EUTELSAT SATELLITE SOLUTIONS
FOCUS ON TELECOMS

Odessa, September 2015

eutelsat

AGENDA

➔Who we are

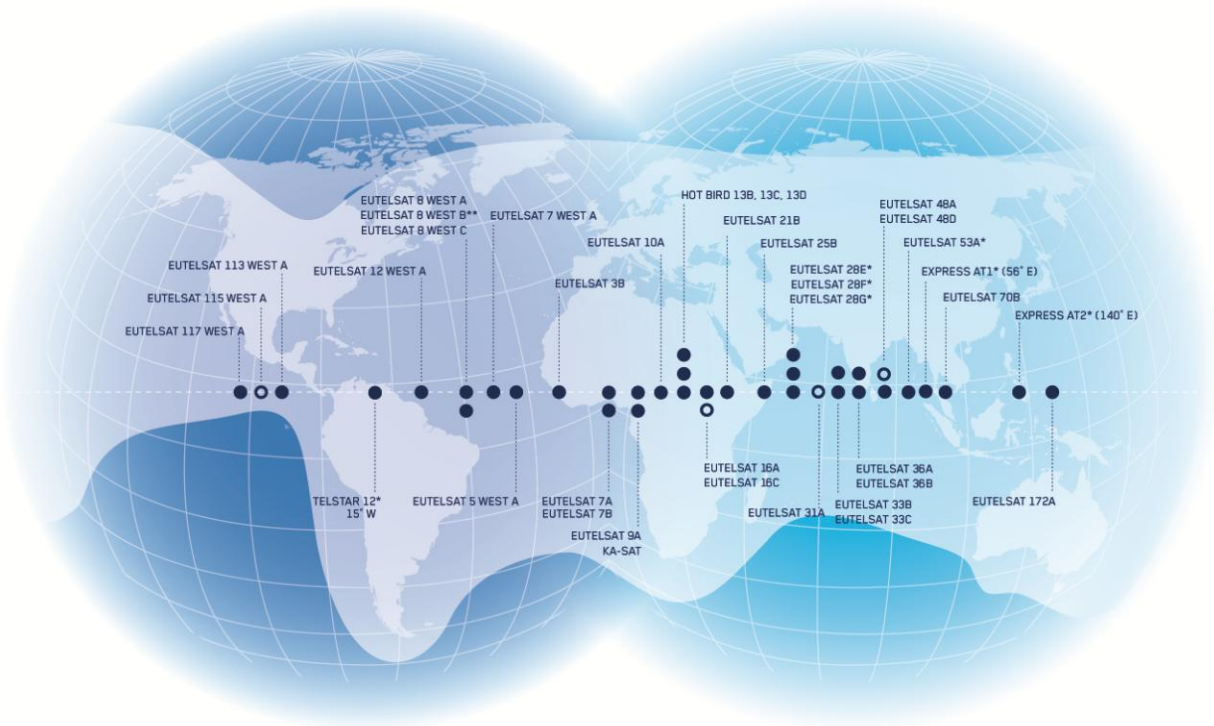
- ➔ **Why choose 9°E orbital position?**
- ➔ **SMART solutions for Telcos**

A LEADING GLOBAL SATELLITE COMPANY

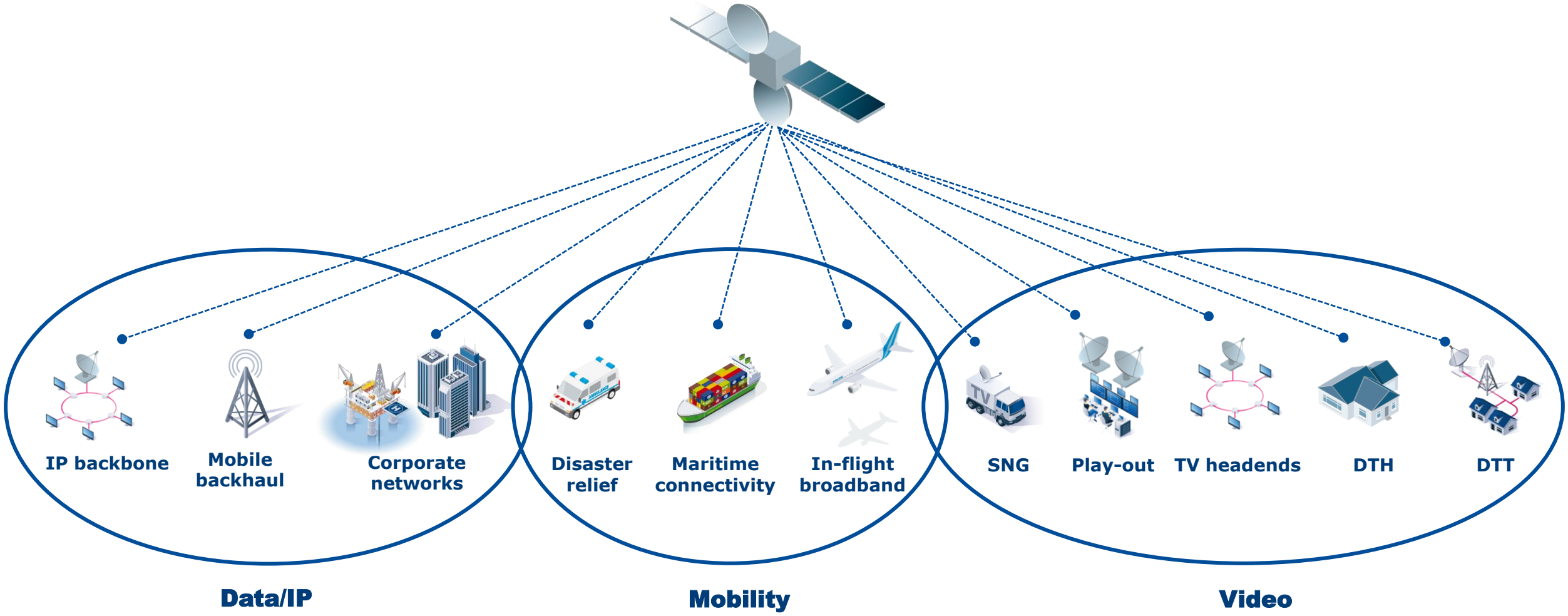
- **Experience:** over 30 years of satellite operations
- **Global coverage:** 38 satellites from 117° West to 172° East
- **Continued investment:** 6 further satellites to launch
- **Core broadcasting infrastructure:** 5,800 TV channels, over 274 million homes
- **Balanced service portfolio:** growing data, broadband and government markets
- **Global presence, local knowledge, technical excellence, innovation:** assured by 1,000 company experts in Europe, Africa, Asia, the Americas
- **Full-year revenues: €1.4 billion**

