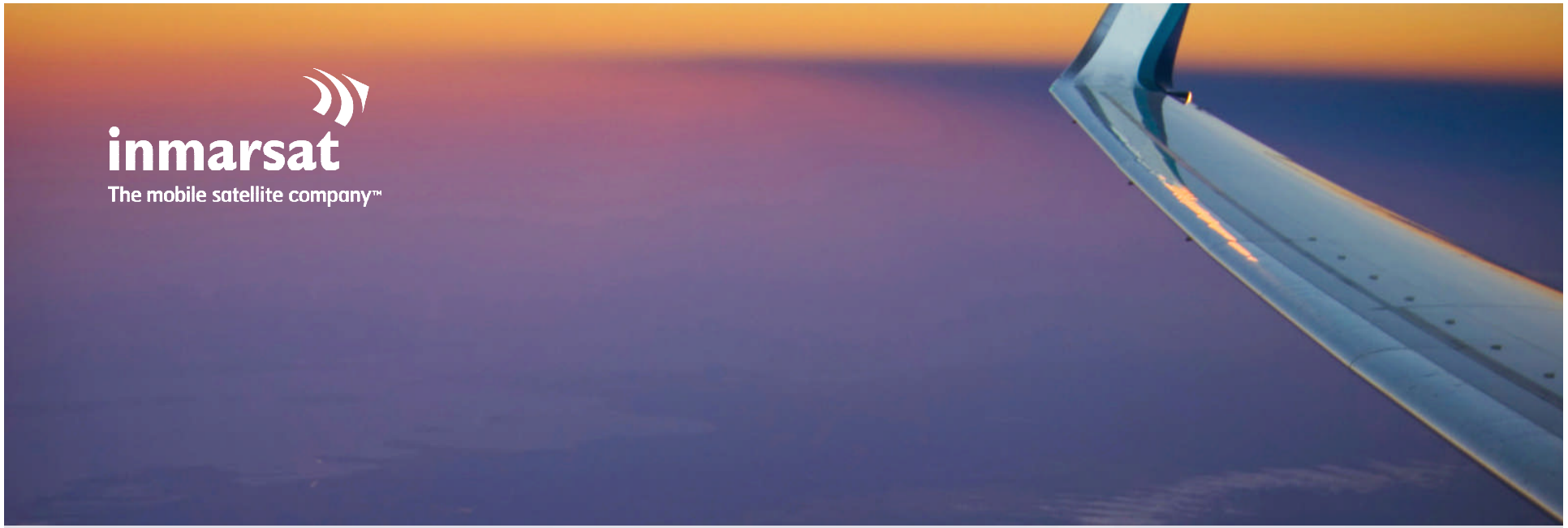


inmarsat
The mobile satellite company™

Inmarsat Classic Aero today and to come

Workshop on the implementation of datalink

ICAO SAM, Lima Peru, 10-12th Sept 2012

Gary Colledge, Aero Product and Safety Service Management

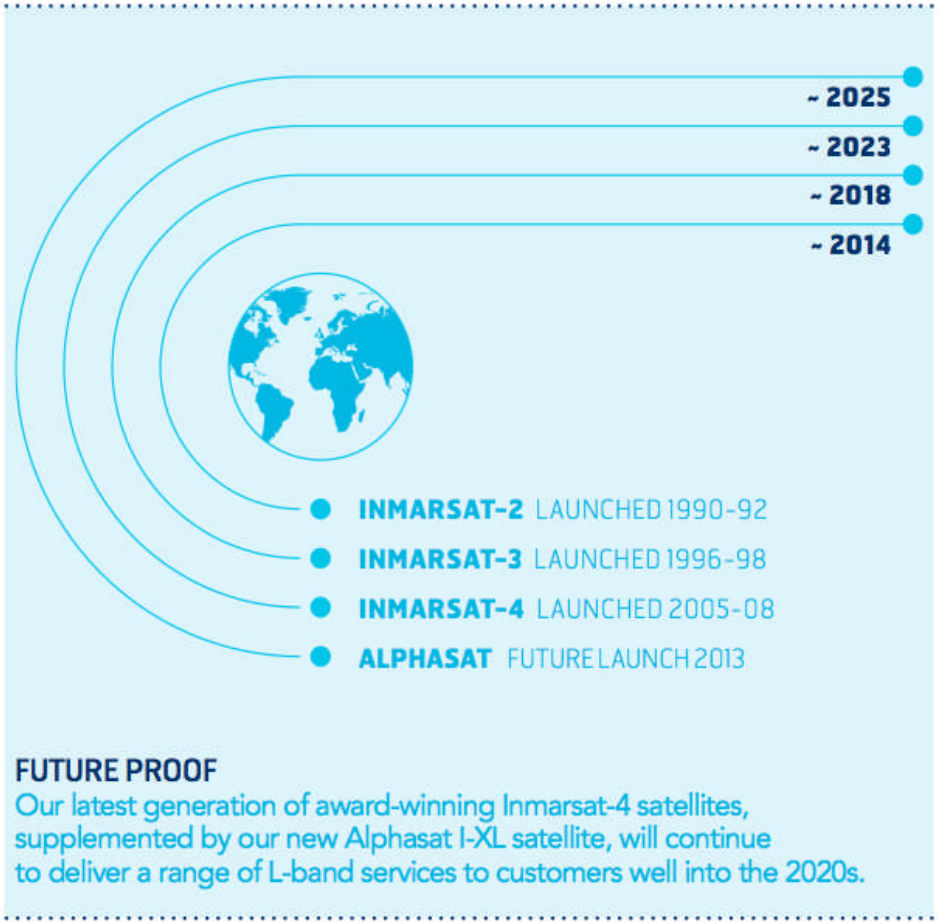
Inmarsat

11 September 2012

Agenda

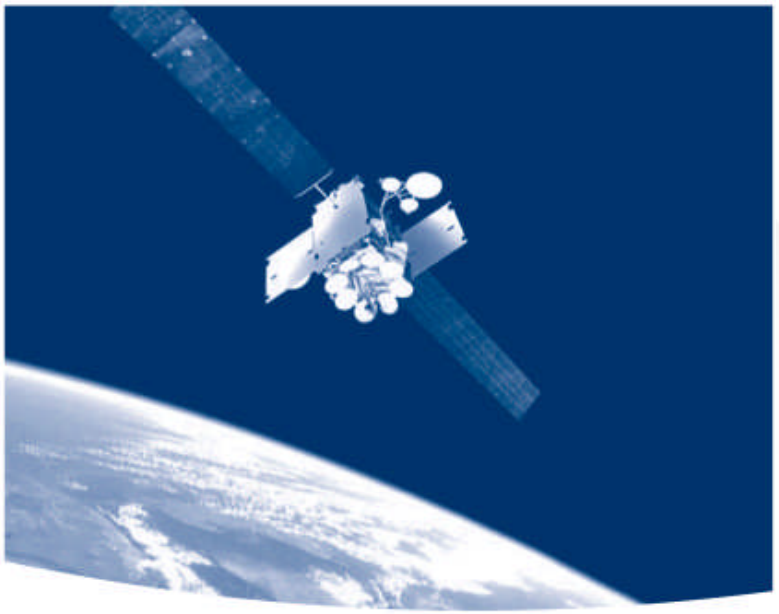
- Constellation Overview
- Seven Ocean Region System
- Inmarsat Aviation Services Roadmap
- Safety Programmes
  - 2012/2013 Goals and Objectives
- Classic Aero GES Harmonization
  - I3/I4 GES Harmonization; network architecture and planned milestones
- Industry Activities
  - FAA PARC I4 evaluation
  - ICAO Satellite Voice GM

Inmarsat Constellation Overview



FUTURE PROOF
Our latest generation of award-winning Inmarsat-4 satellites, supplemented by our new Alphasat I-XL satellite, will continue to deliver a range of L-band services to customers well into the 2020s.

The Global Xpress network will be delivered in the Ka-band via the new series of Inmarsat-5 spacecraft being built by Boeing in the U.S.



ALPHASAT SATELLITE

L-band

An important new addition to our L-band satellite constellation will be the Alphasat satellite, being built by Astrium, which is currently due for a late 2012 delivery.

FUTURE INVESTMENT

Inmarsat-5

Global Xpress will be delivered over our next-generation I-5 spacecraft, built in the US by Boeing, the world leader in Ka-band satellite technology.

