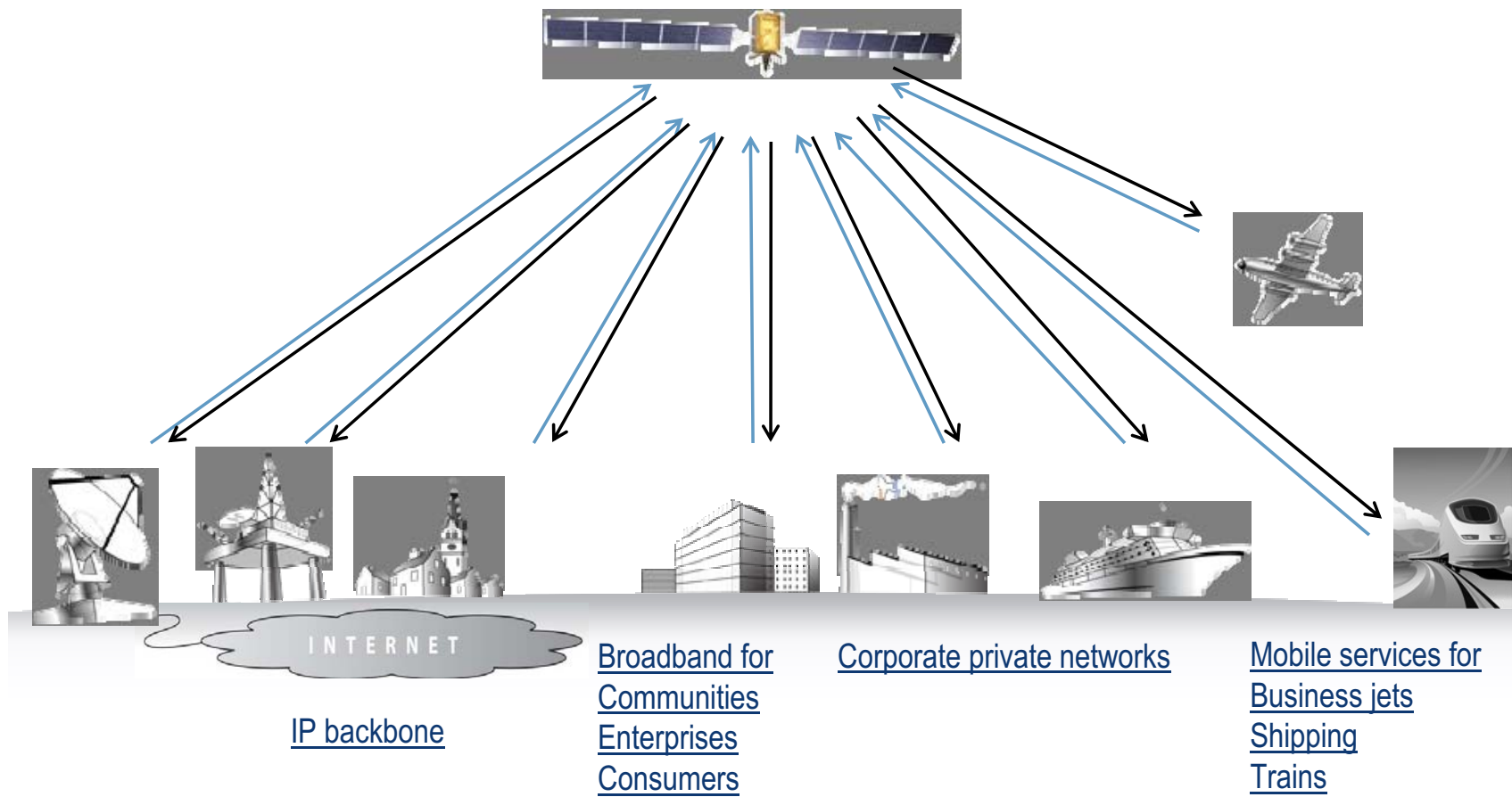
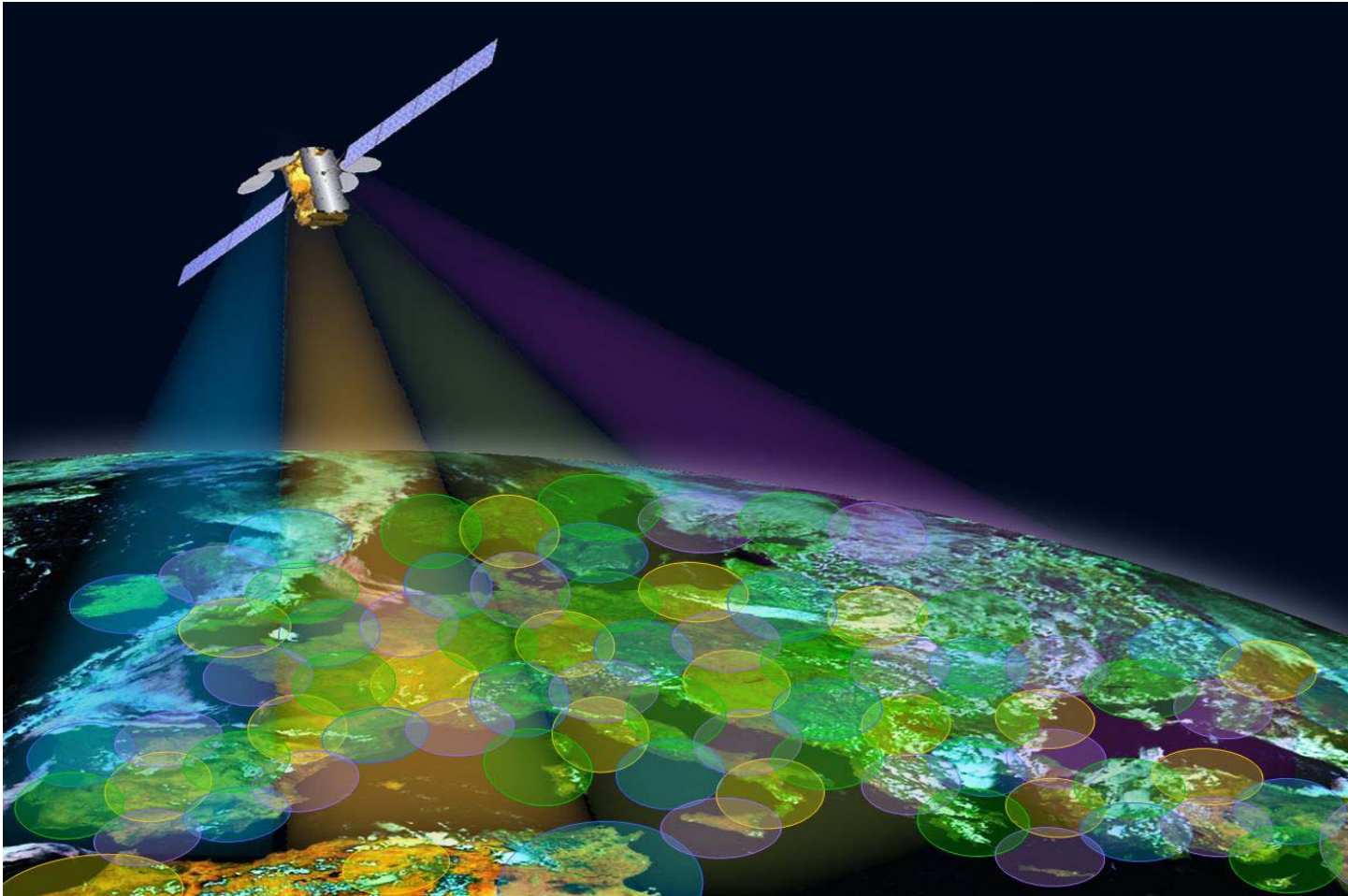