DELIVERING GLOBAL COVERAGE

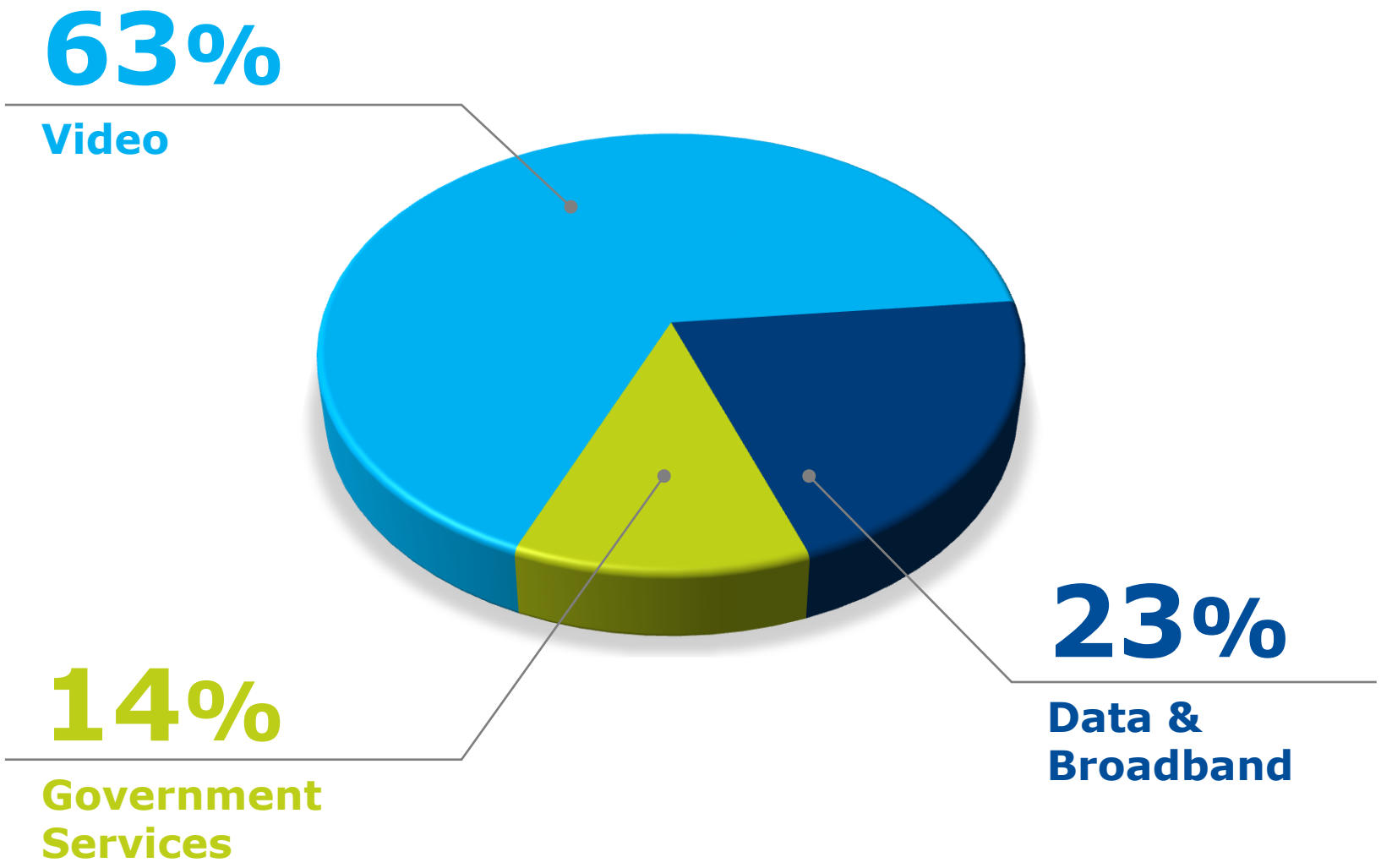
Unique range of C, Ku and Ka-band resources



OUR PORTFOLIO OF SERVICES



BALANCED SERVICE PORTFOLIO



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Why choose 9°E orbital position?

