Asynchronous Reactive Programming

Hello!

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Keywords :

Asynchronous :

Executes tasks concurrently

Reactive :

Reacts based-on incoming events/messages.

Observer-Observable pattern

Project :

Simple stock exchanges microservices

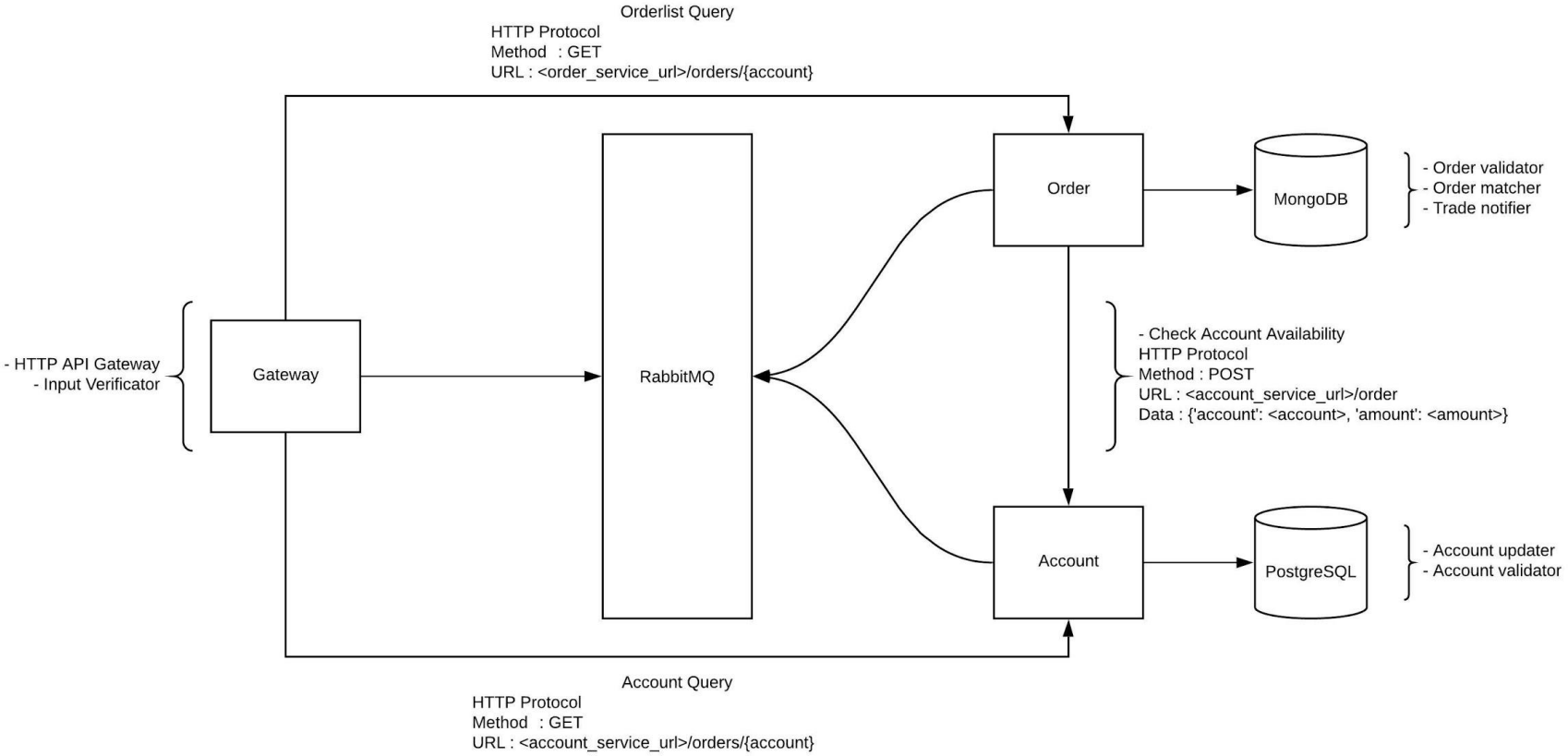
Tech Stack :

- Python3.7
- MongoDB 4.2
- PostgreSQL 12

Requirements :

