



ATFM/IR/SWG Meeting




CRACP OPERATION CONCEPT

Presented by NARAHG

28th -31th August 2018

As the rapid grows of flights in Northeast Asia Region China Japan and ROK start the cooperation in the framework of NARAHG








MEMORANDUM OF COOPERATION
between
CHINA
and
JAPAN
and
REPUBLIC OF KOREA
relating to the
**NORTHEAST-ASIA REGIONAL
AIR TRAFFIC FLOW MANAGEMENT (ATFM)
HARMONIZATION GROUP
(NARAHG)**

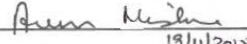
Witnessed by
**International Civil Aviation Organization
Asia and Pacific Office**

**China Japan and ROK signed the ATFM MOC
Witnessed By ICAO Asia and Pacific Office
On NARAHG/3**

Article VII - Confidentiality
All agreements for confidentiality of data sharing remain valid.

In witness whereof, the undersigned Parties have proceeded to sign this MOC accordingly.

		
Mr. Zhan Jianming Director (Air Traffic Control) Air Traffic Management Bureau Civil Aviation Authority of China	Mr. Takeshi Imagome Director (Air Traffic Control) Japan Civil Aviation Bureau	Mr. Jung Eui-hun Director (Air Traffic Management) Korea Office of Civil Aviation

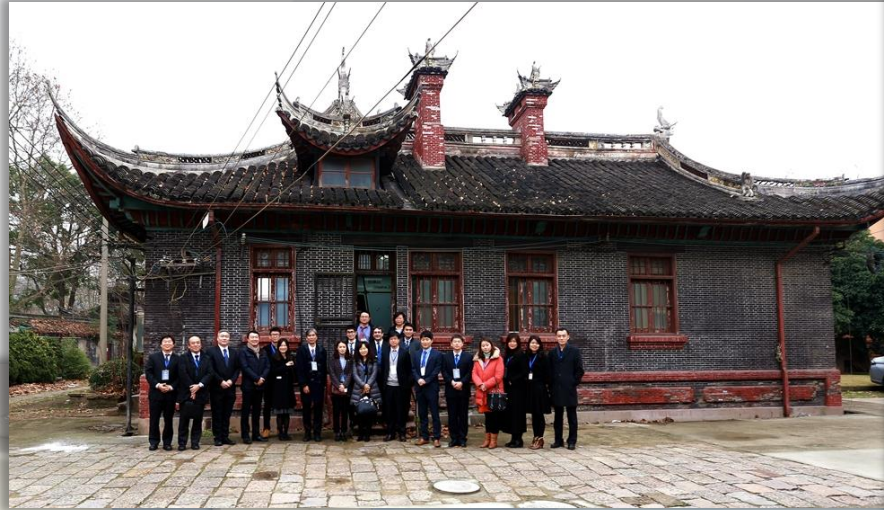
Witnessed by:

Mr. Arun Mishra
Regional Director, Asia and Pacific Office
International Civil Aviation Organization

CRACP → Cross Region ATFM Collaborative Platform



First mentioned on NARAHG/3 in 2015 by China

CRACP HITL TEST in 2017



China Japan and ROK joint made human in the loop test for cross region operation during NARAHG/5

