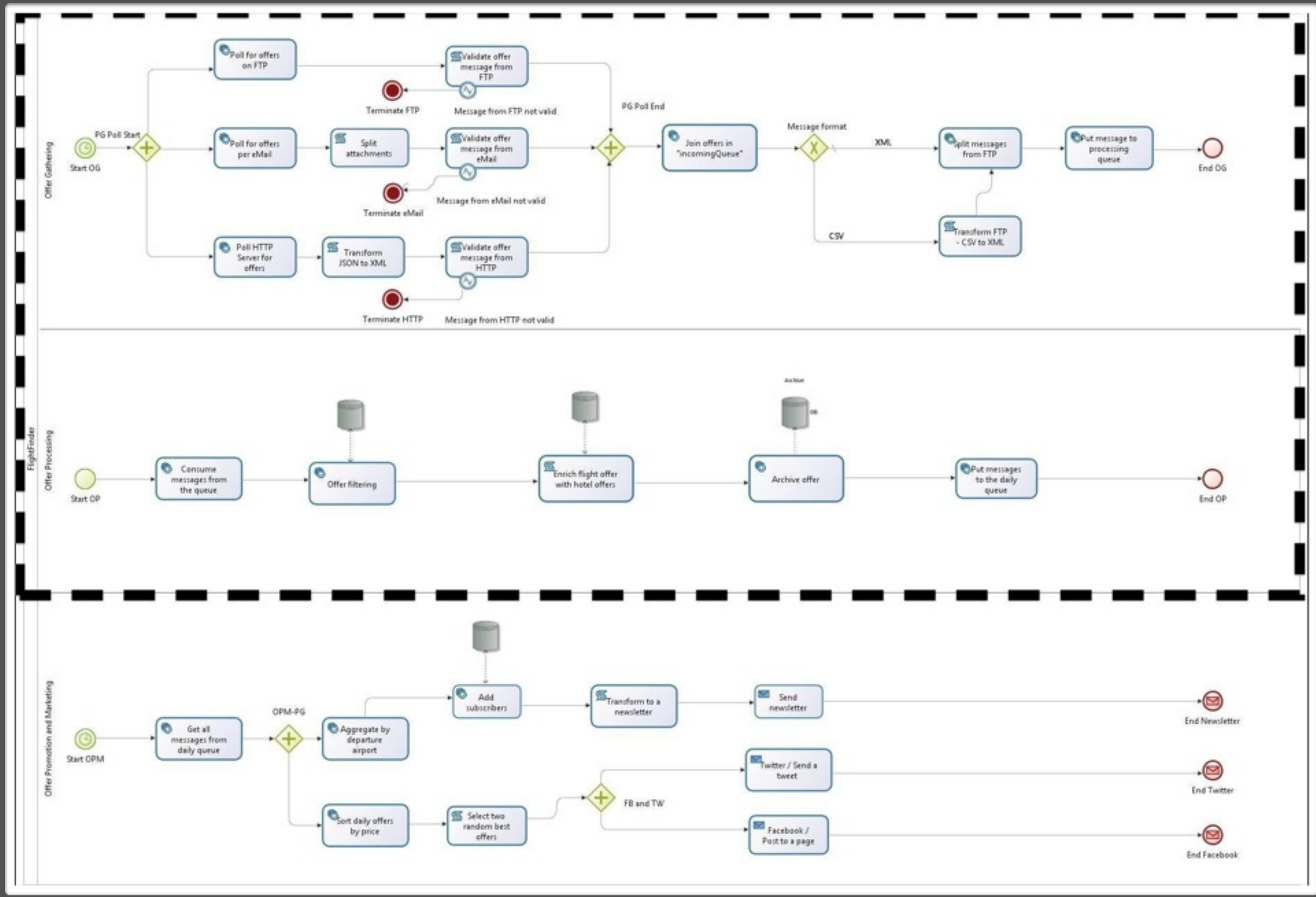
Workflow Modeling and Process Management

