

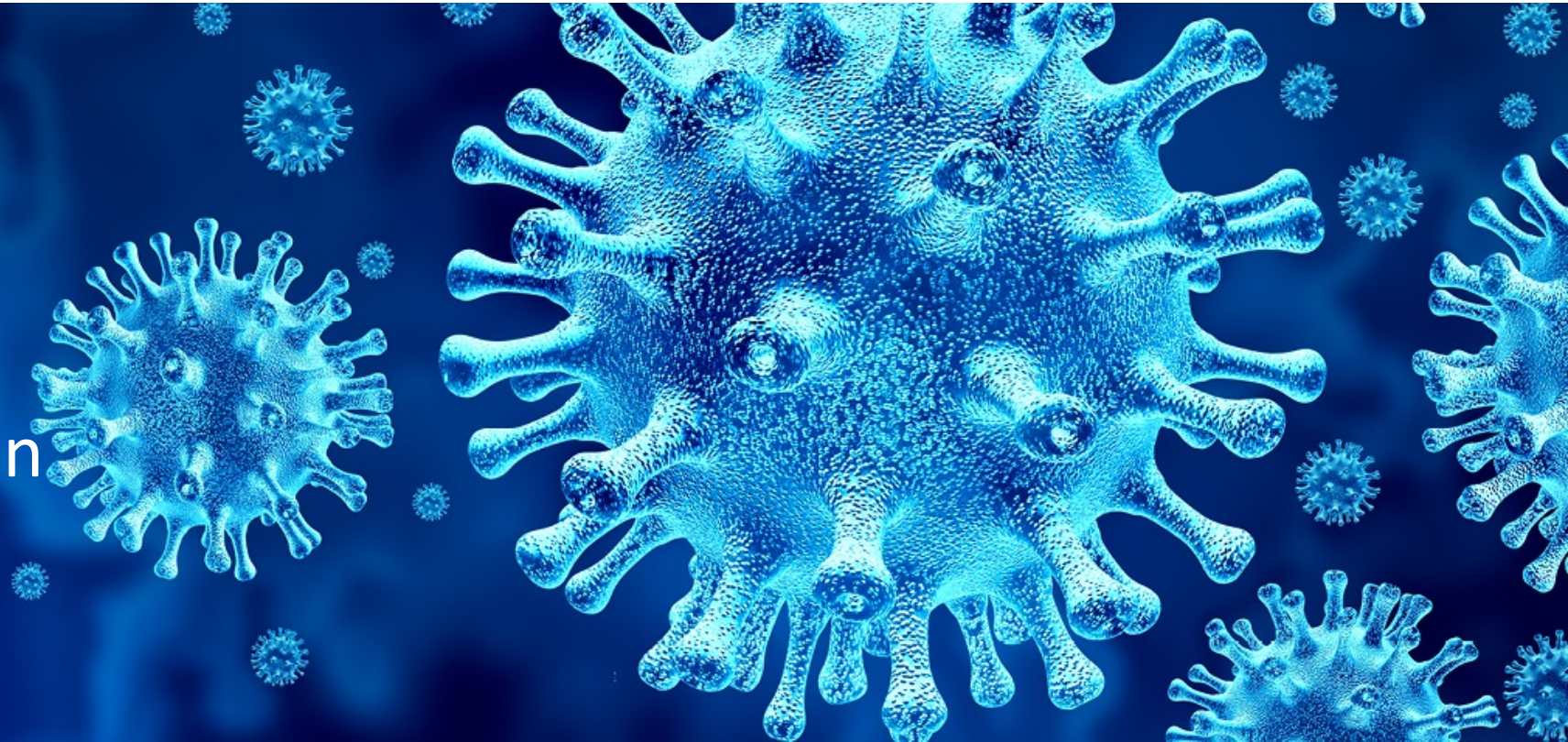


ICAO MID

**ICAO MID IWXXM Implementation
WEBINAR
26-27 May 2021**

**IWXXM implementation
in Belgium**

Wim Demol
skeyes



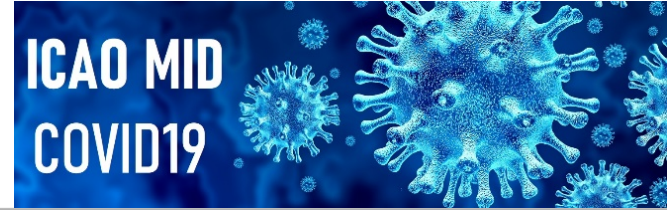


ICAO MID IWXXM Implementation Webinar

PROVISIONAL AGENDA

Agenda Item 3: IWXXM Implementation

IWXXM Implementation in Belgium

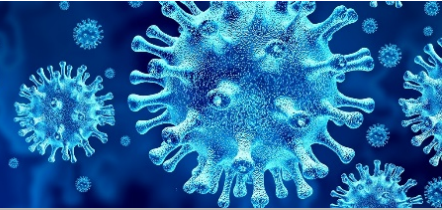


IWXXM project in Belgium



- (mainly) 1/2016 – 7/2017
- budget: +/- 250k€
- co-financed by the European Union (INEA)

- Scope
- Implementation items
- Discovered issues & decisions taken
- Future



In Scope

- National OPMET Centre (NOC) functionalities
 - MET switch & COM switch
- Regional OPMET Databank (RODB) functionalities
 - Ref ICAO docs:
 - EUR Doc 18: EUR OPMET Data Management Handbook
 - EUR Doc 20: EUR AMHS Manual
 - EUR Doc 33: Guidelines for the Implementation of OPMET Data Exchange using IWXXM in the EUR Region

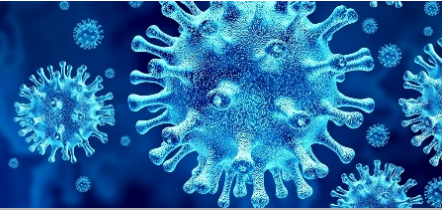


Out of scope

- Generation of IWXXM at source (observing & forecasting systems)
- Processing of IWXXM by other ATM or MET systems
- Web/SWIM services built on the (I)WXXM data model

→ these can (or should) be part of follow-up projects

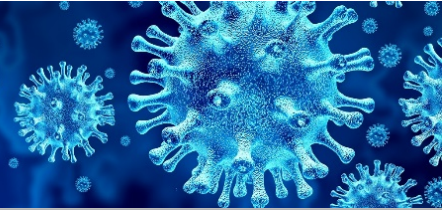




Implementation items (1)



- connection MET Switch – COM Centre: P3 AMHS with extended services
 - In operation since > 9 years; some changes needed for the AMHS IWXXM profile
- implementation of IWXXM functionalities in COM Centre & COM workstations
 - support exchange of IWXXM messages
 - visualisation of IWXXM messages
 - send requests to RODB
- implementation of IWXXM NOC functionalities in MET switch
 - switching functionalities for TAF / METAR / SIGMET / AIRMET / TCA / VAA in IWXXM format
 - reception, validation, visualisation for operators, store & forward message switching...
 - TAC → IWXXM translation: TAF / METAR / SIGMET / AIRMET
 - Compilation of collections: TAF / METAR



