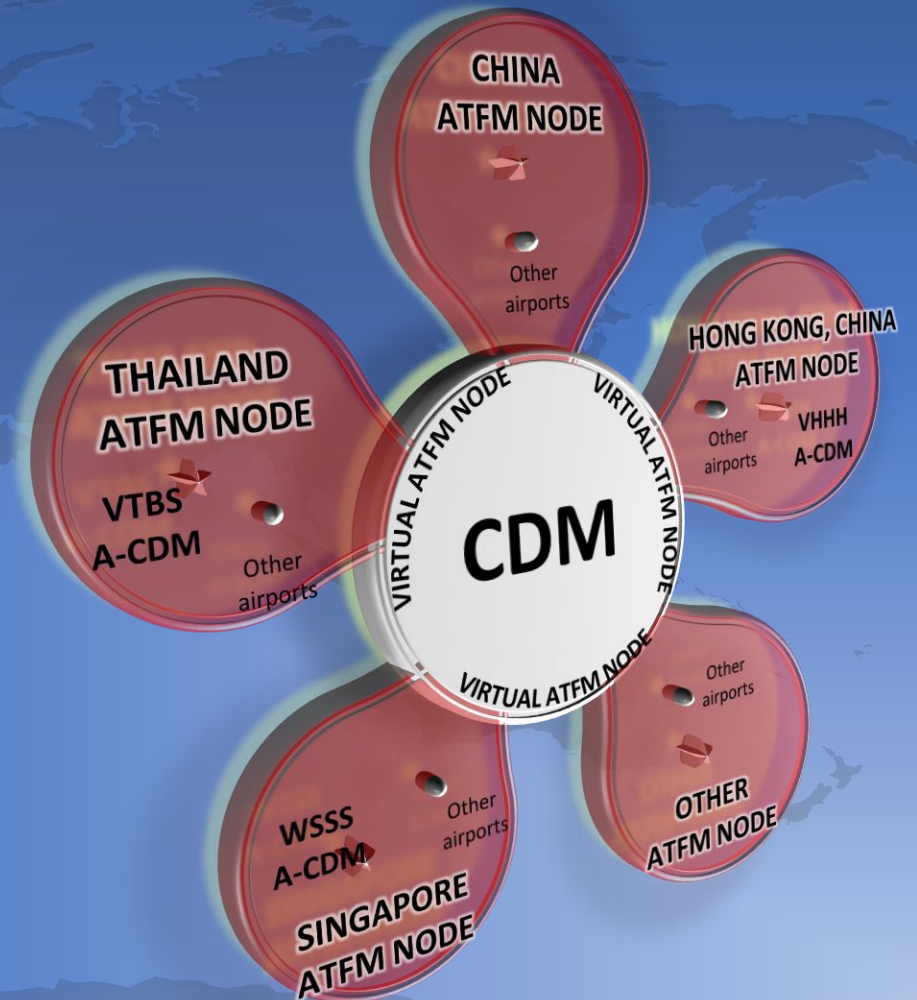
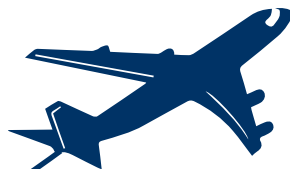


APAC Cross-Border Multi-Nodal ATFM Collaboration (AMNAC) *Progress Update*

ATFM/SG/14
22 – 26 April 2024



Where We Are



>1,500

**Rounds of distributed
ATFM measures**

21

Project meetings

12

**ANSPs participating in the project
(+ CANSO & IATA Support)**

9

**Years since the start of
the implementation
(2015 – Today)**



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Where We Are

Tiered Level	Capabilities & Members
Level 3	<ul style="list-style-type: none">▪ Able to generate, deliver, and receive CTOTs;▪ Able to comply with CTOTs from all Level-3 ATFM Nodes <p><i>Current members:</i></p> <ul style="list-style-type: none">▪ Cambodia, China, Hong Kong China, Republic of Korea, Singapore, Thailand
Level 2	<ul style="list-style-type: none">▪ Able to comply with CTOTs from all Level-3 ATFM Nodes <p><i>Current members:</i></p> <ul style="list-style-type: none">▪ Indonesia, Malaysia, Myanmar, the Philippines, Viet Nam
Level 1	<ul style="list-style-type: none">▪ Observe and participate in the project progress <p><i>Current members:</i></p> <ul style="list-style-type: none">▪ Lao PDR

