

Anbindung von Payback bei myToys



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About Presenters



Hasan Ali Yilmaz

Senior Consultant Oracle E-
Business Suite und
Integration Developer

- >9 Jahre Erfahrung in Software-Entwicklung
- Rolle: technischer IT Consultant, ERP & Integration Developer
- seit 2009 tätig für Apps Associates
- Oracle Certified Expert



Performance. Growth. Excellence.

Global Reach – US, Europe, India

- Founded in 2002 in Boston, MA
- 800+ Associates

Long Term Focus on Customers and Associates

- 23 customers 5-10 year, 6 customers 10+ year relationships
- 120 associates 5-10 year, 40 associates 10+ year tenures
- 4% of revenue invested in Learning & Development

Mature Delivery Model

- CMMI Level 3 Appraised & SOC 1 Audited
- Certified AWS Managed Services Partner

Integrated Delivery Processes

- Projects & Managed Services
- Flexible Global Delivery Model

Our Strategic Partners



Portfolio of Services



Business Applications



Analytics



Custom Dev & Integration



Product Development



Infrastructure & Cloud Services



Advise



Implement



Integrate



Upgrade



Train



Host



Manage



Govern



Agenda



- Einleitung
- IT Architektur
- DB & SOA Komponente
- BPEL Prozess
- Adapter und Nachrichtenstrukturen
- Message Redelivery Policy
- Webservice Security
- Throttling
- Monitoring
- Fazit



Einleitung

Vorstellung myToys.de

Erfahrungen mit der Oracle SOA Suite

Beweggründe der Auswahl Oracle SOA Suite für Paybackanbindung

About Presenters



Tim Kurzman



- ERP Anwendungsentwickler
- Integrationsprojekte mit Oracle SOA Suite

myToys

- 556 mio € Umsatz pro Jahr
- Ca. 6 mio aktive Kunde
- 22 mio Besuche pro Monat
- Mehr als 5 mio aktive Newsletter Empfänger
- Über 11 mio Pakete pro Jahr
- Über 75.000 m² Logistikzentrum
- Über 1.500 Mitarbeiter
- Ca. 130–140 IT-Mitarbeiter

MYTOYS GROUP

myToys

yomonda

limango

mirap^odo
Schöner Schuhe shoppen

Ambellis

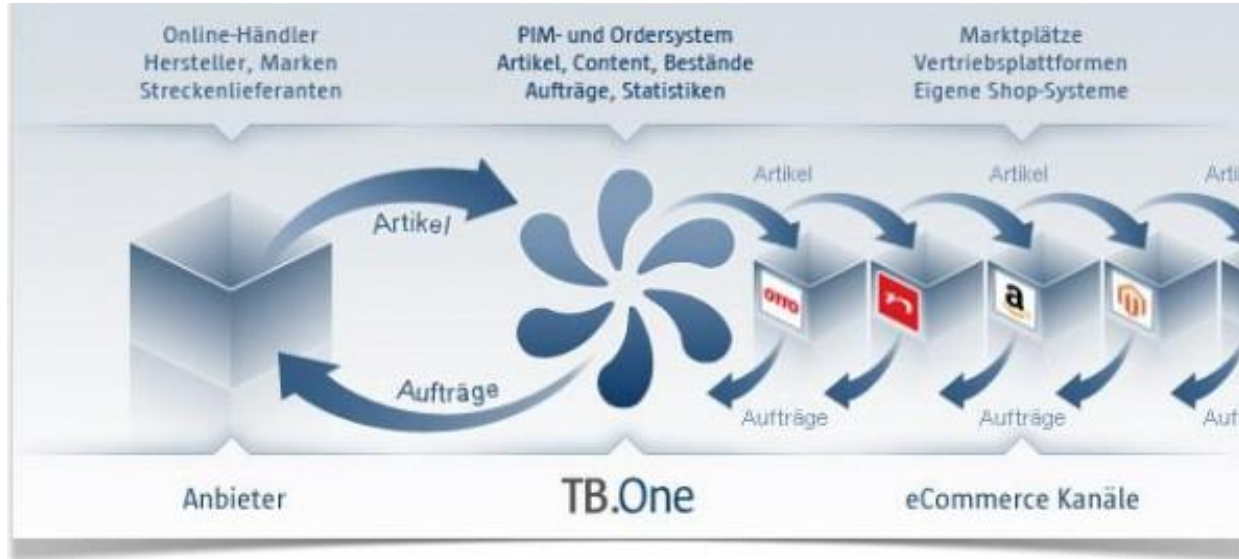


Einsatz der Oracle SOA Suite

- Projekt: Anbindung Tradebyte (2015)
- Business Partner (Drop-Shipping, REST - WS)
- Evaluierung geeigneter Anbindungsstrategien
 - Lose Kopplung
 - Monitoring
 - Maintenance
 - Skalierbarkeit
 - Vermeidung von Spaghetti Integration
 - High Connectivity
- Vorhandene SOA Suite (Finance Projekt 2012)

The logo for 'myToys' is displayed in a colorful, bubbly font. The letters 'my' are in red and orange, 'Toys' is in blue and green, and the entire text is outlined in blue. In the background, there is a faint, light gray silhouette of a child's toy, possibly a ball or a ring.The logo for Tradebyte features a stylized blue flower-like icon to the left of the word 'Tradebyte' in a bold, blue, sans-serif font. Below 'Tradebyte' is the tagline 'Cycle of e-commerce' in a smaller, lighter blue font.

Architektur Tradebyte



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The logo for 'myToys' is displayed in a colorful, bubbly font. The letters 'my' are in red and orange, 'Toys' is in blue and green. The background features a faint, large gear icon.The Tradebyte logo consists of a blue asterisk-like icon to the left of the word 'Tradebyte' in a blue sans-serif font. Below it, the tagline 'Cycle of e-commerce' is written in a smaller, lighter blue font.

Anbindung Tradebyte

- Herausforderungen waren:
 - Der richtige Adapter
 - Redelivery Service
 - Serverparameter
 - Purging
- Neues Projekt: Payback
 - Externes Know/How
 - Kooperation Apps Associates

The logo for 'myToys' features the word 'my' in red and orange, 'Toys' in blue and green, all in a playful, rounded font with thick outlines. A large, faint gear is visible in the background.The logo for 'PAYBACK' consists of the word 'PAYBACK' in white capital letters on a dark blue rectangular background.