- **Reliable:**
 - Satellite communications relayed by 27 satellites over 150 countries
 - Proven solution, used by major corporations and governments around the world
- **Instantaneous:**
 - One-time installation requires no manipulation when disaster strikes
 - Ready to take over at any time
- **Scalable:**
 - Bandwidth adjustable on the fly, depending on network needs
 - Customer can choose functionality-level depending on corporate needs
- **Easy to use:**
 - Quick and simple to configure
 - Easy to integrate to existing communication infrastructures
- **Cost effective:**
 - Maximize uptime and effectiveness of network infrastructure
 - Minimize loss of revenue and productivity due to network disruptions

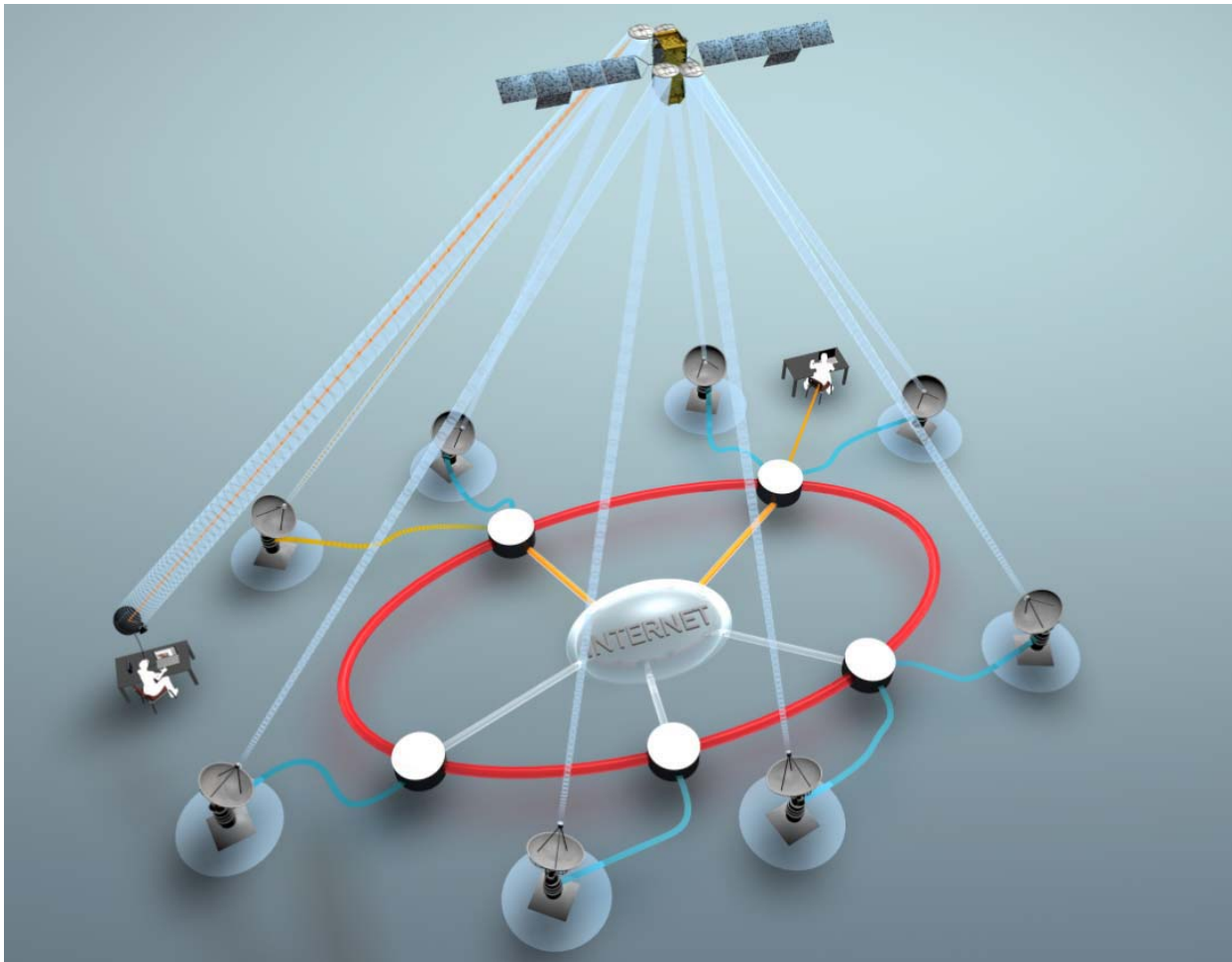
Satellite, an established player in data and broadband networks



KA-SAT: Europe's Next Generation High Throughput Satellite System



The KA-SAT Europe-wide Ground Segment Network



Thank You

Fast Train Connectivity by EUTELSAT



Eros Feltrin

Manager – Broadband System and Network

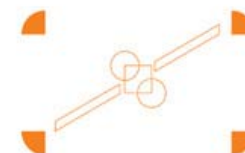
www.eutelsat.com

Eutelsat S.A. · 70 rue Balard · F-75502 Paris Cedex 15 · France

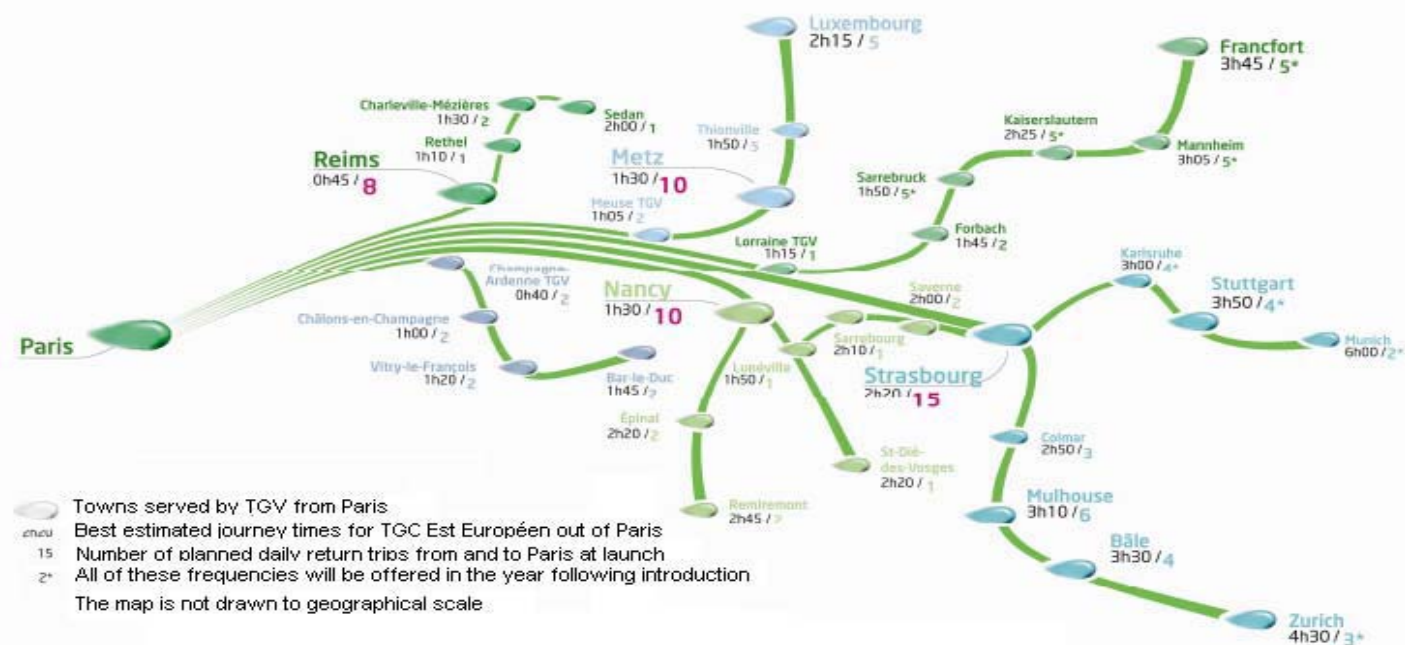
tel. +33 1 53 98 39 45 · fax. +33 1 53 98 31 81

efeltrin@eutelsat.fr

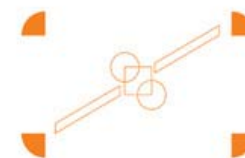
Geographical Scope of boxtgv®



Geographical scope of the East European TGV network :
France, Germany, Swiss and Luxembourg



Eutelsat Mobile Services: Fast Train Connection

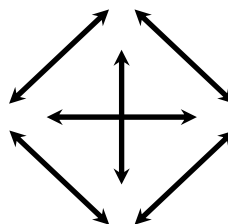


ISP/Telecom operator

- Backup WiFi / 3G
- Global Quality of service management
- Content on board trains
- Hot Line
- Billing / Authentication



- Satellite service end to end
- Satellite antenna satellite and Modem designed for High Speed trains
- Hub operation
- Satellite capacity



Software provider

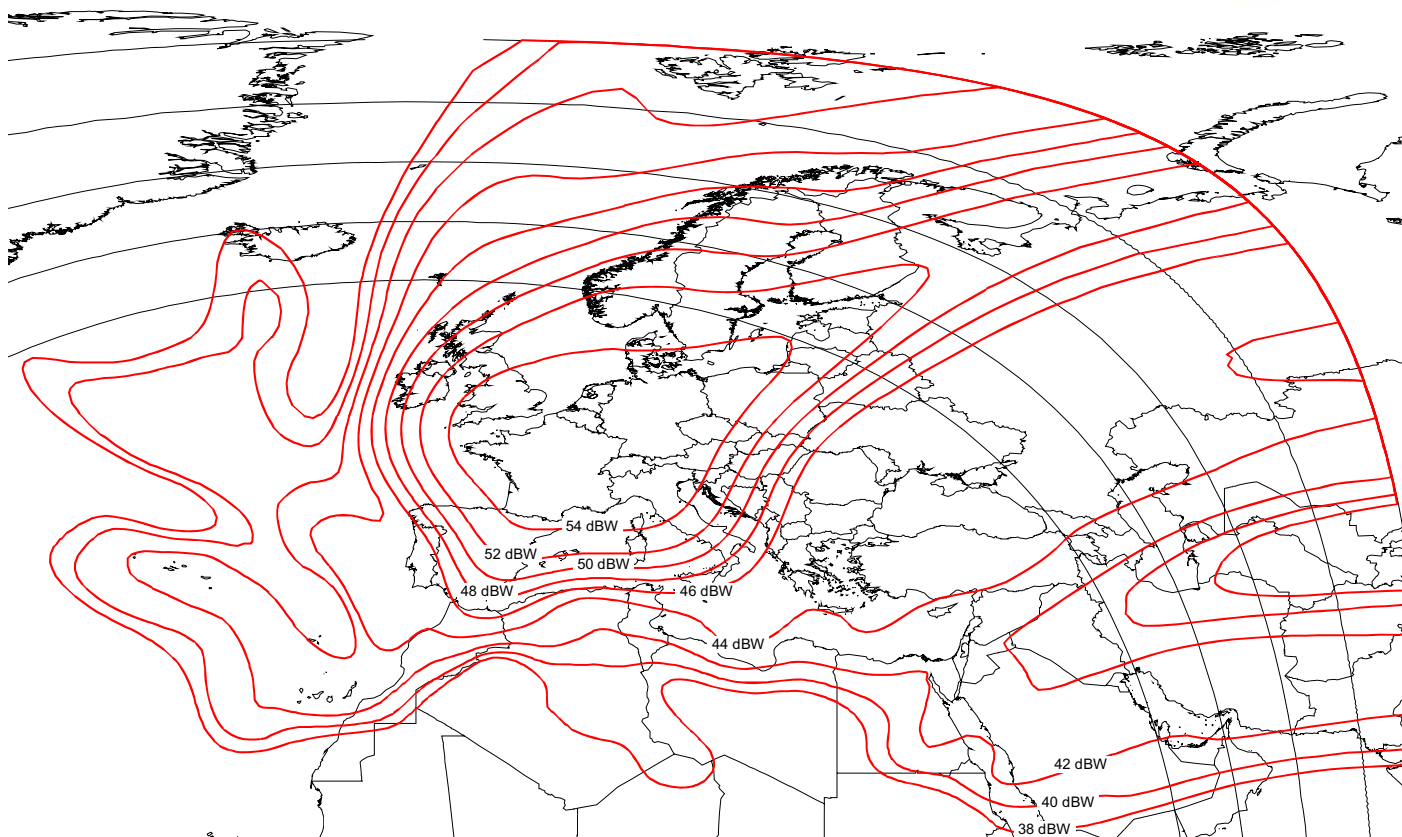
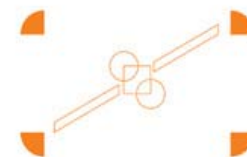
- Software for on board Portal
- Software for IS
- Interface with SNCF IS

