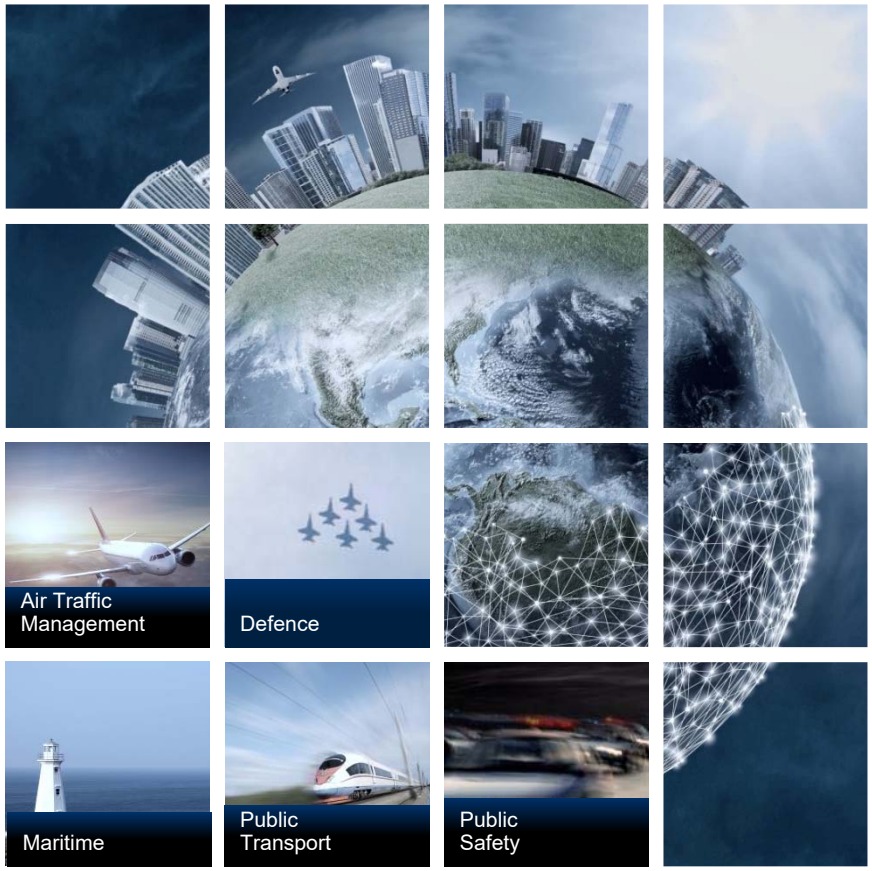

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FOR A SAFER WORLD

ICAO APAC / EUR / MID Workshop

on Service Improvement through integration of AIM, MET and ATM Information Services

Session 12: AI5 – Integrated Information Services

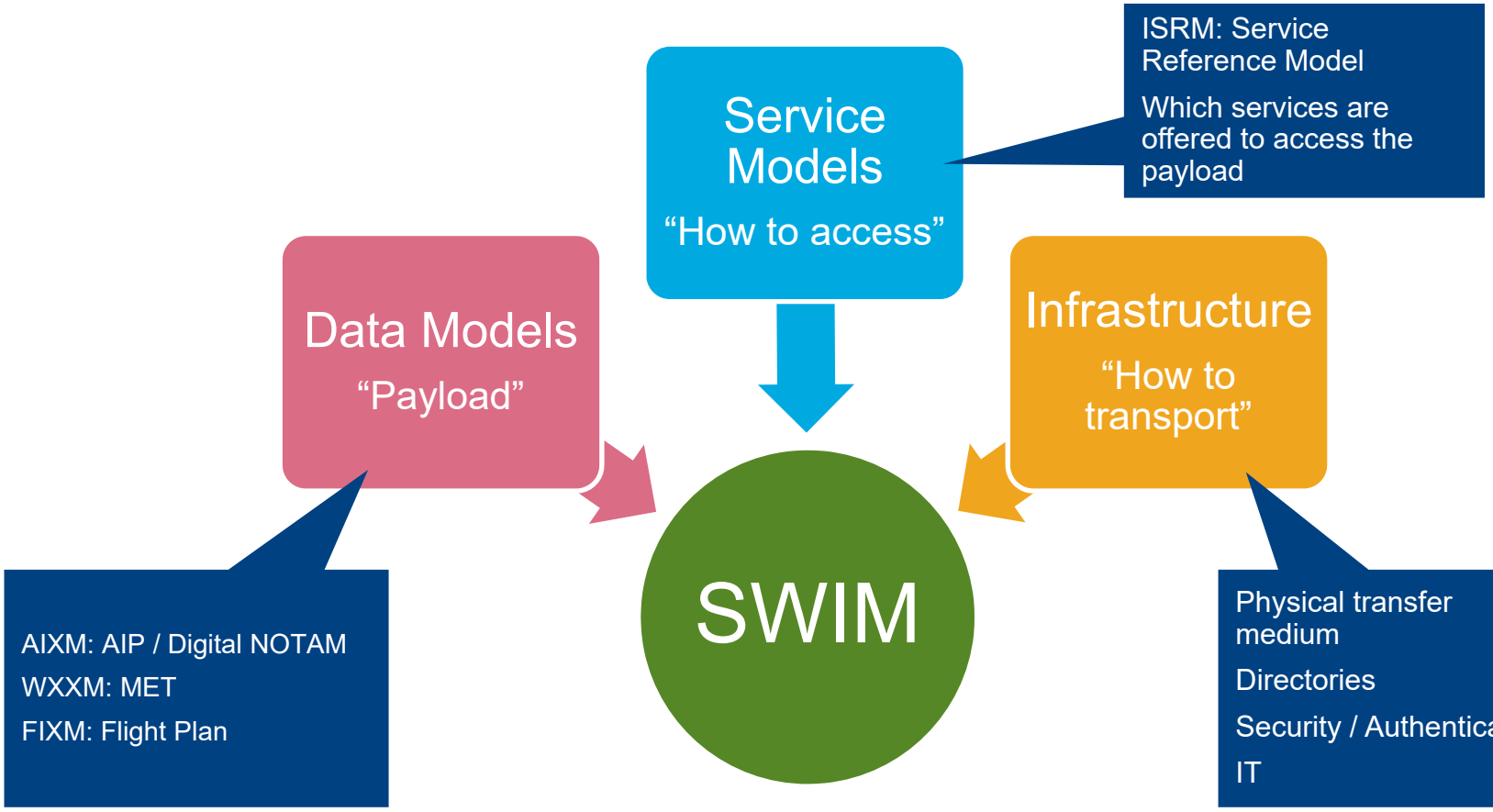
SWIM best practices providing integrated service delivery

SWIM Building Blocks

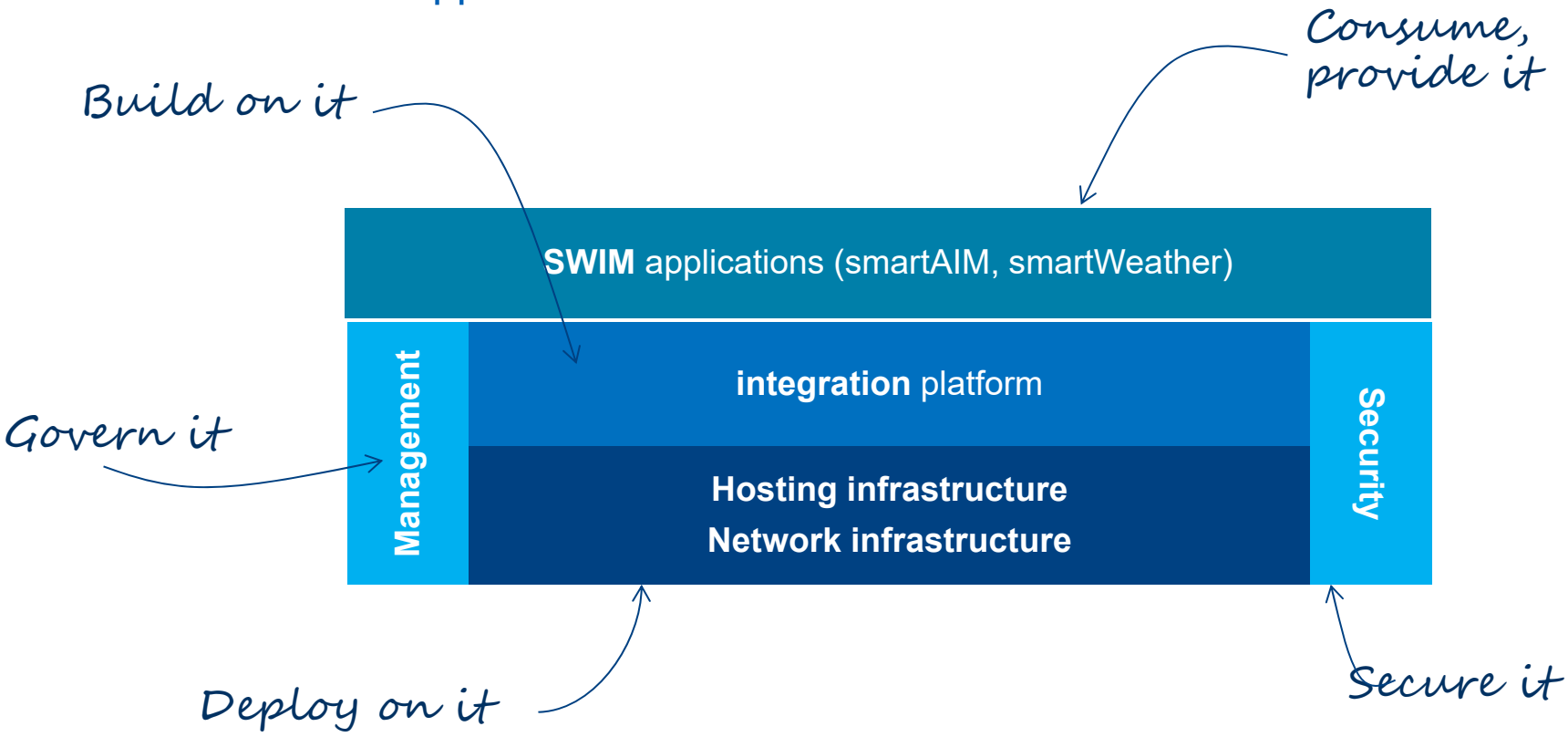
Getting the right information versus Information Overload

