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Australian SWIM Journey

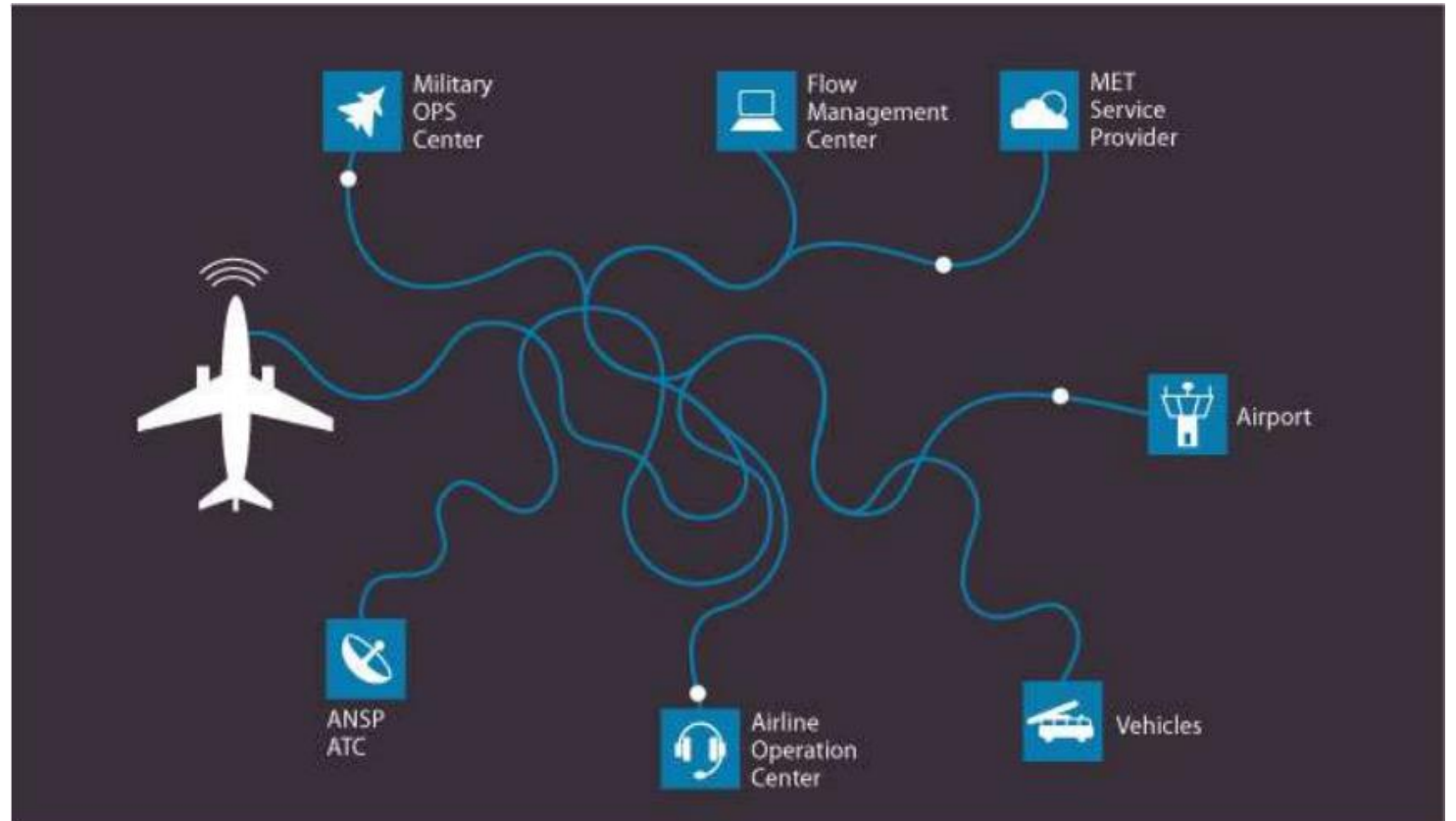
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Journey

- Background - Australian SWIM Services
- Bureau's progress on IWXXM Implementation
- Positives so far!
- Challenges