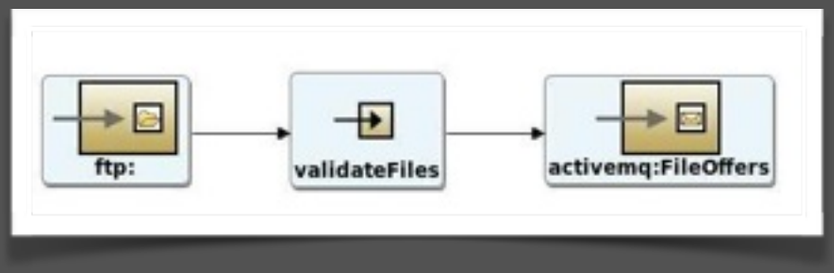
Group 02
MR2

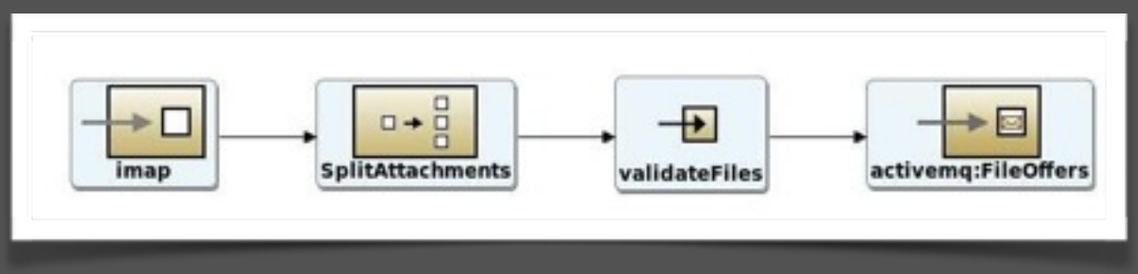
BPMN diagram

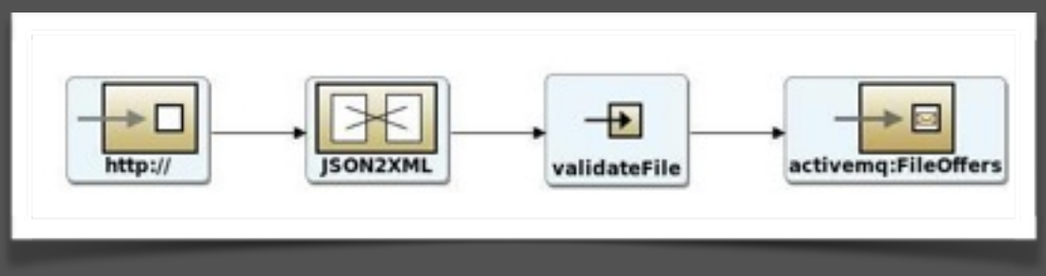


Offer Gathering

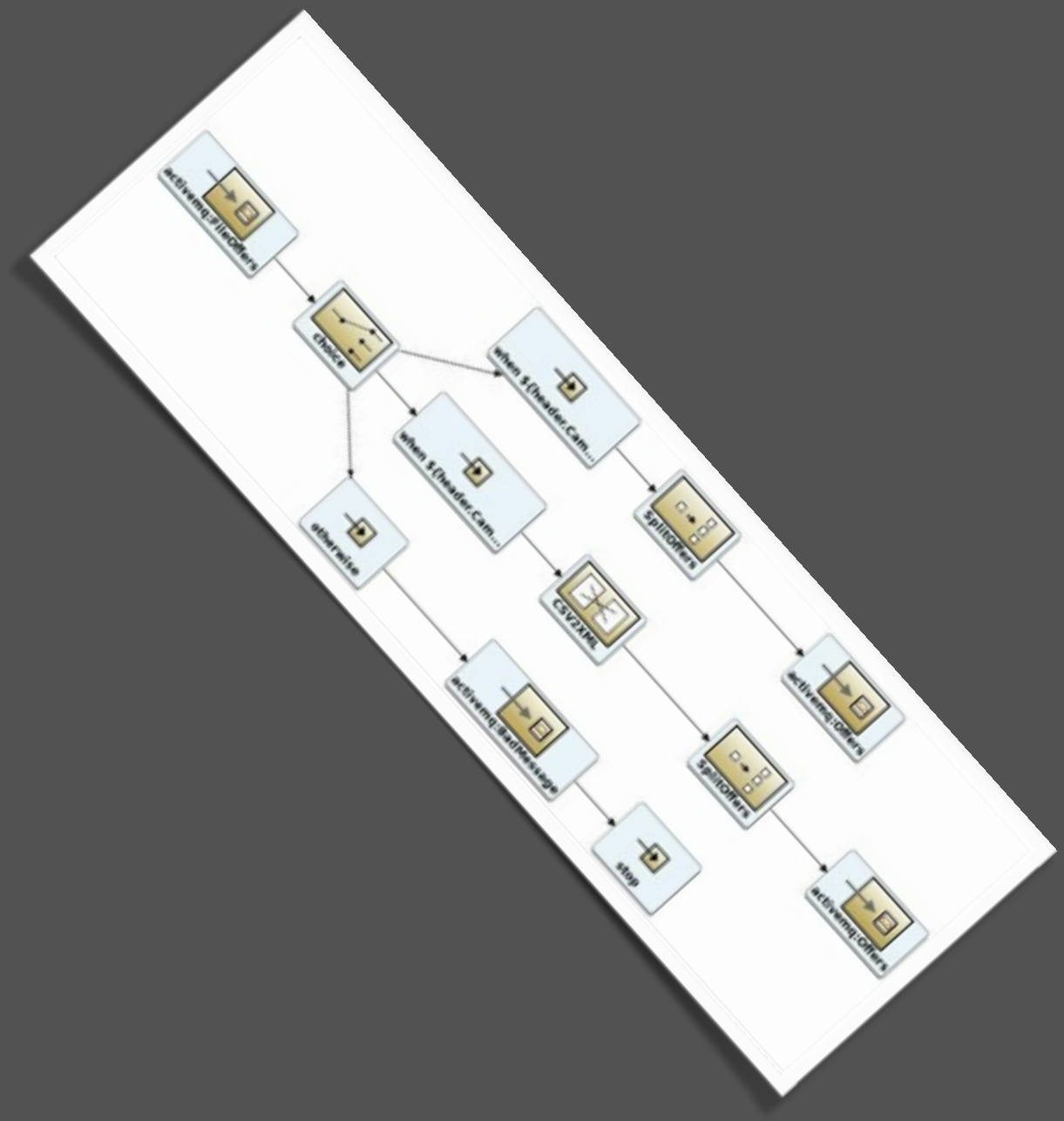
Pulling from different sources



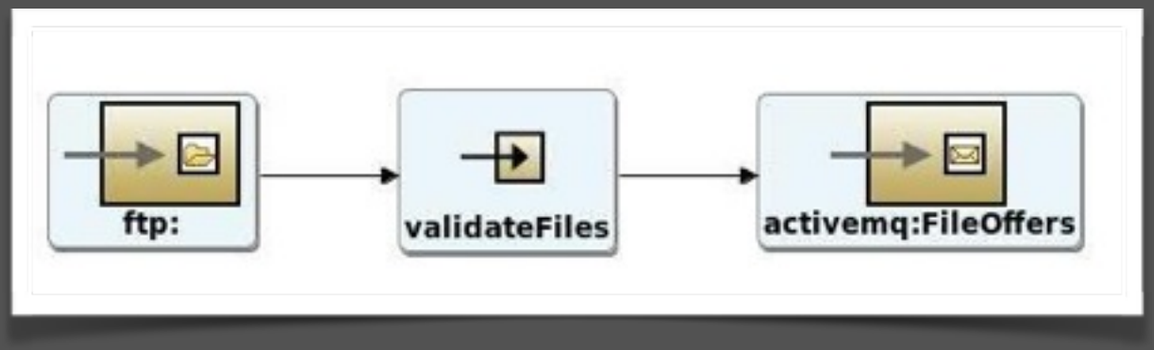


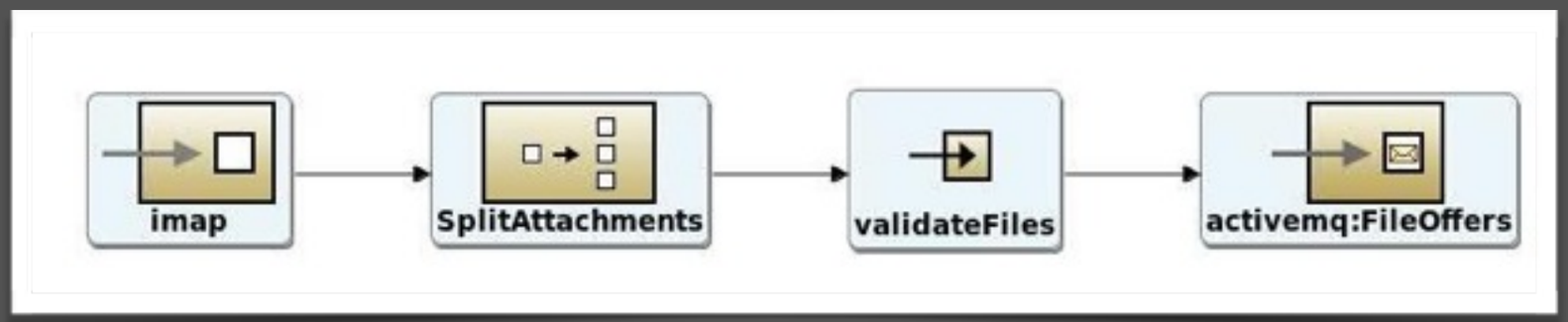


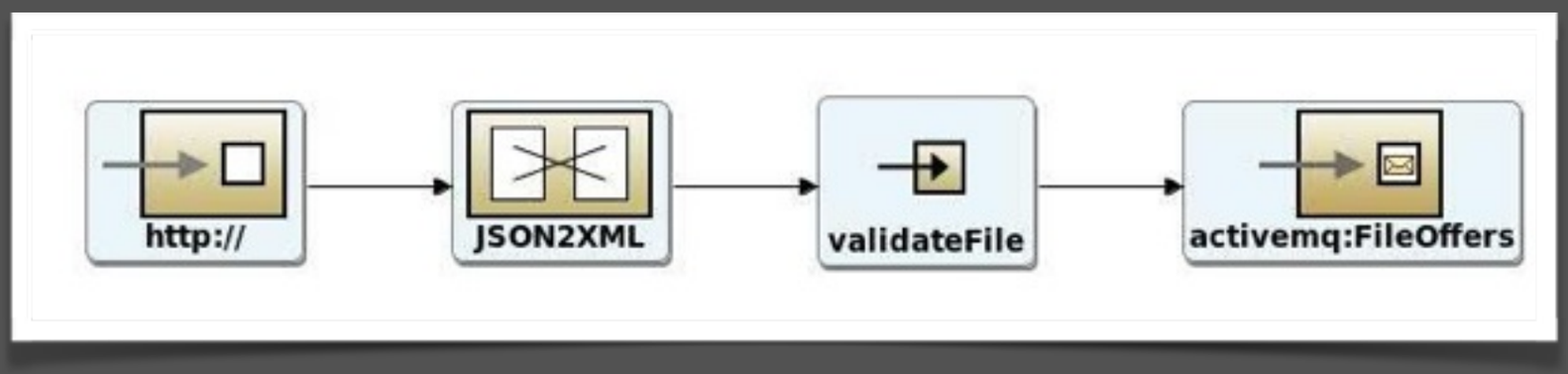
ContentBasedRouter



Pulling from different sources







- CSV/XML files as messages in “FileOffers” queue

Input files

FlightFinder_FlightsDetailsInfo_v2.xml — Edited

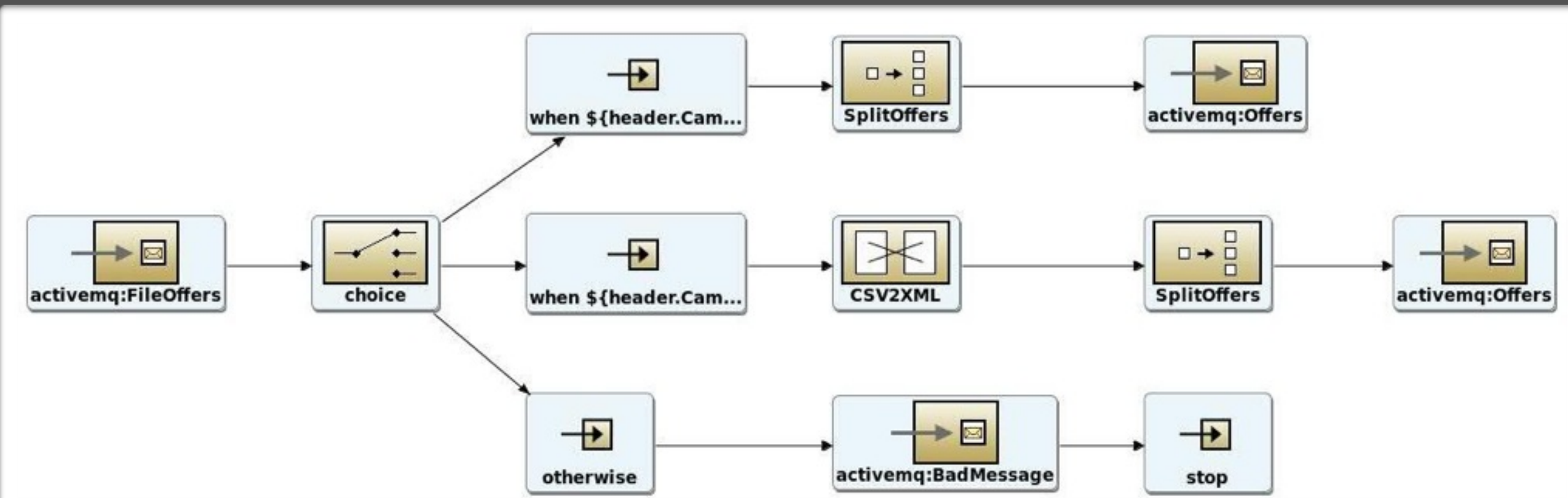
```xml
<?xml version="1.0" encoding="UTF-8"?>
<FlightFinder_FlightsDetailsInfo>
        <Flight>
                <FlightNumber>GW937</FlightNumber>
                <AirCompanyName>Germanwings</AirCompanyName>
                <IATACodeOrigin>BJS</IATACodeOrigin>
                <Origin>Beijing</Origin>
                <IATACodeDestination>LHR</IATACodeDestination>
                <Destination>London</Destination>
                <FlightDate>20140510</FlightDate>
                <Class>Economy</Class>
                <TicketID>GW93720140510E70</TicketID>
                <Price>105</Price>
           </Flight>
        <Flight>
                <FlightNumber>AA254</FlightNumber>
                <AirCompanyName>AustriaAirlines</AirCompanyName>
                <IATACodeOrigin>BJS</IATACodeOrigin>
                <Origin>Beijing</Origin>
                <IATACodeDestination>LGW</IATACodeDestination>
                <Destination>London</Destination>
                <FlightDate>20140510</FlightDate>
                <Class>Business</Class>
                <TicketID>AA25420140510B20</TicketID>
                <Price>320</Price>
           </Flight>
        <Flight>
```

