MK

Nov/2025

Space Tech

Innovative Cloud Strategies Infusing Next-Gen Tech

Wednesday, November 26, 2025, at EL Tower in Seoul, Korea.

Agenda

10min speech and Panel

- Satellite communications and space technology,
- 10 minutes for a personal speech, Satellite Communication Service & Global strategies
  - Who is Space42
  - SAR, Foresight Constellation, Earth Observation, GIQ
  - Thuraya 4, commercial and government
  - NGBP terminals and Usecases, Land, Sea, Air
  - Satellite phones
  - IOT
  - TeleMedicine
  - Tracking
  - Border protection
  - Strategy:
    - D2D, Equatys
- 30 minutes of discussion with other panelists.

Space42 assets cover the entire value chain

6
Existing Satellites and 2 in pipeline

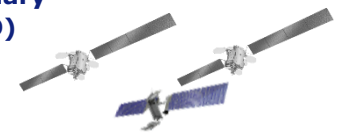
7
SAR Satellites(1)

Manufacturing in the UAE; successful flights

500,000+ km
Distance travelled by Smart Mobility

Geostationary Orbit (GEO) Satellites
(36,000 km above Earth)

Al Yah 1–3 | Thuraya T2 & T3 | Al Yah 4 & 5(1) | Thuraya T4



SPACE42 YAHSAT SPACE SERVICES

Low Earth Orbit (LEO) Satellites
(160-2,000 km above Earth)

SAR Constellation

SPACE42 BAYANAT SMART SOLUTIONS

Stratosphere
(10-50 km above Earth)

High-altitude Pseudo-Satellites (HAPS)

SPACE42 BAYANAT SMART SOLUTIONS

On-Earth

Cloud & Data Center | Ground Station

Shared core infrastructure

SPACE42 YAHSAT SPACE SERVICES | SPACE42 BAYANAT SMART SOLUTIONS

4/5G communication network

Voice, data, tracking, Terminals. Land, Sea, Air

SPACE42 YAHSAT SPACE SERVICES

Smart Mobility (Autonomous)

Drones

Aerial

SPACE42 BAYANAT SMART SOLUTIONS

GIQ SPACE42

AI Multi-intelligence Platform

SPACE42 BAYANAT SMART SOLUTIONS — *Integrated for SatCom and Geospatial*

AI driven multi-intelligence platform, GIQ, integrates data from space and ground assets for:

- Optimized decision making
- Enhanced situational awareness
- Improved operational effectiveness

Example: AI assessment of earthquake damage

Note: (1) Assets in pipeline

SAR images through Space42's Foresight SAR constellation (1

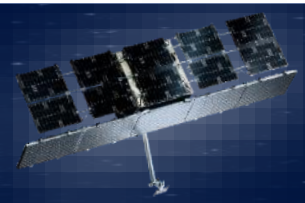
State-of-the-art Foresight Constellation

In August 2024, Space42 launched UAE's first SAR Satellite, Foresight -1, placing the UAE among top 20 countries operating SAR satellites

Comparative Advantage of the Foresight Constellation:

Resolution: Foresight provides high resolution, matching industry leaders such as Airbus's TerraSAR-X and surpassing many other competitors

Multi-sensor constellation: The constellation will incorporate optical and additional sensing satellites, creating a multi-sensor network to deliver more comprehensive Earth Observation (EO) solutions.



Comparative advantage

- **High resolution**
- **Frequent revisits**
- **Frequent coverage over AOI**
- **Absolute Sovereignty**

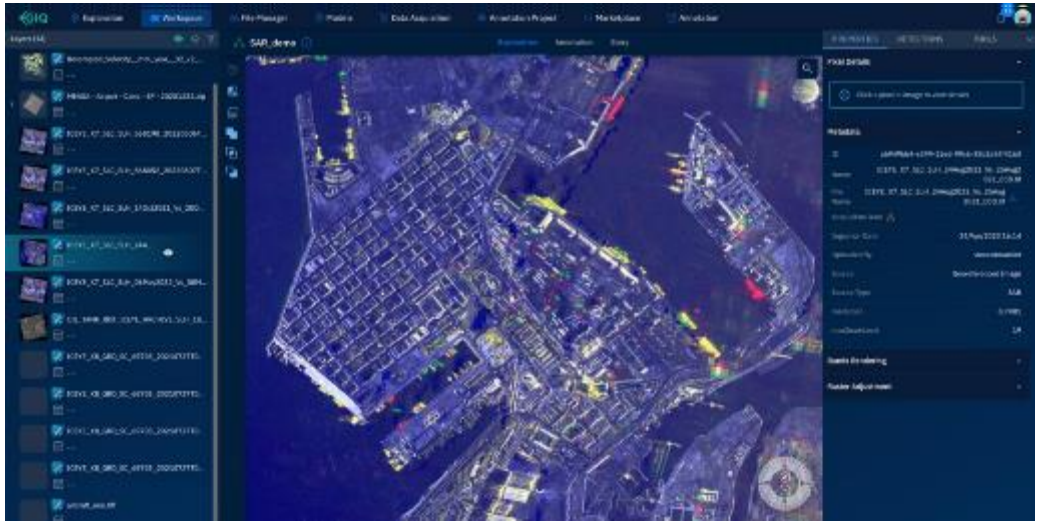
Specification

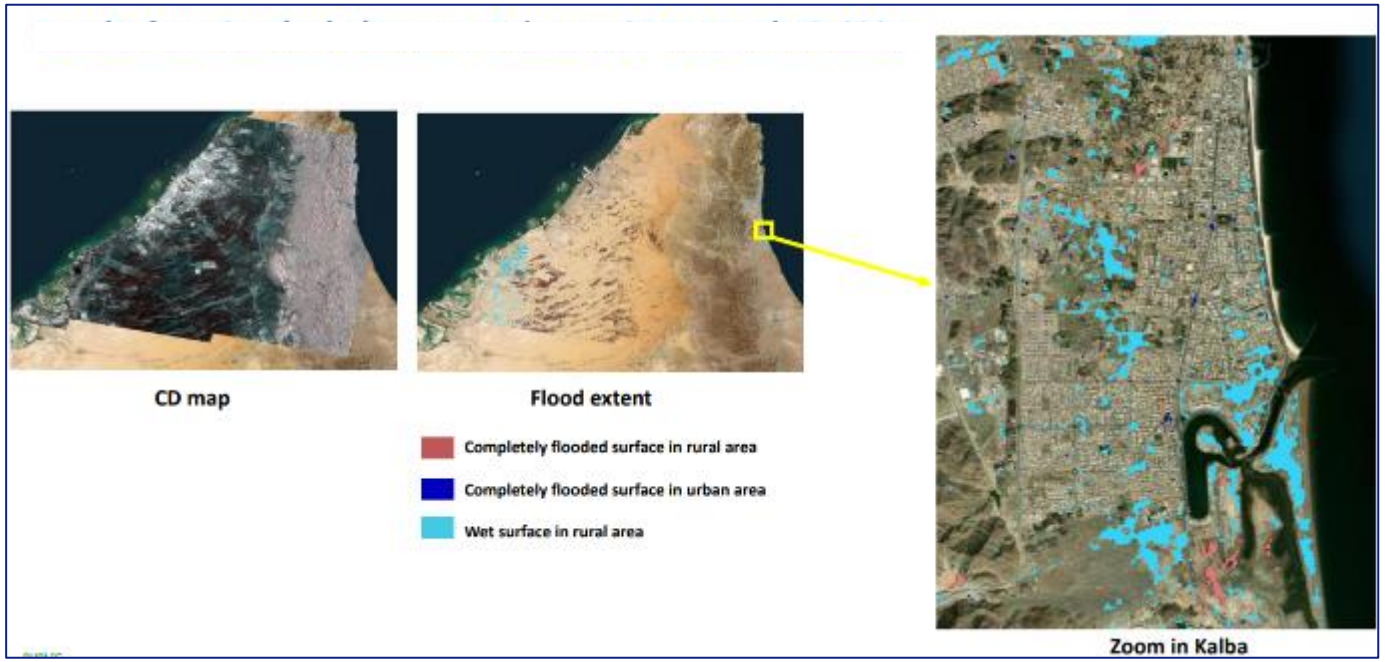
8	1200 MHz
# of satellites in constellation	Payload technology
25cm	Daily
Spatial resolution	Revisit time
99%	~150 kg
Operational uptime	Satellite mass

Disaster management · Environmental monitoring · Urban and infra monitoring · Defense and security · Energy and natural resources · Climate and weather studies · Maritime applications

SAR Images from Space

Smart City, Bathymetry, Flood detection, Infrastructure, Energy, Disaster relief.





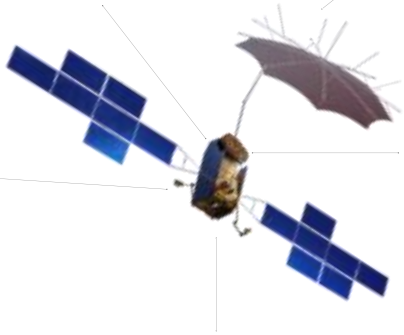
Thuraya 4 – Satellite: Innovative mobility

New applications, new services

Characteristics

Versatile platform for future applications

Advanced technology

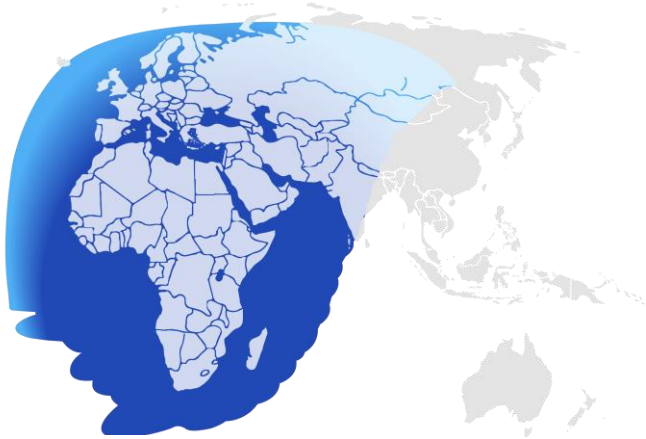


Wider footprint coverage

Higher throughput

New product development opportunities

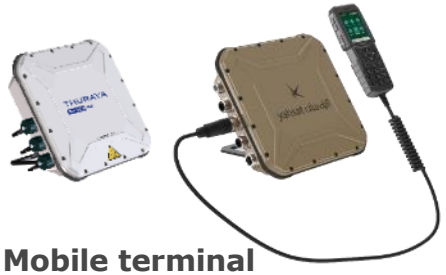
Coverage



New Products and Applications

T-TAC:
Tactical Satellite Communication Solution

Mobile Gateway
Hybrid PTT



Mobile terminal
Hotspot
VoLTE

Broadband user terminals
(up to 1Mbps)

Next Generation Devices for Communication where it matters

Secure, Resilient, always-on, anytime, anywhere

IOT, Location tracking, Safety, Logistic, Wildlife

Secure, Resilient, always-on, anytime, anywhere

Rescue Services and NGO’s

Communication where it matters most









- Satellite communications helps respond to crises in an effective, sustainable and cost-efficient way.
- Emergency responders for mission critical, sensitive command control and disaster management operations.
- Loss of communication is not an option.
- Interoperable, easy-to-deploy, highly adaptable voice/data mobile satellite solutions.
- For critical military operations that require security and high-power satellite communications
- Communications in remote and harsh locations
- Infrastructure affected by severe weather conditions and/or natural disasters


Sat/5G WiFi


Satellite Voice/Text


Push-to-talk

WiFi Hotspot VoIP


WiFi Hotspot VoIP/VoLTE


WiFi Hotspot VoIP/VoLTE

IoT


ARINC VoLTE

Offering solutions for Defense and Government

Keeping communication anytime, no matter the location and the circumstance

Products for Government and Commercial

Comms on the pause Comms on the move

- **Commander** for vehicular
- **Orion** for Maritime
- **IP NEO** for stationary use
- End-to-end encryption **AES-256**
- **Resilient communication** wherever the mission takes, even in bad weather conditions
- **Ruggedized** devices for the toughest environment

Mobile Gateway Push-To-Talk (PTT)

- Seamless group communication: **LMR + Satellite + 3G/LTE**
- Compatible with **analog, DMR, P25, TETRA, UHF/VHF radios**
- **AES-256 encrypted voice**,
- Real-time communication, **BLOS reach**, zero connectivity loss
- Cost-effective alternative to terrestrial infrastructure

T-TAC – Tactical Radio

- Converts **VHF/UHF to L-band** satellite link (no ground infra)
- Enables **BLOS** for military & emergency teams
- Manpack, Vehicular, Maritime, Aero
- **Direct satellite link**, highly secure & mobile

AERO – PTT/Satcom

- Reliable and resilient Satellite comms for **UAV/Drones, Fixed Wing and Rotary Wing**
- Enables **BLOS** for armed forces & emergency and rescue teams
- Supports **mission critical** applications where communication matters most
- **AES256 encryption** by default

Satellite Phones for professional and consumer use

Simple. Reliable. Ruggidized.

XT-LITE

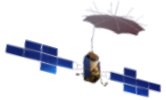
Satellite

- **Best-value**
- **Calls and SMS in satellite mode**

XT-PRO
XT-PRO secure

Satellite

Encrypted



- **Ruggedized** phone, enhanced reliability
- **Tracking and SOS service**
- **Secure and private voice** channel

XT-PRO DUAL

Terrestrial

Satellite

- **Ruggedized** phone, water & dust resistant, shock proof (IP65/IK05)
- **Tracking** and **SOS** buttons
- **Dual-SIM** and dual-mode SAT & cellular
- **Powerful battery** 3400 mAh

Thuraya One Smartphone

Terrestrial

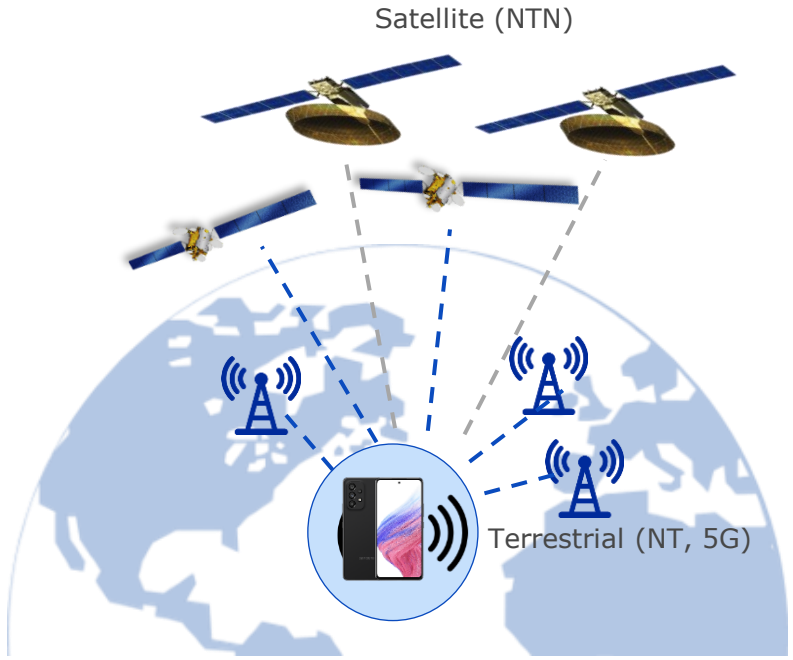
Satellite

- **Android smartphone with satellite connectivity**
- Hide or extract Satellite antenna
- **Dual-SIM** and dual-mode SAT & cellular
- Supports all **standard Android Smartphone apps**, Social Media, etc.
- 3 rear & 1 front camera, main camera with 50MP

Direct-to-Device (D2D)

Evolution of connectivity

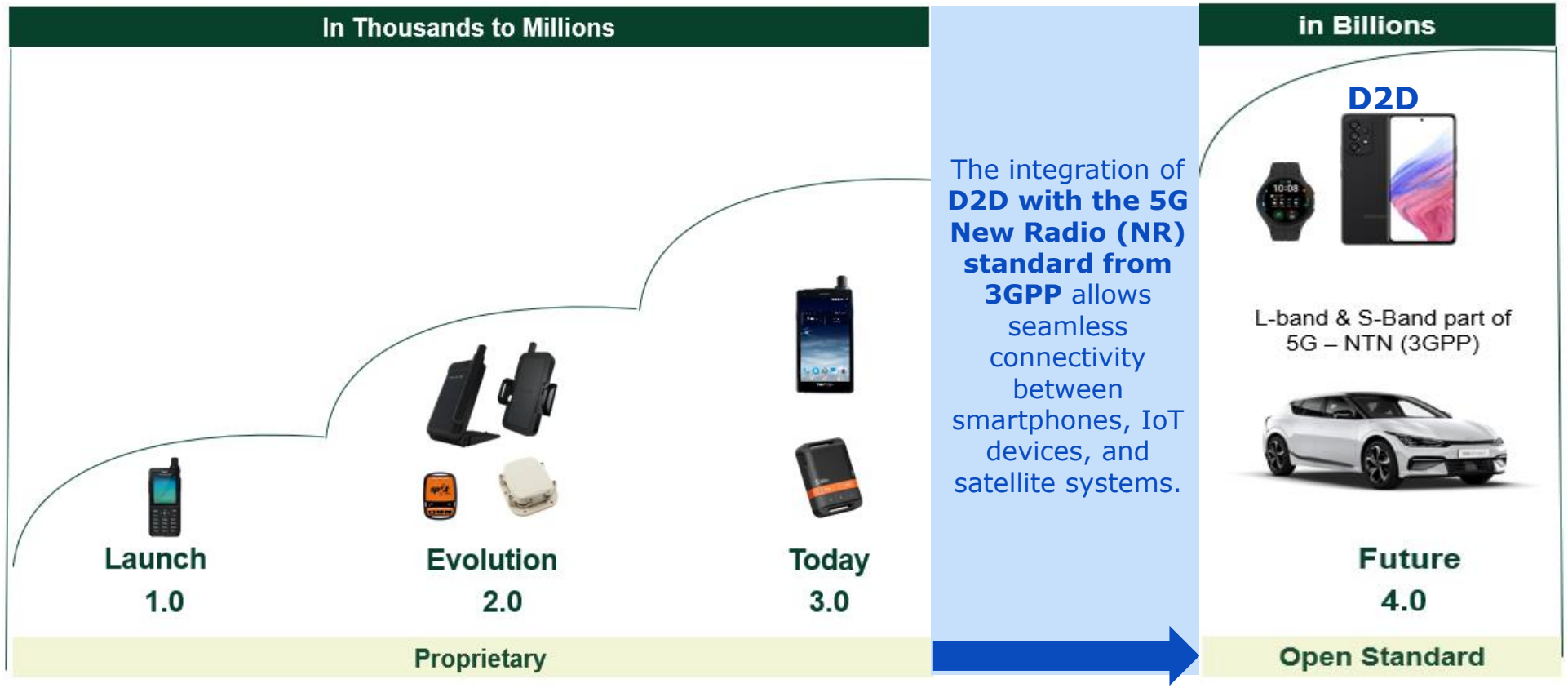
- **Direct to Device (D2D)** is used of satellite communication of **standard use devices** such as **smartphones or IOT sensors** to communicate directly without the need for an intermediate ground station.
- Users need to have a special equipment to communicate with satellites. This can be a satellite phone or a modem.
- Standards and technology have evolved which will enable **PREVIOUSLY IMPOSSIBLE** communication between NTN (non-terrestrial-network) and standard devices such as smartphones.
- Users can now utilize their smartphones on both, terrestrial- and NTN networks, enabling access to a variety of services including **voice calls, SMS, location tracking, evergency and data communications.**



- **Off the shelve devices**
- **Global coverage (Indoor/outdoor)**
- **Global almost seamless service**

Game changer for the telecom industry

Moving from proprietary to open standard expands our addressable market Market



- **One chipset for all sorts of connected devices / anywhere, anytime**
- **Smartphones with NTN satellite and terrestrial connectivity**
- **Multi orbit constellation management, i.e. Hybrid LEO/MEO/LEO/HAPS/5G**
- **Secure satellite data connectivity, i.e. multinational operations, Gov**
- **Integration of Space42 planned IoT portfolio (connectivity + products)**

Equatys rationale

Expanded mobility: D2D enables personal devices to connect directly to satellites

Mobile Satellite Services market

Specialized satellite phone

Satellite IoT devices

Limited Addressable Market

~3 Mn
satellite devices in 2024

~USD 2 Bn
global market in 2024

Direct-to-Device market

Standard phone

Standard IoT devices

Works on both terrestrial and satellite networks

Large Addressable Market

~1 Bn
standard devices by 2032

~USD 13 Bn
Smartphone and IoT segments global market by 2032

- D2D delivers cellular-like service from space, seamlessly bridging terrestrial and satellite networks
- Subscribers stay connected via terrestrial towers where available and automatically switch to satellite outside coverage, with no special device or effort required

D2D is predicted to become a multi-billion-dollar industry as demand for connectivity continues to rise and OEMs integrate satellite features into standard devices (iPhone, Pixel etc.)

