SONY

NTN Satellite Success Story

Sony and Murata Offers Cellular & NTN Connectivity over Skylo's network

Situation

Legacy cellular networks cover over 80% of the population but only reach less than 40% of the land and less than 20% of the earth. Satellite connectivity has traditionally provided ubiquitous coverage but its high cost limited its use to specific scenarios like TV and broadcasting. In the IoT domain, satellite connectivity was considered a last resort option compared to terrestrial networks. However, with the continues drop in cost of non-terrestrial network (NTN) solutions in recent years, it becomes economically feasible to use NTN communication for IoT devices, meeting the need for communication everywhere.
NTN connectivity is now being incorporated into cellular IoT chipsets, allowing connected devices to be deployed anywhere. This advancement ensures greater flexibility and reliability for IoT devices across various environments.

The Challenge

Skylo, an NTN service provider, embarked on the mission of establishing an efficient global NB-IoT network over satellite, connecting millions of currently unconnected devices, machines, and sensors.
To ensure uninterrupted connectivity, even in a small form factor, Skylo required a mature core technology that boasted a proven track record of stability and reliability. In the past, satellite connectivity had been prohibitively expensive and relied on custom-built protocols. Therefore, the company sought innovative utilization of cellular IoT chipsets to significantly reduce the cost associated with IoT applications connecting through traditional satellite networks and also to be aligned with 3GPP standard.

Solution

By combining Skylo's non-terrestrial network (NTN) with Murata's Type 1SC module, and Sony's Altair advanced ultra-small low-power cellular IoT solution, the companies' collaboration enables seamless, ubiquitous connectivity.
In terms of Sony's Altair ALT1250 chipset, in addition to its unparalleled size, low power, and cost-efficiency, the solution's high level of integration cuts time to market and reduces customers' development and deployment costs.

KEY FEATURES OF ALT1250

Small Size

Sony's Altair highly integrated ALT1250 chipset has a small footprint yet holds all the components needed, enabling miniature module sizes as small as 100mm^2.

Low power

Sony's Altair cellular IoT chipset provides low-power, wide-area connectivity – maintaining the device's low power consumption and seamless operation, while offering essential tracking data.

Highly secured communication

Sony's Altair cellular IoT chipset provides the security architecture approved by tier 1 operators, with built-in security designed from the bottom up. In particular, the ALT1250 LTE-M & NB-IoT cellular IoT chipset offers highly secured communication, while OTA upgrades keep the device relevant and secure for years after installation.

Most integrated

The ALT1250 incorporates all the key components needed to quickly build functional Cellular IoT applications. Within a single die, this chipset comes integrated with a best in class LTE-M and NB-IoT modem alongside a low-power Cortex M4 MCU, dedicated for application execution. Network credentials are stored on the built-in HW integrated SIM (iSIM), eliminating the need for an external SIM along with Sony GNSS to pinpoint the device location. A battery and antenna are all you need in order to launch your device.

RESULTS

The partnership between Skylo, Murata and Sony marks a significant milestone in the IoT industry, bringing 5G-ready NB-IoT over satellite for the first time. This breakthrough collaboration not only delivers substantial cost and interoperability advantages but also contributes to the standardization and accelerated adoption of NB-IoT over satellite in future 3GPP specifications.

For industries with assets deployed worldwide, such as logistics and vehicle trackers, agriculture, and personal monitoring, the availability of carrier-grade, affordable IoT connectivity, enabled by all parties, is a game-changer. Altair's field-proven, ultra-low-power, and ultra-small chipset solutions are perfectly suited for industrial use cases, facilitating efficient data exchange.

With the seamless integration of Skylo's satellite connectivity, customers now have the added capability to utilize satellite connectivity alongside cellular networks, regardless of their location on the planet. Leveraging Sony's mass-produced Altair cellular IoT chipsets for cellular networks, Murata is able to manufacture the 1SC module at an affordable cost, passing on the savings to its customers. This eliminates design complexities and the need for additional hardware, allowing device manufacturers to connect wearables, sensors, and trackers directly over satellite.

The NTN connectivity powered by Sony's Altair chipsets enables connected devices to be deployed anywhere, providing truly global coverage. The automatic switching from cellular to satellite connectivity further enhances the seamless user experience without requiring any hardware changes. This solution expands the availability of satellite connectivity to a wide range of IoT devices and wearables, unlocking new customer experiences that were previously unattainable. It fulfills the promise of connecting anyone, anything, anywhere.