fechner & schneider
consulting services

ARCH-10: Delivering Services within Sonic ESB®

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Agenda

- Introduction
- The OpenEdge® Adapter for Sonic ESB
- Service Interface Layer
- The Integration Layer
- Deploying Business Entities
- Demo

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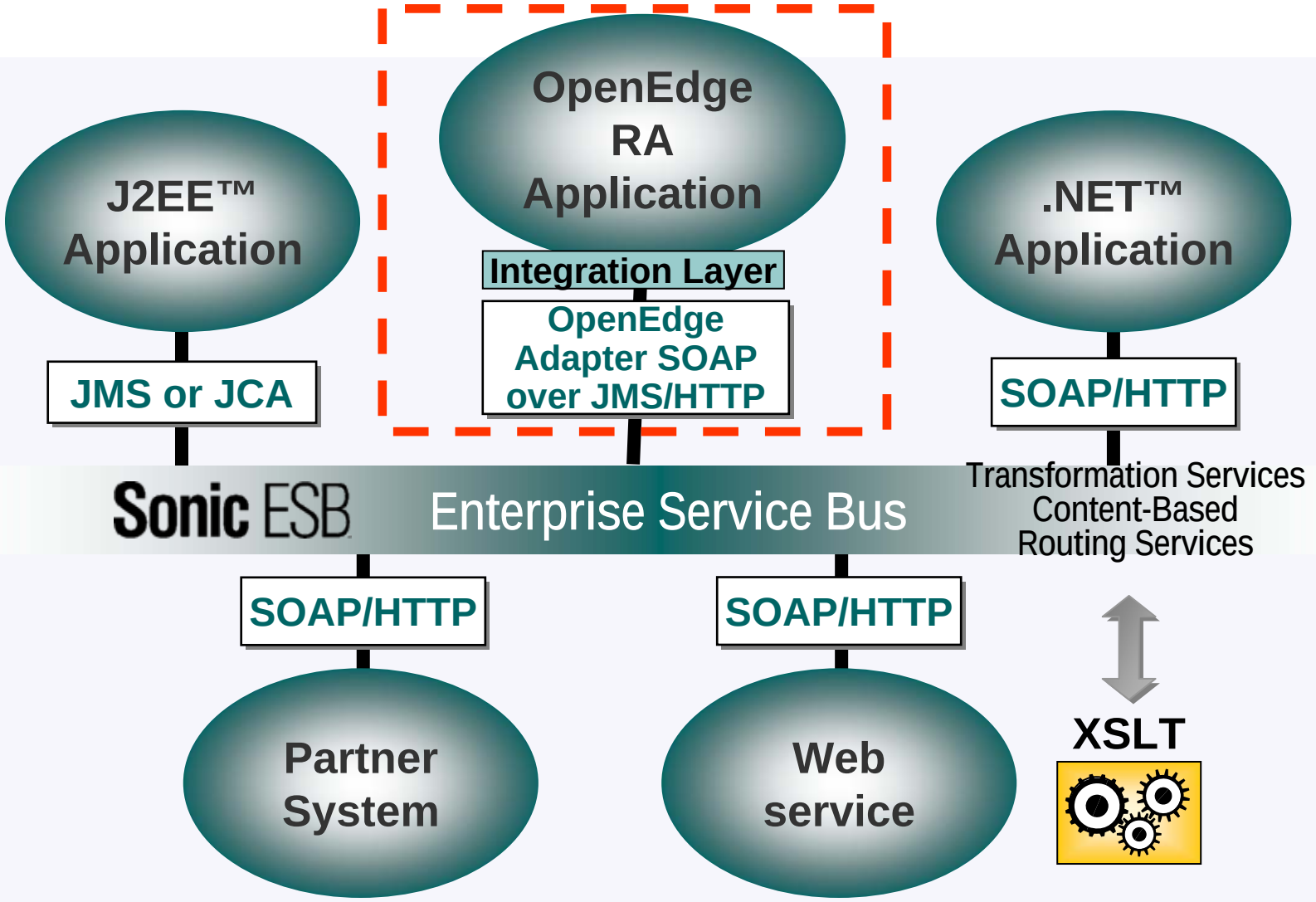
Introduction