FligthtFinder.json

```json
{
  "FlightFinder_FlightsDetailsInfo": {
    "Flight": [
      {
        "FlightNumber": "GW937",
        "AirCompanyName": "Germanwings",
        "IATACodeOrigin": "BJS",
        "Origin": "Beijing",
        "IATACodeDestination": "LHR",
        "Destination": "London",
        "FlightDate": "20140510",
        "Class": "Economy",
        "TicketID": "GW93720140510E70",
        "Price": "105"
      },
      {
        "FlightNumber": "AA254",
        "AirCompanyName": "AustriaAirlines",
        "IATACodeOrigin": "BJS",
        "Origin": "Beijing",
        "IATACodeDestination": "LGW",
        "Destination": "London",
        "FlightDate": "20140510",
        "Class": "Business",
        "TicketID": "AA25420140510B20",
        "Price": "320"
      },
```

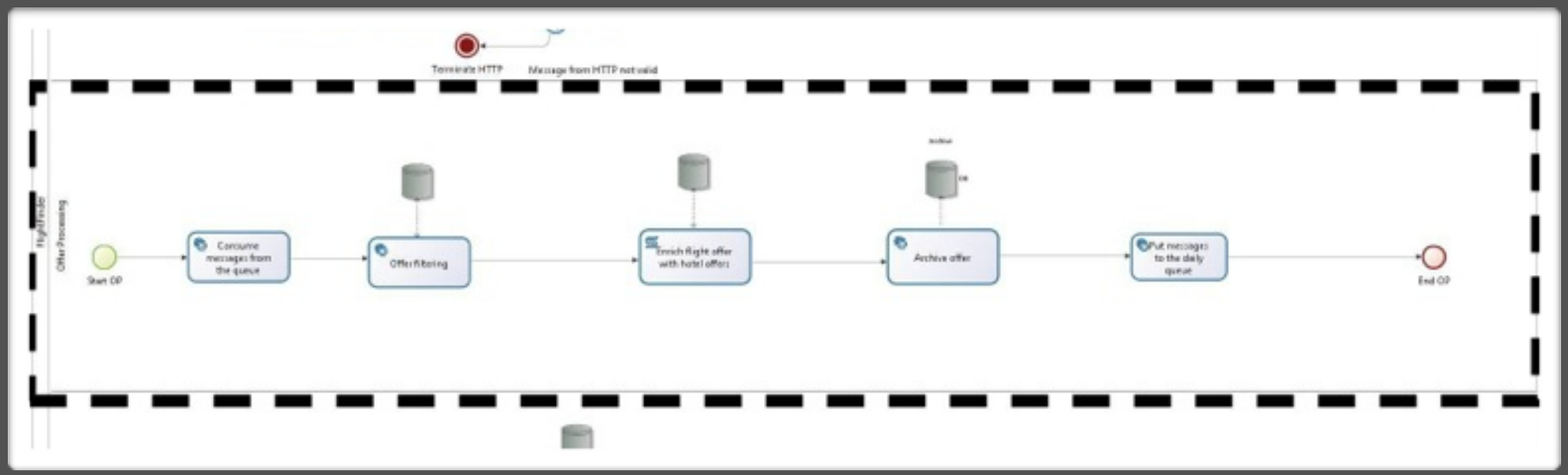
FlightNumber	AirCompany	IATACodeOrigin	NameOrigin	IATACodeDestination	Destination	FlightDate	Class	TicketID	Price
GW937	Germanwings	BJS	Beijing	LHR	London	20140510	Economy	GW93720140510E70	105
AA254	AustriaAirlines	BJS	Beijing	LGW	London	20140510	Business	AA25420140510B20	320
AA254	AustriaAirlines	PEK	Beijing	LCY	London	20140510	Economy	AA25420140510E80	110
LU832	Lufthansa	CDG	Paris	MAD	Madrid	20140612	Business	LU83220140612B25	270

