



ASIA PACIFIC

Air Traffic Flow Management

Cross Border ATFM Seminar/Workshop Bangkok

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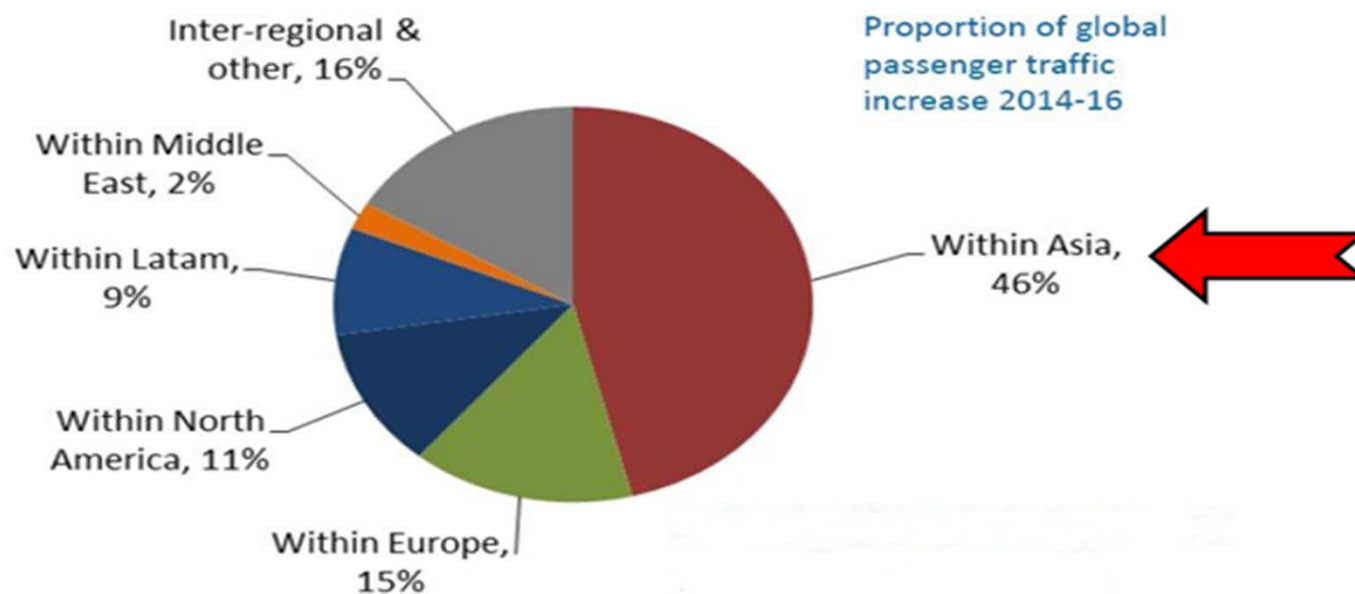


Outline

- APAC Growth
- Current Situation
- Airlines and ATFM
- Air Traffic Flow Management why?
- Cross Border ATFM

Growth of Aviation in Asia Pacific

Almost half of additional passengers expected during 2014-2016 will fly within Asia



Current Situation

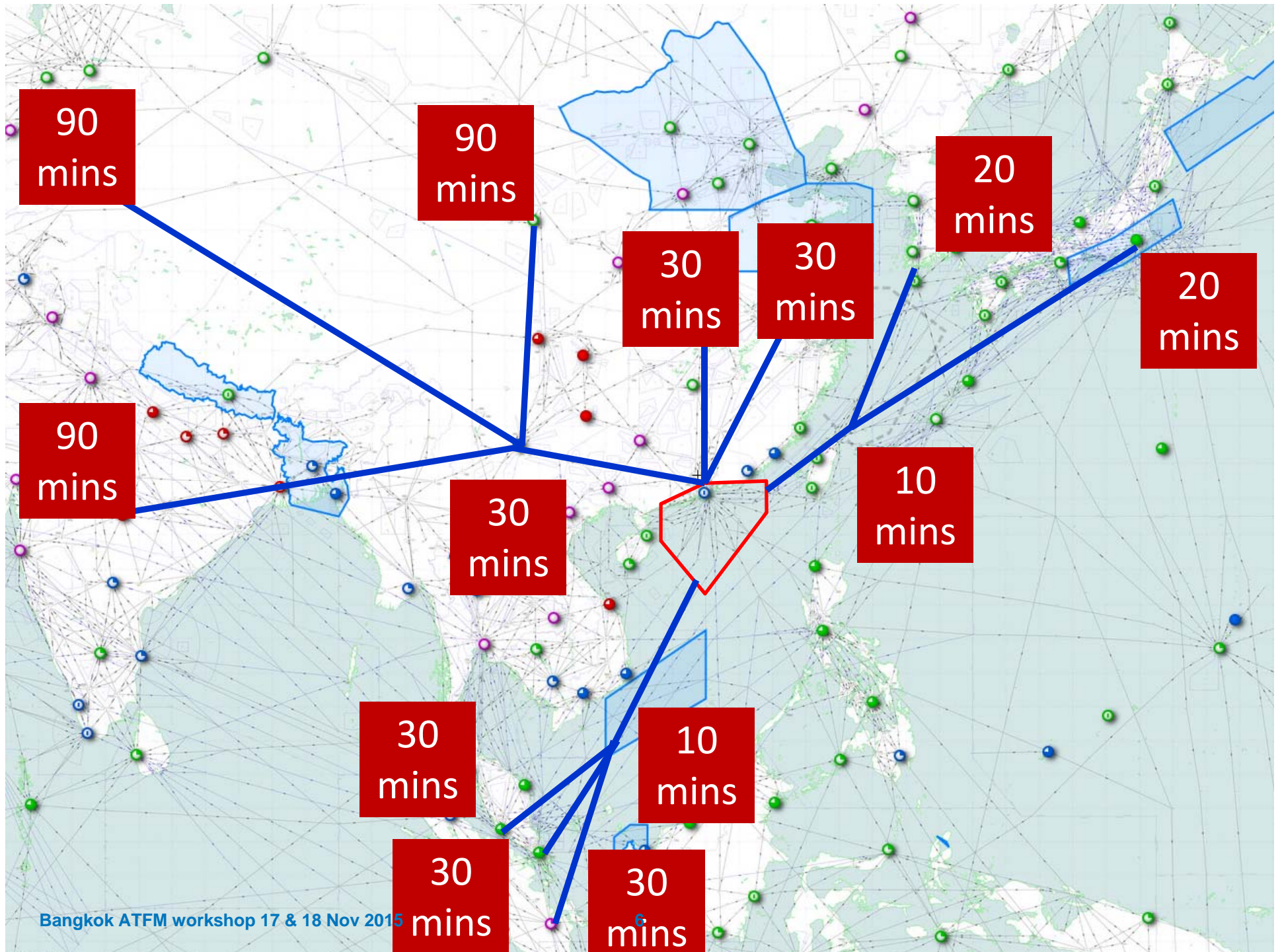
- Many key airports operate at near full capacity
 - Long term NOTAMs on arrival delay
 - Lack of timely information for long haul flights
- Air navigation service capabilities vary
- Asia-Pacific is forecasted to continue to be the world's fastest growing region for air transport over the next 20 years
- Air transport connectivity is a critical link to markets and a generator of wealth
- There is a close link between GDP growth and air travel demand





ATFM Current Situation

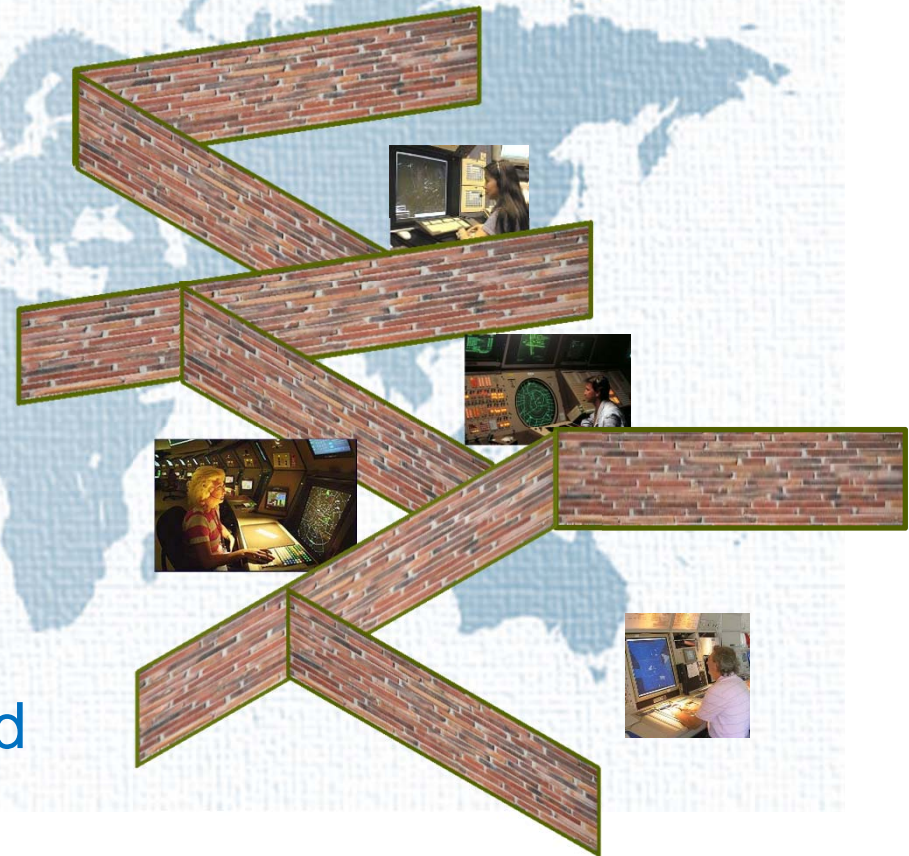
- “Blunt Instrument” Traffic restrictions imposed
- No Shared Network view regionally
- Knock on effect to other FIRs
- Disruption and unpredictability



ANSP ISSUES

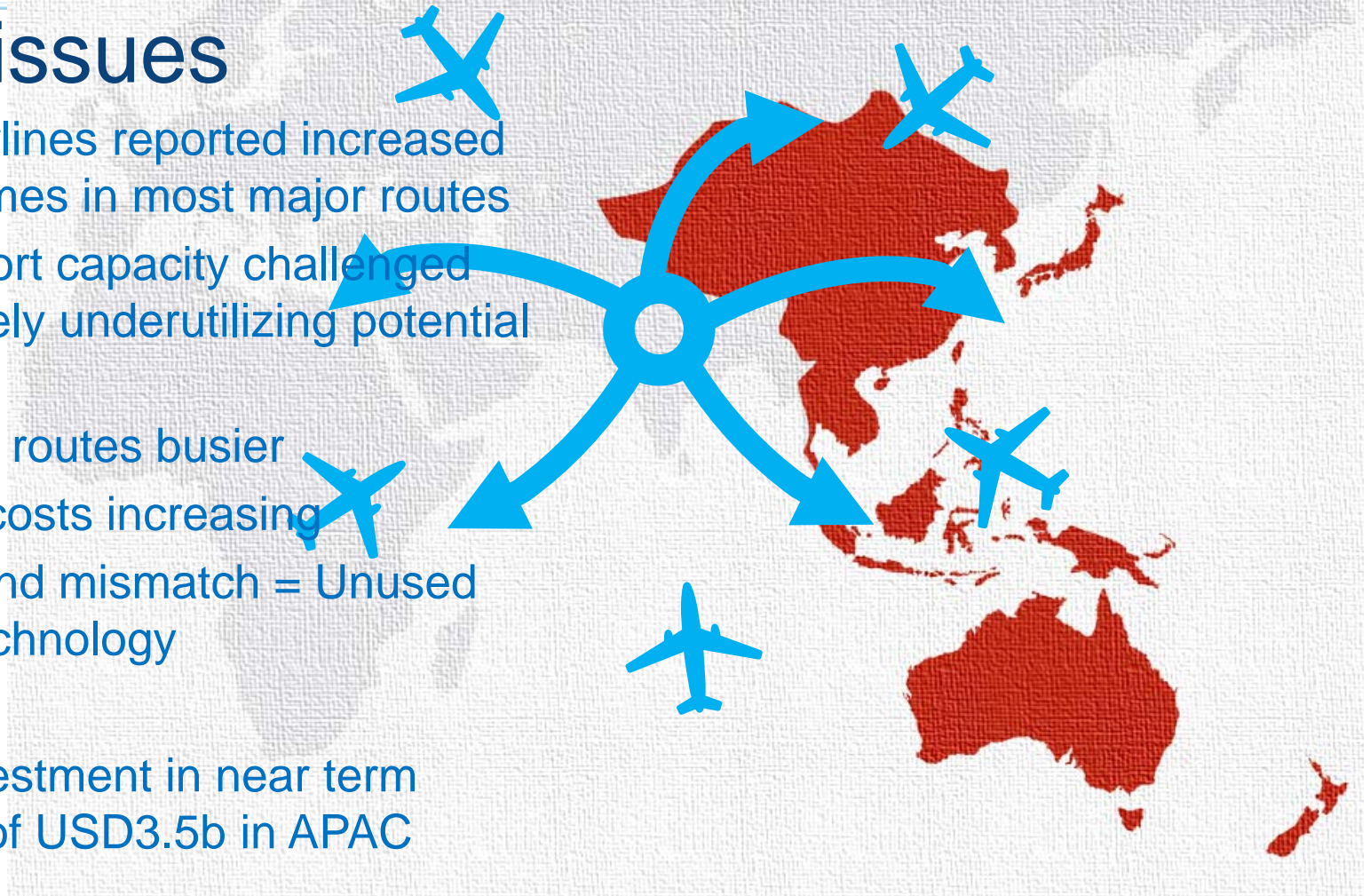
- **Some Airports Insufficiently Utilized**
 - No linkage to ATFM

- **ATM Inefficiency**
 - Uncoordinated
 - “Natural” focus on domestic, rather than regional integration and efficiency



User issues

- Major Airlines reported increased sector times in most major routes
- Key airport capacity challenged and largely underutilizing potential capacity
- Major air routes busier
- Airlines costs increasing
- Air-Ground mismatch = Unused costly technology
- ATM investment in near term upward of USD3.5b in APAC





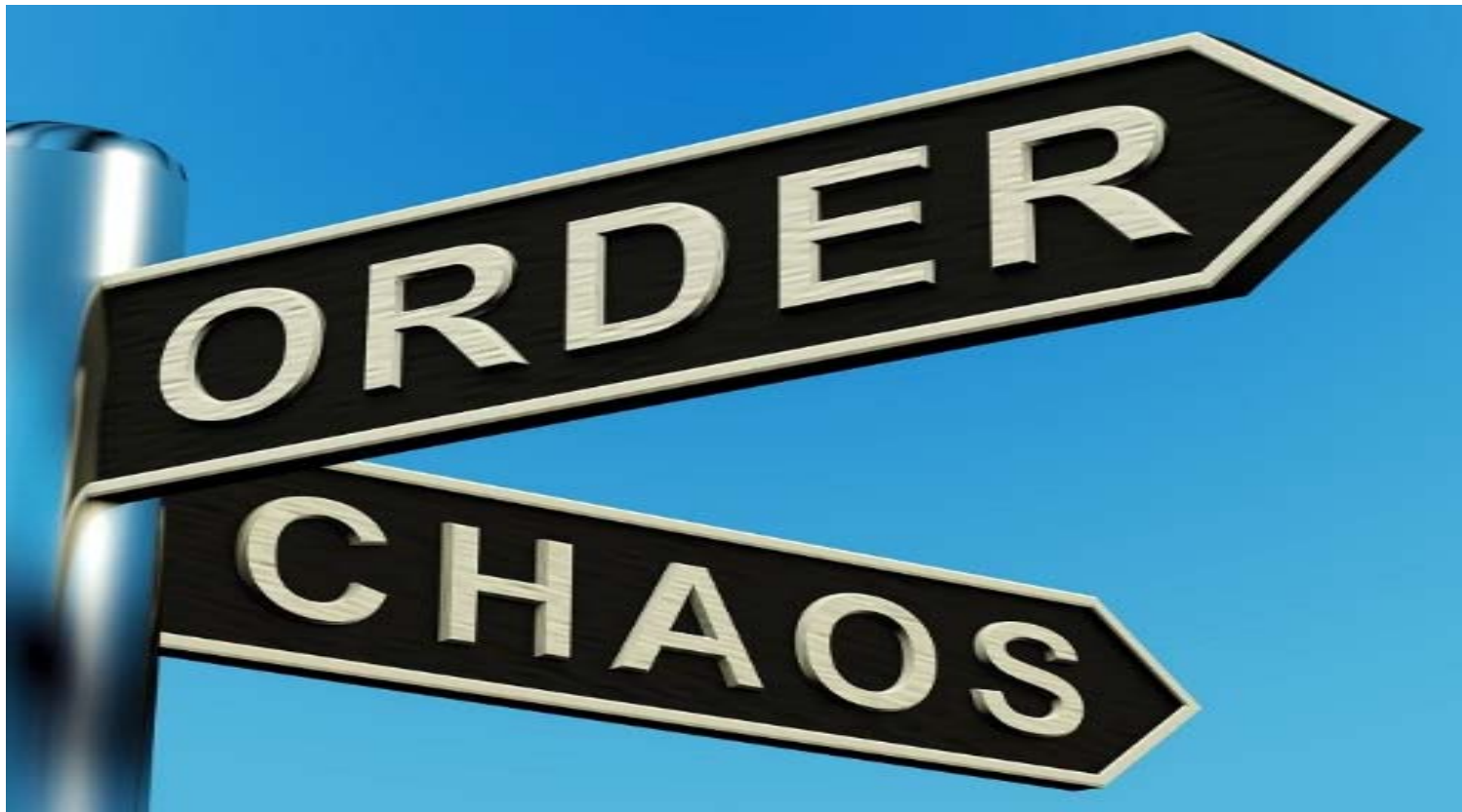
Airlines & ATFM

- We need to deliver our passengers and cargo to their destinations without disruption

- We need:
 - **Predictability**
 - To connect passengers with their ongoing flights
 - Fuel and cost efficient flight profiles

 - To have a say in decisions that effect our operations

PREDICTABILITY





Predictability

- Allows us to build achievable schedules
- Allows us to load the appropriate fuel weight
 - Every kilo of extra fuel offsets cargo and passenger capacity
 - We may have to offload passengers and cargo to carry extra fuel
 - It costs fuel to carry fuel
 - Predictable direct sectors are 4-6% more efficient than tactical direct sectors
- Collaborative approach allows us to help the system