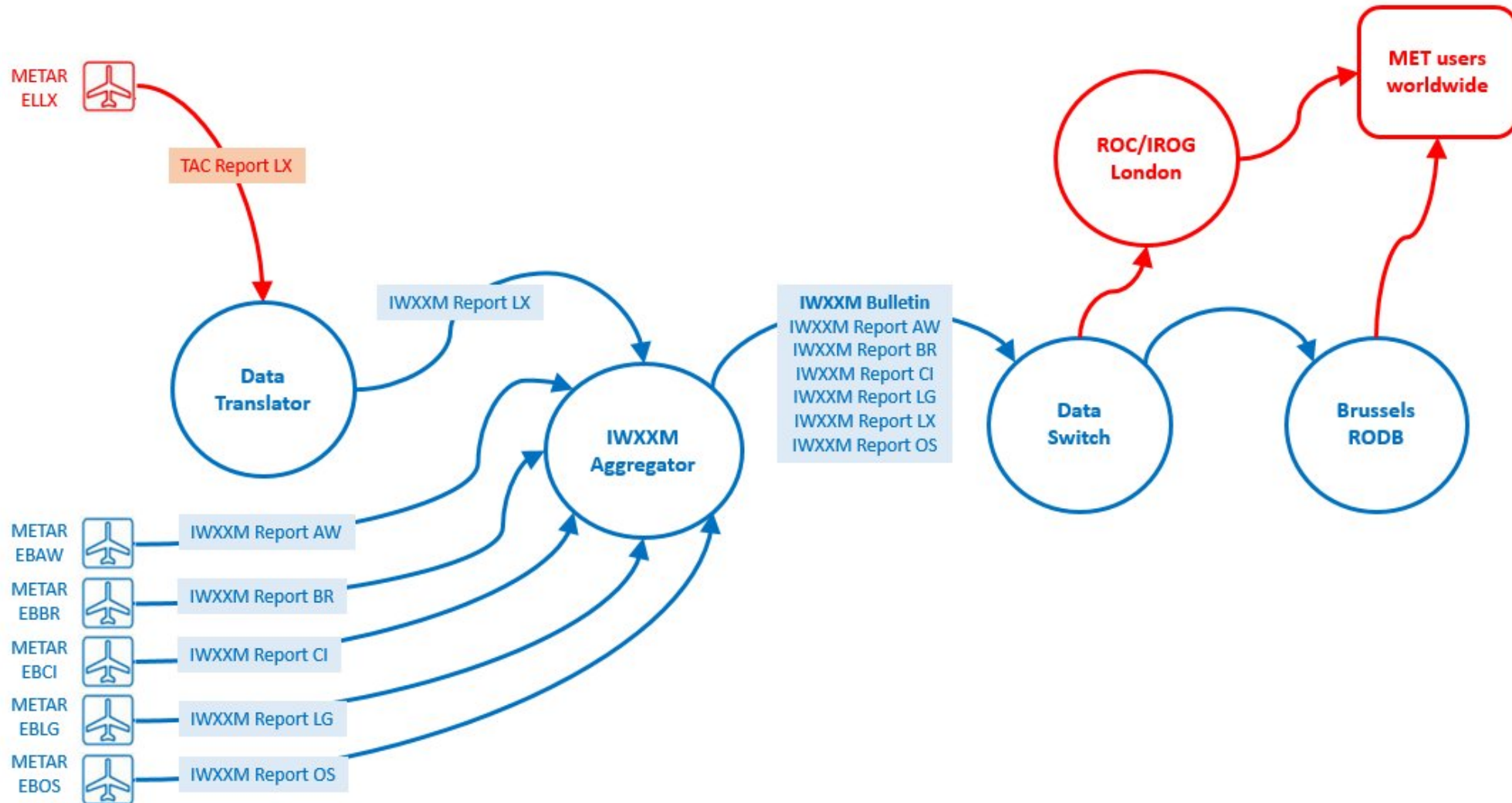
Implementation items (2)