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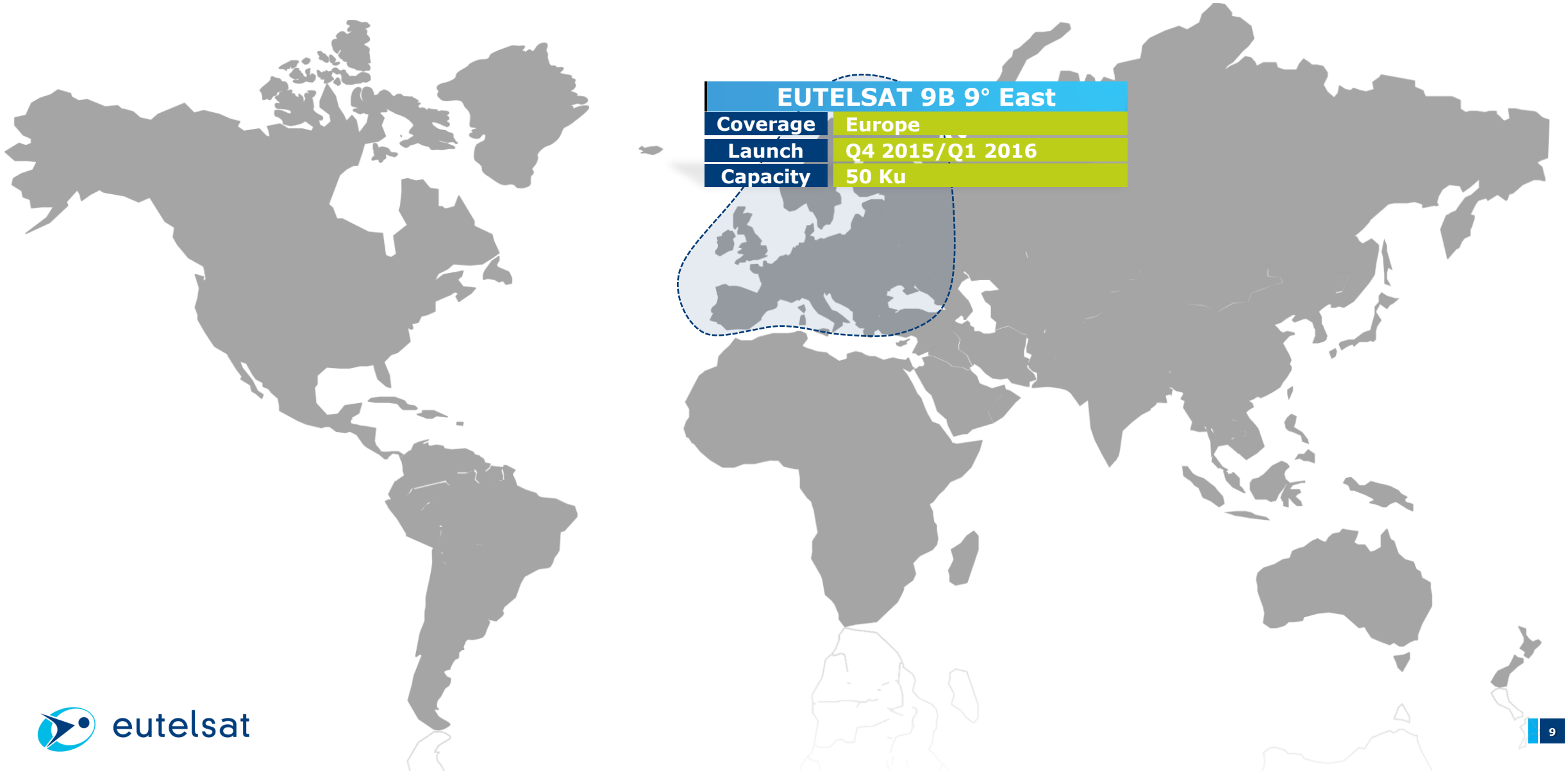
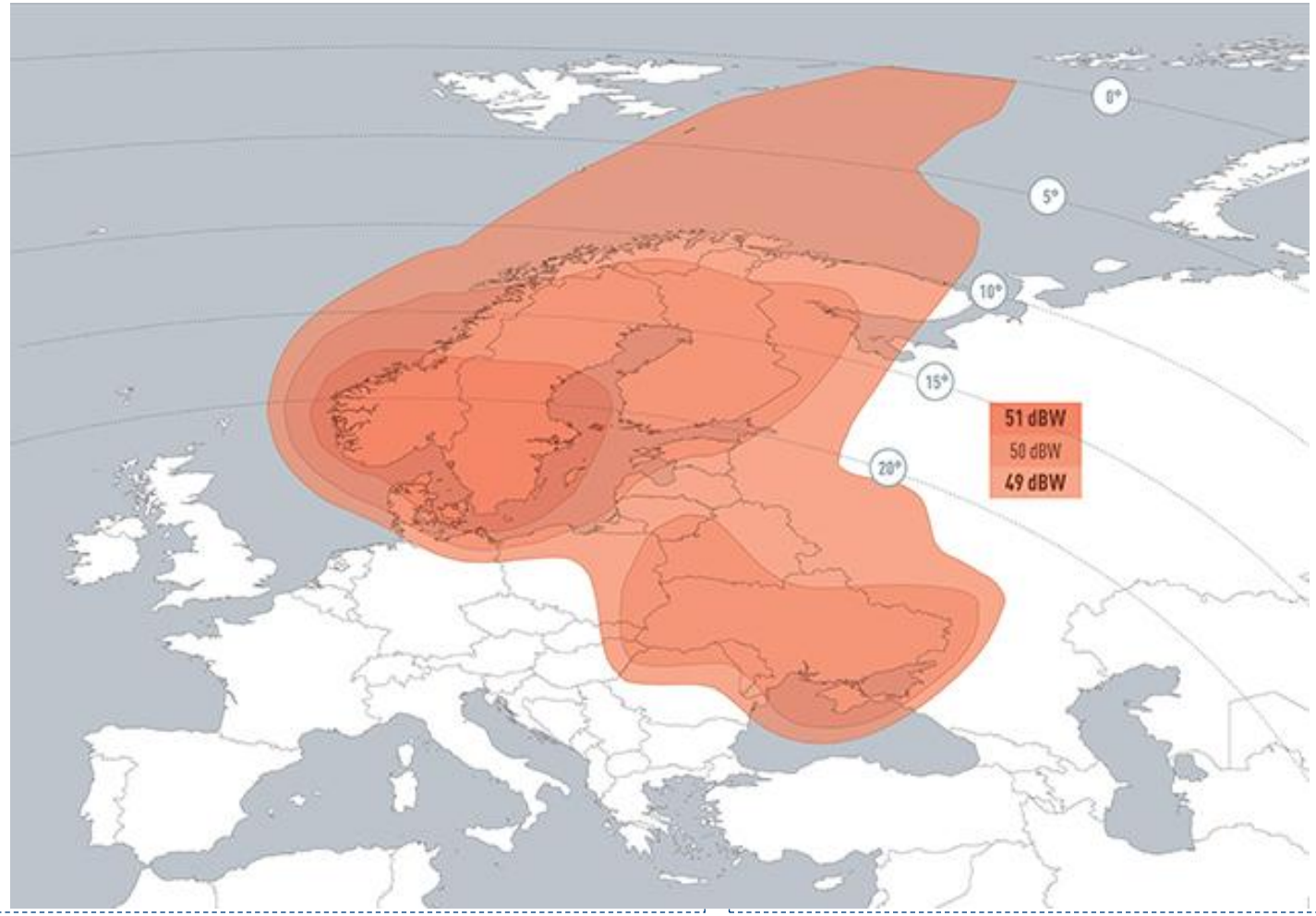
INVESTMENT PROGRAMME FOR EUROPE: SECURING EXISTING BUSINESS, FUELING GROWTH



