

IWXXM implementation of RODB Tokyo



12-14 June 2019

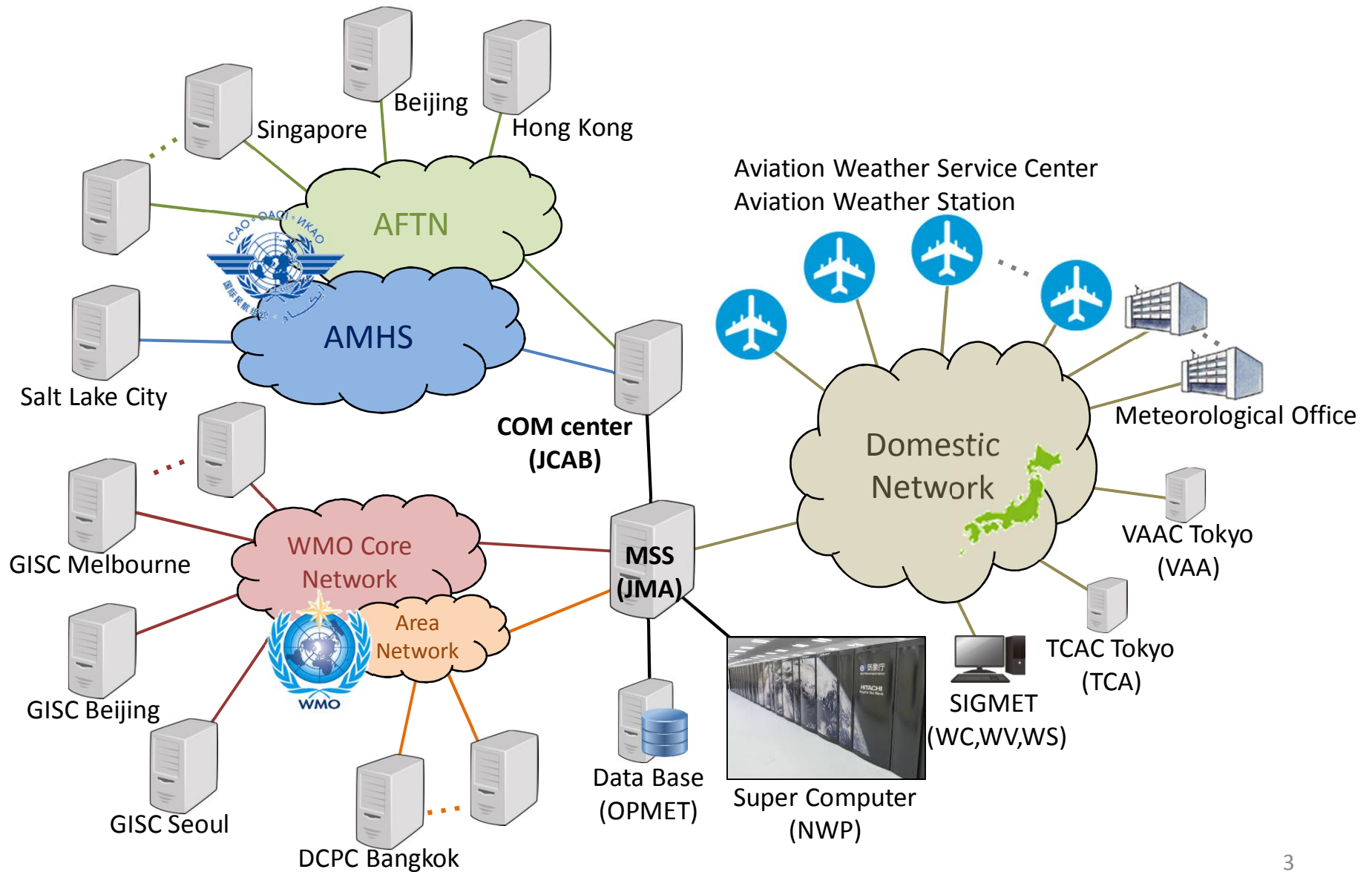
Japan Meteorological Agency

Function of RODB Tokyo

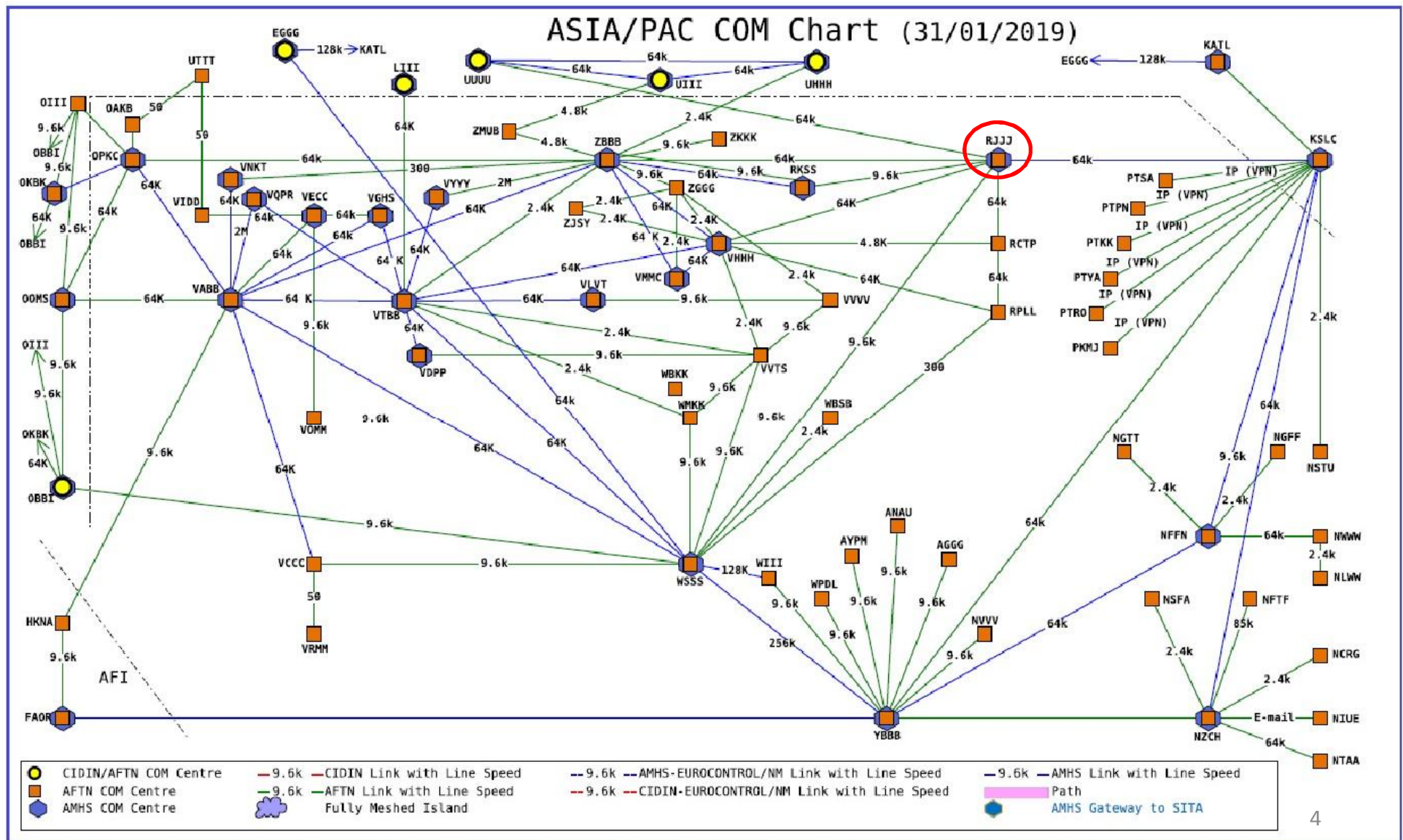
- OPMET Bulletin Exchange (ROBEX)
 - METAR/SPECI, TAF, SIGMET, VAA, TCA, AIREP(ARS)
 - IWXXM (in progress)
- OPMET data bank (RODB)
 - Request/Reply for OPMET
 - IWXXM (in progress)
- Inter-regional OPMET gateway (IROG)
 - ASIA/PAC \Leftrightarrow NAM (WAFC Washington)
- OPMET Monitoring
 - IWXXM validation and statistics (planning)
- SIGMET test