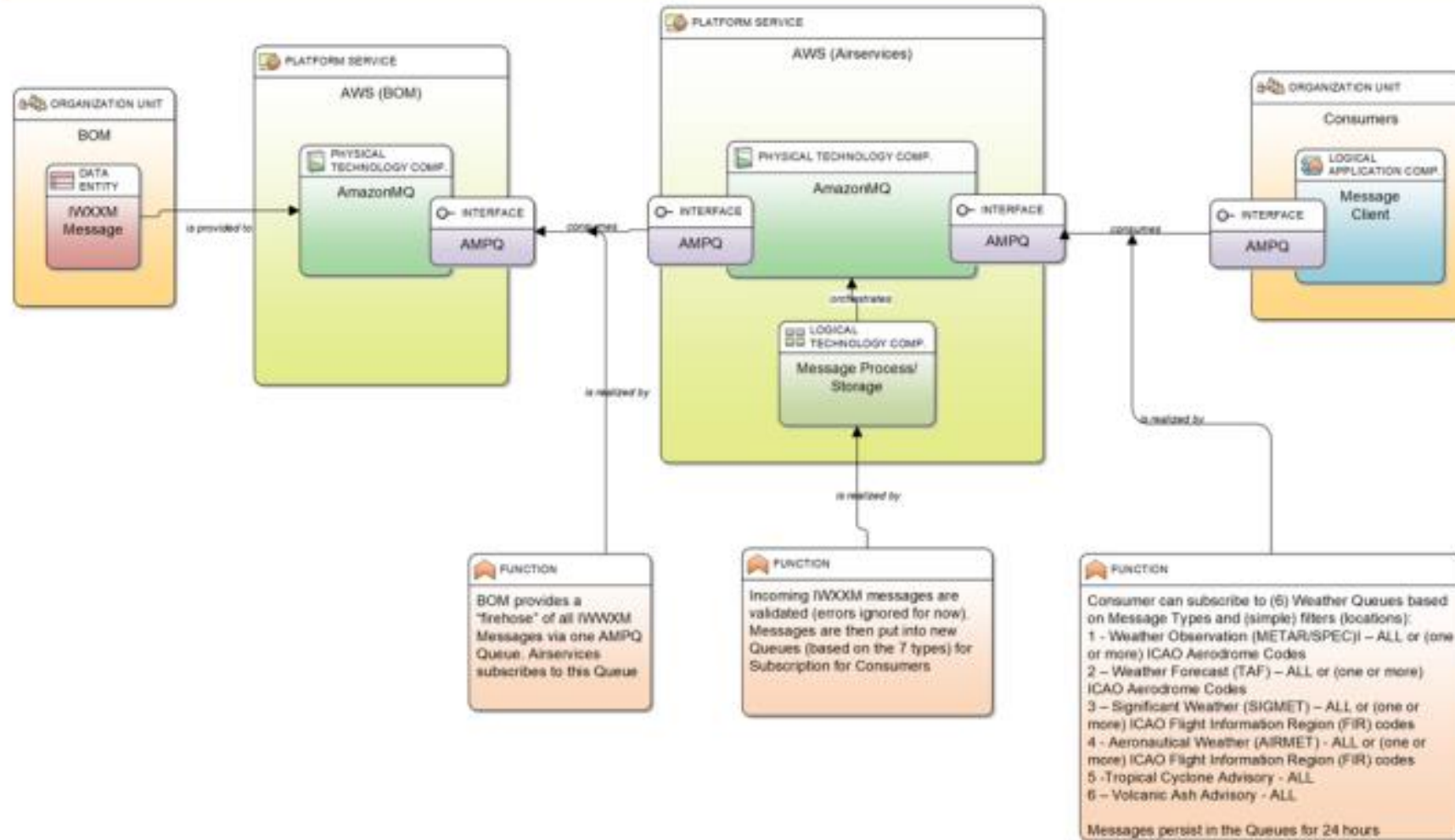


Background

- **SWIM architecture and planning activities carried out by Airservices Australia (AA) and the Australian Bureau of the Meteorology (Bureau) over a long time.**
- **During this time, active program were put in place to design the SWIM future state for Australia.**
- **Early Prototypes**
 - **AA/Bureau exchange of IWXXM + Static SWIM Registry**