Source: market assessment performed by Analysys Mason in 2024

Equatys value proposition

D2D connectivity everywhere via a trusted, open, shared platform extending 5G globally

EQUATYS

Market opportunity	• Growing demand for global connectivity, with billions of people and assets still unserved or underserved by terrestrial networks • Addresses a fundamental gap by extending 5G coverage across 180+ countries, connecting over 4.5 billion standard handsets
Rationale	• Venture with access to world's largest coordinated spectrum block for global D2D services in areas beyond terrestrial coverage, enabled by complementary expertise of its two founding companies • Underpinned by first satellite–terrestrial seamless convergent platform built to 3GPP-compliant architecture, deployed in phases integrating with existing GEO infrastructure
Business model	• Shared infrastructure Tower-like model, implementing shared space and ground NTN infrastructure. Cost-efficient capacity that attracts new ecosystem partners, network operators, and service providers • Long-term service provider commitments that stabilize forecasts and improve spectrum utilization, reducing investor risk, lowering capital costs and improving returns
Ecosystem builder	• Collaborative approach, complementing as opposed to competing with terrestrial networks and ecosystem • Partner-centric approach, benefiting MNOs with coverage extension, device manufacturers with standardized technology and spectrum holders with lower unit cost of capacity • Sovereign infrastructure deployment options allow governments to maintain national data sovereignty
Attractive returns	• Space42 investment in Equatys in line with comparable GEO programs, both in scale and return • Returns in line with Space42 unlevered double digit target IRR, as per Financial Framework • Commercial roll-out within 3 years, delivering returns to Space42 via equity stake and from providing NTN services to MNOs and other partners. Drive step-change in revenue and growth momentum, with >40% EBITDA margin

Note: D2D – Direct-to-Device; TN – Terrestrial Network; NTN – Non-terrestrial Network; MNOs – Mobile Network Operators. 3GPP sets global mobile standards, ensuring seamless interoperability across devices, networks, technologies, and operators

Equatys differentiation

D2D connectivity approaches: Satellite vs Terrestrial Networks

MSS Spectrum (3GPP NTN model)

Leveraging MSS spectrum already in use by satellite operators and integrated into 5G standards and hardware. Capitalizes on globally harmonized spectrum

EQUATYS SPACE42 Viasat

- \+ Clear regulatory framework
- \+ Spectrum already in use and harmonized globally
- \+ Seamless coverage between terrestrial networks and satellite D2D
- − Compatible with devices with latest 5G chips only

Both MSS and MNO spectrum can support D2D, though MSS benefits from a more favorable regulatory environment, broader reach, faster go-to-market, and incentive for ecosystem building

Terrestrial Spectrum

Repurposing terrestrial MNO mobile frequencies requires regional and country-level approvals, may affect existing services, and limits scale and speed to market

Alternatives

- \+ Devices compatibility (e.g., with 3G and 4G devices)
- − Need for national regulatory frameworks to be adopted and complex international regulatory process
- − Frequent band switching required across borders adds operational and cost burdens
- − Interference risks between neighboring countries necessitate border exclusion zones

Alternatives have recently shifted strategy, showing that delivering D2D connectivity via MSS spectrum is superior. Spectrum deals in 2025 highlight value of globally harmonized MSS spectrum

Note: MSS (Mobile Satellite Services) L and S frequency bands are only globally designated and protected spectrum specifically for satellites. Spectrum: radio frequencies used to transmit wireless signals via satellites or terrestrial networks

Critical Communication

Public Safety/ Gov.	Police, Fire brigades, Crisis management teams, etc.
Defense	Military, Navy, Air Force
Energy & Utilities	Oil & Gas, Renewables, Water & Electricity Management
Mining	Mining E&P, Safety & Security
Maritime	Vessel to Vessel and Vessel to Coast/ Port Communications
Transportation	Airports, Seaports, Railways, Logistical operations
UN & NGOs	UN organizations & Non Governmental Organizations on mission critical assignments