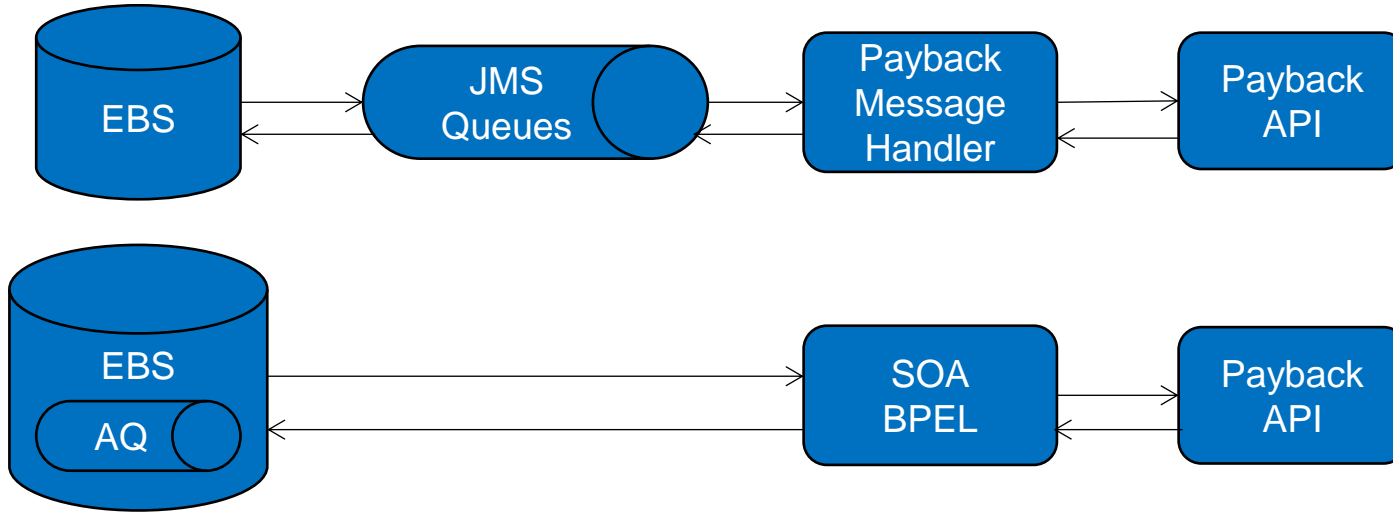
Anbindung Payback

Motivation

Evaluierung

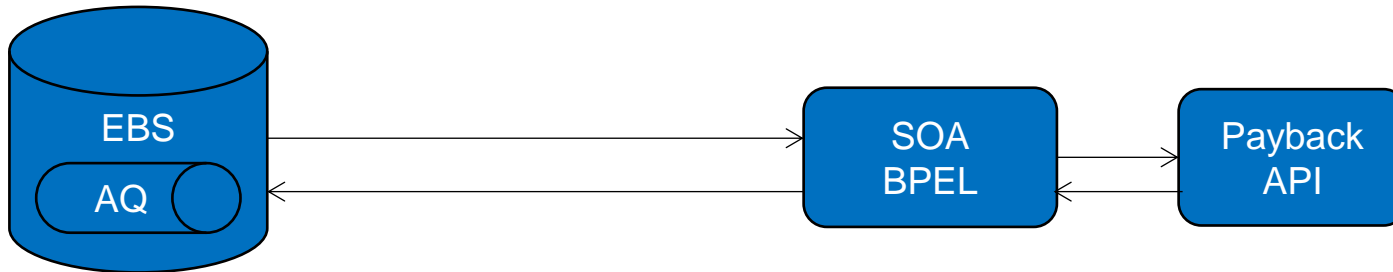
Überblick Anbindung Payback

- Ziele: Neukundengewinnung und Bestandskundenaktivierung
- Evaluierung Zielarchitektur



Überblick Anbindung Payback

- Fire and Forget
- Payback Webservice API Vorgaben:
 - Throttling (Drosselung)
 - Authentifizierung





