

ESIMS: An harmonised licensing framework for mobile broadband provision on a global scale and its practical implication.

Yulia Kulikova

Inmarsat, Odessa, October 28, 2017



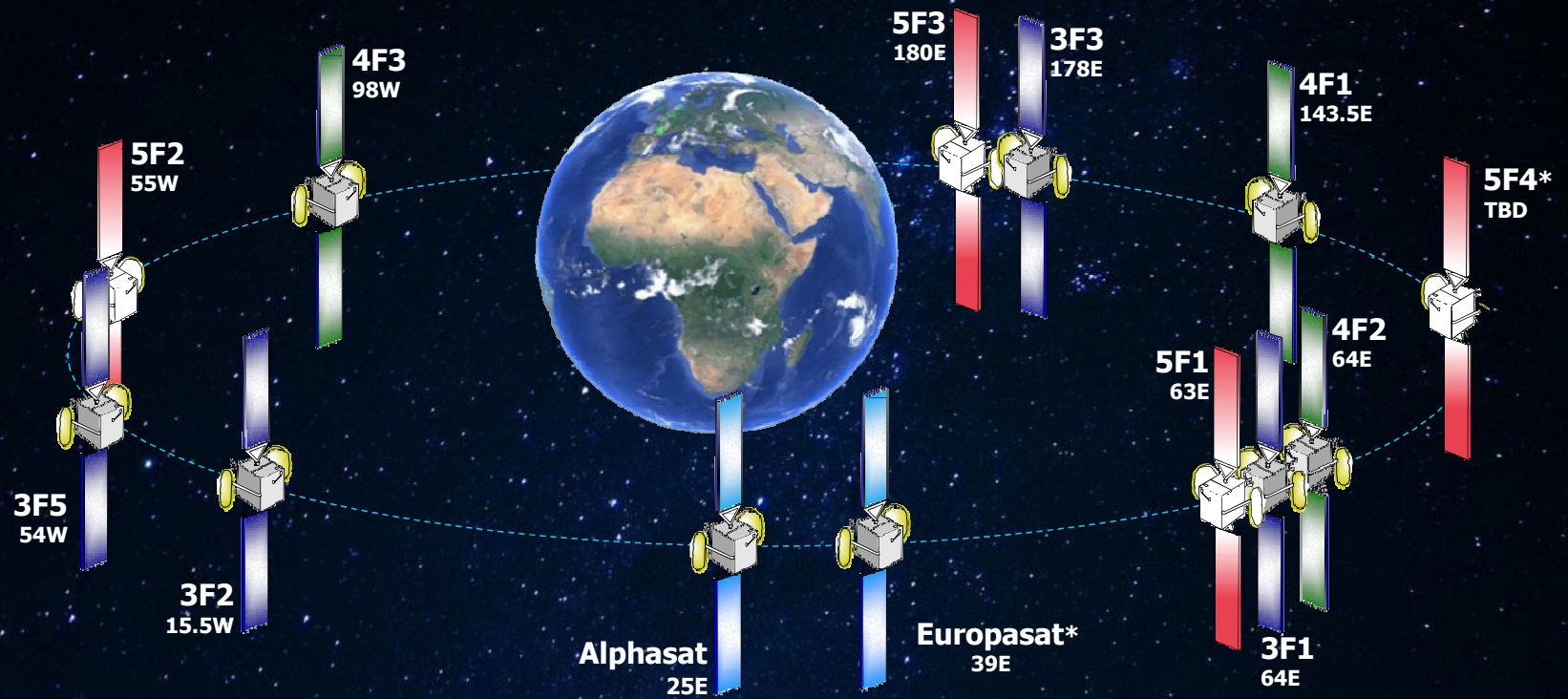
1

New satellite technologies

Large portfolio of services using different frequency bands

Inmarsat fleet

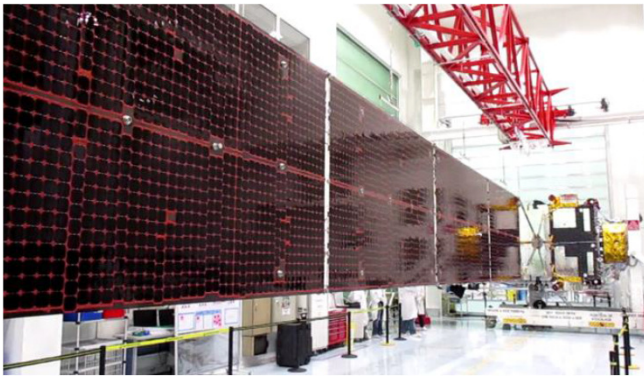
Real global access in L, extended L, S and Ka-bands



*) launch in 2017

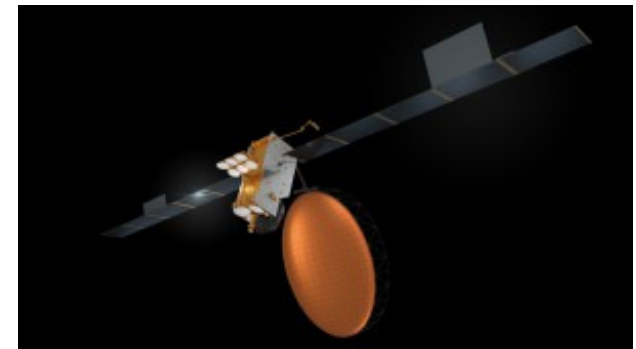
Inmarsat new satellites

L, S and Ka-band systems



Inmarsat-5 F4 (Ka-band, launch in May 2017)

Europasat (S-band, launch in June 2017)



Inmarsat-6 (L & Ka-bands, launch in 2020) **inmarsat**

Maritime and aero safety – future services

- **Global Maritime Distress and Safety System (GMDSS)**
 - compulsory on any ship above 300gt
- **Inmarsat-C:** Distress Alerting, Enhanced Group calls, Reporting and Polling services

FleetBroadband Safety

Maritime Safety Terminals with enhanced functionality

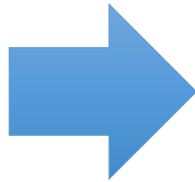
- **Inmarsat Classic Aero - Safety and Operational Services**
 - Flight Tracking
 - Cockpit operational and safety services
 - Installed on 95% of the current long haul fleet (> 10000 aircraft)
- **GADSS (Global Aeronautical Distress and Safety System)**
 - 1) Global Flight Tracking
 - 2) Autonomous Distress Tracking
 - 3) Flight Data Recovery

SwiftBroadband- Safety (SB-S)

Supports all GADSS requirements. Available for initial retrofit installation on existing aircraft today and is scheduled to become a standard option on new aircraft deliveries from 2018.

ESIMs (Earth Stations in Motion)

People want to use these..



anytime, anywhere!

- ESIMs operate in Ka-band GSO Fixed-Satellite Service (FSS) networks (RR. 5.527A and Res.156 (WRC-15))
- User Terminals with small directional antennas for the provision of broadband communication services.
- May be mounted on aircraft, ships, land vehicles & platforms...



ESIMs expand the traditional FSS and MSS type applications providing truly global broadband services to mobile platforms



2

National and regional licensing of satellite terminals

Examples of licencing across the regions

ESIMs at WRC-19

(17.7-19.7 / 27.5-29.5GHz)

New **A.I. 1.5** - Resolution 158 (WRC-15) resolves to invite ITU-R

1. to study the technical and operational characteristics and user requirements of different types of ESIMS that operate .. within geostationary FSS allocations in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz.....
2. to study sharing and compatibility between ESIMs operating with GSO FSS networks and current and planned stations of existing services allocated in the frequency bands 17.7-19.7 GHz and 27.5-29.5 GHz to ensure protection of, and not impose undue constraints on, services allocated in those frequency bands;

ECC/DEC(13)01

(17.7-20.2 / 27.5-30.0GHz)

- > In force since the beginning of 2013
- > Widely implemented
- > Provisions for the harmonised use, free circulation and exemption from individual licensing of ESIMs.

