Securing sustainable development goals in Nepal with real-time remote data

Product:
Thuraya FT2225

Sector:
*Thuraya M2M;
EnterpriseComms*

Locations:
Nepal

Client:
*Real Time Solutions
(RTS)*

Thuraya and their Service Partner, Constellation along with Real Time Solutions provide cost-effective and efficient real-time connectivity in hard-to-reach locations to better monitor and manage air quality, meteorological patterns and hydro-powered electricity in Nepal.

Over the past year, RTS has used the Thuraya FT2225 in several locations in and around Nepal. The terminal helps capture and analyze data on black carbon emissions, as well as manage hydrological output at power stations. With strong results gained from enabling end-users to make positive, informed decisions on air quality and electricity consumption, RTS is furthering proposals to extend the terminal's use for snow and glacial monitoring across the country's mountainous and rigid terrains.

1

Thuraya m2m

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The MSS Benefits of M2M

Using M2M solutions via a mobile satellite service (MSS) like Thuraya offers a compelling value proposition with scalable IP connectivity, thereby creating unbounded remote M2M connectivity capabilities. Thuraya's M2M service provides:

- a reliable L-band satellite footprint across North America, Europe, MENA, Asia and Australia
- weather-resistant coverage with a 99.5% network availability
- static IP addressing to eliminate polling delays
- secure, duplex connectivity with embedded AES-256 encryption
- unrivaled, cost-saving, billed-per-byte plans
- easy-to-install terminals, ruggedized to IP66 standards

Abstract

Black carbon is among the most harmful particulate matters in the air - caused by the incomplete burning of substances like fossil fuels. such emissions contribute significantly to respiratory issues, rising temperatures, and erratic patterns in rain and glacial cycles. An effective way to curb these pollutants is through air quality monitoring and management. In underserved communities or remote areas, tracking emissions is best achieved through effective, flexible systems that rely on satellite connectivity and easily facilitate real-time data transfers to authorities that regulate and legislate on environmental matters. Similarly, mobile satellite communication tools also serve developing economies by optimizing power generation and consumption. An M2M terminal backed by a reliable satellite IP network can provide consistent information on the performance of hydraulic turbines, thereby helping to gauge the efficiency of the power plant and its capacity for electricity output - even in the most inaccessible regions.

Addressing a national challenge

Nepal is famed for its picturesque and thrilling Himalayan treks. Apart from its sizeable tourism industry, however, the nation has long faced complex economic and developmental issues. An ongoing hurdle is the lack of proper policy and management of the country's volatile terrain, environment and ecosystems - a situation exacerbated by the devastating 2015 earthquake. In 2017, Kathmandu ranked 5th among the world's most polluted cities and recent reports peg the nation's carbon monoxide production at 18,000 tons per year. Air pollutants come from dust, power plants, construction, traffic, brush fires, and household smoke emissions (largely attributed to Nepal's electricity load shedding strategy). As these pollutants increase, they cause chronic health conditions and gradually affect the climate, adding to the deforestation and flooding crises. Additionally, Nepal has a crucial need for clean energy production - as the country has among the world's most abundant supply of fresh water and the potential to generate over 90,000 MW of hydropower, there is a strong opportunity to tap into these resources for optimal use and the nation's overall betterment.

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Adopting Viable Solutions

Given the above scenario, rapid, real-time and cost-effective solutions for actionable environmental data becomes imperative. Thankfully, several local organizations are stepping up to actualize this goal - Real Time Solutions (RTS) is one of them. Anudan Rana, from Constellation says, "Operating since 2003, RTS has a broad understanding of the region's complexities and is equipped with the appropriate Information and Communication Technology (ICT) solutions to facilitate notable change in developing nations. The company works as a solutions provider for both private and government entities in and around Nepal, including hydrology departments, NGOs and INGOs". Adding that, "They supply and install both the software and hardware for air quality monitoring centers, early warning systems, real-time automatic hydrological stations and automatic weather stations within and outside the country in over 200 distinct locations."

Sujata Pujari, Project Coordinator at RTS explains how they connected with Thuraya to support their ongoing projects: "We've been using Thuraya's satellite phones to facilitate our operations in areas that are outside the range of mobile networks. Of late, we've been testing out a number of M2M applications from different suppliers. As we already had an existing partnership with Thuraya, we wanted to explore their offerings for fixed asset monitoring in remote stations and see if this solution best suited our needs."

Thuraya's M2M capabilities for fixed assets

Since early 2017, RTS has integrated the Thuraya FT2225 for its work in locations like Yala Base Camp, Likhu, Nupche, and is currently installing it for use in Chelala (Bhutan). The device has quickly proved to be the preferred M2M communications choice for RTS. A high-performance terminal, FT2225 delivers real-time connectivity to remote assets and sensors for the monitoring and control of fixed applications. Backed by Thuraya's robust two-way M2M service developed in partnership with ViaSat Inc., the terminal facilitates the deployment of IoT applications in rural and rough terrains that lie beyond the confines of cellular networks. The device is interface agnostic, embedded with GPS and Glonass navigation systems, resilient in harsh environments, interoperable, and provides efficient bandwidth usage,

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low-latency IP networking and optimized power consumption. FT2225 is additionally supported by the same encryption as commercial virtual private network routers, lending security to all communications and data exchanges across access points.

