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Satellite and the industrial IoT market in EMEA: an opportunity for Ku-band service

The Internet of Things (IoT) is expanding exponentially around the world as more and more devices come online. Applications range from personal devices, smart homes and cities, manufacturing and remote monitoring, to name just a few. The possibilities are staggering, with many industry professionals opining that we haven't even started to consider the full possibilities yet. Christian Bergan, Vice President for Sales & Marketing at TSAT, provides an overview of the role VSATs will play in the expanding IoT market, and outlines how the IoT will provide new possibilities for smart government, smart transportation, smart energy and smart power.

The Internet of Things (IoT) is often heralded as one of the next big markets for satellite communications. After all, when you hear that 50 billion devices will be online by 2020, according to Cisco, you figure that satellite has a role. However, most of these billions of devices will be related to personal use, and will be largely supported by terrestrial communications.

So where is the IoT opportunity for

VSAT? One answer is that VSAT will play a key role in a sub-segment of the IoT called the Industrial Internet of Things (IIoT), which will extend well beyond urbanized and rural areas into the heart of global industry. The Industrial IoT market is a significant opportunity for satellite service providers. According to Northern Sky Research (NSR), the Machine-to-Machine (M2M) and IoT over satellite

market will total more than 5.3 million terminals by 2024. The EMEA market is projected to reach more than US\$495 million in revenue by 2024.

From SCADA to the IoT

VSAT is no newcomer to connecting machines to machines. Satellite networks are extensively deployed around the world today to support critical supervisory control and data



Christian Bergan

acquisition (SCADA) applications that monitor power distribution, petroleum pipelines, oil rig operations, water resources and more.

TSAT is collaborating with VSAT service providers to help some of Europe's industrial and environmental organizations manage critical infrastructure.

For example, Scottish Water is the fourth-largest water and wastewater

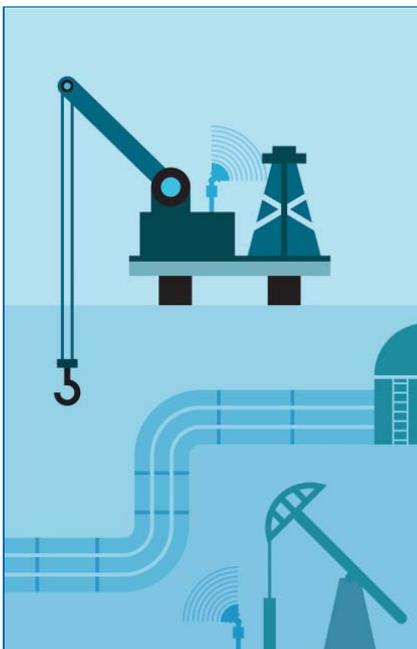


Smart Power applications demand Ku-band VSAT to create a more sustainable planet through the integration and efficient use of energy resources.

service provider in the UK, covering a geographical area one-third the size of Britain. Every day, Scottish Water provides 2.5 billion litres of fresh water for five million residential and 130,000 commercial customers, while one billion litres of wastewater is removed and treated.

Scottish water was under pressure to improve operational efficiency. Having explored the available options such as radio, GSM, and a leased line solution, it found that VSAT best met its requirements. Working with UK service provider Wireless Innovation, Scottish Water has deployed more than 120 satellite terminals, and now has better control over its infrastructure and is able to provide better service to its customers, all at a lower cost.

You can look at the Industrial IoT as an expansion of SCADA networks. The mission of a SCADA network is typically to report the status of equipment or track mobile assets, essentially acting as store and forward communications. Satellite has been an ideal fit for SCADA, since it can deliver connectivity to locations that span thousands of miles in some of the world's most challenging environments. These networks typically run on L-band satellite, given the small amounts of data transfer and low airtime charges.



Smart Energy requires Ku-band VSAT to move the flow of energy efficiently and securely across deep-water rigs, remote oilfields and miles of pipelines.

However, as satellite expands its scope from SCADA to the Industrial IoT, it will require a new VSAT platform strategy. The difference lies in greater data volumes generated from a greater number of sensors that must be aggregated for predictive and prescriptive analytics, as well as real-time applications like CCTV.

While L-band systems will continue to support extremely low data rate IoT applications, Ku-band networks are positioned for future applications as network traffic increases. With Ku-band, service providers can leverage the large number of open Ku-band satellites, which traditionally offer lower spectrum cost than L-band.

Ku-band remote terminal equipment can operate on any open Ku-band satellite platform, offering full end-to-end control, including the ability to select spectrum providers on the basis of best coverage and cost.

EMEA market opportunities for Ku-band

Ku-band networks are required to support a growing array of market applications in EMEA. We'll examine several important ones here.

Smart Government applications will account for US\$44.3 million of projected



Ku-band VSAT enables Smart Transportation to keep highway and rail traffic safe and moving forward in any condition.

revenue for hardware and services by 2024, according to NSR. This will be driven by more stringent regulations concerning public safety and the environment. Governments are under increasing pressure to deliver services with greater efficiency in view of budget constraints caused by the economic outlook and pressure to restrain the public tax burden. This entails the expanded use of smart technology.

Ku-band networks can effectively support applications such as structural monitoring and protection of critical infrastructure.

These include dams, bridges and other important structures, as well as security and access controls related to border control, flood warning, earthquake detection, weather and environmental monitoring.

Smart Transportation applications will account for US\$100.9 million of projected revenue by 2024. The goal is to improve the safety and management of transportation infrastructure. Also, the expanded adoption of networking vehicles, sensors and controls will enable the smarter use of road and rail transportation.

Ku-band can effectively support

applications such as signage, signaling and routing; alerts for road and weather conditions; level crossing protection; and train control systems.

Smart Energy applications will account for US\$45.4 million of projected revenue by 2024, driven by more stringent safety regulations regarding the environment. Furthermore, recent volatility in energy prices is forcing the industry to take a renewed look at initiatives that improve operational efficiency and reduce costs. Such initiatives entail greater use of smart sensors and devices that enable increased automation and use of advanced business analytics. These sensors and devices in turn generate increased communications requirements.

There is a wide range of applications in oil and gas that Ku-band can effectively enable. These include monitoring and transmitting sensor data concerning drilling control, wellhead production, pipeline monitoring, distribution logistics and asset security.

Smart Power applications will account for US\$36 million of projected revenue by 2024, driven by government regulations to use more renewable

energy and use energy more efficiently. The integration of and efficient use of all the energy resources and the efficient use of the grid infrastructure implies greatly expanded communication requirements for smart sensors, smart meters and smart controls.

Ku-band networks can efficiently handle a variety of electric grid automation and metering applications such as substation SCADA automation; advanced distribution automation; aggregation and backhauling of smart meter data; and security and access controls at critical power generation, transmission and distribution substation facilities.

Make your move now

Companies around the world are extending the scope of IoT networks to mission-critical infrastructure in rugged and remote locations. With specialized Ku-band networks, service providers can equip organizations with greater visibility and intelligence into their operations so they can improve productivity, safety and efficiency.

Service providers need to start planning their Industrial IoT strategies now as both demand and competition intensify.



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