For relevant portions of **17.7-19.7 & 27.5-29.5GHz** band:

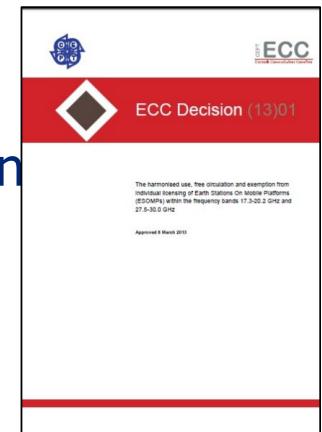
- PFD values on the ground, function of the angle of arrival, for ESIMs on aircraft
- PFD threshold at the low-water mark of the territory of affected administration for ESIMs installed on Vessels.

Clear evidence that there are solutions available to the issues raised in A.I. 1.5 (WRC-19).

Other regional examples (1/2)

➤ Europe: ECC/DEC(13)01 for ESIMs

- > Provisions for the harmonised use, free circulation and exemption from individual licensing of ESIMs.
- > Vastly implemented in Europe



➤ **AFRICA:** The ATU (African Telecommunications Union) endorsed the principle of mutual licence and type approval recognition framework for ESIMs. On the basis of this principle, the subject is being considered at sub-regional level, where there is the requisite mandate/protocols for such frameworks. At the same time the African Union Commission (AUC) is tasked to explore ways in which harmonisation could be done at a continental level via the available tools and mandate of the AUC.

Other regional examples (2/2)

➤ **AMERICAS:** CITEI (Inter-American Telecommunication Commission) has approved to Recommendations

➤ **ESIMs:** “**Authorization of Earth Stations in Motion Communicating with** Geostationary Space Stations in the Fixed Satellite Service in the Frequency Bands 19.7-20.2 GHz and 29.5-30.0 GHz in the Americas...

recommends:

Consideration of adoption of national provisions to facilitate the deployment of ESIMs in the band 19.7-20.2 GHz (space-to-Earth) and 29.5-30.0 GHz (Earth-to-space) consistently with the framework adopted by WRC-15”.

➤ **VSATs:** “**Generic or blanket licensing regimes for ubiquitously deployed fixed satellite service earth stations...**

Guidelines on ESIMs for policy makers

Establishment of a commonly agreed (globally or regionally harmonised) approach to ESIMs licensing:

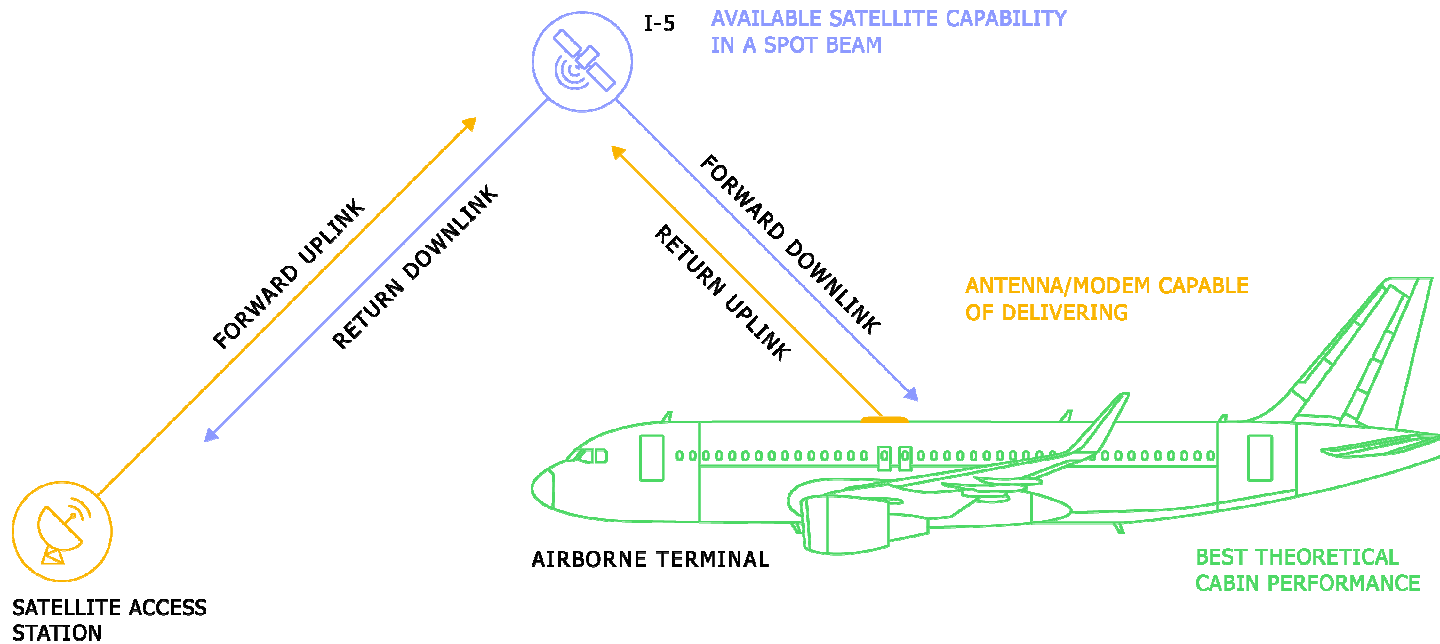
- Foreign visiting ESIMs: free circulation when already authorised in the country of origin.
- Domestic ESIMs: class/blanket licences, e.g. no cumbersome individual terminal-by-terminal licenses
- Clarity and transparency in the national licensing framework
- Reasonable spectrum pricing