- As already indicated by Alexander Schwassmann, IFATCA on day 1:
  - Overload of information for pilots and controllers
  - Information is too unfocused
  - Risk to miss important information
  - Sometimes hard to interpret (e.g. Field 10)
- SWIM can help to
  - Make the right information available through interoperability between systems
  - Allow automated and semantic filtering
  - Harmonise the information

SWIM BUILDING BLOCKS



SWIM from ATM Supplier Point of View



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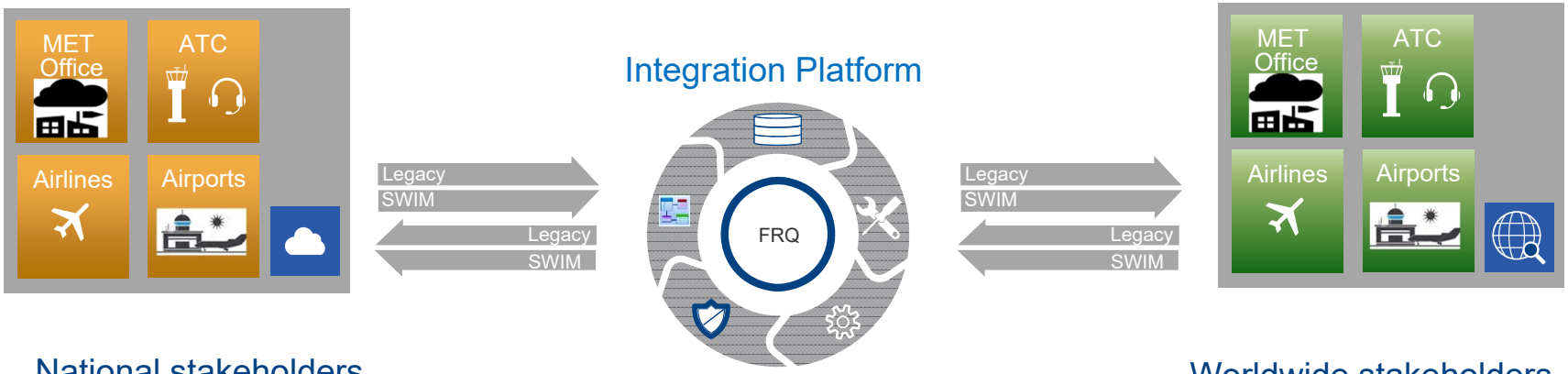
FRQ Integration Platform - Main Functions

- Supports all available SWIM Service Definitions as well as legacy services
- Acts as a information backbone connecting ANSPs with main aviation stakeholders (Airports, Airlines, MET Office)
- Route, convert, transform messages between consumers and providers
- Data Conversion
  - Bridge applications talking different protocols and formats around a common information exchange format
  - Support of SWIM data formats but also legacy protocols and data formats to facilitate transition
- Provides service inventory / registry

FRQ Integration Platform - Main Functions



National stakeholders

DATA:

Processing, Conversion, Storage,Analysis

Worldwide stakeholders

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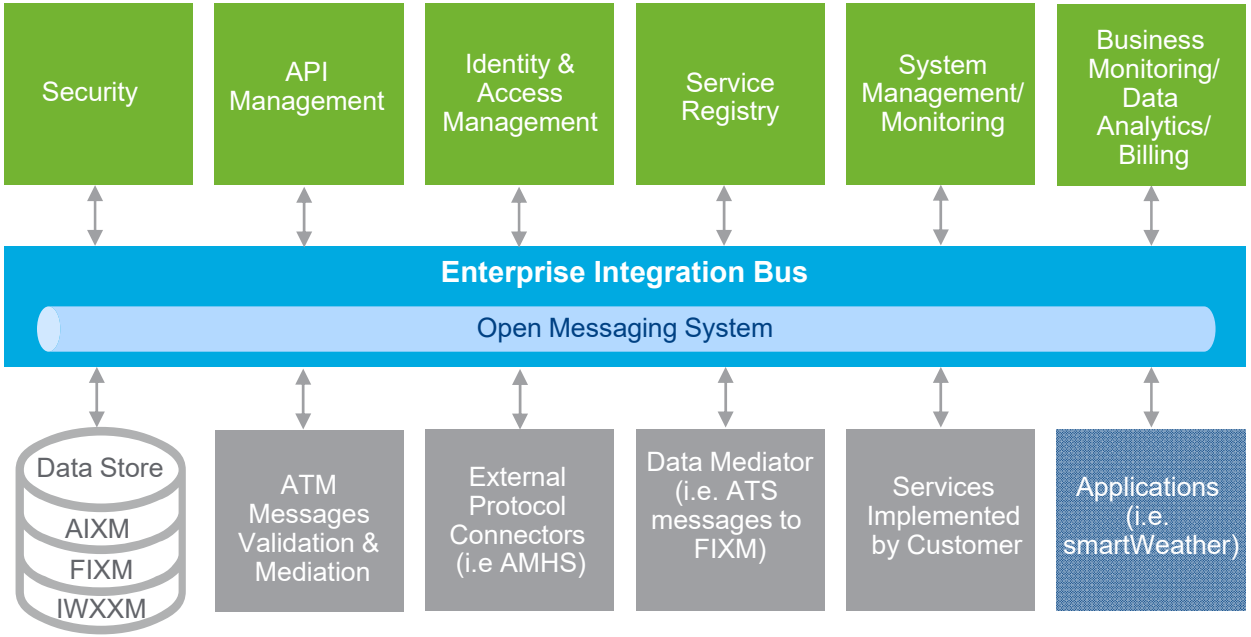
FRQ Integration Platform - Main Building Blocks

