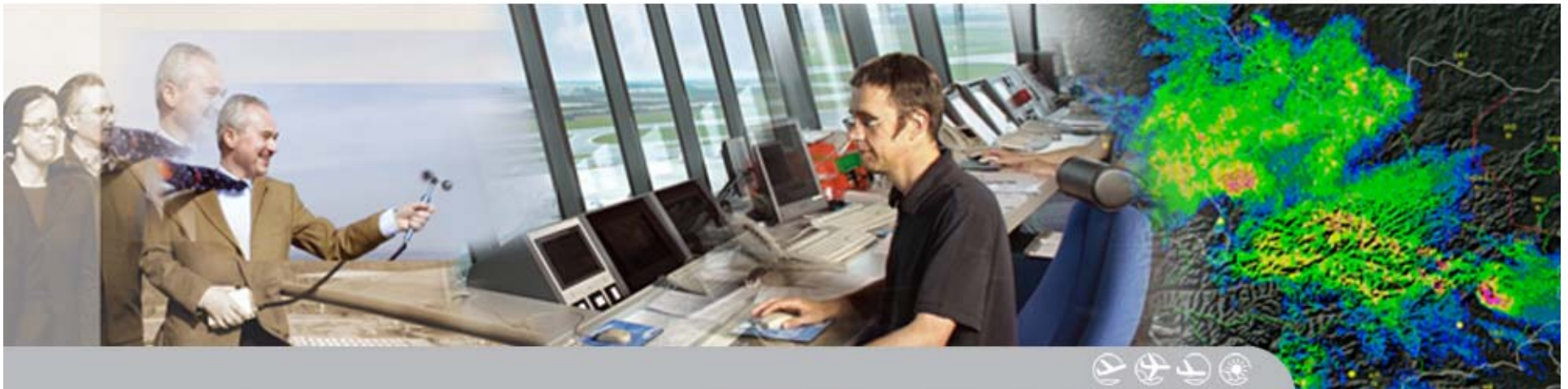


## P4-Transition from TAC to IWXXM

ICAO Regional OPMET Centre (ROC) Workshop  
Jeddah, Saudi Arabia, 31. August-1. September 2014

SICHERHEIT LIEGT IN DER LUFT



# Overview

- ▶ History of the Project
- ▶ Planned Timescale for Transition
- ▶ CONOPS (Concept of Operations)

# History

- ▶ Around 2002: WMO decided to restructure system and move to centralization. Plan to replace TAC-codes by BUFR
- ▶ 2007: ICAO decided not to use BUFR. Expert group was implemented to study possible codes used by industry (like XML)
- ▶ 2009: Pilot project (ICAO&WMO) proved feasibility of XML
- ▶ 2011: Roadmap was presented by EUROCONTROL for the transition to centralized services
- ▶ 2012: DMG was tasked to develop a CONOPS (Concept of Operations) for the transition from TAC to IWXXM
- ▶ 2013: TT-AvXML presented a first draft of the AvXML (Aviation XML) in February 2013, followed by a second one in May.
- ▶ Final version on [WMO-website](#)

# Planned Timescale for Transition

- ▶ ANNEX 3, AMD 76 (Nov.2013)
  - Recommendation that Data should be disseminated in digital form between states in the position to do so
  - XML shall be used if data is disseminated in digital format
- ▶ ANNEX 3, AMD 77 (Nov.2016)
  - States **should** exchange data in digital form by using XML, not only based on bilateral agreement
- ▶ ANNEX 3, AMD 78 (Nov.2019)
  - States **shall** exchange data in digital form by using XML

# CONOPS (1)

- ▶ IWXXM CONOPS (ICAO Weather Exchange Model - Concept of Operations) is proposing a feasible way to move from TAC to IWXXM
- ▶ Developed by EUR-DMG on behalf of MARIE-PT (Meteorological Aeronautical Requirements and Information Exchange Project Team)
- ▶ Actual draft [version 2.2](#)

## CONOPS (2)

- ▶ First step continues with existing exchange system principles
  - Collecting
  - Compiling
  - Exchanging
  
- ▶ In future ICAO moves towards Net Centric Services (SWIM=System Wide Information Management)
  - All data available via well described interfaces (web-interfaces)
  - Data sent to and stored at defined DBs only. No more provision of MET-data to each and every user directly
  - User can request to receive data regularly, certain times or only once.