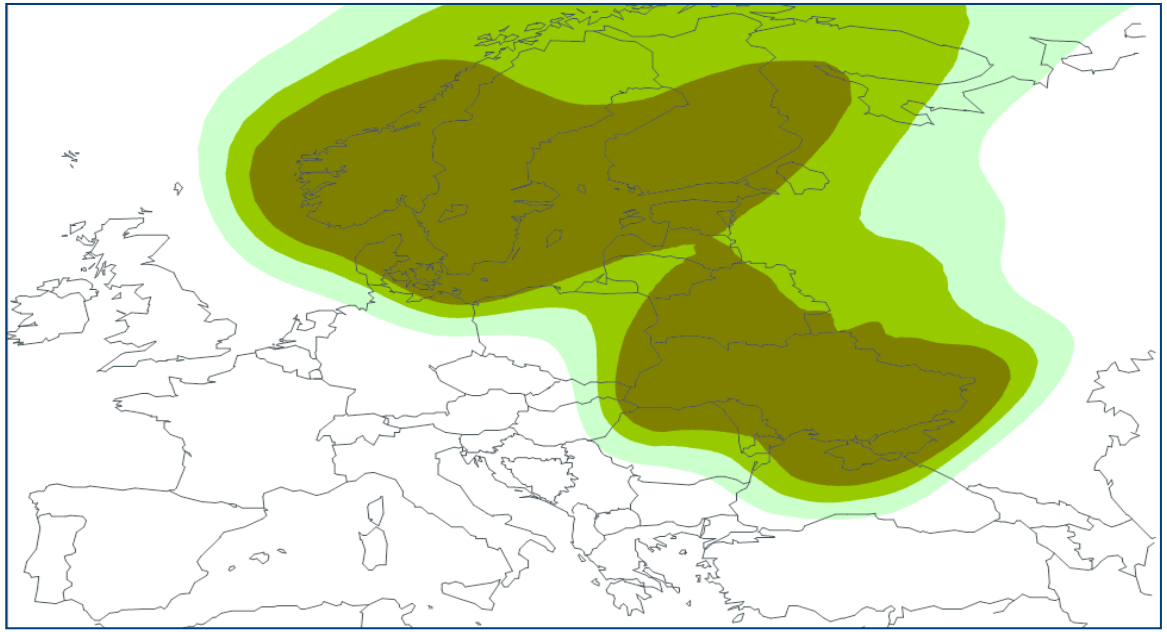
EUTELSAT-9B

Eutelsat 9B – Downlink Coverage



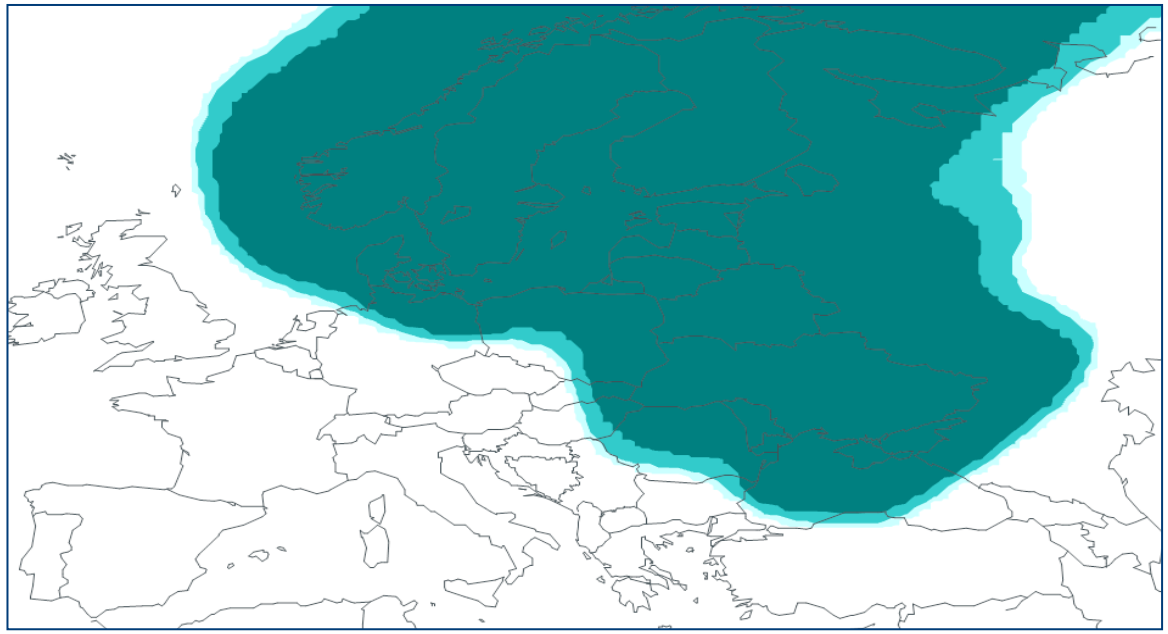
EUTELSAT-9B

Clear Sky Link margin for 60-80 cm reception



> 2 dB | > 4 dB | > 5 dB

Availability for 60-80 cm reception

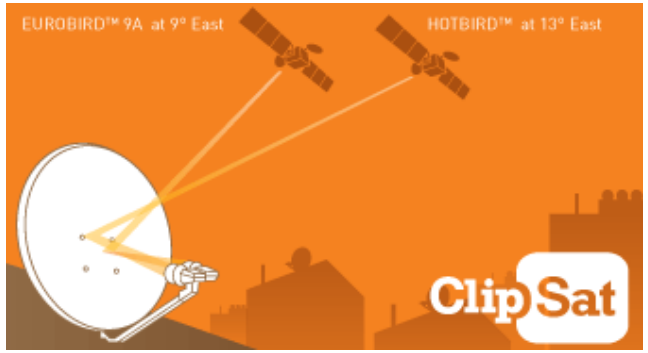


> 99.5 % | > 99.7% | > 99.9%

WHY 9°E (CLIPSAT)

Use of Clipsat enable to receive a satellite which is at 4° orbital spacing from 9°E

- HotBird at 13°E
- SES-4A/5 at 4.9°E

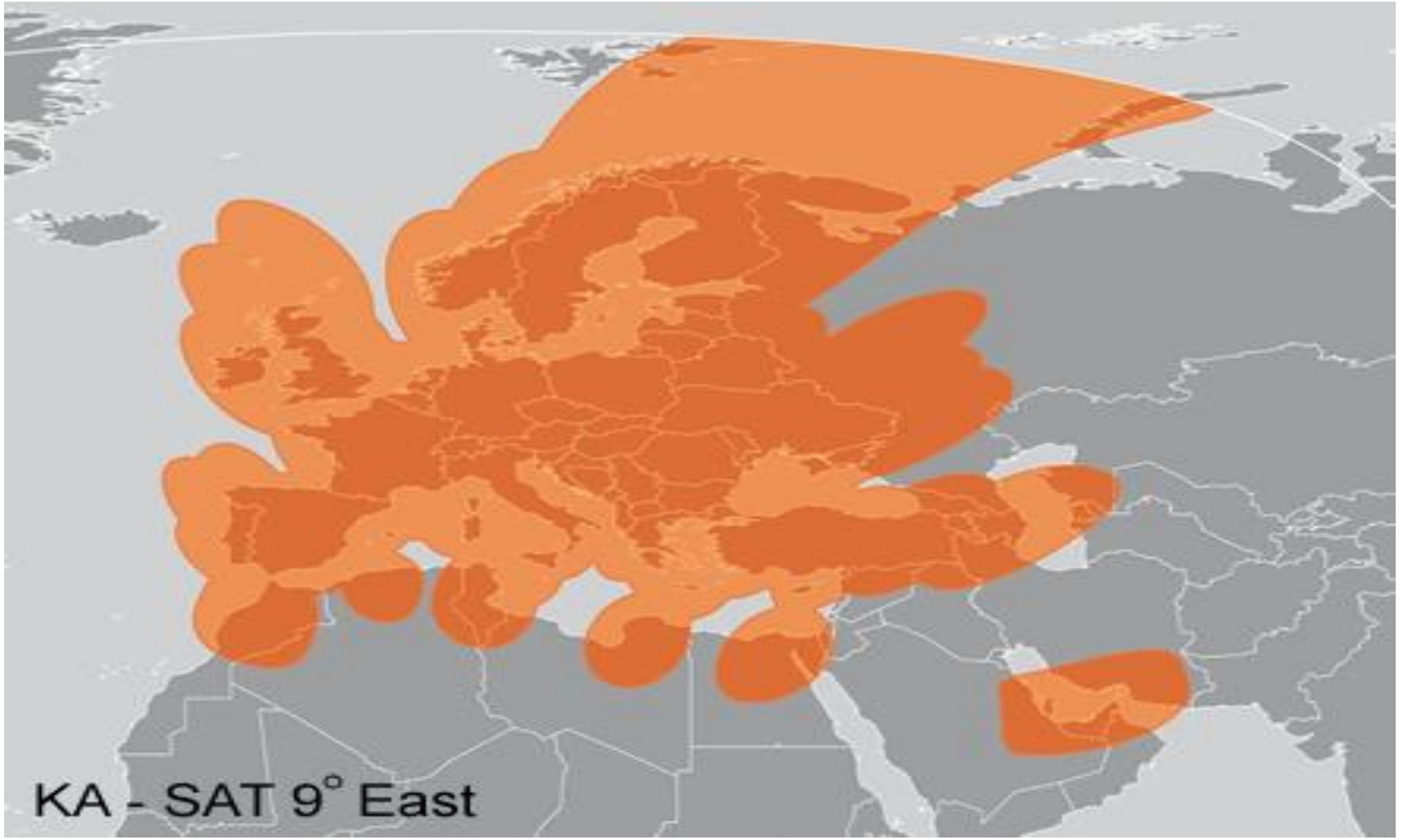


Advantages

- Existing antenna pointed towards 4.9°E/13°E can receive content from 9°E by adding Clipsat to existing LNB
- Any new antenna that will be pointed at 9°E can receive existing content from 4.8°E/13°E without the need to retransmit those channels

KA-SAT: THE BIGGEST EUROPEAN HTS

KA-SAT extended coverage



(*) Artist view of KA-SAT coverage, exact coverage depends on the targeted application.