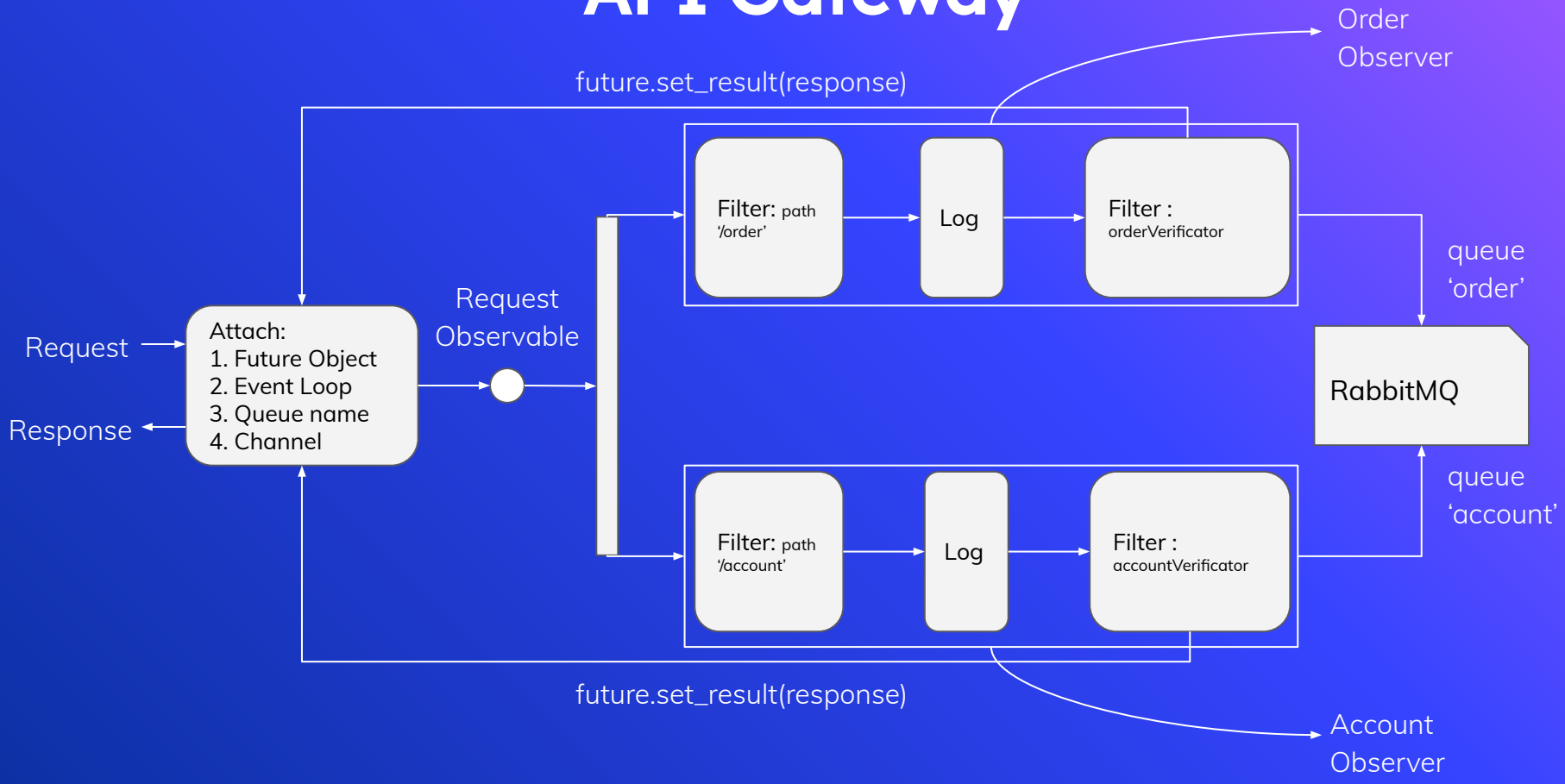
- aiohttp
- aiopg
- aiopika
- sqlalchemy
- motor
- rxpy