# CONOPS (3)

## ► Pros

- XML is easily extendable
- XML holds all META-data like position, unit (m, ft / C,F)
- More precise values can be provided e.g. 14,5° C
- XML holds links pointing to official tables with coding information e.g. for runway contamination

`<iwxxm:contamination xlink:href="http://codes.wmo.int/bufr4/codeflag/0-20-087/1" 64 . xlink:title="Less than 10% of runway covered" />`

- XML can easily be interpreted by automated systems

## ► Cons

- Can't be transported via AFTN → ext. AMHS has to be in place
- More bandwidth is needed as messages will be up to 100 times bigger than with TAC.
- Investment necessary by states to upgrade systems

# Transition TAC to AvXML (1)

Transition is divided in four phases

- ▶ Phase 0
  - Formulating pre-requisites for the transition from TAC to IWXXM
  - Highlighting possible constraints which may require further discussions



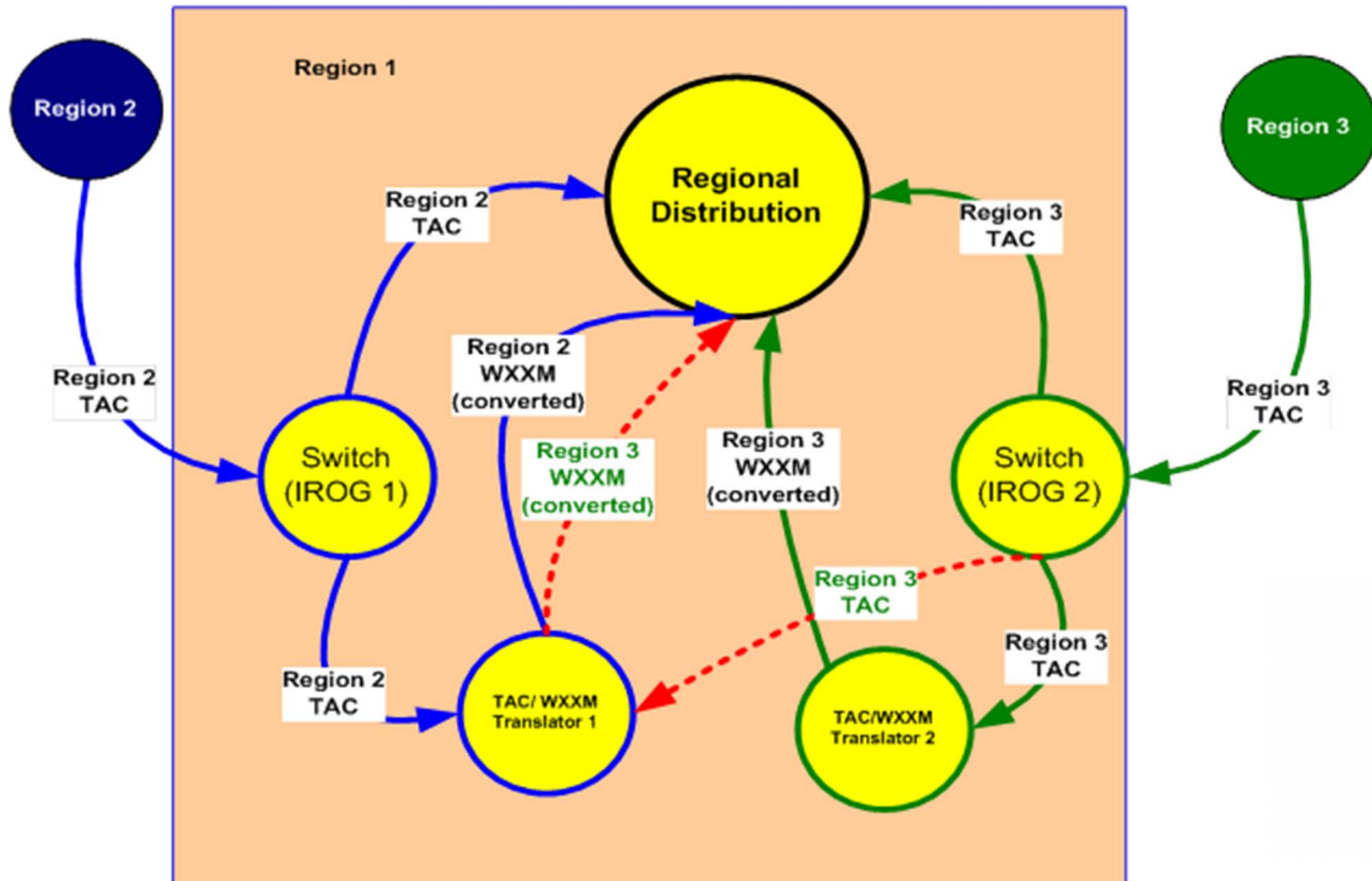
## Transition TAC to AvXML (2)