Networks and Systems in RODB Tokyo



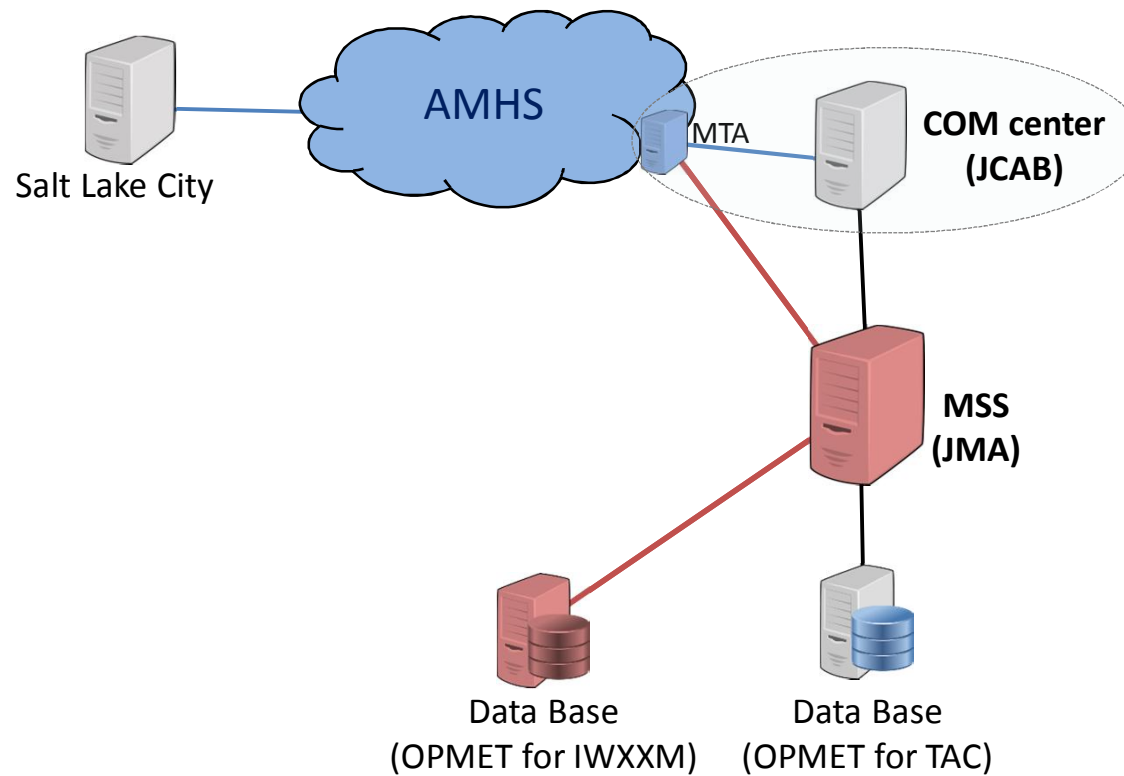
AFTN/AMHS Connection



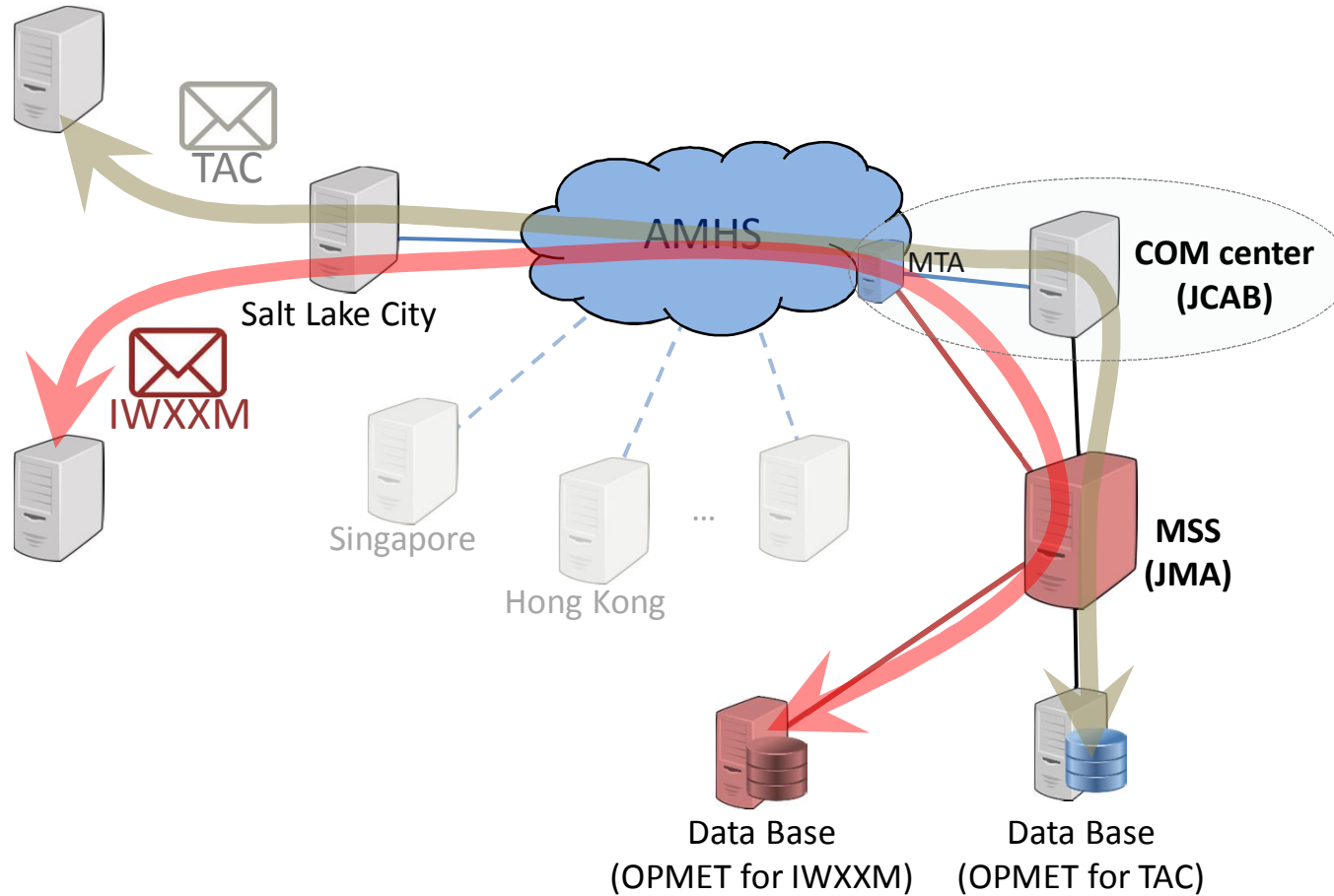
OPMET bulletin exchange for IWXXM

- METAR/SPECI, TAF, SIGMET, VAA, TCA will be disseminated in IWXXM version 3 by November 2020
- System upgrade will be completed by March 2020
 - METAR/SPECI - Observation Department
 - TAF and SIGMET - Forecast Department
 - VAA - VAAC Tokyo
 - TCA – TCAC Tokyo
- AMHS connection between JCAB (MTA) and JMA (UA) has been established and will be tested for IWXXM data exchange in 2019
- New AMHS address is to be allocated for IWXXM exchange and request/reply only