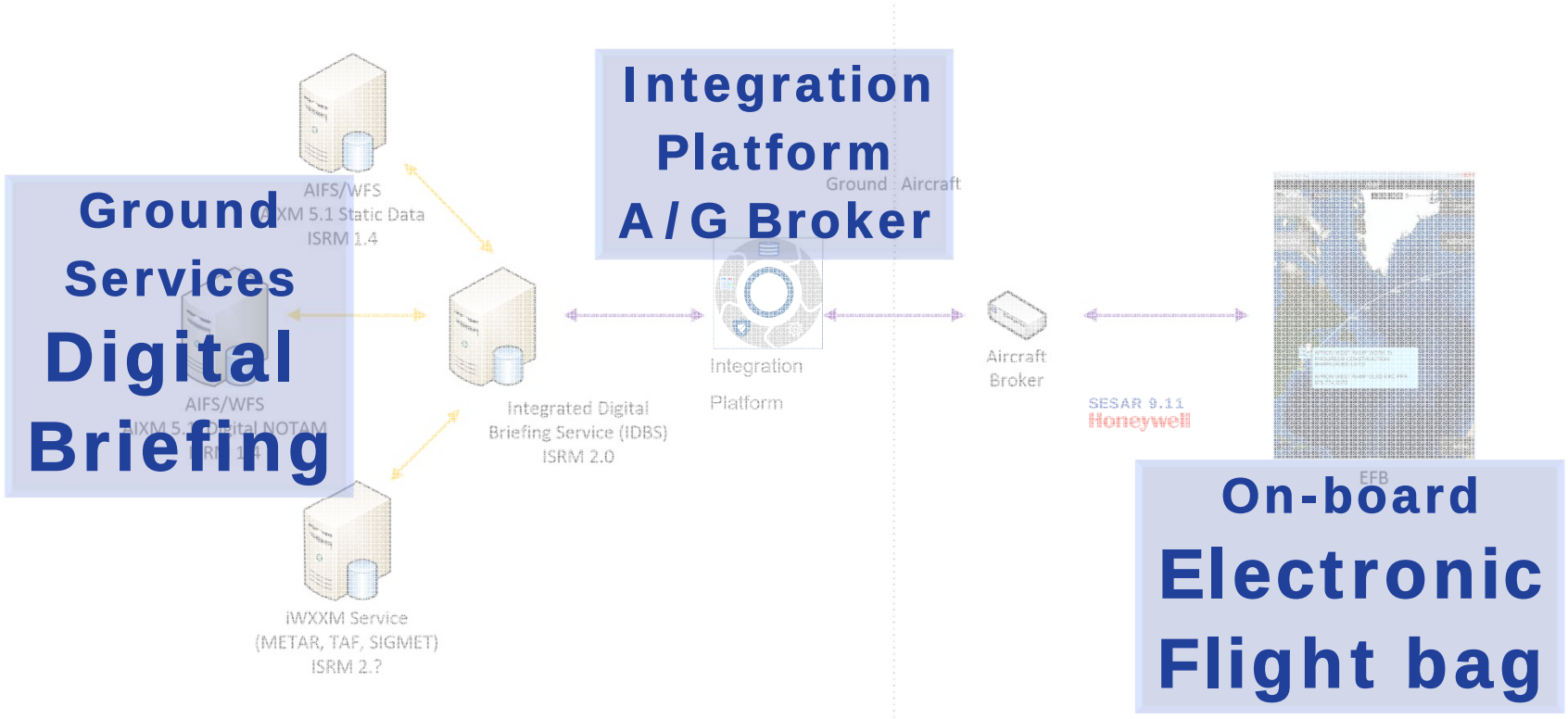


Example Usecase: Digital Integrated Briefing

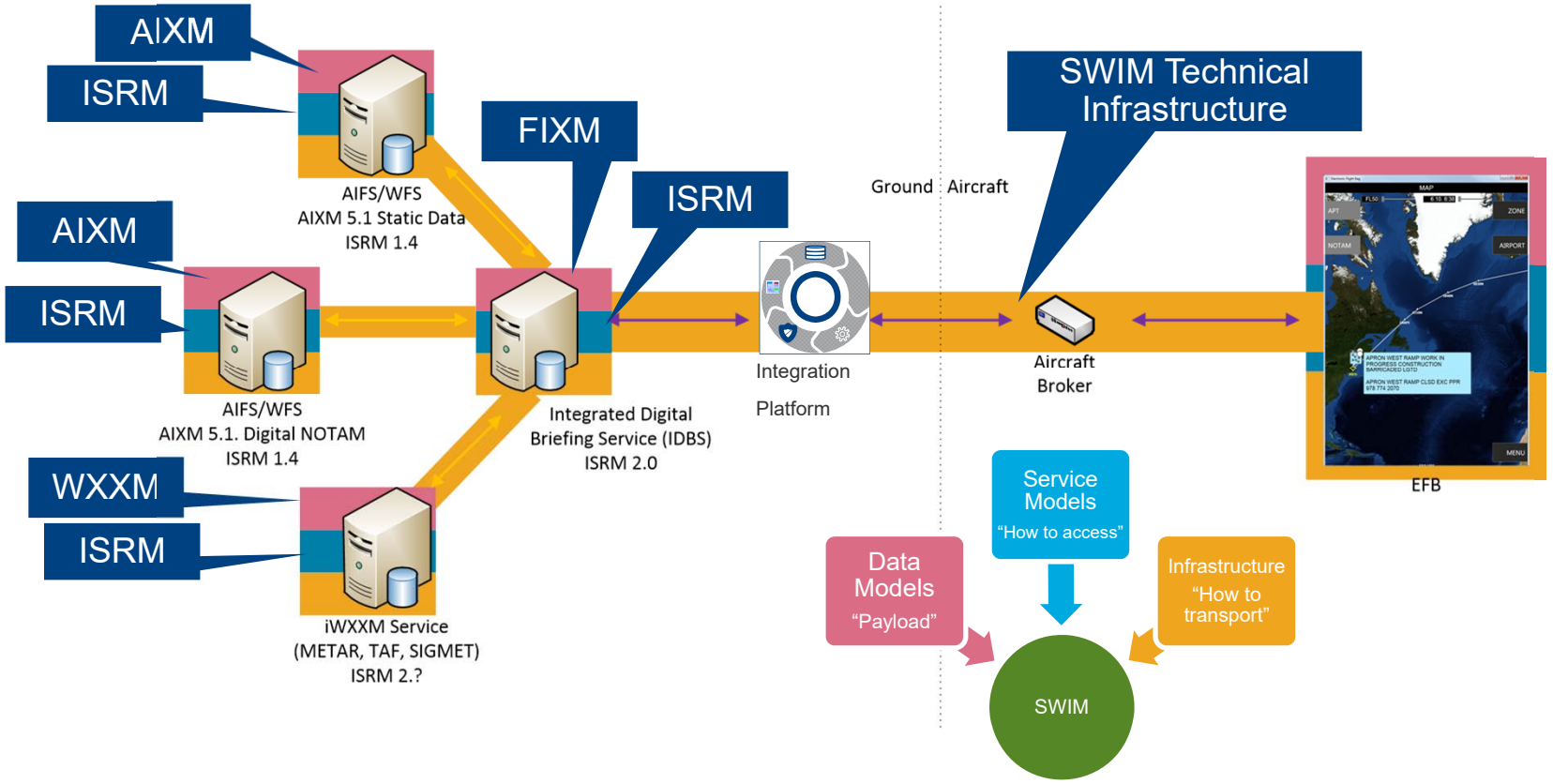
Integrated Digital Briefing

- Research Project of SESAR
- Showcase of SWIM
- Real application utilizing
  - SWIM Infrastructure
  - SWIM Data Model
  - SWIM Service Model
- Interdisciplinary (AIM + Airline related)
- Interoperable (multiple different vendors)