- ▶ Phase 1 (2013-2016) - (1)
  - Agreed accreditation platform(s) need to be available in each region as a test bed outside of the operational data exchange. It would be expected that use of the accreditation platform(s) would be without charge.
  - During this phase, regions will develop and test intra-regional exchange of data in an operational context.
  - States are encouraged to ensure that source systems are IWXXM capable and are appropriately accredited.
  - Each region has well defined monitoring and validation processes available with operational procedures (for example correction agreements and rectification for reported faults) to support the distribution of valid data.

## Transition TAC to AvXML (3)

- ▶ Phase 1 (2013-2016) – (2)
  - Accredited Translation centres will be available on a State or Regional basis to enable data provided by States that are not IWXXM capable to be promulgated in IWXXM form. To do this agreements, enabling delegated translation should be in place. See Section 5.1 Governance.
  - Data shall be exchanged inter-regionally for test purposes. It is important that during this time procedures for Inter Regional exchange are developed which take into account **Regional differences in schemas** and how data can be exchanged efficiently using IWXXM.

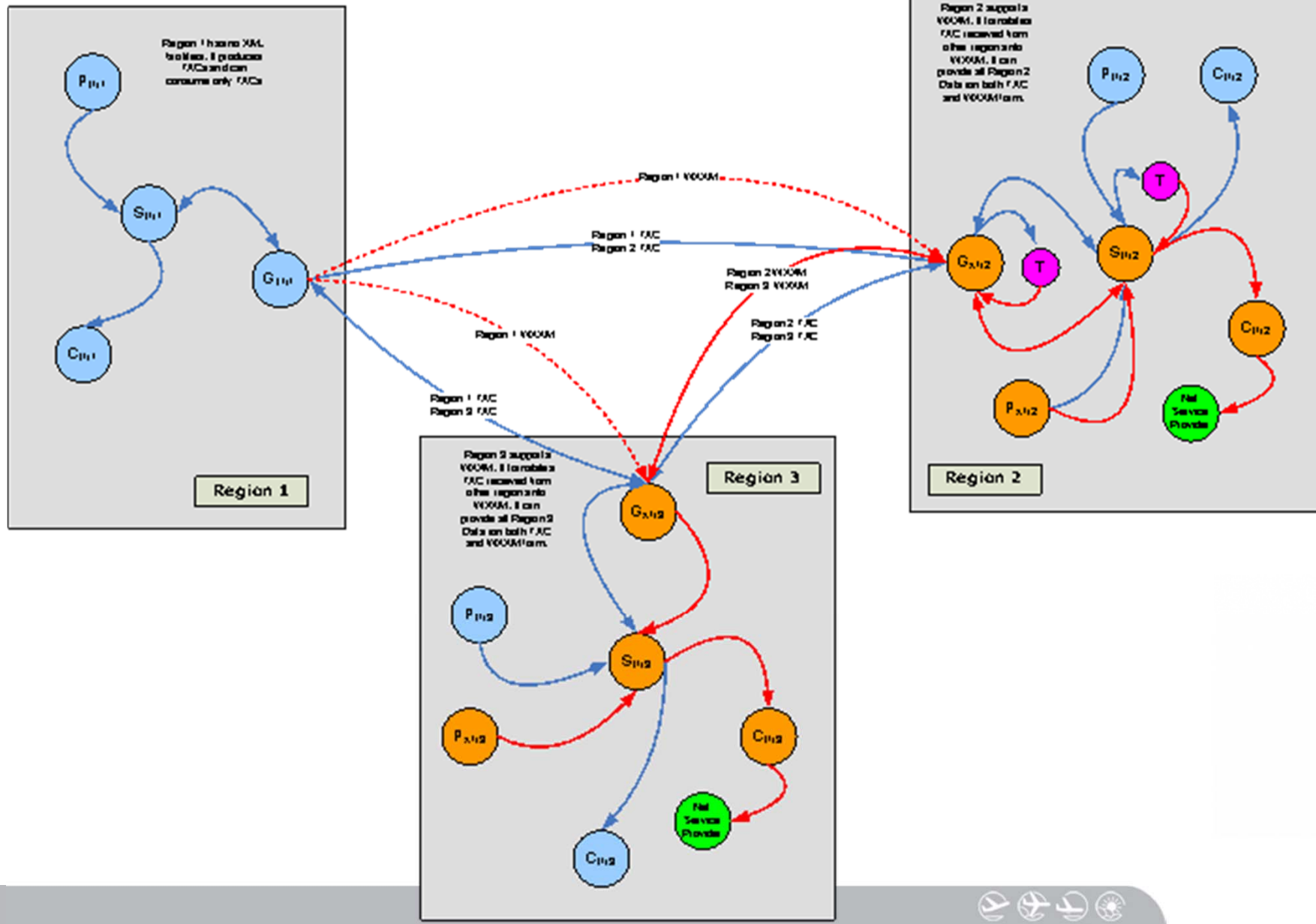
## Transition TAC to AvXML (4)



## Transition TAC to AvXML (5)

- ▶ Phase 2 (2016-2019)
  - Inter-regional accreditation processes are agreed and implemented.
  - Regions are ready and structures in place for the inter-regional exchange of data in an operational context.
  - States that are not in a position to exchange IWXXM data are encouraged to make use of Translation centres to ensure they can meet Amendment 78 requirements.
  - The complete FASID requirement for the exchange of IWXXM data is common practice at the end of the period.