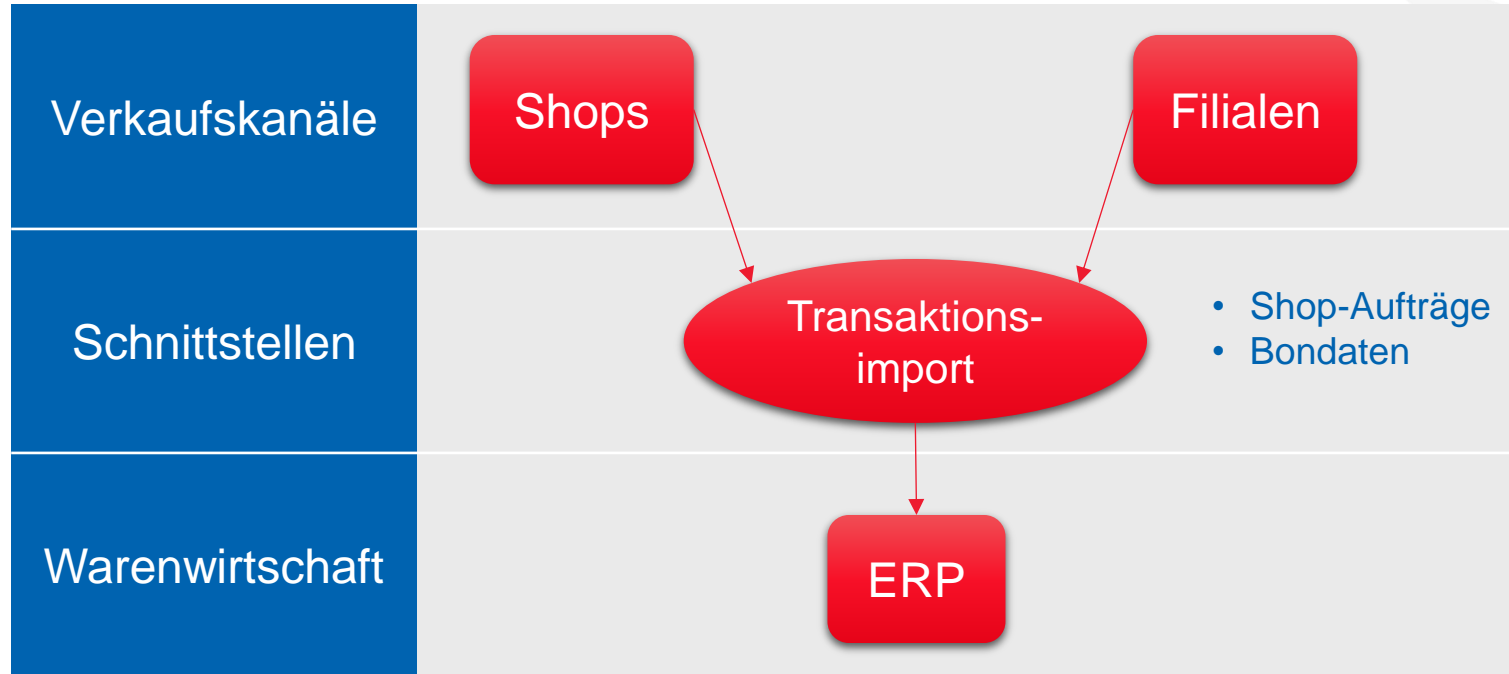
IT-Architektur

Generelle Architektur des Transaktionsimports

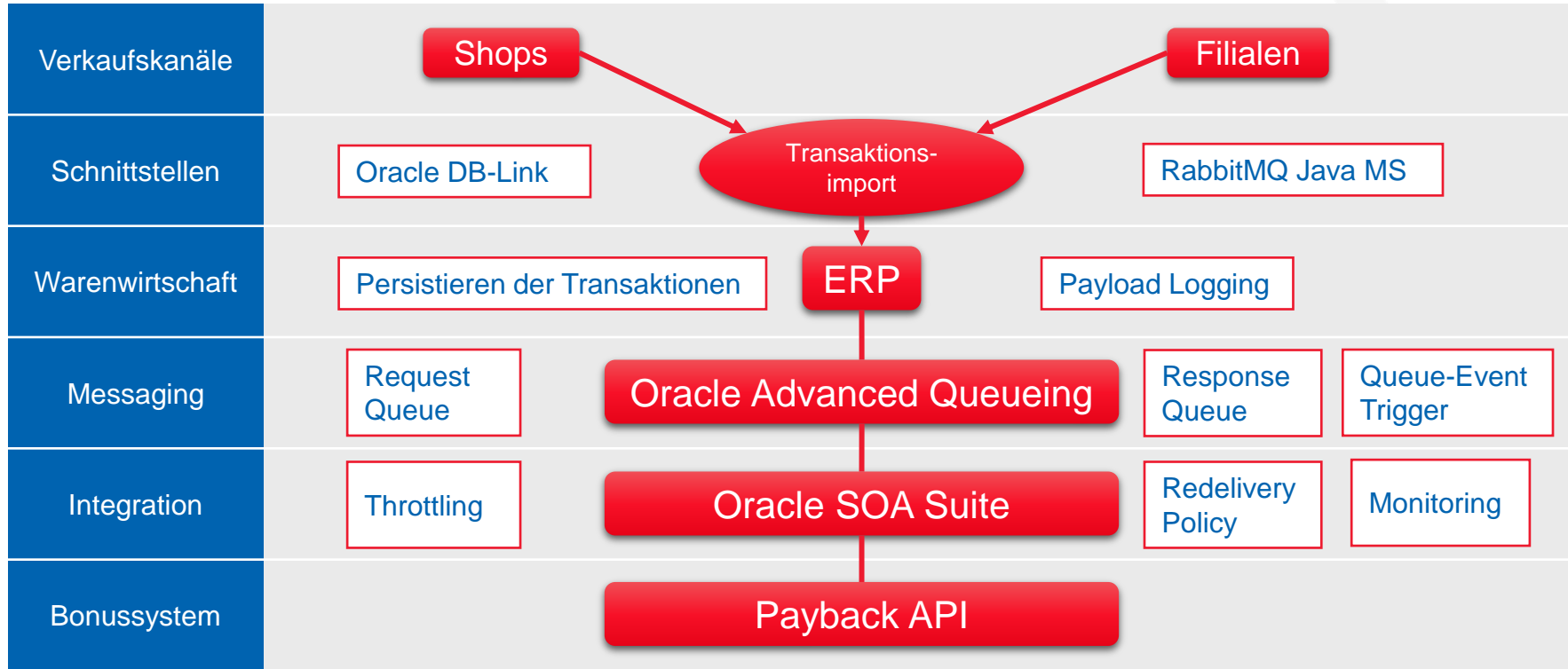
Architektur mit Paybackanbindung

ERM Diagramm zur Persistierung der Punkte

IT Architektur - Transaktionsimport



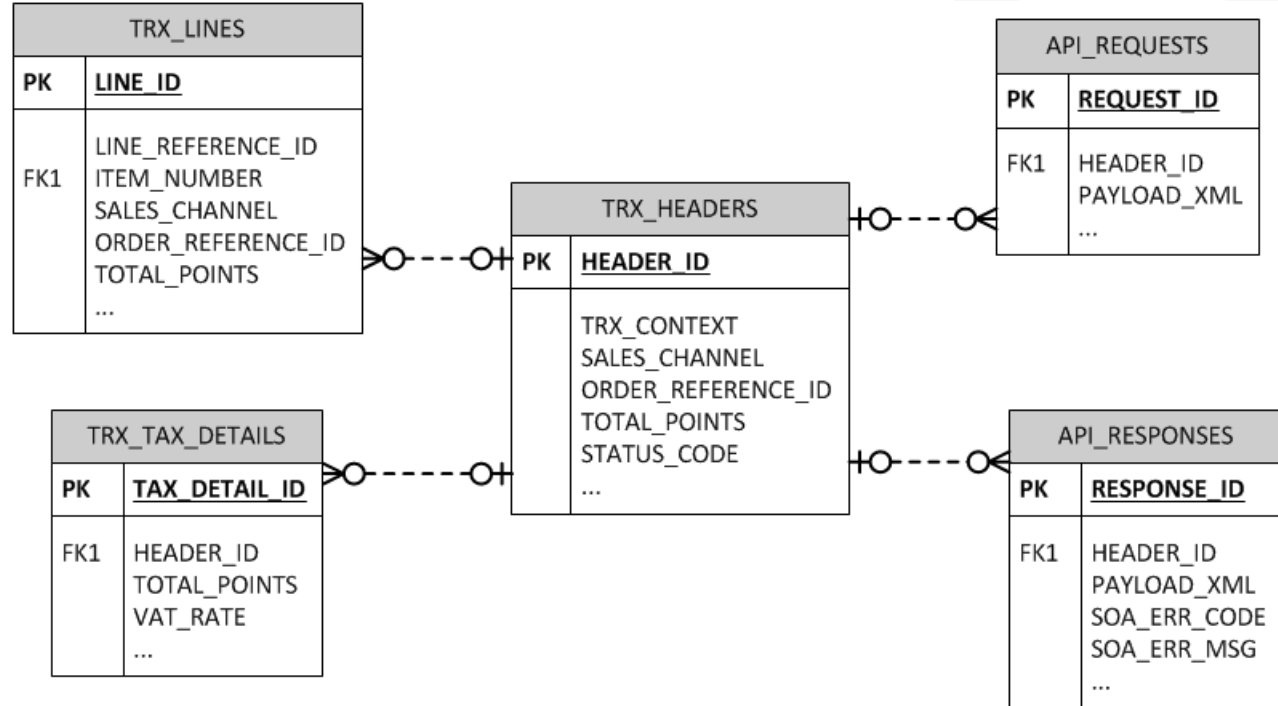
IT Architektur – mit Payback



Persistieren der Bonuspunkte

Datenmodell

Aus diesem Datenmodell wird mit (Oracle SQL) XMLQuery das gewünschte XML Payload zusammengestellt und in die bestimmte DB Queue geschrieben.