Architecture

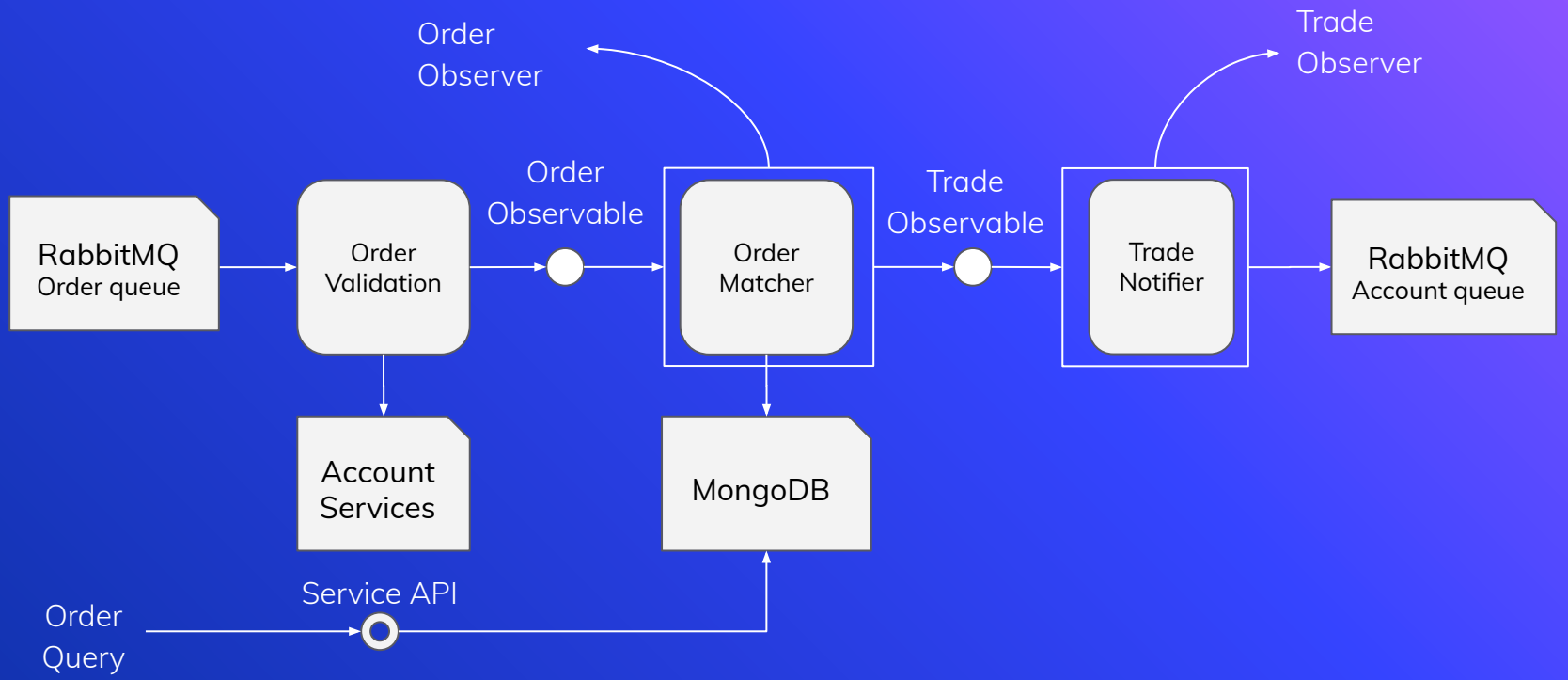

Orderlist Query
HTTP Protocol
Method : GET
URL : <order_service_url>/orders/{account}
Order
MongoDB
- Order validator
- Order matcher
- Trade notifier
- HTTP API Gateway
- Input Verificator
Gateway
RabbitMQ
- Check Account Availability
HTTP Protocol
Method : POST
URL : <account_service_url>/order
Data : {'account': <account>, 'amount': <amount>}
Account
PostgreSQL
- Account updater
- Account validator
Account Query
HTTP Protocol
Method : GET
URL : <account_service_url>/orders/{account}

Services Process

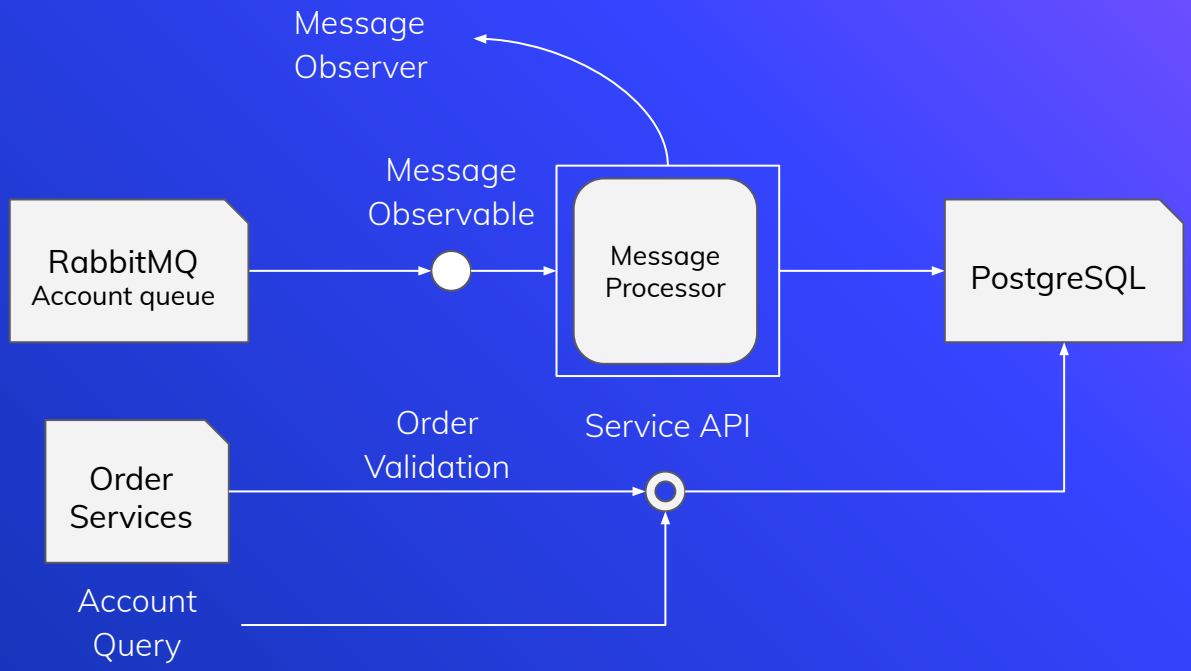
API Gateway


Order
Observer
future.set_result(response)
Filter: path
'/order'
Log
Filter :
orderVerificator
queue
'order'
Request
Request
Observable
Attach:
1. Future Object
2. Event Loop
3. Queue name
4. Channel
RabbitMQ
Response
queue
'account'
Filter: path
'/account'
Log
Filter :
accountVerificator
future.set_result(response)
Account
Observer

Order Services



Account Services



Thanks!

Any questions?