

The Challenges of ATFM in APAC

ATFM Workshop ASIA PACIFIC 2014

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DFS Deutsche Flugsicherung

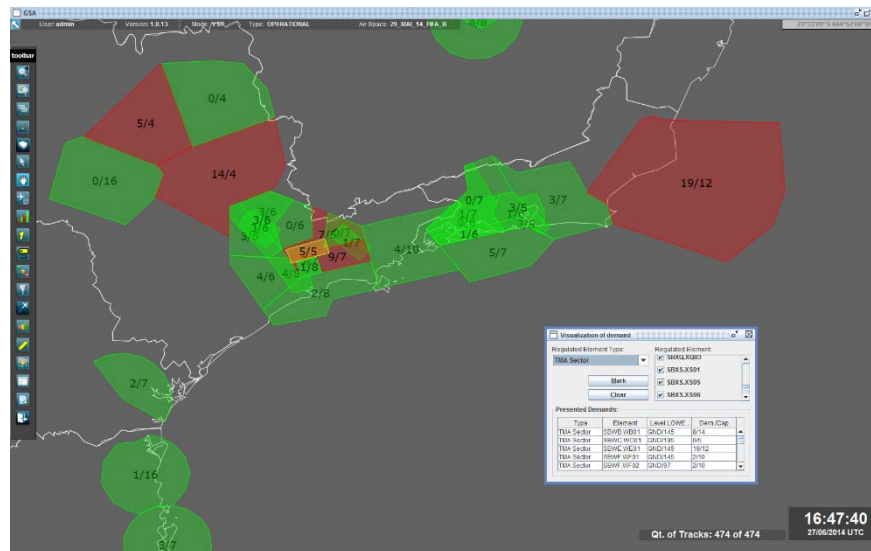


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The Challenges of ATFM in APAC

Objective

To present an overview of possible solutions to anticipated challenges of Air Traffic Flow Management in Asia Pacific



The Challenges of ATFM in APAC Introduction

**CONOPS
APAC ATFM**

Multi-nodal ATFM model

- Network effects
- Integration Challenges
- Efficiency gain
- Maintain safety



The Challenges of ATFM in APAC

CONOPS

CONOPS
APAC ATFM

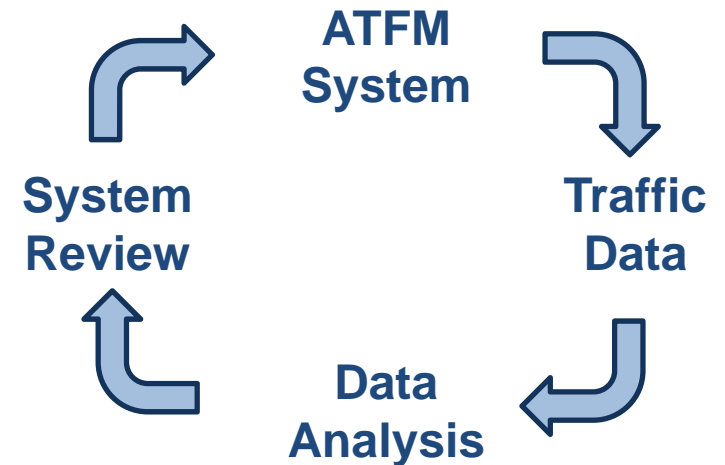
CONOPS ATFM APAC:

1. Evolutionary in nature

2. Constant review in terms of:

- Airspace
- ATS routes
- Aerodromes
- Effectiveness

3. Major traffic flows on regional basis



The Challenges of ATFM in APAC

Network Effects

Multi-nodal ATFM model

- Network effects
- Integration Challenges
- Efficiency gain
- Maintain safety

Traffic volume in one region/control center may experience positive or negative effects from ATFM measures/regulations applied to traffic in other regions/centers