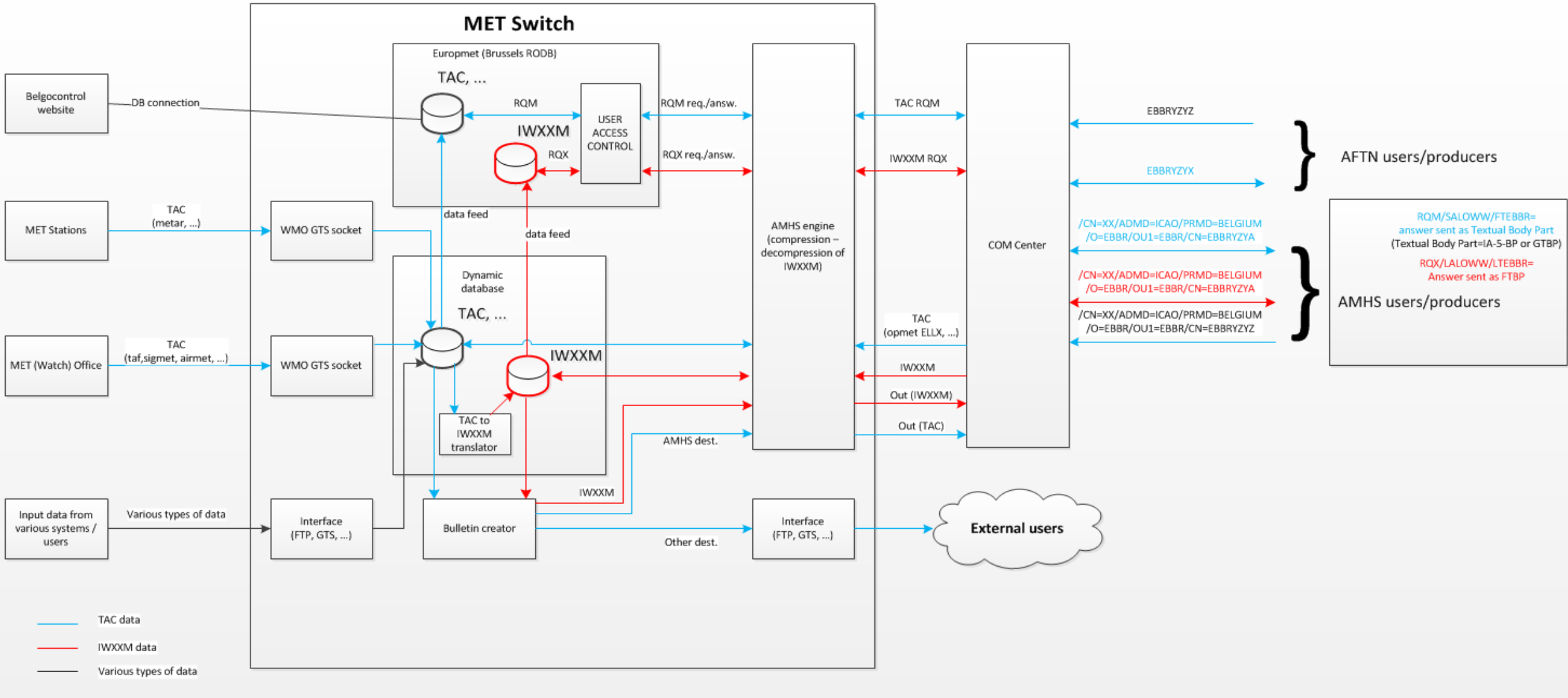


- implementation of IWXXM RODB functionalities
 - message/data storage, decoding, ...
 - IWXXM messages are stored as complete products AND decoded in elements
 - request/reply functionality
 - RODB statistics regarding data availability and usage
 - access control
 - error/information replies
 - ...