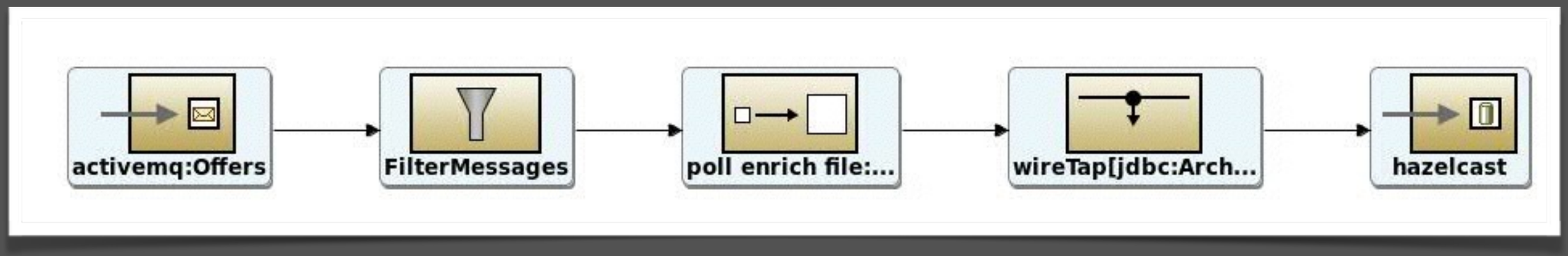
Content Based Router



- CBR routes received file based on its extension
- Messages are transformed into XML structure
- “Offers” queue contains XML messages only
- Non-Supported file formats routed into “BadMessage”

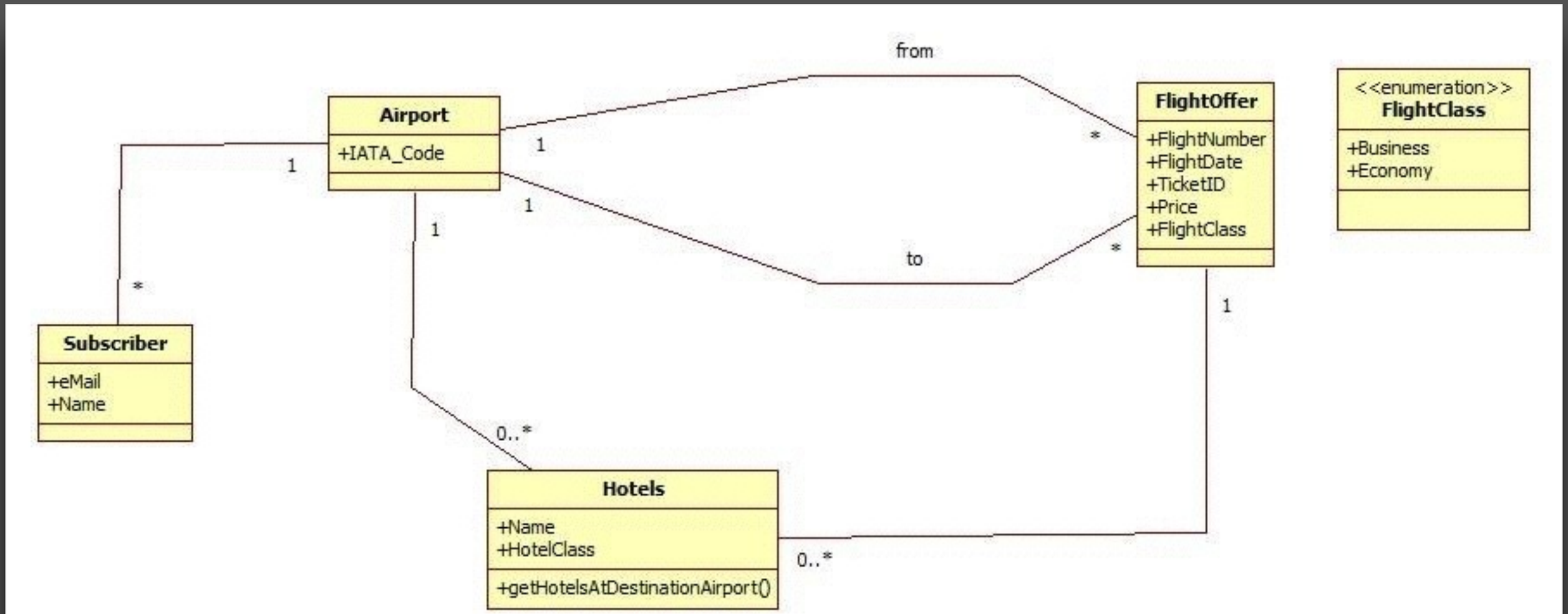
Offer Processing





- Filter out Non-European airports
- Enrich with hotels from current airport destination
- Archive the data to database