Predictability

- Creates planned workload for controllers

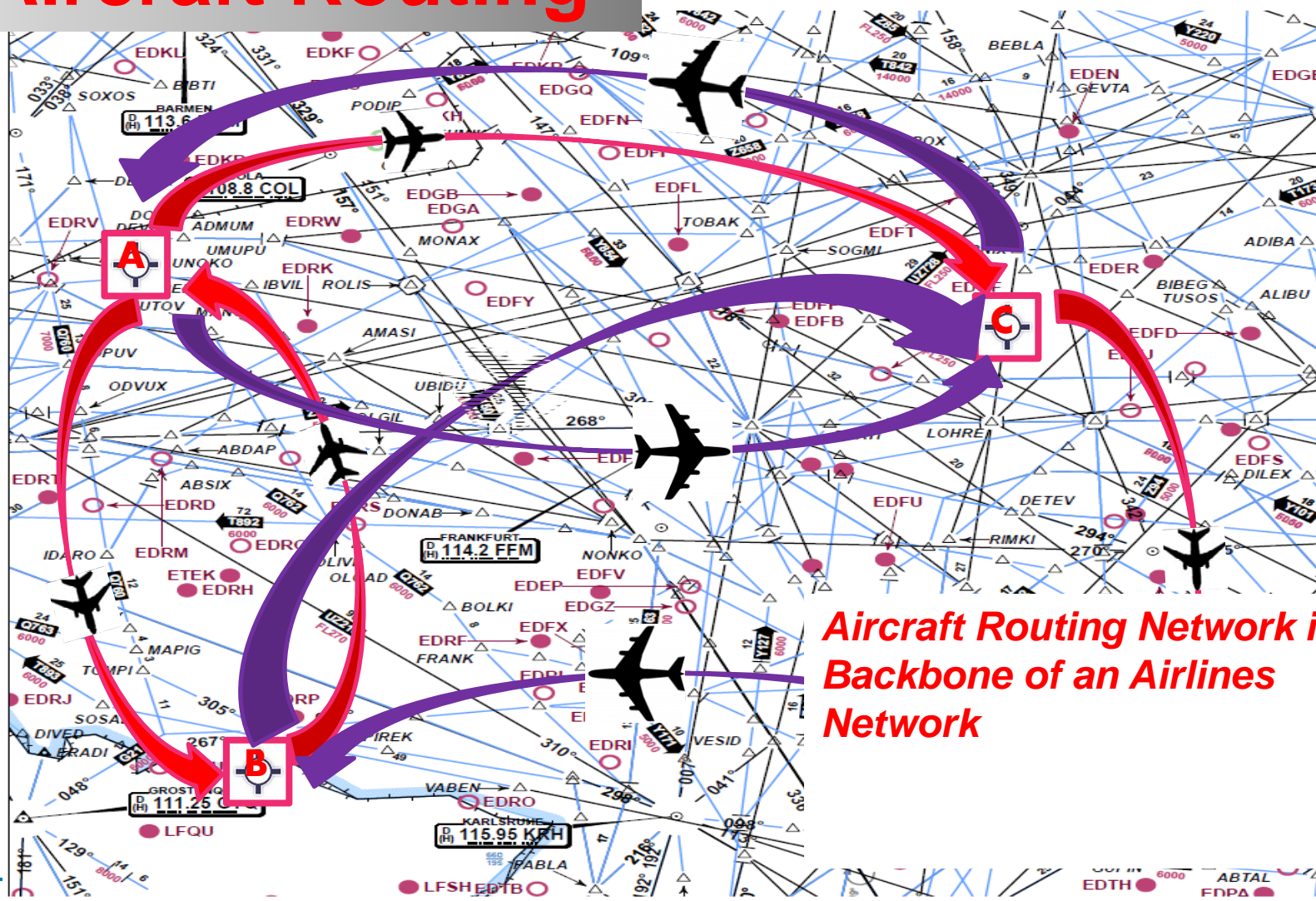
- Allows strategic management of traffic with less tactical intervention
 - Vectoring “low and slow” huge increase in fuel burn
 - Less Tactical intervention = reduced workload and increased capacity for planning

