



Event-Driven architectures in practice

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technology event

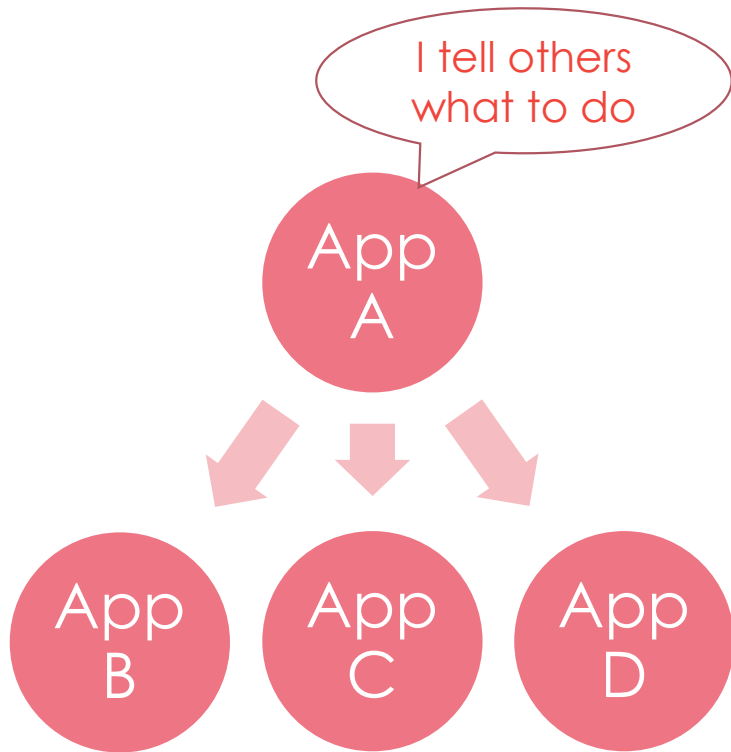
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Introduction

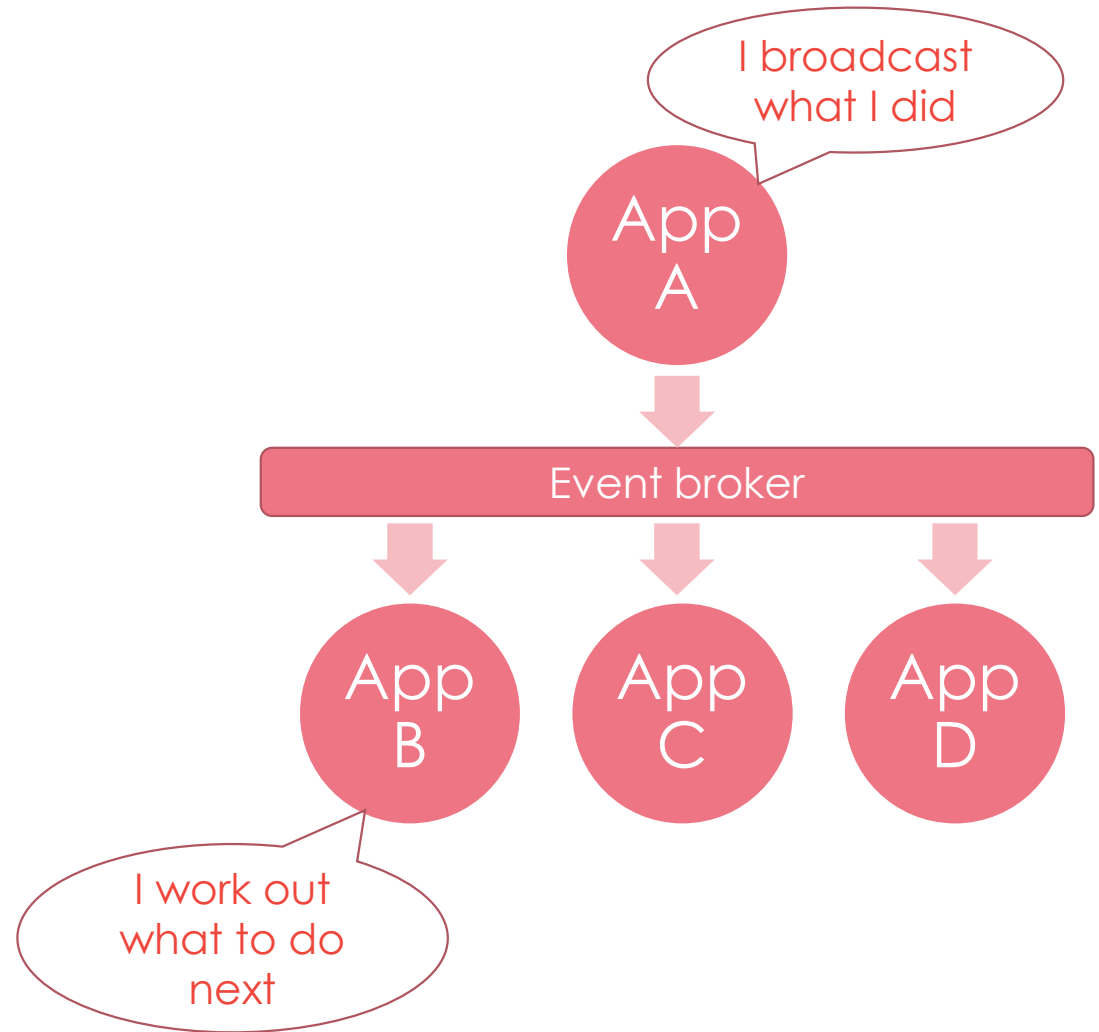
What is event driven integration?