+ Participation from Japan as trial partner, and India as invited observers



Topics to be Covered

Expansion of the AMNAC Network



Network Post-Ops Analysis



Common Operating Procedure



CDM Enhancement



Conflicting CTOT Exploration



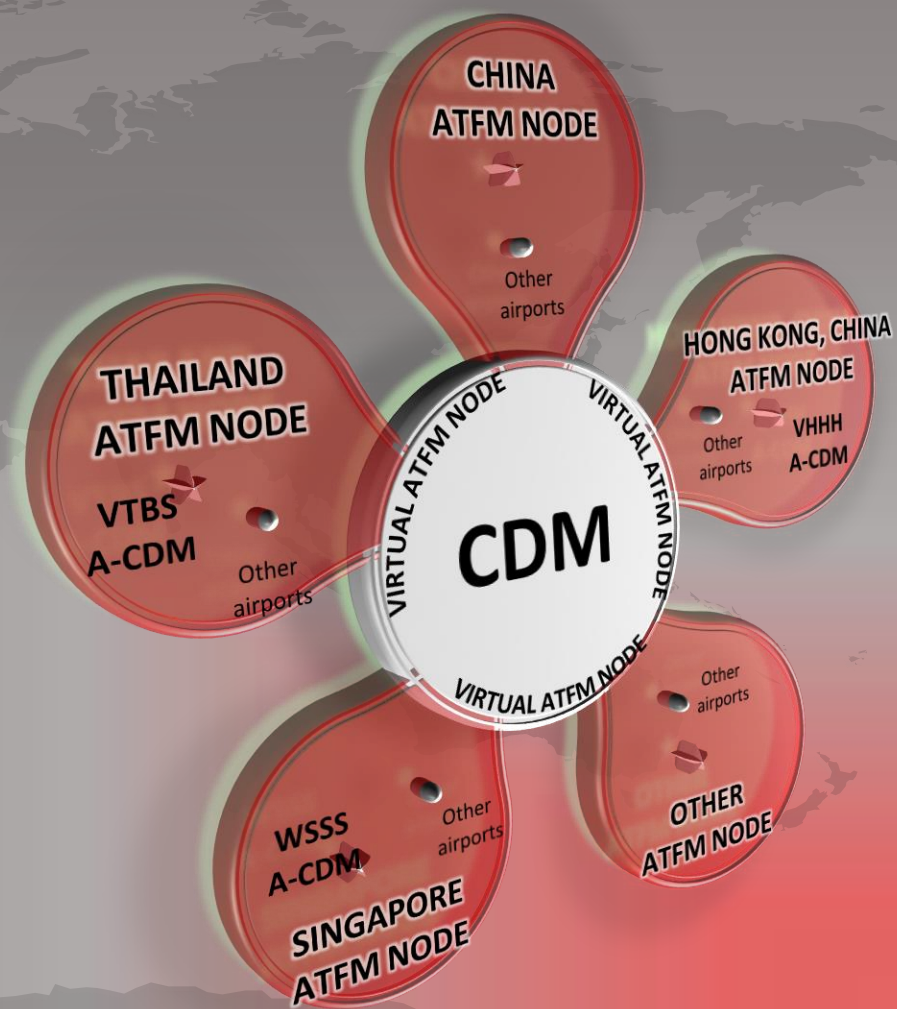
Technical Update



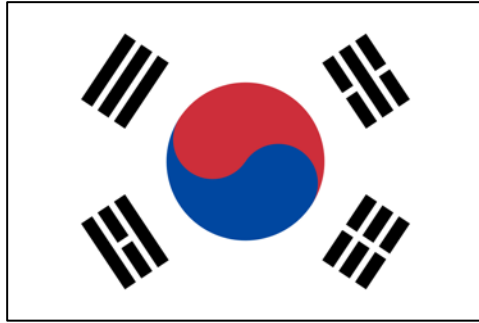
DISTRIBUTED MULTI-NODAL ATFM NETWORK



Expansion of the AMNAC Network



Welcoming New AMNAC Member and Collaboration Partner



Welcome **Republic of Korea** as
Level-3 ATFM Node
1 January 2024 onward

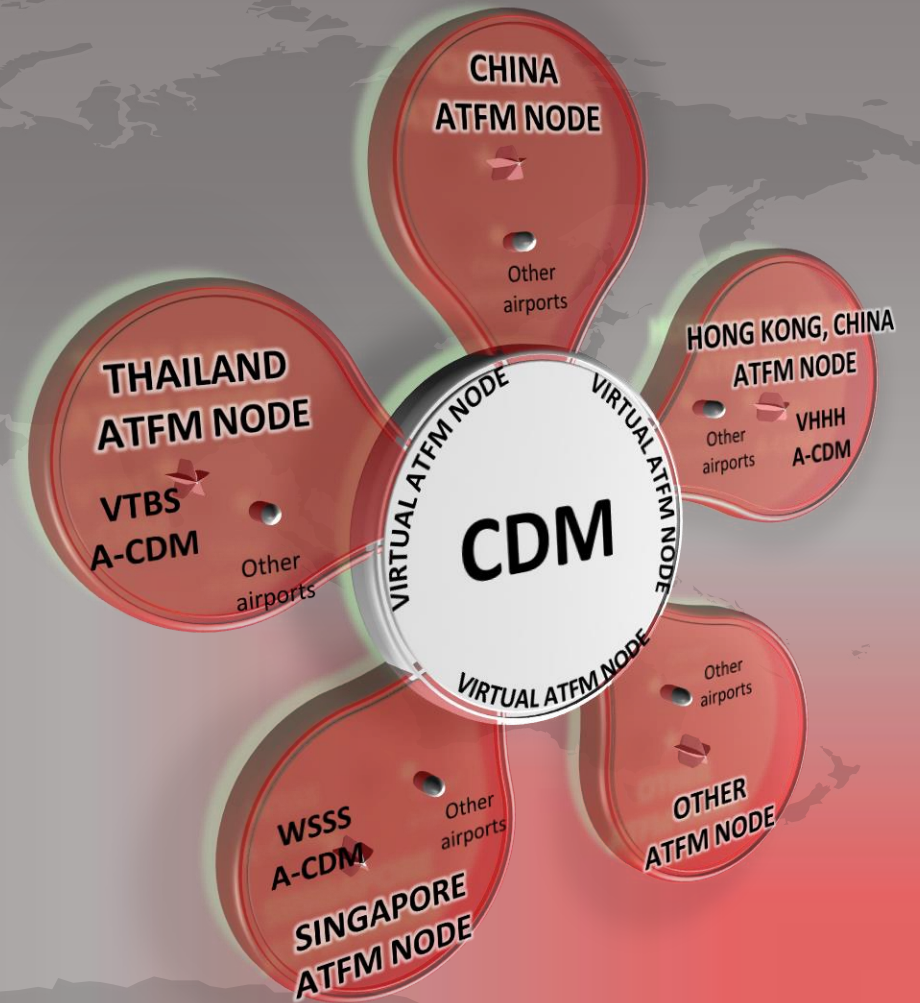
Inclusion of **India** in the ADP
exchange process
Announced at AMNAC/20



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Network Post-Operations Analysis



Network Post-Ops Analysis

Interactive Dashboard

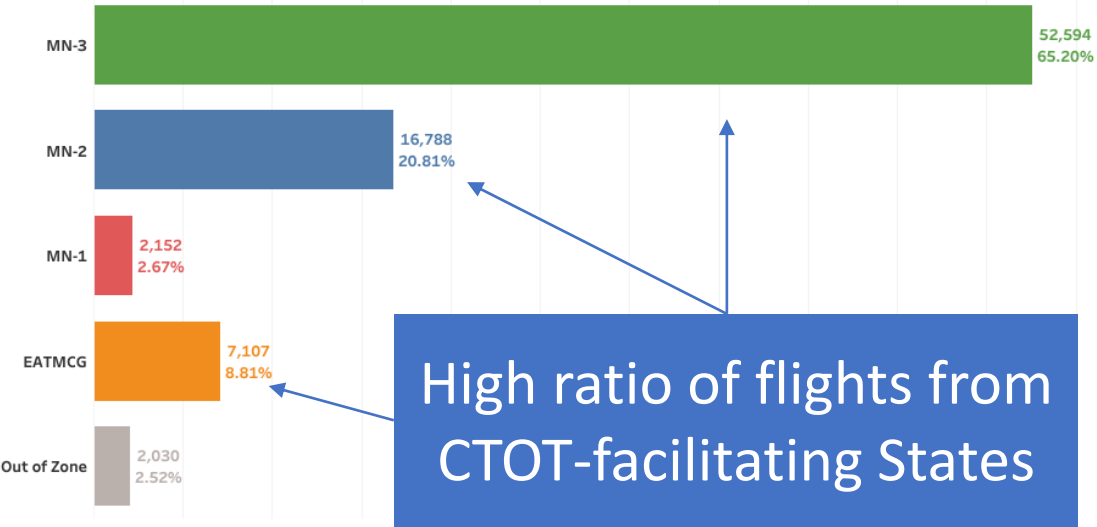
<https://bit.ly/amnac-poa>

Network Impact (Click on an initiating ATFMU in the table to see breakdown in the bar graphs)