Trains builder

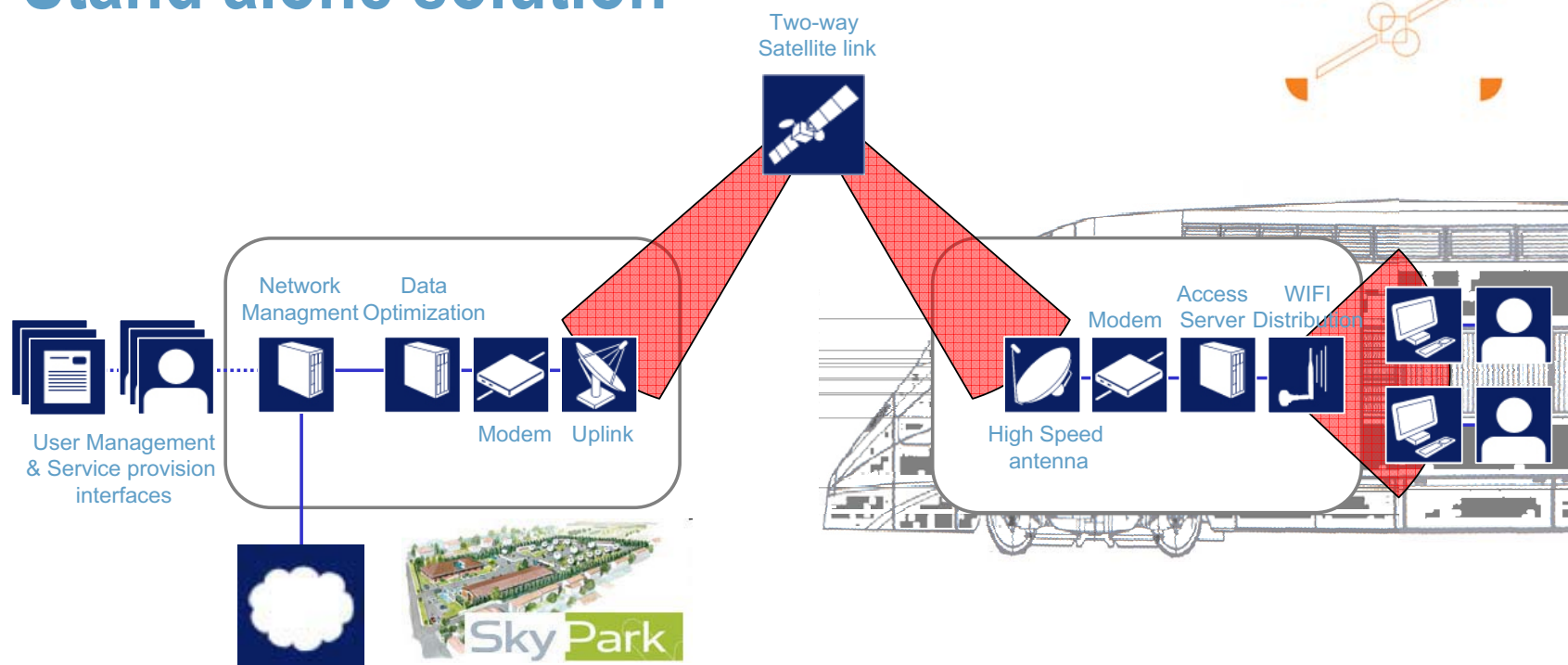
- On board equipments (except satellite equipment)
- On board Installation of equipments
- On board Maintenance of equipments