ESIMS user examples

Aviation and Land sectors

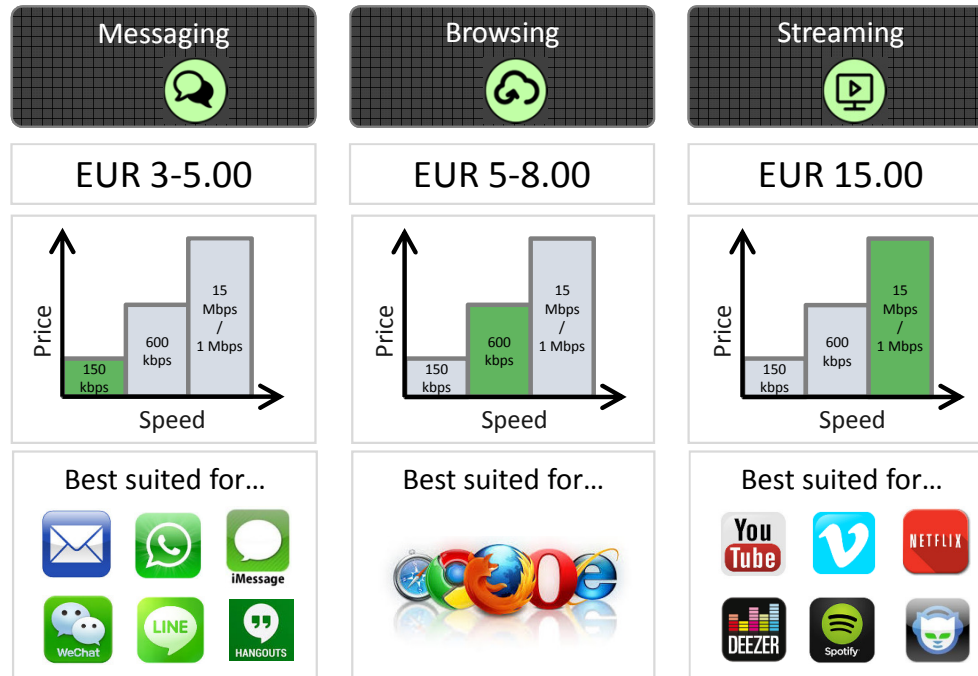
Global Xpress for aviation



Retail Value Proposition

Addressing today's needs of Internet Users

- Implemented on several airlines
- In partnership with Deutsche Telecom



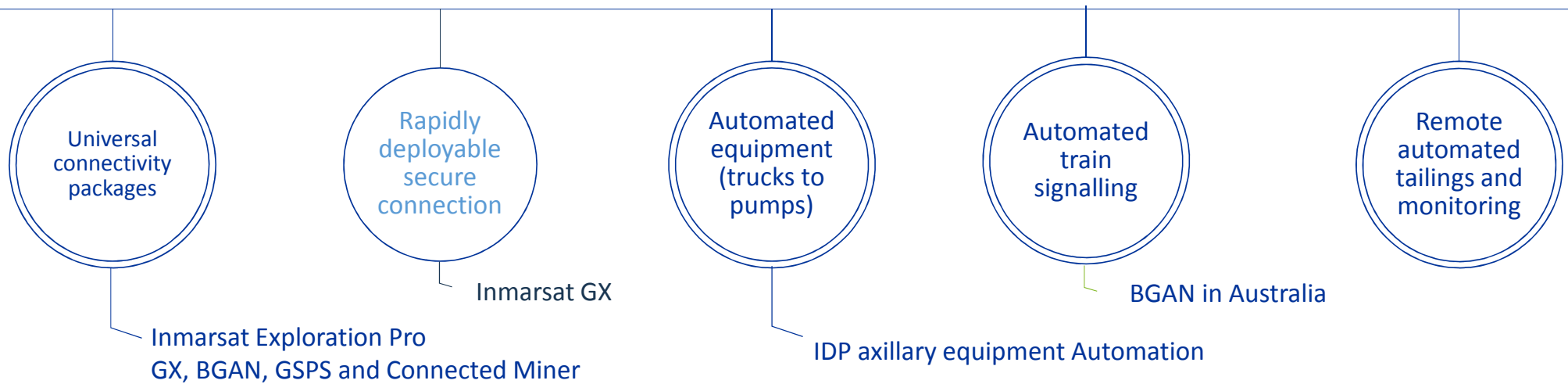
Connectivity challenge for mining industry

Remote region with unreliable communication infrastructure for an industry with the greatest need for data –hungry applications and real time communications.

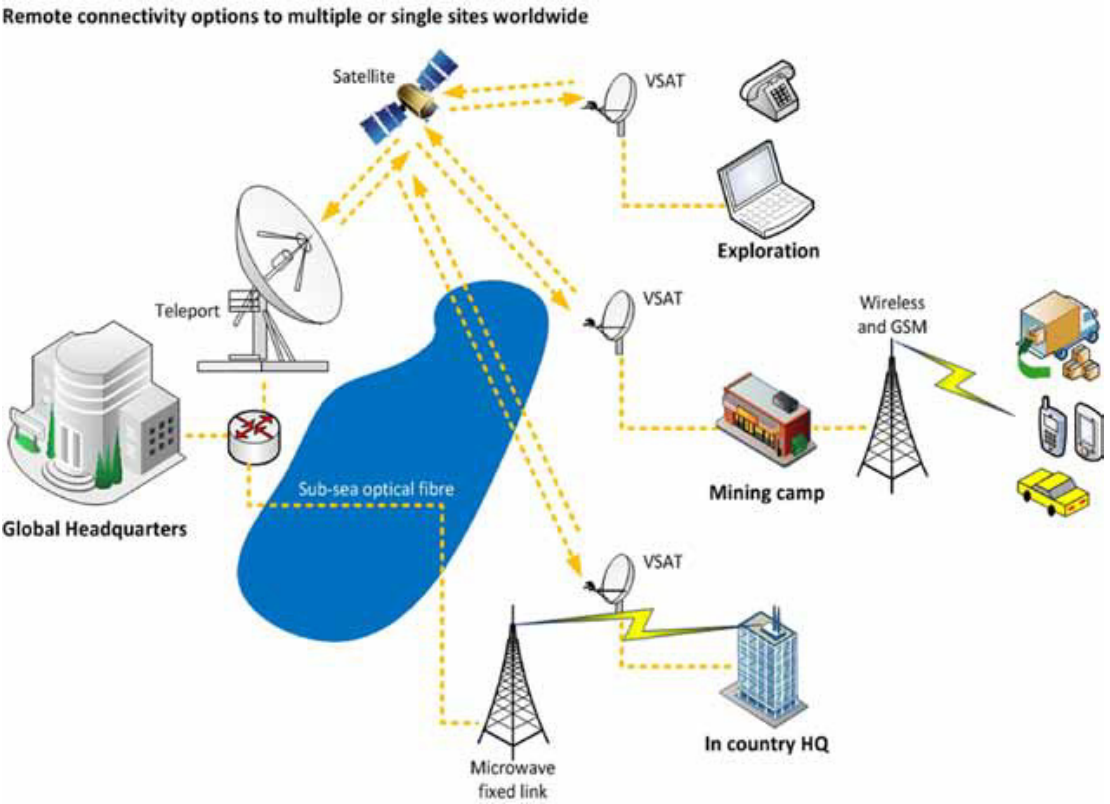
- ✓ Challenge to distribute quickly large files such as geological scan to headquarters to receive the instructions on how to proceed.
- ✓ Quickly passage from exploration to exploitation requires effective communications that can be rolled out in short time periods (so no terrestrial solutions)
- ✓ Necessity to have in integrated network- many technologies were developed (WI-FI, GSM, Wimax) however they should be integrated in one to ensure efficient
- ✓ Reachback communications to the enterprise network, public switched telephone network and the Internet
- ✓ Mine site communications connecting workers and machine-to machine network
- ✓ Automation is a new way to greater productivity and cost saving solutions



