



ATFM – CANSO Global Role

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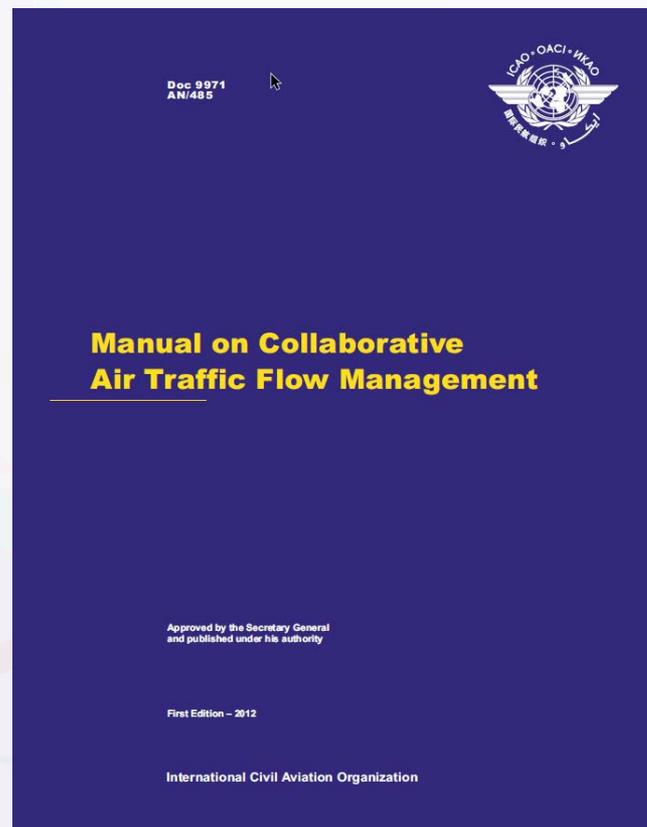
Co – chair CANSO OSC ATFM WG

Agenda

- CANSO Activities
 - DOC 9971 Review Panel
 - APAC ATFM SG
 - CANSO ATFM WG
- CANSO Global Initiatives
 - APAC
 - Caribbean
- ATFM in the Middle East.
 - What Concept for Middle East
 - Multi-Nodal?
 - Benefits
- Keys for Successful ATFM/CDM Implementation
- Conclusion

CANSO and ICAO

- ICAO ATM OPS Panel
DOC 9971
 - Part of Review Panel
 - Contributed to rewrite of Document

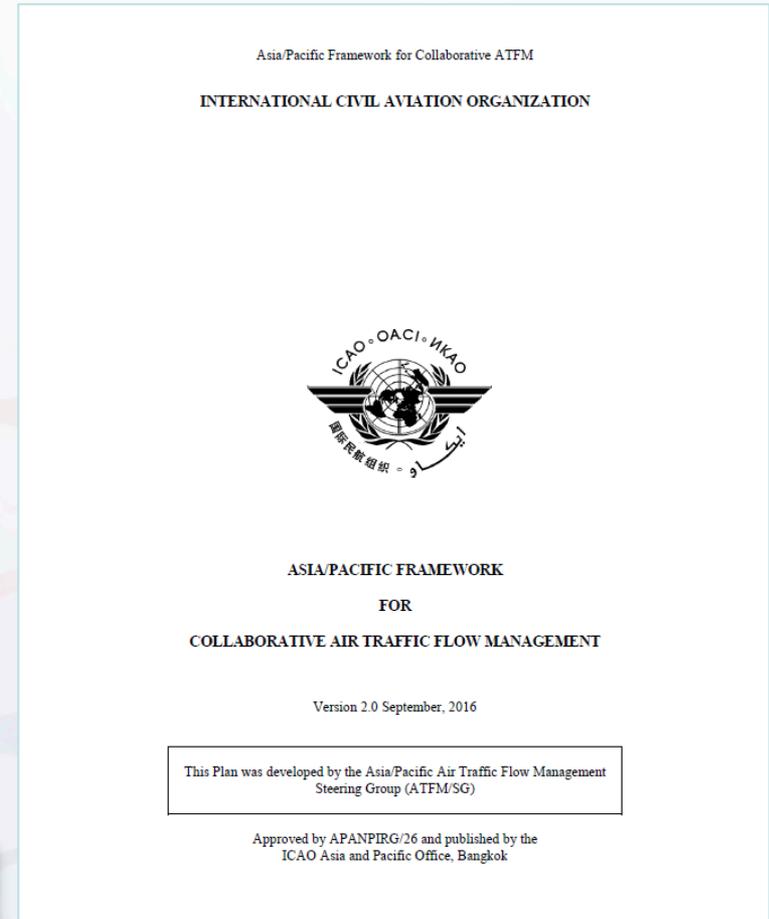


CANSO initiatives aligned with ICAO

APAC ATFM SG

- CANSO been member of SG meetings
 - ATFM SME
 - Standard Terminology
 - Capacity Enhancement
 - Document writing and review

CANSO contributing to ATFM implementation



CANSO ATFM WG

CANSO recognized that Regional ATFM implementation is needed

OSC established CDMTF – renamed ATFM WG

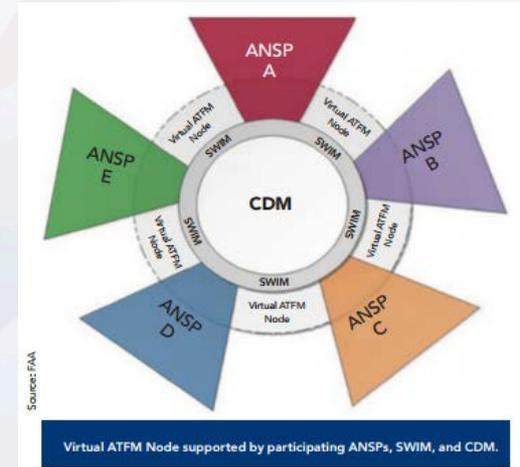
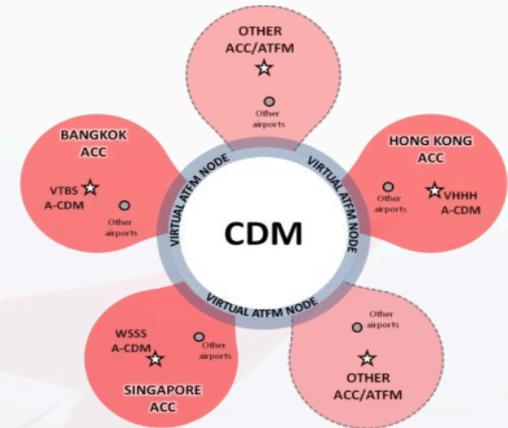
Objectives:

- Best Practice Guide for CDM and ATFM implementation
- Support development of common regional ATFM Framework
- Support CANSO Regional Directors on ATFM in Regional Implementation Groups

CANSO active in assisting with
Regional ATFM implementation

CANSO Global ATFM Initiatives

- APAC
- Caribbean and Latin America



Source: FAA

CANSO Global ATFM Initiative - APAC

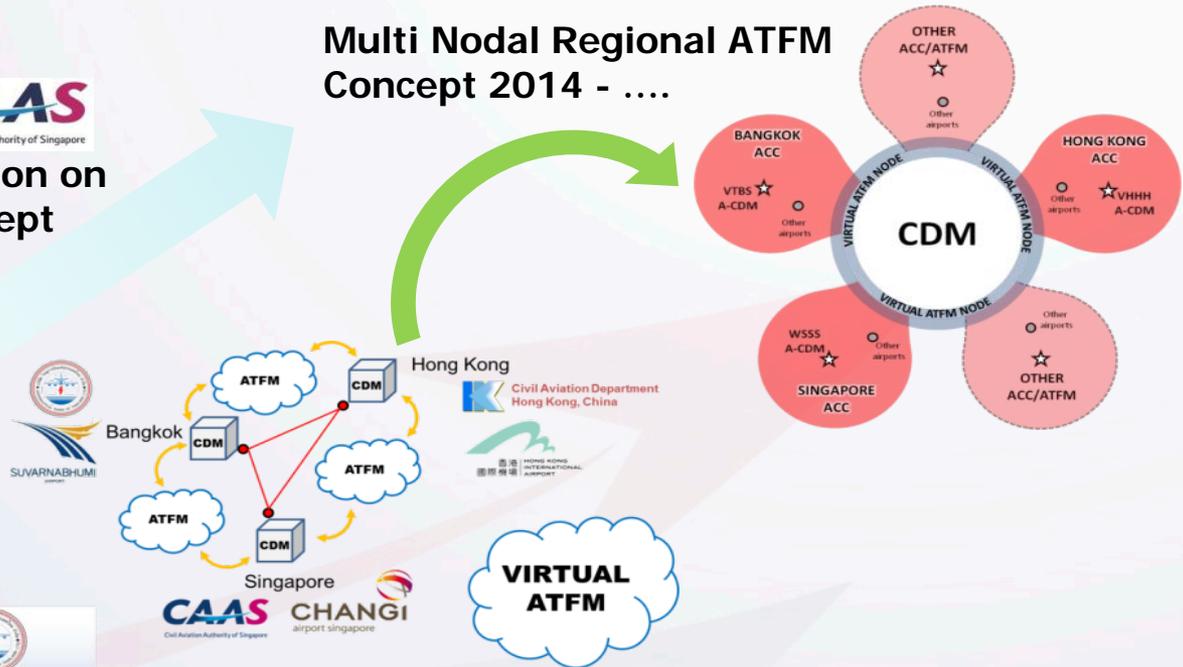


Research Collaboration on Regional ATFM Concept 2013

CANSO Whole of flight CDM Pilot Project between BKK-SIN 2011-2012



Multi Nodal Regional ATFM Concept 2014 -



Tripartite CDM Project between BKK-HKG-SIN 2012-2013



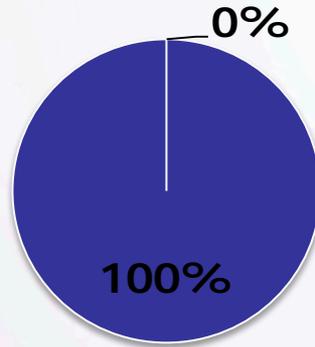
ATFM Measure Effectiveness: Participation

- Demand Capacity Balancing requires sufficient participation of Aircraft
- 70% participation of flights is necessary to make an ATFM Measure fair and equitable
- Aircraft Participation
 - Domestic flights
 - International/Regional flights – flight duration up to approximately 4 hours
 - International flights – long haul flights

>70% participation ideal

APAC – A new ConOps

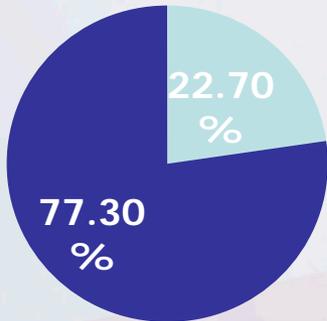
Hong Kong International



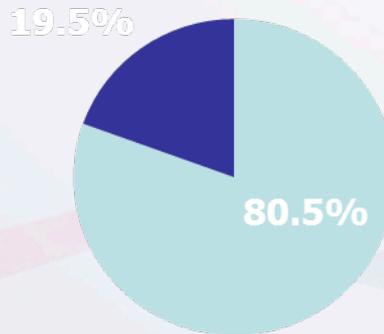
Singapore Changi

■ Domestic ■ International

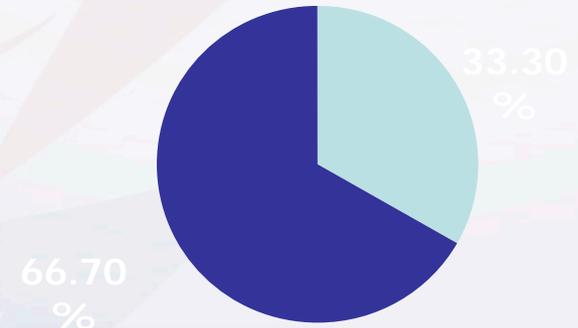
Bangkok Suvarnabhumi



Jakarta Soekarno-Hatta



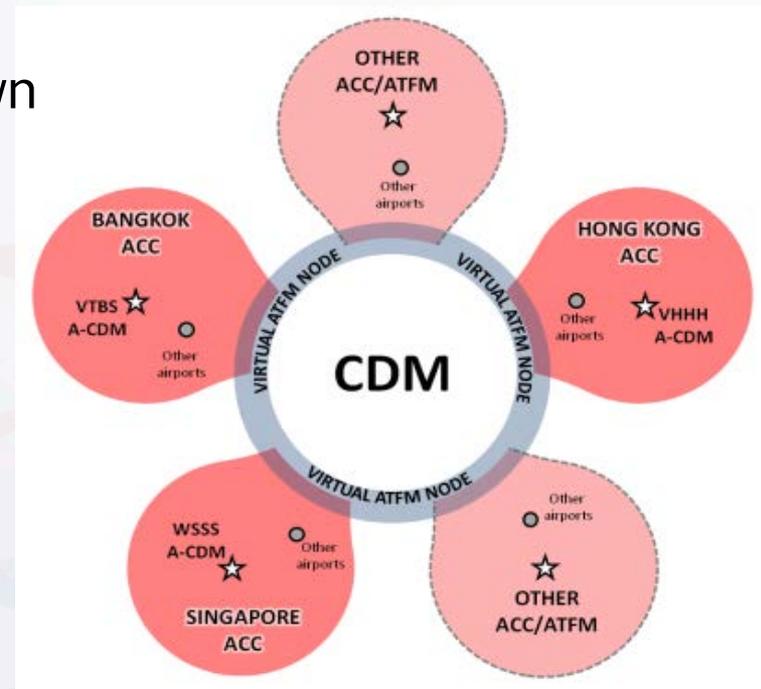
Kuala Lumpur International



International vs. domestic flight mix identified a need for new ATFM ConOps

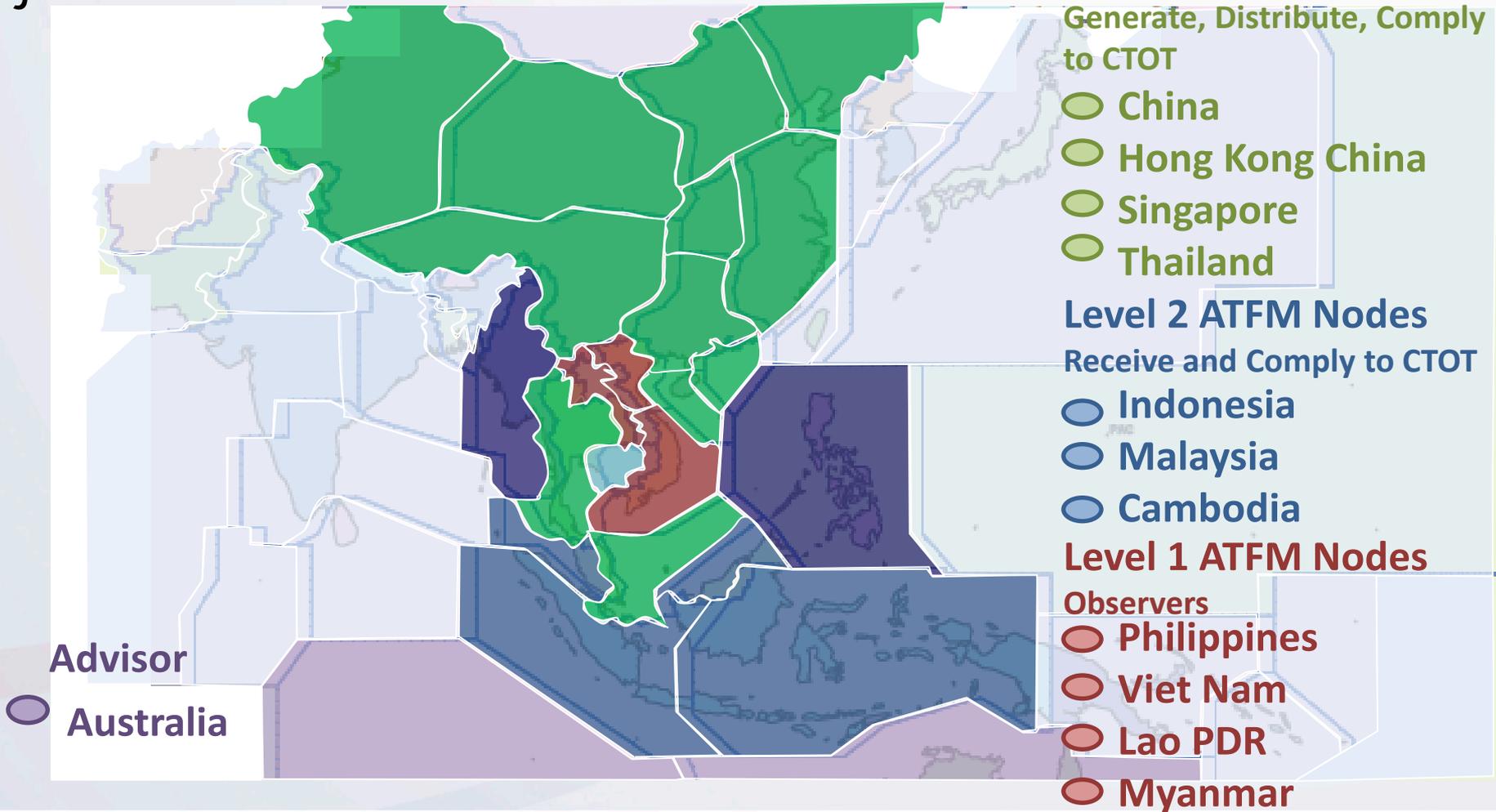
Multi- Nodal Cross Border Regional ATFM

- Domestic/Regional/International flights
- No Central Management
- Connected via virtual network
- Each State responsible for ATFM within own state
- All participating states adhere to common operational procedures
- Could include Airborne flights
- Aircraft Operators choose where to take delay:
 - Gate
 - Surface
 - En-Route