Eutelsat Mobile Services: Fast Train Connection

Exemple of Ku band coverage: AtlanticBird™ 2

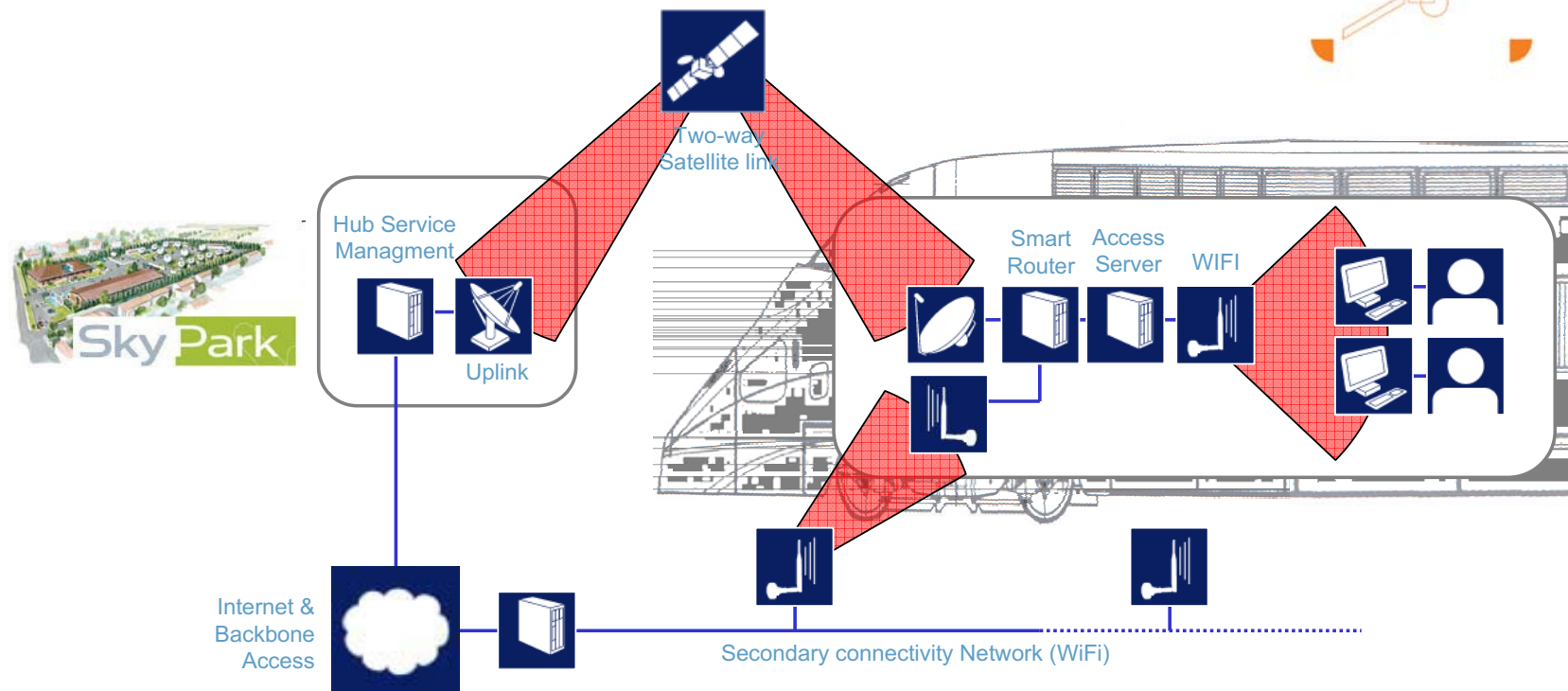


Stand alone solution



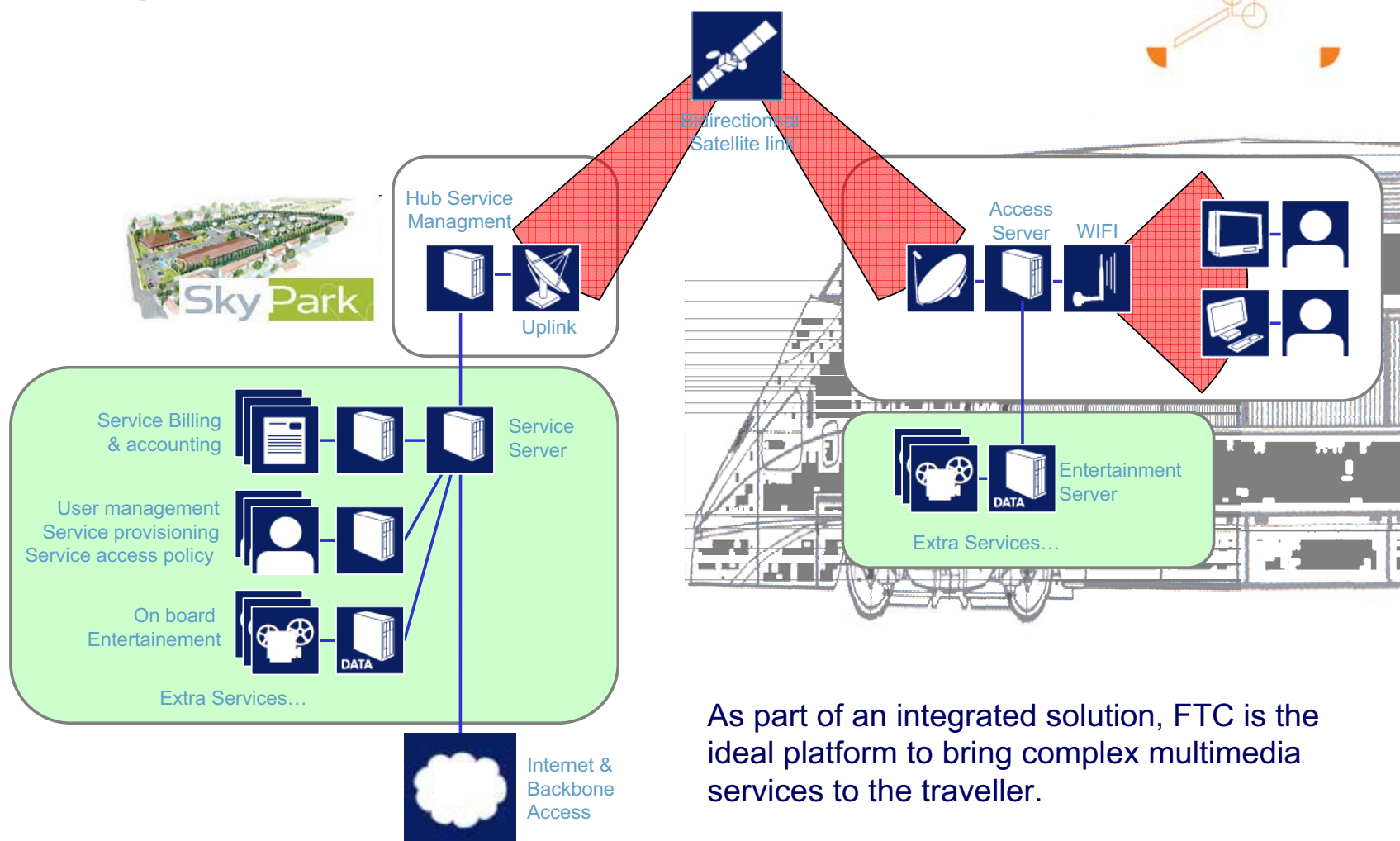
- > As a **stand alone solution**, FTC provides users internet connectivity whenever the satellite is visible. **Service quality and continuity is guaranteed.**
- > **User management, service provision and billing interfaces** are provided to ensure integration.