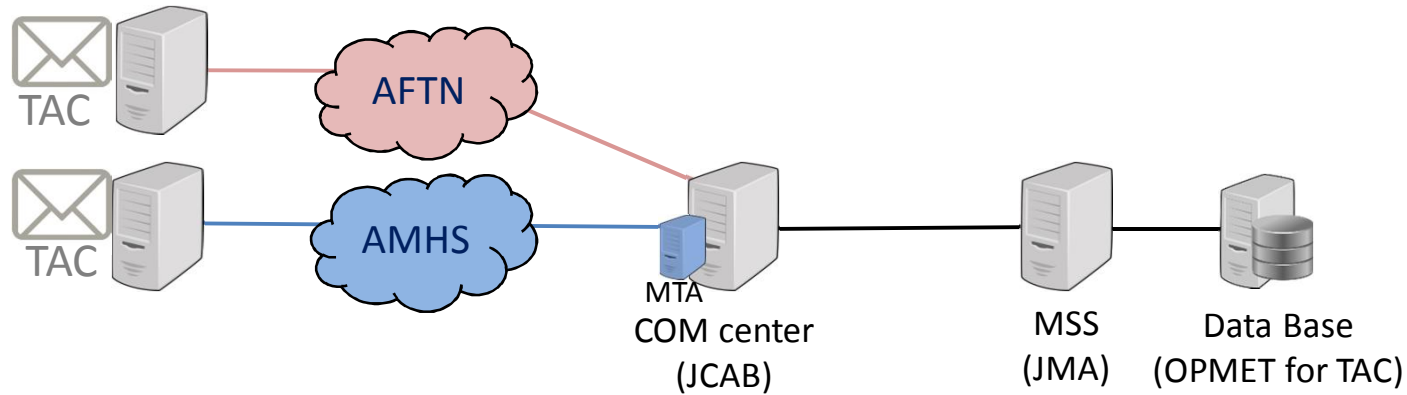
AMHS connection in Japan



AMHS connection in Japan



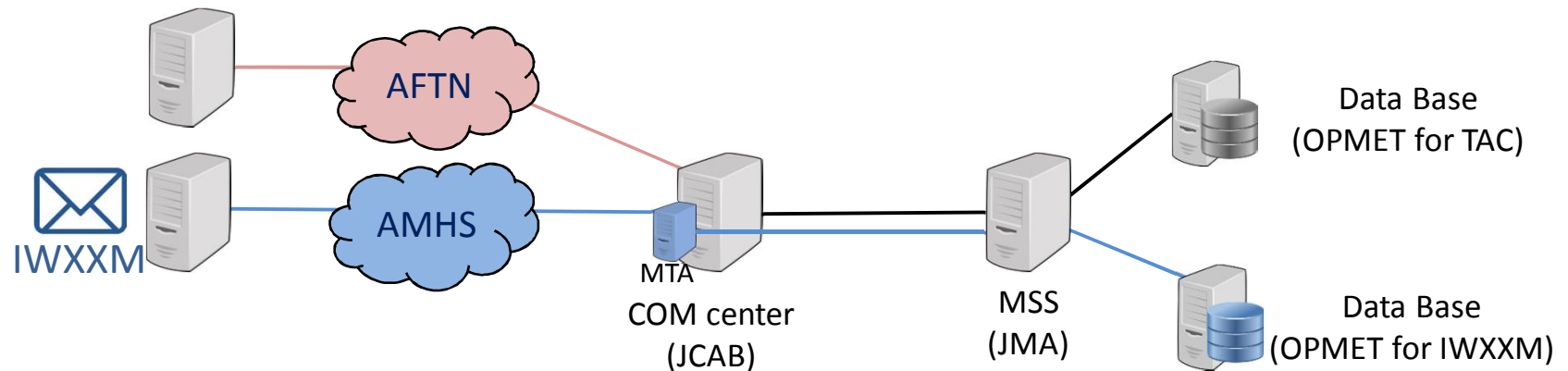
Transmission for TAC



AFTN address for TAC : RJTDYPYX

AMHS address for TAC : C=XX/A=ICAO/P=RJ/O=AFTN/OU1=RJTD/CN=RJTDYPYX

Transmission for IWXXM

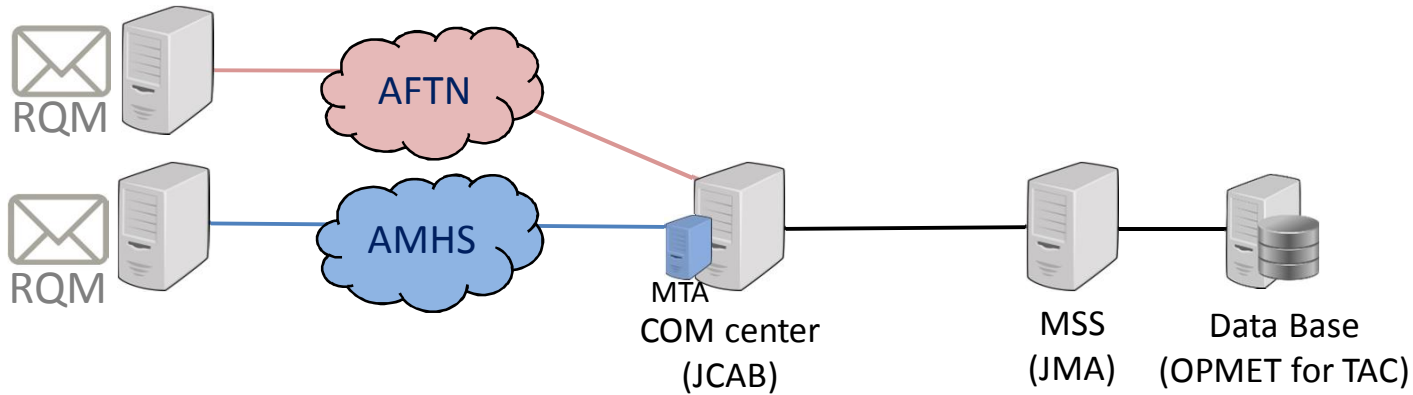


AMHS address for IWXXM : C=XX/A=ICAO/P=RJ/O=AFTN/OU1=RJTD/CN=RJTDYZYA

OPMET databank for IWXXM

- RODB Tokyo will install new database and request/reply function for IWXXM by March 2020
- Request/reply manner of IWXXM is based on the TAC procedure
- New AMHS address is to be allocated for IWXXM exchange and request/reply only