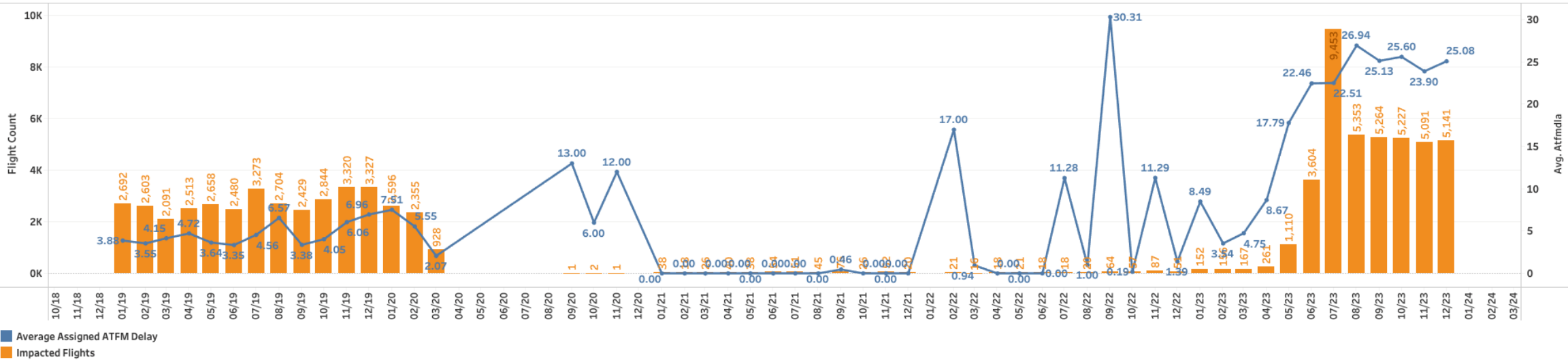
Year (All)

	Bangkok	Hong Kong	Phnom Penh	Sanya	Singapore
Impacted Flights	10,634	962	954	66,046	2,075
# of ATFM Days	749	47	47	697	58
Total Assigned ATFM Delay	77,496	3,439	4,830	1,046,114	39,460
Average Assigned ATFM Delay	7.29	3.57	5.06	15.84	19.02

Flight Count by ADEP Levels (Initiating ATFMU: All)



Flight Count & Average ATFM Delay (Initiating ATFMU: All)



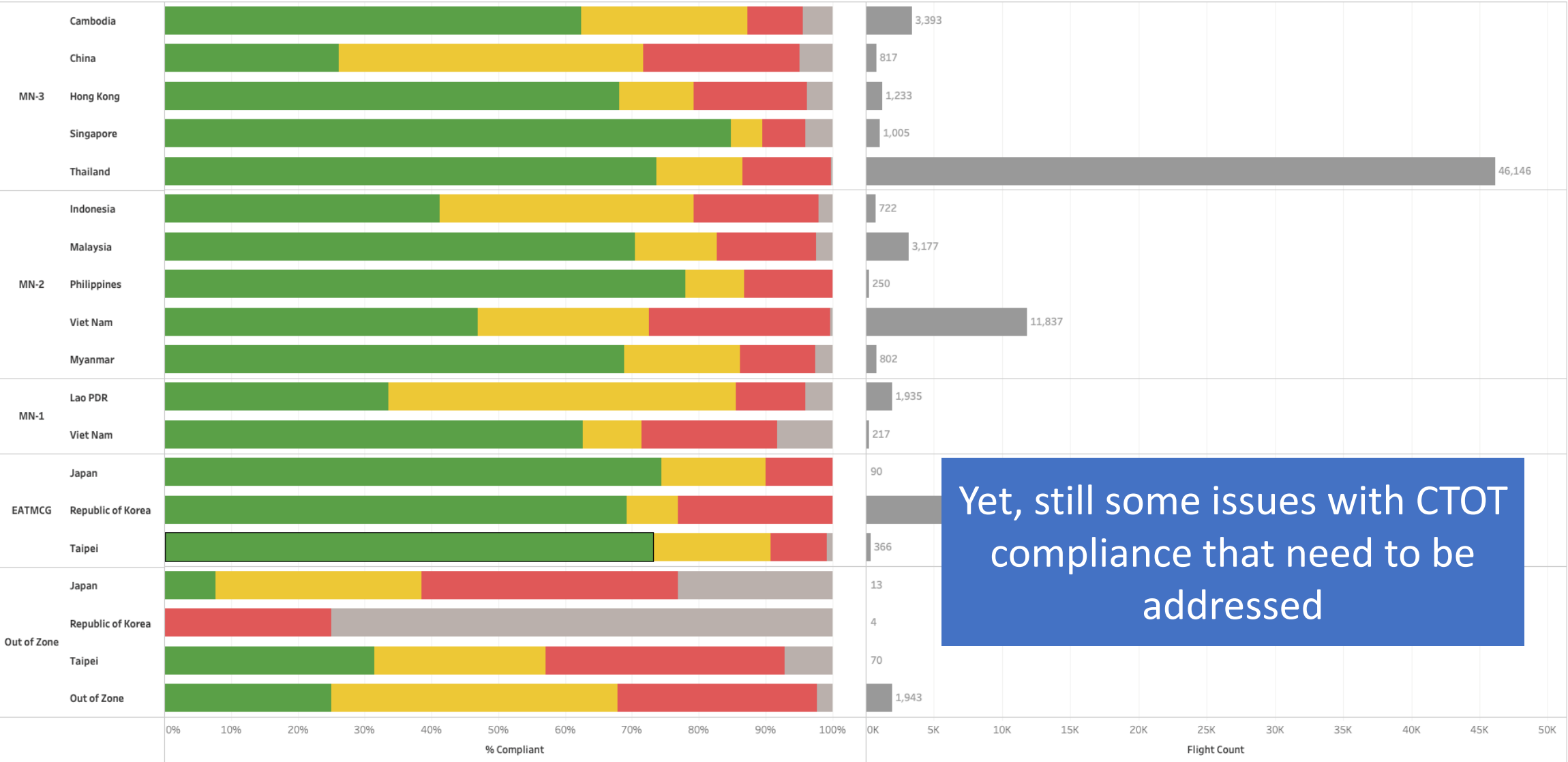
Network Post-Ops Analysis

Network CTOT Compliance

Year

(All)

Compliance by ATFM Node (with Total Flights)



Yet, still some issues with CTOT compliance that need to be addressed

Compliant

Early

Late

No Info



Overcoming CTOT Non-Compliance Issues

Out-of-Date Points of Contact

POC list updated to include both H24 operational and project POCs

Late CTOT Delivery

Level-3 nodes encouraged to anticipate disruptions and implement the measures in advance

Late FPL Submission/Distribution

AMNAC members & airspace users requested to review FPL submission and distribution procedures