Analysis of dynamic network effects

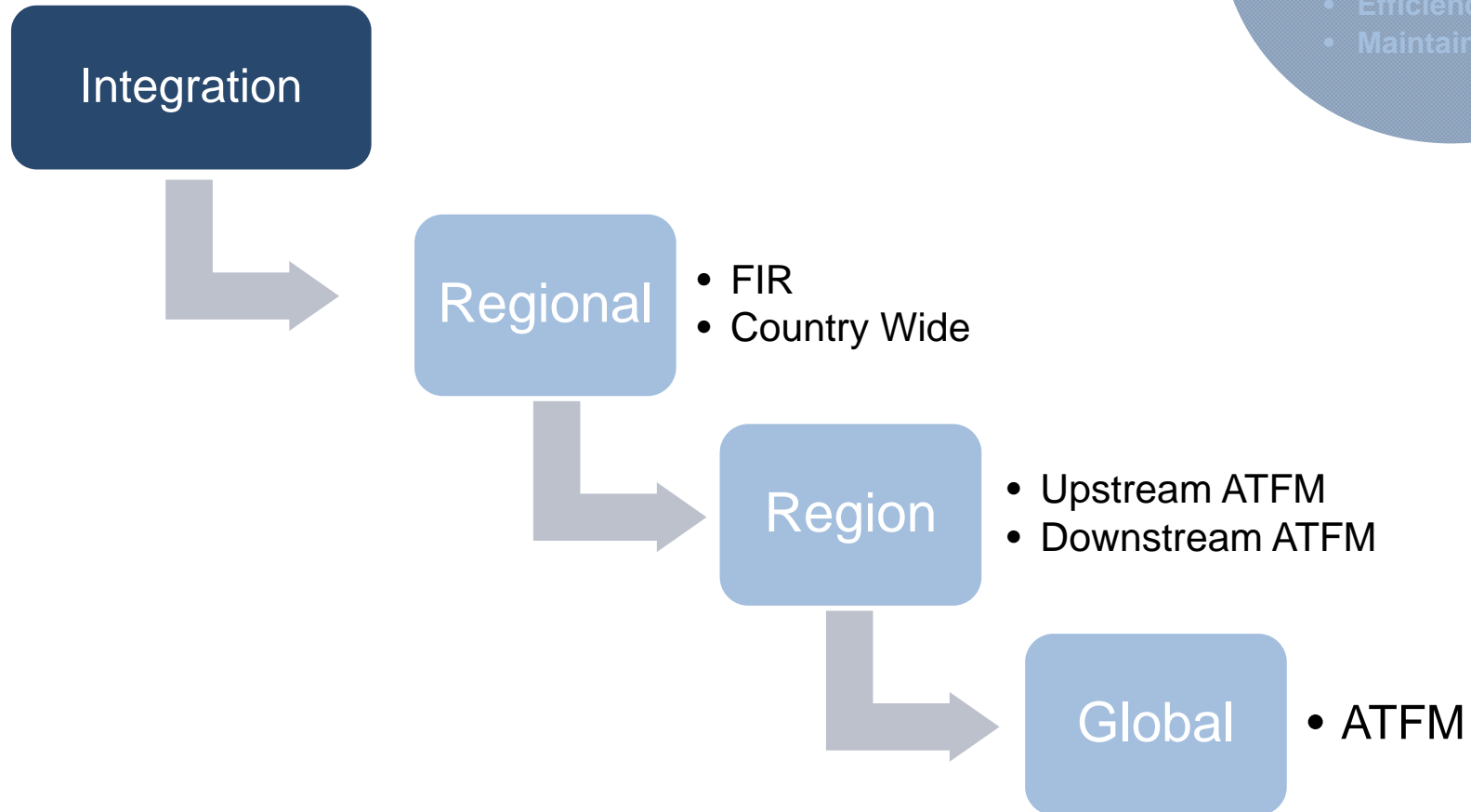
Global network node management perspective



The Challenges of ATFM in APAC Integration

Multi-nodal ATFM model

- Network effects
- Integration Challenges
- Efficiency gain
- Maintain safety



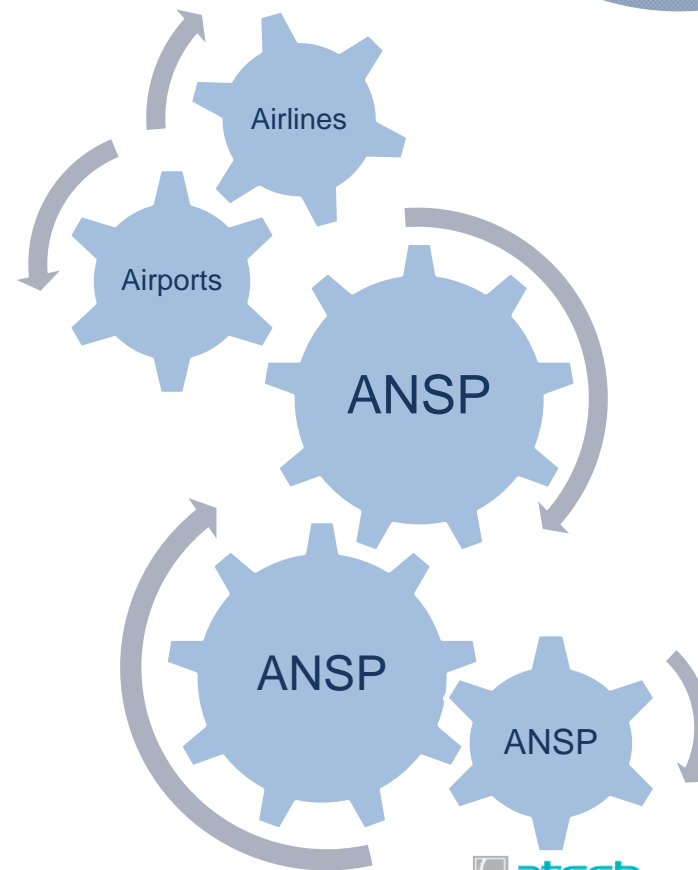
The Challenges of ATFM in APAC Efficiency