Introducing Space42 NEO terminals

A complete L-band portfolio for commercial markets

Land Portable

IP NEO

Maritime

Orion NEO

Land Mobile

Voyager NEO

Push-To-Talk

Mobile Gateway C NEO

Next Generation Terminals for Government/Defense

A complete L-band portfolio for Government markets

Land Portable

IP NEO M
IP Handset

Maritime

Orion NEO

Land Mobile

Commander NEO

Push-To-Talk

Mobile Gateway M NEO
With IP Handset

Orion NEO

Next generation high-speed maritime communication

Compact maritime solution for voice & data

- Electronically steered auto-pointing antenna with **no moving parts** and **stabilization software** (roll, pitch and yaw)
- Only 3.9 kg and 32 cm in diameter

Groundbreaking speeds

- Orion NEO offers the highest broadband speeds for maritime antennas of its kind, surpassing **1 Mbps** on the Thuraya 4-NGS satellite network.
- Well-suited even for small vessels

Connectivity made simple

- Easy to install – **Power over Ethernet** from the bridge to antenna
- WLAN Access Point for Thuraya Connect App

Feature	Orion Neo
IP Data Speed	Up to 1024kbps (asymmetric in streaming)
Voice	Connect App/Mobile Gatway/PTT and VoLTE
IP rating	IP 67
Router capability	NAT, DHCP, PPPoE, RTM
MIL grade	Yes
LAN – Wired	Wired and WiFi
Multi APN	Yes
AES-256 bit encryption	Supported

Orion Antenna

Mobile Gateway
PTT/VoLTE

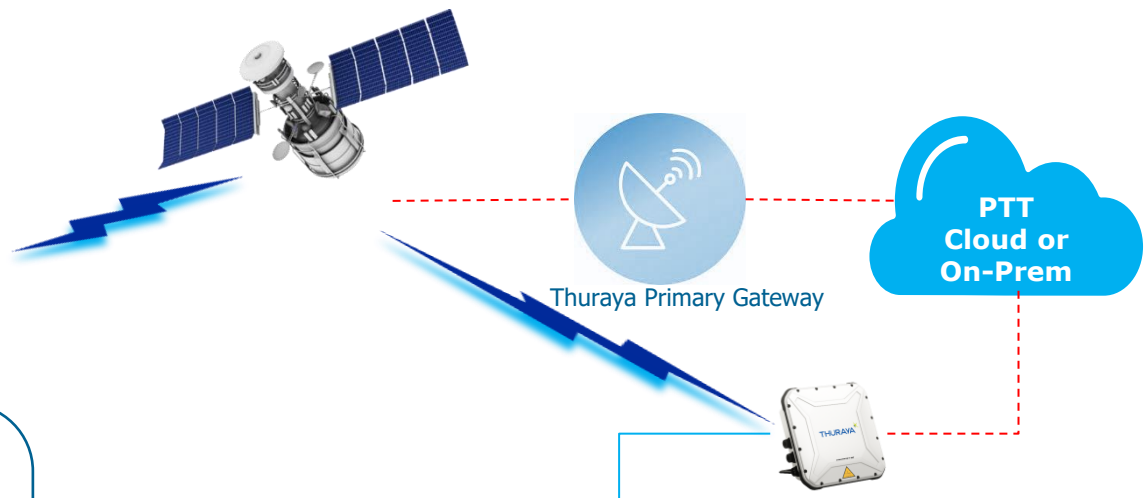
VoLTE/VoIP on Next Gen Terminals

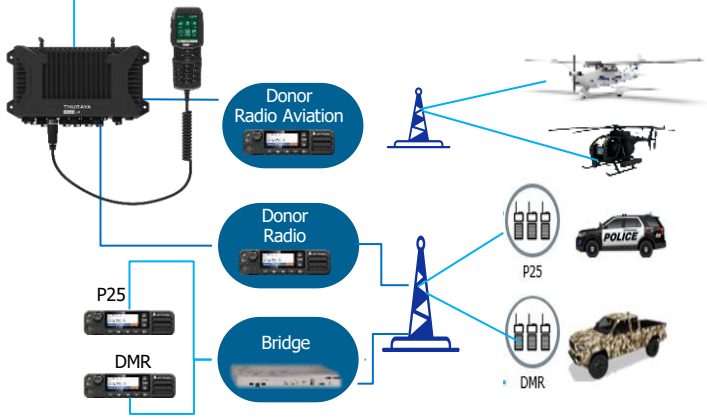
Features

- **Voice communication:** PSTN over IP based networks
- **PTT functionality:** Thuraya Mobile Gateway C / M NEO
- **Power over Ethernet:** PoE via RJ-45 connector
- **MIL-certified**: MIL-STD-810 and MIL-STD-461
- **IP66/68 rated**: Water- & dust-tight and fully submersible