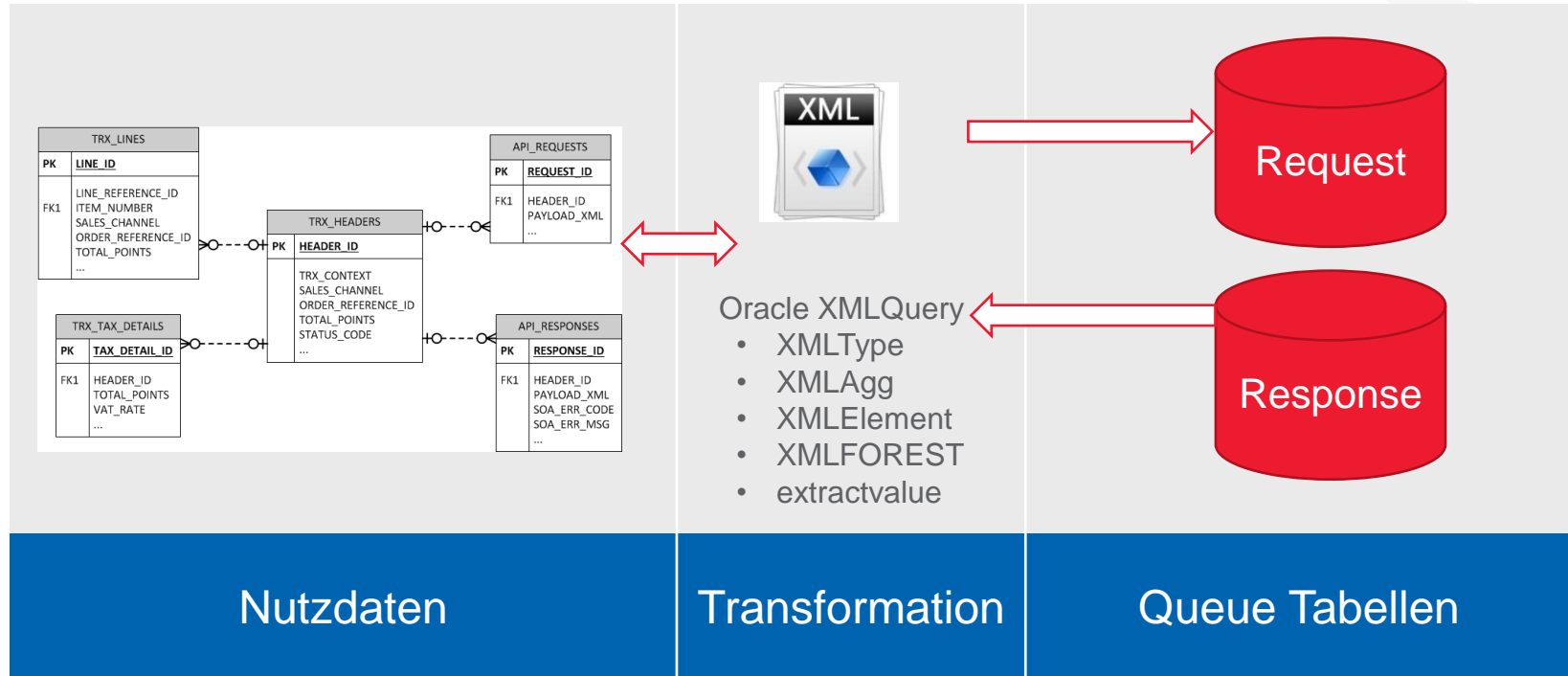




Oracle Advanced Queueing

Fire and Forget

Advanced Queueing - Fire and Forget





SOA Komponente & BPEL Prozess







Welche Komponenten und Adapter kamen zum Einsatz?

BPEL Prozess im Detail



























SOA Komponenten und Adapter



Komponenten

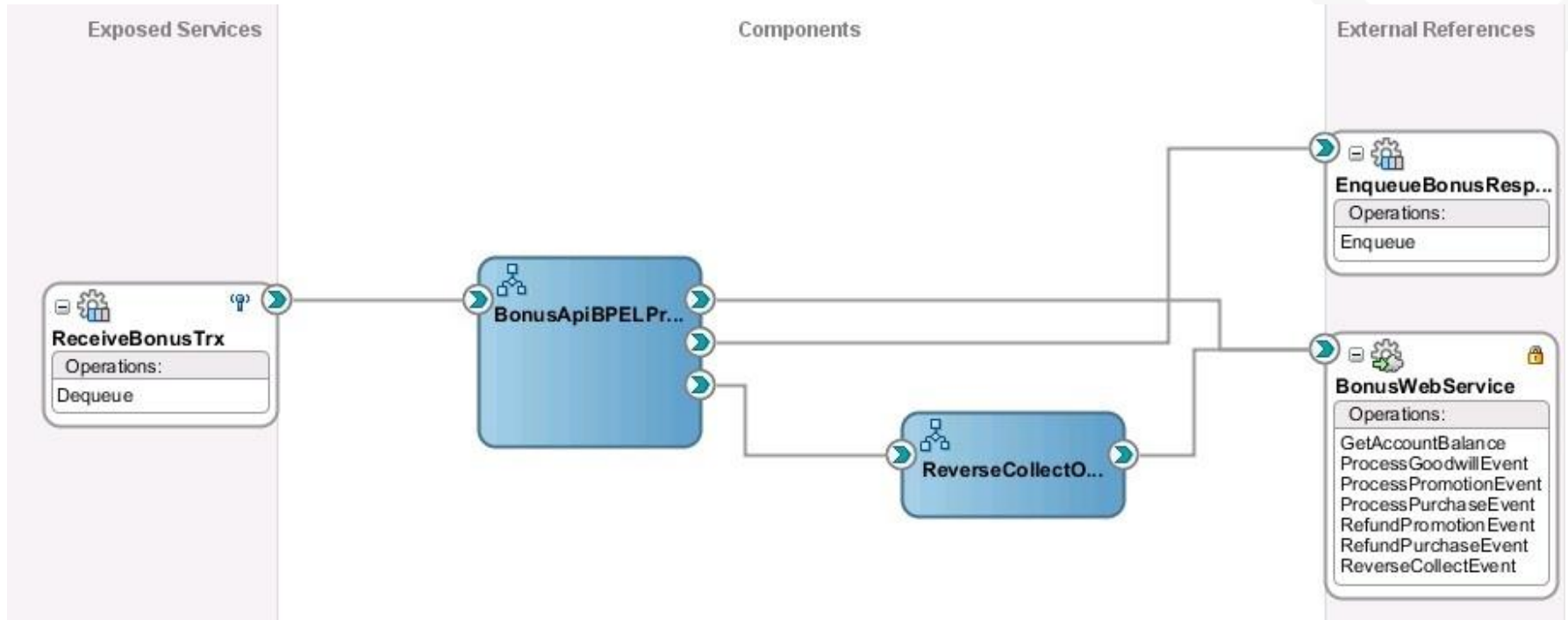
| | |
|---|--|
|  BPEL Process |  Business Rule |
|  Human Task |  Mediator |
|  Spring |  Subprocess |