- ESB based (mediated) Integration offers many advantages over standard integration scenarios
- you have everything you need using the concepts of the
  - OpenEdge Reference Architecture
  - Sonic ESB
  - OpenEdge Adapter for Sonic ESB
  - OpenEdge Application Server


OpenEdge
RA
Application
Integration Layer
OpenEdge
Adapter SOAP
over JMS/HTTP
J2EE™
Application
.NET™
Application
JMS or JCA
SOAP/HTTP
Sonic ESB
Enterprise Service Bus
Transformation Services
Content-Based
Routing Services
SOAP/HTTP
SOAP/HTTP
XSLT
Partner
System
Web
service

Integration with Sonic ESB

- develop integration logic outside business logic
- provide interfaces/schemas to partners as required without changing your code
- perform message/data validation within the ESB
- create (web) services seamlessly compound from multiple services or applications
- integrate with other components of the Sonic SOA Suite™, i.e.
  - Sonic Orchestration Server™ i.e. for workflow modeling (human interaction)
  - Sonic Collaboration Server for B2B protocols
  - Sonic XML Server™ for XML storage and query services

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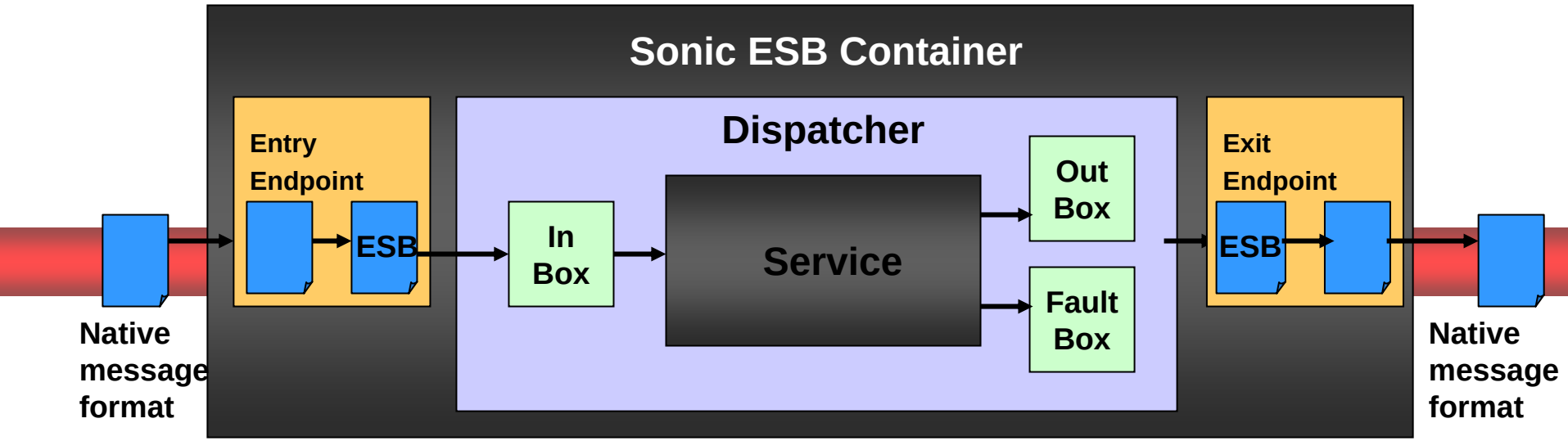
OpenEdge Adapter for Sonic ESB

- versions shown
  - OpenEdge 10.1A
  - Sonic SOA Suite 6.1 (Service Pack 1)
- tool support from Progress®
  - ProxyGen
  - OpenEdge Service Type installed by setup
  - WSM Management
- protocols supported
  - SOAP over JMS (no need for HTTP transport on the bus, sonic:///local/OERAApp)
  - SOAP over HTTP without using a WSA in Tomcat (http://server:8080/wsa/wsa1)

