Acorel Technology - #TheATeam

“We create healthy data flows”

Igor Mitrovic
Guido Koopmann
We Create #HealthyDataFlows

“In this session with SAP Event Mesh”
#HealthyDataFlows

The 8 challenges that organizations encounter when it comes to IT in general

1. Business Agility
2. Implementation Done Right
3. Operational Stability
4. Right Data at the Right Time
5. Consistent Processes
6. Reference Architecture
7. Security
8. Innovation

These challenges are known for causing:

#UnHealthyDataFlows
Challenges
Cure The Unhealthy Data Flows

• Reduce amount of Point to Point Interfaces
• Reliability
• Processing Time
• Events
Solution

Cure The Unhealthy Data Flows

- Reference Architecture
- Event Mesh Together With SAP CPI
- Decouple Data from Source Systems and Applications
- (Near) Realtime Data Flows
- Reliability
Event-Based

General Concept

Producer \[\rightarrow\] Object + Key Value \[\rightarrow\] Router/Queue \[\rightarrow\] Object + Key Value \[\rightarrow\] Consumer

Change of State

Object + Key Value

Dataset

Callback
Event-Based
SAP Event Mesh in theory

Important options
• Queue’s and topics
• Webhook
• Testing
• Monitoring of resources
Event-Based
SAP Event Mesh Queue's and topics
SAP Event Mesh

Message Clients

Message Clients

Default Plan

Subdomain:

Message Clients

Queues

Resource Allocation

Resource Usage

Test

s4hana
Type: Instance

/s4hana/
## SAP Event Mesh

### Message Clients details

<table>
<thead>
<tr>
<th>Subdomain</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Namespace</td>
<td>Type</td>
<td>Management</td>
<td>Messaging</td>
</tr>
<tr>
<td>s4hana</td>
<td>/s4hana/</td>
<td>Instance</td>
<td>ENABLED</td>
<td>ENABLED</td>
</tr>
</tbody>
</table>

**Overview**

- Number of Queues: 15
- Number of Webhooks: 5
# SAP Event Mesh

## Queues

### Subdomain:

**s4hana**

<table>
<thead>
<tr>
<th>Queue Name</th>
<th>Messages</th>
<th>Unacknowledged Messages</th>
<th>Queue Size (bytes)</th>
<th>Access Type</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>s4hana/delivery/outbound</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>NON_EXCLUSIVE</td>
<td><img src="image" alt="List Item" /></td>
</tr>
<tr>
<td>s4hana/delivery/very/outbound/dflq</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>NON_EXCLUSIVE</td>
<td><img src="image" alt="List Item" /></td>
</tr>
</tbody>
</table>

### Create New Queue

- **Queue Name**: Enter a queue name
- **Access Type**: NON_EXCLUSIVE
- **Max Queue Size in bytes**: 1572864000
- **Max Message Size in bytes**: 100000000
- **Max Unacknowledged Messages per Consumer**: 10000
- **Max Redelivery Count**: 0
- **Respect Time to Live**: 180

**Final Queue Name would be appended with the Namespace**

- ![List Item](image)
- ![List Item](image)
- ![List Item](image)
- ![List Item](image)
- ![List Item](image)
Edit/Add Queue definition

Queue Name: s4hana/delivery/outbound

- Access Type: EXCLUSIVE
- Max Queue Size in bytes: 1572864000
- Max Message Size in bytes: 10000000
- Max Unacknowledged Messages per Consumer: 10000
- Max Redelivery Count: 3
- Respect Time to Live in seconds: YES
- Max Time to Live: 0
- Dead Message Queue: s4hana/delivery/outbound/dlq
Queue Subscriptions

SAP Event Mesh

TOPIC 1 Many Queue

Same Topic name

- s4hana/delivery
- s4hana/shipment

Different Queue name

- s4hana/delivery/outbound/diq

This queue can only subscribe to topics which follow the rules defined in the service descriptor.
Event-Based
SAP Event Mesh in theory

Important options
• Queue’s and topics
• **Webhook**
• Testing
• Monitoring of resources
Event-Based
SAP Event Mesh Webhook
# SAP Event Mesh

## Webhook

<table>
<thead>
<tr>
<th>Subscription Name</th>
<th>Queue Name</th>
<th>Quality of Service</th>
<th>Subscription Status</th>
<th>Handshake Status</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPL_Webhook_Delivery_Outbound</td>
<td>s4hana/delivery/outbound</td>
<td>1</td>
<td>PAUSED</td>
<td>NOT INITIATED</td>
<td></td>
</tr>
</tbody>
</table>

Subdomain: s4hana

- Namespace: s4hana
- Type: Instance
- Management: ENABLED
- Messaging: ENABLED
- Messaging REST: ENABLED

- Overview
- Rules
- Queues
- Webhooks
- Events
- Service Descriptor
- Test

[Create Webhook]

[Refresh] [Search]

- Subdomain dropdown

[Webhook table]
SAP Event Mesh

Webhook

Create New Webhook Subscription

Subscription Name: *CPI_Webhook_Delivery_Outbound
Queue Name: 's4hana/delivery/outbound
Quality of Service: 1
Exempt Handshake: *YES
On Premise: *NO
Default Content-Type: *application/json
Authentication: *OAuth2ClientCredentials
Client ID: *Enter a client ID

Create  Cancel
Event-Based
SAP Event Mesh in theory

Important options
• Queue’s and topics
• Webhook
• Testing
• Monitoring of resources
Event-Based

Sample Message

Sample message

```
object ➤ data ➤

▼ object {7}

  type: sap.s4.heh.devdelivery.v1.delivery.Created.v1

  specversion: 1.0

  source: S4HANA

  id: AA06I7UPHTu1gTSbk0YLzz==

  time: 2021-06-21T09:53:05Z

  datacontenttype: application/json

▼ data {1}

Delivery: 90000152
```
Event-Based

Test Publish Message - Queue

Subdomain:

Namespace  
s4hana
Type  
Instance
Management  
Messaging  
Messaging REST

Overview  
Rules  
Queues  
Webhooks  
Events  
Service Descriptor  
Test

Publish Messages

Queue  Topic

s4hana/delivery/outbound

Queue Name  Messages  Unacknowledged Messages

s4hana/delivery/outbound  0  0

Message Data  Message Properties

Content-Type: application/json

```json
{
  "type": "sap.s4hana.delivery.outbound.Created.v1",
  "spacerevision": "1.0",
  "source": "s4hana",
  "id": "AA005PPhmu8gTS9ovLzz==",
  "name": "2021-06-21T06:53:05Z",
  "datacontenttype": "application/json",
  "data":
  "Delivery": "00000152"
}
```
Event-Based

Test Publish Message - Queue

Subdomain: s4h-dev

s4hana

Namespace | Type | Management | Messaging | Messaging REST
---|---|---|---|---
s4hana/ | Instance | ENABLED | ENABLED | ENABLED

### Overview

<table>
<thead>
<tr>
<th>Publish Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>○ Queue</td>
</tr>
<tr>
<td>s4hana/delivery</td>
</tr>
</tbody>
</table>

### Message Data

```
{  
  "type": "sap.s4.beh.delivery.v1.delivery.Created.v1",  
  "specVersion": "1.0",  
  "source": "S4HANA",  
  "id": "AAB57FPUhU1gTSbk8VL2z==",  
  "uri": "https:// notoriouslyuncertain.com/action/42",  
  "datacontextType": "application/json",  
  "data": {  
    "Delivery": "09000152"  
  }
```

### Message Properties

<table>
<thead>
<tr>
<th>Publish Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1]</td>
</tr>
</tbody>
</table>

---

### Before Test

<table>
<thead>
<tr>
<th>Queue Name</th>
<th>Messages</th>
<th>Unacknowledged Messages</th>
<th>Queue Size (bytes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>s4hana/delivery/outbound</td>
<td>3</td>
<td>3</td>
<td>1143</td>
</tr>
<tr>
<td>s4hana/delivery/outbound/idq</td>
<td>1</td>
<td>0</td>
<td>375</td>
</tr>
</tbody>
</table>

---

### After Test

<table>
<thead>
<tr>
<th>Queue Name</th>
<th>Messages</th>
<th>Unacknowledged Messages</th>
<th>Queue Size (bytes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>s4hana/delivery/outbound</td>
<td>4</td>
<td>4</td>
<td>1518</td>
</tr>
<tr>
<td>s4hana/delivery/outbound/idq</td>
<td>2</td>
<td>0</td>
<td>750</td>
</tr>
</tbody>
</table>
Event-Based
SAP Event Mesh in theory

Important options
- Queue’s and topics
- Webhook
- Testing
- **Monitoring of resources**
Event-Based
SAP Event Mesh in theory

Monitor Resources

Queues: 24 out of 1200
Connections: 19 out of 400
Producers: 12 out of 1200
Consumers: 26 out of 1200
Spooled: 94.23 KB out of 3.91 GB

Resource Units Allocation

<table>
<thead>
<tr>
<th>Message Client</th>
<th>Allocated Resource Units</th>
<th>Resource</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>$4hana</td>
<td>50</td>
<td>Queues</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Queue Subscriptions</td>
<td>780</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Connections</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consumers</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Producers</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Webhooks*</td>
<td>50</td>
</tr>
</tbody>
</table>
Systems
Event Enabled Backend Systems

- SAP ECC With Event Enablement AddOn
- S/4HANA Enterprise Events
- SAP SuccessFactors
- SAP Marketing Cloud
Results
Healthy Data Flows

• Business Agility
• Efficient Development and Data
• Lower Running Costs
Event-Based

General Concept

Loose coupling
Fault tolerance
Scalable, Reliable and Resilient

Duplicated events
Error handling, Monitoring and troubleshooting
Not always compatible
Not all objects / applications
Thank you!

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If you have a problem, if no one else can help and if you can find them... maybe you can hire The A-Team

- Acorel Technology