



inmarsat
The mobile satellite company™



Flight Tracking The Inmarsat view – and proposal

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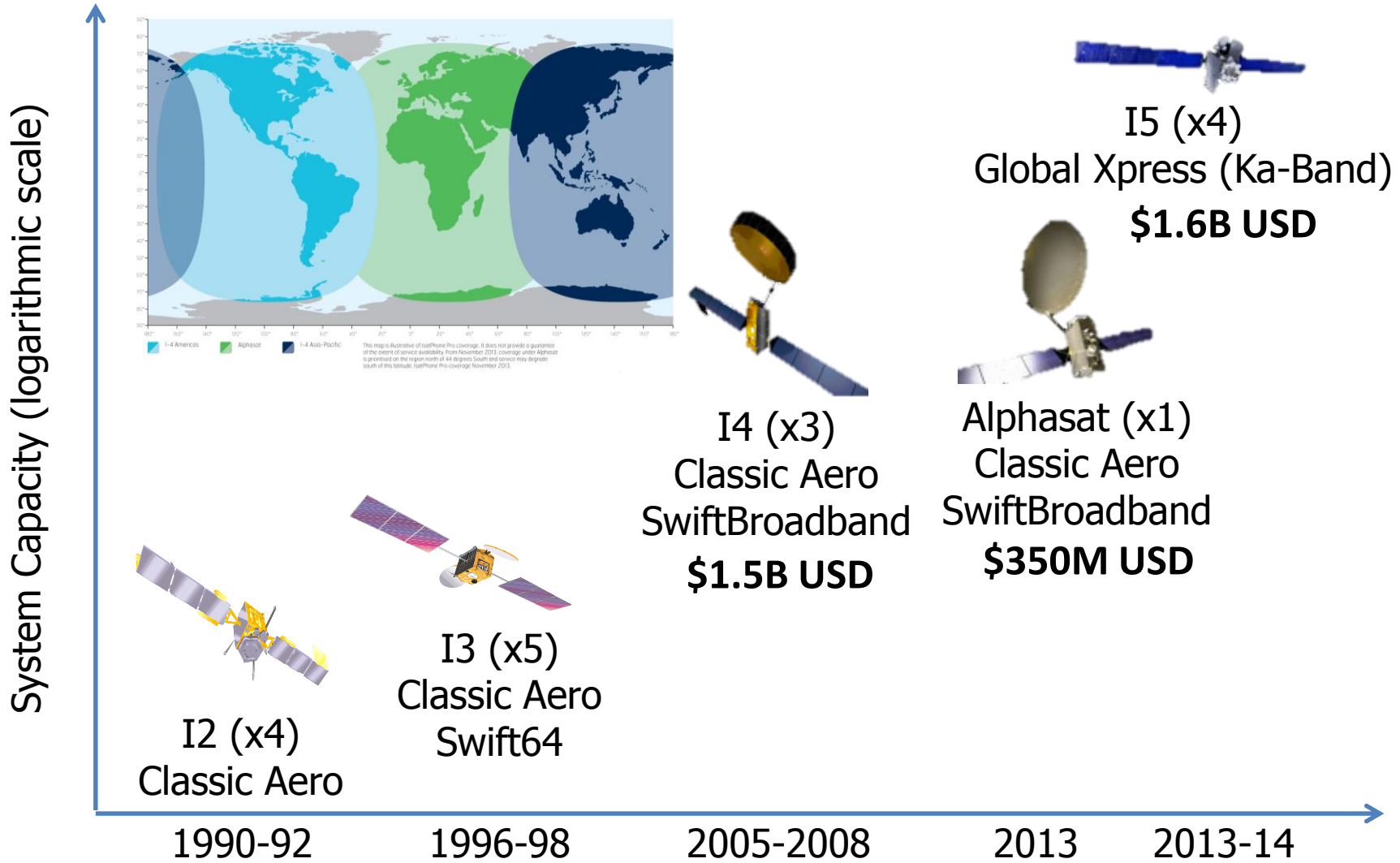
ING NEWS : Rocket launch was successful and all syst