SWIM IWXXM Prototype



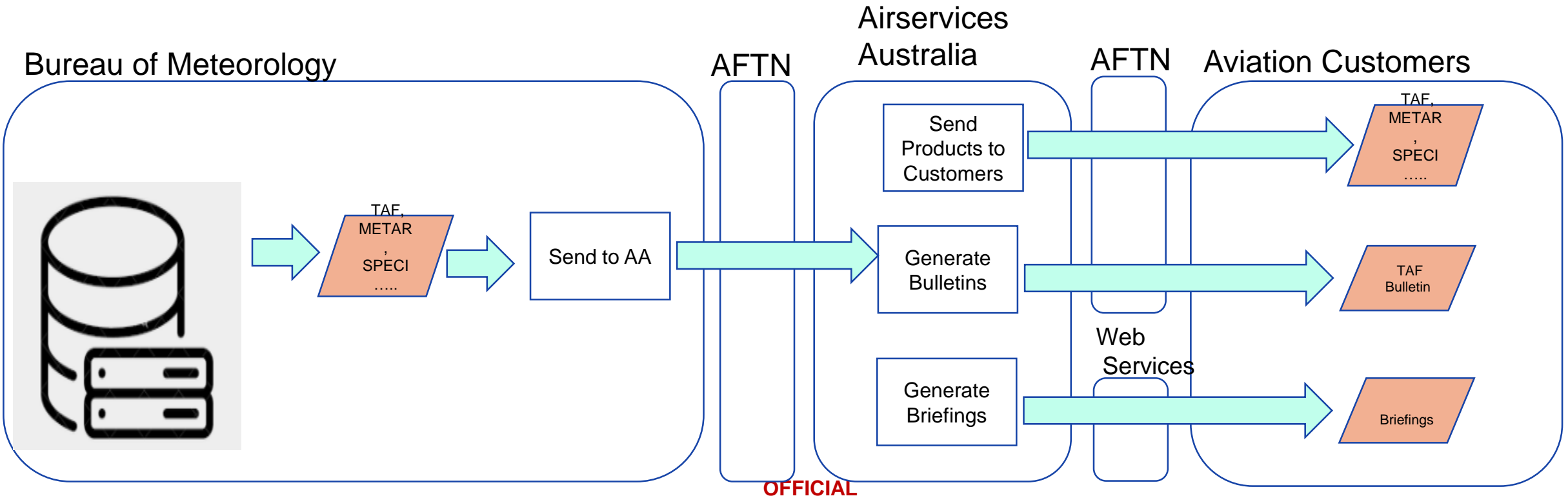
Bureau's progress on IWXXM Implementation



How do customers currently get Met products

Bureau distributes OPMET products to AA who:

- sends the products as bulletins internationally via AFTN/AMHS
- sends the products to airlines via AFTN
- allows users/briefing companies to access/retrieve briefings/products



What is a Bulletin

- A collection of METARs or TAFs for multiple aerodromes

e.g.

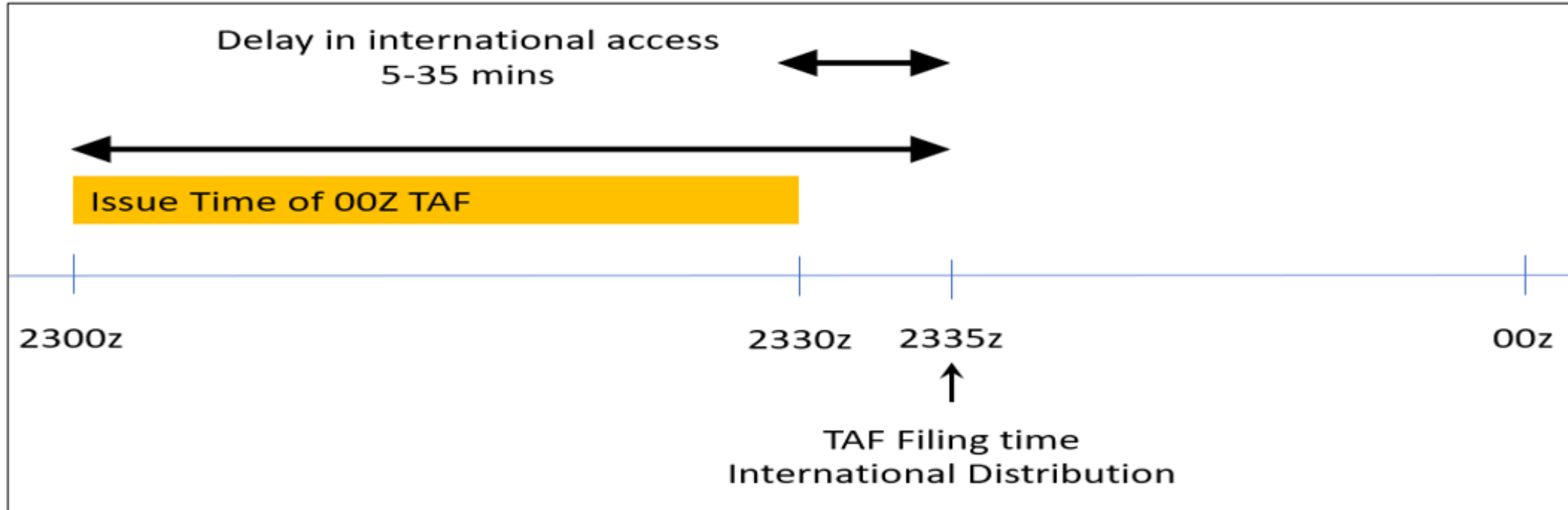
- **TAF bulletins** (TAC: **FTAU31-36**, IWXXM: LTAU31-36)
- **METAR bulletins** (TAC: SAAU31-36, IWXXM: LAAU31-36)

