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METEOROLOGISKA INSTITUTET
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NAMCON Common AMQP Broker

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About NAMCON

- NAMCON: Northern Europe Aviation Meteorology Consortium
- Pioneer on state-level co-operation within the Aviation MET domain
- Operational joint production
 - Nordic SWC (Significant Weather Chart)
 - LLF (Low Level Forecast)
 - TAFs (SMHI, DMI)
- Joint development, e.g. projects for development of future services already ongoing

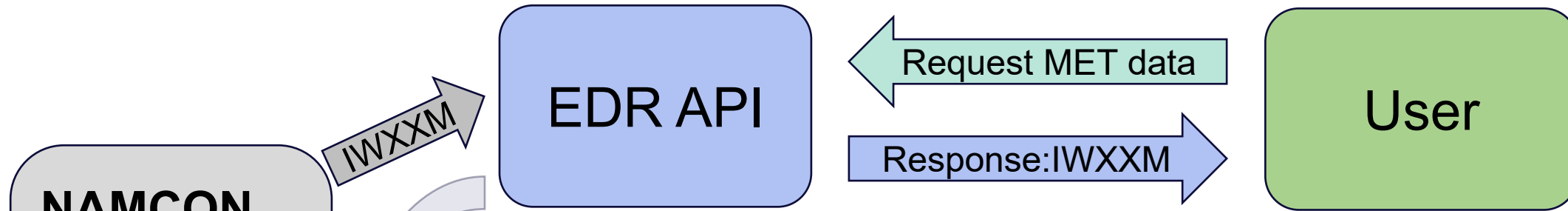


NAMCON Common AMQP Broker

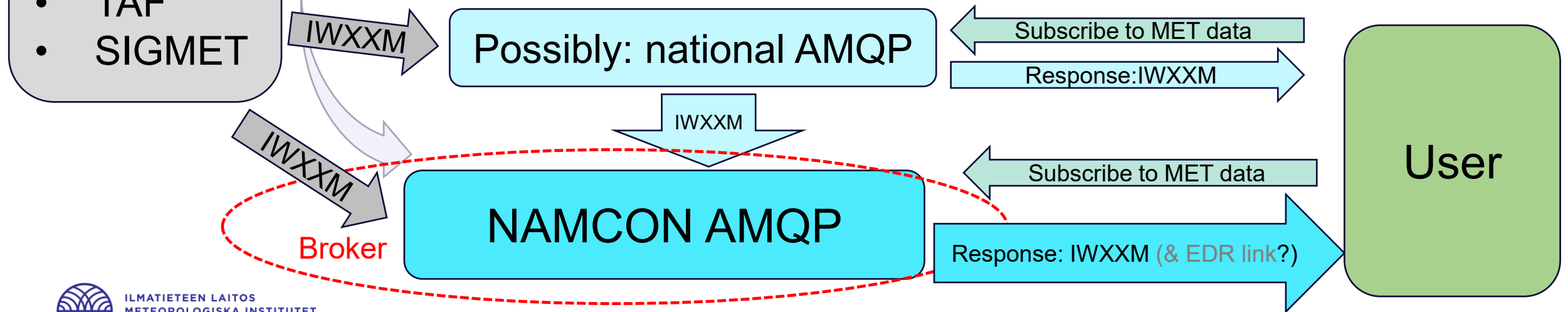
- NAMCON decided to set up a common AMQP broker for all NAMCON MET SP's
 - FMI volunteered to set up the NAMCON broker
 - Cost sharing within NAMCON framework
- Why: Easier for users, as you **only need to subscribe to one AMQP service to get all Nordic IWXXM's**
- **Broker → Data flow integration from all NAMCON countries, not a database**
- Does fulfil each member country's CP1 pubsub requirement
 - Some states also decided to implement separate national AMQP's

EU CP1 implementation / NAMCON

Request/reply: EDR API



Publish-subscribe: AMQP



NAMCON Common Broker setup phase

- Decision about the broker was made in June 2025
- Initial setup during August/September, testing during late 2025
 - FMI set up the broker and started testing the publishing of IWXXM messages
 - SMHI, MET Norway and ESTEA followed in November and December
 - Rest to follow, 2 further states are actively working on establishing connections, all 8 NAMCON member countries are expected to join
- Broker **partly** in operation by the end of 2025 to comply with CP1: FMI, Met Norway, ESTEA, (SMHI)

NAMCON Broker Implementation Status (06/2026)

Broker is operational — meets the AMQP part of individual MET SPs' CP1 services, as published in the SWIM Registry.

