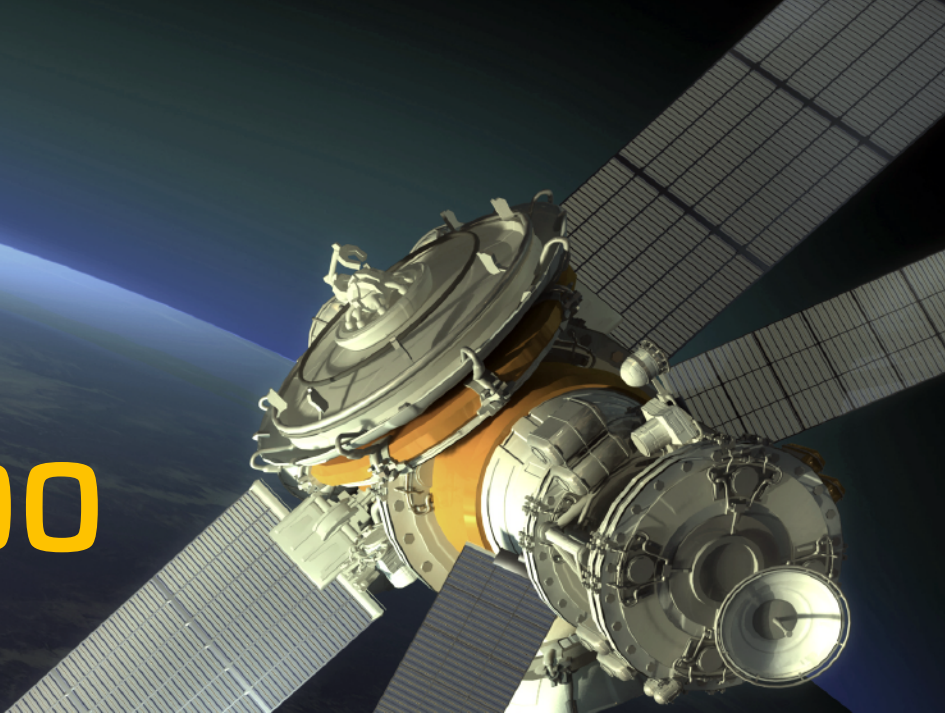# TSAT 4000

A NEW PLATFORM FOR THE INDUSTRIAL INTERNET OF THINGS

Today, the Internet of Things (IoT) is one of most significant technology trends in the world. Cisco reports that 50 billion devices will be online by 2020. And while core terrestrial networks will manage most of these connections, companies are now extending the scope of IoT networks to mission-critical infrastructure in rugged and remote locations.

This trend has created a sub-segment of the IoT market called Industrial IoT. According to NSR, it's an opportunity for satellite communications, numbering more than 5.3 million terminals by 2024. Furthermore, as the Industrial IoT market develops and data traffic increases, it will favor Ku-band networks over extremely low data rate L-band systems. Ku-band networks handle higher data volume more cost-effectively due to greater spectrum availability, competitive pricing and flat-fee subscription models.

TSAT has engineered a new satellite communications platform designed for service providers eager to tap into the emerging Industrial IoT market. The TSAT 4000 platform comprises a Ku-band mini-hub and ruggedized terminal, supported by an intuitive Network Management System.

THE TSAT ADVANTAGE

- Ku-band platform for remote industrial locations

- Private networking, ruggedized hardware and low operational cost

TSAT 4000 PLATFORM

Designed from the ground up for narrowband data connectivity and IoT applications

TSAT 4000 REMOTE

The TSAT 4000 remote is a low-power Ku-band terminal designed for narrowband applications. The remote features an IP/Ethernet interface, which simplifies integration and aggregation of data from connected wired or wireless sensors and devices using popular IoT protocols. A secondary serial RS-232 interface enables connectivity of legacy SCADA RTU devices.

The TSAT 4000 remote supports return link data rates as low as 64Kbps and scales up to meet high throughput requirements. An integrated Web browser simplifies site installation and commissioning. And an IP67 version is available for direct outdoor installation in order to minimize site implementation cost.

