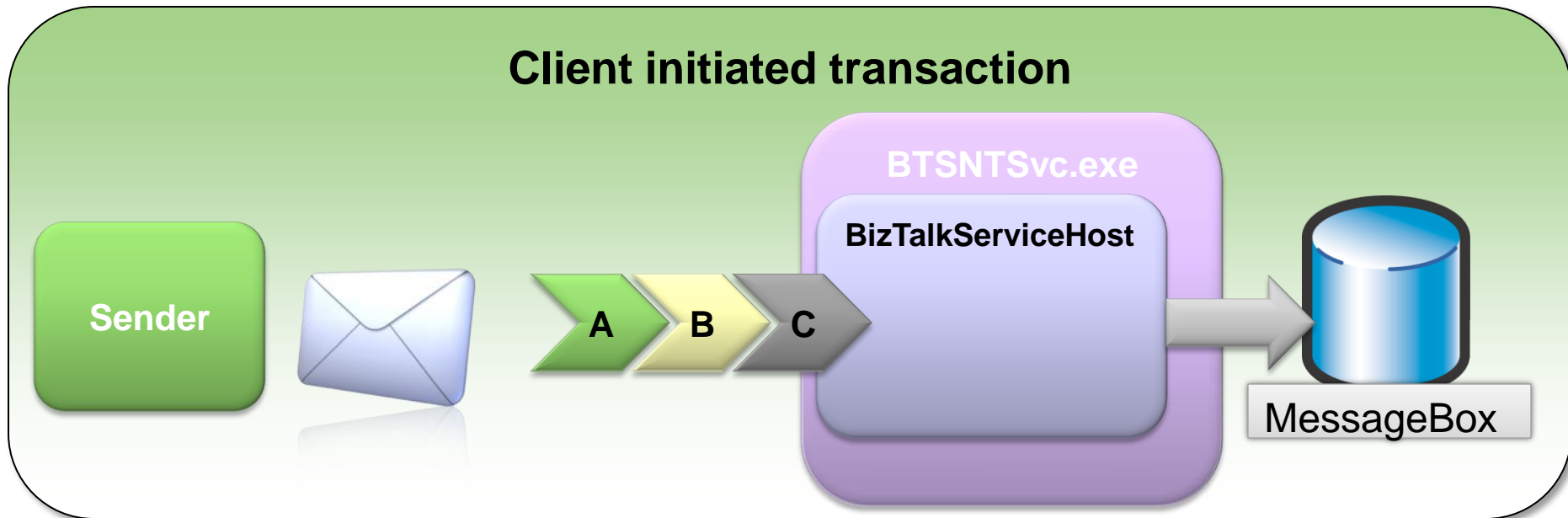pluralsight
see what you can learn

Handling SOAP headers

- **WCF.InboundHeaders**
  - Context property containing XML including all headers
  - Open in orchestration or pipeline component and use Xpath

Configuring Transactions

- **Only enabled for One-Way Receive Locations**
  - Holds true for all WCF adapters that support transactions
- **MessageBox commit joined with flowed transaction**

Client initiated transaction

Sender

BTSNTSvc.exe

BizTalkServiceHost

A   B   C

MessageBox

Transactional use case effects

- **Client or other resource manager aborts**
  - No fingerprints of transaction in BizTalk (ACID transactions)
- **BizTalk aborts transaction**
  - Routing failure in BizTalk
  - No resumable message (again think ACID)

Summary

- **WCF adapters enable SOAP access to the message box**
- **HTTP adapters hosted in IIS (W3WP.exe)**
- **Use WCF Service publishing wizard to create endpoints**
- **SOAP headers accessible in orchestration and pipeline**
- **BizTalk supports WCF transaction capabilities**