Digital Integrated Briefing



Digital Integrated Briefing



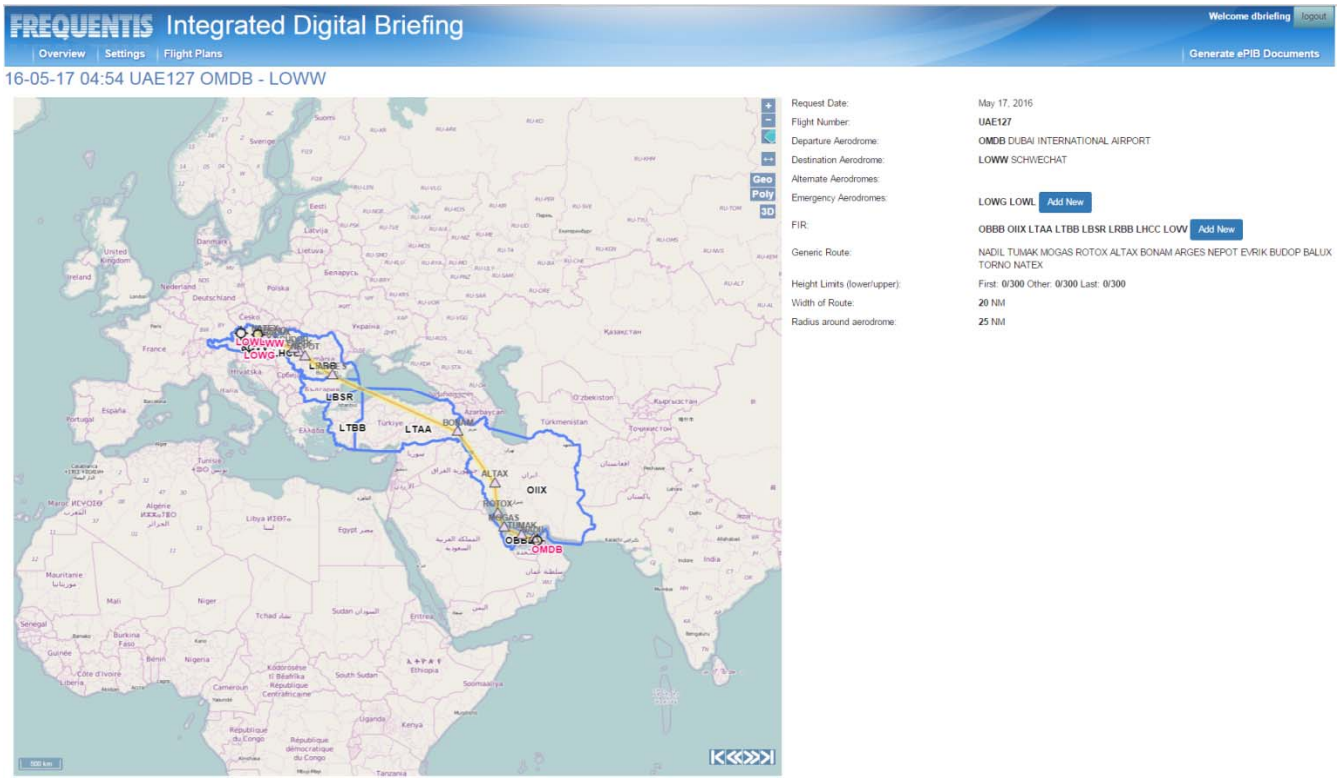
ePIB Load Flight Data

FREQUENTIS Integrated Digital Briefing

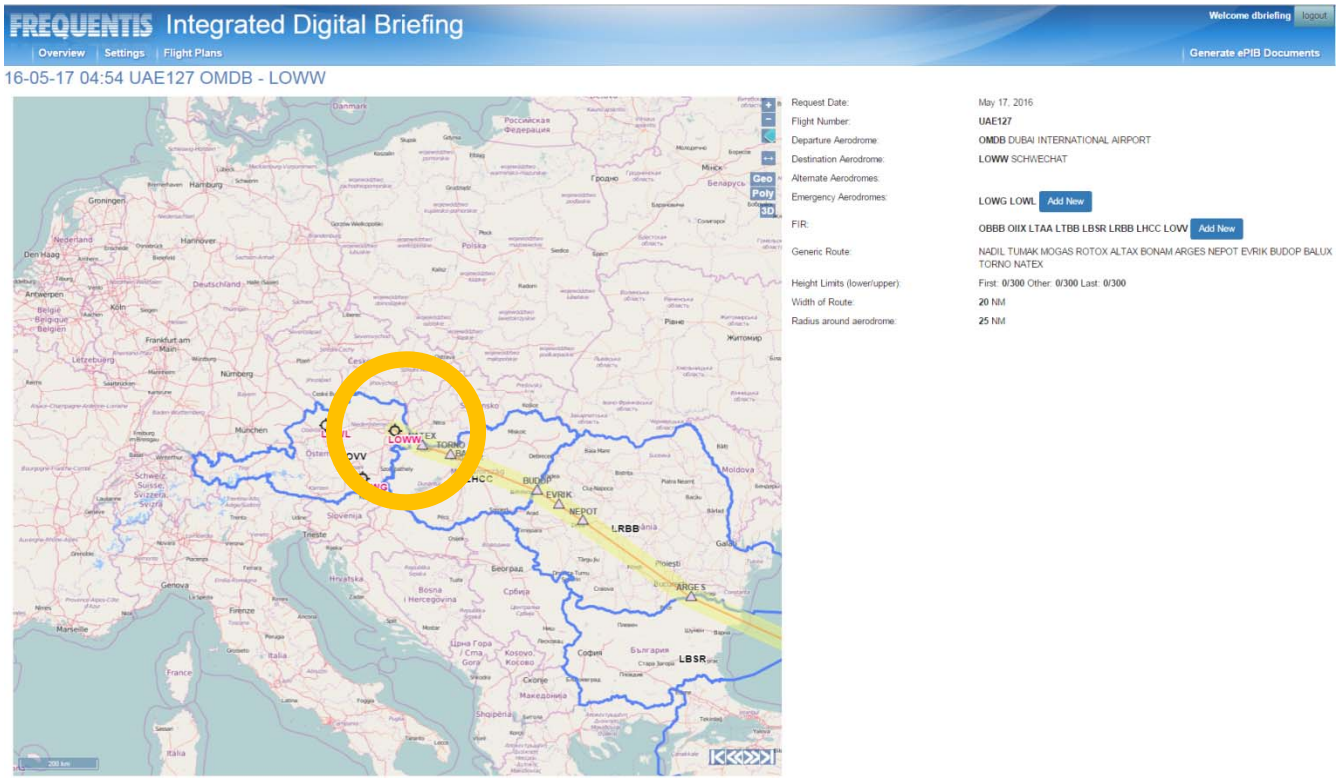
Settings | Flight Plans

Departure	Arrival	EOBT Date	EOBT Time	Flight Identification
KJFK	LOWW	2016-05-17	15:00	TEST01
KBOS	LOWW	2016-05-17	15:00	TEST02
KIAD	LOWW	2016-05-17	15:00	TEST03
KATL	LOWW	2016-05-17	15:00	TEST04
LOWG	LOWW	2016-05-17	15:00	TEST05
YSSY	OMDB	2016-05-17	15:00	TEST06
OMDB	LOWW	2016-05-17	15:00	TEST07
YSSY	OMDB	2016-05-17	11:10	UAE41[illegible]
OMDB	LOWW	2016-05-17	04:54	UAE127