“The event-driven architecture pattern is a popular distributed asynchronous architecture pattern used to produce highly scalable distributed applications”

Request-driven way



Event-driven way



The Pizza Analogy



Tables



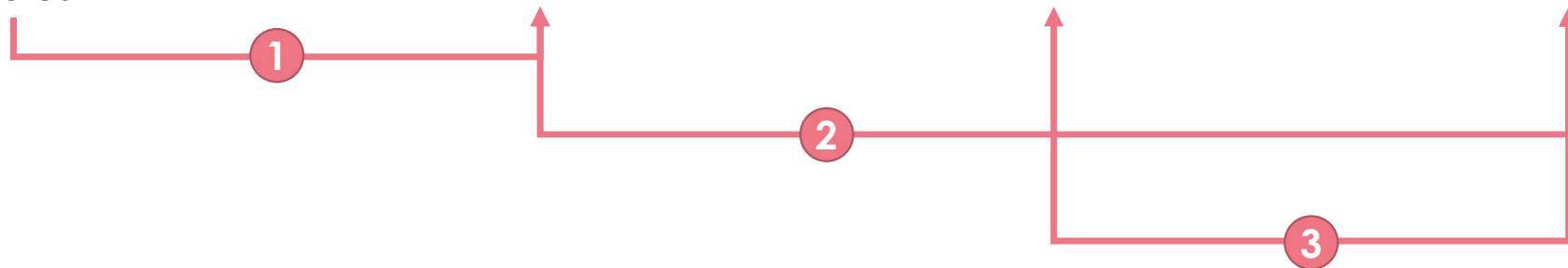
Kitchen



Stock



Cashier



The Pizza Analogy



Tables

Pepperoni
for table 6



Kitchen

Notification



Stock

Notification



Cashier

Notification

Event Broker

Advantages of Event-Driven Architectures

Loose Coupling

No logic needed associated with other services

Fault tolerance

If a subscribing service fails, it doesn't impact the producer of the event

Real-time integration

Events are recorded as they occur

Increased versatility

Components function independently and can be used and reused many times over



Disadvantages of Event-Driven Architectures

Need for standardization

Required to get loosely coupled events

Monitoring

Do we have a central location to have an overview?
How will we troubleshoot in case of errors?

Governance

Sometimes sequential processing is required



Use Case

Event driven integration with our customer:
Edgard and Cooper.

About Edgard & Cooper

- Belgian company that makes dog & cat food.
 - Founded in 2016.
 - Over 100 employees by now.
 - Available by now in over 12 countries.
 - Delivers 20,000 kg of pet food each day.
 - Over 45 products
 - Sales almost doubled compared to last year.
- ⇒ Time for a new ERP system!



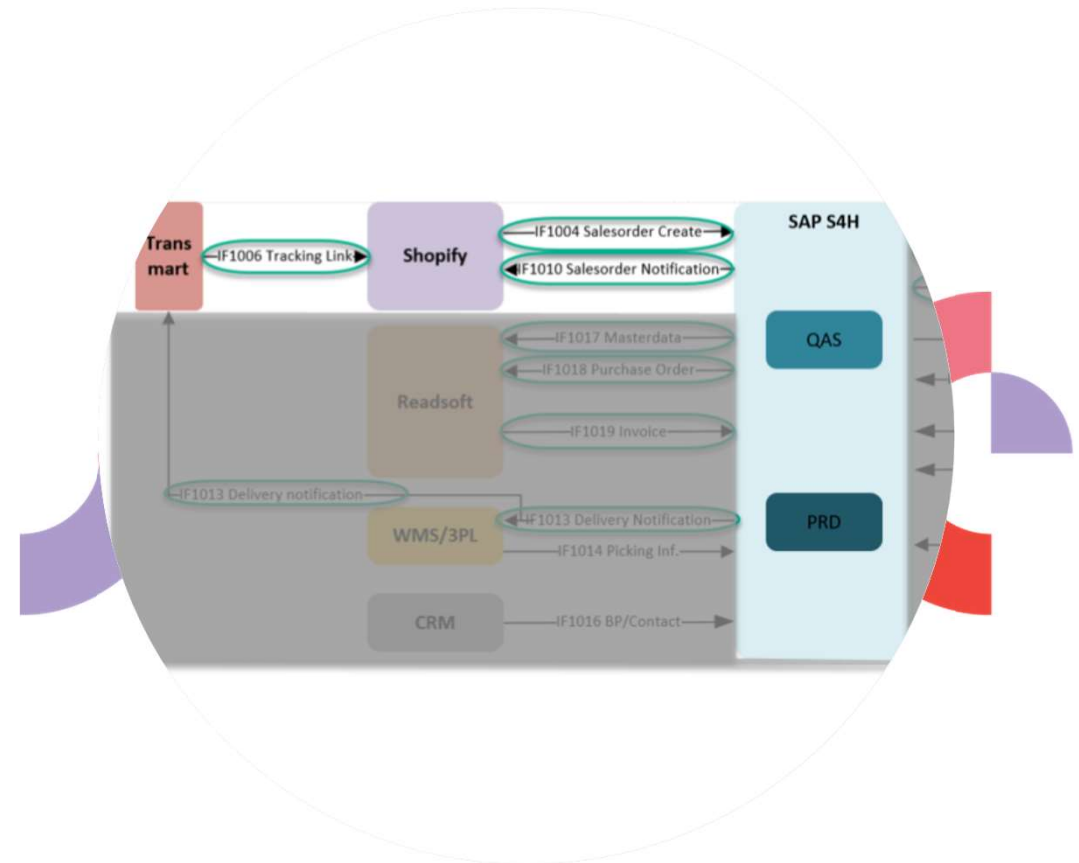
Event driven O2C enterprise landscape

Requirements:

- Nearly real-time
- Scalable
- Robust
- Flexible

Shopify:

- B2C Salesorders registered in Shopify
- Registration in S4
- Feedback in Shopify for:
 - Salesorder



Event driven O2C enterprise landscape

Components:

- SAP Event Mesh (EM) Queues & Topics
- SAP Cloud Integration (SCI)
- Shopify API's (Webshop)
- SAP S/4HANA CLOUD

Flow:

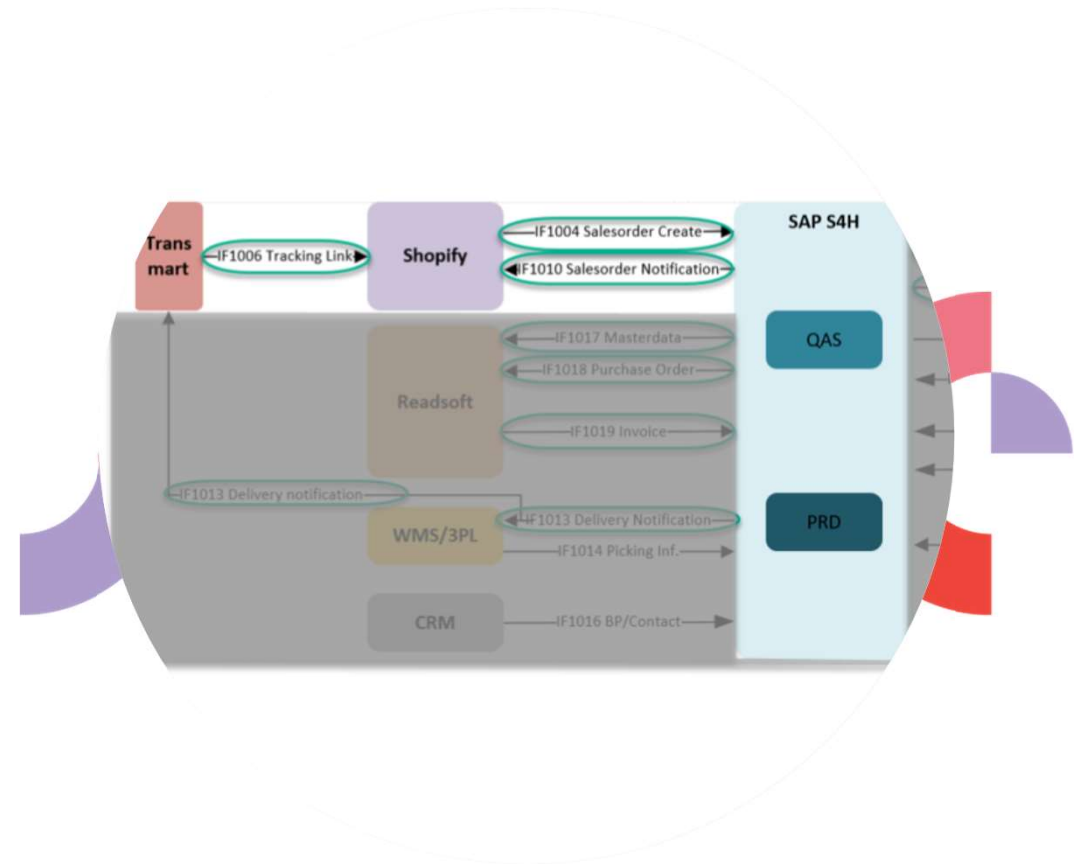
1. Post event to Topic.
2. Subscribe receiver's Queue to Topic.
3. Process & retrieve additional info from source.
4. Deliver message to target.