FTAU31 YBBN contains TAFs for

Adelaide, Brisbane, Cairns, Canberra, Darwin, Gold Coast, Hobart, Melbourne, Perth & Sydney

- **Bulletins are created for efficient routing of products around the world**

Why can Bulletins be delayed



Current format of Products and Bulletins

OPMET Products are formatted in Traditional Alphanumeric Code (TAC) form

TAC is both a data format and a visualisation format

Known issues associated with TAC

- Prone to poor structure
- Typographic errors
- Missing fields
- Lack of validation
- Not self-explanatory

Example TAF in TAC format:

```
TAF AMD YCOM 100943Z 1009/1020
20008KT 0500 RA FG BKN003
RMK
T 01 01 02 02 Q 1009 1009 1009 1009
```

IWXXM - Benefits

- Issues with 'TAC' data resolved
- IWXXM is:
 - Structured and Self-describing
 - Machine-readable
 - Can be validated against a schema and Schematron
 - Extensible (TAF includes Temp, QNH, INTER, TAF3)

IWXXM – Current AU Implementation

- ICAO Annex 3 (since 2020) states:

2.1.3 As of 5 November 2020, METAR and SPECI shall be disseminated in IWXXM GML form in addition to the dissemination of the METAR and SPECI in accordance with 2.1.2.

- Currently, Bureau generates IWXXM as "compressed bulletins" and AA send this information internationally over AMHS

IWXXM –Details

Current:

- All IWXXM generated by the Bureau
 - Direct from source forecasting system except METAR/SPECI and TAF bulletins
 - METAR/SPECI & TAF bulletins
 - ✓ TAC bulletins are converted to IWXXM
 - ✓ only generated for 44 aerodromes (6 bulletins)

Within 1 month:

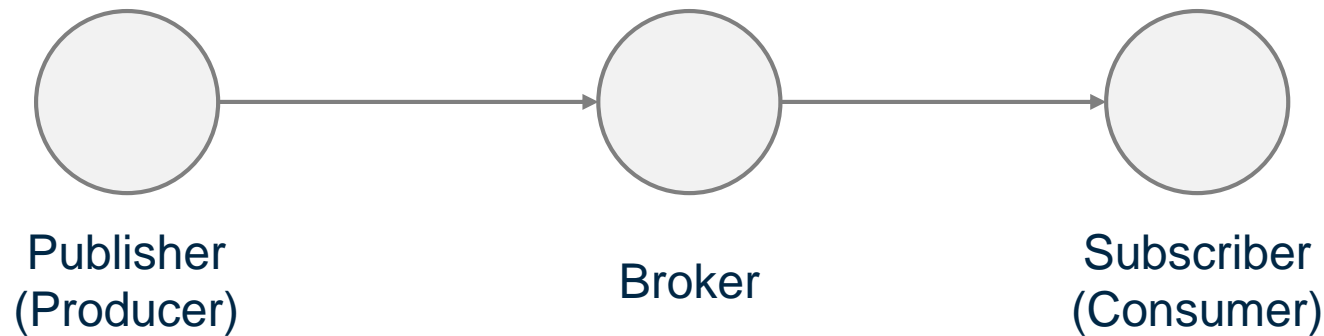
- METAR/SPECI and TAF IWXXM available for locations as individual product
- IWXXM TAFs generated from source, including Australian TAF extension

