canso
civil air navigation services organisation

Regional ATFM – it is the next Step

TRANSFORMING
GLOBAL ATM PERFORMANCE

29-30 Oct 2014 ICAO APAC ATFM Workshop Beijing

What is CANSO?

- CANSO, the Civil Air Navigation Services Organization is the global association of ANSPs
- Its members support over 85% of the world's air traffic
- Currently 167 members – 87 ANSPs and 80 Associate Members.
- For the Asia Pacific region -19 ANSP members

From individual performance to system performance

ACI

airport n

airport 1

canso

ansp n

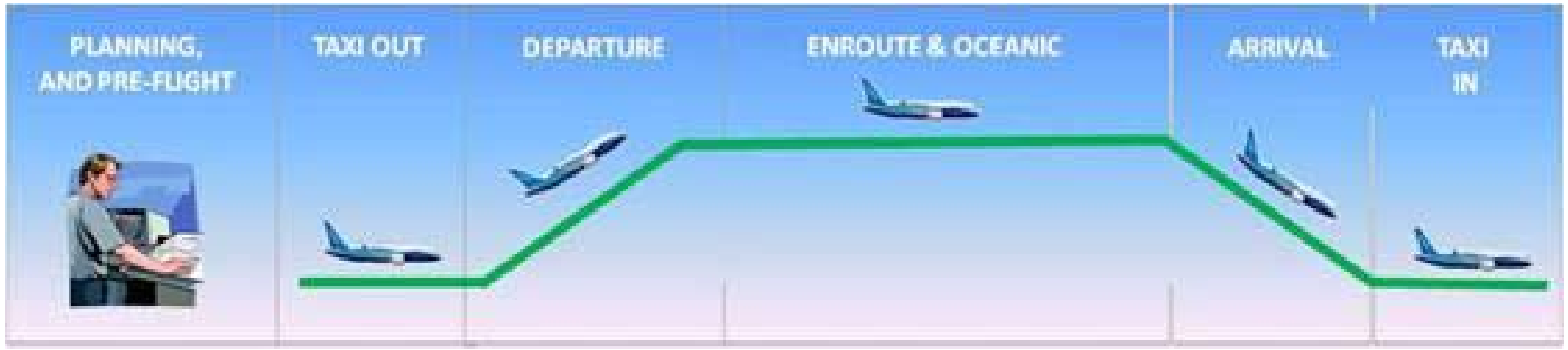
ansp 1

IATA

airline n

airline 1

Applying CDM to all phases of flight



- A number of airports have A-CDM but the full benefits of CDM can only be achieved if it is applied to the entire flight.
- The CANSO CDM city pair concept looks at CDM for all phases of flight between a major city pair.