TSAT 4000 HUB

The TSAT 4000 HUB is distinguished by a compact and modular construction, which scales easily as your network size grows.The HUB features a DVB-S2 forward link modulator that will support data rates as low as 96Kbps, enabling the lowest possible network opex, but scales to meet high throughput requirements as application traffic volume grows.

The HUB also incorporates a scalable demodulator design that will accommodate multiple narrowband RCS2 return links. Flexible link access schemes enable a diverse range of application requirements, such as static, random and demand assigned.
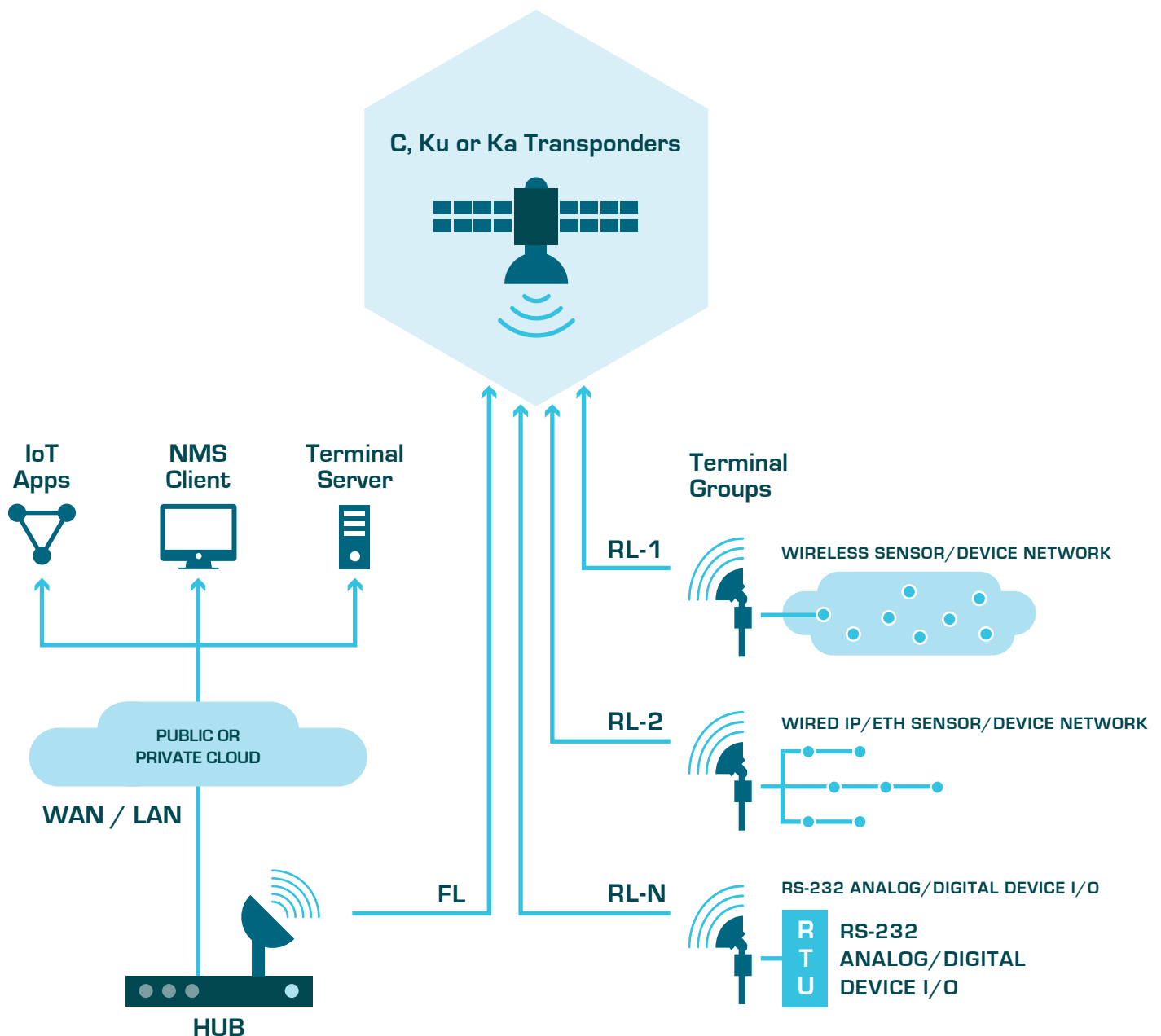
TSAT NMS