Status of the ConOps

Project Members



Process of Implementation in APAC

Phased Approach to the Operational Trial

Phase 1 2015 - 2016

- Distributed Ground Delay Program
- Airport Arrival Constraints (short-term & medium-term) e.g. weather, runway outage

Phase 2

- Ground Delay Program supporting Airspace Congestion & Capacity Planning
- Explore interconnectivity among ATFM systems

Phase X Vision

- Fully interconnected Global ATFM Service
- Integration with SWIM and 4D-Trajectory Management

CADENA

CADENA = CANSO ATFM Data Exchange Network for the Americas
“Cadena” is also the Spanish for “chain”.

- 1st Meeting - CUBA August 2016
- 2nd Meeting - Argentina October 2016



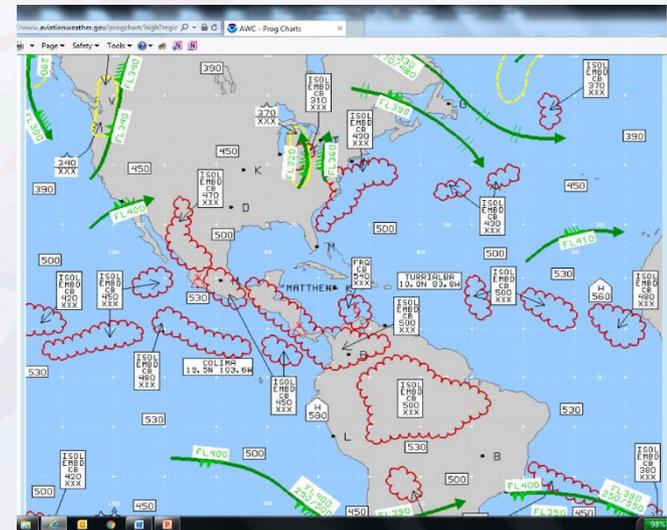
CADENA Progress

- Progress thus far
 - Terms of reference, roles and responsibilities set
 - FAA has made SWIM Platform available for all participating countries – Requirements for connection
 - Discussion on ATFM information to be shared
 - What is needed to connect to the SWIM platform
 - Organizational Structure of ATFMU being proposed
 - Letters of Agreement being set
 - Job descriptions of ATFM personnel
 - CDM Teleconference instruction
 - 6 practice ATFM Telecons

Significant progress in short space
of time

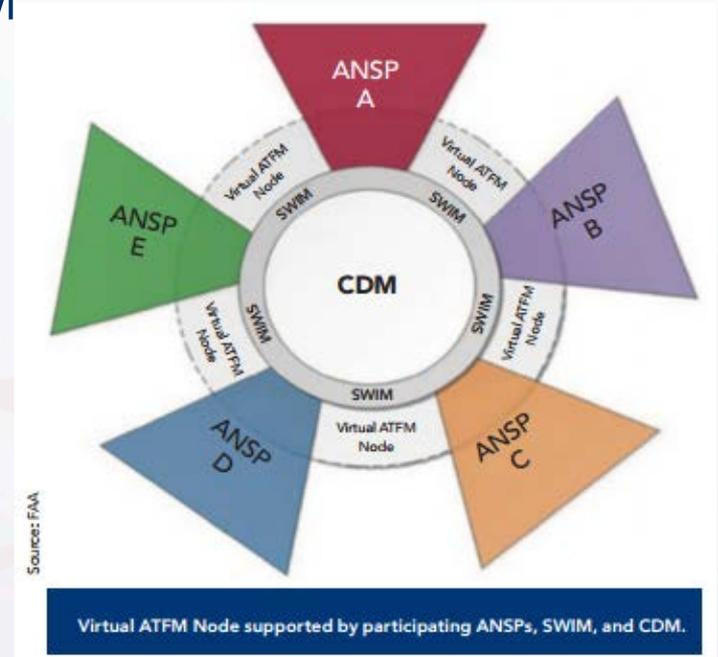
CDM Telecons

- Objectives
 - All stakeholders gain insight into ATM conditions in region, pre-tactical and tactical
 - Common interpretation of weather conditions
 - Sharing constraints in FIRs and in region
 - Explain any ATFM measures to be implemented
 - Post Event Analysis



CADENA going forward

- Review existing national plans for ATFM
- Identify Key Stakeholders
- Identify Resources
 - Facilities
 - Equipment
 - Staffing
- Procedure Development
 - Internal and Regional
 - Documentation
- Education
- Ensure implementation is harmonized within the region and between regions.



Participating ANSPs are committed to harmonized Regional ATFM

ATFM/CDM in Middle East

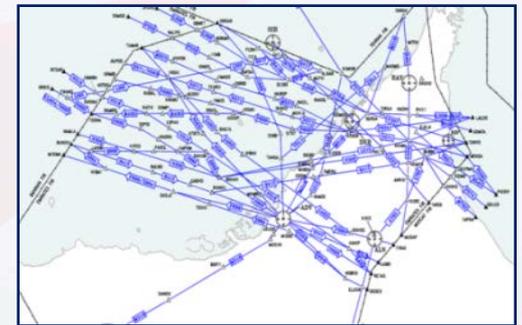
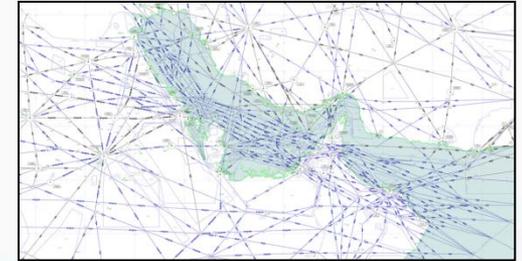
- It is evident that ATFM/CDM is required in the region
- Can ATFM models employed in other countries/regions be effective in Middle East?
 - North America
 - Central Authority
 - Domestic Flights only
 - EUROCONTROL
 - Central Authority
 - Traffic within EUROCONTROL region
 - Australia
 - Central Authority
 - Domestic Traffic only
 - APAC
 - No Central Authority - All ANSPs responsible for ATFM in their own area of responsibility
 - Domestic/Regional/International
 - All connected via a Virtual CDM Platform

What ConOps is applicable?