H2 DB - Hibernate



Messages at its final stage…


```xml
<?xml version="1.0" encoding="UTF-8"?>
<Flight>
    <FlightNumber>LU832</FlightNumber>
    <AirCompany>Lufthansa</AirCompany>
    <IATACodeOrigin>CDG</IATACodeOrigin>
    <NameOrigin>Paris</NameOrigin>
    <IATACodeDestination>MAD</IATACodeDestination>
    <Destination>Madrid</Destination>
    <FlightDate>20140612</FlightDate>
    <Class>Business</Class>
    <TicketID>LU8[redacted]20140612B35</TicketID>
    <Price>270</Price>
    <HotelsList>
        <Hotel>
            <NameOfHotel>Hitlon</NameOfHotel>
            <starsNumber>5</starsNumber>
        </Hotel>
        <Hotel>
            <NameOfHotel>Emirates</NameOfHotel>
            <starsNumber>7</starsNumber>
        </Hotel>
    </HotelsList>
</Flight>
```

EIP-Processors-Components

What has been done so far:

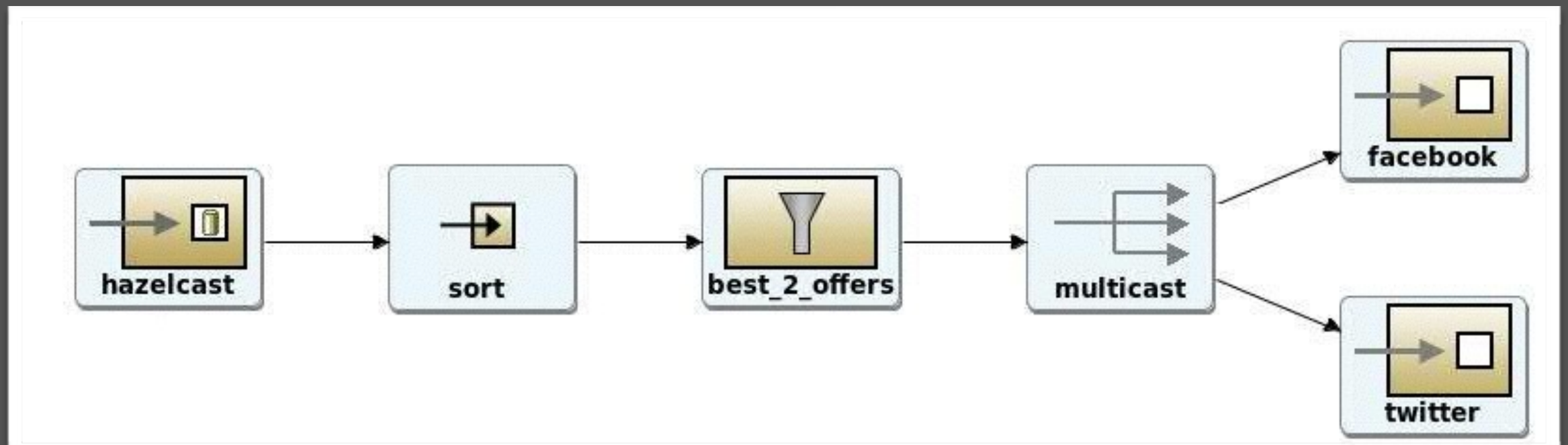
- ✓ Polling Consumer (FTP, HTTP, eMail)
- ✓ Validator (German special characters)
- ✓ Message Translator (JSON2XML, CSV2XML)
- ✓ Message Endpoint (ActiveMQ, Hazelcast)
- ✓ Splitter (Email Attachments, SplittOffers)
- ✓ Content Filter (Filter out Non-EU airports)
- ✓ Content Enricher (enrich with Hotels from DB)
- ✓ WireTap (store enriched messages)