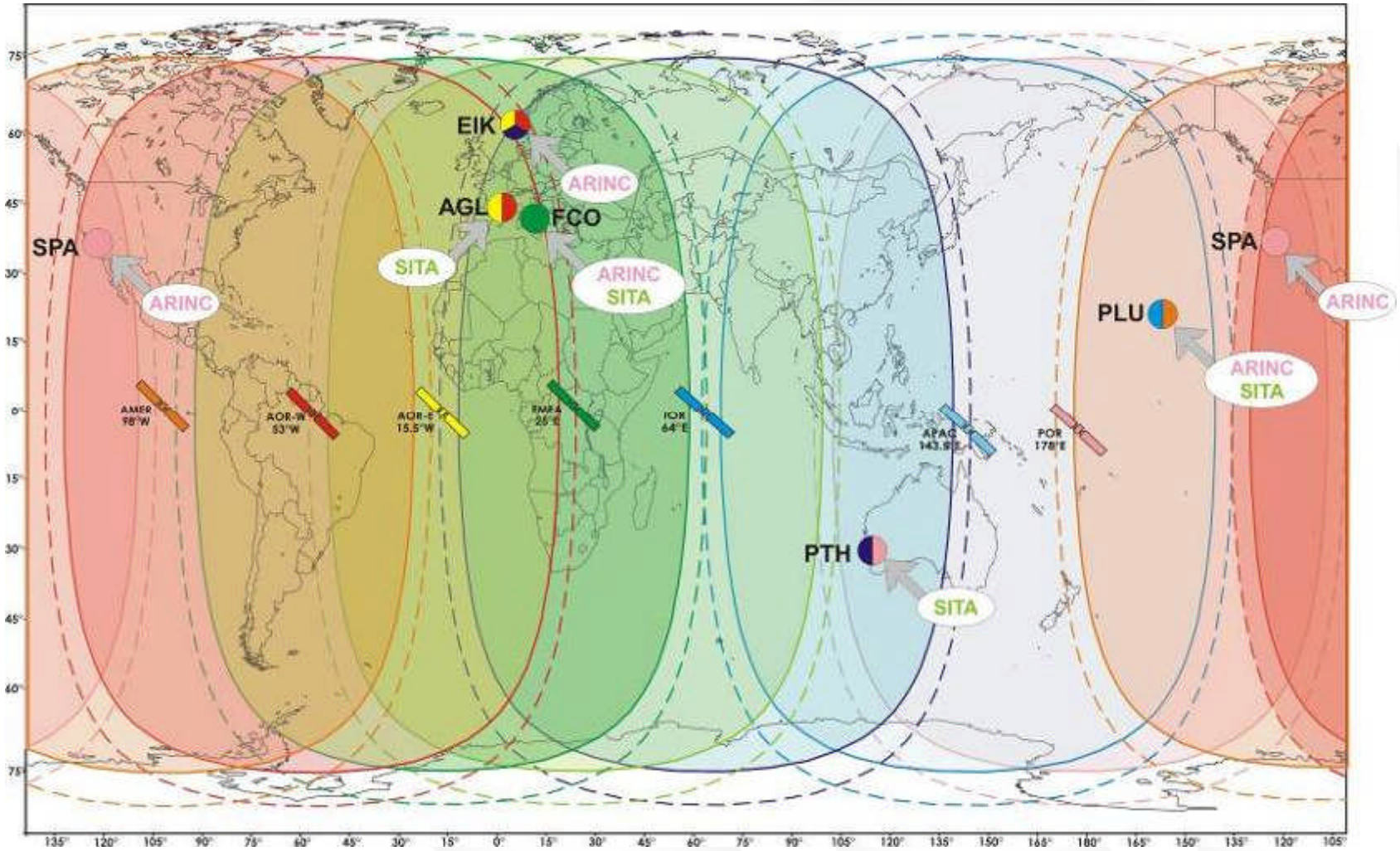
Classic Aero SARPs compliant communications

Inmarsat currently supports voice and data safety services in Oceanic airspace to aircraft that are equipped with Classic Aero avionics

The Classic Aero service supports both Air Traffic Control (ATC) services and Airline Operational Communications services (AOC), as well as cabin services

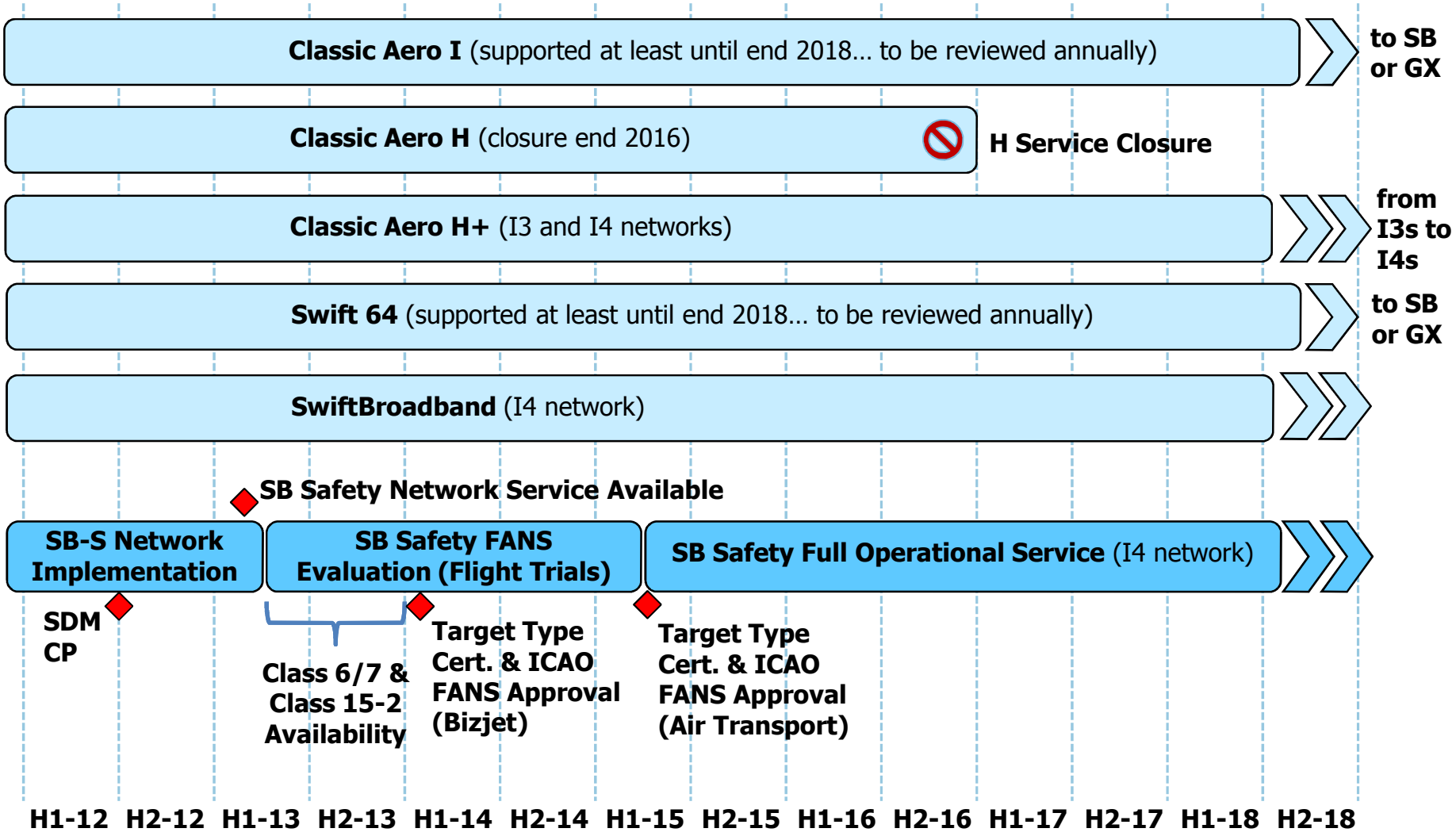
- Provides support for both satellite voice and a FANS (Future Air Navigation System) message data set for ATC communications
- The ATC and AOC data services are provided over the ACARS (Aircraft Communications Addressing and Reporting System) character-based data protocol

Classic Aero – 7+1 Ocean Region System



Note: Inmarsat reserves the right to make modification to the satellite constellation. Satellite footprints are only an artistic representation.

Inmarsat Aviation Services Roadmap



Timescales subject to internal approvals and external dependencies

Safety Programmes

Product & Services	SwiftBroadband Safety Services system readiness
	Classic over I-4 using SED GES network since Q3 2009
	  Delivery of enhancements project
	Contract signed for new SED stations for the I-3 network
	  Enables Harmonized I-3/I-4 Operations

Industry	Adoption of ARINC 781 SwiftBroadband Safety Avionics ICAO Satellite Voice Usage & Performance Standards developed FANS1/A Performance Approval for I-4 Sub-Network

2012/2013 Goals & Objectives

Product & Services

- SwiftBroadband Safety Readiness
  - Mature network testing ahead of flight trials
  - SB-Safety Flight Trials
- **GES & Network Harmonization**
  - Re-organizing technically and commercially
  - Realizing efficiencies in spectrum and operations

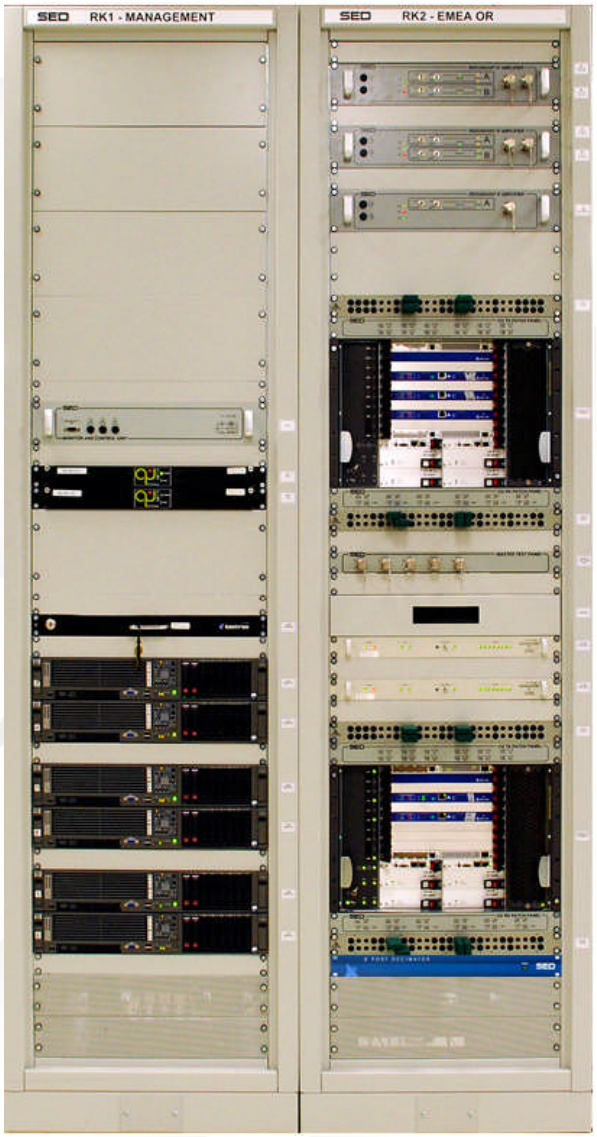
Continued Focus on Improved Safety Services

Industry/Regulatory

- RTCA System Performance
  - MASPS & MOPS
- AEEC Equipment Characteristics
  - ARINC 781
- ICAO Service Performance
  - GOLD (Data Link)
  - SVGM (Voice)

Leveraging Industry Regulations To Further Adoption and Use

Classic Aero GES Harmonization

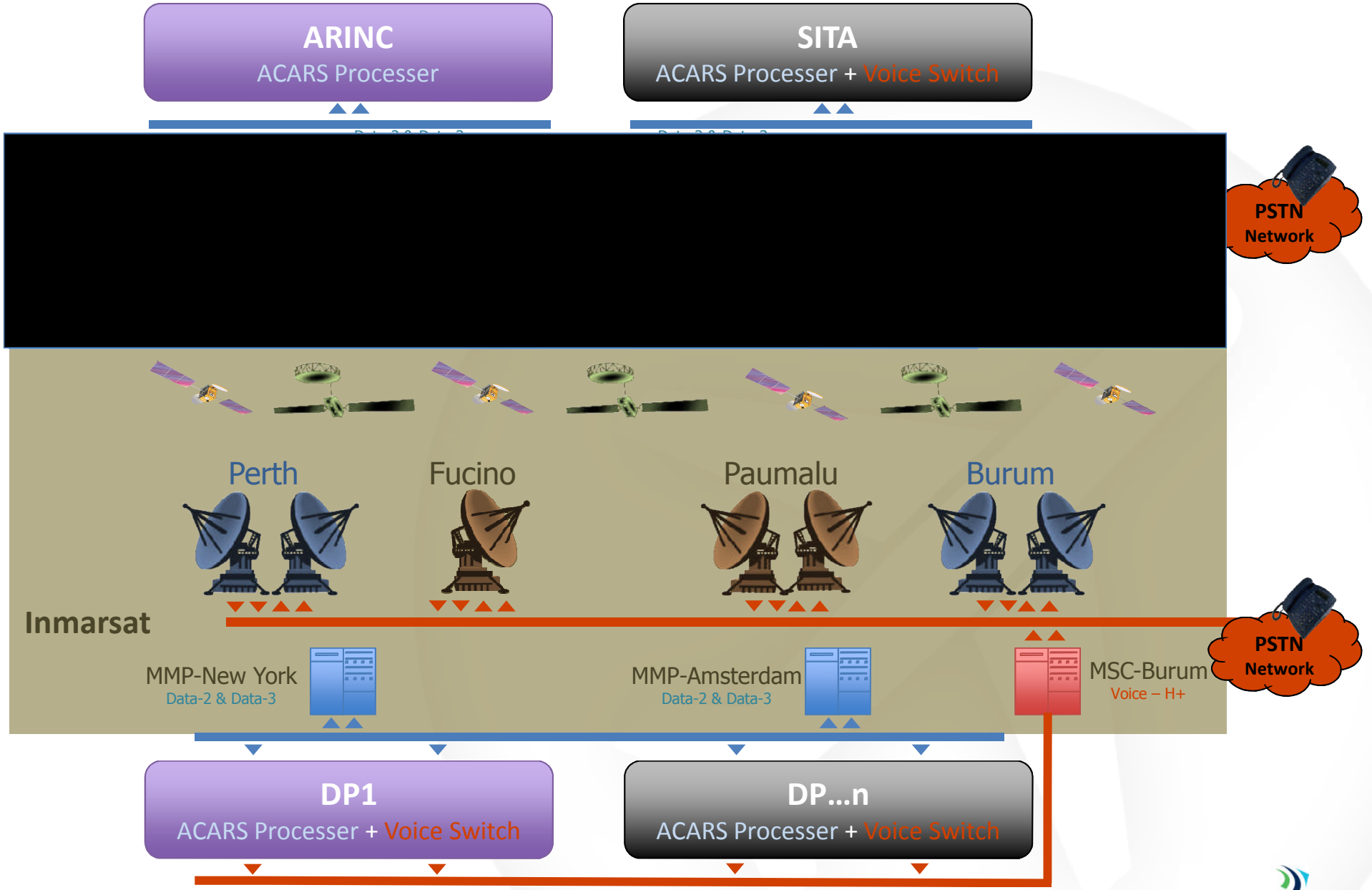


I3/I4 GES Harmonization

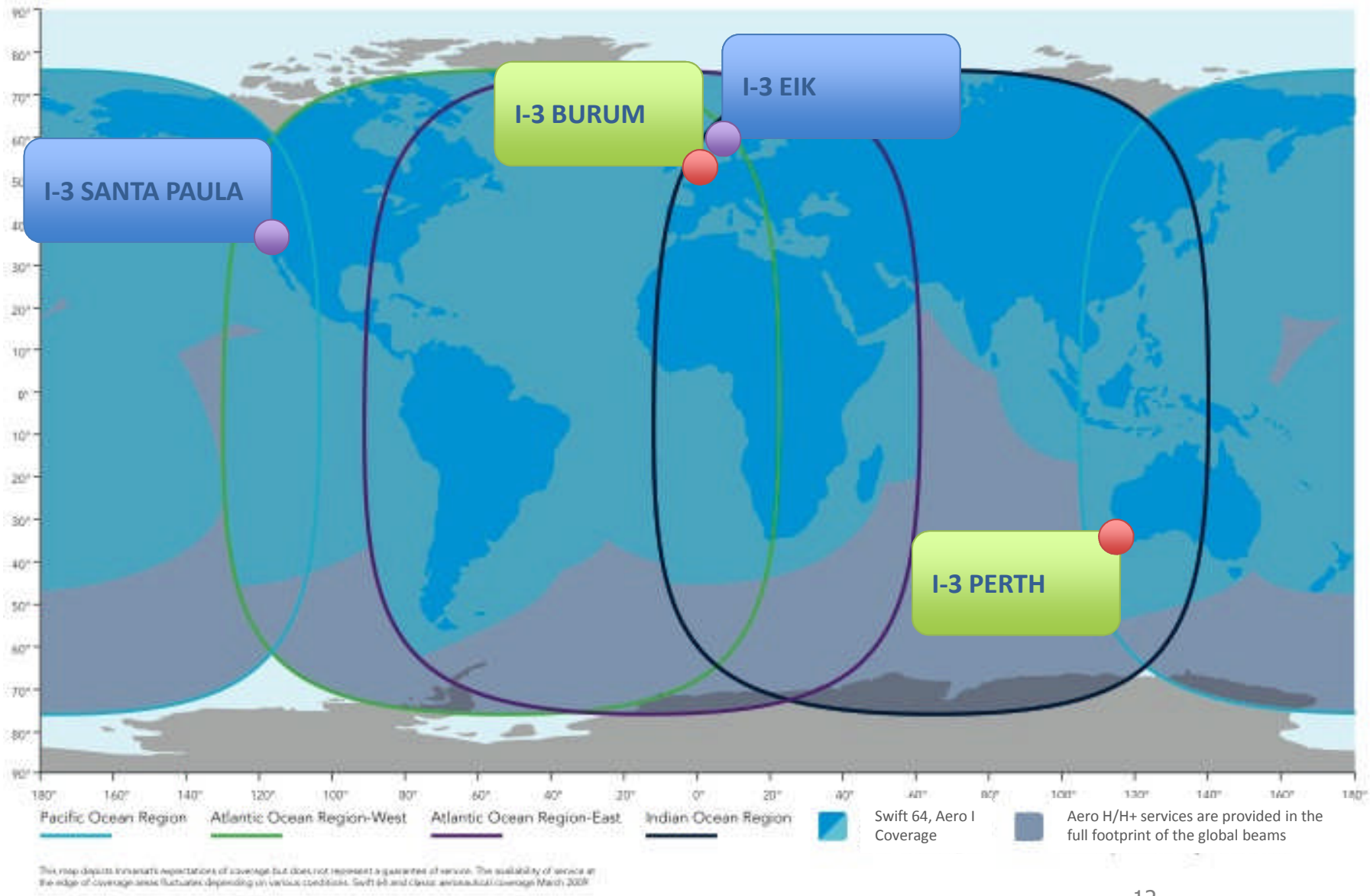
Overview

Operations	➢ Spectrum efficiency: No longer using dedicated allocations to providers ➢ Maintains service quality through to the end of the I-3 satellite constellation ➢ For use as backup to I-4 stations post I-3 satellite constellation EOL
Technical	➢ Simplifies and uses same GES hardware and interconnects existing on I-4 ➢ Consistent network for continued ICAO GOLD performance monitoring ➢ Harmonized performance monitoring, troubleshooting, service notifications, and general fault-finding tools ➢ No Changes to Aircraft ORT