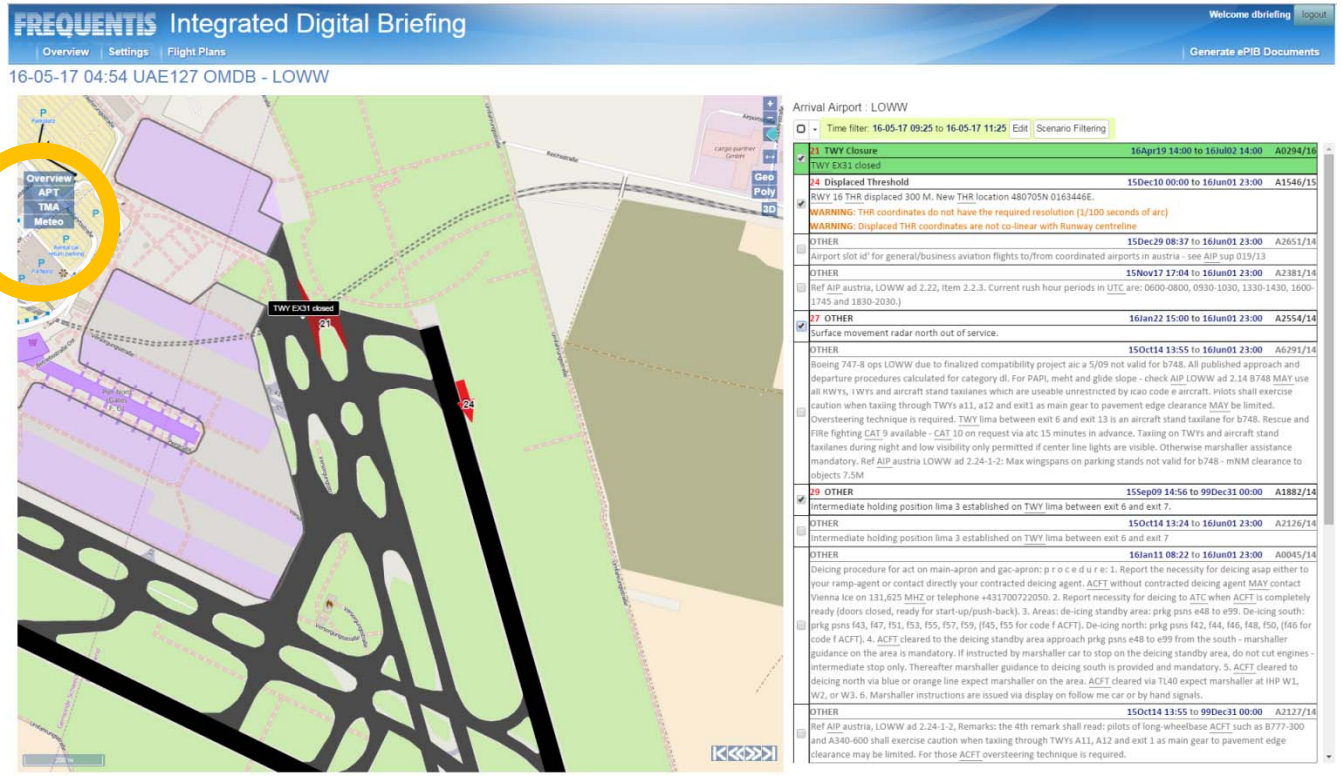
ePIB Overview



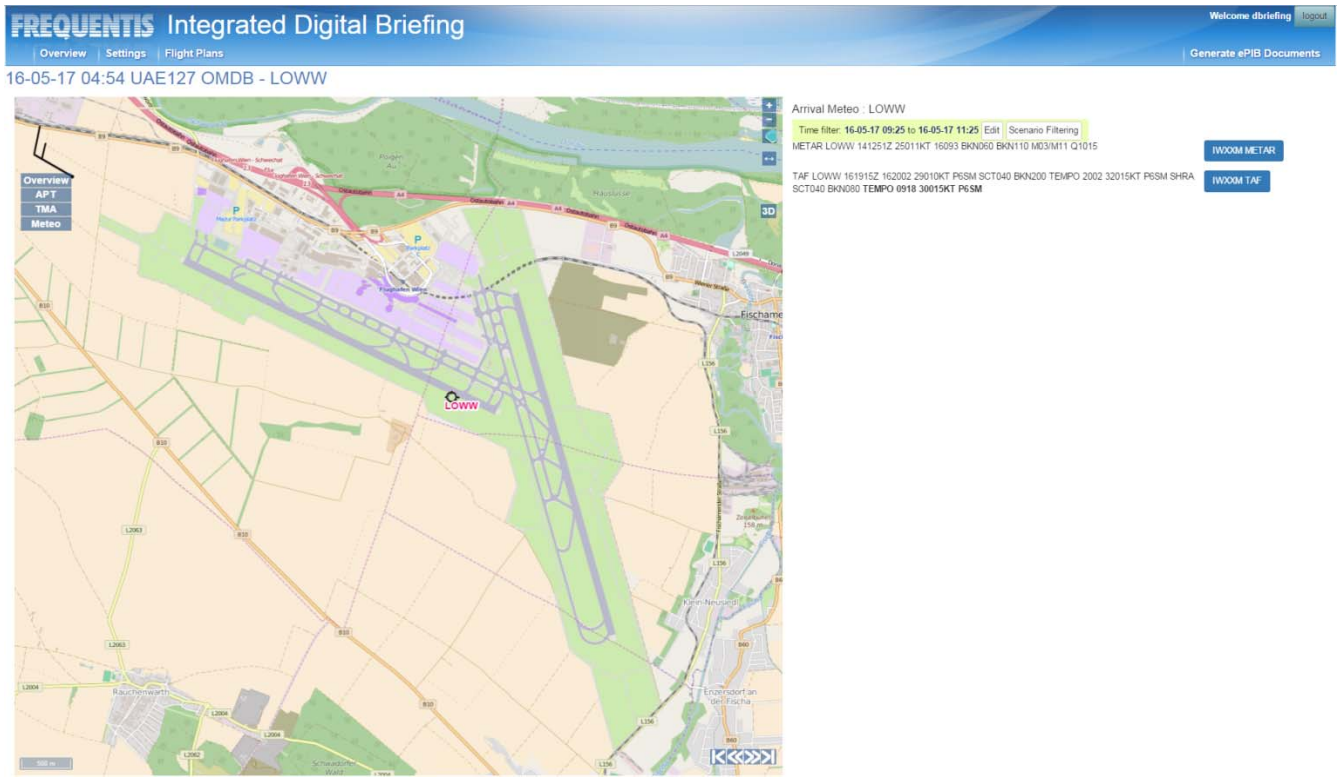
ePIB View Airport



ePIB Airport NOTAM



ePIB Airport MET



semNOTAM Key Aspects

semNOTAM
Intelligent NOTAM Prioritization

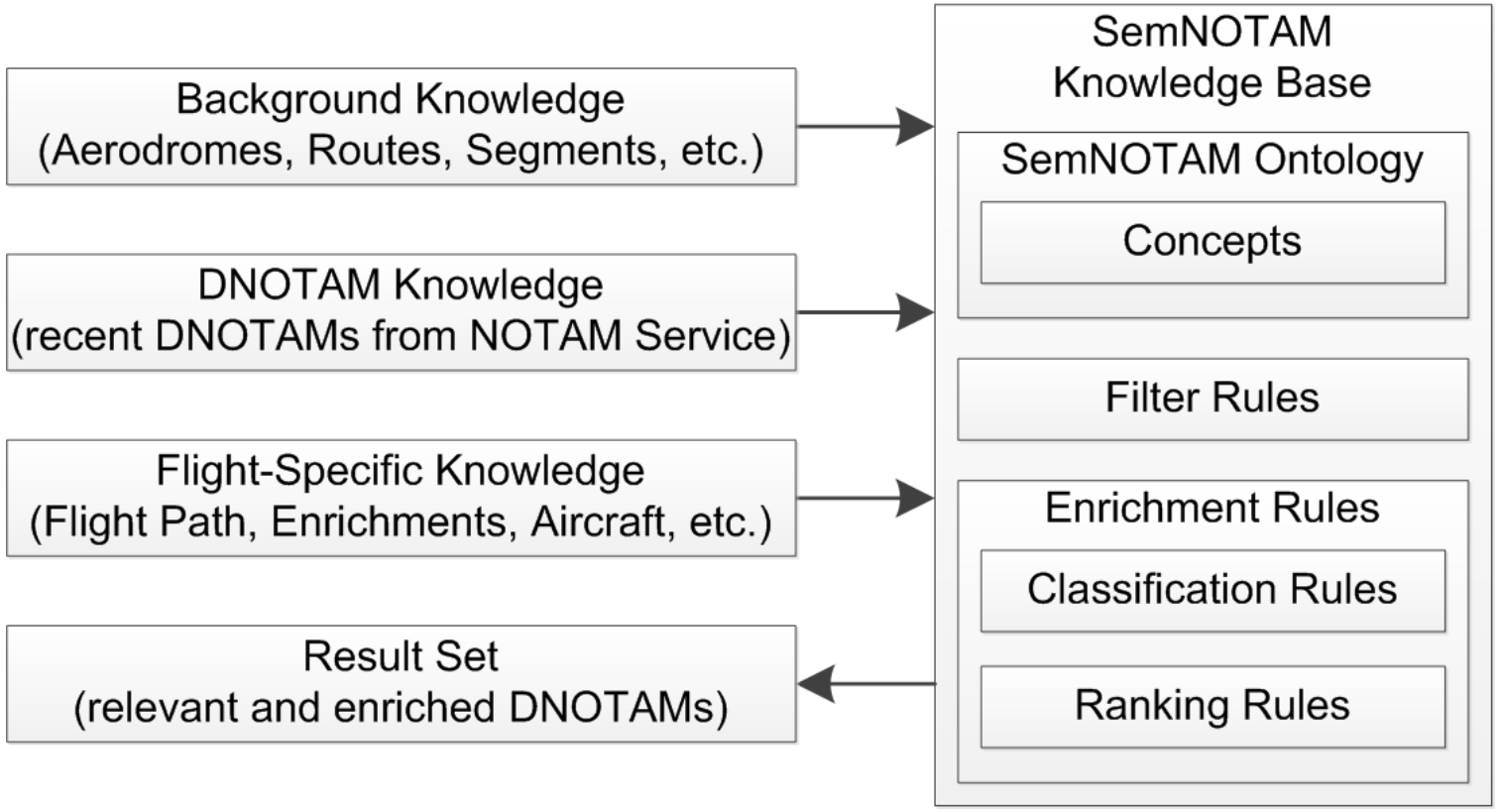
- Ontology-based Representation and Semantic Querying of Digital Notices to Airman (NOTAM)
  - semNOTAM is a service not an application
  - ➢ Enable fine-grained intelligent semantic filtering and prioritization
    - Utilizing advantages of AIXM 5.1

- Knowledge-based system
  - Separating data and rules from reasoning
  - Incremental rule base

- Intelligent and fine-grained DNOTAM filtering is not enough
  - PIBs still contain substantial number of DNOTAMs that are relevant for a specific flight
  - ➢ Missing organization capabilities of relevant DNOTAMs