Terrestrial gap filling



- > **Other complementary solutions** will need to be integrated to provide the same level of connectivity shall the satellite be obscured by the vehicle passing in a tunnel or under a station roof.
- > FTS smart routing capabilities guarantee a simple integration

Integrated solution



As part of an integrated solution, FTC is the ideal platform to bring complex multimedia services to the traveller.

Ground Hub

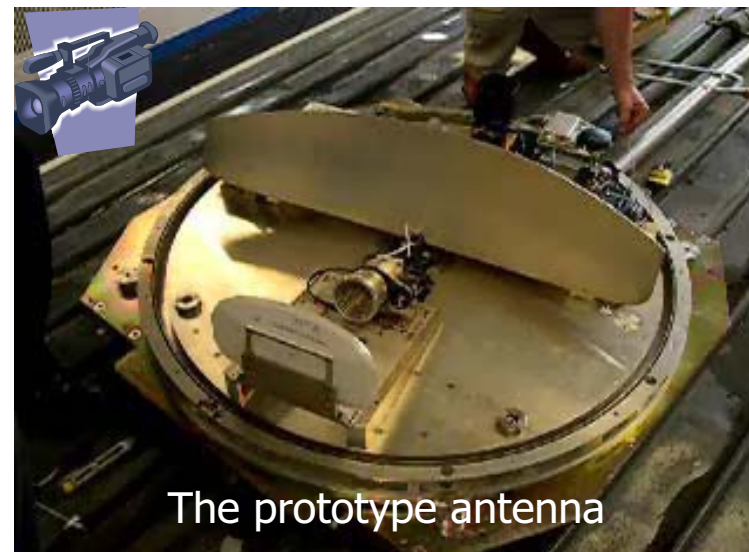


- > Service is operated and monitored from SkyPark, Eutelsat's fully owned uplink facility in Turin (Italy). This guarantees a centralised and unified support for all the different aspects of the service by trained professionals who have deep knowledge and control over the end to end solution.
- > SkyPark is itself connected to the internet back bone to provide both Internet access and VPN connectivity towards the service operator's facilities or wherever shall the operator's service platform be located. Hosting capacities directly at SkyPark are obviously also available.
- > SkyPark's expertise covers:
 - > Data Uplink/Downlink
 - > Backbone connectivity
 - > Network management
 - > Satellite link FAP processing
 - > Traffic acceleration
 - > Service management

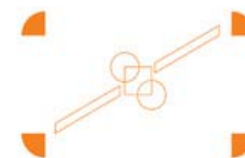


Specific technology

- > Use of a specific antenna
 - > Specially designed for EUTELSAT by TeS - Teleinformatica e Sistemi a company of the Space Engineering group
 - > Limited height and low profile
 - > Compliant with ETSI and FCC regulations and EN 50 155 railway standard



Moving to KA-SAT



- > An offer in Ka band is the next step
 - > R&D activities already started (Italian companies have been involved)
 - > New antennas ready end 2011
 - > New systems proposed
- > Why Ka band instead of Ku band?
 - > Large amount of capacity available
 - > Cost reduction of the capacity
 - > Higher performances
 - > Future proof also for other means of transport (airplanes, boats)
- > And Ku?
 - > It is not going to disappear
 - > Other advantages as the global (world-wide) coverage



Thank you!