# Transition TAC to AvXML (6)

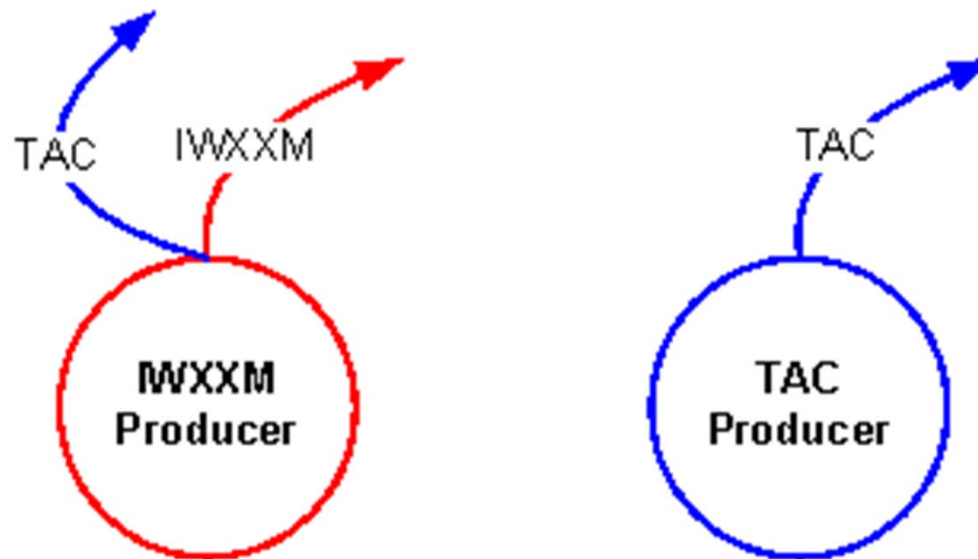


# Transition TAC to AvXML (7)

- ▶ Phase 3 (2019-2025)
  - Nothing defined so far in CONOPS