Event driven O2C enterprise landscape

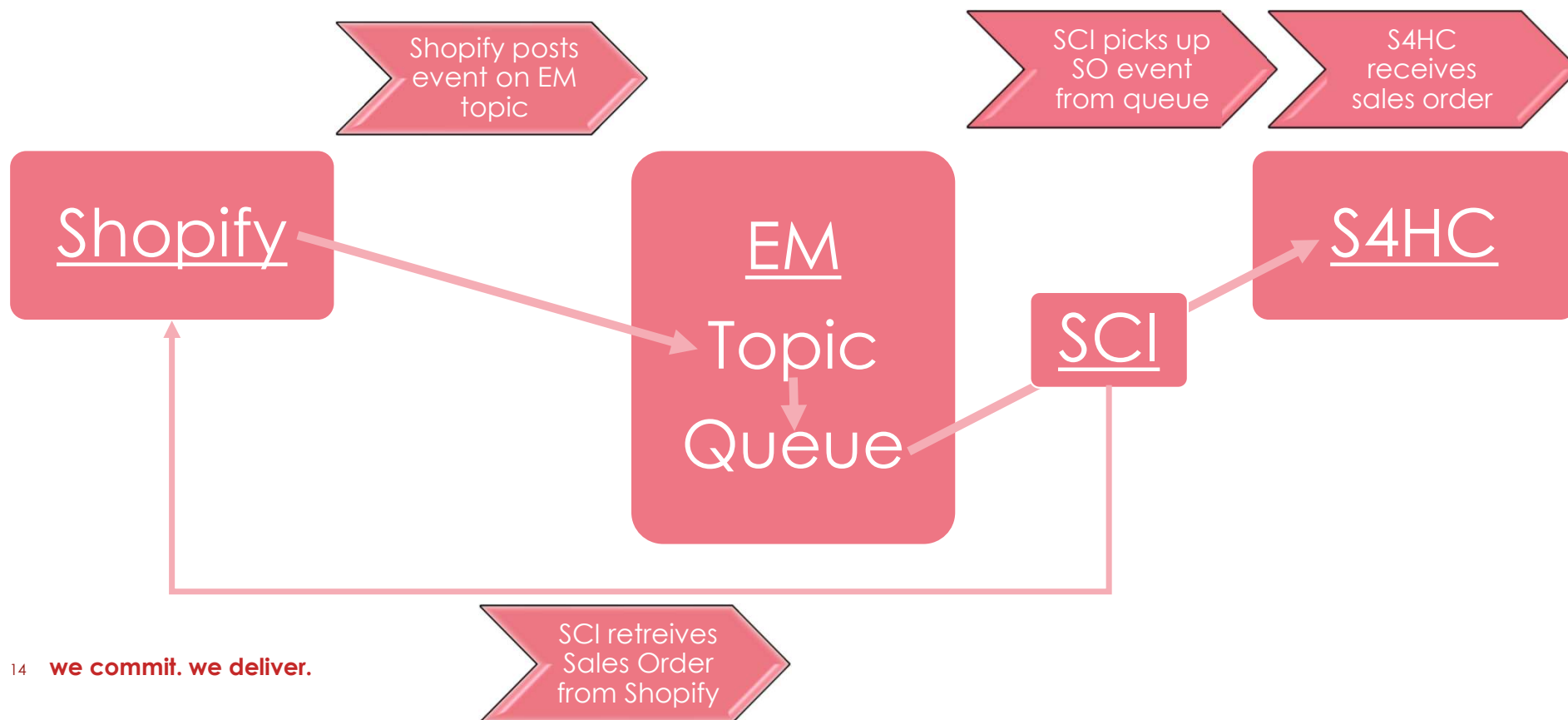
In detail:

- Shopify <> S4HC
- Shopify:
 - Sends SO notification.
 - Makes SO available in API.
 - Retrieves SO confirmation from EM.
- S4:
 - Receives SO from CPI.
 - Sends Success/Fail for SO.