Examples use cases for satellite control applications

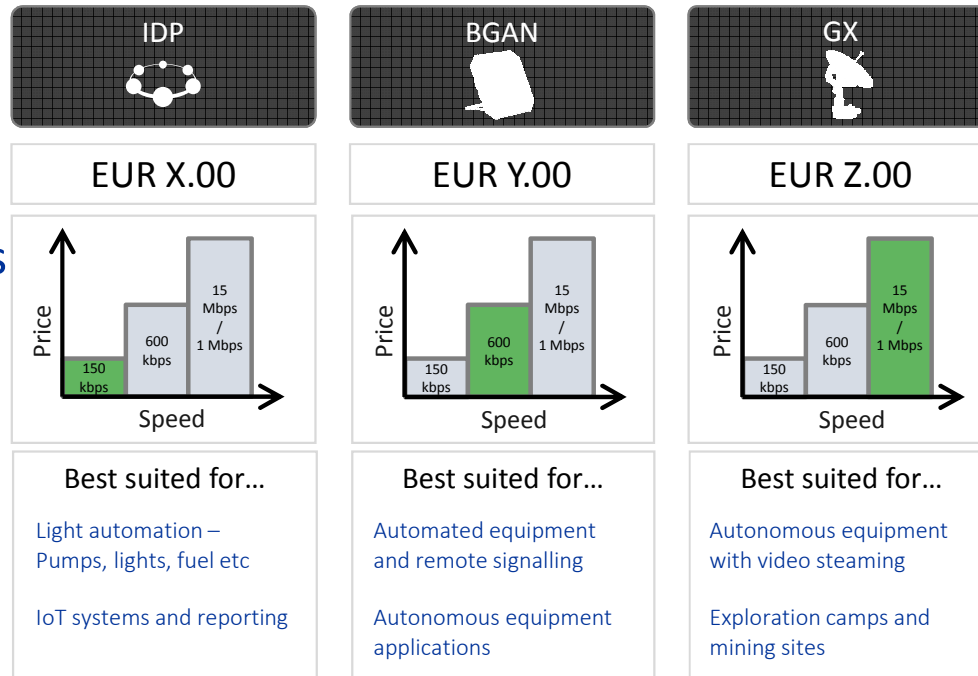


The hybrid satellite network



Addressing today's needs of mining clients

- Different products for different needs
- Combination of Inmarsat technologies





Thank you!