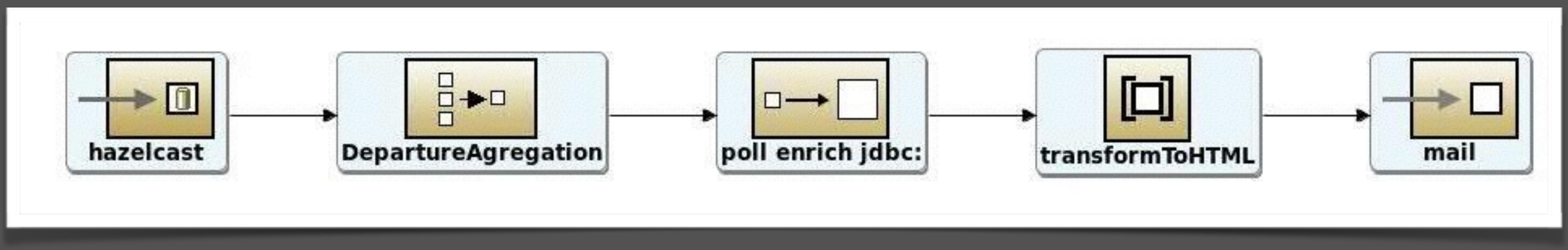
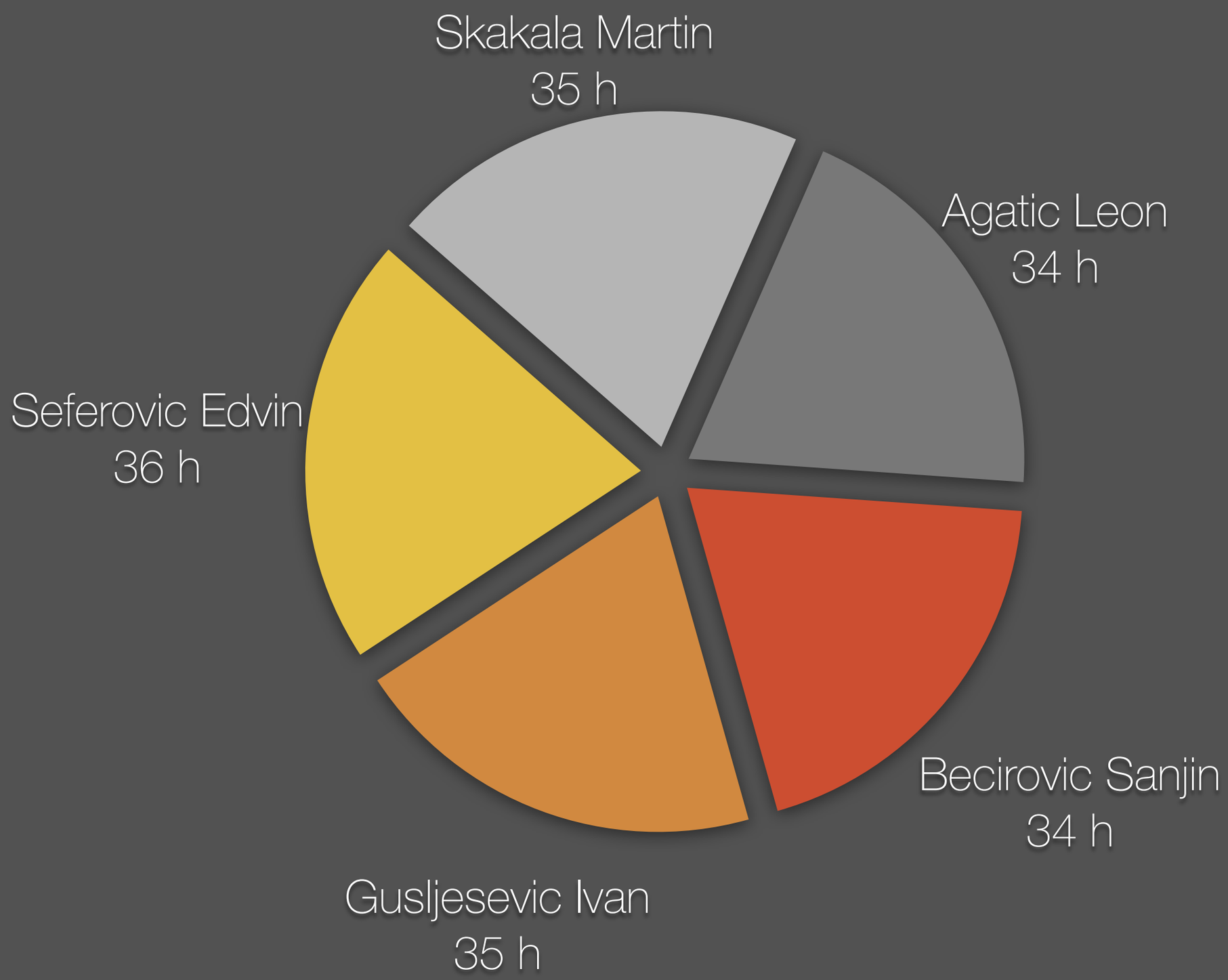
EIP-Processors-Components

What has to be done:

- Message Aggregator (Departure Aggregation)
- Message Enricher (SubscriberList)
- Message Translator (HTML Template)
- Message Endpoints (Facebook, Twitter, Mail)
- Message Sort (based on Price)
- Message Filter (best2offers)
- Multicast

Our Goal until IR2…





Workload diagram