Lack of CTOT Facilitation

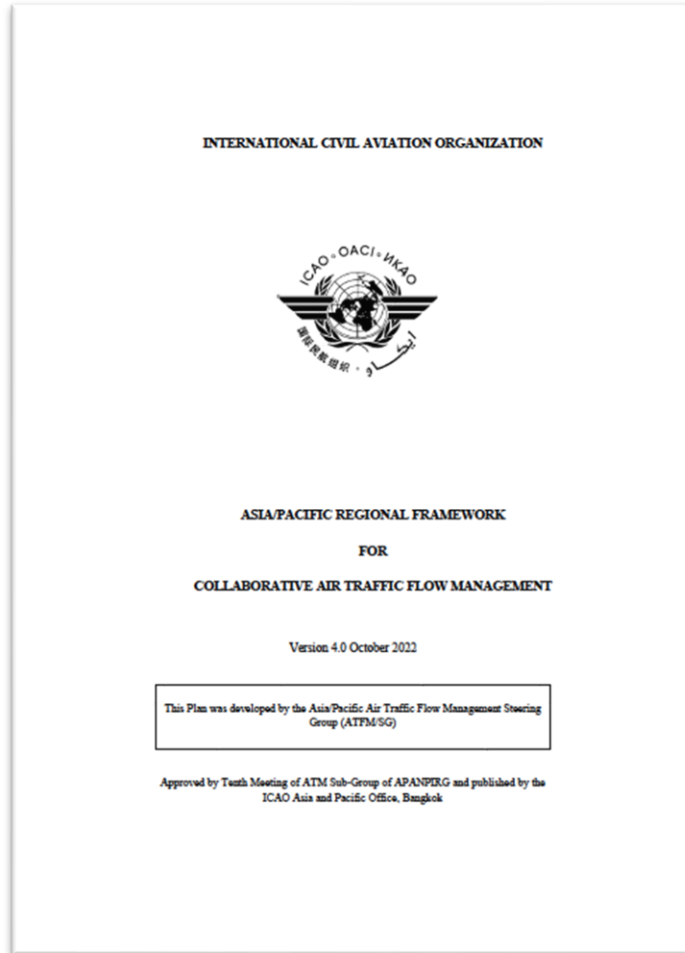
AMNAC members encouraged to report ATFM progress and challenges regularly



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Reminder: the **Regional ATFM Framework**



7.20 *Requirements should be published [...] except where necessary for operational and technical reasons, **FPL should be submitted not less than 3 hours prior to EOBT.***

7.32 *All States should ensure that **local ATC procedures** and, where available, **CDM processes facilitating compliance with received CTOT** are implemented.*

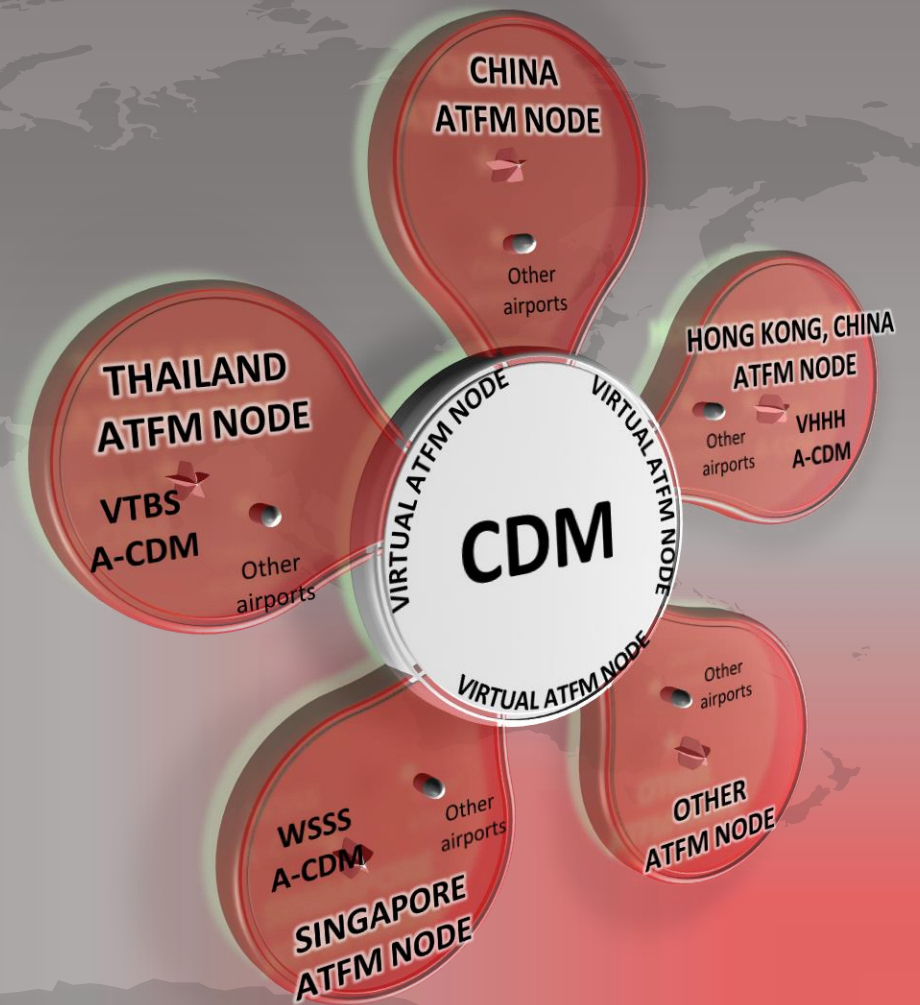
(Regional ATFM Capability Phase IB – 2017)



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Updated Common Operating Procedure

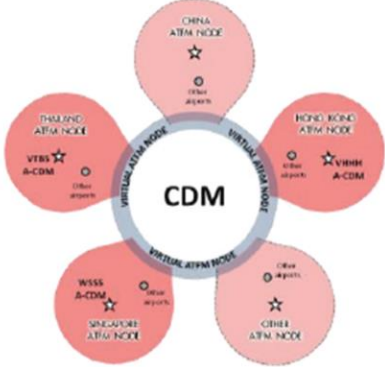


COP v5.4

- Revision to the following procedures:
 - ADP publication procedure
 - CTOT dissemination
 - APAC Bi-Weekly ATFM Web Conference
- Updated Points of Contact (POCs)
- Updated Standard Taxi-out Times (STTs)