"The FT2225 streamlines our set-up and operational process," says Sujata. "We can easily integrate the terminal with our own data logger using an ethernet port. Over time, it's shown to be a more cost effective solution than those of other providers we've used before. Having also installed VSAT in the past for similar requirements, we know that Thuraya is able to provide optimized functionality with lower power consumption." In using FT2225, the team at RTS have also been able to consider further capabilities they'd like from the terminal. " While the MSS solution works better than the VSAT option, RTS would like to have more control over the MSS solution to be able to customize it to their end-user's requirements." Sujata explains.

Thuraya and RTS are keen to continue their partnership and take on more projects involving FT2225. Sujata says, "Overall, we like the terminal because it is small and compact, and so, it's convenient to install in high altitude locations. It can be commissioned easily, compared to rival solutions. Through the data we've gathered using FT2225, we've also been able to guide our customers toward smarter

decision-making, much of which has been well-received and incorporated. We see a big market for its use in Nepal."

"Cases like this are important to us as we continually work to create better, more efficient solutions," says Marwan Joudeh, M2M Product Manager at Thuraya. "Working with RTS gives us valuable product feedback, as well as broadens our perspective on knowing how to develop solutions that tackle real-world issues in a timely manner."

Working towards Sustainability
As per a recent United Nation's report, sustainable development goals include the pursuit for sustainable communities that have less inequality, clean and affordable energy, better health and wellbeing, industry innovation and infrastructure, responsible consumption and production, and better climate and habitat. With M2M technology that gives decision-makers actionable data in real-time, there exist tangible solutions to move forward with gradually achieving these goals.

RTS is looking at other real-time environmental monitoring initiatives using the FT2225. "Northern Nepal has a difficult terrain and there's a lots of potential to use the terminal in such areas," says Sujata. "We are hopeful that many projects will soon get started, and believe that this work will help our community change their attitude and actions around regional and global environmental concerns."

4

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About Thuraya

Thuraya is a leading mobile satellite communications (MSS) company that empowers people with tools to bring the organizations and communities they serve closer together. We offer innovative, flexible and dependable technology that helps you overcome the toughest challenges and achieve the highest aspirations – facilitating reliable communications where and when it matters most.
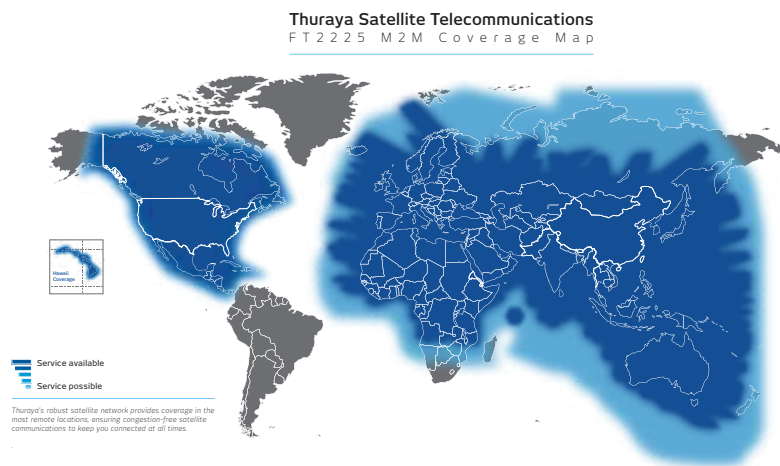
Our M2M services are made available worldwide through the integration of our game-changing satellite M2M network and data terminals. Thuraya M2M supports numerous mission-critical applications such as smart utilities, fixed and mobile remote assets monitoring, critical infrastructure, connected oilfields, security and safety, border control, ATMs and points of sale, connected cars, and lone worker safety.

www.thuraya.com

About RTS

Real Time Solutions (RTS) is an organization dedicated to providing turnkey solutions to solve real-life problems. Our competitive advantage lies in our capability to understand business requirements for organizations in developing countries and provide customized solutions to meet their needs. A proficient design house, we are adept at utilizing ever-evolving technology to provide high-quality, cutting-edge solutions that last a lifetime. RTS also has a strong focus on implementing data acquisition and monitoring solutions to help build better early warning systems and enhance sustainability for communities and the environment.

www.rts.com.np/

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Hawaii Coverage

Service available

Service possible

Thuraya's robust satellite network provides coverage in the most remote locations, ensuring congestion-free satellite communications to keep you connected at all times.

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5

CASE STUDY

Thuraya m2m

THURAYA