Secure/Encrypted Push-to-Talk Service

The Solution - Extend Radio networks Beyond Line of Site (BLOS)





Aero products for Government services

Air Surveillance

Coast Guard

Search & Rescue

Special Ops

Border Patrol

Fire Fighting

Border Control Management

Surveillance, Identify, Communicate, Act

Physical protection

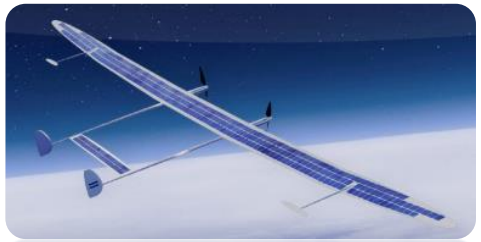
- Fiber cable in Fence
- Identify location and type of intrusion

Identification and Surveillance

- Cameras border check
- Identify people w/ IR and temperature sensing
- Long distance detection <20km range

Aero Surveillance

- Streaming of Video with IR and temperature cameras
- Real time streaming to command center
- Autonomous Drone/HAPS operation



Communication

- Push-to-Talk application
- Communicate and link with Police, Army, Government

IIOT Solutions

Whole spectrum of remote sensing/management

Healthcare

Service can connect clinics to doctors with specialized expertise. Patients in rural or remote areas get better access to quality treatment and care.

Telemedicine reduces transportation expenses for non-urgent visits and regular check-ups, and it is time saving and enhanced operational efficiency.

Customized service plans specially created for “Healthcare” services where some applications and systems are prioritized while those not desired access are blocked / restricted.

This control allow a more efficient utilization of the link capacity guarantee a higher service quality.

e-Health/TeleMedicine

The e-health solution includes a Mobile Medical Case (MMC) which is a multi-device examination system for portable or stationary used in remote and harsh environments utilizing easy to use touch screen user interface.

The Medical case consists of ruggedized military grade case with Windows tablet PC, Multifunction patient monitor, communication and Video Conference and long-lasting power solution.

Added are various medical devices that can operate independently, with build in memory to store results that can be uploaded later to a PC.

Wide range of examinations: ECG, SPO2, NIBP, Spirometer, Urine Analysis, Blood Glucose, Cholesterol...

Ultrasound available for examinations of abdomen, obstetric...

Telemedicine and Video Conferencing Solution

Remote Site/ Clinic

Telemedicine Doctor's Case (Customizable)

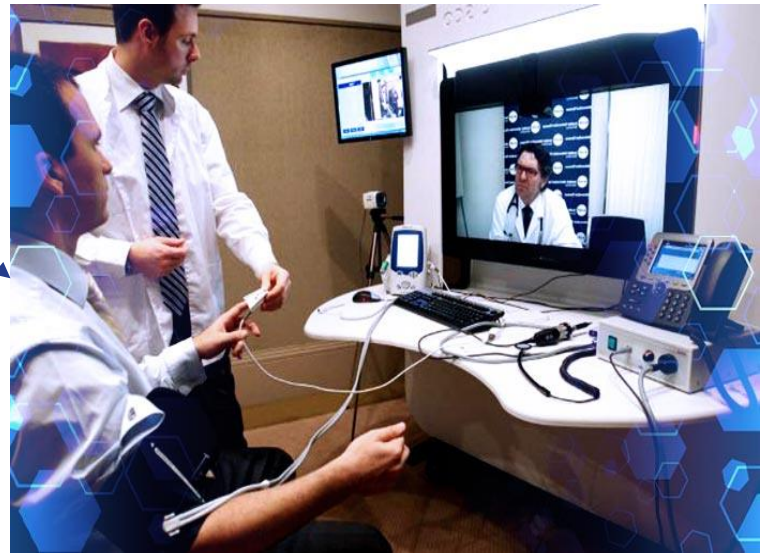
Voyager NEO

IP NEO

MBH

Thuraya Satellite Network

Central Medical Hub or Hospital/ Command & Control Center/ HQ



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