*Contact AMNAC Core Team
for a copy if desired*

v5.4
Effective: 13 February 2024



***COMMON OPERATING PROCEDURE
ASIA-PACIFIC CROSS-BORDER
MULTI-NODAL ATFM COLLABORATION
(AMNAC COP)***

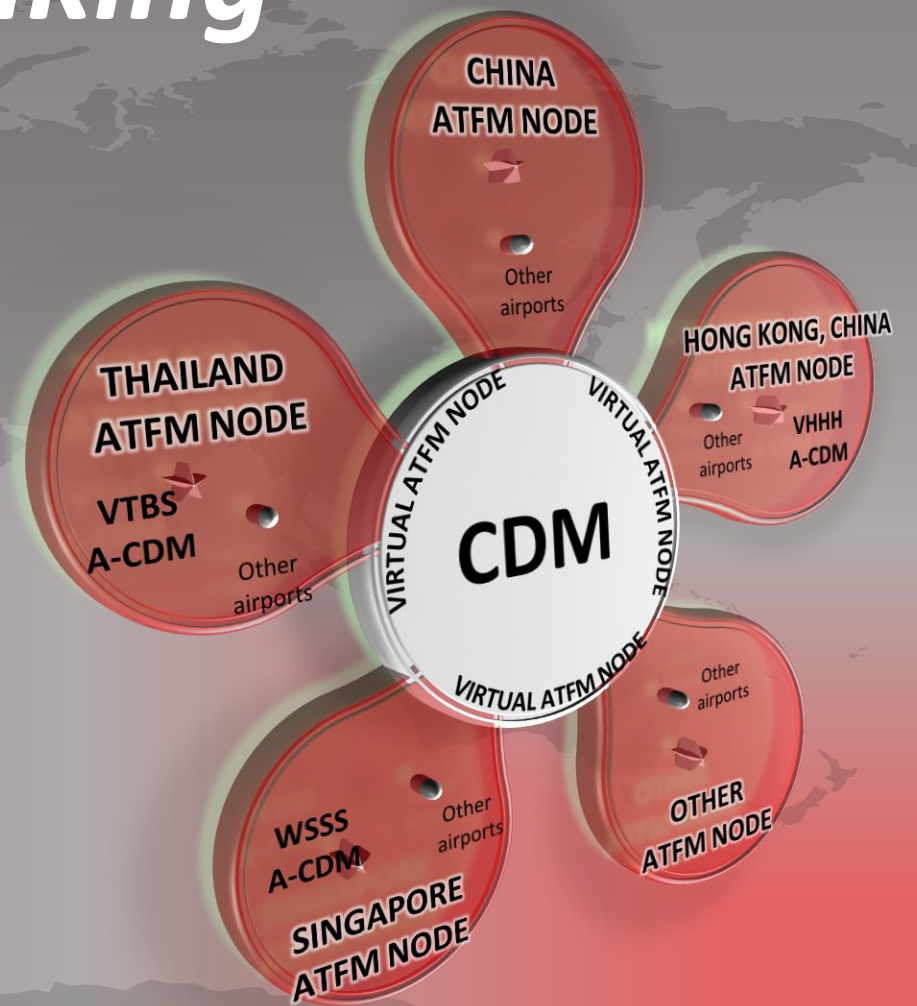
This document provides an essential framework, details of procedure, rules, and requirements applicable for cross-border Air Traffic Flow Management (ATFM) operations under the Asia-Pacific Cross-Border Multi-Nodal ATFM Collaboration (AMNAC)



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Collaborative Decision Making (CDM) Enhancement



APAC Bi-Weekly ATFM Web Conference

Current Procedure – Effective since 7 December 2023

- When: Every alternate Thursday at 0800 UTC
- How: Online platform hosted rotationally by AEROTHAI, CAAS, HKCAD
- Submit Updated ATM/ATFM Status at <https://bit.ly/apac-biweekly-form>
- View Consolidated Status at <https://bit.ly/apac-biweekly-report>

The use of ICAO APAC's ATM/ATFM Status Update webpage has been discontinued



DISTRIBUTED MULTI-NODAL ATFM NETWORK



APAC Bi-Weekly ATFM Web Conference

Current Procedure – Effective since 7 December 2019

- When: Every Other Thursday at 0800 UTC
- How: Online platform hosted by ICAO
- Submit: [ATFM Status Update biweekly-form](#)
- View: [ATFM Status Update biweekly-report](#)

The use of the [ATFM Status Update webpage](#) has been mandated

**But this will change soon...
More details in another WP**



DISTRIBUTED MULTI-NODAL ATFM NETWORK



CADENCE OIS Exploration

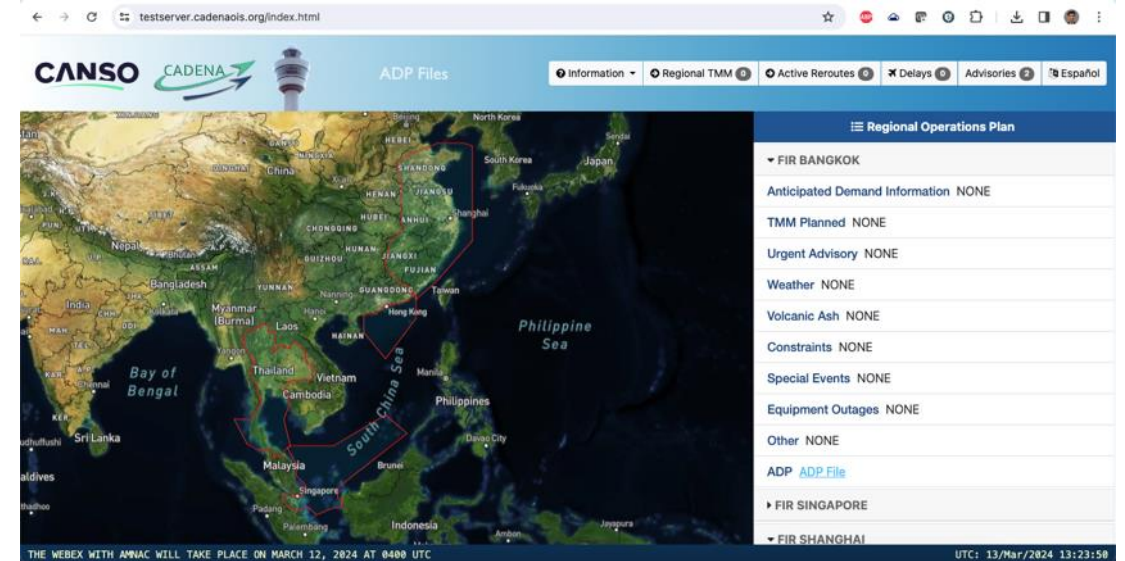


CANSO Aviation Data Exchange Network for Cooperative Excellence (CADENCE) OIS

- Provided free-of-charge by CANSO in collaboration with CGH Technologies, based on successful use in LATAM region ([CADENA](#))

Possible Use Cases

- ✓ Document Repository (for AMNAC/APAC)
- ✓ Information Broadcast (for AMNAC/APAC)
- ✓ ATFM Daily Plan (ADP) Exchange (for AMNAC/APAC)
- ✓ Regional Situation Overview (for APAC)
- ✓ Contingency Coordination (for APAC)