Multi-nodal ATFM model

- Network effects
- Integration Challenges
- Efficiency gain
- Maintain safety

The efficiency of the APAC regional ATFM shall be

- Constantly monitored
- Governed by
 - National CDM
 - Regional CDM



The Challenges of ATFM in APAC Safety

Multi-nodal ATFM model

- Network effects
- Integration Challenges
- Efficiency gain
- Maintain safety

ATFM System Safety Cases shall take into account possible effects of regional ATFM Systems and their knock-on effects.



The Challenges of ATFM in APAC

Interoperability



Regional ATFM consist of

- Network processes
- Information exchange
 - Interaction between stakeholders

Necessity of integration and automation

The Challenges of ATFM in APAC

Interoperability

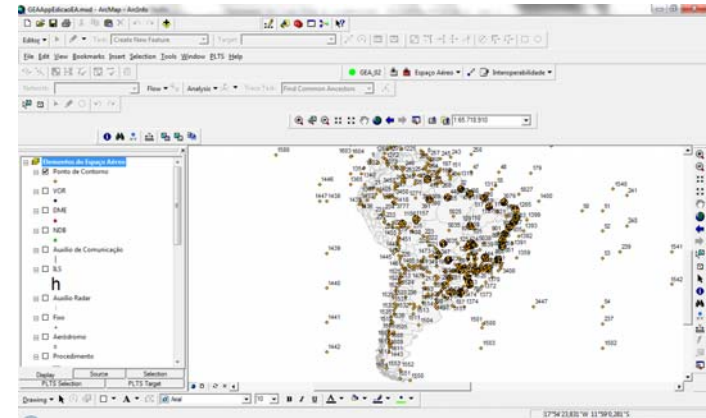
ATFM Systems Integration

- via Web Services

ATFM Conceptual Model

ATFM Application Schema Mapping (XML)

- ATFM Features (Identification & Reference)
- XML Messaging
- SkyFlow Viewer

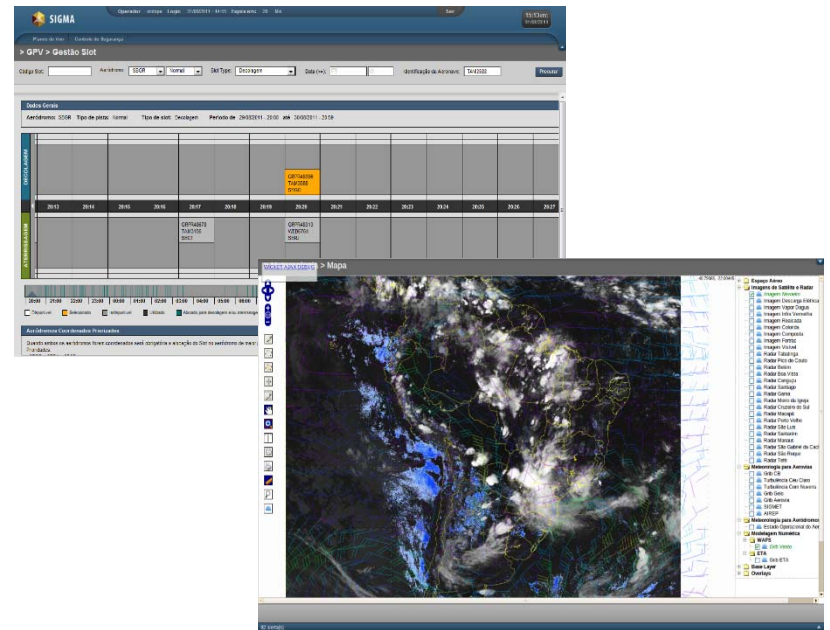


The Challenges of ATFM in APAC

Available elements for exchange cont.

ATFM Data Model & Entities (e.g.):

- Slot_Allocation
- Slot_Monitoring
- Departure_Taxi_Time
- Test_Capacity_Sector
- Wind_Zone
- Grid_Level
- Forecast_Wind



The Challenges of ATFM in APAC

Available elements for exchange cont.

ATFM Systems Integration via Web Services, based on

- **ATFM Conceptual Model; and**
- **ATFM Application Schema Mapping (XML)**

provides a secure and effective means of integrating multiple ATFM systems as envisaged by the Multi-nodal ATFM model.

Thank you for your attention



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