Inmarsat - The mobile satellite company

- › Founded 34 years ago by 88 countries under UN Charter to save and serve lives at sea
- › A global communications capability
- › A network built for mobility
- › Global operator with network performance required at 99.9% - monitored by IMSO on behalf of IMO members
- › An outstanding innovation record
- › Deep security & safety heritage
 - › Unique Maritime and Aviation Safety and Distress services
 - › Mission-critical end-user needs
 - › Highly secure
- › Fully-funded far into the future



Inmarsat is fully funded and invests



Inmarsat in Air Traffic Management

The three Air Traffic Management pillars: CNS

Communication

- Voice over satcom
- ...to FANS1/A digital data-link:
 - Already over oceans (Classic Aero, soon SB-Safety)



- Coming to continents (CPDLC over IRIS)

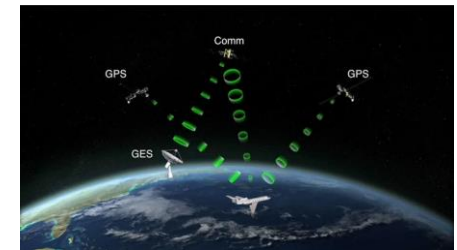
Navigation

- Supporting satellite-based navigation aids
 - FAA WAAS
 - EU EGNOS



Surveillance

- From ground radars over land, HF over oceans...
- ...to ADS-C* over oceans



*: Automatic Dependent Surveillance-Contract

Flight Tracking issues

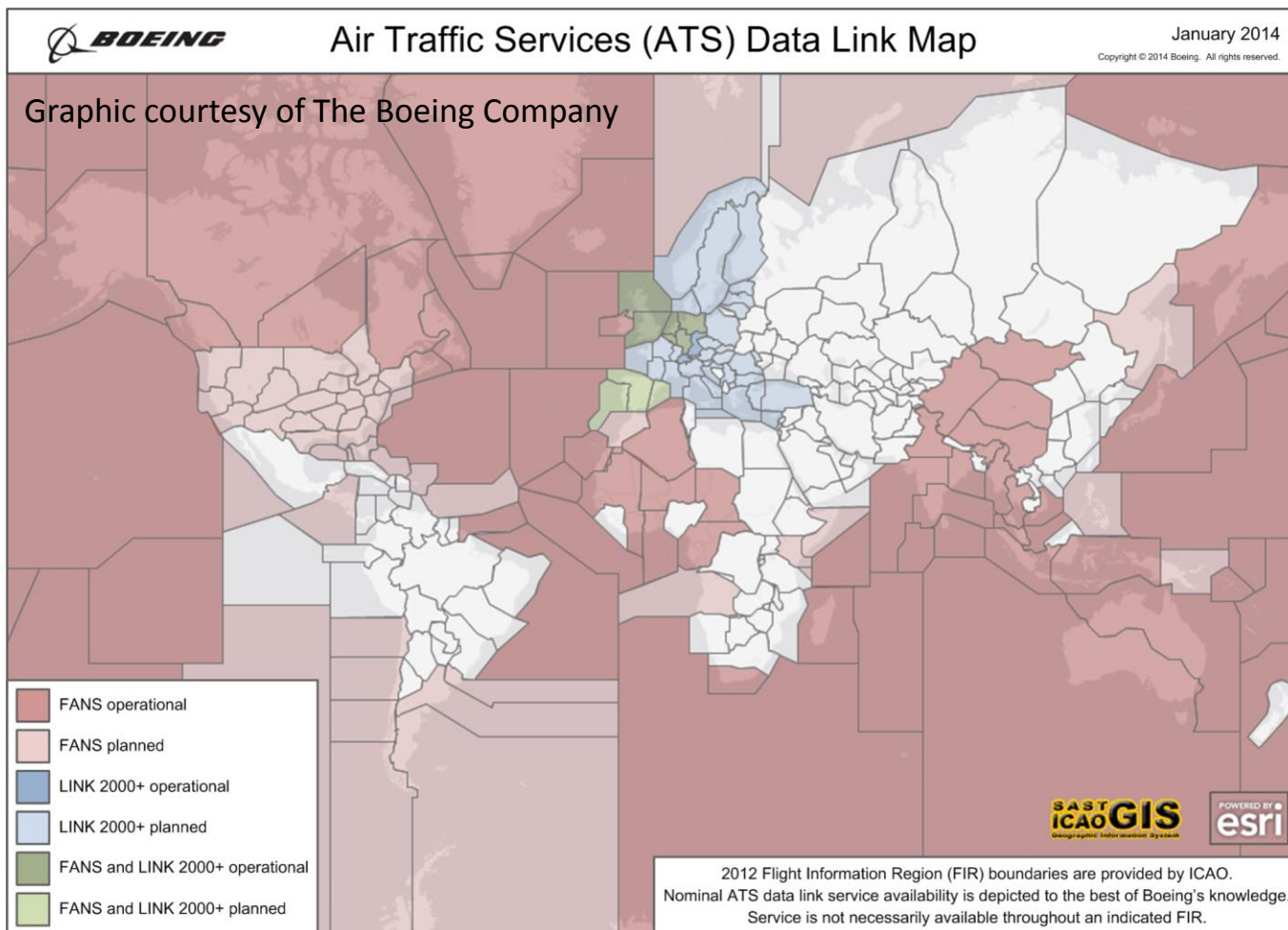
- Main issue in **oceanic airspace**, no ground surveillance means
- Commercial aviation: mostly **wide body aircraft**
- Need for an **affordable** solution:
 - to locate the aircraft in distress in a more systematic way, with more accuracy than with existing procedures / systems
 - To increase the reactivity in case of abnormal route deviation or event