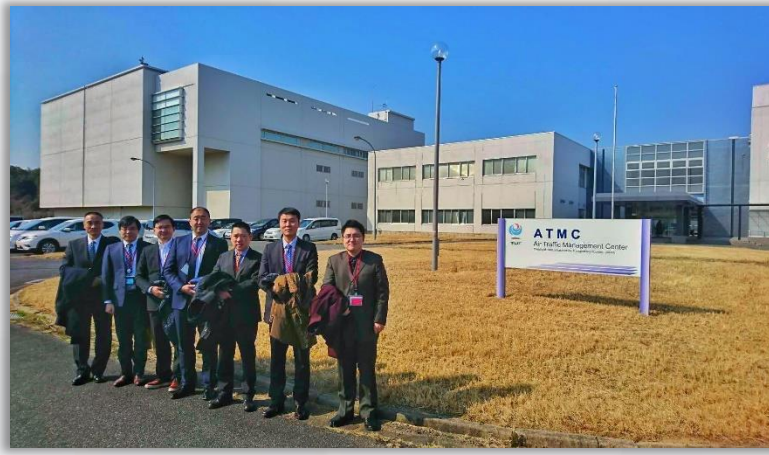
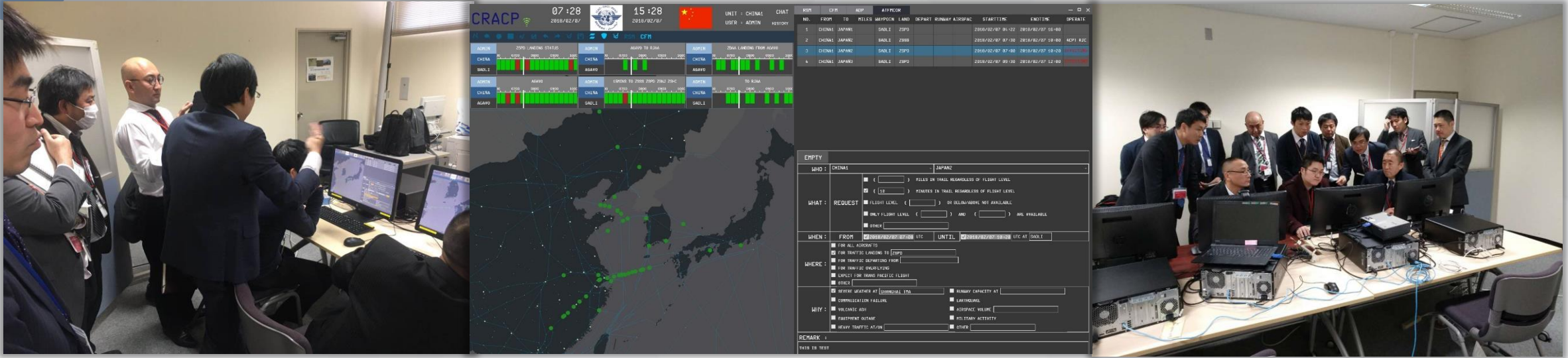
The 5th meeting of Northeast Asia Region ATFM Harmonization Group

