ST Engineering

IOT SOLUTIONS OVERVIEW

Many businesses in transportation, logistics, energy, agriculture, maritime and critical infrastructure are going through a process of digital transformation using innovations in IoT/M2M technologies, digital solutions and cloud connectivity to achieve its goals. And today, it is becoming common knowledge that the use of satellite technologies can provide a reliable and cost-effective connectivity option where cellular and terrestrial connectivity are not viable. The demand for low-data-rate and medium-data-rate IoT applications in markets where satellite is already a ubiquitous factor is growing rapidly. At the same time, Service Providers looking to expand their solutions with an IoT offering require a highly efficient, cost-effective IoT solution.

To meet these needs, we are offering flexible IoT Solutions on our existing ST Engineering iDirect hub infrastructure that ease the entry of Service Providers into the IoT market. Our new IoT Solutions offering provides customers with a pathway to satellite IoT by using their existing hub infrastructure paired with cost-effective terminals and optimized waveforms. And what's more, we are also providing optional service enablement solutions giving Service Providers IoT-as-a-Service options to speed up market entry.

iDirect

Applications

Government
- Critical Infrastructure Monitoring
- Situational Awareness
- Safety and Security

Maritime
- Vessel Monitoring
- Electronic Catch Reporting
- Cargo Tracking

Agriculture
- Machinery Management
- Precision Farming
- Livestock Tracking

Transportation
- Fleet Telematics
- Driver Safety
- Asset Tracking

Energy
- SCADA Monitoring
- Asset Management
- Industrial Automation

Solution Overview

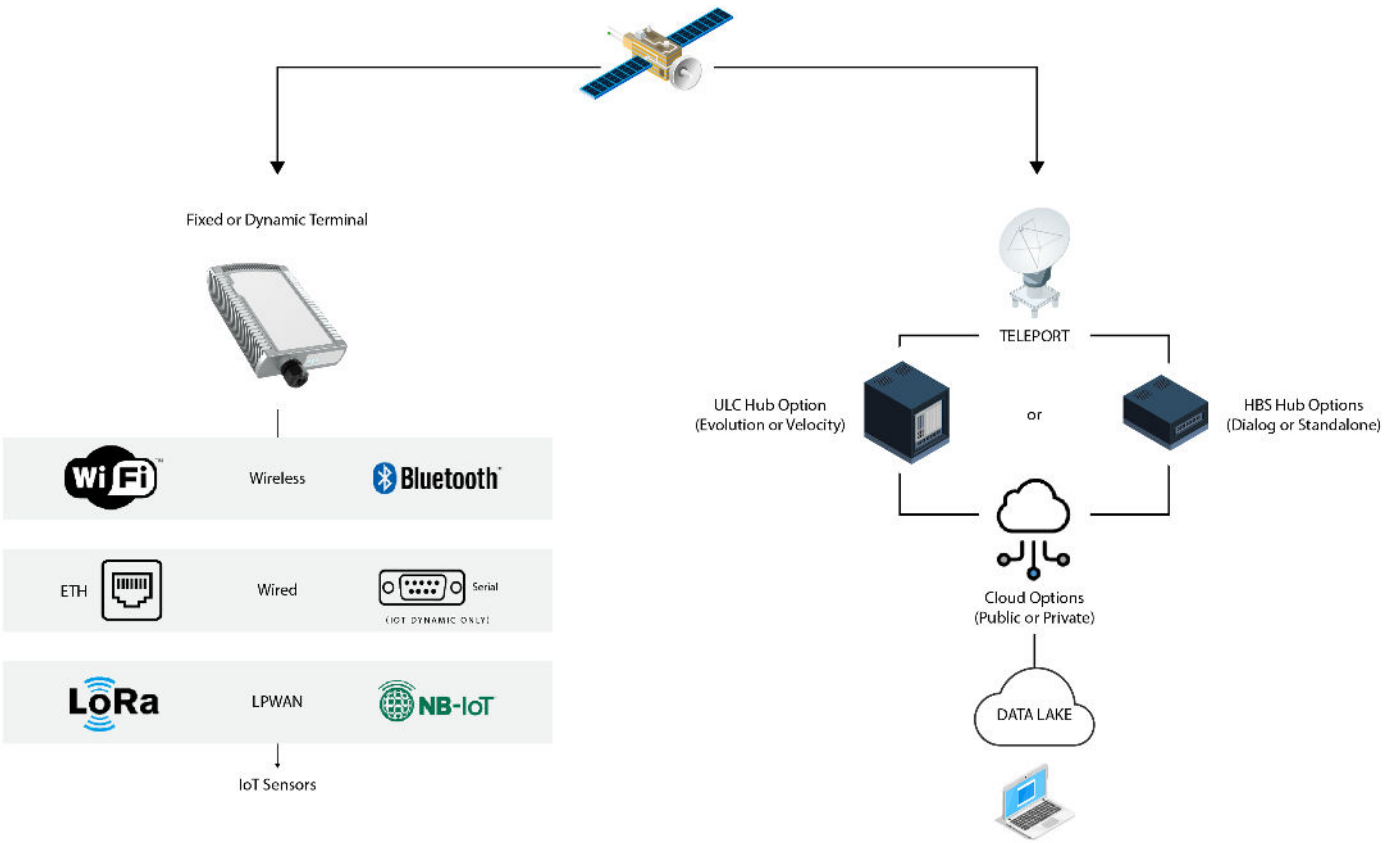
The ST Engineering iDirect IoT Solution is a robust, cost-effective and highly scalable connectivity offering that utilizes compact, lightweight terminals that feature a tightly integrated satellite modem and flat-panel antenna design in Ku- and Ka-band variants. Built on our scalable Evolution, Velocity and Dialog hub infrastructures, our IoT solutions incorporate an IoT optimized waveform and a cloud-based NMS/OSS management framework powered by hiSky technology to support fixed or mobile IoT applications in a wide range of markets, including transportation, energy, mining, utilities, agriculture and construction.