semNOTAM Knowledge Base

semNOTAM
Intelligent NOTAM Prioritization



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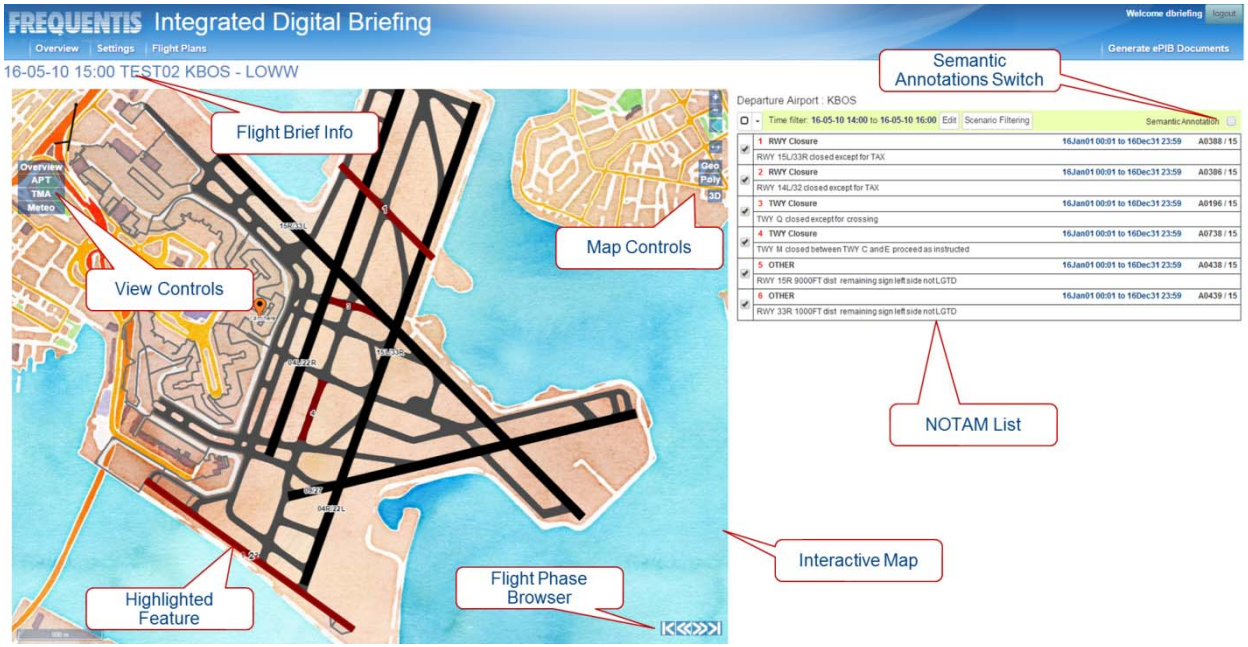
ePIB Semantic Prioritization

semNOTAM
Intelligent NOTAM Prioritization



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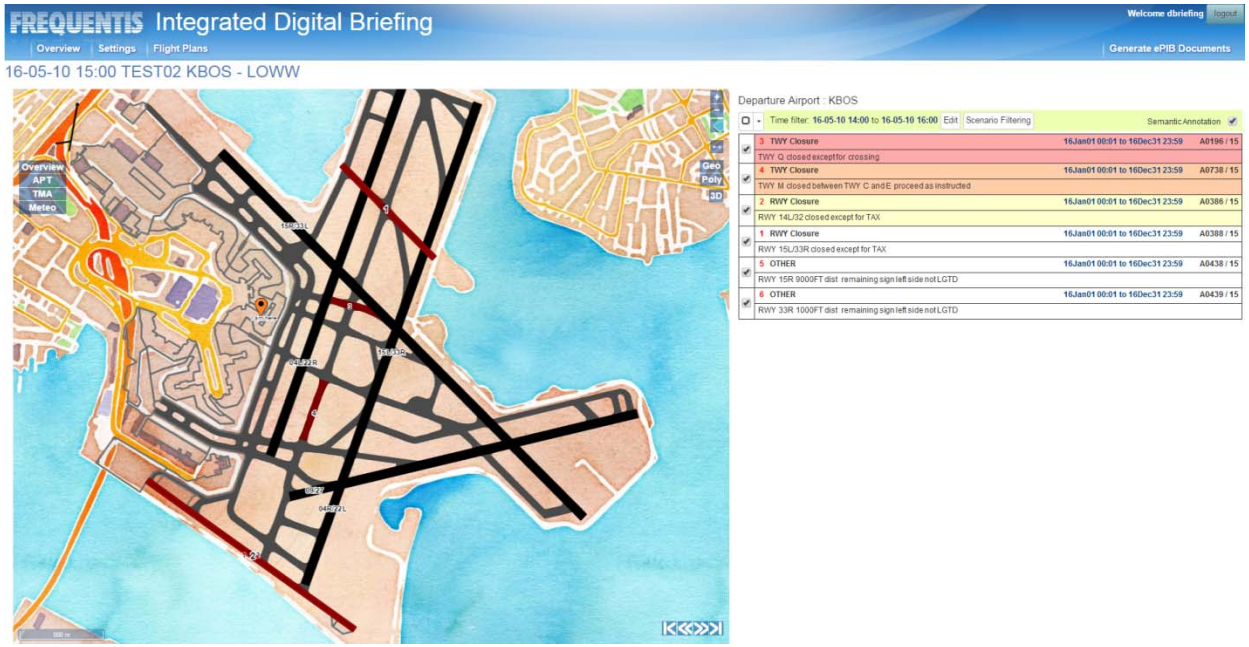
Airport NOTAM with Semantical Annotations

semNOTAM
Intelligent NOTAM Prioritization



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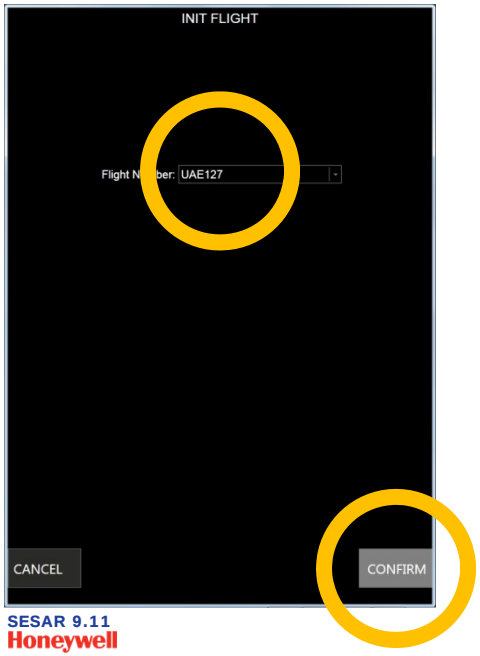
EFB – Select Flight



SESAR 9.11
Honeywell

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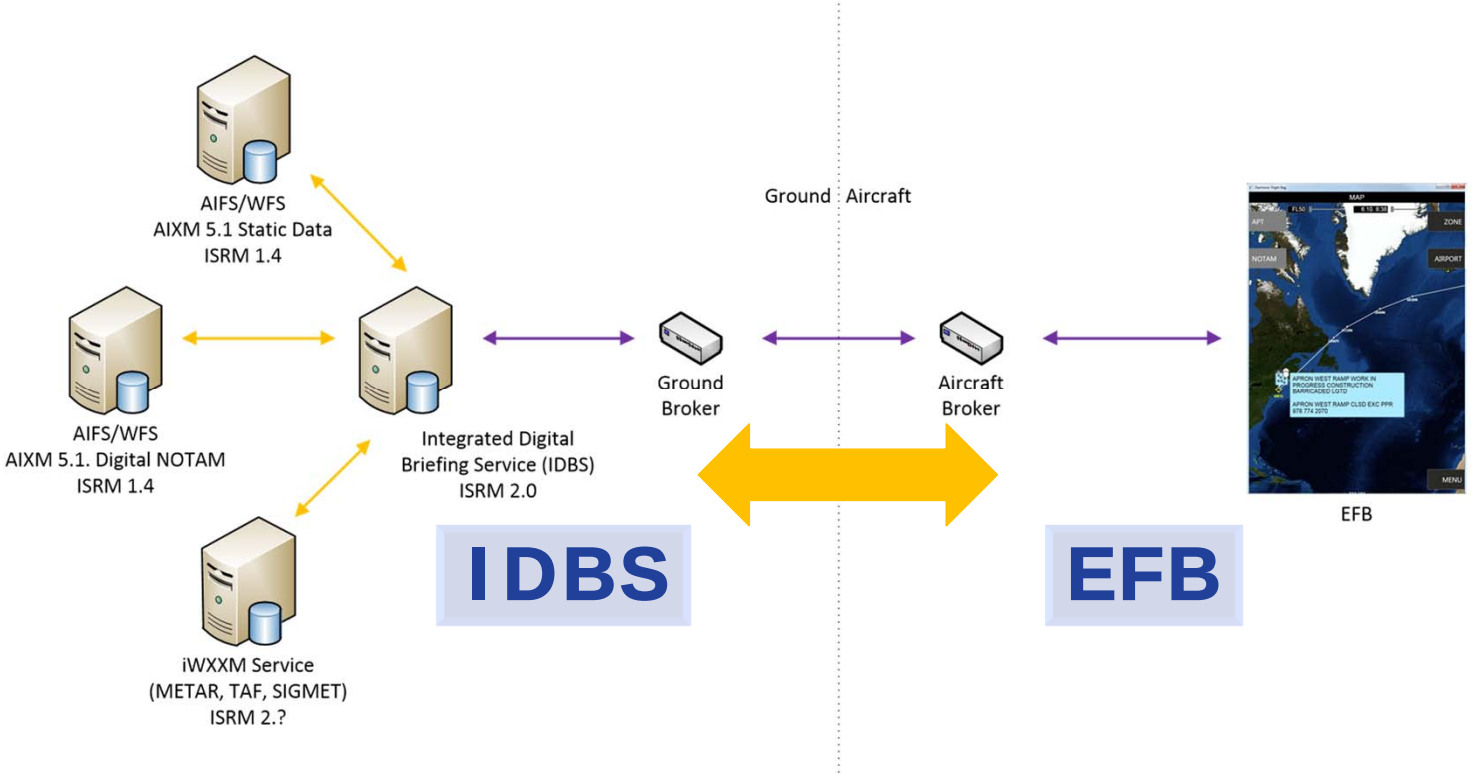
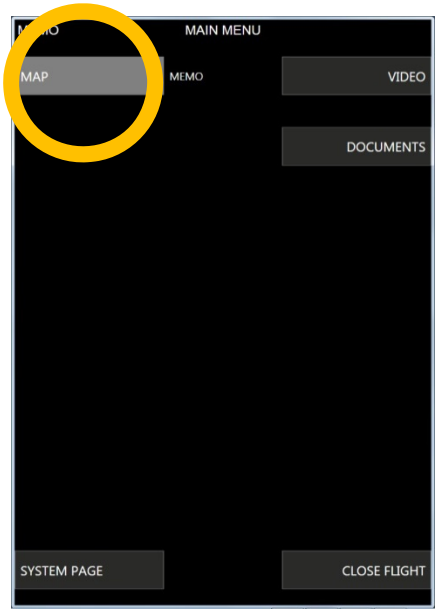
Request ePIB from Integrated Digital Briefing System