2017/01/18 SHANGHAI, CHINA



CRACP project approved by China Japan and ROK after NARAHG/5

Shanghai ATCC and Fukuoka ATMC CRACP test



China and Japan start CRACP stage 1 via internet in 7th February 2018

NARAHG/6 MEETING



NARAHG/6 MEETING, SEOUL, ROK



ROK setup CRACP clients in Daegu ATCC after NARAHG/6 meeting in April 2018

The concept of CRACP can be referred to as

Share

the cross region flights 24 hours via secure link by same ICD

All ATFM units

Evaluate

the situation by these data in their own systems

Related ATFM units carry out same

Action

after agreed by all states

All operation units jointly conduct regular and irregular

Learning

by POA

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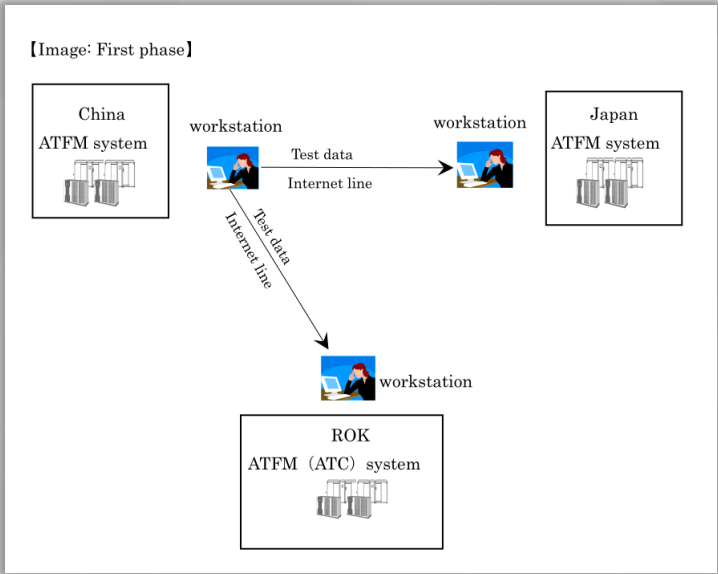
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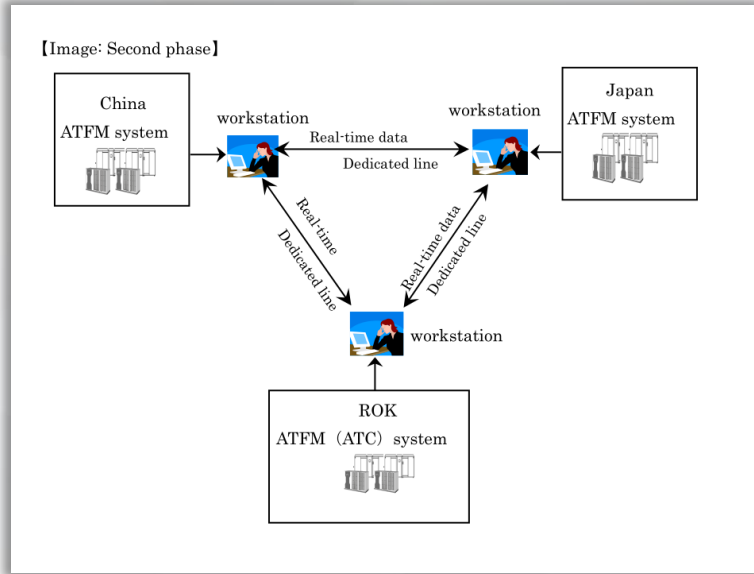
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Project plan for CRACP by China Japan and ROK