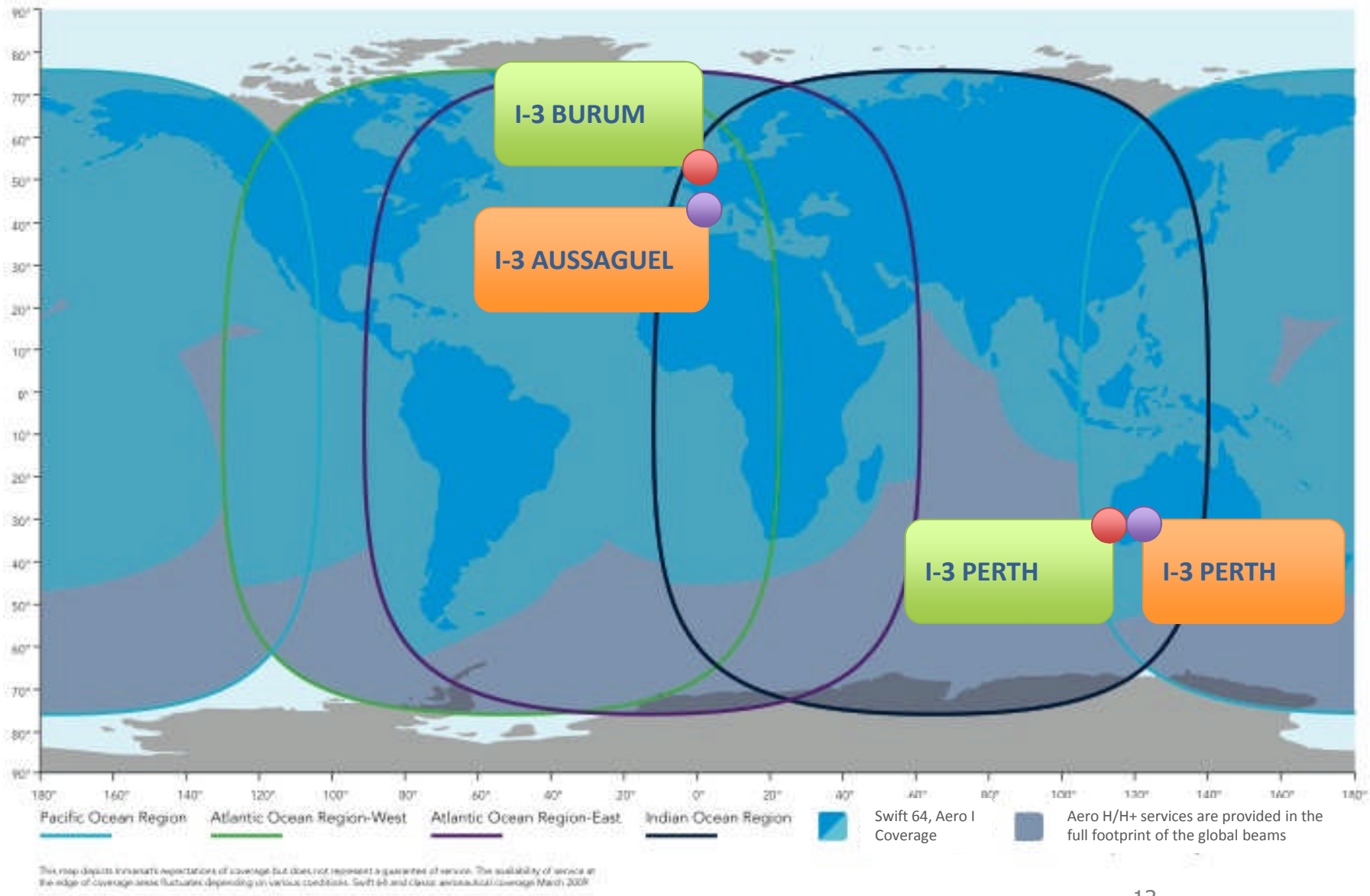
Satellite & Network Overview



I-3 Eik & Santa Paula GES Before & After



I-3 Aussaguel and Perth GES Before & After



I3/I4 Classic Aero GES Harmonization

Planned Milestones

Q3 & Q4 2012	➢ Industry and partner coordination @ AEEC, PARC, ICAO
	➢ GES installed at Perth (Australia) & Burum (Netherlands)
	  ➢ Perth: IOR & POR
	  ➢ Burum: AOR/E & AOR/W
	➢ New Meet-Me-Point interconnections to New York, Amsterdam
	➢ New Circuit Switch interconnections to Burum (VOICE)
	➢ Internetworking Test Programmes begin
	➢ Site Acceptance Tests @ Perth & Burum

Q1 & Q2 2013	➢ Closed network testing ➢ Transition available to new GESs ➢ Harmonisation complete