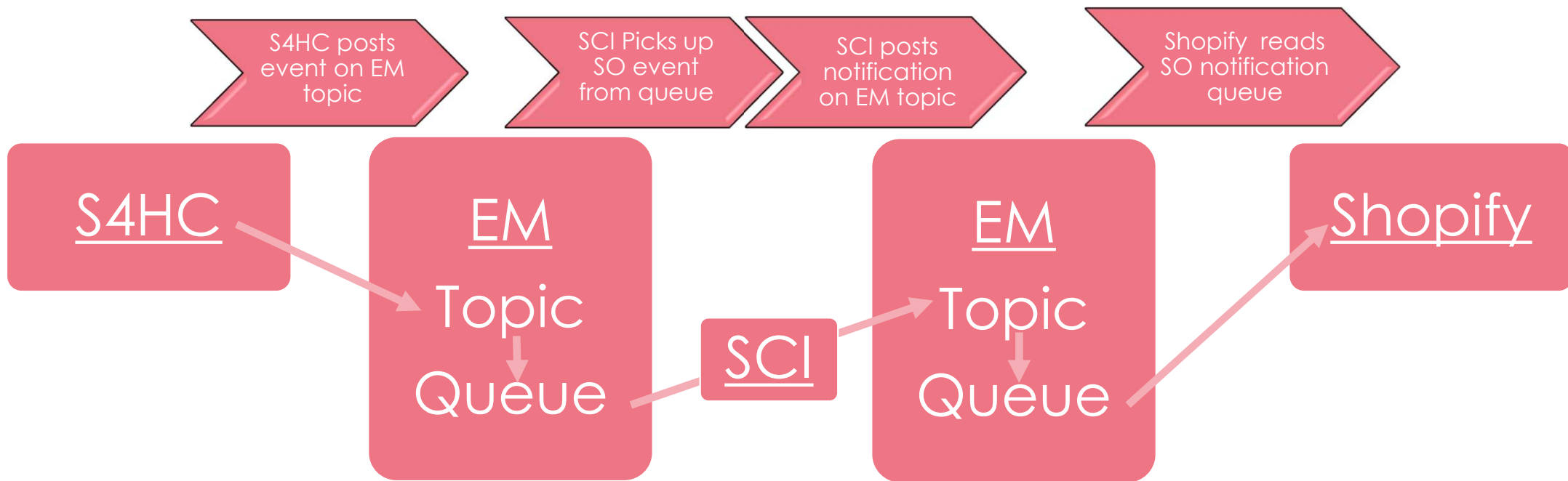
Event driven O2C enterprise landscape

➤ Salesorder Create



Event driven O2C enterprise landscape

› Sales Order Success/Fail Event



Use Case - demo

Sales order Creation & Confirmation

between S4 Hana Cloud and the Shopify B2C webshop.

The screenshot displays the Postman application interface. On the left, the 'Collections' tab is active, showing a list of API collections. The 'POST to Salesorder Queue' collection is selected, and the specific request 'POST to Salesorder Queue' is highlighted. The main panel shows the details of this request:

- Method:** POST
- URL:** `https://enterprise-messaging-pubsub.cfapps.eu20.hana.ondemand.com/messagingrest/v1/topics/healthypets%2Fqass4%2Fqasem%2FShopify%2FSalesOrder/messages`
- Body:** The request body is in JSON format, containing the following data:

```
1 {
2   "event": "SalesOrder.Created",
3   "time_event": "2020-11-16T17:15:20Z",
4   "objectId": "3672547557508",
5   "fetchurl": "https://app.testing.edgardcooper.com/api/sap/salesorder/2865475485828"
6 }
```
- Response:** The response is displayed in the 'Body' tab, showing a status of '204 No Content', a time of '205 ms', and a size of '195 B'.

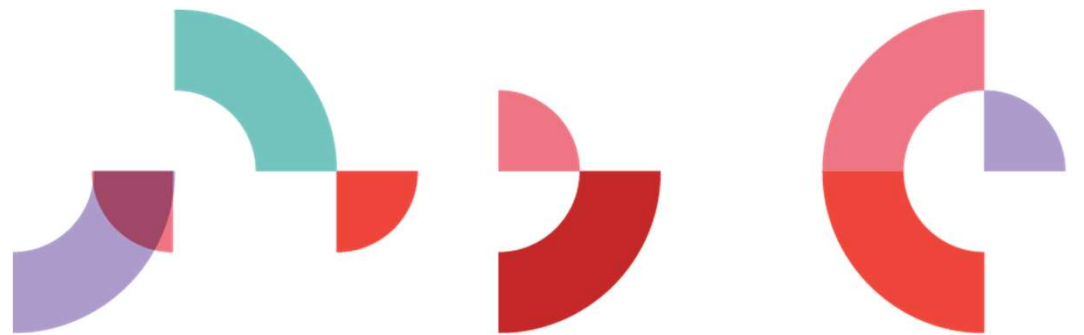


Challenges

Event driven integration with our customer:
Edgard and Cooper.

Challenges

- AMQP Adapter
- Monitoring S4 – EM
- Dead letter queue
- Standardize events



Conclusion

Event driven integration with our customer:
Edgard and Cooper.

Conclusion

- Event-based architecture to decouple systems
- Built a scalable and dynamic architecture to handle the project requirements
- Some challenges, but overcame together with SAP



Useful links

Event-Driven Integrations Using SAP Cloud Platform Integration Suite | SAP TechEd 2020

- <https://www.youtube.com/watch?v=98FNX-HFdGg>

SAP Event Mesh

- <https://help.sap.com/viewer/bf82e6b26456494cbdd197057c09979f/Cloud/en-US/df532e8735eb4322b00bfc7e42f84e8d.html>

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Questions?

we commit. we deliver.