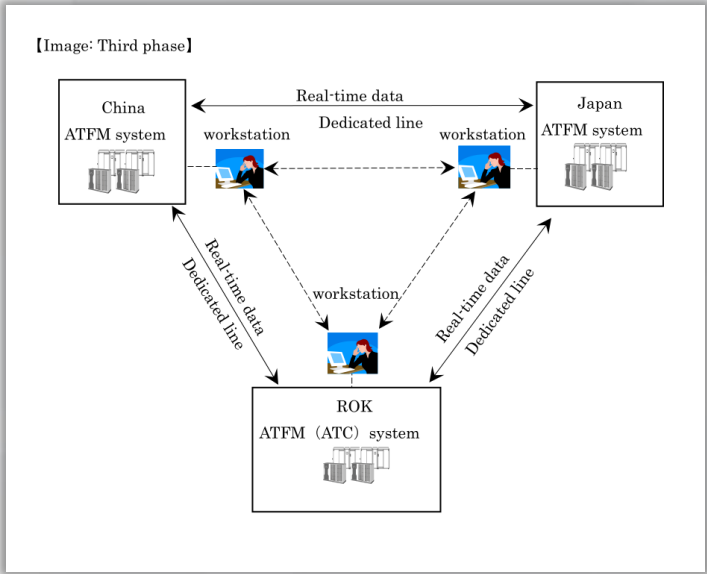
Stage 1



Stage 2



Stage 3



2018

2020

To be determined

SWIM

- Internet
- Laboratory
- Simulation
- Client

- Security Line
- ATFM Unit
- Real Operation (portion)
- Client

- Security Line
- ATFM Unit
- Real Operation
- ATFM SYSTEM

ADP exchange

The ADP information will be shared in a timely matter

According to the ADP information, ATFM units start coordinating as required

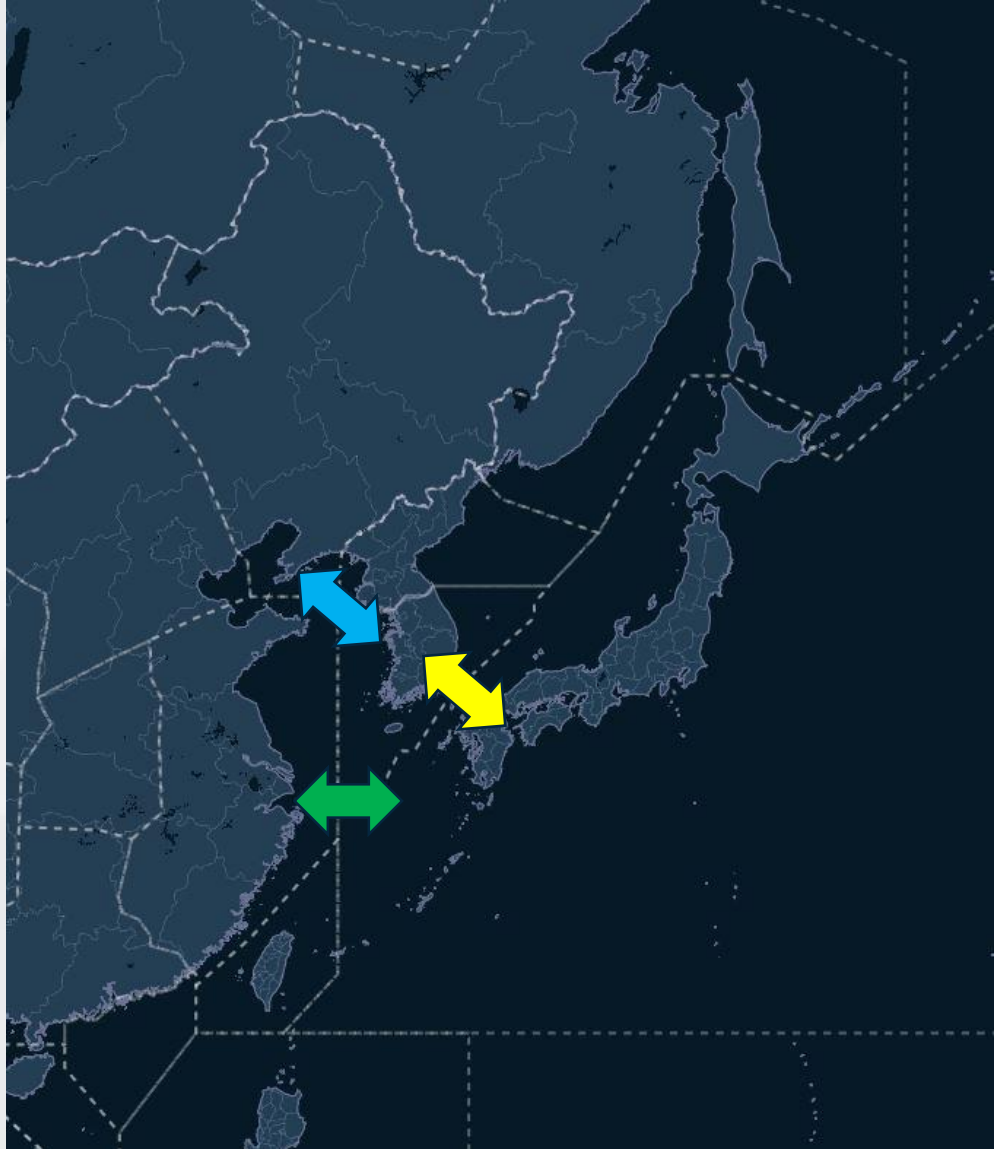
ATM DAILY PLAN		NAME OF ATFM UNIT	[UTC DATE] [START TIME]	[UTC DATE] [END TIME]
		SHANGHAI	<input checked="" type="checkbox"/> 2018/02/07 07:30	<input checked="" type="checkbox"/> 2018/02/07 18:30
CAPACITY AND CONSTRAINTS				
LOCATION (AD OR SECT)	APPLICABLE PERIOD	AAR* (LANDINGS PER HOUR)	CONSTRAINT/REMARK	
ZSPD	0730-1830	35	WX	
ATFM MEASURES (ONGOING)				
LOCATION (AD OR SECT)	APPLICABLE PERIOD	MEASURE/REMARK		
ZSPD	0730-1830	FL310 OR BELOW		
POSSIBLE/DEVELOPING ISSUES				
LOCATION (AD OR SECT)	APPLICABLE PERIOD	MEASURE/REMARK		