- Requires Appropriate support tools and training

Operations – disruption

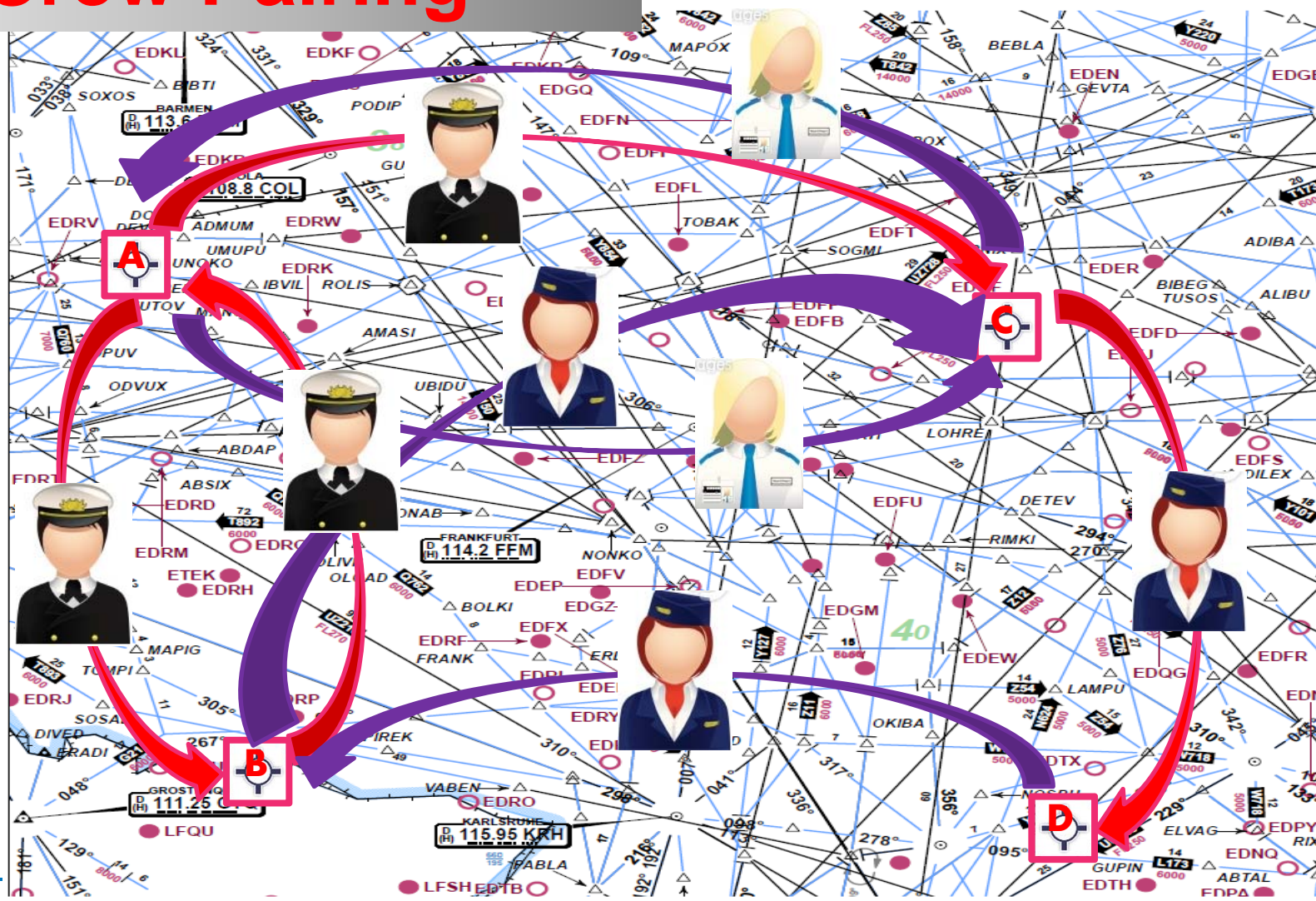


Aircraft Routing



Aircraft Routing Network is the Backbone of an Airlines Network

Crew Pairing





Disruption Management

- Disruption Management and Schedule Recovery is Challenging...
 - Passenger, crew and aircraft scheduling synchronization
 - Recovery within short time frame with limited resources
 - Recovery constrained by multi-objectives
 - Minimize passenger's recovery cost
 - Minimize disrupted time of operation

ATFM – Why?





ATFM – Why?

Benefits

- + Enhanced ATM system safety
- + Increased **predictability**
- + Increased situational awareness
- + Reduced fuel burn and operating costs
- + Effective management of irregular operations and unforeseen events
- NOTE: An ATFM system for an airspace which has no capacity restrictions or flow requirements, ultimately becomes a **limit** to traffic flow and increase costs

APAC sub regional ATFM – Why?

➤ APAC (particularly SEA) relatively small FIRs with low transit flight times = “knock on effect”

➤ Restrictions in FIR (a) “push” the problem to FIR (b)

➤ We need to manage flows collaboratively with shared information and decisions



APAC Sub Regional (Cross Border) ATFM – Why?

- **ATFM identified as a “Critical” element for Seamless Operations (ASBU 0-NOPS)**
- To manage current and forecast activity for our region multi FIR “linked-up” solutions are required
- ATFM an opportunity to develop collaborative management of airspace associated with key regional flows
- ATFM is a tool that provides efficiency, predictability and capacity for both Users and ANSPs



Benefits of ATFM Implementation

	2014	2019
Regional ATFM	US\$250 – \$300M	US\$600M – \$800M
Domestic & Regional ATFM	US\$660 – 810M	US\$1.1B - \$1.4B



APAC Cross Border ATFM – Why?

- **CTFMU ‘ideal’ BUT**
- **Not feasible for APAC at this time**
- **We have to look at different Network solution(s)**



THANK YOU