Adapter

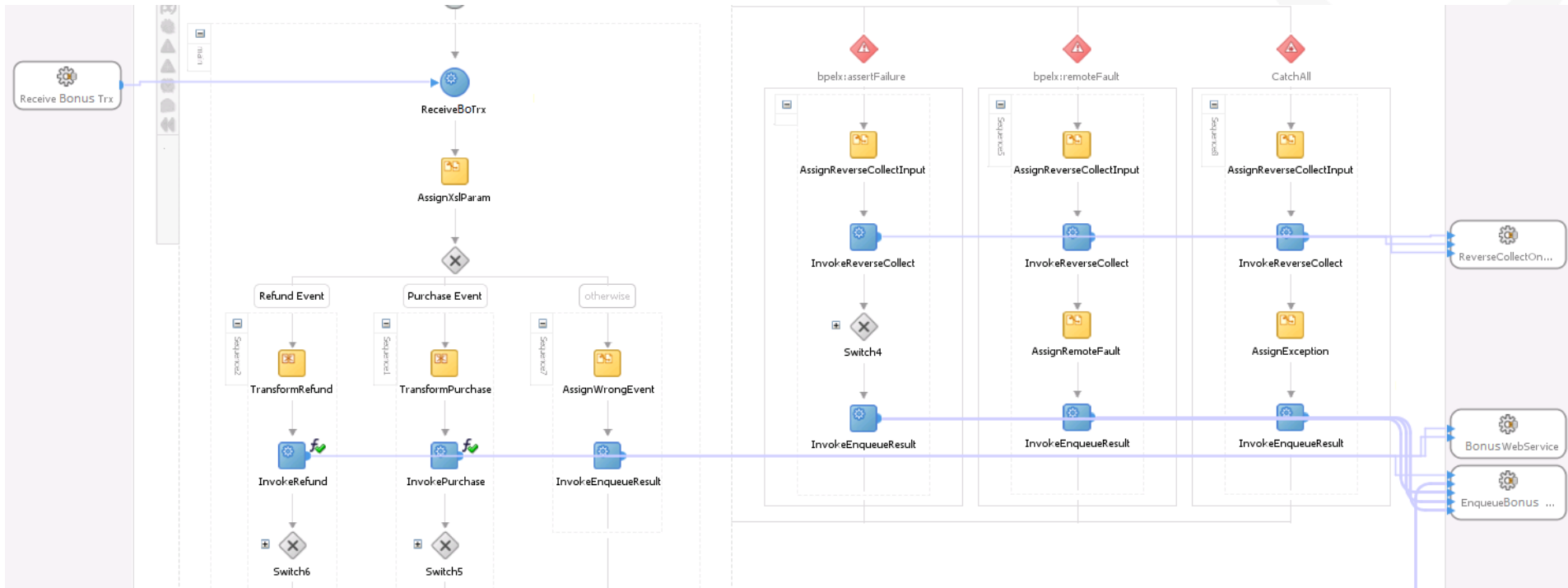
| | | | | | |
|---|---|---|--|---|---|
|  ADF-BC |  AQ |  B2B |  BAM 11g |  Coherence |  Database |
|  Direct |  EJB |  File |  FTP |  Healthcare |  HTTP |
|  JMS |  LDAP |  MFT |  MQ |  MSMQ |  REST |
|  SOAP |  Socket |  UMS |  Third Party |  Salesforce |  SAP |
|  E-Business Suite |  JDE World | | | | |



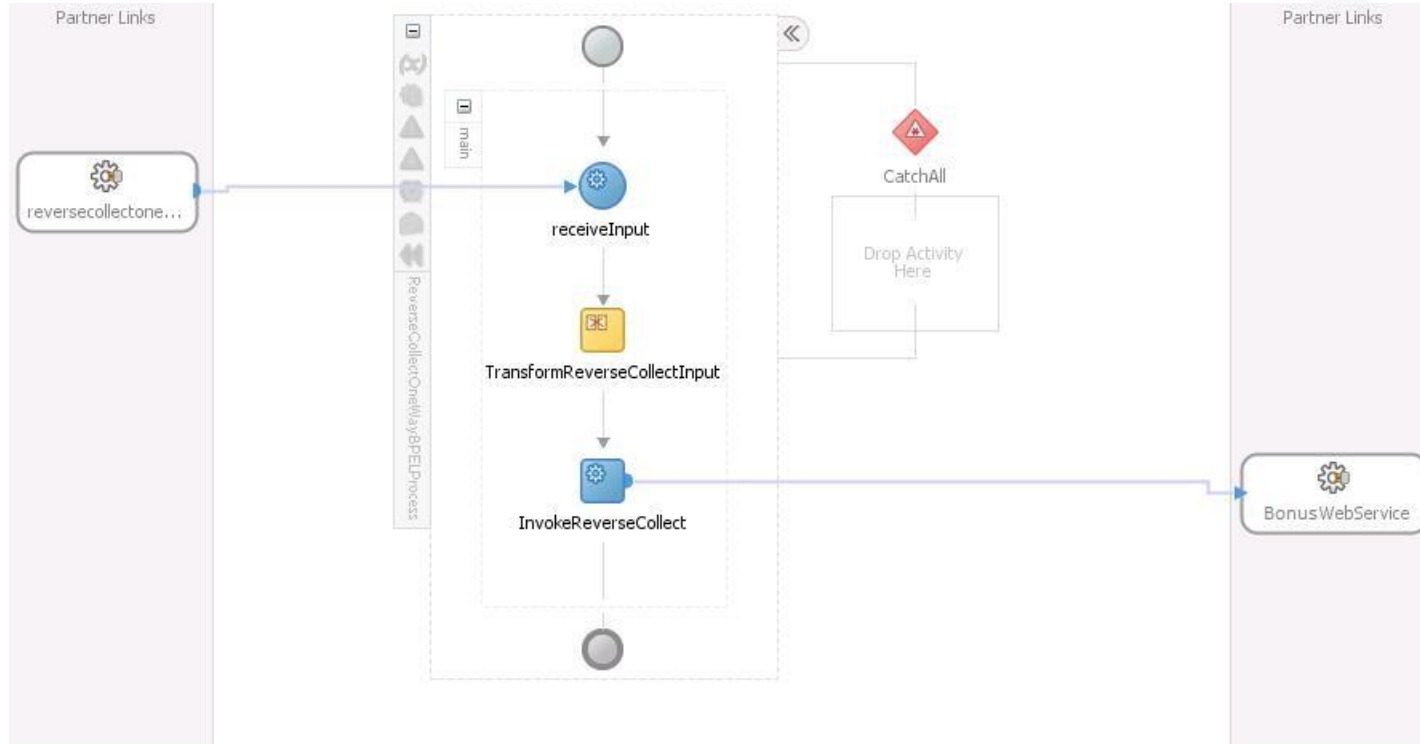
SOA Composite



BPEL Prozess



One Way BPEL Sub-Process





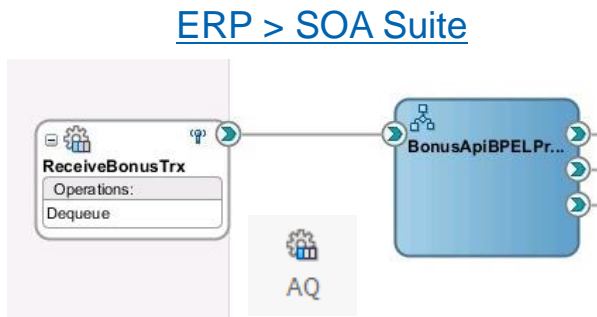
Adapter und Nachrichtenstrukturen

Transformationen aus DB mit XMLTYPE

Festlegung der Strukturen

Adapter und Nachrichtenstrukturen

- Adapter
 - Advanced Queue
 - SOAP
- Nachrichtenaustausch erfolgt über XML
- Drei Austauschformate, deren Strukturen über XML Schema Definitionen validiert werden, sind von Bedeutung:



- Repräsentation Bonuspunkte-Trxn in DB XMLTYPE()
- Validierung gegen die Self-Defined-XSD

SOA Suite > Bonus API



- XSD Vorgabe von Payback
- Validierung gegen die XSD

Bonus API > ERP



- Validierung gegen die Self-Defined-XSD





Message Redelivery Policy

Wiederholung von Nachrichtenversand

Unterscheidung von technischen und fachlichen Fehlern

Komponenten die zum Einsatz kamen

Message Redelivery Policy

- Vereinbarungen / Regelungen zum erneuten Versenden der Messages
- **Fault Management Framework** steuert die Wiederholungsversuche zu gegebenen Parametern
- **Assertion** in Invoke-Aktivität bestimmt, ob der vom Bonussystem gelieferte Fehlercode einer Wiederholung bedarf (XPATH Expression).
- Unterscheidung zwischen technische und fachliche Fehler
 - Erneutes Versenden bei bestimmen fachlichen Fehlercodes, die in einer **Domain Value Map** festgehalten werden.
 - Technische Fehler(codes) wie z.B. Verbindungsprobleme zum Bonussystem werden ebenso erneut angestoßen.



InvokePurchase

Assertion



DVM



XPath

Fault Management Framework

Framework zur
Behandlung von
Laufzeit- und
fachlichen Fehlern

- Steuerung von
Aktionen bei
bestimmten
Fehlertypen
- Konfiguration des
Wiederholungs-
mechanismus:

The screenshot shows the 'Fault Policies' configuration page. The 'Fault Policy' is 'onErrorHandler'. Under 'Fault Handlers', the 'bpelx:assertFailure' handler is selected. The 'Fault Name' is 'bpelx:assertFailure' and the 'Default Action' is '[retry] ora-retry'. Below this, there is an 'Alerts' section with a table for defining alerts. A context menu is open over the table, showing options: 'email', 'JMS', and 'log'.

| ID | Type |
|---------------------------------------|------|
| Click the Add button to create Alerts | |

```
<Action id="ora-retry">  
  <retry>  
    <retryCount>8</retryCount>  
    <retryInterval>1000</retryInterval>  
    <exponentialBackoff/>  
    <retryFailureAction ref="ora-rethrow-fault"/>  
  </retry>  
</Action>
```

The screenshot shows the 'Alerts' configuration page. It displays a table of alerts with columns for 'ID' and 'Type'. The table contains two entries: 'ora-retry' with type 'retry' and 'ora-rethrow-fault' with type 'rethrowFault'. A list of available alert types is shown on the right side of the page.

| ID | Type |
|-------------------|--------------|
| ora-retry | retry |
| ora-rethrow-fault | rethrowFault |

- abort
- humanIntervention
- javaAction
- replyScope
- rethrowFault
- retry
- invokeWS
- enqueue
- fileAction



Assertion – Business Fault

- Prüfung, ob Bedingung nach Webservice-Response erfüllt ist
- Assertion definierbar in Invoke-Activity
- Bedingung ist deklariert als XPATH-Expression

```
ora:countNodes('InvokePurchase_OutputVariable',  
'body', '/ns4:ProcessPurchaseEventResponse/ns5:FaultMess  
age') = 0  
or (  
dvm:lookupValue("BonusErrorCodesConfig.dvm", "ERROR_  
CODE",  
(bpws:getVariableData('InvokePurchase_OutputVariable', 'bo  
dy', '/ns4:ProcessPurchaseEventResponse/ns5:FaultMessag  
e/ns5:Code')), "RETRYABLE_FLAG", "Y") = 'N')
```

The image shows a BPMN diagram with an 'InvokePurchase' activity. Below it is a decision diamond with two paths: '!ltMessageExists' and 'otherwise'. To the right, the 'Edit Invoke' window is open, showing the 'Assertions' tab. A table lists an assertion:

| Name | Type | Expression | Fault Name | Message |
|---------------|-------------|--------------|---------------|-------------|
| AssertFail... | Post Assert | ora:count... | {http://sc... | To be re... |

Below this is the 'Post Assert' configuration window. It contains the following fields:

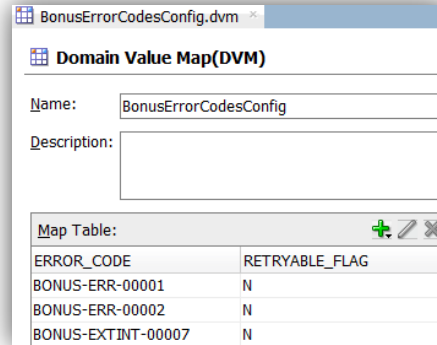
- Name: AssertFailureCode
- Message: 'To be resended'
- Expression: ltMessage/ns5:Code)), "RETRYABLE_FLAG", "Y") = 'N'
- Fault QName: (empty)
- Namespace URI: http://schemas.oracle.com/bpel/extension
- Local Part: assertFailure

Buttons for 'Help', 'OK', and 'Cancel' are visible at the bottom.



Domain Value Map

- DVMs sind flexibel konfigurierbar (*Aufbau ähnelt einer DB-Tabelle*)
- Editierbar in SOA Composer
- Änderungen werden direkt von DVM Consumer übernommen
- Keine Downtime notwendig
- API Funktion zur Selektion bestimmter Werte vorhanden:
`dvm:lookupValue`



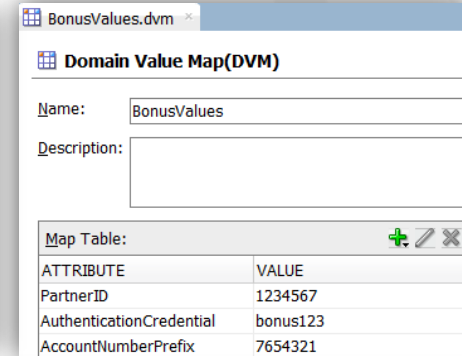
Domain Value Map(DVM)

Name: BonusErrorCodesConfig

Description:

Map Table:

| ERROR_CODE | RETRYABLE_FLAG |
|--------------------|----------------|
| BONUS-ERR-00001 | N |
| BONUS-ERR-00002 | N |
| BONUS-EXTINT-00007 | N |



Domain Value Map(DVM)

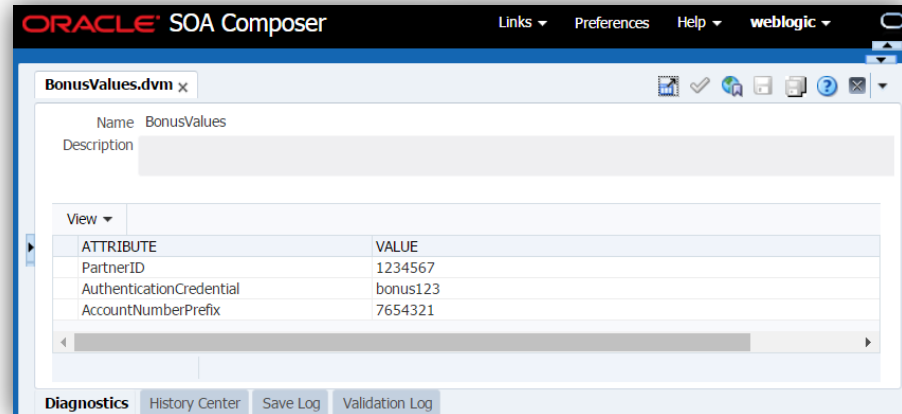
Name: BonusValues

Description:

Map Table:

| ATTRIBUTE | VALUE |
|--------------------------|----------|
| PartnerID | 1234567 |
| AuthenticationCredential | bonus123 |
| AccountNumberPrefix | 7654321 |

Design Time



ORACLE SOA Composer

Links Preferences Help weblogic

BonusValues.dvm

Name: BonusValues

Description:

View

| ATTRIBUTE | VALUE |
|--------------------------|----------|
| PartnerID | 1234567 |
| AuthenticationCredential | bonus123 |
| AccountNumberPrefix | 7654321 |

Diagnostics History Center Save Log Validation Log

Runtime





Webservice Security

Oracle Webservice Manager

Webservice Security

- Oracle Webservice Manager
 - Deklaration Username Token in Credential Store Provider
 - Credential Store Framework Key (CSF-KEY)

WS Security Policy:
oracle/wss_http_token_client_policy

SOA Client WS Policies

Configure Web Services client policies to request bindings
Enable or disable each policy status by checking the box on the left side

Select Request Binding
WS : {http://www.payback.net/Msglobal/ws/v1/extint}ExtintService : ExtintPort

MTOM + ×

Reliability + ×

Addressing

Security oracle/wss_http_token_client_policy

Management

Enable All Disable All

Help

OK Cancel

Config Override Properties

Edit Override Values

| Name | Value | Override Value |
|--------------------|-------------------|----------------|
| reference.priority | | |
| csf-key | basic.credentials | payback-key |

Help

OK Cancel

PaybackWebService

Operations:

- GetAccountBalance
- ProcessGoodwillEvent
- ProcessPromotionEvent
- ProcessPurchaseEvent
- RefundPromotionEvent
- RefundPurchaseEvent
- ReverseCollectEvent





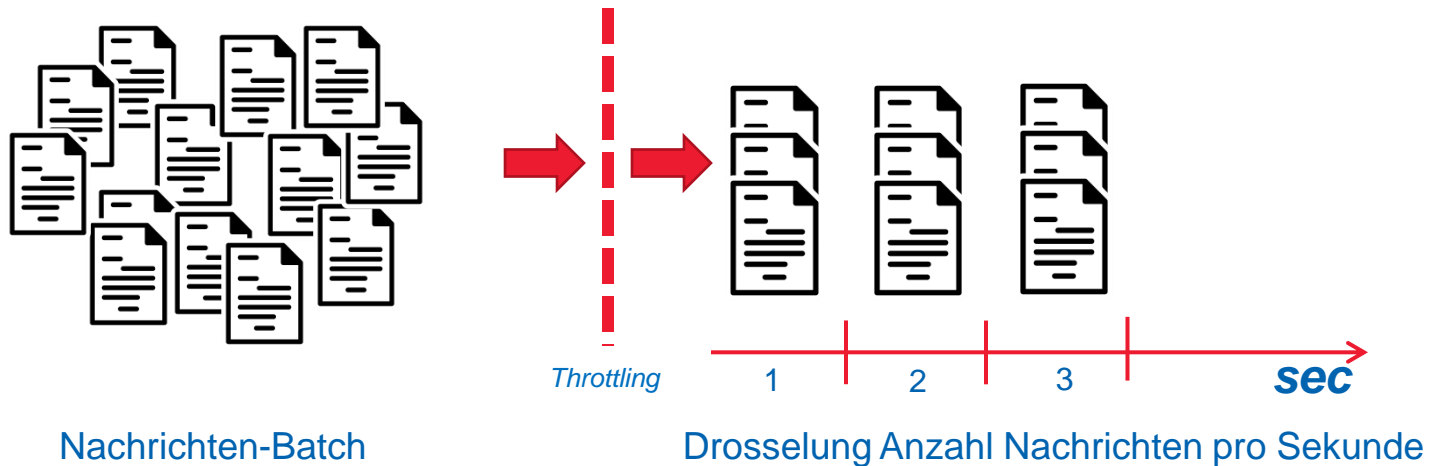
Throttling

Drosselung der Nachrichten

Throttling

Vorgabe vom Payback Webservice Interface:

- Maximale Transaktionsmenge von 20 in einer Sekunde



```
<property name="minimumDelayBetweenMessages">1000</property>  
<property name="adapter.aq.dequeue.threads" type="xs:string" many="false">20</property>
```

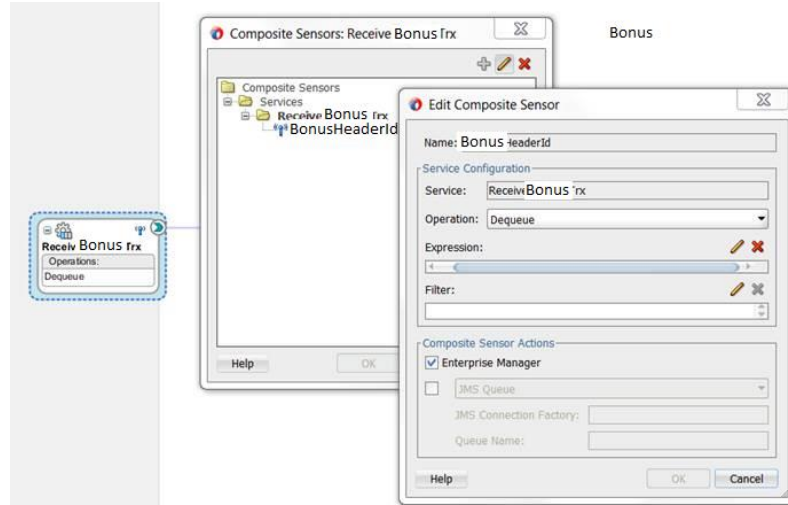


Monitoring Möglichkeiten

Wie ist die gezielte Suche nach Transaktionen möglich?

Prozess Drill-Down

Monitoring - Composite Sensor



Ermöglicht das Finden einer SOA-Instanz über eine eindeutige Kennung, die in dem Payload vorhanden ist

Dashboard **Instances** Faults and Rejected Messages Unit Tests Policies

Instances of this SOA composite are listed below. There may be more instances in the database than shown in this page. Also when composite audit tracking is disabled, component instances may be created within the composite without its own instances. Click Delete with Options to purge the instances from the database.

All instances of this SOA composite are listed below. To include composite sensor values in your search for composite instances, click Add Fields.