Airport/Airway/Sector Capacity
In next few hours

ATFM Measures
On going Now

ATFM Measures
Possible Implementation

ADP exchange



Da Lian ACC & Daego ATMO
(To be shared with Shanghai ATFMD and ATMC)

Daego ATMO & Fukuoka ATMC
(To be shared with Shanghai ATFMD and Dalian ACC)

Shanghai ATFMD & Fukuoka ATMC
(To be shared with ATMO and Dalian ACC)

CRACP Message Lists

Final version will be confirmed by all states in August 2018

Information exchange to make prediction higher accuracy

CTG	Cross Boundary Time Message on Ground
CTA	Cross Boundary Time Message in the Air
FPM	Flight Position Message

Negotiation about ATFM Measures based on high accuracy prediction

ADP	ATFM Daily Plan
TFC	Tactical Flow Coordination Message
TFR	Tactical Flow Coordination Reply Message
TFM	Tactical Flow Management Message
PTV	Predict Traffic Volume Message

Flow Management cooperated with multiple facilities

ACT	Assigned Coordination Time Request Message
ACR	Assigned Coordination Time Reply Message
ACC	Assigned Coordination Time Cancel Message

Others

FTM	Free Text Message
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Terminology of Milestones

Agreed by NARAHG & Multi-Node ATFM/SG/7 in May 2017

EOBT	Estimate Off Block Time (from FPL/DLA)	0110
COBT	Calculated Off Block Time (from ATFM system)	0110
AOBT	Actual Off Block Time (from ATC/ATFM/AO system)	0110
ETOT	Estimated take-off time (from ATFM system)	0110
CTOT	Calculated take-off time (from ATFM system)	0130
ATOT	Actual take-off time (from DEP Message)	0100
CLDT	Calculated landing time (from ATFM system)	0110
ELDT	Estimated landing time (from ATFM system)	0110
ALDT	Actual landing time (from ARR Message)	0350
ETO	Estimated time over from ATC system (Fix + Time)	SADLI 0132
CTO	Calculated time over from ATFM system (Fix + Time)	SADLI 0130
ATO	Actual Time Over (Fix + Time)	SADLI 0133

Operation Procedure

Every states' ATFM system share and update the information(e.g. ADP, Flight information and so on) to others

According to the ATFM system in each states, monitoring when the capacity is to excess foreseen

ATFM unit start to simulate ATFM measures(e.g. MIT MINIT)and share the result to relate ATFM units

Coordinate ATFM measures by CRACP function with related ATFM unites

After all relate ATFM units agree, implement ATFM measures and utilize ACTO if necessary.

