



INMARSAT > Regulatory > Sara Lim

The Internet of Everywhere

ITU International Satellite Symposium 2015
1 October 2015

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inmarsat
The mobile satellite company™

Agenda

What am I talking about?

Inmarsat – powering global connectivity

A brief history of Inmarsat

Inmarsat Product and Service overview

Mobile users – temporary, mobile, global

THE FUTURE: internet everywhere!

THE CHALLENGE: technology innovates faster than written regulations

THE SOLUTION

Inmarsat

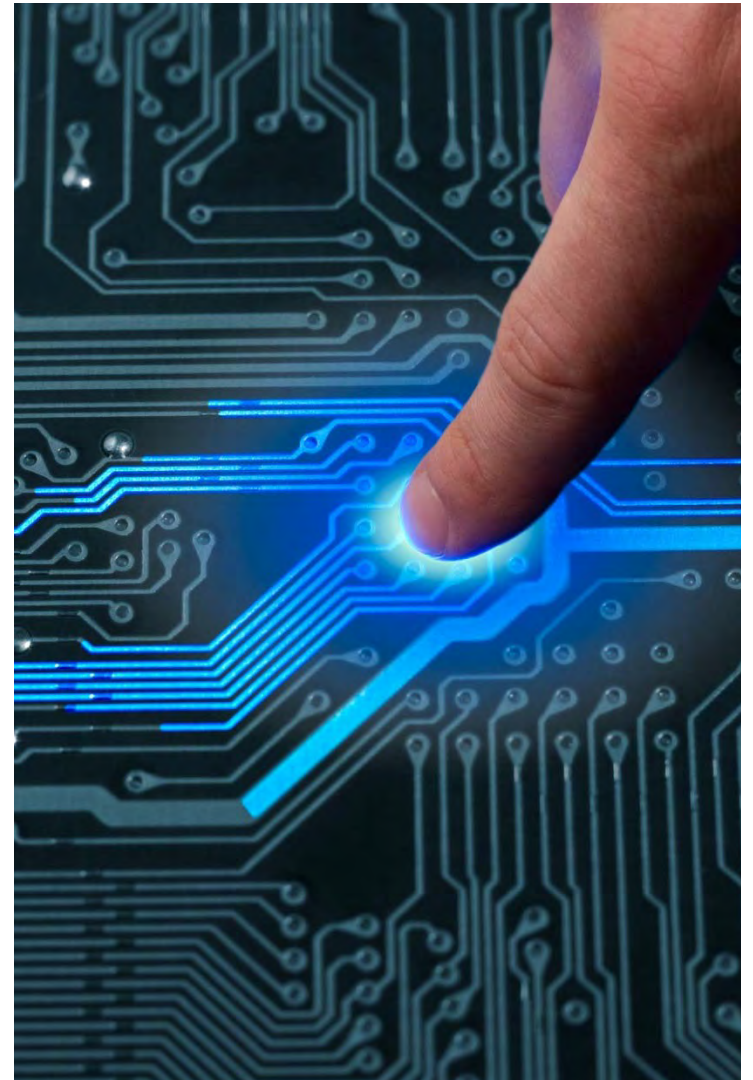
Powering Global Connectivity

We are the leading provider of global, mobile satellite communications services, creating fast, reliable connectivity - on land, at sea and in the air.

Our continuing commitment to innovation - enabling the deployment of advanced, new technologies in industries and regions where the lack of terrestrial infrastructure has previously held back development.

Our global networks are renowned for providing highly robust broadband services and connectivity throughout the world, including to the most remote communities.

Worldwide, dependable access to mission-critical communications from an operator you can trust.





A brief history

The industry leader for more than 35 years

1979 The International Maritime Satellite Organisation was formed as a not-for profit organisation set up by the IMCO, known as In Mar Sat.