TOOWAY FOR CONSUMERS

- **Broadband for everyone everywhere**

- **A true “always-on” service comparable to DSL**
  - ➔ Up to 22 Mb/s downstream - 6Mb/s upstream
  - ➔ Full triple-play with DTH TV reception from 9°

- **Easy operation and installation**
  - ➔ Easy-to-install and as accessible as satellite television
  - ➔ Plug and play

TOOWAY FOR B2B ENTERPRISE PRODUCTS

Basic terminal

- plastic box IDU
- 77cm/3W ODU
- 75W electrical power usage
- Only Layer 3 services

Max HW Performance

- up to 40 Mbps download
- up to 10 Mbps upload

Advanced terminal

- metal box IDU
- 77cm/3W or 120cm/4W ODU
- Dual processor
- Layer 2/3 capability
- 80W electrical power usage

Max HW Performance

- up to 50 Mbps download
- up to 20 Mbps upload

TECHNOLOGY COMPARISON

	Fiber	Wired (DSL, ISDN)	3G/4G	Tooway B2B
Bandwidth	Flexible	Flexible	Unpredictable	**Flexible**
Price point	Expensive	Varies	Competitive	**Competitive, one price plan for Europe**
SLA	Yes	Possible	No	**Yes**
Reliability / Disaster recovery	Possible	Depends of copper infrastructure	Poor	**Yes**
Availability	Limited to cities	Mostly	Limited	**Everywhere**
International Deployment	Complex	Complex	Complex	**Easy**

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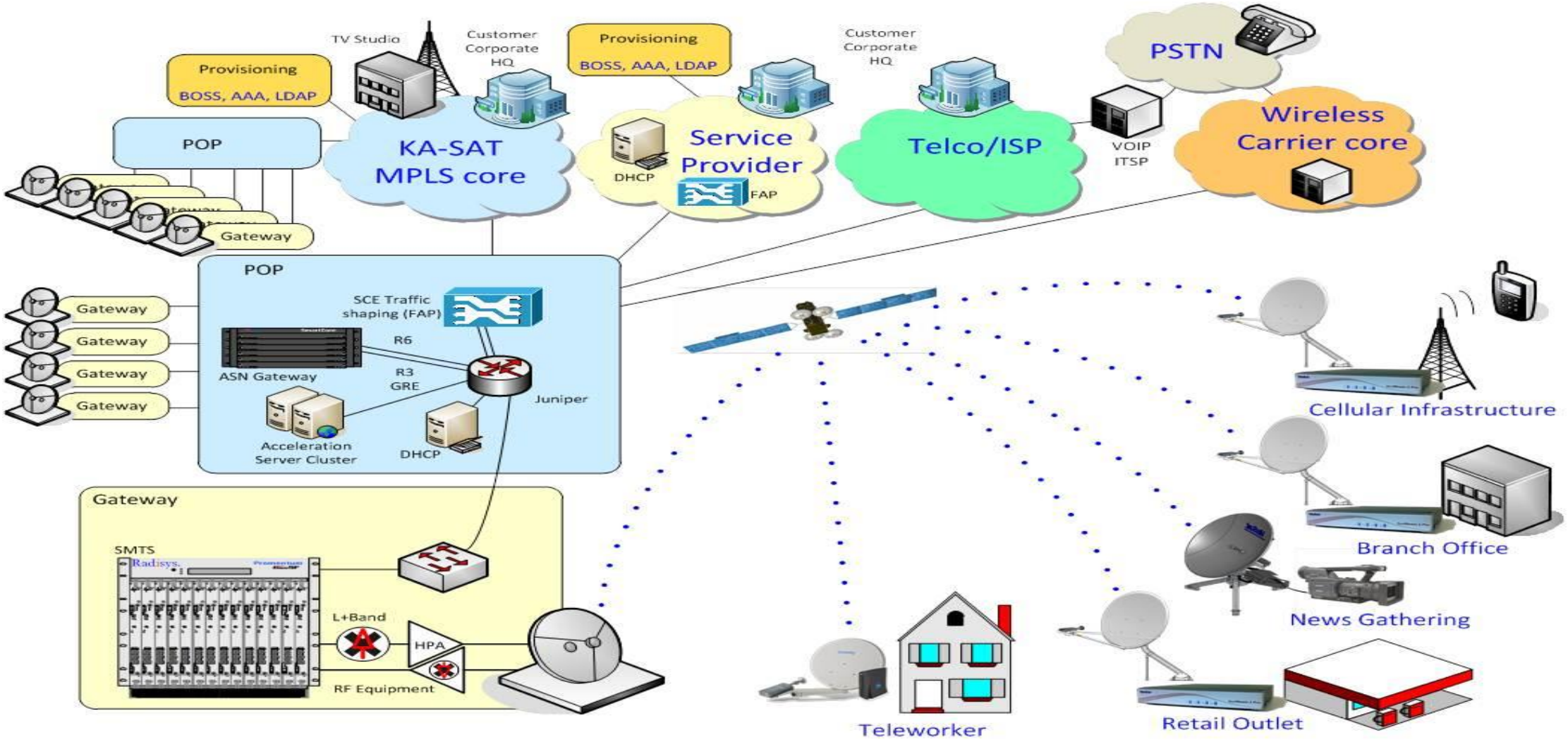
APPLICATIONS OF B2B SERVICES AT A GLANCE

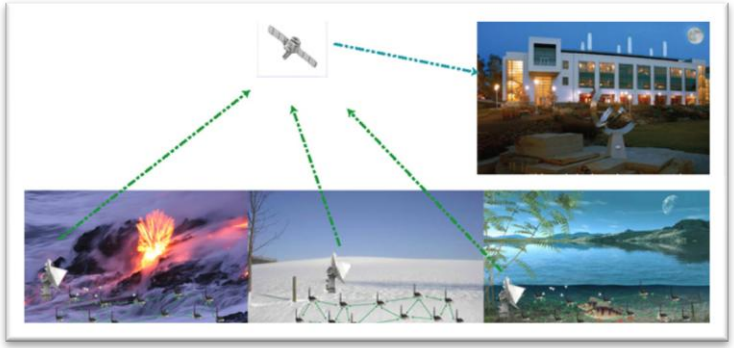
Application Overview



EXAMPLES OF PROFESSIONAL USE OF THE TOOWAY

Broadband Communication for Trucks

Backhauling and Back-up for PMR infrastructure



Connection for Remote Sensor Networks

Redundancy for Terrestrial Infrastructure

Temporary Broadband Communication in Case of Major Disaster

Video Surveillance of Remote Sites

CASE STUDY: CATASTROPHIC MANAGEMENT IN TURKEY

Solution for mobile groups in case of disaster

- Connectivity in case of earth quake and other disaster
- Connectivity of refugee camps
- Back-up for terrestrial infrastructure

CASE STUDY: VIDEO SURVEILLANCE

HIRES/Mobotix

- Mobotix is a leading supplier of professional video surveillance systems
- HIRES is a system integrator of the Mobotix-technology
- Ka-SAT is used for surveilance of remote locations, where no personel is present

CASE STUDY: BROADBAND FOR FIRE BRIGADE TRUCKS

Used by fire brigades in France

- Nomadic use to enable broadband data communication when working remotely
- Back-up of terrestrial Infrastructure for the fire brigades
- Connectivity in Alpine locations with no infrastructure

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Machine-to-Machine for wind farm in Germany

- Wind farms are located mostly in rural areas, far from DSL and UMTS connections
- Thanks to the Europe-wide availability of KA-SAT, wind farms in Germany benefit from broadband access anywhere
- Services delivered by distributor SatSpeed, provide robust and fast internet connections
- Wind farms can now deliver energy measurements and important weather data to the core storage
- Online system tests can also be carried out remotely