Future:

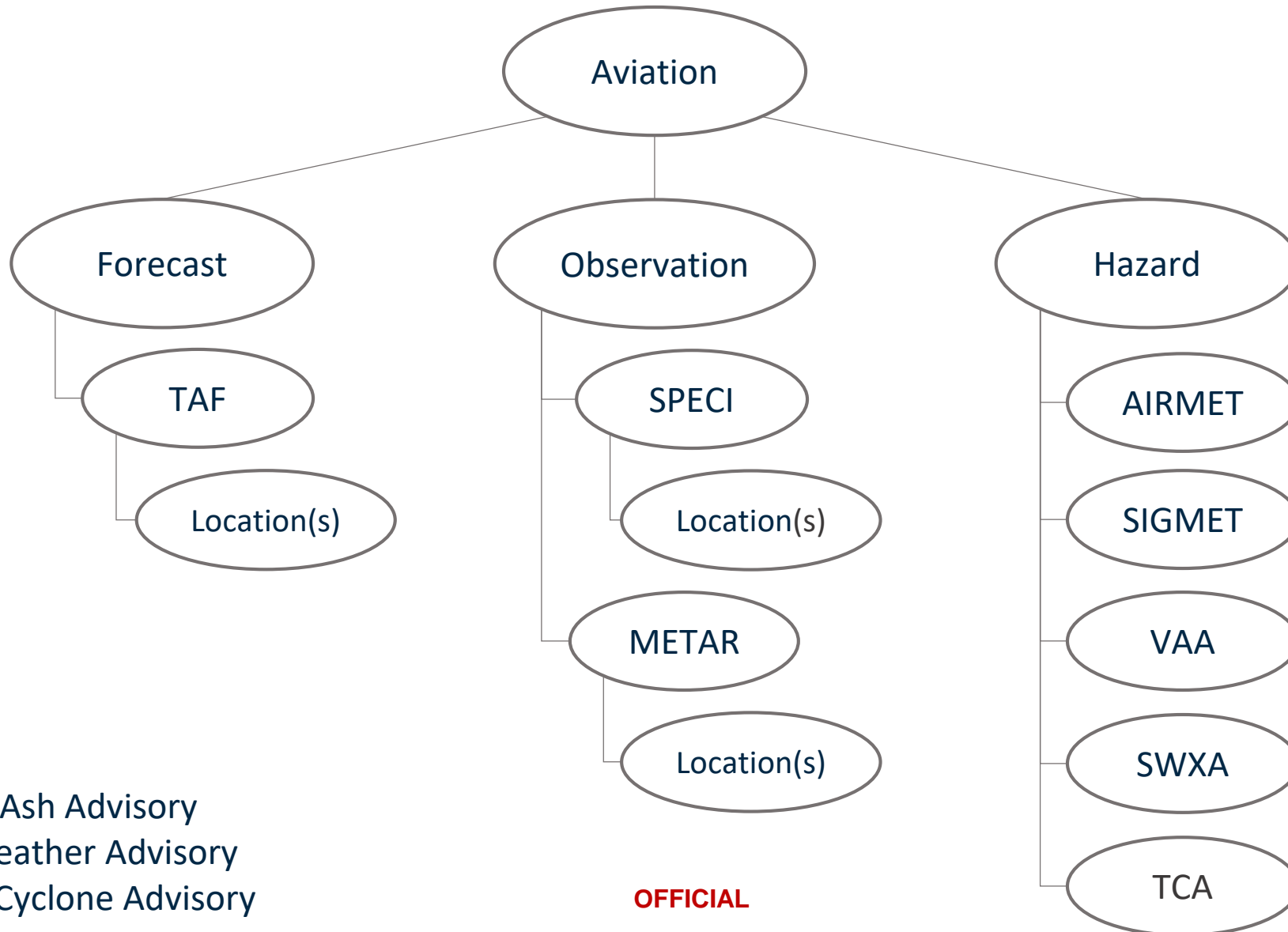
- IWXXM available via a message broker (currently SFTP)

AMQP (Pub/Sub) & Topics

- MET SWIM Plan defines AMQP as the pub/sub protocol
- Message Broker runs a "Publish and Subscribe" (PubSub) model which requires customers to subscribe to the data they require.