1990 Launch of Inmarsat-2 F1 satellite into geostationary orbit.

1992 The IMO, the agency of the United Nations responsible for ship safety, began a seven year phase-in of a new system called Global Maritime Distress and Safety System, or GMDSS for short.

1996 Inmarsat-3 F1

was launched. The first of five third-generation higher power satellites using the latest spot-beam technology to reallocate bandwidth to meet demand.

1999 Inmarsat became the first inter-governmental

organisation to restructure into a private company.

2005 Inmarsat-4 launched. These fourth-generation satellites, delivered Inmarsat's Broadband Global Area Network (BGAN) and established the world's

first global 3G network.

2010 Marked the launch of Inmarsat's first handheld satellite phone - the IsatPhone Pro.

2013 The successful launch of Alphasat as one of the most technically advanced

satellites for civilian applications and Inmarsat-5 F1 the first of three to deliver Inmarsat's revolutionary Global Xpress service.

2015 Successful launch of Inmarsat-5 F2.

Service overview

Inmarsat Satellite Generations

Inmarsat-3 (L-band)

- GMDSS
- Aero safety
- In-orbit redundancy



Inmarsat-4 (L-band)

- Broadband data
- High quality voice
- Into 2020s



Inmarsat-5 (Ka-band)

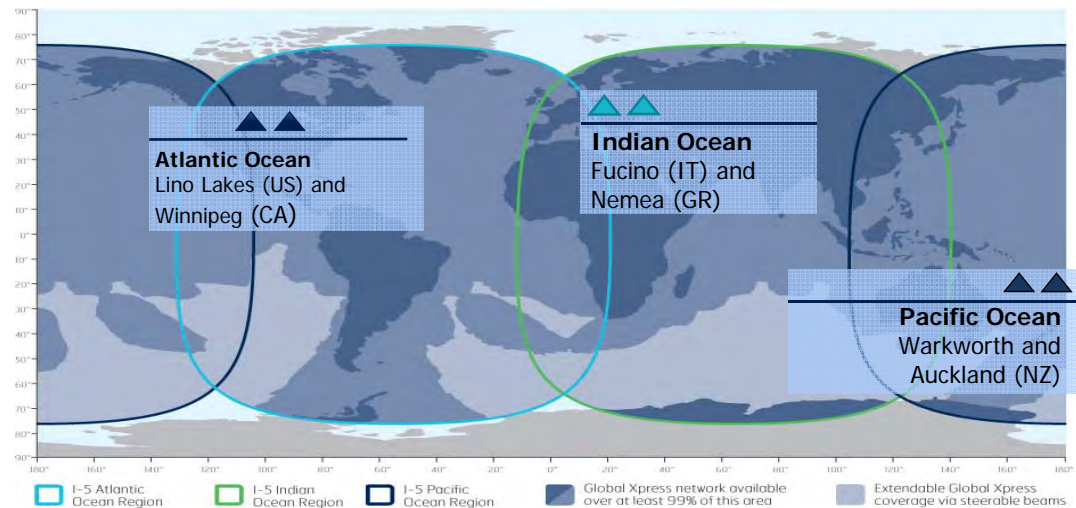
- Super-fast broadband
- One global network



GX= Global, reliable, mobile broadband

- Global coverage
- Seamless handover within satellite regions
- Rapid handover between satellites – 30 seconds or less
- State-of-the-art mobility management
- Optimised ground network
- High network availability
- High data throughput
- Single company providing service

Inmarsat-5 Global spot beam coverage with higher uniform power distribution - higher power translates into better throughputs for the user.



Global Xpress: 3 Geostationary Ka-band satellites

One satellite and ground infrastructure provider means seamless services.