SUCCESS STORIES

Communication-on-the-spot for road works in Germany

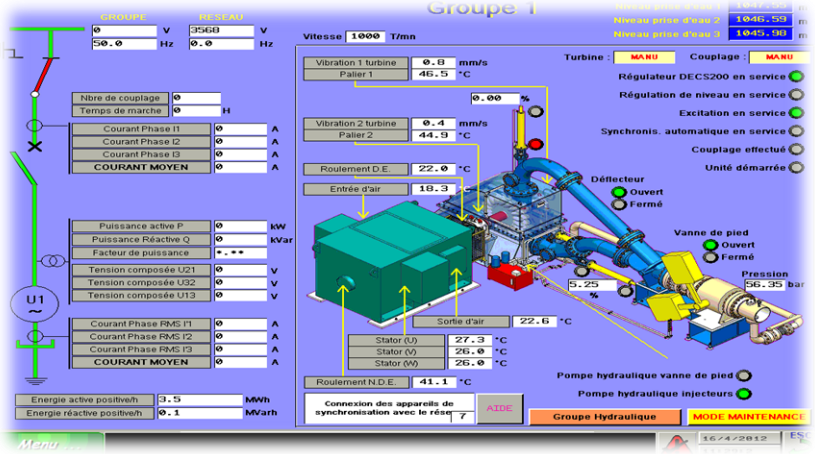
- Engineers working on highway construction sites in Germany need internet access and telephony at competitive prices
- Tooway™ is the only solution flexible enough to provide fast internet connections for every new site in any location
- Terminals delivered by SatSpeed distributor are installed quickly on the road works site (less than 1 hour)
- Engineers benefit from the same service when changing locations
- Tooway™ also provides internet access and VoIP services to engineers for the construction of offshore wind turbines in the North Sea

SUCCESS STORIES

OIL AND GAS

KA-SAT is used to deliver IP services for SCADA applications on energy plants (traditional and green energies), on offshore plants on pipes etc. Moreover KA-SAT provides IP connectivity for Gas Stations (telemetry, broadband and telesurveillance).

- ITALY – connectivity for the gasoline stations
- GERMANY – monitoring of offshore wind farms
- ITALY – Green energies – monitoring of Eolic and photovoltaic plants
- ALBANIA: monitoring and control of Hydroelectric Plants
- POLAND –telemetry and backup solution for gas station and remote storage
- UK – telemetry and broadband for offshore oil & gas platforms



- ITALY – monitoring of industrial manufacturing plants
- SPAIN - Awarded a tender to give connectivity for solar plants

SUCCESS STORIES

PUBLIC ADMINISTRATION

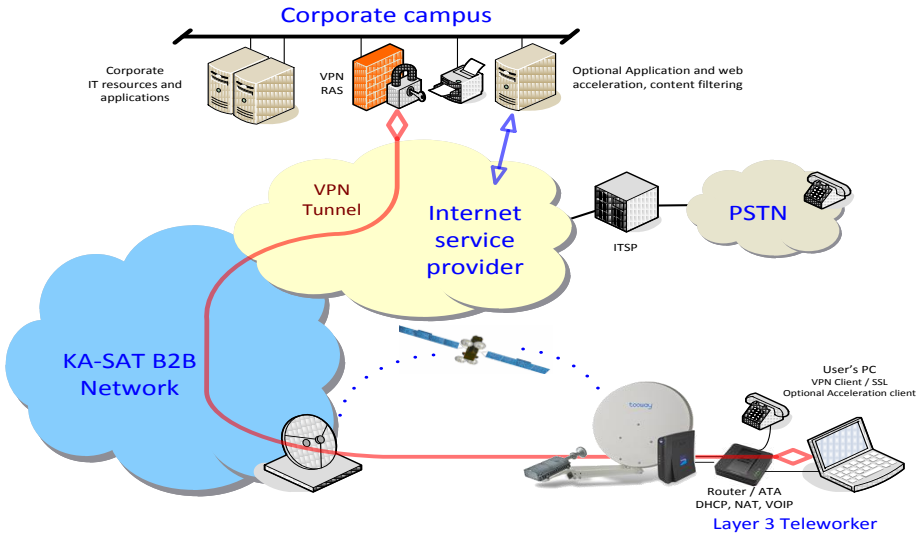
- UKRAINE - ELECTIONS MONITORING (12 400 sites) with Datagroup: web monitoring via satellite of the elections campaign for the parliamentary elections in Ukraine of October 2012. over 500 terminals per day installed in 6 weeks prior to elections
- MONTENEGRO – Police Dept. Adopt the KA-SAT solution, in double Hop (full satellite solution) for Security, Availability & Performance.

EMERGENCY MANAGEMENT

- ITALY – Broadband nomadic system to send and receive high throughput files to manage communications in real time
- ITALY – Emilia Romagna – Earthquake – Satellite links to implement data, video and voice communications to manage rescue activities and improve welfare of population (no revenues)

Other SERVICES for PA

- FRANCE – M2M communication for meteorological data
- UK – CCTV for several police, fire and military units



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SUCCESS STORIES

GAMING

➔ ITALY – LOTTOMATICA: Tests have qualified KA-SAT to manage gaming applications with Telecom Italia; small bandwith requirements and single hardware configuration minimizes maintenance and installation costs

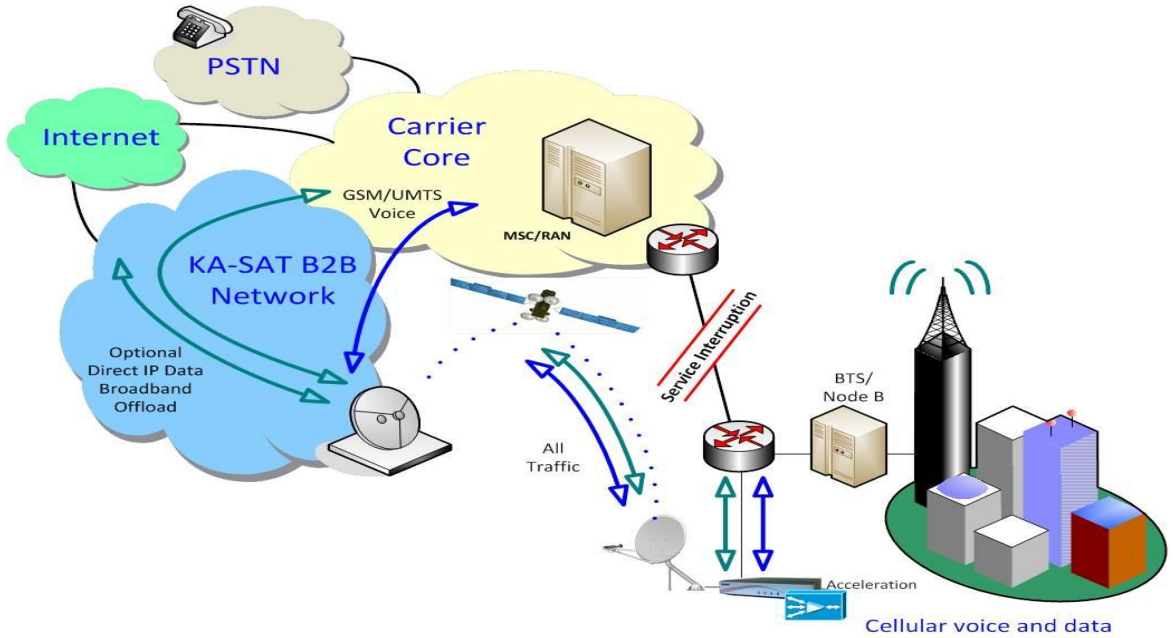
POST OFFICES

➔ ALBANIA: 850 Post Offices connected .