  - Most probably will be characterised by
    - Completing transition to AvXML
    - Transition to Net Centric Services

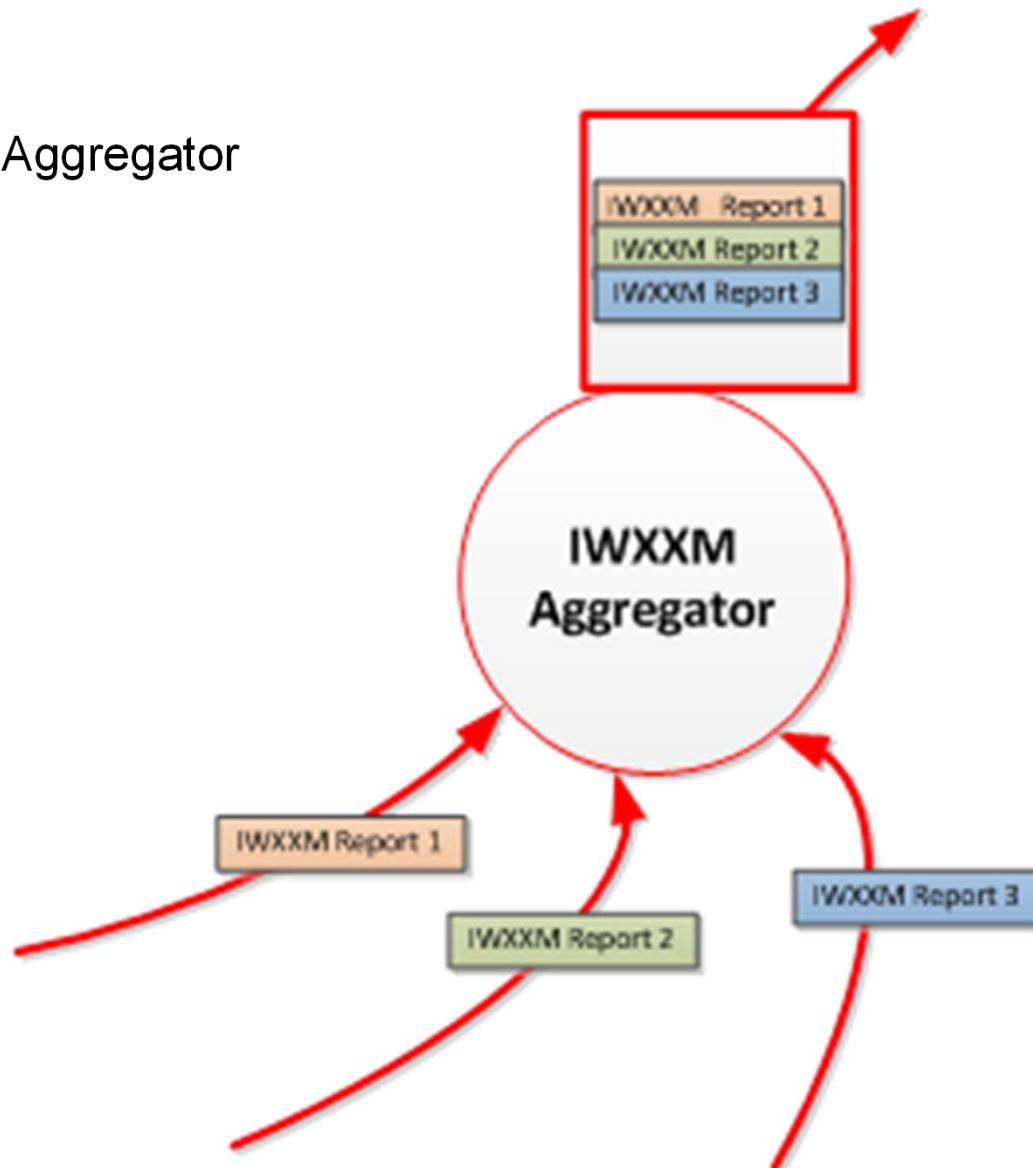
# Basic Definitions (1)