Search

Instance ID Start Time From (GMT+01:00) Berlin - Central Eurc
Name Start Time To (GMT+01:00) Berlin - Central Eurc
ECID PaybackHeaderId Equals 123123123
Conversation ID

Search Reset Add Fields

Filter By: Execution State Fault State BPEL Recovery

View

| Instance ID | Name | Conversation ID | Instance State | Composite Sensors | Start Time | Logs |
|-------------|------|------------------|----------------|-------------------|-------------------------|------|
| 5705618 | | 4AD91C6EDAEF5471 | Completed | (?) | Mar 16, 2017 1:32:26 PM | |
| 5705617 | | 4AD91C6EDAEE5471 | Completed | (?) | Mar 16, 2017 1:32:26 PM | |
| 5705616 | | 4AD91C704F9354Cf | Completed | (?) | Mar 16, 2017 1:32:25 PM | |
| 5705615 | | 4AD91C70DB2F53Ff | Completed | (?) | Mar 16, 2017 1:32:24 PM | |
| 5705614 | | 4AD91C704F9254Cf | Completed | (?) | Mar 16, 2017 1:32:24 PM | |
| 5705613 | | 4AD91C6EDAED547 | Completed | (?) | Mar 16, 2017 1:32:24 PM | |
| 5705612 | | 4AD91C70DB2E53Ff | Completed | (?) | Mar 16, 2017 1:32:24 PM | |
| 5705611 | | 4AD91C6EDAEC547 | Completed | (?) | Mar 16, 2017 1:32:24 PM | |

SOA Composite Dashboard



Monitoring – Flow Trace

Flow Trace ⓘ
 This page shows the flow of the message through various composite and component instances. ⓘ ECID
 Started **Mar 16, 2017 1:32:26 PM**

Faults (0)

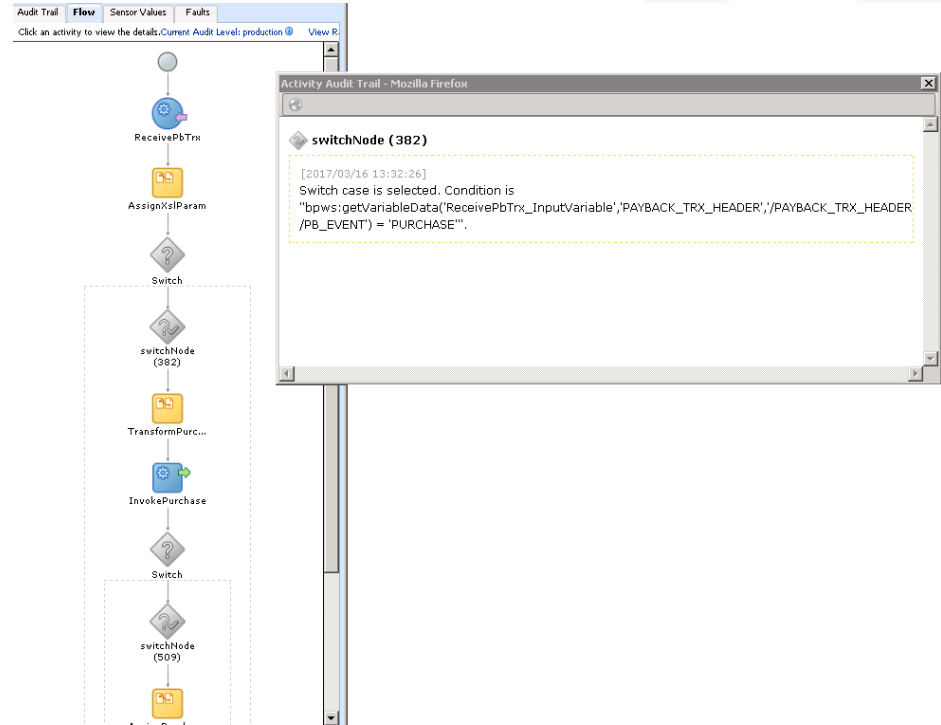
Sensors (1)

Composite Sensors for this flow.

| Composite Instance | Sensor Name | Value | Location | Action |
|--------------------|---------------|---------------|------------------|---------|
| 5705618 | BonusHeaderId | 3,587,375.000 | ReceiveBONUS Trx | Dequeue |

Trace
 Click a component instance to see its detailed audit trail.
 Show Instance IDs

| Instance | Type | Usage | State |
|-----------------------|----------------|-----------|-------------|
| ReceiveBONUS Trx | JCA Adapter | Service | ✔ Completed |
| BonusApiBPELProcess | BPEL Component | | ✔ Completed |
| BonusWebService | Web Service | Reference | ✔ Completed |
| EnqueueBONUS Response | JCA Adapter | Reference | ✔ Completed |



Monitoring – Audit Trail

The screenshot shows an Audit Trail interface with tabs for 'Flow', 'Sensor Values', and 'Faults'. The main area displays a process flow for 'InvokeEnqueueResult' on Mar 16, 2017, 1:32:26 PM. The flow includes steps like 'ReceiveB0Trx', 'AssignXslParam', 'Switch1 (382)', 'TransformPurchase', 'InvokePurchase', and 'InvokeEnqueueResult'. A red arrow points from the 'InvokeEnqueueResult' step to a detailed XML payload view.

```
<InvokeEnqueueResult_InputVariable>
  <part name="_RESPONSE">
    <
      <_HEADER_ID>3587375</PB_HEADER_ID>
      <STATUS_CODE>SUCCESS</STATUS_CODE>
      <STATUS_MESSAGE>Account balance: total=823, available=551, blocked=272</STATUS_MESSAGE>
      <SOA_COMPOSITE_ID>5705618</SOA_COMPOSITE_ID>
      <SOA_ERR_CODE/>
    </
  </part>
</InvokeEnqueueResult_InputVariable>
```

- Detaillierte Prozessanalyse
- Zwischenwerte einsehbar
- Audit Level
 - Development
 - Production

This is a zoomed-in view of the XML payload from the previous screenshot, showing the structure of the 'InvokeEnqueueResult' response.

```
<InvokeEnqueueResult_InputVariable>
  <part name="_RESPONSE">
    <
      <_HEADER_ID>3587375</PB_HEADER_ID>
      <STATUS_CODE>SUCCESS</STATUS_CODE>
      <STATUS_MESSAGE>Account balance: total=823, available=551, blocked=272</STATUS_MESSAGE>
      <SOA_COMPOSITE_ID>5705618</SOA_COMPOSITE_ID>
      <SOA_ERR_CODE/>
    </
  </part>
</InvokeEnqueueResult_InputVariable>
```





Fazit

Fazit



- Mit der SOA Suite war es möglich alle Anforderung abzudecken
- Sehr gute Betriebsbedingungen
 - Tracking, Monitoring, Performance-Dashboard
- Qual der Wahl an Konfigurationsmöglichkeiten: Aufwendige Analyse bei Suche nach der „Best Practise“
- Purging Lösung nicht Elegant (in 11g)
- Globale Parameteränderungen sind mit Vorsicht zu genießen. Nebeneffekte auf andere Projekte in der SOA Domain.
- Nach erfolgreicher Einführung ist die strategische Planung das Produkt in weiteren Integrations-Projekten einzusetzen



Scope Alliance – Besuchen Sie uns!



THANK YOU!



Hasan Ali Yilmaz



hasan.yilmaz@appsassociates.com



+49 171 305 23 82



**apps
associates**
extreme expertise