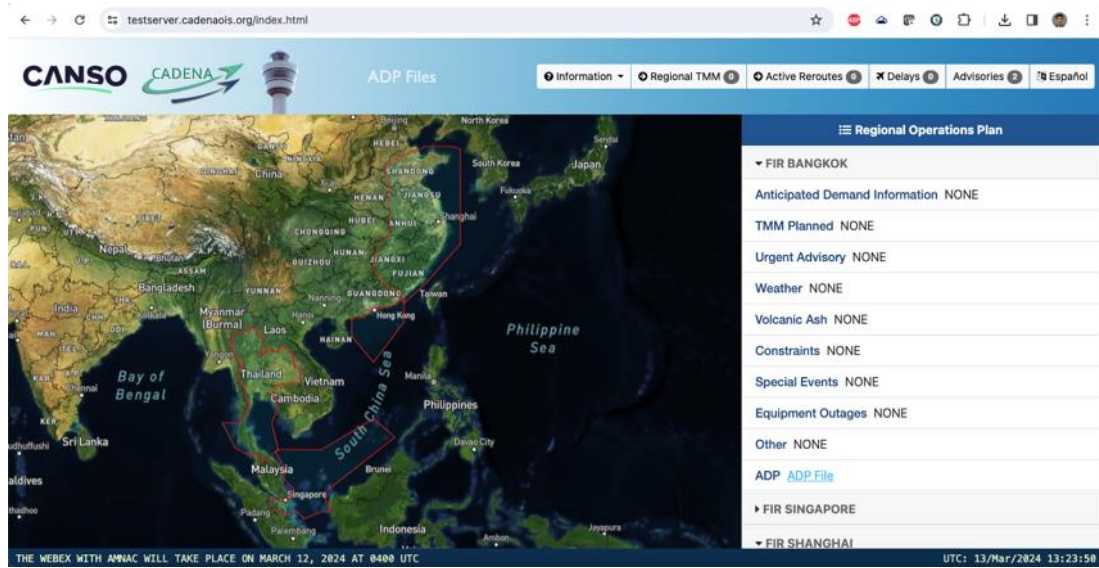


DISTRIBUTED MULTI-NODAL ATFM NETWORK



CADENCE OIS Exploration

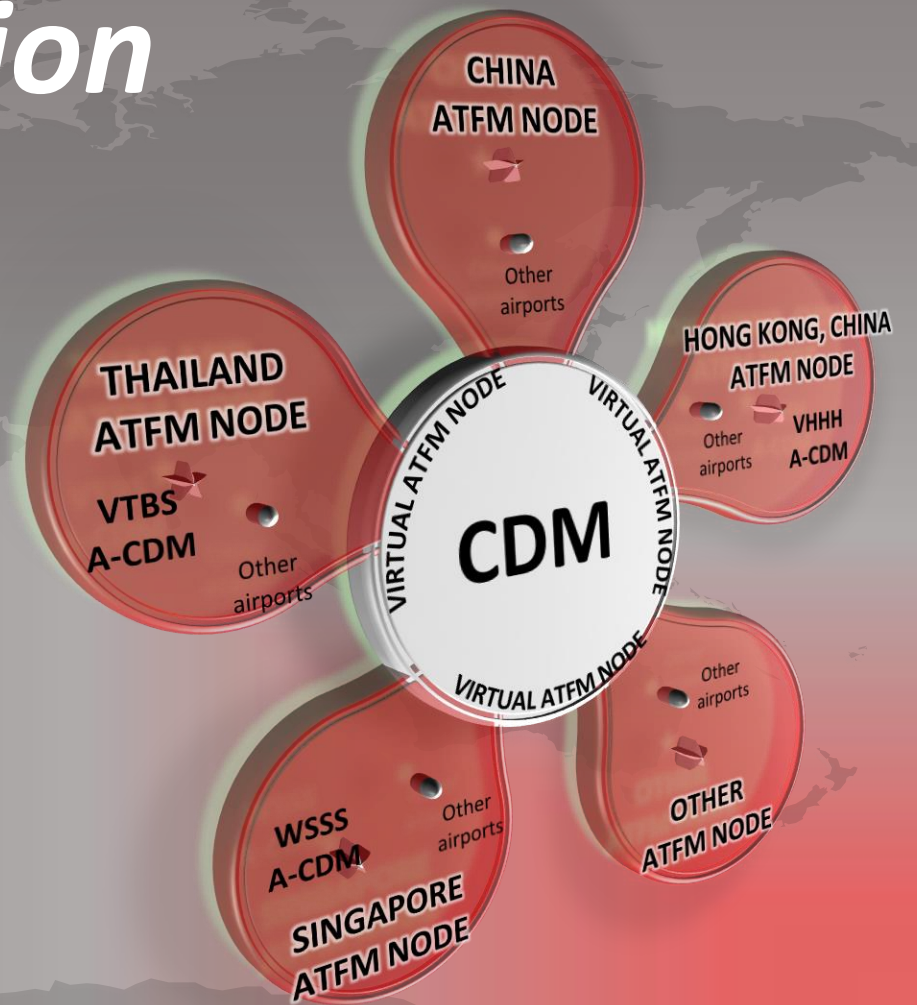
Exploration Plan



- A ***“Study Group”*** by the AMNAC Core Team to work with CANSO’s CADENCE Task Force to explore potential use cases and operational feasibility of CADENCE OIS
- Operational trial plan to be determined (if deemed feasible)



Conflicting CTOT Exploration



What is “Conflicting ATFM Measures”?



Courtesy: ATMO, Republic of Korea

Strategies to Address Conflicting Measures

Prevention

Prevent the occurrences by, e.g., increasing capacity, coordination, etc.

Ident. Hotspots

Identify hotspots in the region such as airways and waypoints that are subjected to constraints

One CTOT

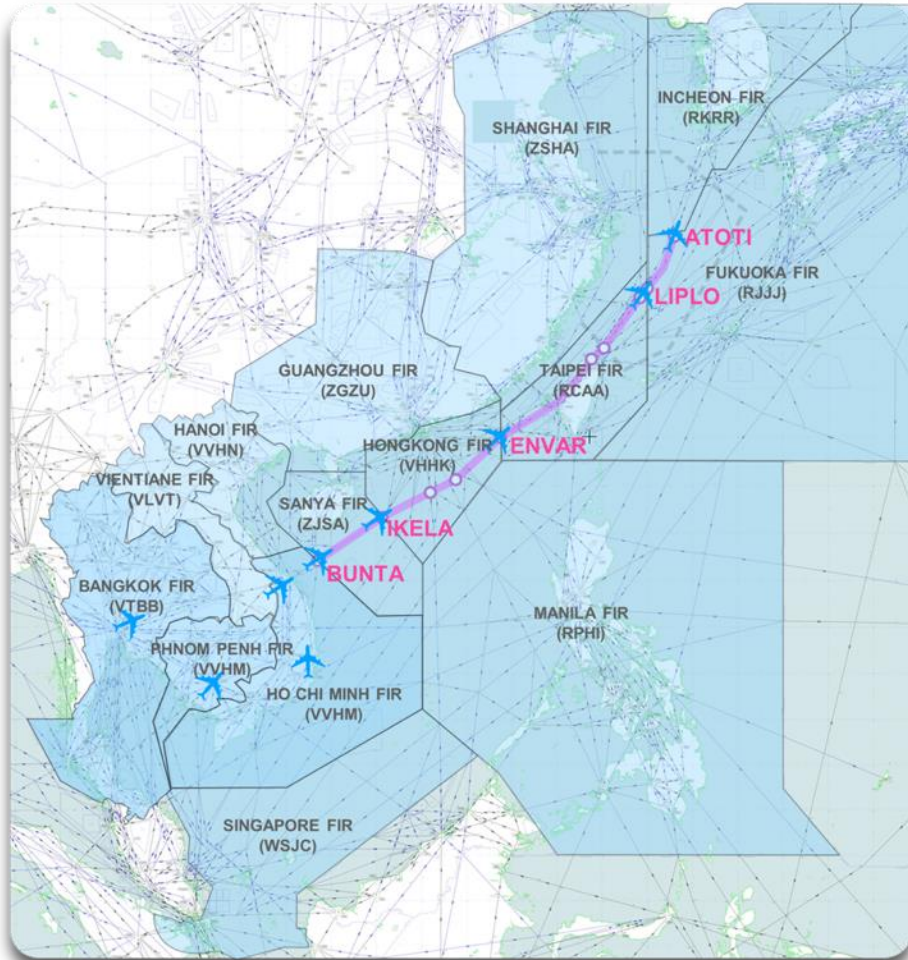
Consolidate all ATFM measures along the same flow into a single CTOT by the most upstream ATFMU