Operationally publishing 4

✓ **FMI** *Finland* METAR · TAF · SIGMET

✓ **SMHI** *Sweden* METAR · TAF · SIGMET

✓ **Met Norway** *Norway* TAF · SIGMET

✓ **ESTE** *Estonia* METAR · TAF · SIGMET

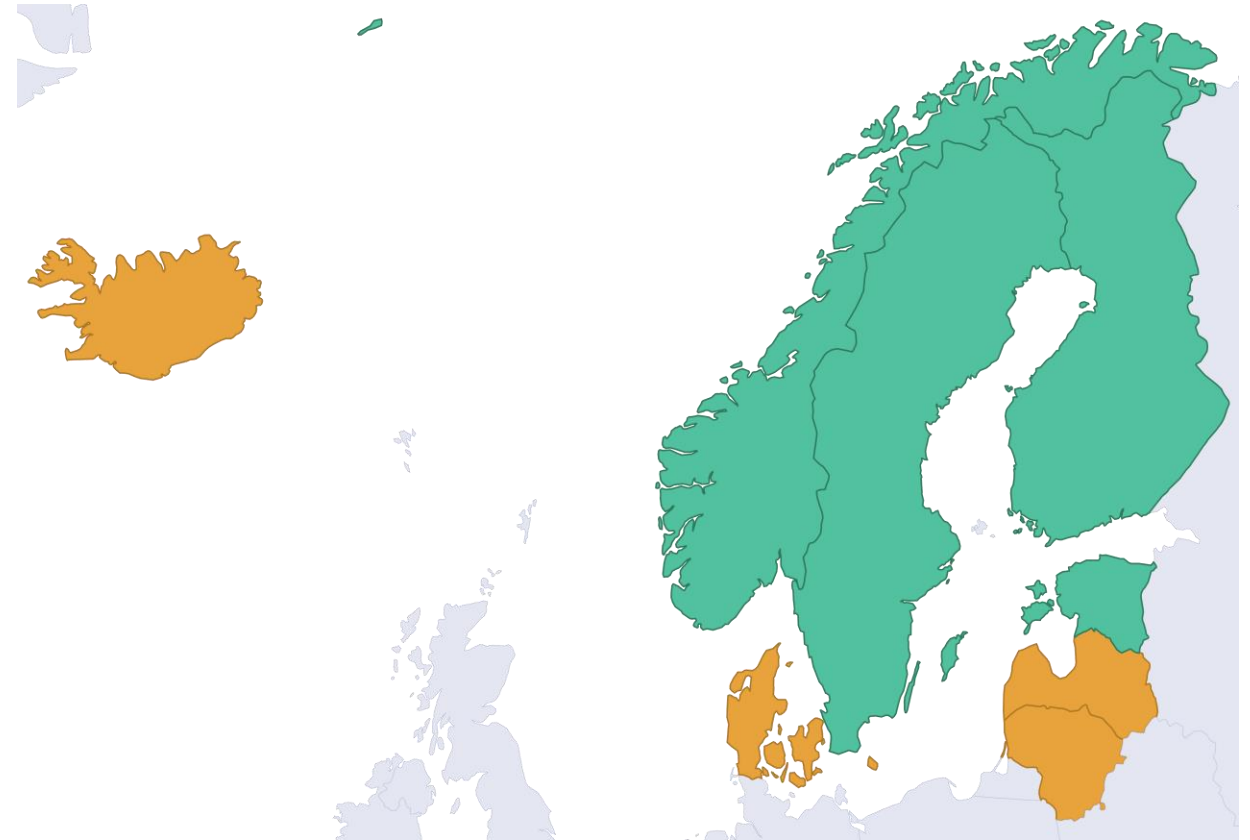
Still to follow 4

🕒 **DMI** *Denmark*

🕒 **IMO** *Iceland*

🕒 **LVGMC** *Latvia*

🕒 **LHMS** *Lithuania*



● Operationally publishing

● Still to follow



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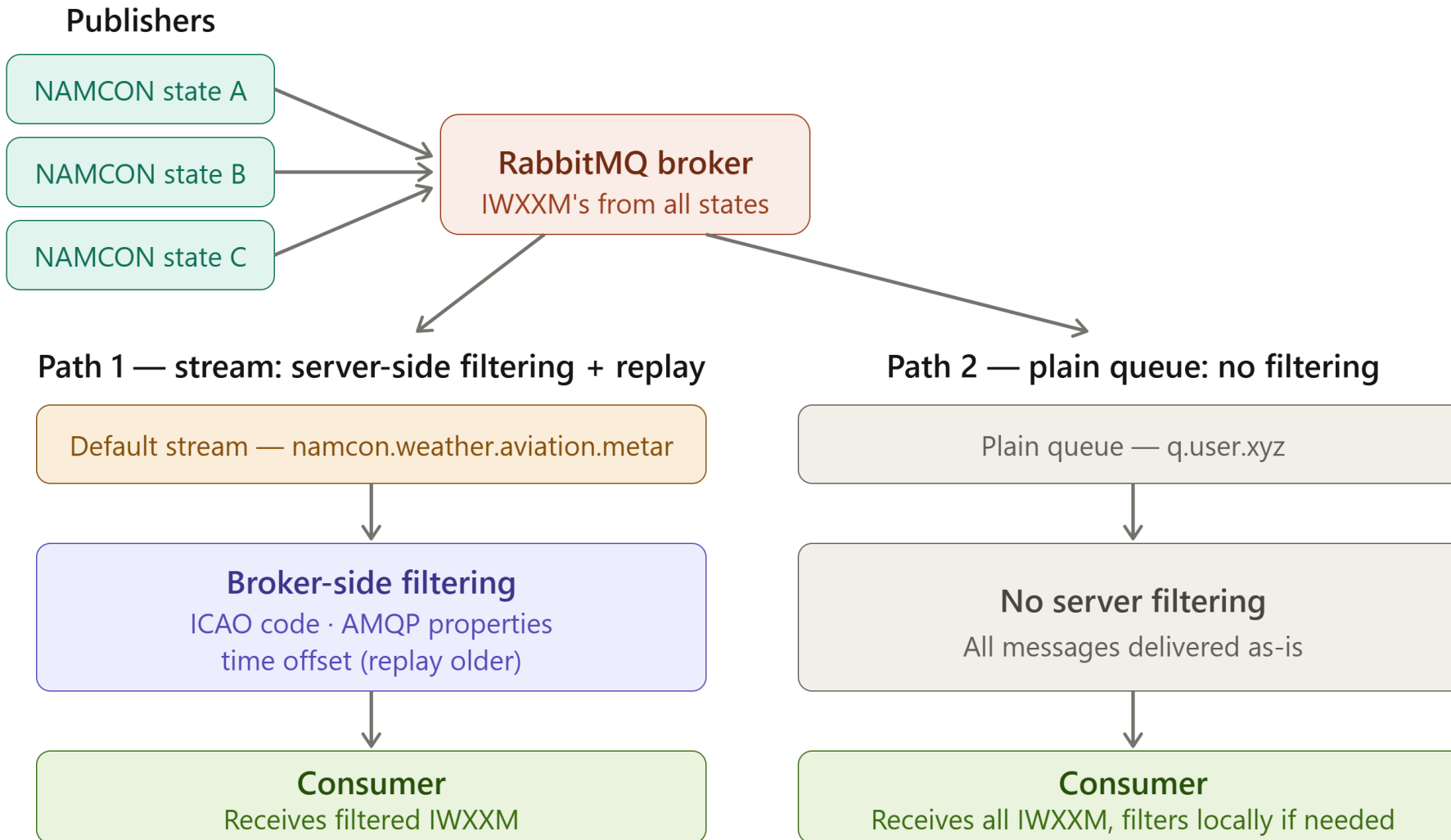
NAMCON Common Broker technical setup

- Rabbit MQ, running in FMI's openshift infrastructure
- Set up according to SWIM CP1 guidance, as developed by the working group MET3SG:
 - One exchange, used to receive all the IWXXM's: x.swim.messages
 - Sorted by topics:
 - weather.aviation.metar
 - weather.aviation.taf
 - weather.aviation.sigmet
 - Response contains the IWXXM message directly as payload
 - Default user services called "streams", work like AMQP queues but can supply multiple users via the same default streams.
 - Named according to the topics above: "namcon.weather.aviation.metar" etc.
 - A "namcon.opmet" stream is also available, which receives all the data from above topics
 - Possibility for users to also set up their own queues to receive one of the above topics, or all of them

NAMCON Common Broker procedures

- As FMI is hosting the service, user management is also done by FMI
 - Any interested users are encouraged to contact FMI aviation customer support: ilmailu@fmi.fi
 - Authentication by way of user credentials (+AMQPS / server certificates)
- For now, manual user management is in use, plan is to automate at a later point (few users in the beginning)
- By default, each stream/queue receives messages from all the publishing NAMCON states!
- For users, filtering of the default streams is possible on the broker side, users can choose to filter by ICAO code (aerodrome or state)
 - Other AMQP properties can be used for filtering
 - Also, a time offset parameter can be used to receive older messages in case of user network issues etc.

Example message flow on the Broker



Still to follow

- Missing data to be added by relevant MET SP's
- FMI to publish a separate Service Description just for the NAMCON Common Broker to increase visibility of service
- Possibly at some point: addition of EACP client certificates

About request-reply in MET SWIM / CP1

- In NAMCON, the common broker service is only for pubsub -> request-reply services done by each state separately
- In MET SWIM: EDR API, as defined by the Eurocontrol Service Definitions and Guidance material
- At FMI, an in-house developed EDR API with api key user authentication
 - Provides IWXXM messages for Finnish FIR from our OPMET database
 - In addition to CP1 minimum service (latest IWXXM's for Finland) also datetime queries implemented -> possible to request IWXXM's for user defined timeframes, e.g. METAR history
 - Response a zipped file with the individual responses (default behaviour), possible to request also directly in IWXXM

Thank you for listening!