This highly scalable, geostationary-based (GEO) satellite solution enables Service Providers to use their existing ST Engineering iDirect hub infrastructure to gain immediate market access and reap the benefits of satellite IoT.

Our IoT Solution Components

Turn your Existing Gateway Infrastructure into an IoT connectivity solution by leveraging the following:

- State-of-the-art terminal technology with an embedded flat-panel antenna design for fixed and dynamic use cases
- Hub integration options to optimize time to revenue on existing gateways
- Robust NMS hiSky360 for operational support
- Flexible service enablement "as-a-Service" models



The IoT Terminals Series

These compact, lightweight IoT terminals feature a tightly integrated satellite modem and a flat-panel antenna design supporting data rates with up to 30kbps in Ka-Band and up to 100kbps in Ku-Band models.

Ku/Ka Dynamic

Ku/Ka Fixed

The Dynamic Terminal

This terminal, available as Ku- or Ka-Band models, features a compact design suitable for portable itinerant operations or fully mobile use cases for both Comms-on-the-Pause (COTP) or Comms-on-the-Move (COTM) applications. The terminal consists of a flat, small form factor phased array antenna featuring automatic acquisition, fast synchronization, tracking and fast beam switching with polarization and frequency switching. Tightly coupled with a satellite modem into a single unit, the low power consumption of the Dynamic IoT terminal with optional mobility add-on licensing enables portable and fully mobile COTM low data rate use cases, such as for fleet tracking and management, agriculture and construction sensor aggregation application and first responder and fishing fleet applications including vessel tracking and catch reporting.

The Dynamic IoT terminal features ethernet, WiFi, and serial interfaces to connect to end user devices and/or sensors.

The Fixed Terminal

Integrated with a compact phased array antenna and satellite modem, this fixed IoT terminal is designed for fully outdoor applications and mounting on poles, buildings and fixed mounting positions. The terminal supports Power over Ethernet (PoE) for remote powering or adaptation to solar power configurations and features an intuitive smartphone app simplifying manual pointing and acquisition of signals. The terminal provides versatile connectivity options using Wi-Fi for phone, tablets and sensors as well as wired options for IoT devices and sensor gateways such LoRaWAN. The fixed terminal is intended for deployment in extremely remote applications for use cases in mining, utilities, pipelines and other energy vertical markets as well as agricultural sensor backhaul applications.

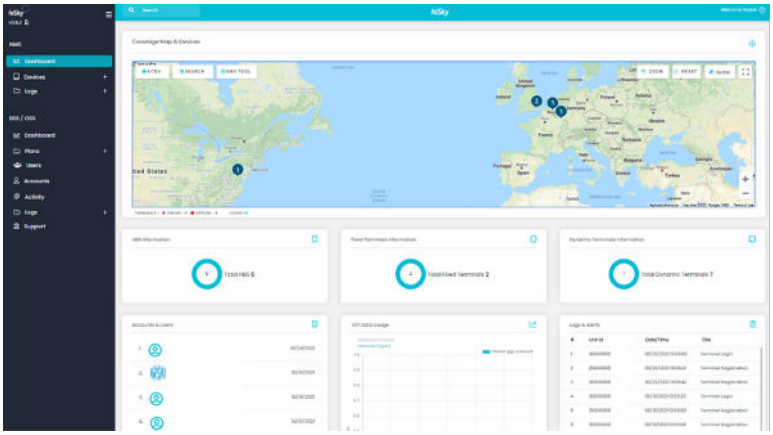
Hub Enablement Elements

For Evolution and Velocity hub platforms, an IoT optimized waveform in the form of the ULC line card is available for simplified integration into an existing 5IF hub chassis. Dedicated IoT timing groups are implemented on the IoT ULCs, and hidden carrier functionality can be implemented whereby the IoT carriers run under other VSAT outbound carriers on the same hub chassis.

On Dialog, hiSky's Hub Base Station (HBS) element is available for activation on the Dialog platform. It functions as a hub modulator and demodulator as well as the packet processor implemented on a SoC.

NMS

Through a dedicated connection to the Internet, the application server is managed through the hiSky 360 NMS/OSS, operating on the Amazon AWS cloud, where Service Providers can configure, operate and monitor the platform and its components. Its intuitive user interface allows Service Providers to view real-time information on deployed terminals, configure device operational parameters and flexibly filter elements as well as group them by devices deployed with a specific satellite provider, device type, firmware version, etc. The NMS also enables the reporting of service usage information as well as exporting into third-party systems.



The IoT Solution

The offering entails a complete connectivity solution from a single, trusted source. Service Providers can reap the benefits of the fast-growing IoT opportunity simply by leveraging their existing hub infrastructure combined with the cloud-based NMS and compact, innovative IoT terminals for fixed and mobility applications.

ST Engineering iDirect enables a faster time-to-market by also offering IoT as a service and a range of creative business model options allowing Service Providers to launch a complete IoT service at a faster speed to market.

We have Your Key to IoT.
Contact your sales representative to find out more.