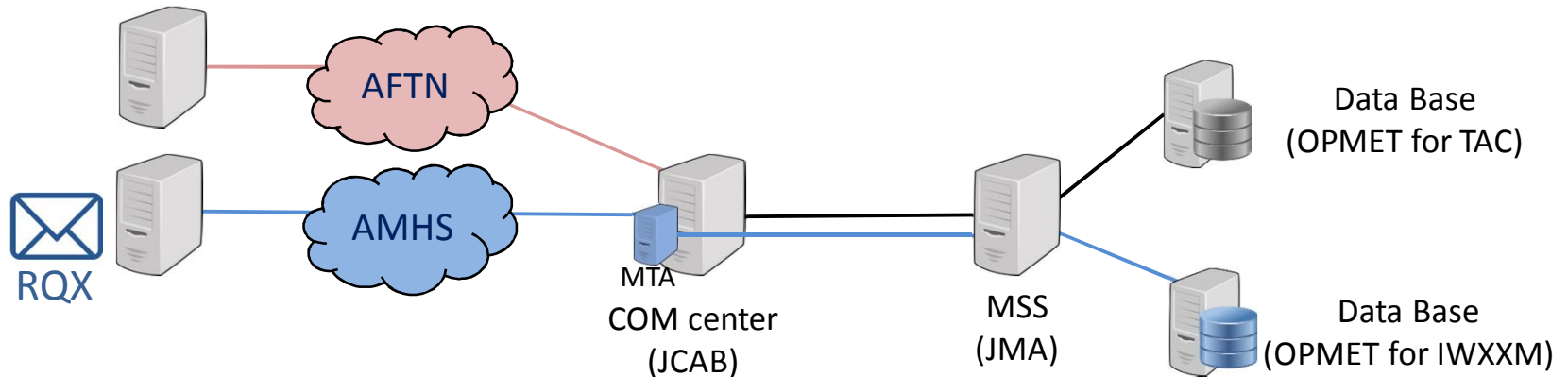
Request for TAC



AFTN address for TAC : RJTDZYX

AMHS address for TAC : C=XX/A=ICAO/P=RJ/O=AFTN/OU1=RJTD/CN=RJTDZYX

Request for IWXXM



AMHS address for IWXXM : C=XX/A=ICAO/P=RJ/O=AFTN/OU1=RJTD/CN=RJTDZYA

Request/reply for IWXXM

- IWXXM requests are required “RQX” instead of “RQM” in TAC requests
- IWXXM requests shall be sent via AMHS as Textual Body Part
- IWXXM replies will be sent as FTBP via AMHS

e.g.

TAC request:

RQM/SARJAA=

RQM/SAJP31=

RQM/SARJAA/FTRJGG=

RQM/FTRJAA,RJBB,RJGG,RJTT=

IWXXM request:

RQX/LARJAA=

RQX/LAJP31=

RQX/LARJAA/LTRJGG=

RQX/LTRJAA,RJBB,RJGG,RJTT=

IWXXM data volume

- IWXXM data volume can be estimated by reception and transmission of current METAR/SPECI, TAF and SIGMET bulletins in RODB Tokyo
- IWXXM data volume is estimated by examples of IWXXM version 1.0 on <https://schemas.wmo.int/>
- “gzip” is used as compression technique in this study