Implementation items (3)

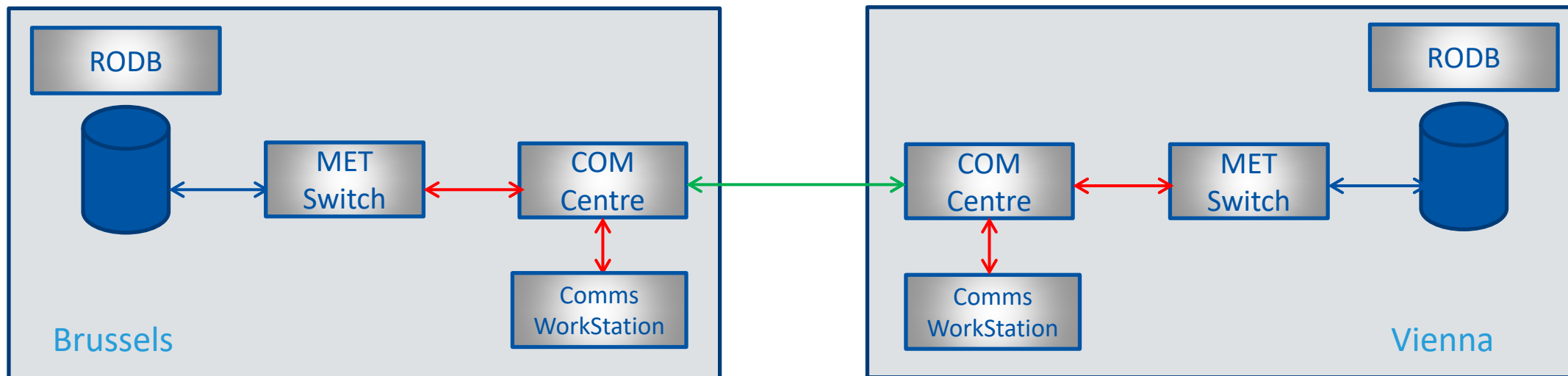






Implementation (testing)

- internal MET Switch Brussels
- MET Switch - COM Centre Brussels
- bilateral end-to-end tests with Austrocontrol



Issues & Decisions

general & message switching

- Validation: 4 levels
 - Level 1: well formed XML document
 - Level 2: level 1 + stations known
 - Level 3: level 2 + XSD schema validation
 - Level 4: level 3 + schematron validation (started Jan 2021)
- Collect scheme
 - WMO decision: to be used for all messages, not only for aggregations ...

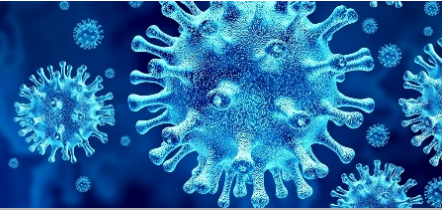


Issues & Decisions

general & message switching



- Conditional message routing
 - Prevent test messages and “untrusted” messages from being routed
 - routing/processing can be based on attributes (permissible usage, translation centre,...)
- Message translation: SIGMETs
 - TAC → IWXXM translation is difficult for non-polygon areas; “clipping” needed against FIR boundaries
 - It is advisable not to limit strictly the number of polygon coordinates to 7
 - Better solution (WMO? ICAO?): remove non-polygons from TAC code



Issues & Decisions

RODB implementation

- Different versions of a report received?
 - Use prioritization: e.g. non-translated messages have higher priority than translated messages; higher priority overwrites lower priority
- Database tables
 - Cover current needs (reports, messages) as well as future data exchange (data)
 - Store data as a) XML documents and b) decoded elements
- RODB reply messages
 - Compiling collections of reports of different sources (or even different IWXXM versions) is not straightforward
 - Brussels RODB replies do use aggregations; original XML name space declarations are stored in the DB and added to each report of the collection → this makes every report “self sufficient”



Issues & Decisions

RODB implementation



- Database catalogue
 - No separate IWXXM catalogue
 - Use TAC OPMET requirements and issue information reply if no IWXXM data available
(No TAC to IWXXM translations by EUR RODBs !)
- AMHS issues → non-delivery report handling
 - RQX requests from a user without extended AMHS capabilities cannot be serviced and will result in a non-delivery report (NDR) sent by COM switch to RODB
 - RODB sends appropriate error message to user

Future

- Generation of IWXXM at source
- Development of web services
- SWIM functionalities







North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montréal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU