

Operator Perspective: PBN Implementation - Enroute

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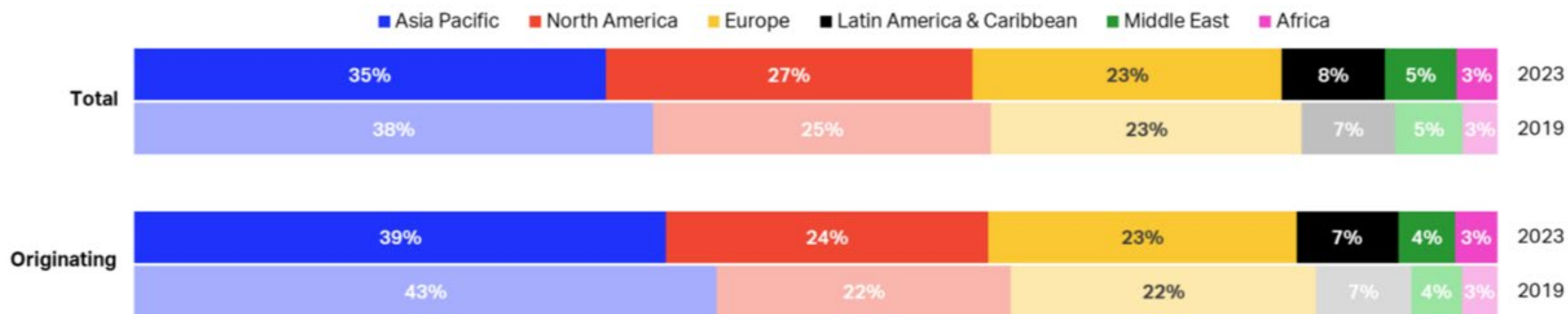
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Operator Perspective: PBN Implementation Enroute



Challenges with Growing Air traffic in APAC

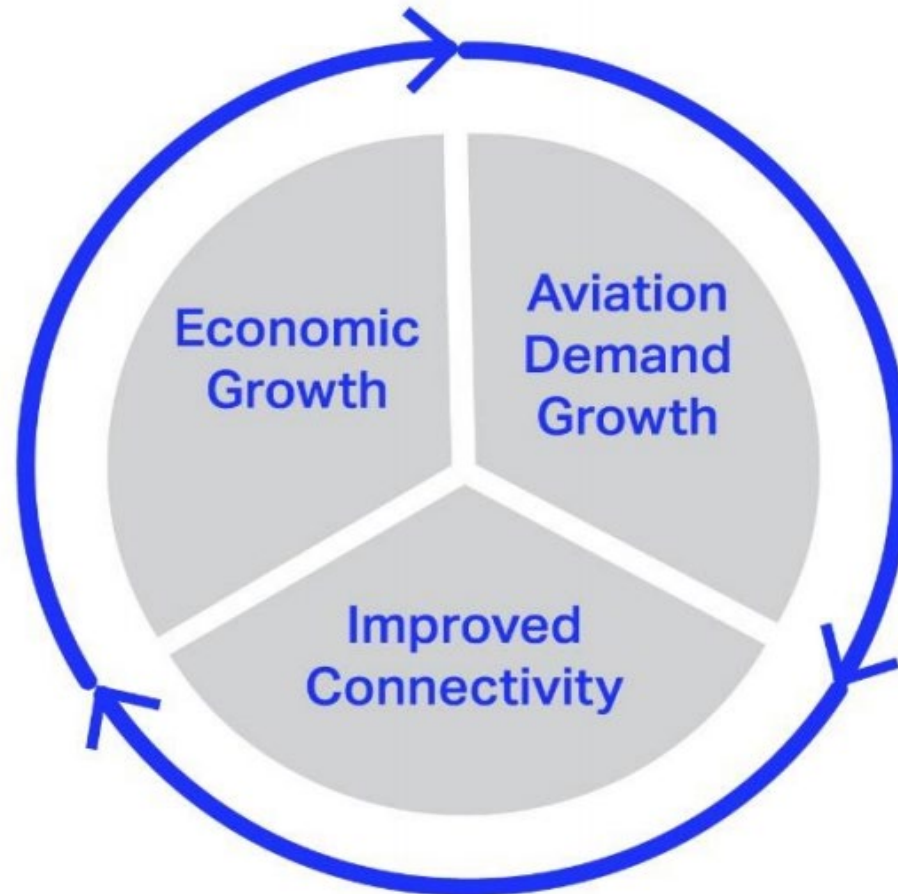
APAC, Growing Challenge: Demand Capacity Balancing



Source: IATA Sustainability and Economics, using data from DDS.

Air connectivity is an engine of economic growth

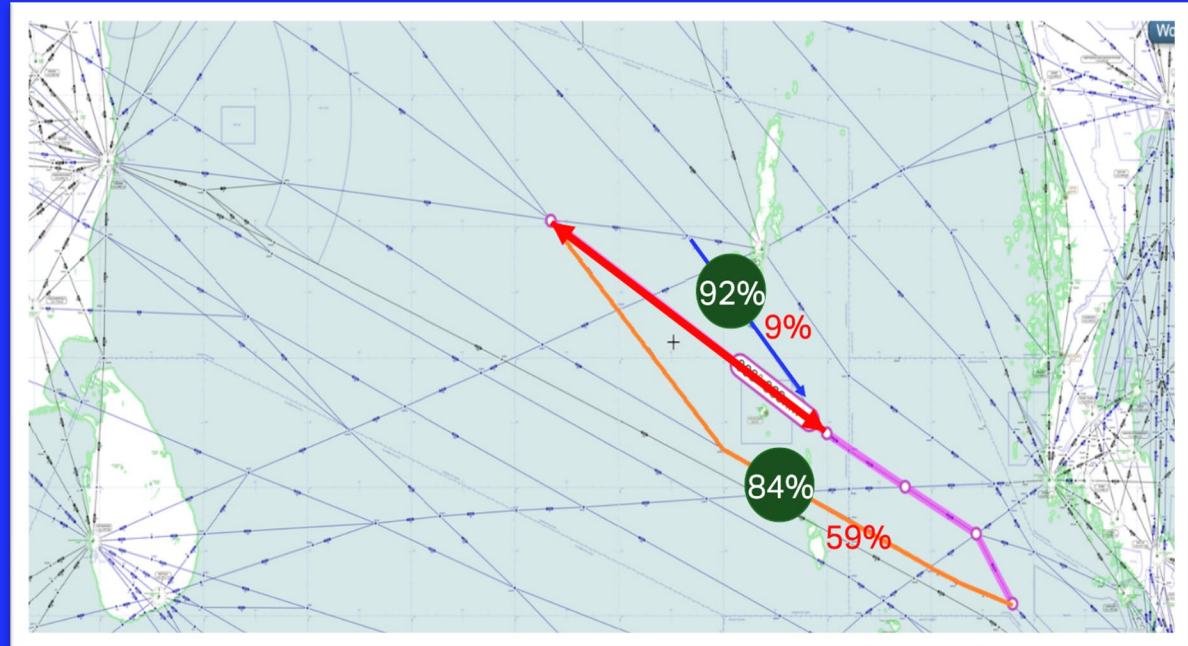
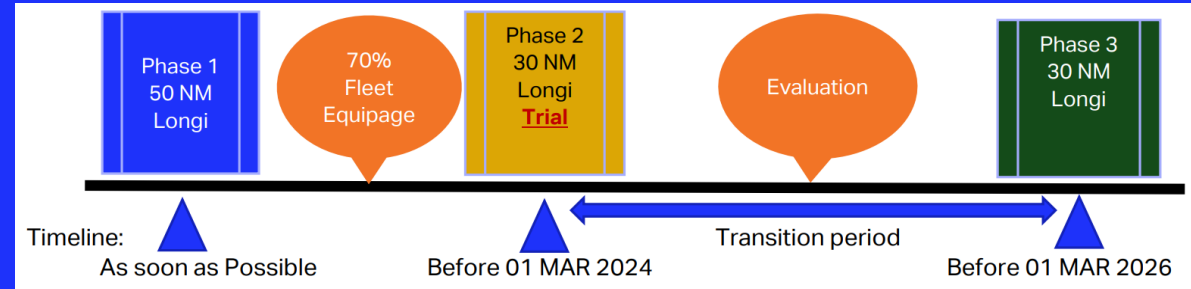
The virtuous circle of air connectivity and economic performance



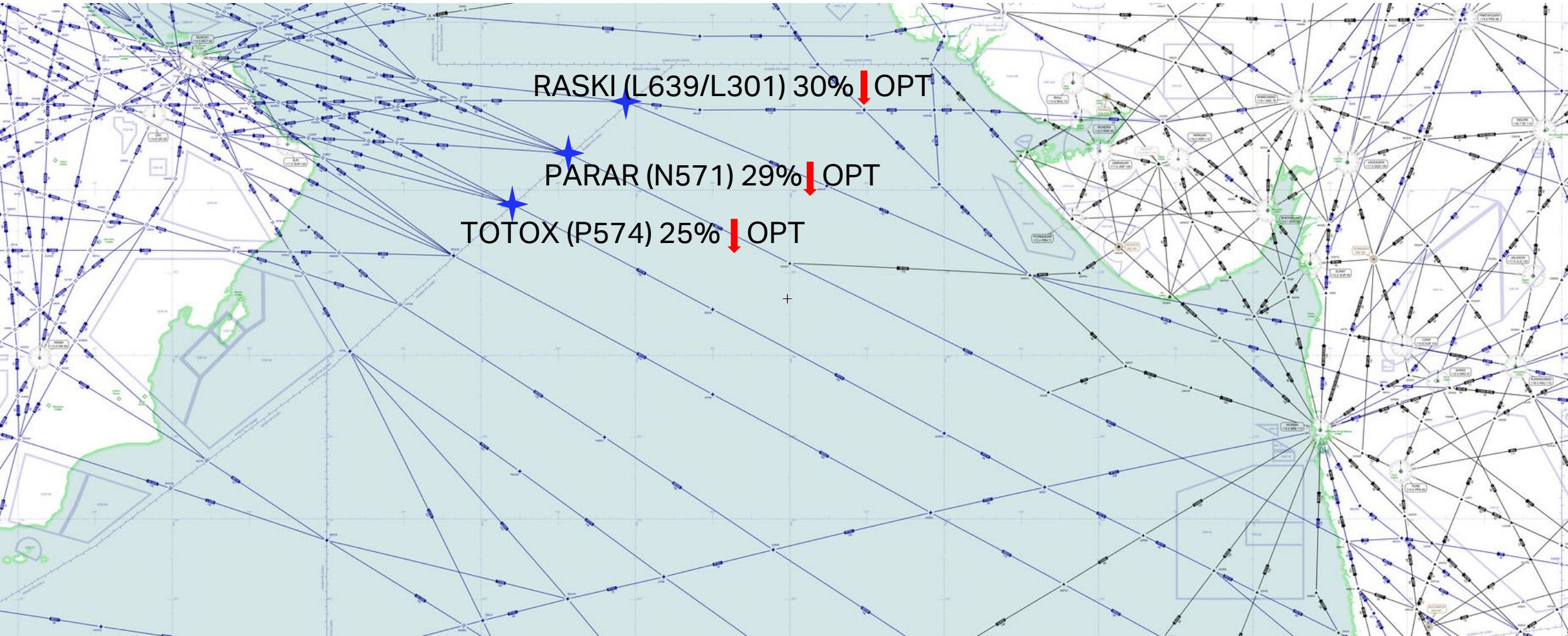
Airline Reports: Operational Challenges Bay of Bengal



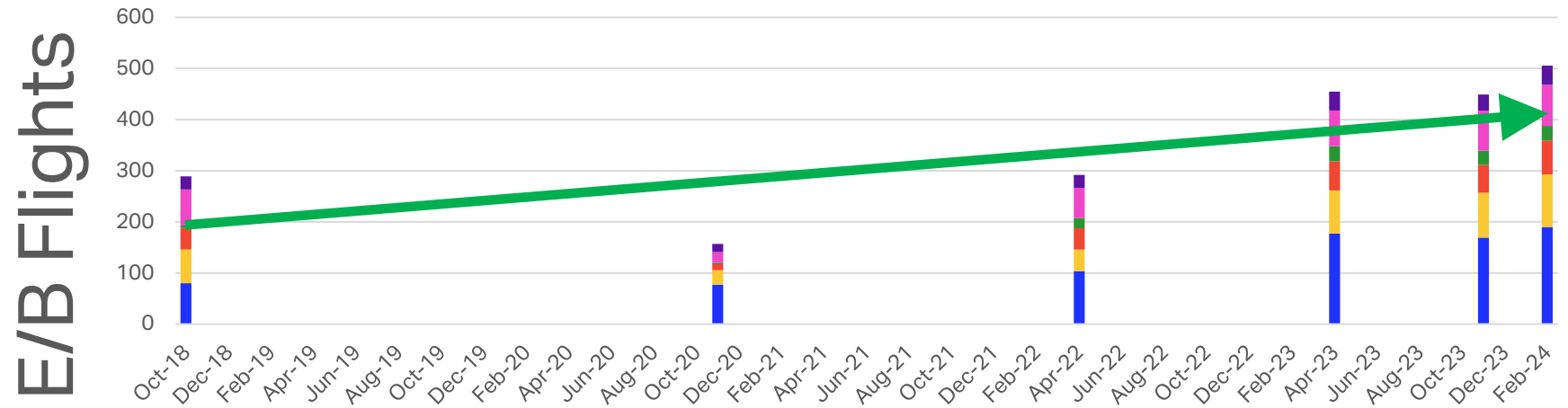
30 NM Longi



Airline Reports: Mumbai-Muscat FIR



Growing Eu/Mid East-South Asia Traffic flow



	Oct-18	Nov-20	Apr-22	Apr-23	Nov-23	Feb-24
KITAL (P570/L894/L516)	26	16	25	37	32	37
LOTAV (M300)	71	21	59	70	78	80
REXOD (N563)	5	3	20	30	28	28
TOTOX (P574	42	12	42	57	54	67
PARAR (N571)	66	28	42	84	88	103
RASKI (L639/L301)	80	77	104	177	169	190

Elephant in room



Needs wholistic approach



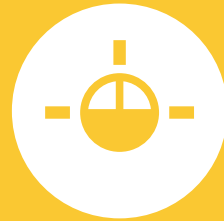
User Expectations

PBN Enroute – Operator's Perspective Benefits



Airspace Capacity, Efficiency

- More availability of routes
- Higher traffic volumes flying OPT FLs
- Optimises Routes
- Delay reduction



CO2 Emissions

- Reduces flight distance, Flying time
- Reduces Fuel consumption means reduction in CO2 Emissions
- Reduces Operating costs for airlines

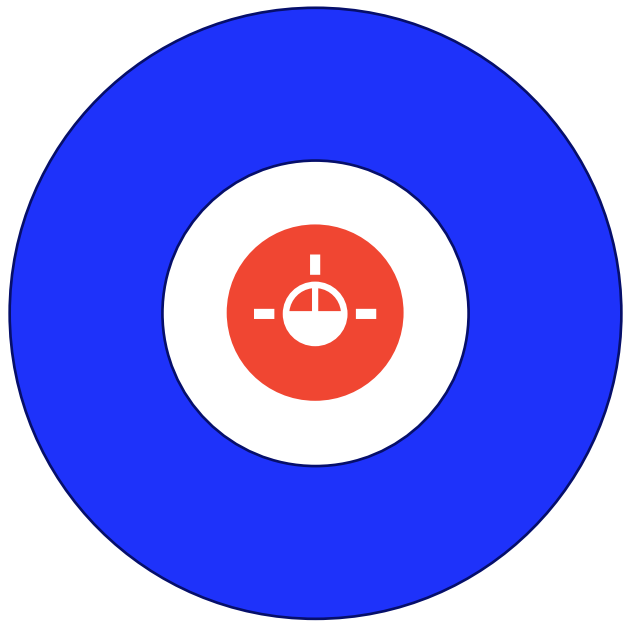


Safety

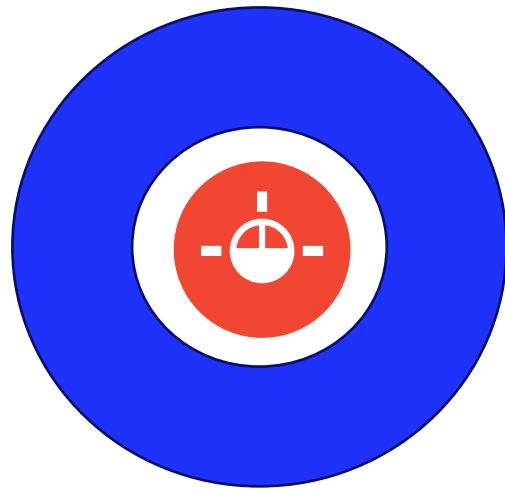
- Improved and predictable operations accounting for Adverse Weather avoidance

PBN OPS Approval:

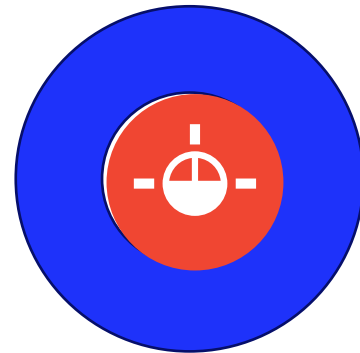
Stringent PBN capability in the FPL indicates authorization for all lesser capabilities?



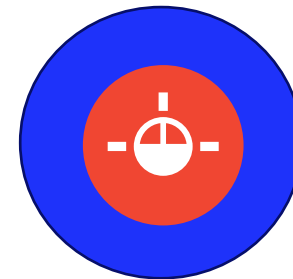
RNP 10



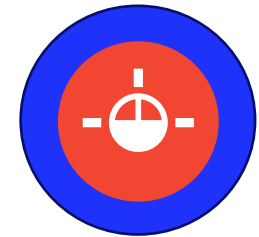
RNP 4



RNP 2



RNP 1



RNP 0.3

4th Edition

2.1 Because specific performance requirements are defined for each navigation specification, an aircraft approved for a particular navigation specification is not automatically approved for any other navigation specification. Similarly, an aircraft approved for an RNP or RNAV specification having stringent accuracy requirements (e.g. RNP 0.3 specification) is not automatically approved for a navigation specification having a less stringent accuracy requirement (e.g. RNP 4).

2.1 An authorization entitles an operator, owner or pilot-in-command to undertake the authorized operations. Authorizations can take the form of approvals, specific approvals, or acceptances. PBN operations require different levels of authorization depending on the navigation specification in use: RNP AR APCH or RNP AR DP require a specific approval, whereas most other PBN operations require an approval. The widely used term ‘operational approval’ is most commonly used when referring to the issuance of a specific approval. In this manual, reference to the process of granting an operator permission to conduct PBN operations will therefore be referred to as an ‘operational authorization’.

4th Edition

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PBN Manual (ICAO Doc 9613)

4th Edition

2.4 When establishing a PBN operational approval environment, States should also consider the other operational approvals relevant to CNS/ATM. Currently there are up to about 20 operational approvals that may be needed by each aircraft. Establishing approval procedures that are efficient and minimize overhead for both operators and regulators are important considerations.

Stringent PBN approval is not automatic approval for a less stringent capability. However, paragraph 2.4 suggested it is open to the individual Regulators and how they administer it.

5th Edition advanced unedited version,

2.4 Where appropriate, States may refer to previous operational authorizations in order to expedite this process for individual operators where performance and functionality are applicable to the current request for operational authorization.

DRAFT Conclusion PBNICG/11:
PBNICG supports simplification and standardization of the interpretation and application for PBN operational authorizations/approvals in line with ICAO provisions



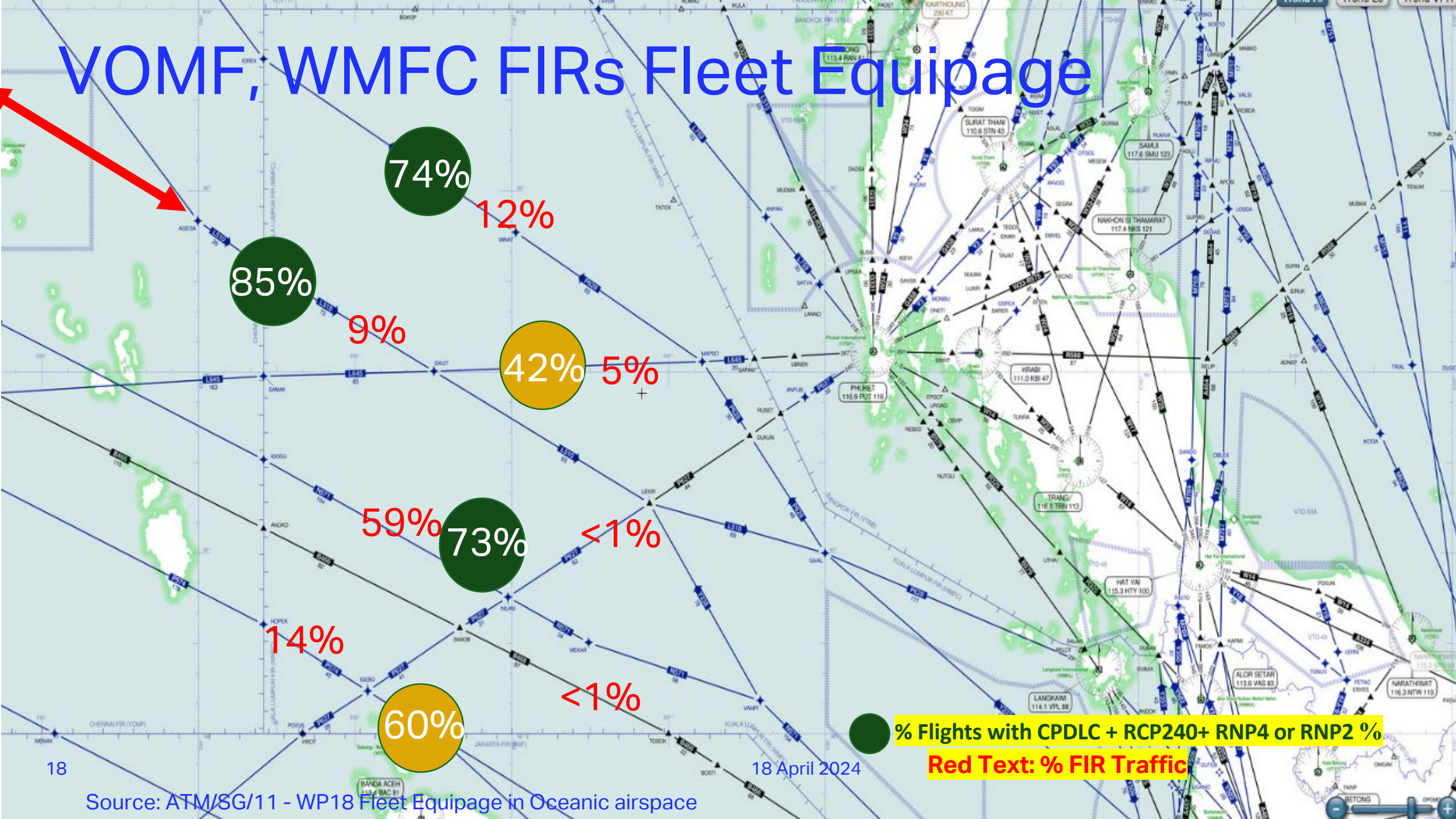
Strategies and Case Studies

Airline Reports: Oceanic Separation & FL

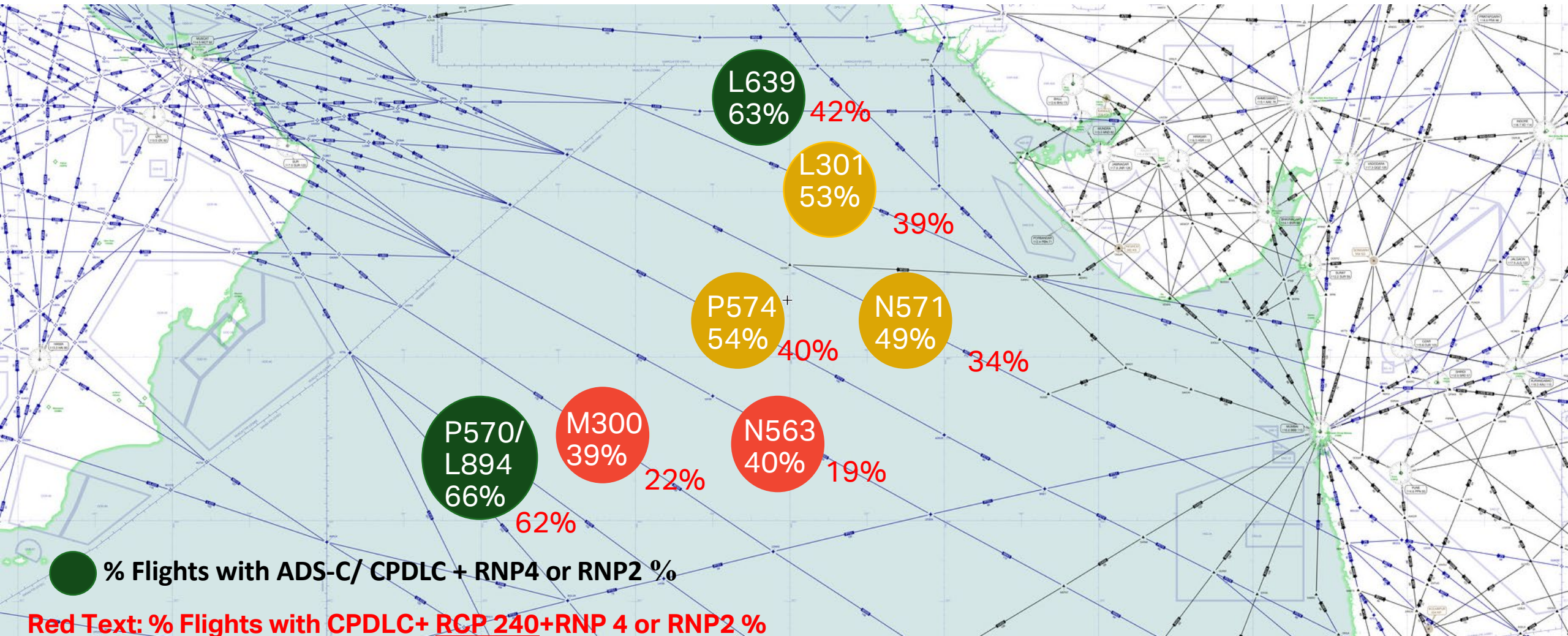


Scope for....
Opportunity based
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VOMF, WMFC FIRs Fleet Equipage



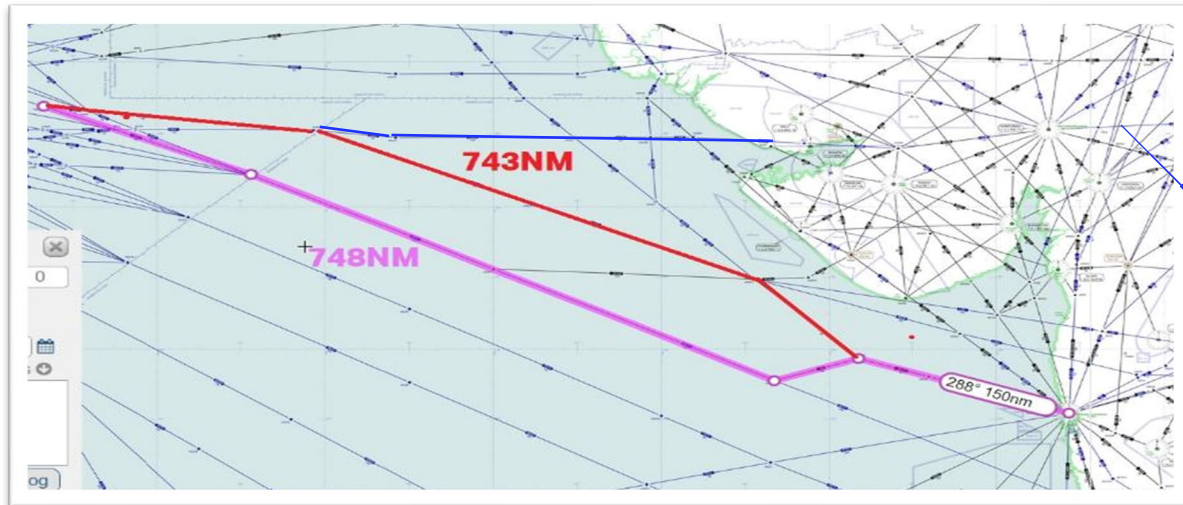
Equipage: Mumbai ATC Oceanic Flight Plans*



Balanced Approach: ADS-C/CPDLC Non-exclusive Mandate

1. MID/ASIA Regional Supplementary Procedures proposing non-exclusive mandate over 'Oceanic airspaces' of Mumbai, Chennai, Kuala Lumpur, Jakarta, Colombo, and Kolkata, Yangon FIRs. Posing very restrictive limitation of FL280 for flight planning of non-compliant flights
2. IATA's Balancing proposal: On similar lines to the NOPAC mandate, that is 'most capable, best served' but with non-capable aircraft not severely punished for an agreed transition period. Suggested to develop new airspace management plans:
 - a) That will encourage equipage
 - b) Suitable 'exceptional' provision, applicable for Eastbound / Westbound traffic flows, for specific FL bands, during specific traffic hours during transition period.

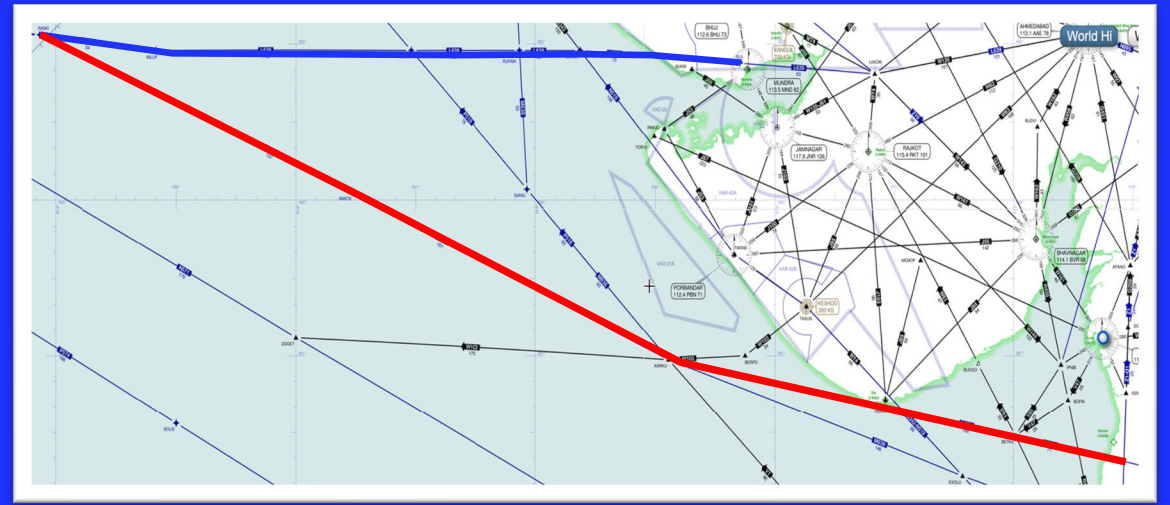
Operational Challenges – Arabian Sea



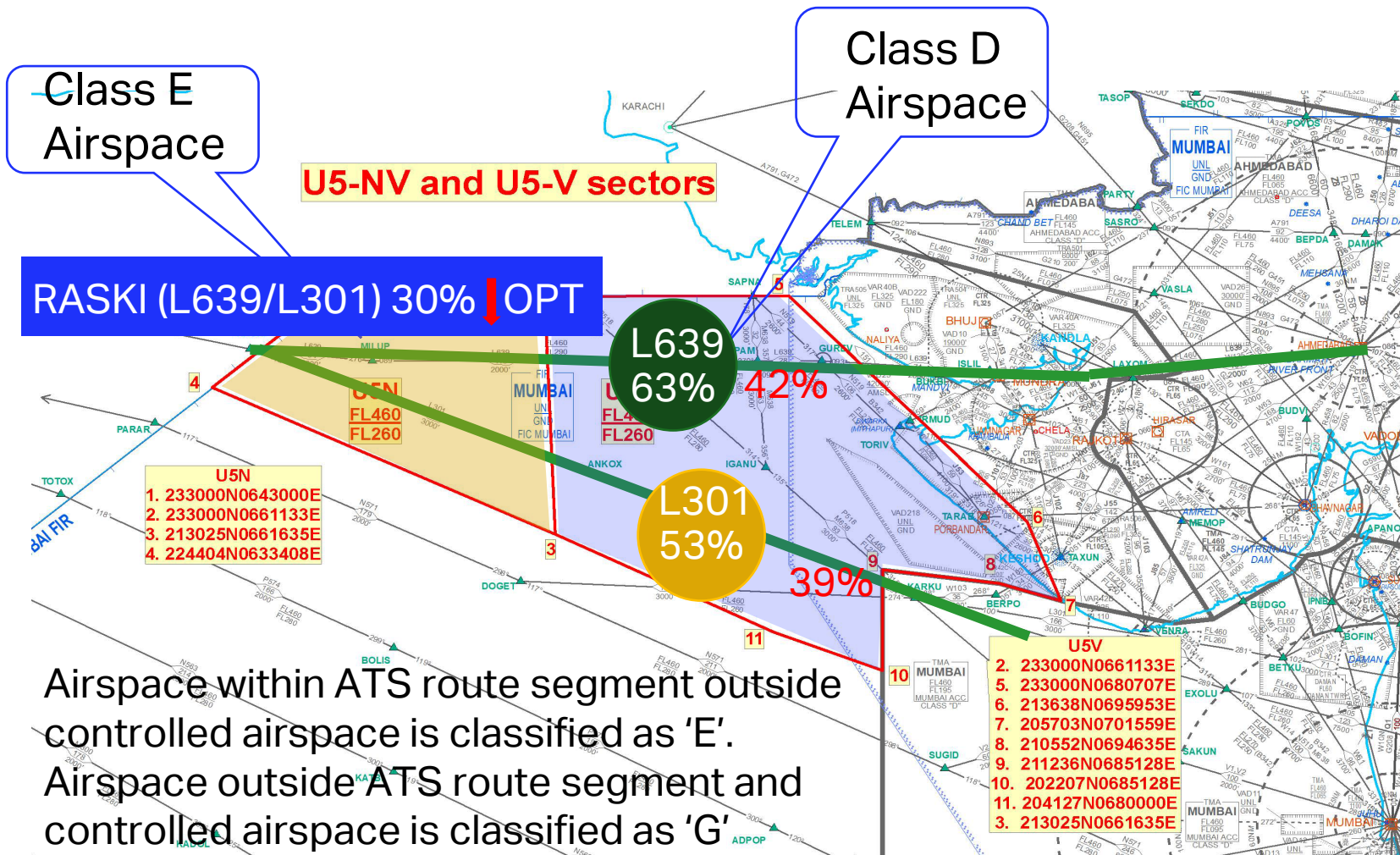
Utilization of N571 over L301, for balancing traffic on L639

20NM Longi

RNP4/RNP2, CPDLC - RCP240



AAI's Mumbai Oceanic: L639/L301 20NM Longi Trials



- ✓ Airspace Classification, AIP SUP 2023-141; 02 Nov 2023
- ✓ MCT-BOM ATC co-ordination Meeting
- ✓ Safety Assessment
- ✓ Eastbound Trials Eff 15 JAN 2024
- ❖ Next steps:
 - Signing of LOA (MCT-BOM)

Operator Perspective: PBN Enroute Implementation

Summary

- Much can be done today
- Explore possibilities
 - What can be done; develop a transition plan
 - All the time or Some of the time
 - All the airspace or some of the airspace
 - All the FLs or some of the FLs
- Any saving is a benefit
- The savings are accumulative!