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Operational Trial of “One CTOT Principle”



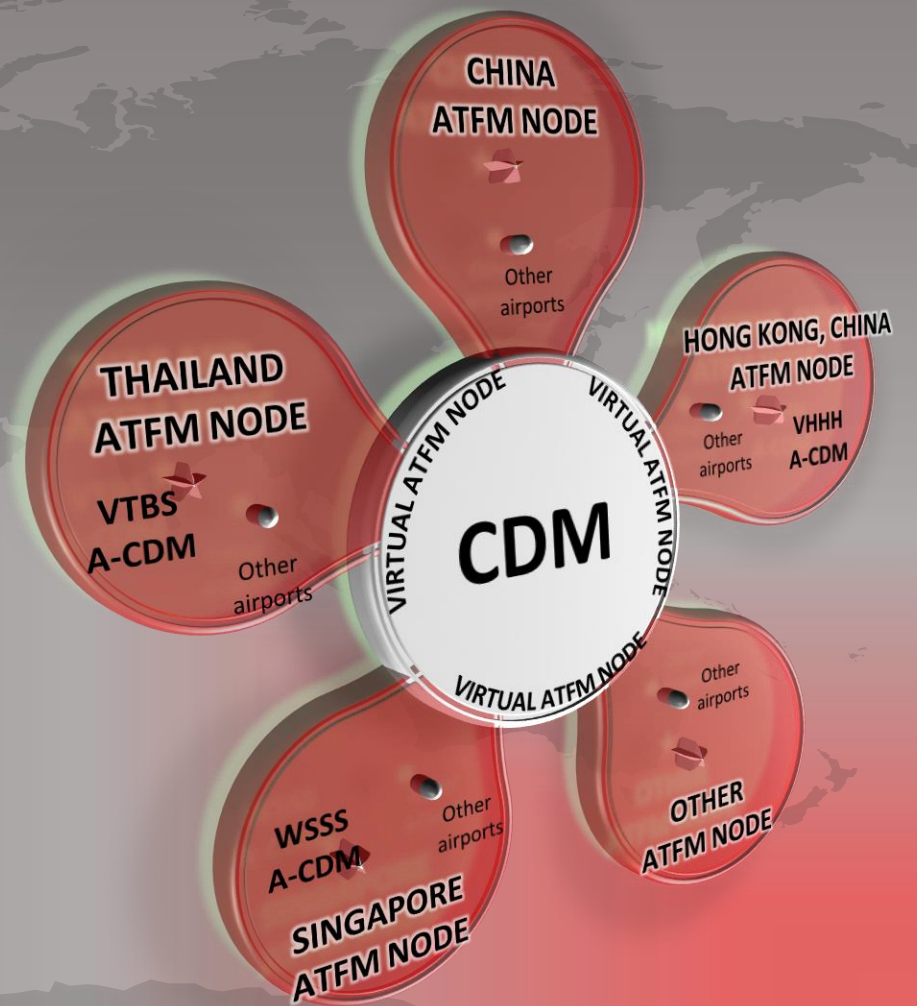
- Operational trial will be held between China, Hong Kong China, and Republic of Korea using “One CTOT” principle
- Findings will be reported for further discussion