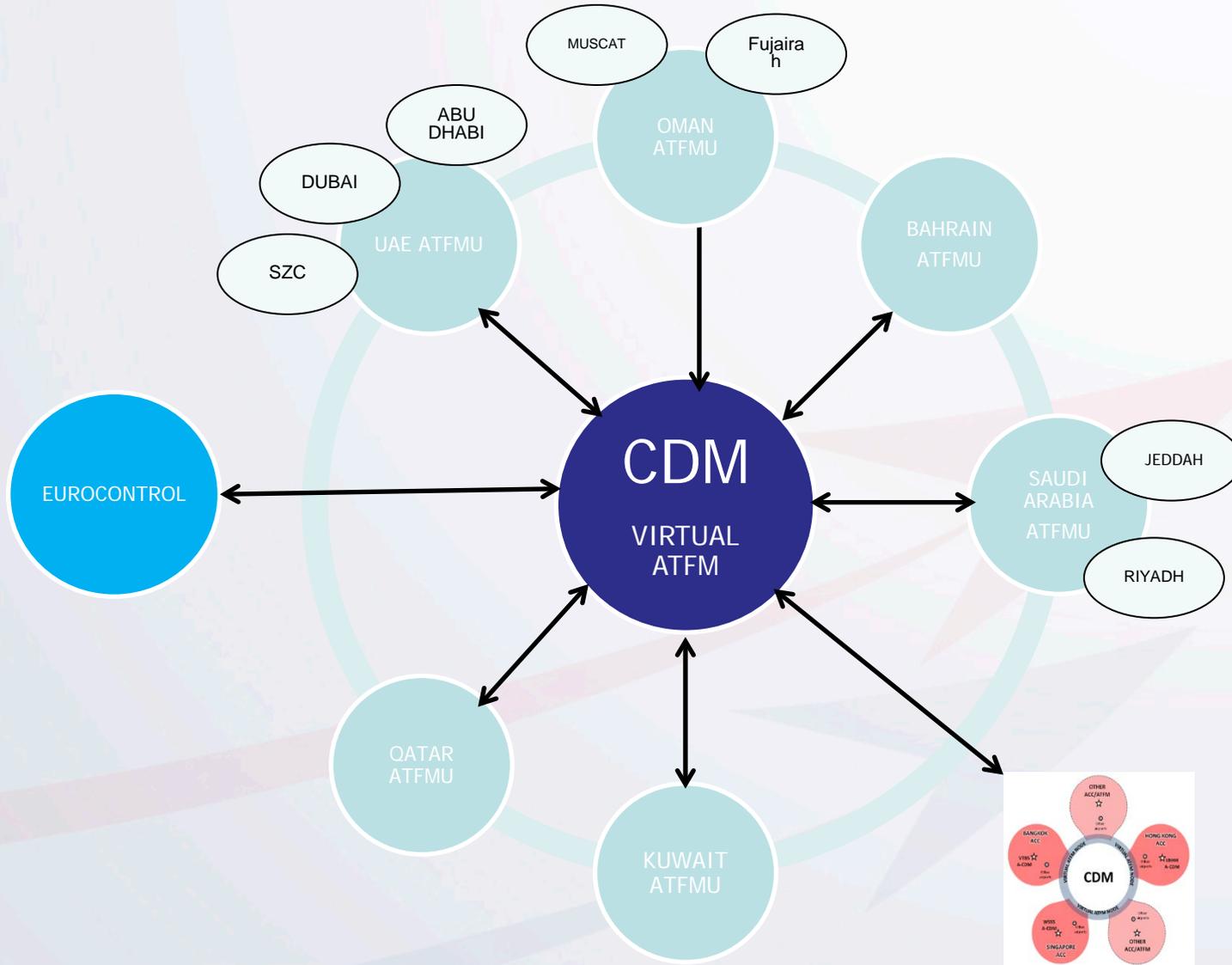
ATFM Middle East

Similar Situation to APAC

- Significant growth
- Demand exceeding Capacity
- Not enough domestic flights to make up 70% participation
- Domestic Solution not feasible
- Centralized ATFMU?
- High percentage of Regional and International flights

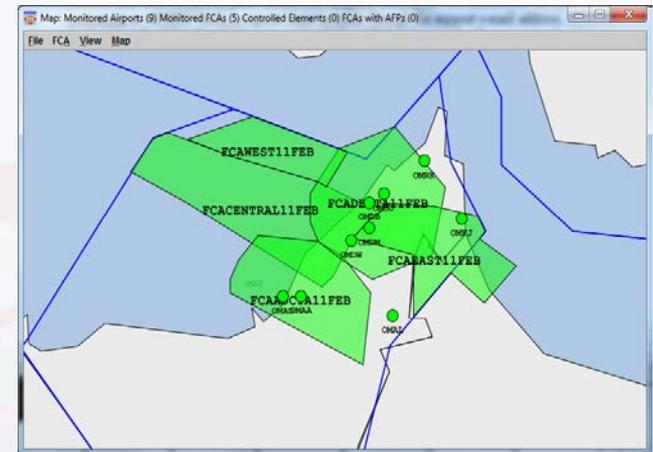


Middle East Cross Border Multi-Nodal ATFM?



Regional Qualitative Benefits

- Networked approach
- Enhanced situational awareness between ANSPs
- More effective planning in all phases of ATFM will take place
- Airports with minimal domestic traffic will be able to do DCB
- ATFM measures will be fair and equitable
- Network planning during special event planning



Operational Benefits - Quantitative

- Benefits Analysis was performed using Operational Scenarios and actual data for OMDB
 - Simulation ATFM System was used to perform analysis by simulating GDPs

Case #	Frequency	Description
1	Daily	6 hour GDP with an AAR of 30 aircraft/hour
2	10 times per month	Reduced capacity (e.g., fog, sandstorm) requires a 6 hour GDP with an AAR of 18
3	3 times per year	Significant loss of capacity requires zero rate for 2 hours followed by an AAR of 20 for 2 hours and then an AAR of 30 for 2 hours

Operational Benefits - Quantitative

Conservative approach adopted shows significant annual savings available for implementing ATFM