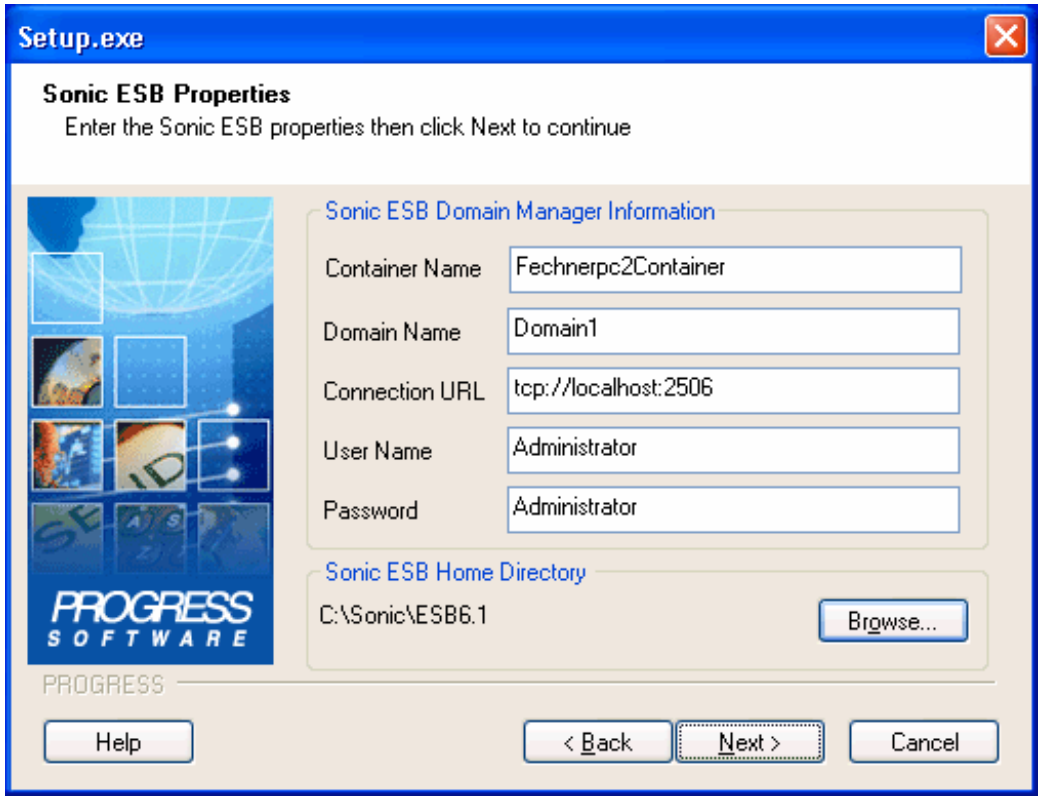
The OpenEdge Adapter for Sonic ESB

- OpenEdge WSA deployed on ESB container
- enables inbound communication from the bus to 4GL code deployed on the Application Server
- installation/configuration during OpenEdge setup, launch SonicMQ® DomainManager first!
  - deployment of adapter runtime
  - OpenEdge Service Type definition
  - WSM resource editor, WSDL generator
  - OpenEdge documentation misleading in some parts!
- state-free recommended session model