Timescales subject to internal approvals and external dependencies

Industry Activities

FAA PARC – FANS1/A over I-4 Classic Aero

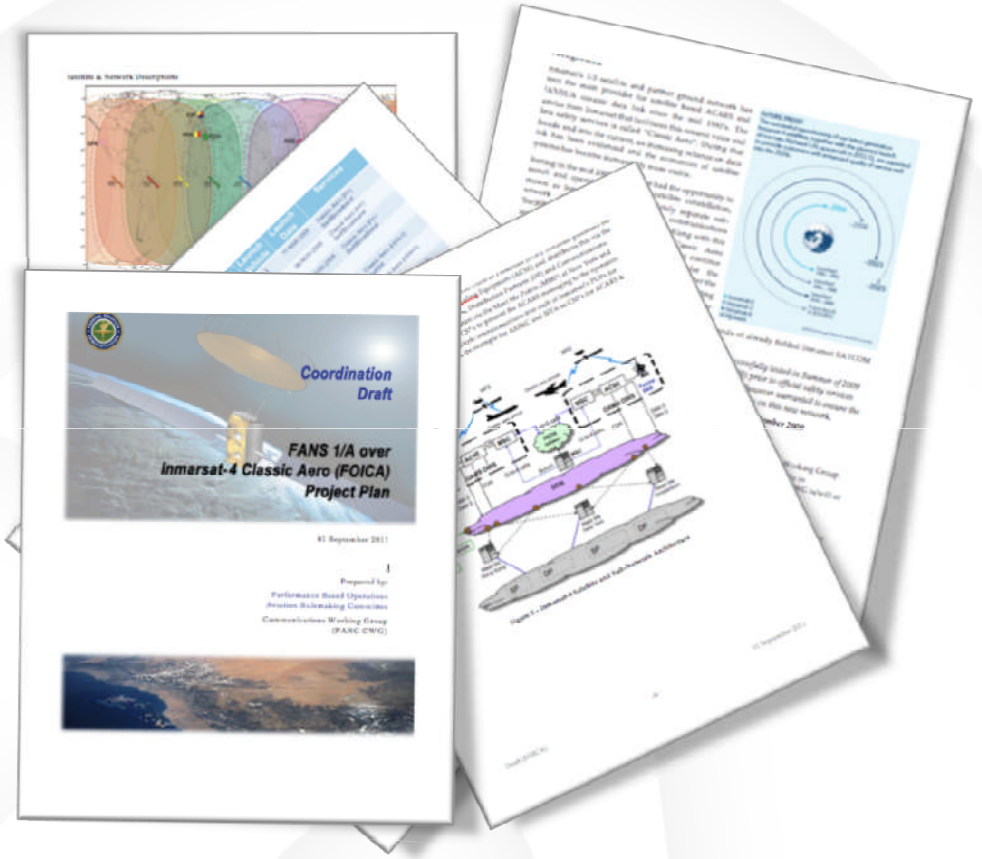
A BIG THANK YOU! – to PARC CWG Forum

How does the I-4 Satellite/Network Perform?
GOLD RCP240 vs Others

Official Forum to clarify FANS1/A Approval and Reduced Separation Eligibility

FAA, NAVCAN, UKNATS, AirwaysNZ
Airbus, Boeing, Gulfstream
Rockwell Collins, Thales & Honeywell
I-4 Airline & Cargo Operators

Report, Results, Recommendation to be submitted Summer 2012 @ PARC CWG 27 for final approval



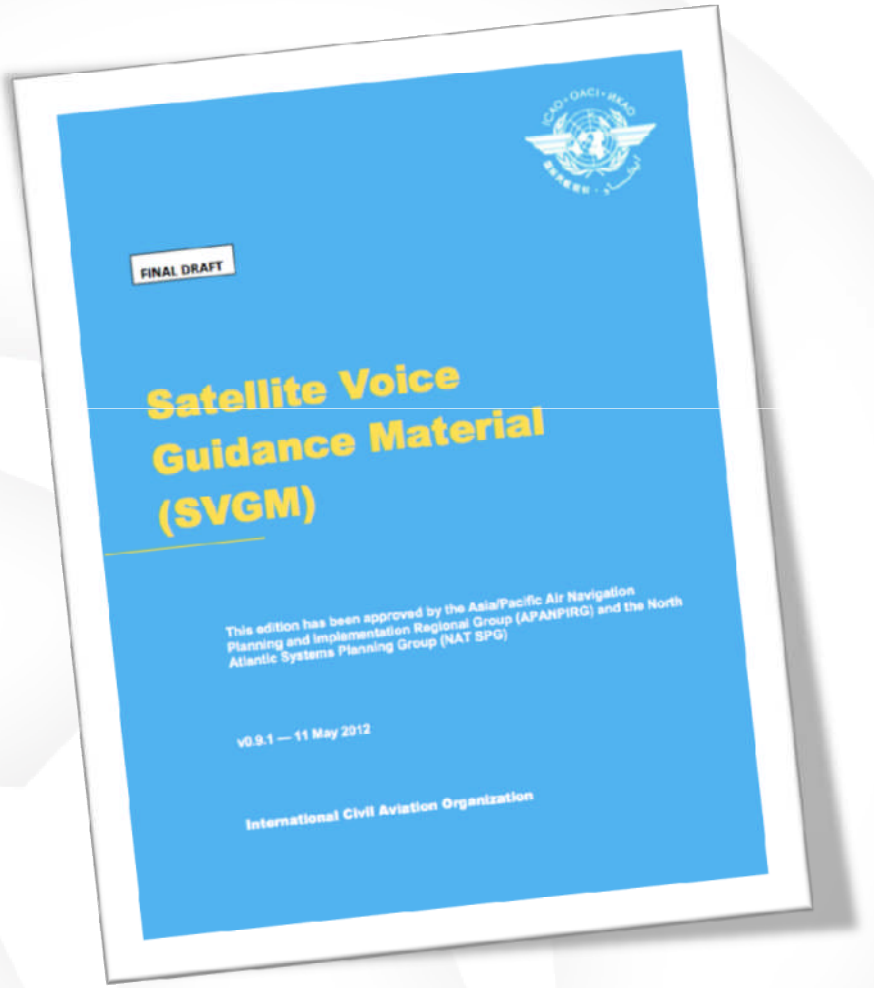
NEXT UP: SBB-Safety Project
PARC CWG 28 – Winter 2012

ICAO Satellite Voice Task Force

Inter-Regional Working Group (Asia Pacific, Americas, Europe)

CHARTER:

Establish guidance for Air Traffic Controllers & Operators for the Routine Use of Satellite Voice.



BENEFITS:

- Voice Reporting & Clearances
- MEL Relief for 1xHF
- Performance Requirements
- Integral additional component of ATC communications
  (VHF/HF/SATCOM Data and Voice)

Edition 1: July 2012
Final Ratification – November 2012

Next Steps

Classic Aero Commitment:

Continued improvements & investments through EOL I-3 and into I-4 based Combined Classic Aero & SwiftBroadband Safety Services

Performance Monitoring continues at ATC based regional fora. (eg: CNSG, ISPACG, APANPIRG…)

SwiftBroadband Safety:

Network Readiness Emphasis

Flight Trials and Performance Validations

Benefits of combined RCP240 Classic Aero & SwiftBroadband Performance along with Smaller, Lighter, Less Expensive, More Efficient Systems and Network

GES Harmonization Transition:

Continued discussions with providers and end-users for transition to a new I-3 sub-network infrastructure. New architecture is basis for Combined SwiftBroadband Safety & Classic Aero Performance Compliance to RCP240

Thank you

Questions?