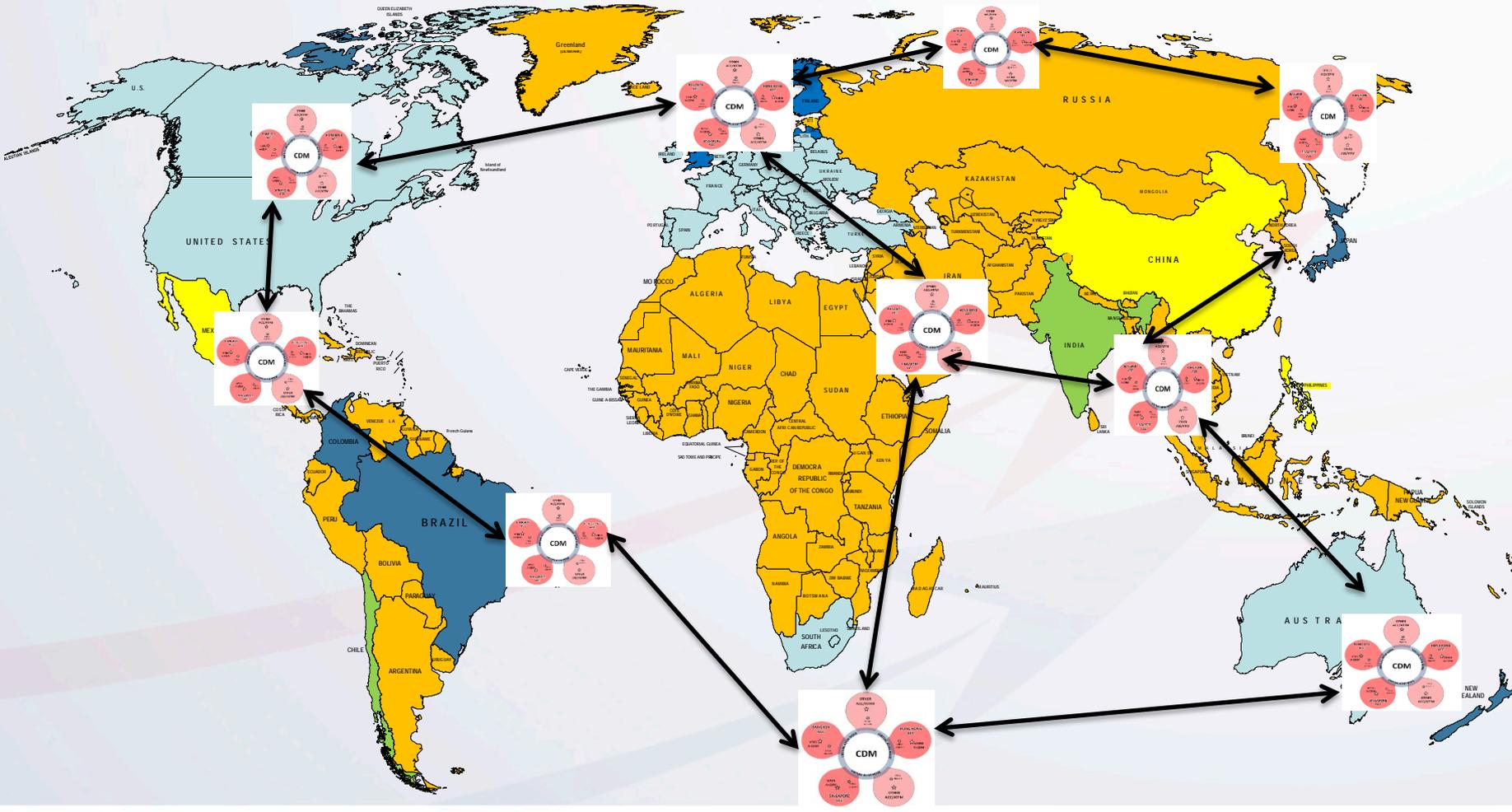
OMDB Case	Annual Airborne Holding Reduction (Minutes)	Annual Fuel Savings (US\$)	Annual CO2 Emissions Reduction (metric tonnes)
Benefits Pool	1,034,870	25,400,000	159,000
50% realized	517,435	12,700,000	79,500
33% realized	341,507	8,382,000	52,470
25% realized	258,718	6,350,000	39,750

Keys for Successful Regional ATFM/CDM

- Support from Executive Management
- ANSPs need to work together for Regional implementation
- Engagement with stakeholders to drive cultural change
- Trust among stakeholders through transparent processes
- Core requirements for Demand Capacity Balancing
 - Data availability for network-wide demand projection
- Flexibility to adapt the plan
 - Capacity can change, the plan must be able to change with it
 - Aircraft operators can modify flight priorities and schedules
- Continuous improvement through performance assessment
 - Post event operational analysis

ATFM Implementation requires common purpose and commitment from all stakeholders

Global ATFM/CDM



Conclusion

- CANSO playing active role in Regional ATFM/CDM formulation and development
- ATFM Benefits will be evident for all stakeholders
- An ATFM ConOps and roadmap for implementation needs to be developed for the ME region
- Supports ATFM/CDM implementation in the Middle East
- ANSPs need to work together to common goal
- All stakeholders need to be involved from inception
- ATFM/CDM needs support from Executive Management
- Learn from other ANSPs and regions