When utilizing ACTO by ATFM method, Relate ATFM systems calculate the CTOT or ACTO time to the flights in or out of own FIR

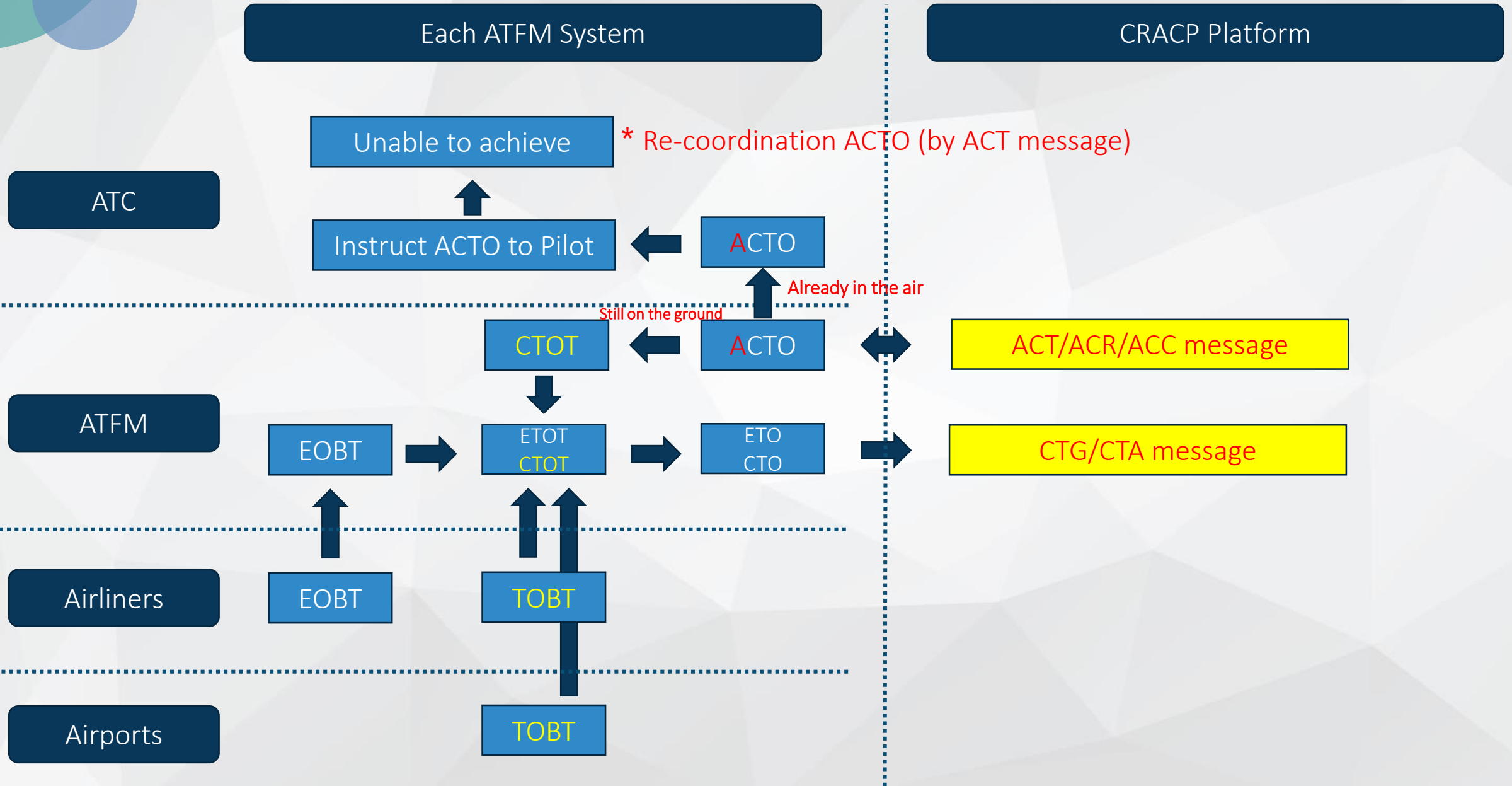
ATC or ATFM system can display the ACTO time for defined flight

Controller or ATFM staff tell the pilots to fly over the boundary Fix as ACTO

Controller or ATFM can input **new ACTO** to system in case of the Pilot can not follow the instruction by ACTO

The system will display the **new ACTO** in CRACP to let ATFM unit set new strategies

ETO & CTO





Thank You