IWXXM data volume

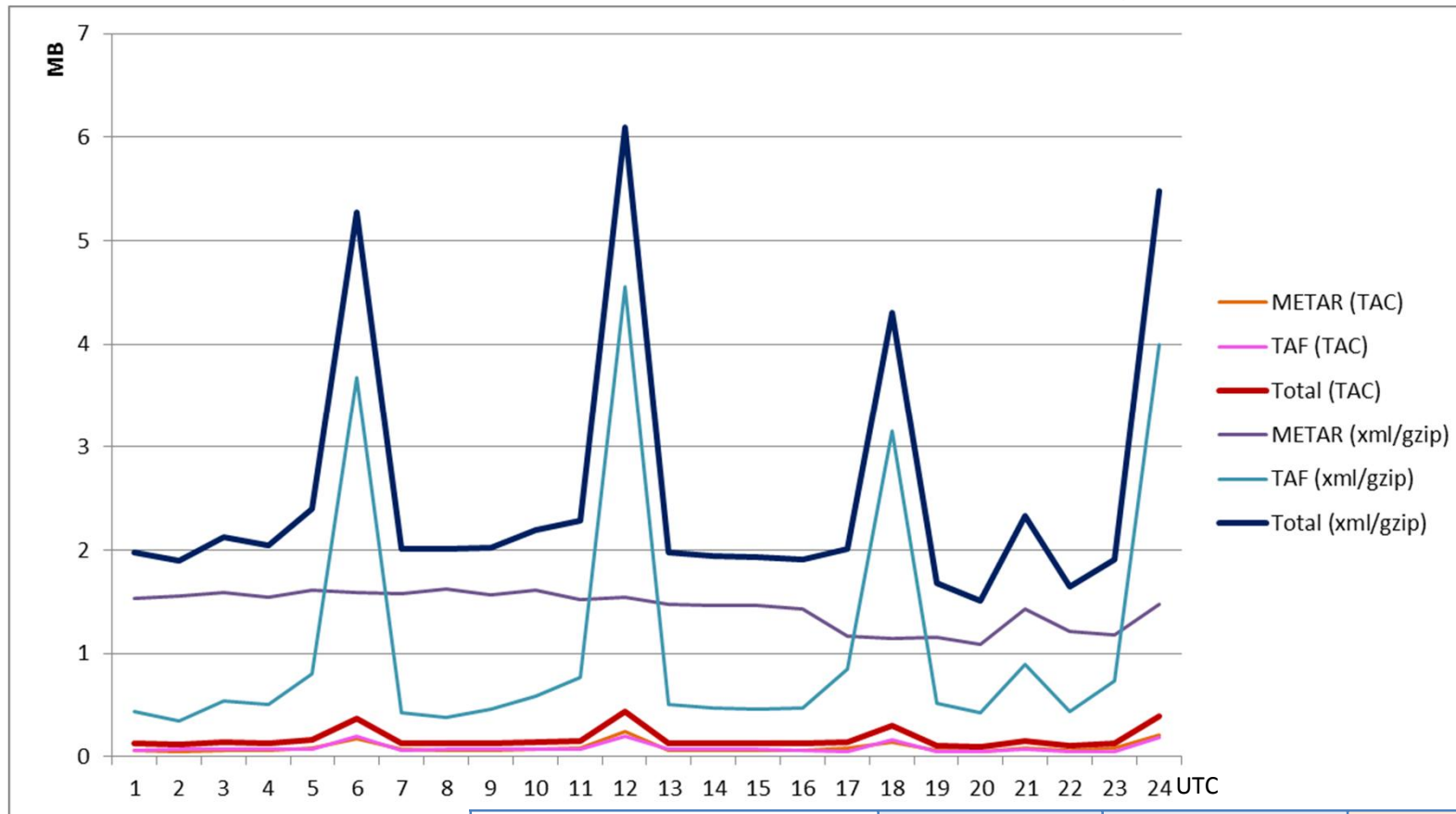
1. Single message volume

	TAC	xml	gzip
METAR sample	149	13,724	2,372
TAF sample	166	14,176	2,246
SIGMET sample	174	13,598	2,663
			(byte)

2. Comparison with TAC

	TAC→xml	TAC→gzip
METAR sample	92	16
TAF sample	85	14
SIGMET sample	78	15
		(times)