Products & Services

Across land, sea and air

- | | | | |
|----------------------|------------------------------|-------------------|---------------------------------|
| 🌐 BGAN | 🌐 LAISR | 🌐 Fleet 55 (F55) | 🌐 Aero C |
| 🌐 BGAN HDR | 🌐 L-TAC | 🌐 Fleet 33 (F33) | 🌐 Aero L |
| 🌐 BGAN M2M | 🌐 Mini C | 🌐 FleetPhone | 🌐 Aero H+ |
| 🌐 Global Xpress (GX) | 🌐 Mini M | 🌐 Fleet One | 🌐 Aero I |
| 🌐 Inmarsat C | 🌐 FleetBroadband (FB) | 🌐 Fleet Xpress | 🌐 Classic aeronautical services |
| 🌐 IsatData Pro | 🌐 FleetBroadband 500 (FB500) | 🌐 iFUSION | 🌐 GX Aviation |
| 🌐 IsatHub | 🌐 FleetBroadband 250 (FB250) | 🌐 Inmarsat B | 🌐 Mini-M Aero |
| 🌐 IsatM2M | 🌐 FleetBroadband 150 (FB150) | 🌐 Inmarsat C | 🌐 Swift 64 |
| 🌐 IsatPhone Link | 🌐 Fleet 77 (F77) | 🌐 Inmarsat E | 🌐 SwiftBroadband (SB) |
| 🌐 IsatPhone 2 | | 🌐 XpressLink (XL) | 🌐 SwiftBroadband 200 (SB200) |
| 🌐 IsatPhone Pro | | | |





Mobile users

Temporary << Mobile << Global

Mobile satellite users are mobile technology users.

Constantly on the move but need to be connected at all times:

Merchant ships and seafarers. Up-to-date news gathering. On-board Wi-Fi.

Comms on the pause: Oil tankers, smart grid, flood monitoring

THE FUTURE

Internet access, everywhere

Communications Infrastructure:

- 🌐 Cell towers
- 🌐 Pico cell
- 🌐 WiFi router
- 🌐 Mobile Satellite
- 🌐 VSAT/FSS

Moving towards a more simplistic model for users:

Internet in → Internet out

We live in an increasingly connected society, to the point where users don't see the boundaries or limitations between different technologies



iSat Hub video here

CHALLENGE

Keeping up with the Kilobytes



Technology advances faster than regulations can keep up

Regulations should not be perceived as **barrier to market entry**.

As technology innovates, regulations must be able to adapt to accommodate unforeseen leaps in progress.

Regulations are our friend!



SOLUTION

Long leash – short fuse

Broader Regulations – enable and lower the barrier for innovation. Focus on the permanent characteristics of the satellite (i.e. frequency, payload, voice/data etc). Regulations should cater for a wider range of services.

Market Enforcement – clear regulations together a strong competitive market ensures a consistent and more easily managed marketplace. Providers know what to expect and what is expected of them.

The opportunity for an harmonised regulatory framework for mobility in Ka-band: ESOMPs (Earth Stations On Mobile Platforms)

The opportunity exists for ITU to discuss the matter during the World Radio Conference 2015 (WRC-15 November) and to create a consistent technical and regulatory framework.

This will facilitate

- **the work of regulators when it comes to national authorisations and**
- **market access for GX and other similar systems.**



Operation in 500MHz of spectrum for uplink and downlink in all three regions, while protecting other systems sharing the same band via a footnote in the ITU-R Radio-Regulations.

(tx 29.5-30GHz,
rx 19.7-20.2GHz)

Common Proposals are being submitted by CEPT, CITELE, ASMG, ATU

APT view (APG15-5) that the issues should be considered at WRC-15

A.I. 10

IMT above 6 GHz & HAPS above 10GHz

Ka-band: an essential resource for satellites. *Exclude Ka-band from list of bands for study and identification by WRC-19 for IMT and HAPS*

(e.g. 27.5-29.5 GHz for IMT and 24.25-28.35GHz for HAPs in CITEI IAP proposals)

- Proven satellite technology
- Many satellites already in operation or under construction
- This band is increasingly used for Gateway Earth Stations (including GX)
- Part of the bands are identified in the Radio Regulations for use by high-density applications in the Fixed-Satellite Service.



Thank you