Sample Topic Structure



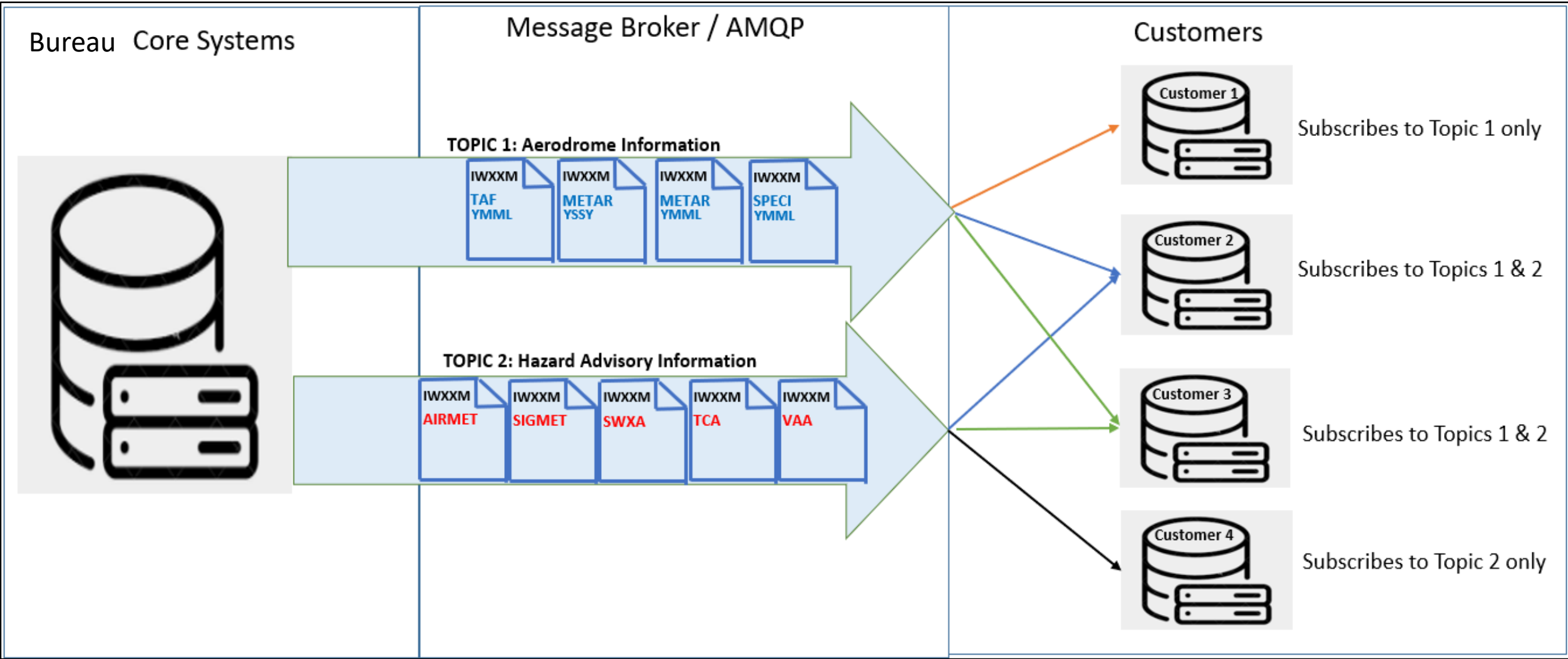
(VAA) Volcanic Ash Advisory
(SWXA) Space Weather Advisory
(TCA) Tropical Cyclone Advisory

Questions

- Do we need to standardise the topic structure globally (from the APAC perspective)?
- If so, should these be based on:
 - forecast/observation/hazard or
 - Location?



Future – IWXXM Topics delivered directly



Positives so far



- Agencies talking about SWIM and making some initial progress
- Involved airlines in the journey
- Bureau - providing industry with ongoing updates at various forums
- Small step at a time!

Challenges

- Availability and capacity of AMHS/FTBP
- Insufficient global IWXXM to justify user investment
- Lack of demonstrated benefits from IWXXM / SWIM
- Tight budgets (C-19)



Challenges

- Lack of
 - clarity around whether SWIM services should be standardised
 - drive, governance and commitment in our region





The Bureau
of Meteorology

Thank you

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