DISTRIBUTED MULTI-NODAL ATFM NETWORK

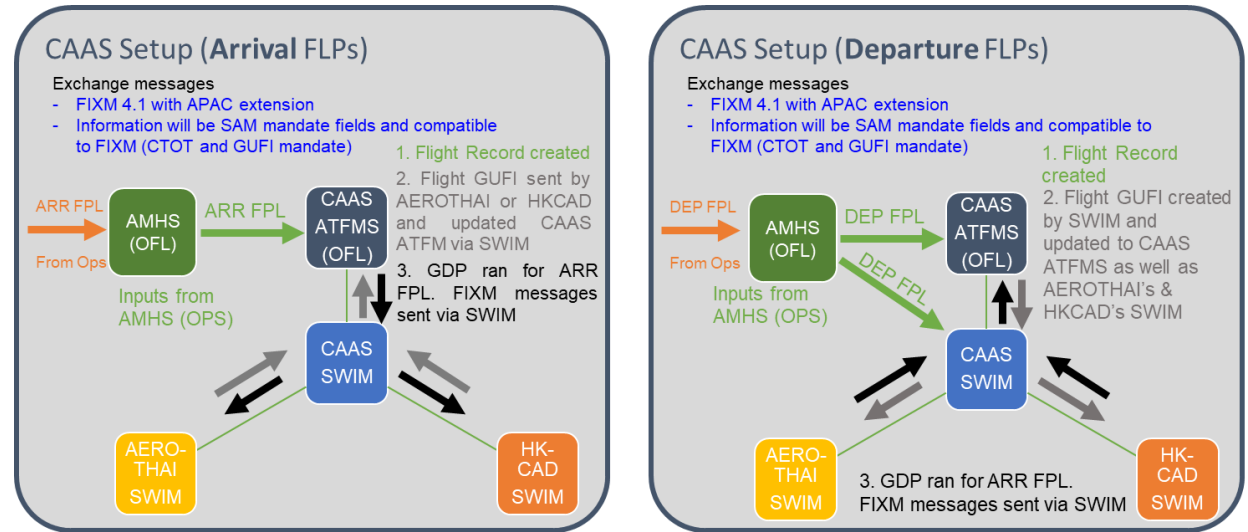


Technical Updates



ATFM-on-SWIM Trials

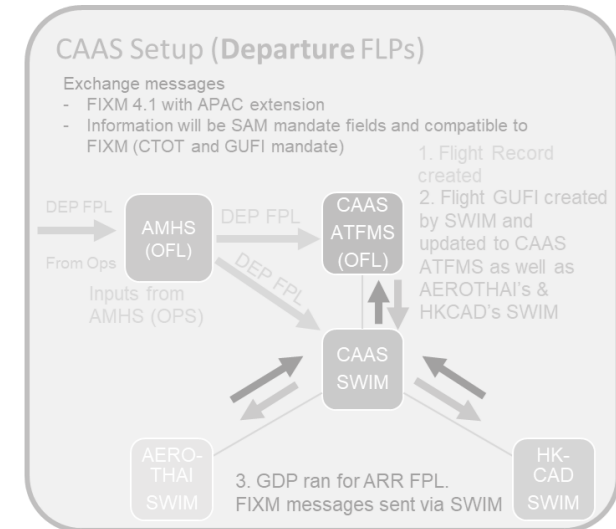
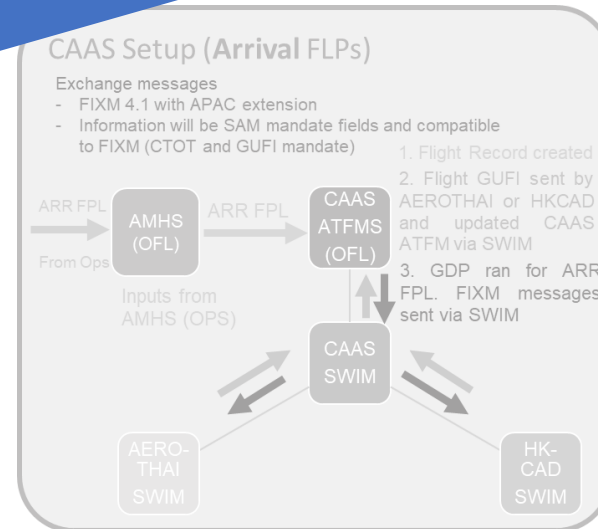
- Operationally Cambodia, China, Hong Kong China, Singapore and Thailand are disseminating CTOTs using SAM, SRM and SLC via AFTN.
- SWIM has been identified as the next method of connectivity (potentially replacing AFTN) and a SWIM Trial between AEROTHAI and CAAS were conducted in Oct 2023 and Apr 2024. The trial tested the connectivity (CRV network), format (FIXM v4.1) and the feasibility to send SAM, SRM and SLC equivalent messages via SWIM.



ATFM-on-SWIM Trials

- Operationally Cambodia, China, Hong Kong China, Singapore, Thailand are disseminating CTOTs using SAM, SRM and SLC via AFTN.
 - SWIM has been identified as the next method of communication.
 - Trial between AEROTHAI and CAAS has been completed. The trial tests the connectivity (CRV network), for the ability to send SAM, SRM and SLC equivalent messages.
- Details in another WP**

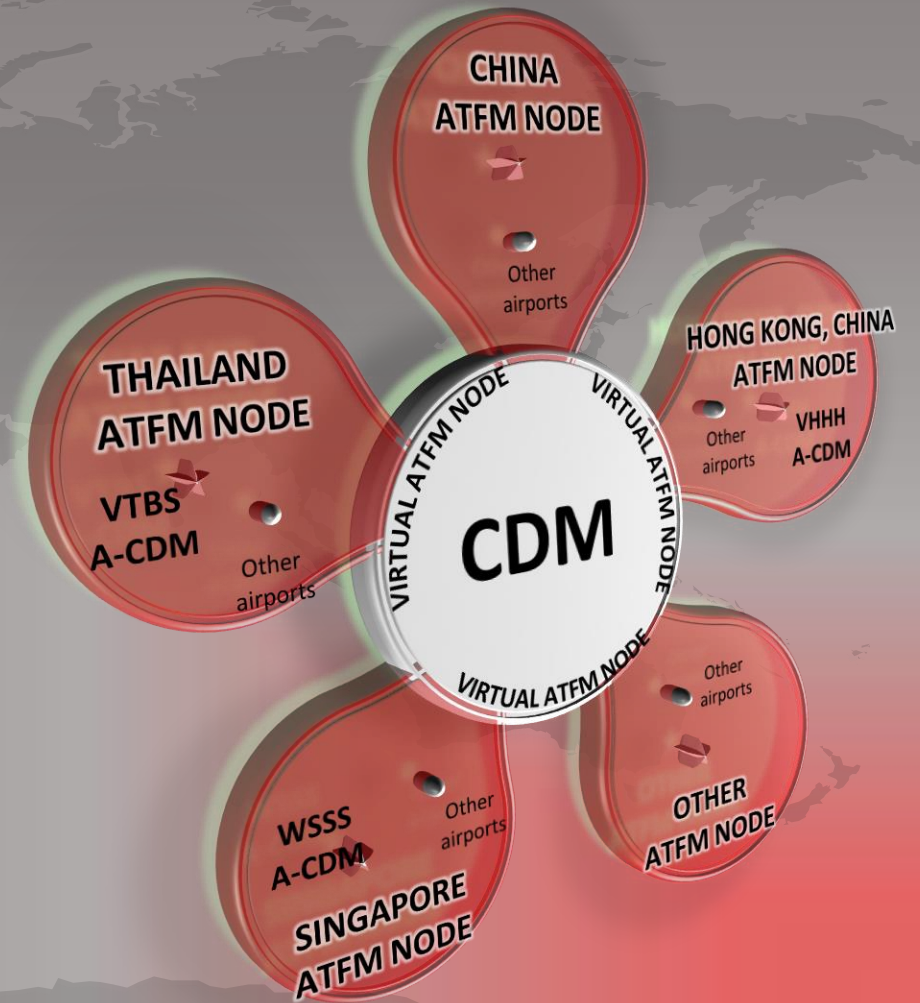
More details in another WP



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Related Working Papers & Actions Requested



Other Related Working Papers

- Common CDM Platform to Facilitate APAC Bi-Weekly ATFM Web Conference and ATFM Operations
- Common Flight Information Exchange Model (FIXM) Version for Asia/Pacific Cross-Border Operational ATFM System-to-System Data Exchange in System Wide Information Management (SWIM)
- Optimising Air Traffic Flow over the Bay of Bengal



Action by the Meeting

- a. Note the information contained in this paper
- b. Recognize the expansion of the AMNAC network
- c. Continue to ensure the advance FPL submission and distribution
- d. Continue to ensure procedure to facilitate CTOT compliance
- e. Discuss issues related to (c) and (d)
- f. Note the *current* APAC Bi-Weekly ATFM Web Conference procedure held every alternate Thursdays at 0800 UTC
- g. Note that the new Bi-Weekly procedure will be trialed



DISTRIBUTED MULTI-NODAL ATFM NETWORK



Action by the Meeting

- h. Note the establishment of an OIS Study Group
- i. Note the planned Operational Trial of One CTOT Solution among China, Hong Kong China, Republic of Korea, and share advice if any
- j. Note the technical development related to ATFM-on-SWIM
- k. Discuss any relevant matters as appropriate



Thank You!