➔ ITALY: Poste Mobile: backup network and mobile offices

HOTELS AND BUILDINGS

➔ ITALY – Developed and manufactured a multi-dwelling solutions to provide connectivity to buildings and hotels



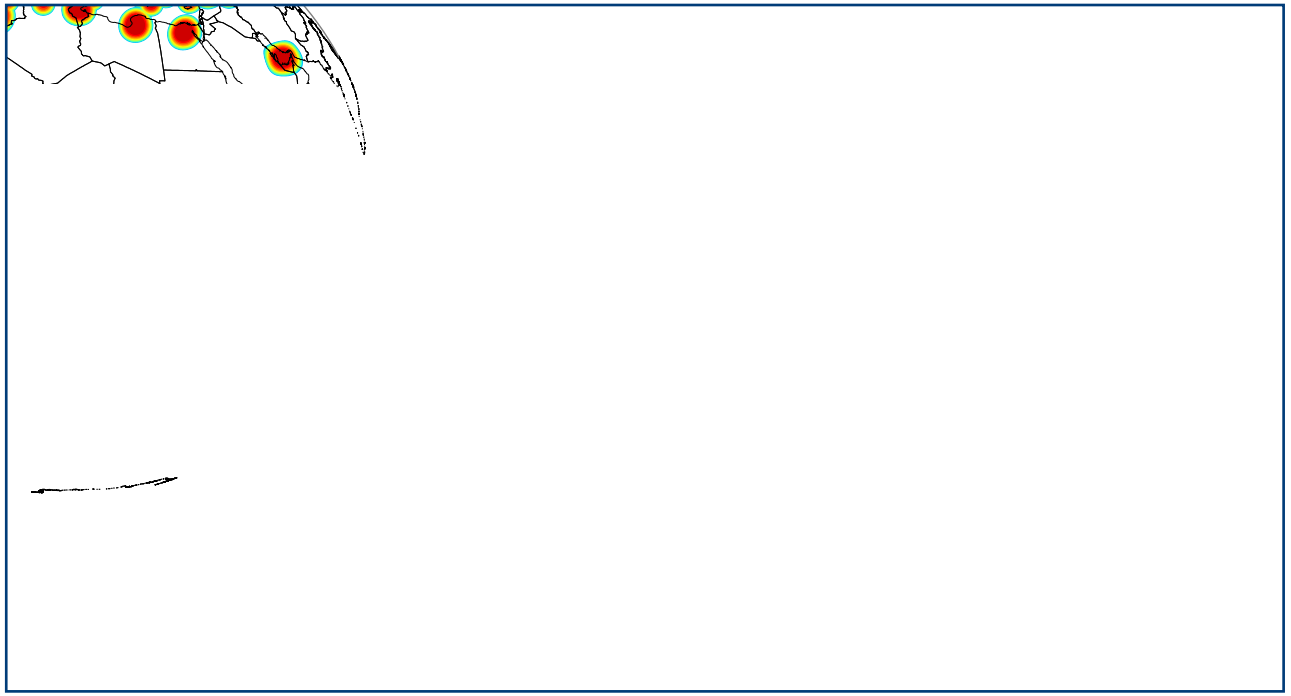
CARRIER SERVICES: BACKHAULING AND TRUNKING

KA-SAT is used to deliver IP trunking and IP backhauling for telcos and ISPs. Many fixed, mobile, WiMax and LTE operators are using or testing KA-SAT.

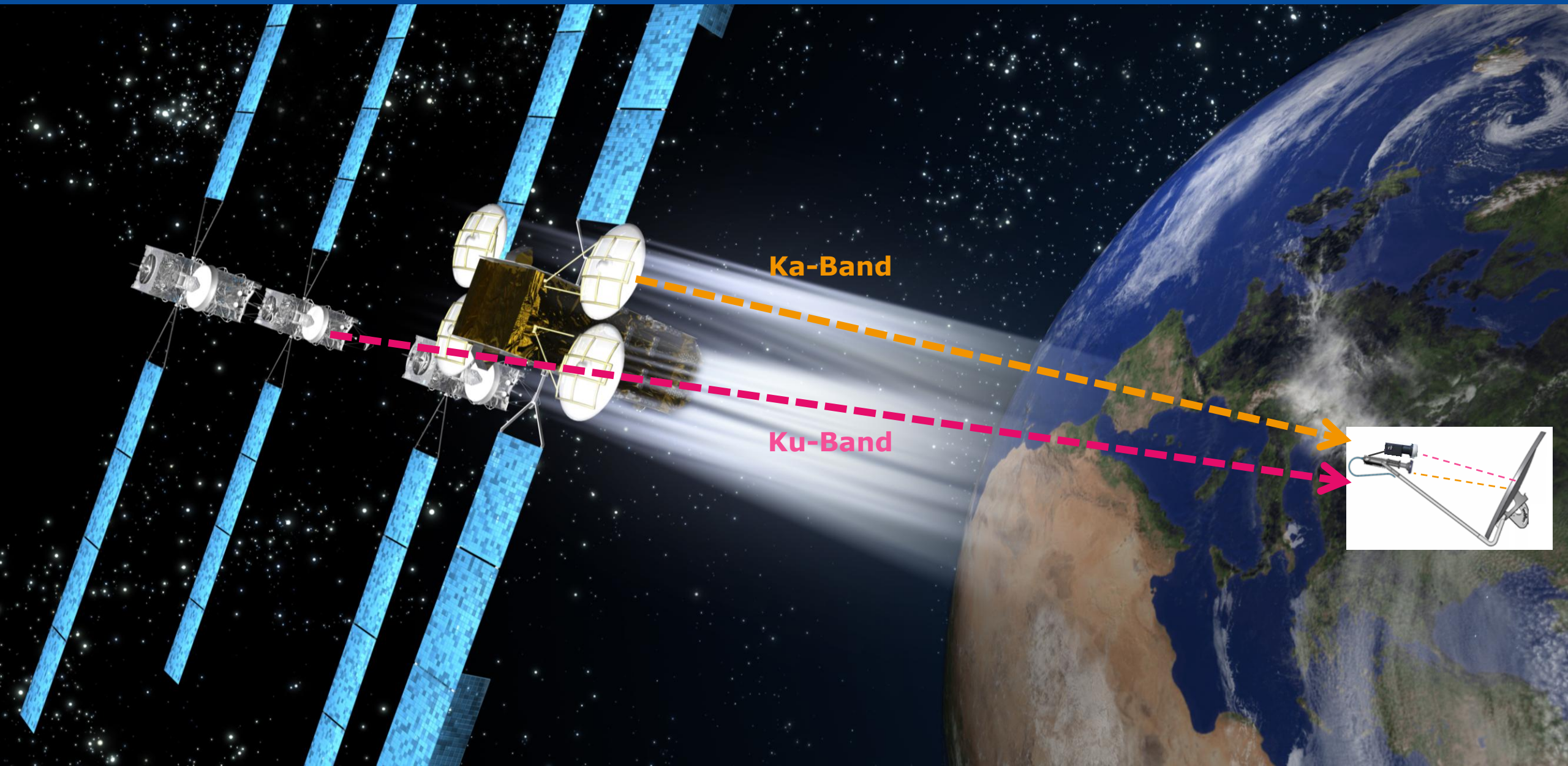
- GERMANY – backhauling via KA-SAT for remote DSLAMs to provide internet access
- LIBYA – trunking for country-wide WiMAX network (over 1Gbps capacity)
- ITALY – satellite backhauling (for Mobile Operator) for Wi-Fi distribution & Offload Connectivity
- UK – connectivity for caravan parks