- ▶ TAC Data Producer
  - Provides TAC only
- ▶ IWXXM Data Producer
  - Provides both, TAC and AvXML



## Basic Definitions (2)

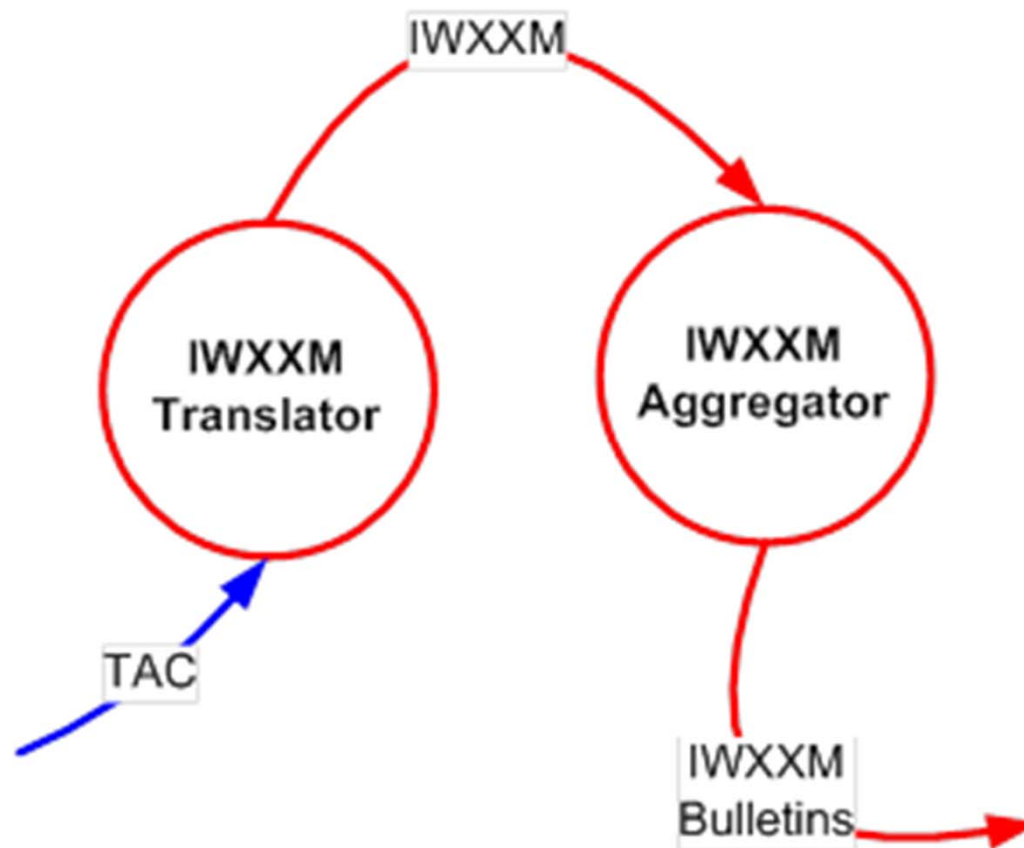
- Data Aggregator





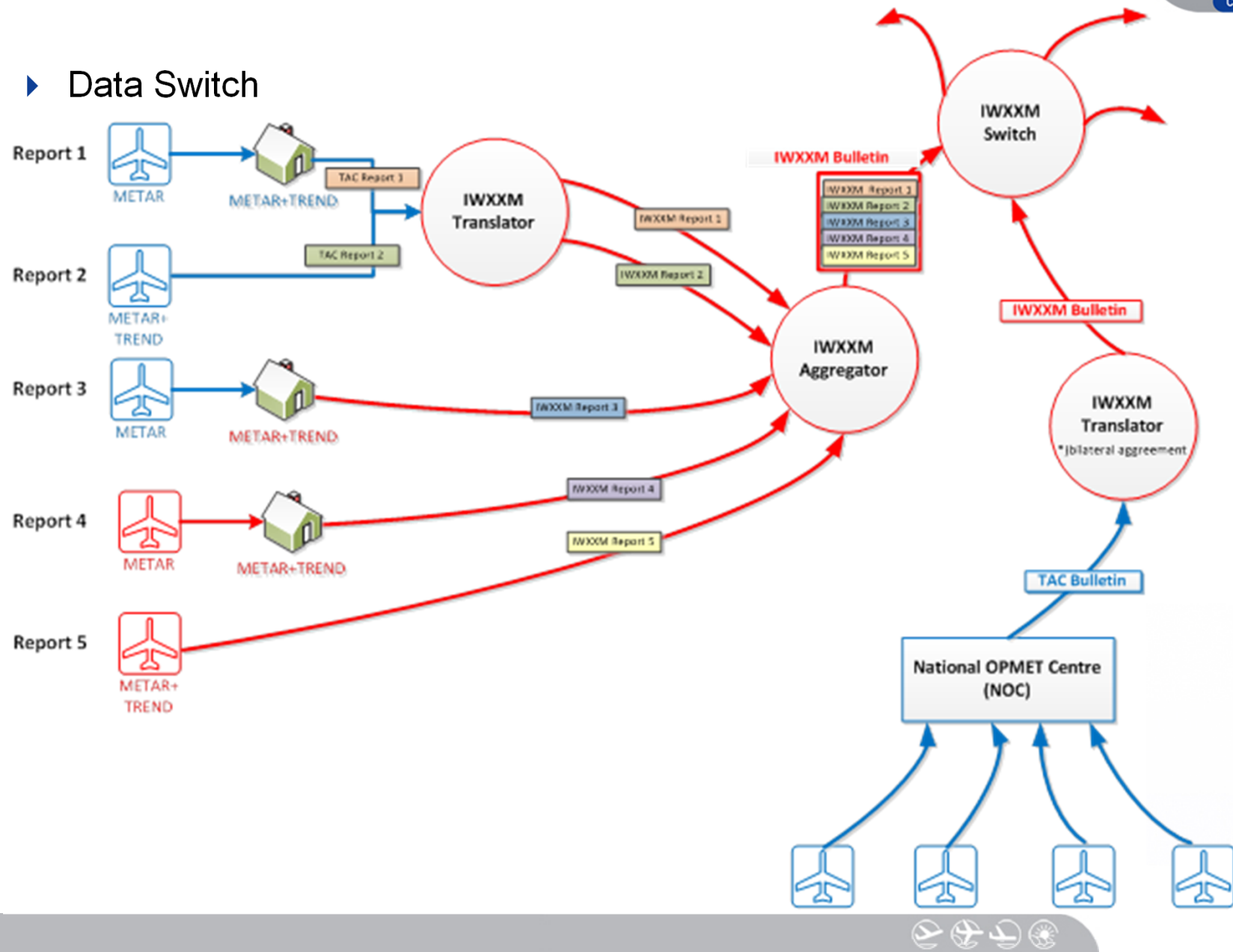
## Basic Definitions (3)

- ▶ Data Translator/Translation Centre



## Basic Definitions (4)

### ► Data Switch



**Thank you for your attention!**

**QUESTIONS?**



Photo Copyright Josef P. Willems

AIRLINERS.NET