BKK-SIN CITY PAIR CDM PILOT PROJECT

CAAS
Civil Aviation Authority of Singapore

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Supported by

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SINGAPORE AIRLINES

DCA MALAYSIA

THAI

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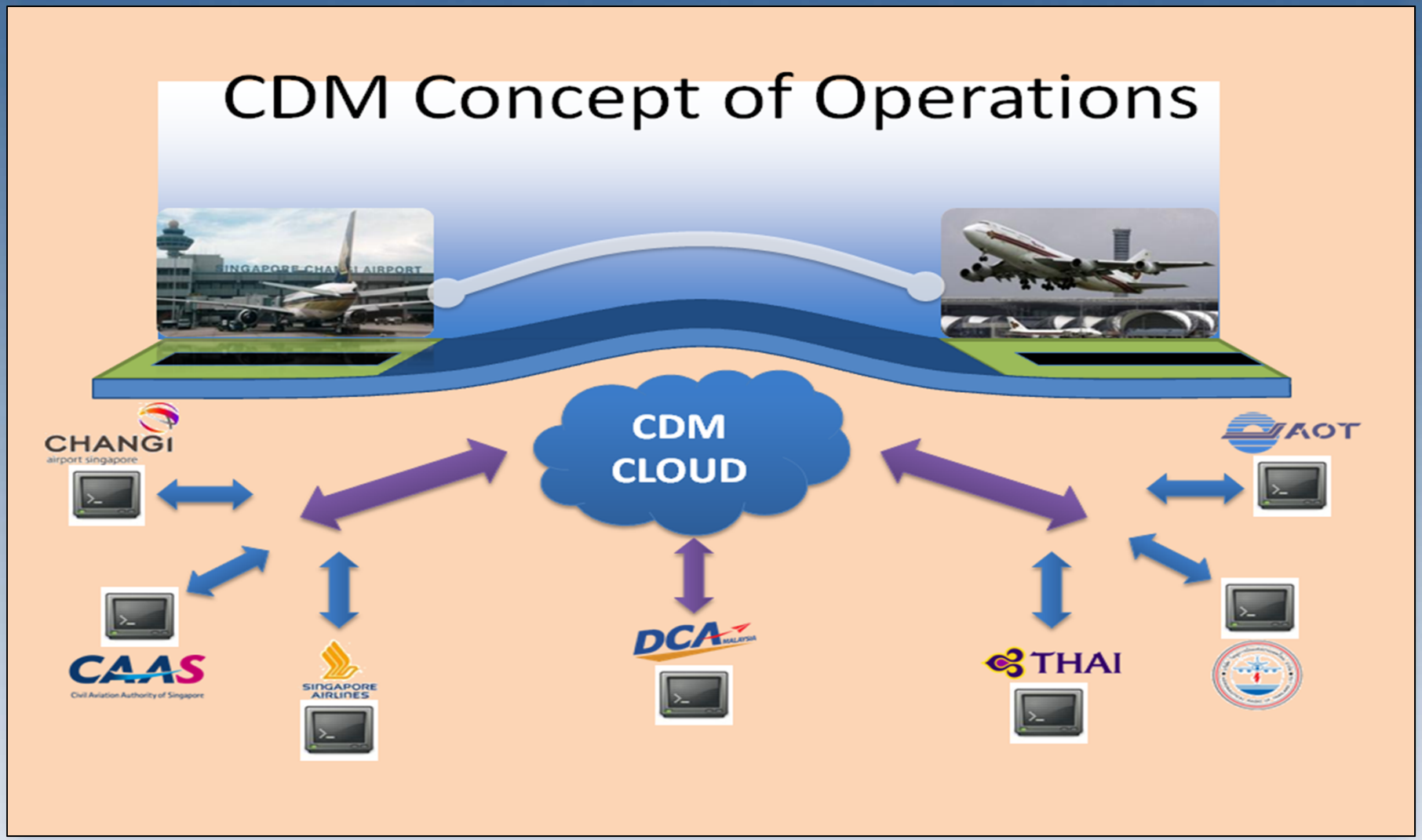
BKK-SIN CITY PAIR CDM PILOT PROJECT



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CDM Benefits

- For Airports: improved adherence to slot times, better use of aircraft gates/stands, equipment and manpower deployment etc
- For Airlines: reduced schedule buffering, more efficient use of ground handling resources, shorter aircraft turn-around time, shorter taxiing and waiting time at runway etc
- For ANSPs: improved pre-departure sequencing and departure flows, increased runway capacity, better quality of service

Some observations from the trial

- Information updates by stakeholders were not consistent. Implying the need to get all staff to buy into the CDM philosophy.
- Although the focus of the trial was more on the CDM process rather than the CDM tools there is clearly a need for greater automation so that operators can focus more on analysing and using the information to enhance their operations
- While qualitative benefits were clear, it was difficult to assess the benefits quantitatively.

SIN-BKK CDM City Pair Pilot Project Report

- More details are available in the project report which can be downloaded at http://www.canso.org/bangkok-singapore-cdm-journal.

- Or go to the CANSO website www.canso.org and look under Asia Pacific Documents

From CDM to ATFM

- From City Pair CDM to a sub-regional distributed ATFM network concept, an initiative of the ANSPs of Singapore, Thailand and Hong Kong
- Renewed focus on CDM/ATFM in the region
- Meetings of the ICAO Asia Pacific ATFM Steering Group in Hong Kong and Singapore
- Agreement to do a baseline study and to develop strategies for a regional ATFM framework

Regional ATFM - is the next step for APAC!

Is it?

Regional ATFM - is the Next Step

- Is It?
- Is there a case for ATFM?
- Where else is ATFM implemented?
- How is ATFM done elsewhere?
- Is ATFM beneficial elsewhere?
- How is ATFM done in other parts of the world?
- Can those ATFM models be used in APAC?
- Why not?
- What is APAC solution for ATFM?

Is there a case for ATFM in APAC

- Capacity not keeping pace with demand
- Weather causing reduction in capacity
- Equipment causing reduction in capacity
- Excessive airborne holding
- Excessive vectoring and speed control
- Increasing taxi out/in times
- Increasing Sector times
- Special Events causing constraints
- Military Operations causing reduction in capacity
- VIP movements causing reduction in capacity
- Implementing new ATM Automation systems and procedures
- Experiencing ATCO shortages

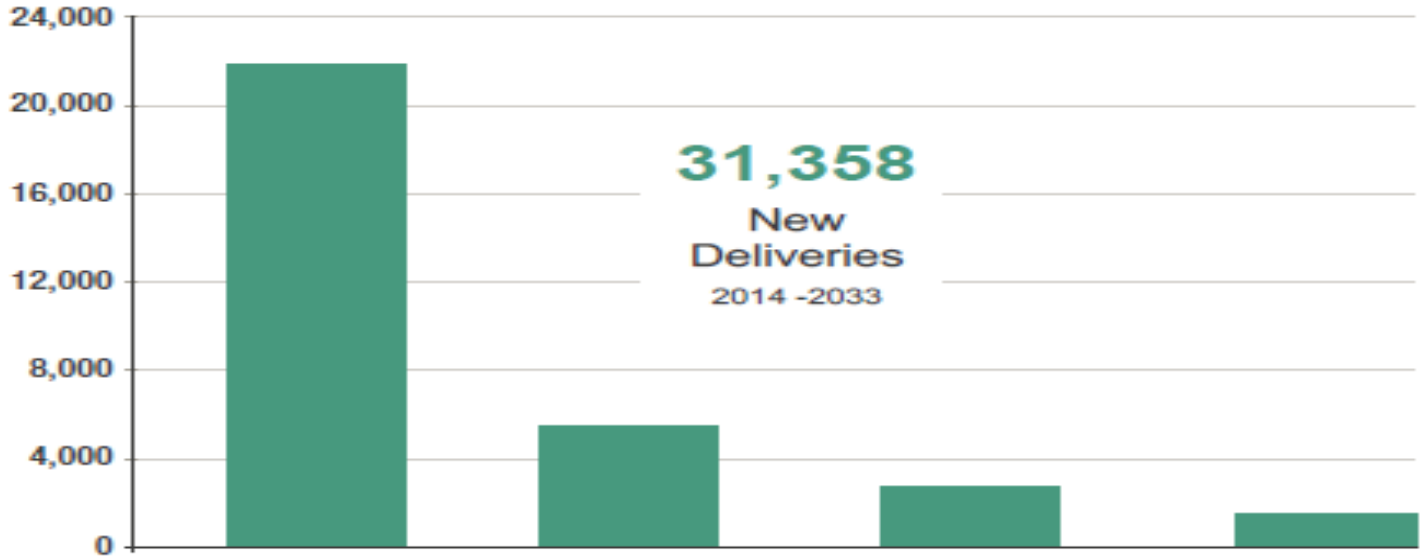
Is there a case for ATFM in APAC

Global Fleet Growth 2014-2033

SINGLE-AISLE: 70% OF UNITS;
WIDE-BODIES: 55% OF VALUE
Source: Airbus

GMF 2014

20-year new deliveries of passenger and freighter aircraft

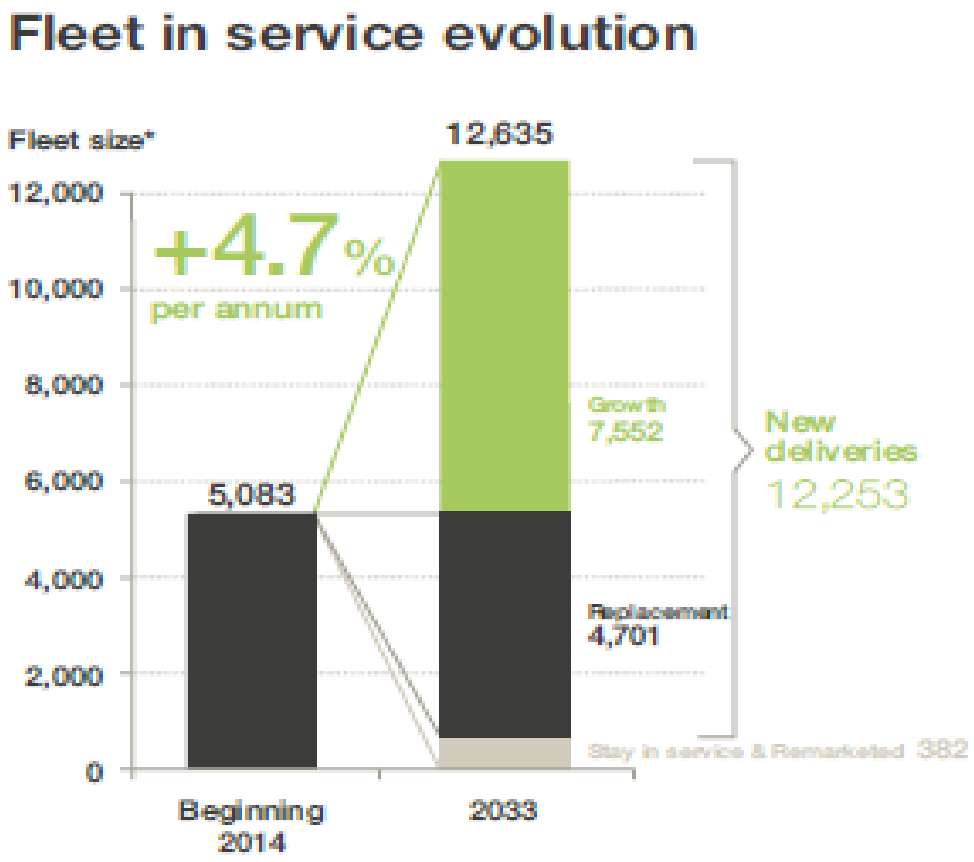


	Single-aisle	Small twin-aisle	Intermediate twin-aisle	Very Large Aircraft
% units	70%	16%	9%	5%
% value	45%	26%	18%	11%

Passenger aircraft (≥ 100 seats) and jet freight aircraft (>10 tons)

Is there a case for ATFM APAC

Fleet Growth in APAC 2014-2033



GMF 2014

- China – biggest domestic market by 2033
- More aircraft deliveries than any other region
- Over 50% of new routes in next 20 years will connect APAC
- Low Cost Carrier (LCC) expected to grow – especially China

Is there a case for ATFM in APAC

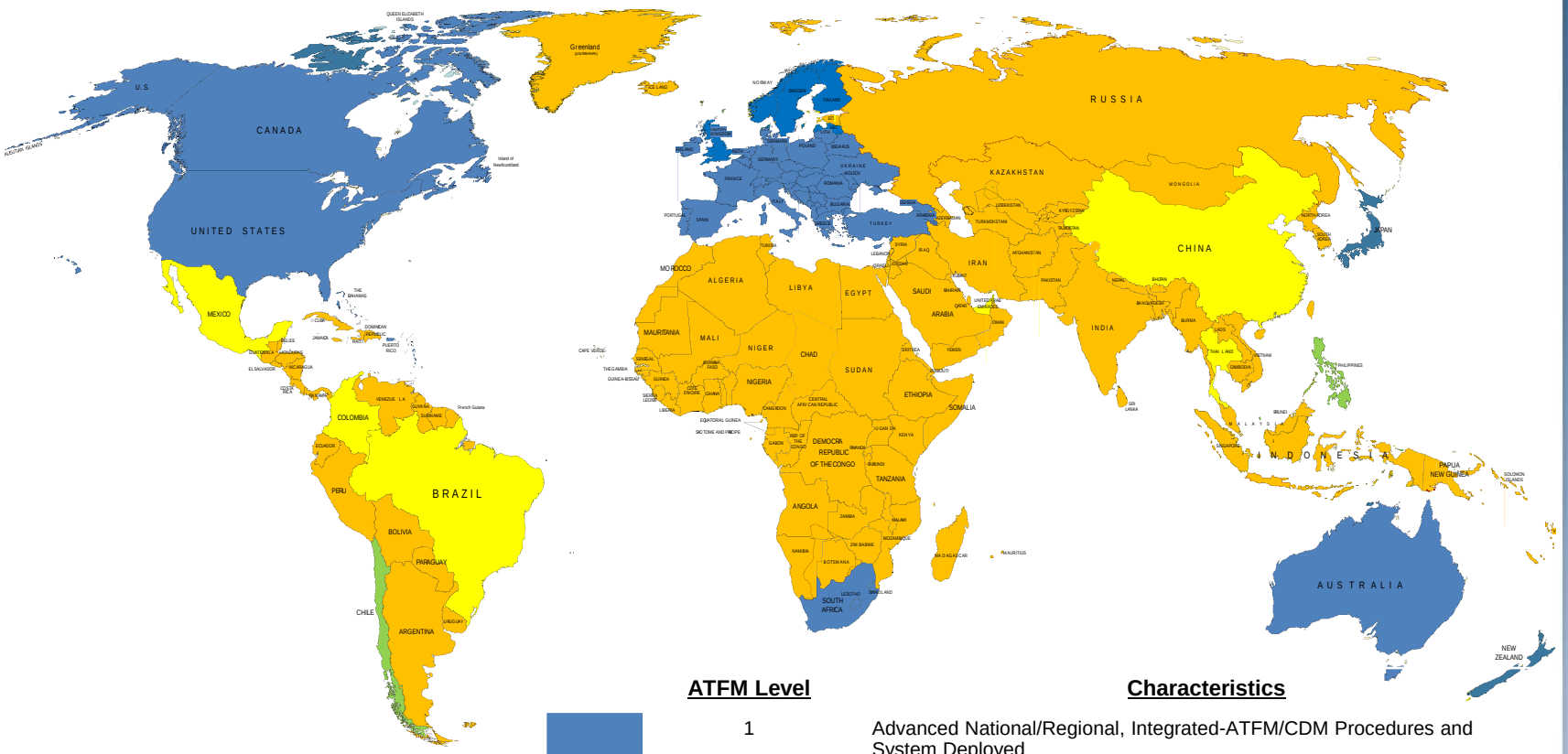
- Airlines 2013 Fuel Bill US$209billion
- Fuel represents 33% of airlines operating budget1
- 1 minute of delay costs US$110 (passenger, crew, fuel, maintenance, etc.)
- 1 minute of airborne holding = US$50 Fuel (B737 - 800)
- 5% saving on fuel will save Airline industry USD$10.45billion PA1

1. IATA

Are there any benefits of ATFM?

- USA
  - 70 million minutes of delays
  - 191 million liters of fuel
  - 590 thousand metric tons of Carbon (CO2) emissions
  - Over US$7.0 Billion in operating costs
- Australia
  - Airborne holding into Sydney has been reduced by approximately 33 percent
  - Fuel savings of + - US$39 million PA for Sydney airport
  - Reduced flying time from Sydney-Melbourne by 5 minutes per flight reducing CO2 emissions by 40,000 metric tons annually
- BOBCAT
  - Fuel Saving: 93 million KG
  - CO2 Savings: 375million KG
  - Cost Saving: 93 million

Where is ATFM currently performed?



ATFM Level	Characteristics
1	Advanced National/Regional, Integrated-ATFM/CDM Procedures and System Deployed
2	Mature ATFM/CDM Procedures and Initial System Deployed
3	Initial ATFM/CDM Procedures but No System Deployed
4	No ATFM/CDM Procedures or System Deployed

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ATFM in other parts of the world.

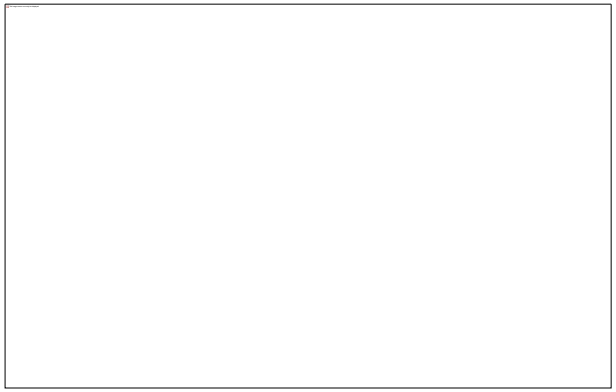
- Ground Delay Program (GDP) applied Limited largely to domestic traffic
- Domestic Traffic levels high enough to ensure participation make ATFM measure effective
- Centralized Regional ATFM management EUROCONTROL Network Manager

  FAA ATCCC

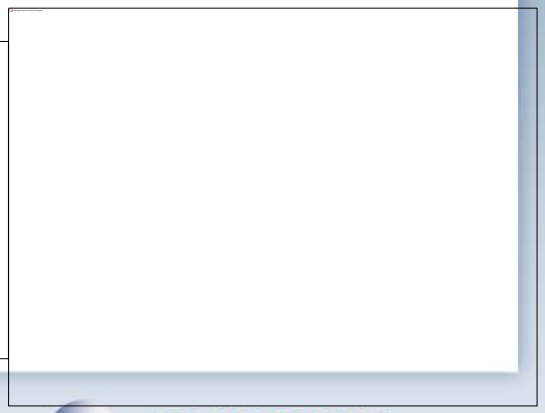
So there are other examples of Regional ATFM

Where is regional ATFM done?

EUROCONTROL



FAA/NAVCANADA/Mexico



Can this ConOps be used in APAC?

- Centralized Agency, not feasible at this stage
- Some ANSPs require ATFM immediately, others not as urgent – have other priorities
- ANSPs in different stages of ATFM implementation
- Funding
- Autonomy to purchase systems
- Autonomy to implement ATFM measures for domestic traffic only

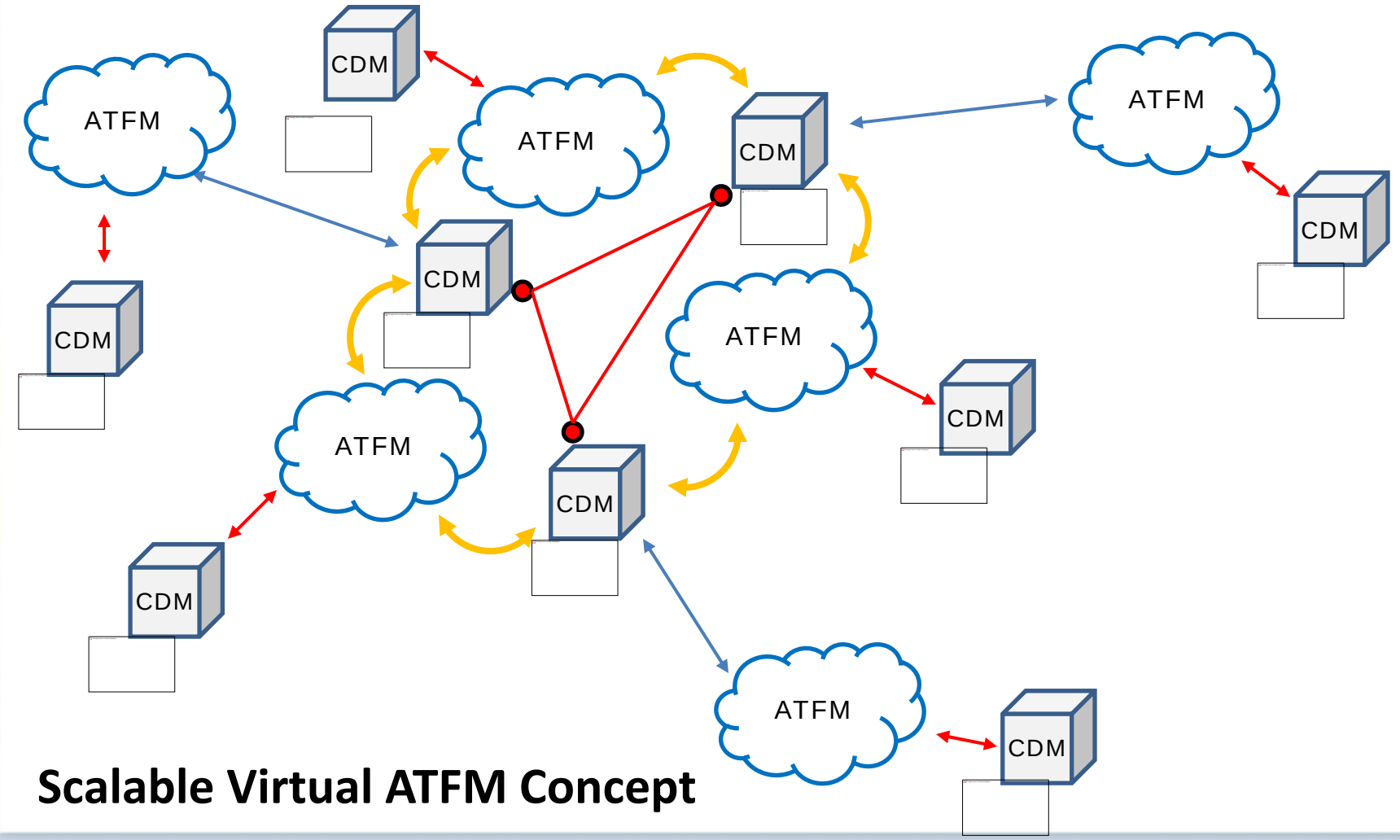
ConOps for APAC?

A regional ATFM model applicable to the APAC region has been developed

APAC Regional ATFM, what will it look like?

- Interconnected via a virtual communications framework
- Data-sharing agreement
- Interoperable principles, processes, and common stakeholder understanding
- Agreement to compatible set of business rules
- Common CDM framework
- Include Airport CDM where possible

APAC Regional ATFM, what will it look like?



Scalable Virtual ATFM Concept

APAC Regional ATFM, what will it look like?

- Participating ANSPs initiate/continue efforts to build their individual capabilities
- Individual ANSPs operating an independent, virtual ATFM/CDM node
- Each ANSP performs monitoring of demand and capacity for their own airport(s)
    - Where domestic traffic levels (> 70%) allow for effective ATFM, ANSPs to adopt current implemented DCB models to domestic traffic
    - ATFM Measures initiated by the ANSP within their area of responsibility
    - Pre-tactical and Tactical ATFM Measures assign CTOT or Required Time of Arrival (RTA) for en-route way point to each flight
- ANSPs provide appropriate demand, capacity and constraint information to appropriate ANSP in the region

APAC Regional ATFM, what will it look like?

- ATFM Measure includes domestic, international, pre-departure and airborne flights
  - Aircraft Operators choose where to absorb delay within existing ATC procedures and constraints
    - At Gate (Current ATFM practice)
    - Between pushback and departure
    - En -route

Conclusion

- Is there a case for ATFM? 
- Is there a case for ATFM in APAC? 
- Is ATFM beneficial elsewhere? 
- Can ATFM be beneficial in APAC? 
- Is there a ConOps suitable for APAC? 
- Is Regional ATFM the next step? 

Regional ATFM - it is the next step

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