Surveillance pillar – FANS / ADS-C

- **ADS-C**: an **existing, robust** service **to track** aircraft -
 - Concept developed by ICAO
 - Regular position reports at pre-set frequencies (Periodic Contract).
 - Automatically Triggered Deviation reports (Event).
 - Increased rate of Periodic Contract in case of Event
 - Alert in case of position report being not submitted within time limits.
 - Possibility of up to five contracts in parallel

- Number of FANS **capable Wide-Body** aircraft flying oceanic routes is **already nearing 80%**.
 - New Wide-Body aircraft are all FANS

FANS / ADS-C coverage from ATSPs



- > Mostly all oceanic areas covered
- > Geographical coverage is expanding
- > Possible “contract” with airline’s own ground systems

...but usage is not systematic – except over dense routes

ADS-C: a key element of ATM evolution

➤ Available now and cost-effective

- **Free** of charge for **basic Tracking**
 - ✓ One free ADS-C Position Reporting every 15' offered by Inmarsat to the 80% of wide-body transoceanic aircraft that are FANS equipped.
- **Improved separation** for dense oceanic routes:
 - ✓ Increased reporting (every 5-10') to reduce separation
 - ✓ Minimal cost to airline (~\$10 per flight), far below potential fuel savings.

➤ A key element of the **evolution of ATM**

- Tested and proven for i4D
- 4D trajectory in the future
- Open room for more parameters and more triggering Events

...and Black Box in the Cloud

>“Available” now

- Few solutions from different suppliers
- Operating on Inmarsat Classic Aero would make them even more efficient (higher data rate – still “Black & White”)
- But not standardised

>Tomorrow:

- Need for Industry to define the requirement
- No technology limitation expected thanks to SB Safety (“In Colour”)

How Inmarsat Enhances Aircraft Safety

Challenge 1: Aircraft Equipage



11,000+ active aircraft - virtually all WB aircraft



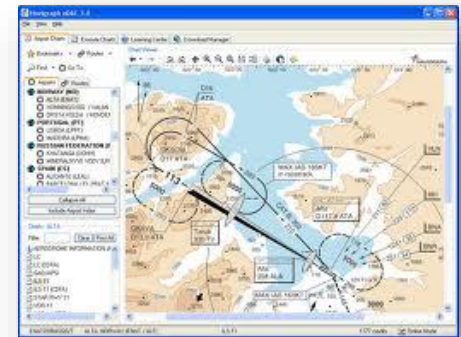
Challenge 2: Cockpit Connection



Global Aviation Safety Services

➤ Today

- Increased Position Reporting via ADS-C – Basic reporting for free
- Supports transmission of flight data recorder and cockpit voice recorder data



➤ Tomorrow

- Investing in Safety Services over SwiftBroadband - the Future of Aircraft Safety Communications
- Includes Position reporting base functionality built-in
- Includes Prioritised IP link to stream FDR & CVR data if requested





Thank you