

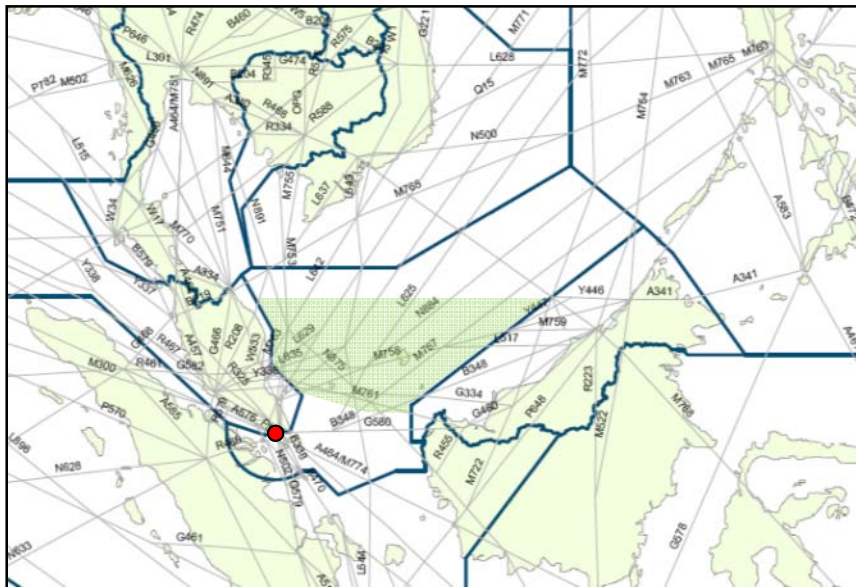


Why Cross-Border ATFM? A Singapore's Perspective

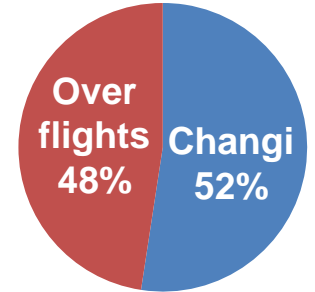
Hermizan Jumari

21 October 2015

Air Traffic Management in Singapore



662,000 (2014)
Total Movements
Changi - **341,400**



6 Contiguous boundaries with Area Control Centres

- Bangkok
- Ho Chi Minh
- Jakarta
- Kuala Lumpur
- Kota Kinabalu
- Manila

1 Area Control Centre
7 En-route Sector



1 Approach Control Centre



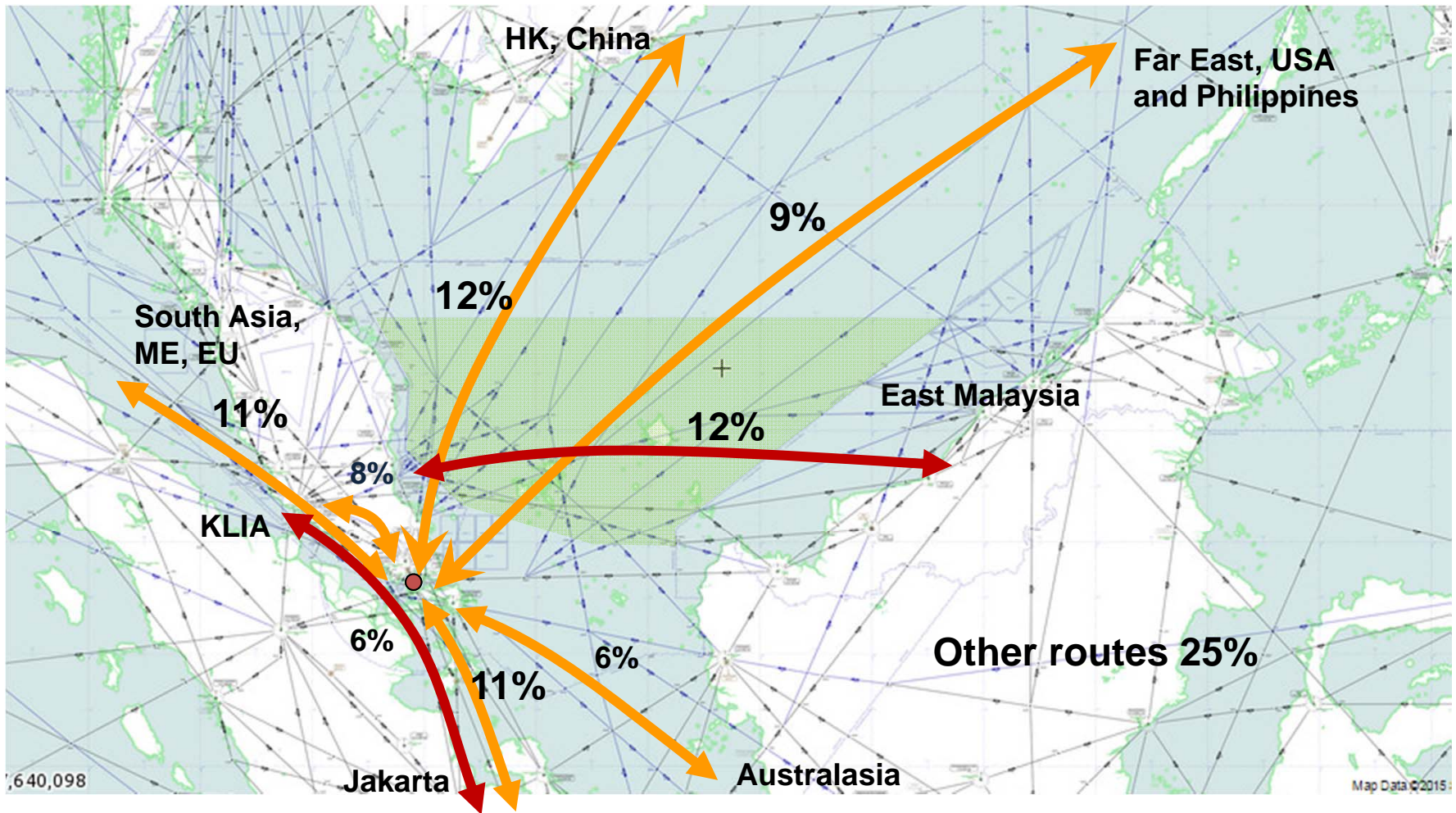
2 Air traffic control towers

- Changi
- Seletar

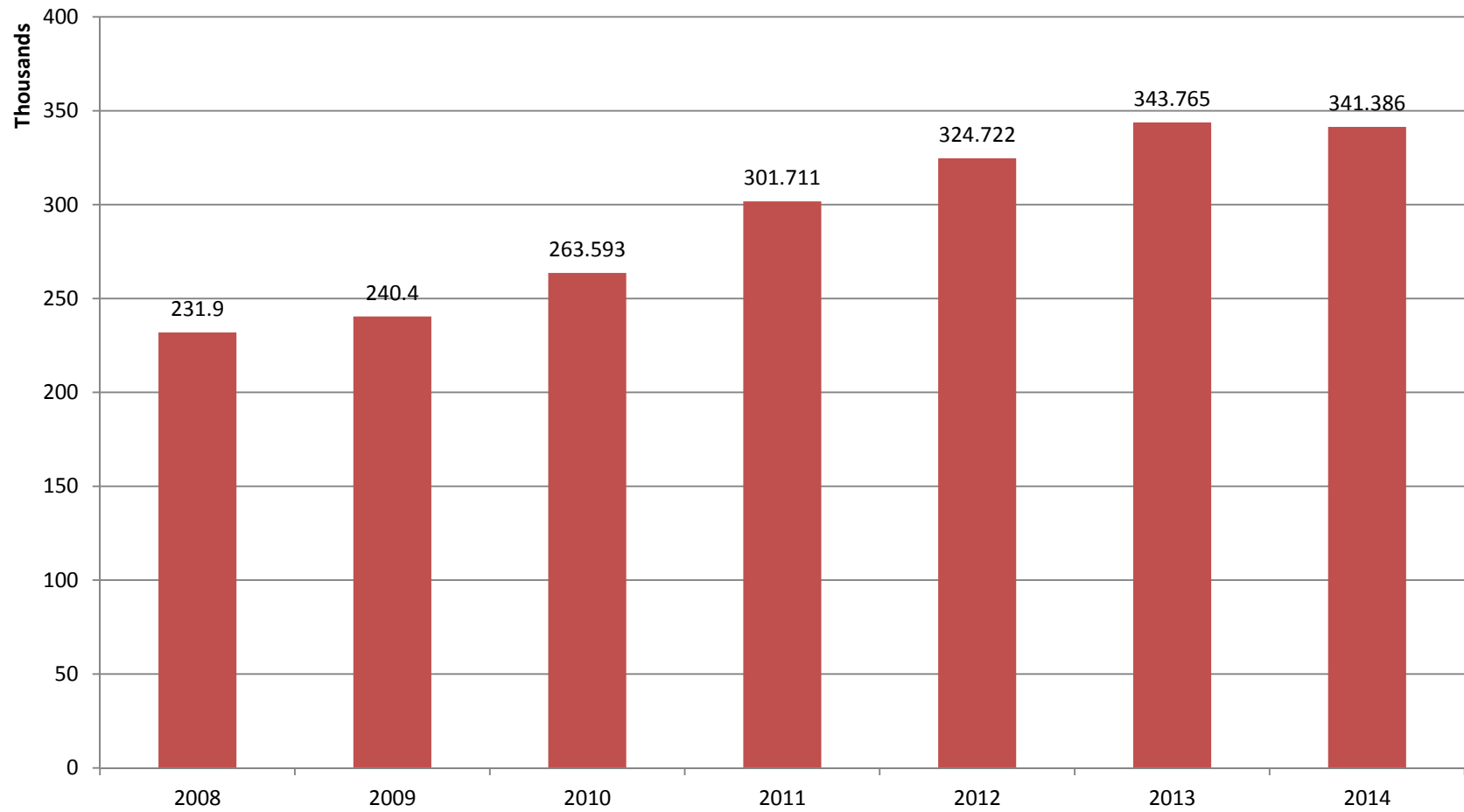


350
Air Traffic Controllers

Major Traffic Flows in Singapore FIR

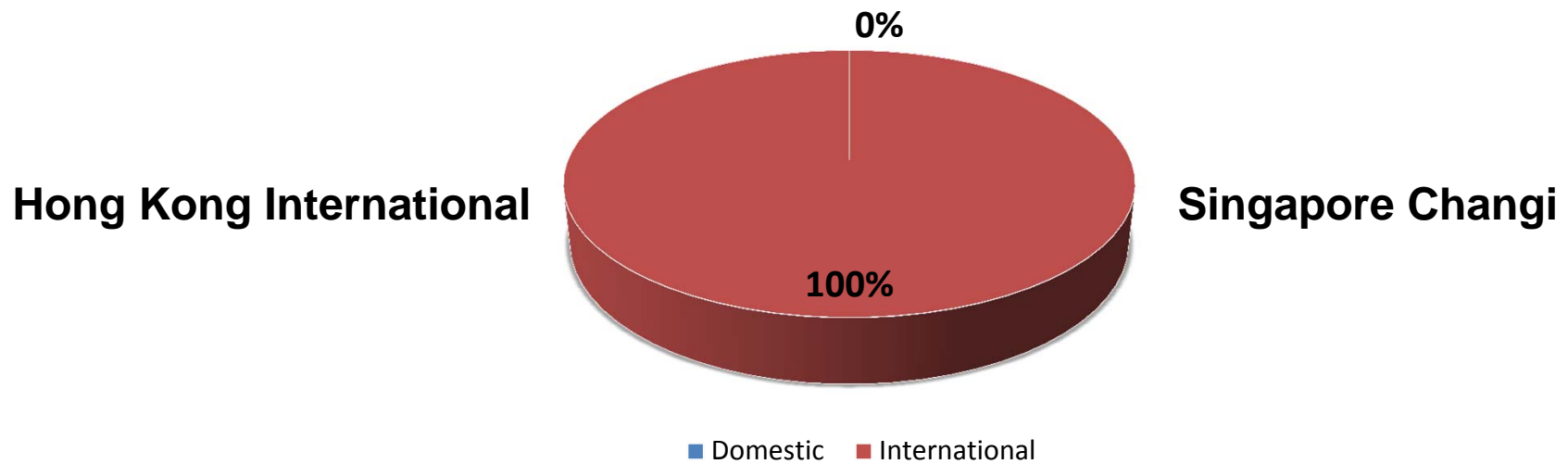


Air Traffic Volume at Changi

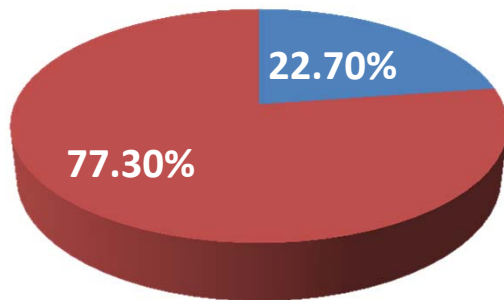


Source : Changi Airport Group through CAPA

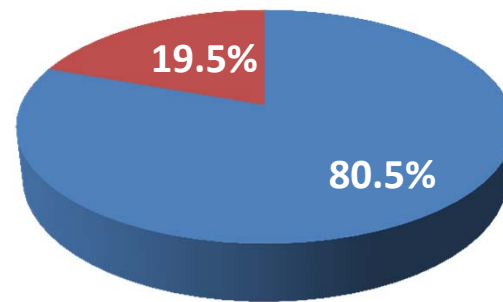
Composition of Air Traffic – Int'l vs Domestic



Bangkok Suvarnabhumi



Jakarta Soekarno-Hatta International



ATFM Around the World

NavCanada's National Operations Center



FAA's ATC System Command Center



AirServices Australia's Network Operations Centre (NOC)



South Africa's ATNS Central Airspace Management Unit (CAMU)



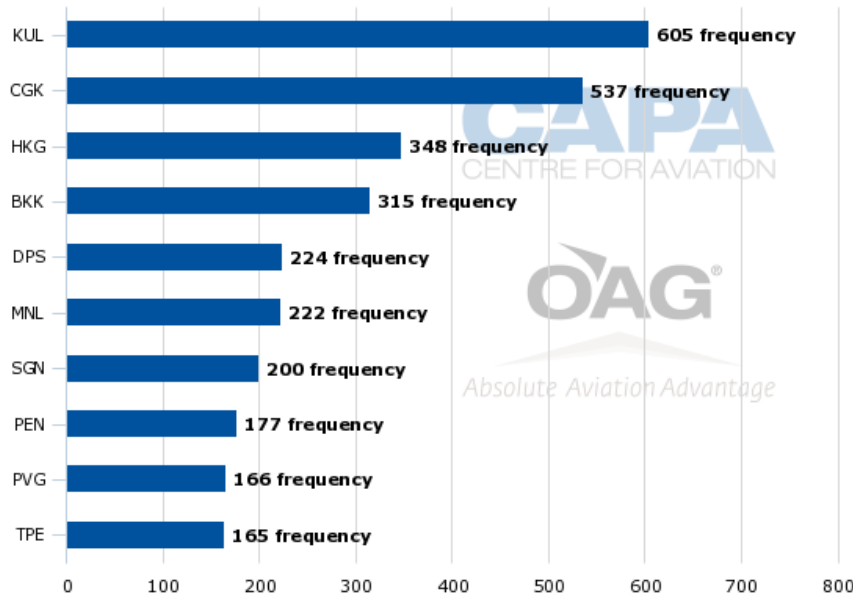
How do we deal with these?



ATFM Concept for the Region

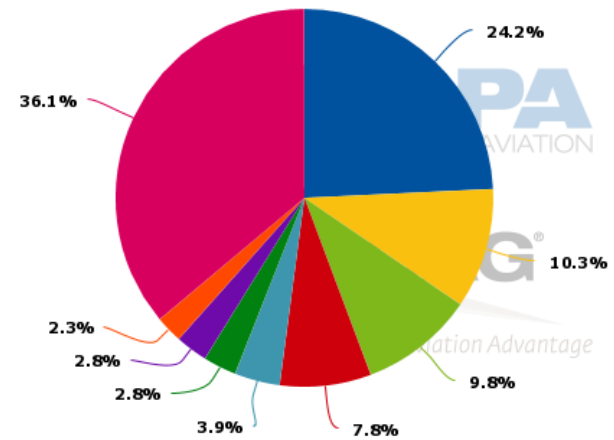


Managing International Flights at Changi



Focus on major city pairs

Engaging local based carriers



- Singapore Airlines
- SilkAir
- Tigerair
- Jetstar Asia
- AirAsia
- Garuda Indonesia
- Indonesia AirAsia
- Malaysia Airlines
- Other

Evolution of the Regional ATFM Concept

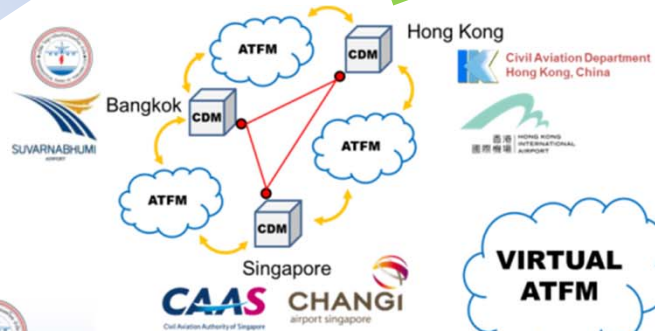


Research Collaboration on Regional ATFM Concept 2013

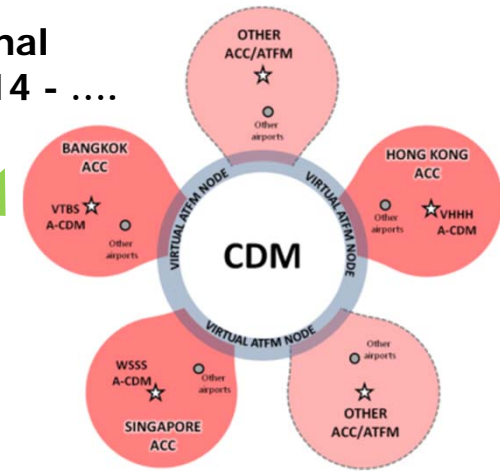
CANSO Whole of flight CDM Pilot Project between BKK-SIN 2011-2012



Multi Nodal Regional ATFM Concept 2014 -



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



Collaboration; Key to Cross-Border ATFM



Photo credit: NATS UK