Sonic ESB Container

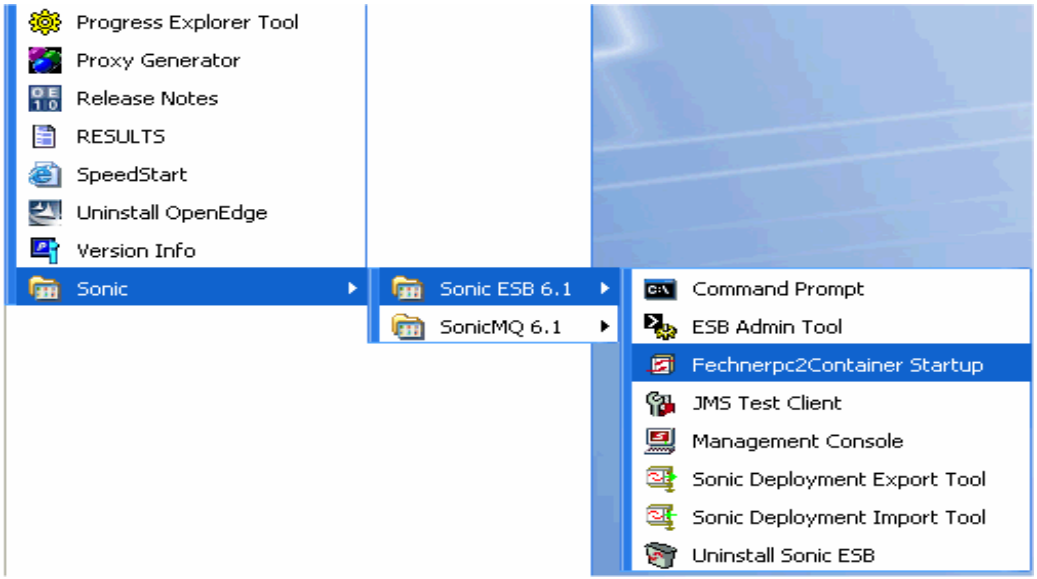


The OpenEdge Adapter for Sonic ESB

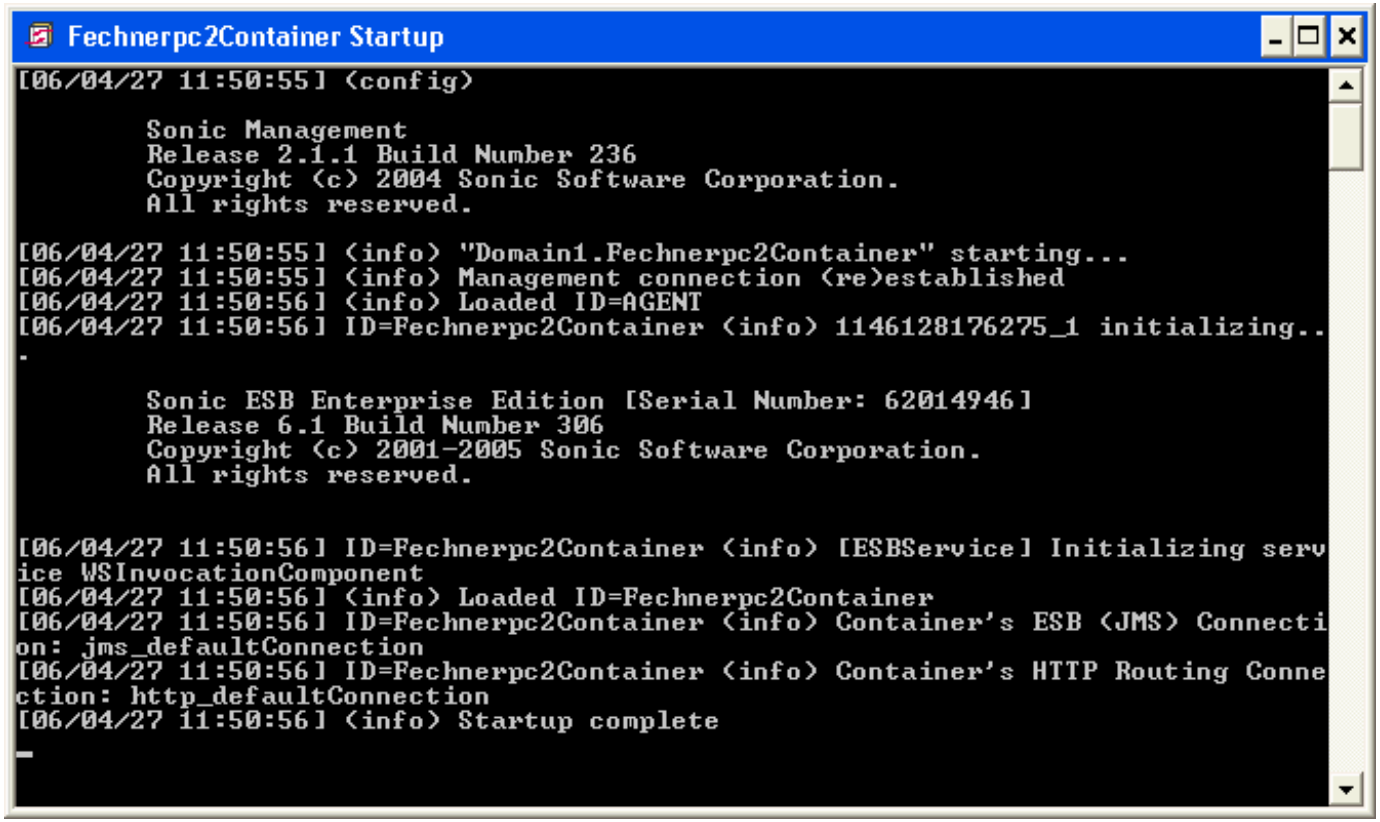


Sonic ESB Adapter startup

- launch SonicMQ DomainManager
- launch ESB Container created during OpenEdge setup