TOOWAY AND TV FROM ONE TERMINAL

- **KA-SAT is co-located at 9°E with Eutelsat 9A/B**
  - ➔ Eutelsat 9A/B reception through dichroic HW on Tooway terminals
  - ➔ Triple play offer of DTH and Broadband services on a single antenna



TRIPLE PLAY: TOOWAY + DTH

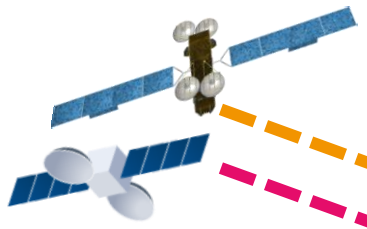


DICHROIC SUBREFLECTOR

Dichroic Multifeed

- Single antenna for Ka-Band Tooway and Ku-Band DTH
- Dichroic subreflector kit to be installed on a Tooway Antenna
- TV Reception for 9°E or 7°E
- Ku Band TV reception performace equivalent of 60 CM Antenna
- Frequency Selective Plate

DICHROIC SUBREFLECTOR



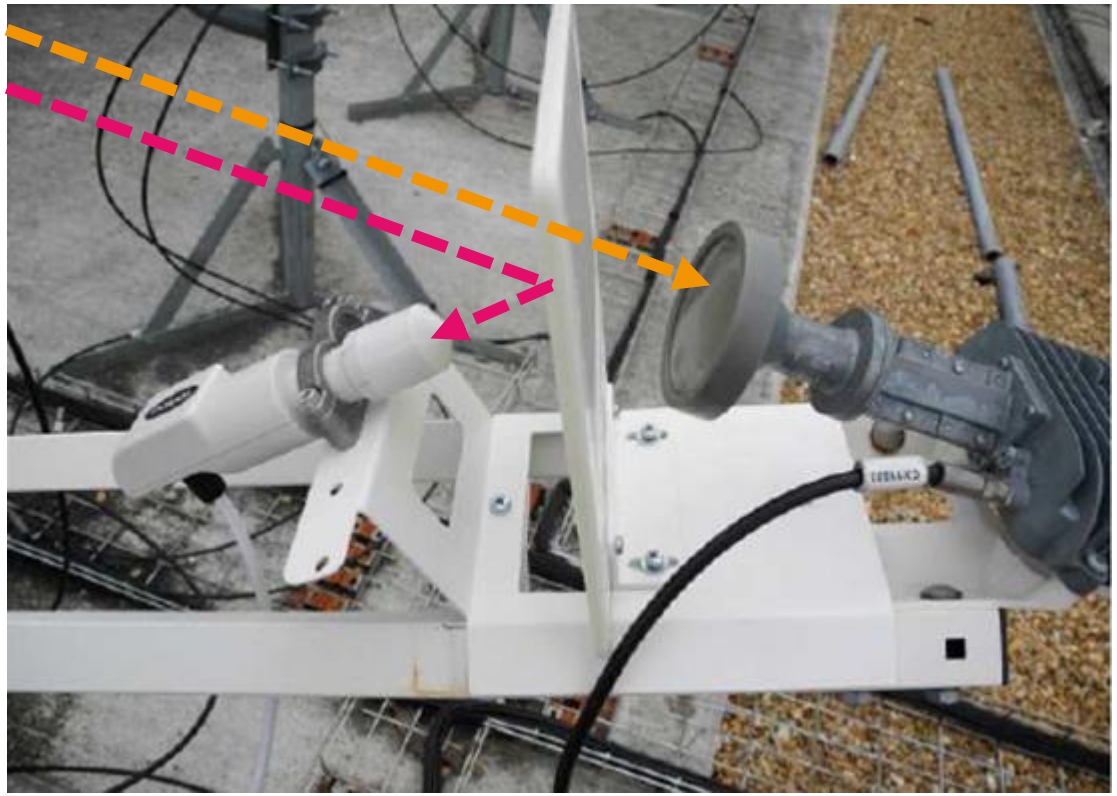
Ka-Sat

Eutelsat 9 East

Ka-Band

Ku-Band

Frequency Selective Plate



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DICHROIC SUBREFLECTOR VS. 60CM ANTENNA

C/N Measurements

IDENTIFICATION:								
ADDRESS:								
OBS:								
Datalogger file DATALOG1.XML								
Plan 9East								
Channel	FREQ:	Type:	Measure:	Units:	dsr1	dsr2	dsr3	60cm
Arquiva	11727.00	DVB-S	CN	dB	14.18	13.27	14.04	12.56
Kabelkiosk	11785.25	DVB-S2	CN	dB	10.50	10.07	10.81	10.14
Skylogic	11823.00	DVB-S	CN	dB	12.74	12.76	12.99	11.24
BSS	11843.00	DVB-S	CN	dB	11.25	10.72	11.26	12.00
RRSathigh	11919.00	UNKWN	CN	dB	10.57	9.97	10.40	10.05
GlobeCast	11938.00	DVB-S	CN	dB	13.26	12.37	12.75	11.79
TSA	12092.00	DVB-S2	CN	dB	11.86	11.31	11.74	10.62
otetv	12111.00	DVB-S2	CN	dB	10.83	10.48	UNKNOWN0.00	11.33
otetv	12149.00	DVB-S2	CN	dB	10.88			
OTEtv	12380.00	DVB-S2	CN	dB	10.88	10.74	10.49	10.15
Kabel	12399.00	DVB-S2	CN	dB	12.31	11.48	12.01	10.78

MER Measurements

IDENTIFICATION:								
ADDRESS:								
OBS:								
Datalogger file DATALOG1.XML								
Plan 9East								
Channel	FREQ:	Type:	Measure:	Units:	dsr1	dsr2	dsr3	60cm
Arquiva	11727.00	DVB-S	MER	dB	13.40	12.70	13.00	11.50
Kabelkiosk	11785.25	DVB-S2	MER	dB	12.30	11.90	12.30	10.90
Skylogic	11823.00	DVB-S	MER	dB	12.50	12.10	12.40	10.90
BSS	11843.00	DVB-S	MER	dB	12.50	11.80	12.40	11.50
RRSathigh	11919.00	UNKWN	CN	dB	10.57	9.97	10.40	10.05
GlobeCast	11938.00	DVB-S	MER	dB	13.00	12.60	12.80	11.60
TSA	12092.00	DVB-S2	MER	dB	14.10	13.40	13.80	12.00
otetv	12111.00	DVB-S2	MER	dB	12.00	11.10	12.10	10.80
otetv	12149.00	DVB-S2	MER	dB	11.50			
OTEtv	12380.00	DVB-S2	MER	dB	13.00	12.60	12.80	11.60
Kabel	12399.00	DVB-S2	MER	dB	11.60	11.30	11.50	10.40

THANK YOU

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