EFB – View Map



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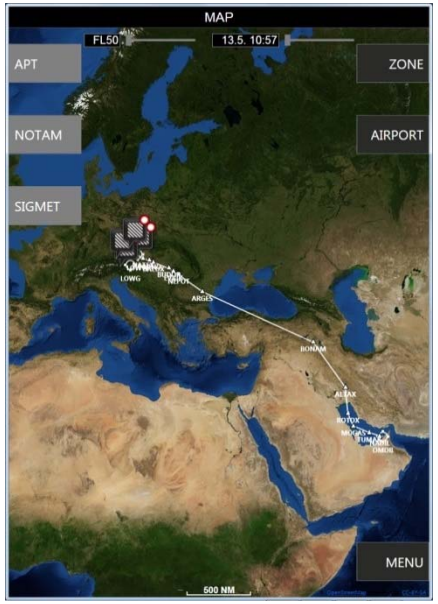
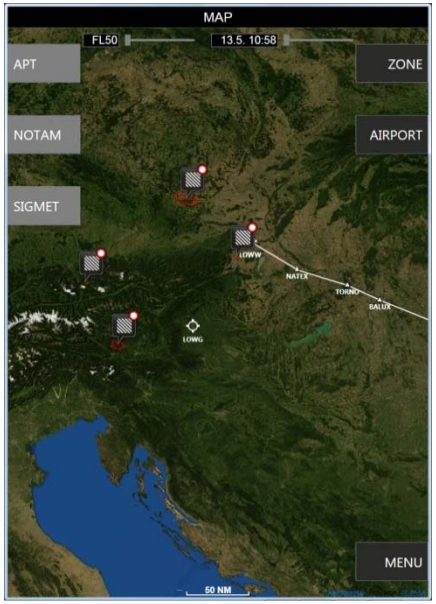
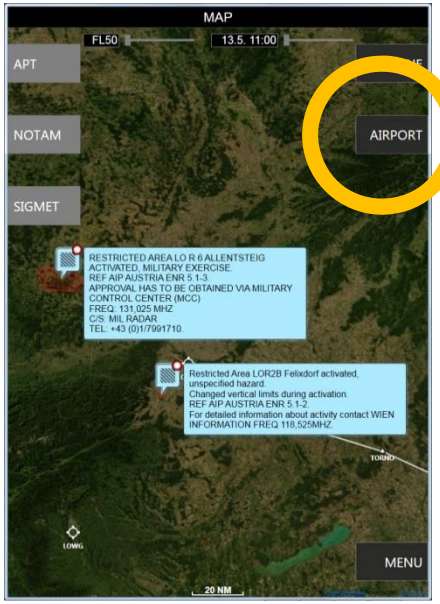
EFB – Map View







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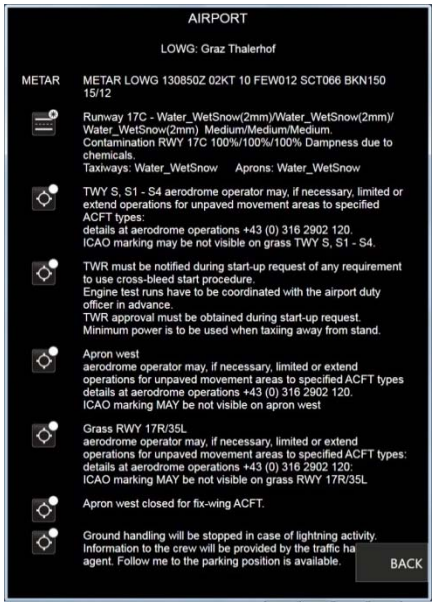
EFB – Airport



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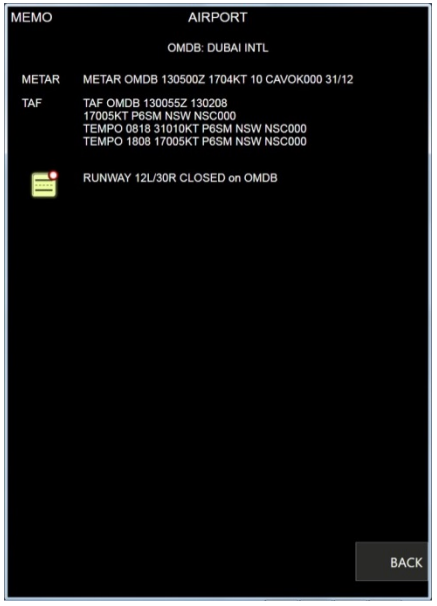

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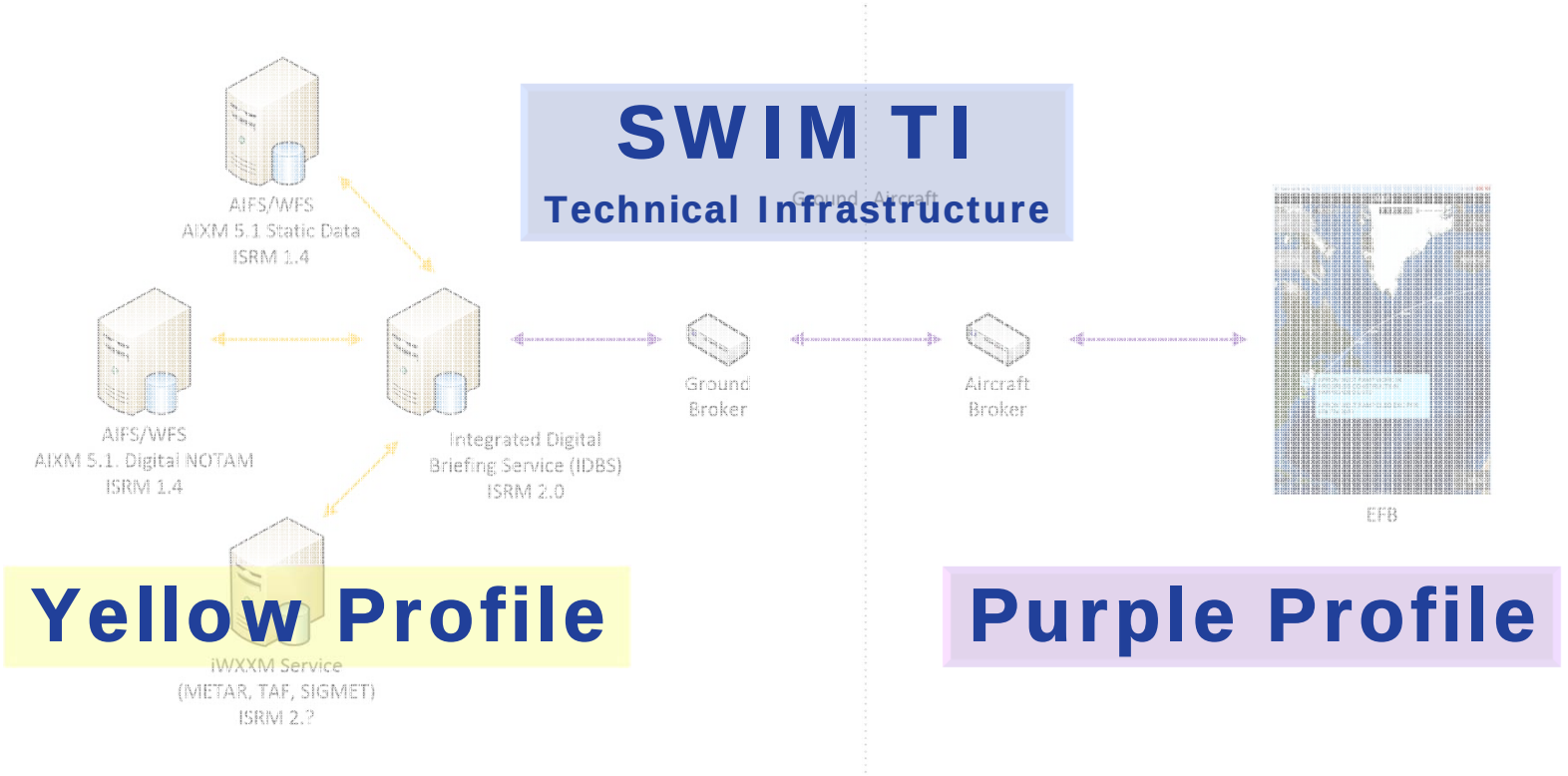
True SWIM Integration