The TSAT 4000 NMS is powered by cutting-edge Web technology that is easy to learn and operate. Secure role based login facilitates a productive experience for managing a diverse range of tasks for both small and large satellite networks, such as:

- Provisioning
- Configuration
- Performance monitoring
- Statistics and reporting
- Event and alarm management
- System maintenance
- Security management
- Geo-location mapping (option)
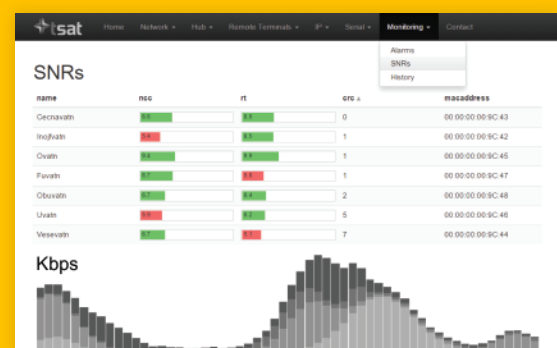
NETWORK ARCHITECTURE

The TSAT 4000 platform connects geographically dispersed IoT sensors and devices to the related IoT applications that aggregate and analyze the data. A forward link carrier from the hub broadcasts information from IoT applications to remotes and connected devices. Remotes serve as a lo cal concentrator or gateway, transmitting sensor and device data on a return link back to the hub. Remotes may be assigned to specific terminal groups and return links. The platform also supports the cloud transformation, transporting data from legacy sensors and devices that employ serial interfaces and serial communications protocols. And a geo-redundant hub option ensures maximum network availability.

C, Ku or Ka Transponders

IoT Apps

NMS Client

Terminal Server

Terminal Groups

RL-1   WIRELESS SENSOR/DEVICE NETWORK

RL-2   WIRED IP/ETH SENSOR/DEVICE NETWORK

PUBLIC OR PRIVATE CLOUD

WAN / LAN

FL   **RL-N**   RS-232 ANALOG/DIGITAL DEVICE I/O

RTU   RS-232 ANALOG/DIGITAL DEVICE I/O

HUB

MARKET OPPORTUNITIES

The TSAT 4000 platform enables service providers to tackle a wide range of growing markets. Our Ku-band system is the ideal fit for in-demand applications such as sensor data aggregation, analytics, security, CCTV and even SCADA.
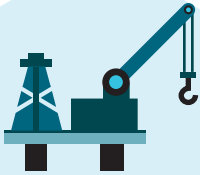
SMART ENERGY
Moving the flow of energy across deep-water rigs, remote oilfields and miles of pipelines

SMART WATER
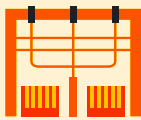Managing water resources and infrastructure to support human development

SMART INFRASTRUCTURE
Protecting core infrastructure and enabling smart engineering design

SMART AGRICULTURE
Make farms more efficient and productive to feed a growing population

SMART POWER
The integration and efficient use of energy resources for a sustainable planet

SMART TRANSPORTATION
Keeping traffic safe and moving forward in any condition

SMART ENVIRONMENT
Protecting our environment and ecosystems to ensure a sustainable future

SMART INVESTMENT
To Expand Affordably Into Growth Markets

The TSAT 4000 Ku-band platform enables private networking at a low operational cost. It requires minimal initial capital outlay for hub hardware. The platform can support large captive or shared networks and integrates easy with low power wireless sensors technologies.

Capex friendly
Affordable narrowband technology versus broadband satellite systems, low barrier to launch

Opex friendly
Ku-band model engineered for higher data volumes at affordable price point

User friendly
Supports popular IoT protocols, integrates with low power wireless sensor technologies

Market friendly
Designed for IoT, M2M and SCADA applications

tsat

Trusted communication – anywhere