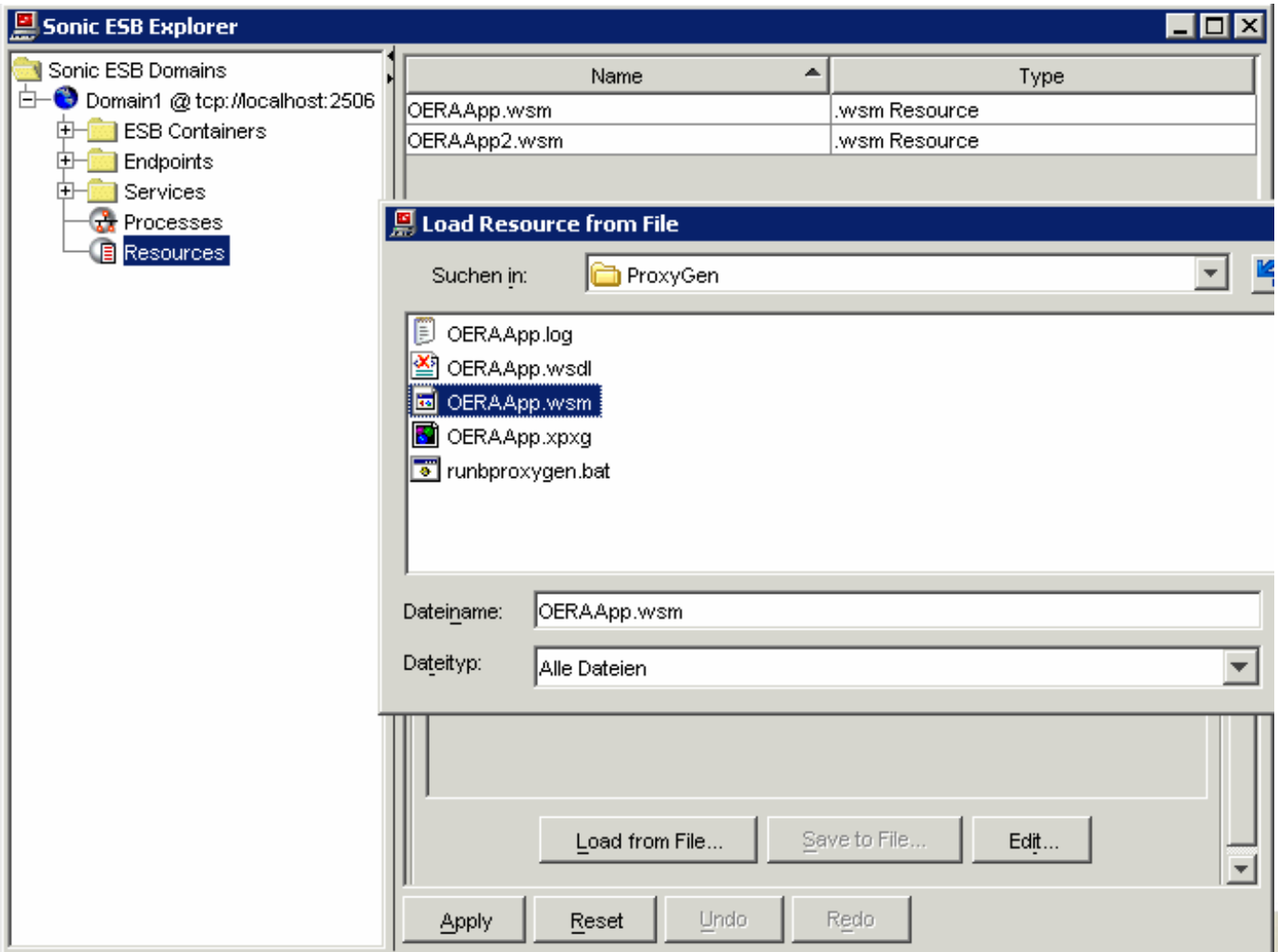
ESB Container Adapter startup



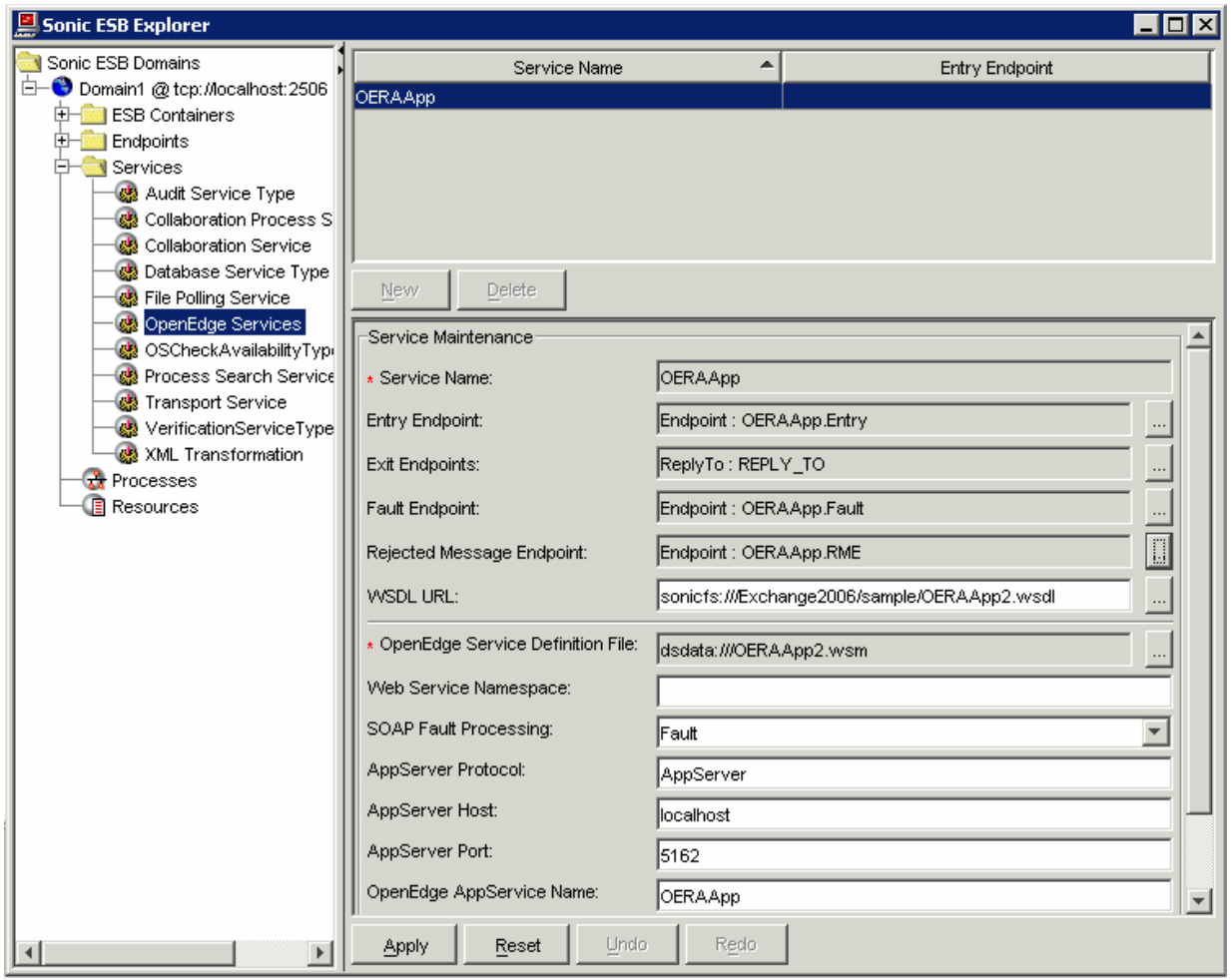
Demo

- create WSM File using ProxyGen
- deploy WSM File to Sonic ESB
- create WSDL File using WSM resource editor
- create OpenEdge Service Instance
- test JMS Web Service using Stylus Studio