True SWIM Integration



Detailed Zoom in for Techies ;-) SESAR SWIM Profiles

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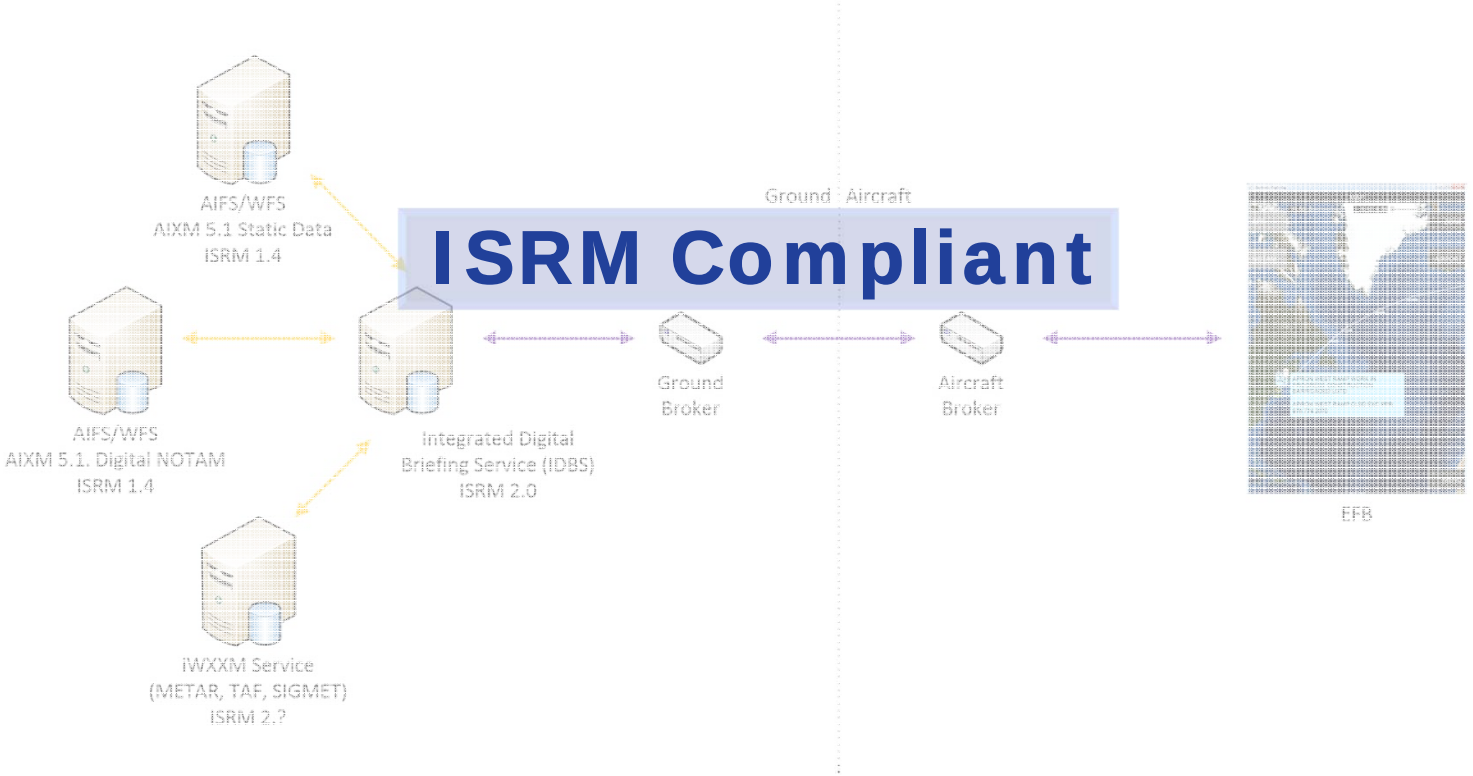
True SWIM Integration



Semantic Data Containers to unleash the full Potential of SWIM

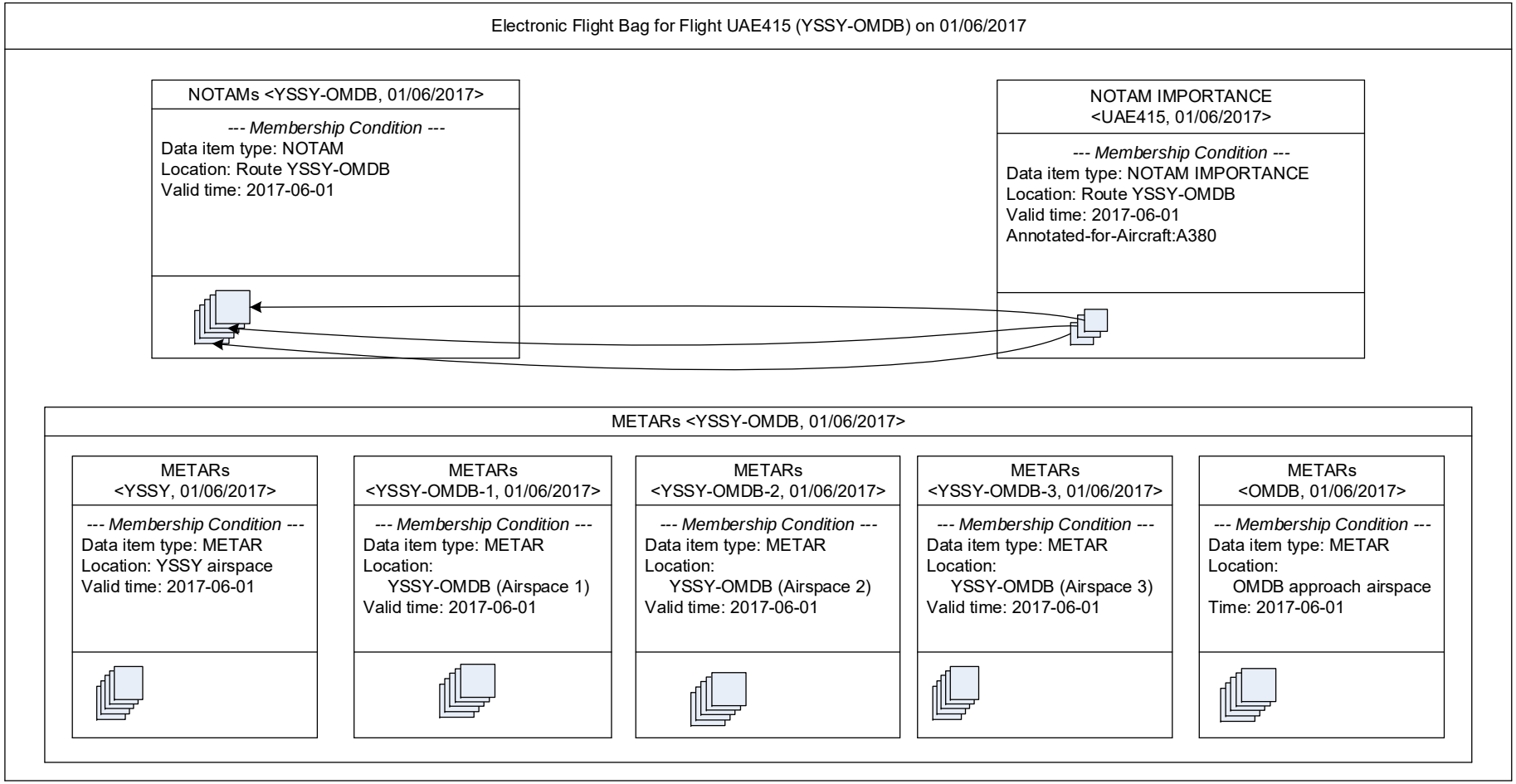
- Part of SWIM will be searching and selecting the appropriate data sources for a particular task, filtering for relevant data items, and composition of multiple data sources.

  → Linked Data

- Without dedicated support, the data logic will likely be hard-coded in applications and service implementations.

- An established principle in software engineering is the separation of data logic from business and presentation logic.

  →The SESAR2020 Exploratory Research BEST's semantic data container aims to introduce such a separation of concerns to SWIM

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