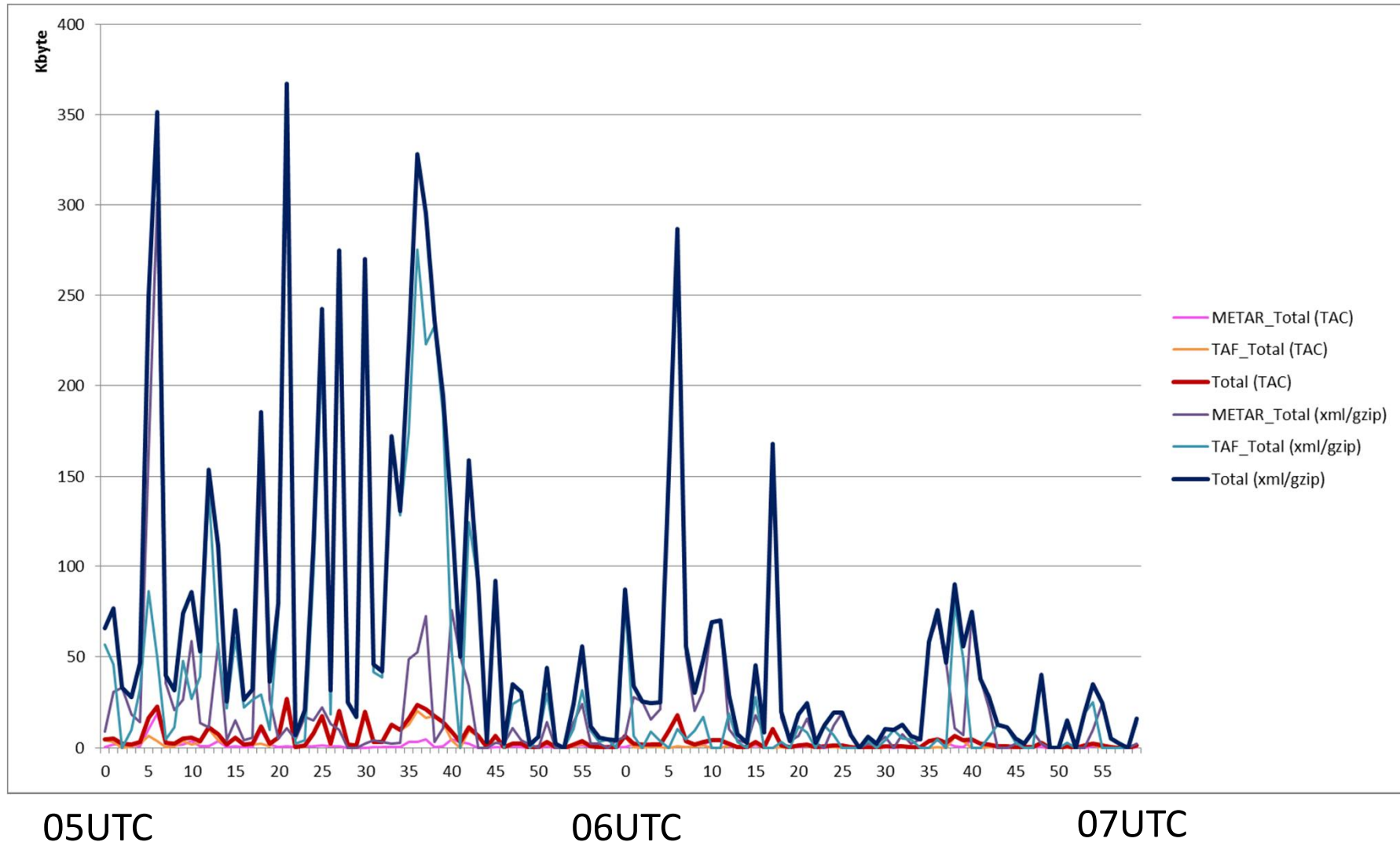
IWXXM data volume per hour



	TAC	xml	gzip
METAR	2.1	191.7	33.1
TAF	2.0	174.4	27.6
SIGMET, VAA, TCA	0.1	9.6	1.9
Total (24 hours)	4.2	375.8	62.7
			(Mbyte)

IWXXM data volume per minute

05UTC – 07UTC



Present issue

- **METAR** in Japan has an element (RVR variation) not compliant with ICAO Annex 3
- When RVR variation is reported, there is no mean value which is essential to IWXXM schema (ICAO Annex 3)
- It would require using IWXXM extension and a rule to translate RVR variation in TAC into RVR mean value in IWXXM but it means a distinct difference between TAC and IWXXM

RD_RD_R/V_RV_RV_RV_RV_RV_RV_RV_RV_Rⁱ – When the RVR at a runway varies significantly and when during the 10-minute period preceding the nominal observation time the one-minute mean extreme values assessed vary from the mean value by more than 50 metres or more than 20% of the mean value, whichever is greater, the one-minute mean minimum and the one-minute mean maximum values shall be given in that order in the form **RD_RD_R/V_RV_RV_RV_RV_RV_RV_RV_RV_Rⁱ** instead of the 10-minute mean. Extreme RVR values shall be reported in accordance with Regulation 15.7.5 and the tendency shall be indicated in accordance with Regulation 15.7.4.3.

e.g.

METAR RJFM 041200Z 06018KT 2000 **R27/0650VP1800U** +SHRA BR FEW003
SCT005 BKN007 24/24 Q1016=

Concern for operation

- IWXXM version upgrade
 - Amendment to ICAO Annex 3, every 2 years
 - Related systems should be upgraded
 - Operational rules will be required for migration to a new version
- IWXXM dissemination
 - IWXXM will be disseminated by ROBEX centers in the same way as ROBEX Handbook?
 - It may be difficult for ROBEX centers to identify whether all destinations are capable to receive IWXXM
- Status and perspective of capability of AMHS with FTBP in the APAC region
- Compression (gzip) shall be always required?

Thank you