Deploy WSM file



Create OpenEdge Service



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Service Interface Layer

- support/proSIgateway.p is used as the standard gateway procedure to business entity operations
- Client passes:
  - name of the business entity
  - name of the method (operation)
  - temp-table holding context
  - output dataset Handle (read)
  - input/output dataset handle (updates)

```
DEFINE INPUT  PARAMETER pcEntityName    AS CHARACTER  NO-UNDO.
DEFINE INPUT  PARAMETER pcOperationName AS CHARACTER  NO-UNDO.
DEFINE INPUT-OUTPUT  PARAMETER TABLE-HANDLE phContext.
DEFINE OUTPUT PARAMETER DATASET-HANDLE phOutputDataSet. /* used for fetch ops */
DEFINE INPUT-OUTPUT PARAMETER DATASET-HANDLE phIODataSet. /* used for updates */
```

Standard SI / Authentification

- state-free is the prefered session model for the ESB adapter
  - each operation has to be finished within a single AppServer call
  - less complex structures needed within development of ESB processes
  - AppServer™ connect procedure is not used!
- Authentification information has to be passed using phContext Temp-Table Handle

Standard SI / ProDataset Schema

- use :WRITE-XMLSCHEMA method of the ProDataset object in OpenEdge 4GL to generate .xsd Files
- use :WRITE-XML method of the ProDataset object to generate sample data
- Both will be helpful to create XML mapping definition using Stylus Studio or 3rd party tools (i.e. XMLSpy®)

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The Integration Layer

- Builds the connection between the Service Interface (SI) and Sonic ESB
- Sonic ESB
  - WSM resource
  - WSDL file in sonicfs
  - ESBWS definition mapping messages to parameters
  - Map authentification information
- AppServer:
  - Authentification (State-free does not invoke connect.p and activate.p procedures)
  - Execute support/proSIgateway.p

Integration Layer, ESB side

- WSM resource defines interfaces to the OpenEdge Application server
- ESBWS Web Service definition maps JMS message parameters/message parts to parameters defined in WSDL (resulting from WSM file)
- map authentification attributes to rows in context table
  - SOAP header, message properties
  - Information within the message (i.e. XPATH)

Integration Layer, 4GL side

- entry point for ESB integration
- SonicESBgateway.p called by WSM proxy
- performs authentification, restores session information from phContext parameter as required
- executes business logic using call to support/proSIgateway.p
- restores possibly changed session information (context) to phContext

Specialised Integration Layer

- specialized interfaces may ease integration by providing
  - plain parameters instead of phContext Table (i.e. username/password)
  - static ProDataset Parameters instead of handles
  - fetch operations without phIODataset
  - update operations without phOutputDataset
- may require less XML mapping/XPATH expressions in ESBWS/ESB processes
- disadvantage: recreate WSM file for each added business entity/operation

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Deploying Business Entities

- make the business entity available to the service interface first (PROPATH, directory service)
- generate .xsd schema definition file
- import .xsd file into sonicfs
- depending on requirements generate ESBWS definition including .xsd and xslt operations on parameters
- think about specialized interfaces

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- SonicESBgateway.p deployed on ESB
- perform authentication
- execute fetch Method of customer business entity
- map beCustomer to myCustomerFormat using xslt
- integrate business entity with .NET™ web service in an ESB process
- build HTTP web services

References?

- Exchange 2006:
  - SOA-5, SOA-8
  - ARCH-5, ARCH-7
- OpenEdge Documentation
  - Application Server: Administration, chapter 16
  - Development: Messaging and ESB, chapter 6
- OpenEdge Reference Architecture Whitepapers on PSDN
  - Chapter 3: The Service Interface Layer
- PTW Europe 2004 Presentation
  - 611: Sonic ESB and OpenEdge WebServices, Jan Hendriks

Questions?

- Please don‘t hesitate to ask questions…!
- Now or anytime:
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- http://www.fechnerschneider.de