

ST Engineering iDirect's Easy-Access Solution for IoT Markets

IoT has become an attractive market for satellite operators and service providers, yet implementing an IoT solution can often involve complex integration and high cost. That's why we find ST Engineering iDirect's new "plug and play" solution of particular interest.

By simply inserting a new IoT enabling network card into their existing iDirect hub, service providers can access a dedicated IoT infrastructure featuring a high-efficiency waveform and new, dedicated Ka and Ku-band terminals. For providers seeking fast and convenient access to the fast-growing and lucrative IoT market, the ST Engineering iDirect solution is well worth a look.

We interviewed ST Engineering iDirect's V.P. of Strategic Business Development, Cynthia Harty and Rajesh Suseelan, Sr. Director for Strategic Business Development to find out more.



SMW: I understand that ST Engineering iDirect, in cooperation with hiSky, offers a dedicated IoT solution. Components of the system include a network card compatible with ST Engineering iDirect Evolution, Velocity, and Dialog hub infrastructure, the hiSky NMS, and two small satellite terminals, one for fixed and another one for mobile operation. If a satellite operator or integrator wanted to enter the IoT market, why would an integrator choose the ST Engineering iDirect solution? What advantages does it offer the satellite network integrator or operator?

We believe the market and our customers are looking for an IoT solution that leverages their existing GEO capacity, utilizing as much of their investment in existing infrastructure as possible.

That's why we are bringing an IoT solution that features a family of compact, lightweight IoT terminals, a tightly integrated satellite modem, and a flat-panel antenna design in Ka-band or Ku-band variants to market.

By combining these terminals with existing Evolution, Velocity, and Dialog hub infrastructures and a configurable Cloud-based NMS, we're able to support both fixed and mobile IoT use cases. With ST Engineering iDirect's IoT solution, satellite operators and service providers can deliver an IoT connectivity solution to their portfolio by simply adding a line card to their ST Engineering iDirect hub.

SMW: What is the difference between fixed and mobile terminals?

The fixed unit includes a patch antenna for use in stationary applications. The mobile unit has an electronically steerable antenna for comms on the move and comms on the pause applications.

SMW: You employ a unique new waveform. Can you tell us more about it?

A unique air protocol optimized for IoT enables large-scale terminal densities per channel. The waveform, which is wide spread spectrum, enables a hidden carrier implementation.



SMW: Your terminals are more expensive than L-band or SmallSat terminals. Given their high comparative cost to other alternatives, what data rate applications are the best fit? What are the target markets? Can you list the specific advantages offered to end-users in each of these markets?

There are many IoT services that are available in the market, including both SmallSat, and L-Band, LEOs services. However, their use cases are limited to low data rate applications, for example, measuring tank levels once per day. For those types of applications, they are very cost-effective. However, L-Band or SmallSats typically don't offer the flexibility to increase throughput beyond the stated data rate and are not cost-effective for higher data requirements.

We have overcome those limitations. By leveraging existing ST Engineering iDirect platforms and Ka and Ku-band, we offer the flexibility to accommodate higher data rates when service providers, for example, change message size, polling intervals and bandwidth allocations. Depending on their end user application requirements in their use cases. We can

accommodate the higher data rates required when message size, polling intervals, and bandwidth allocation need to be changed in voice and data use cases.

This flexibility offers our service providers the opportunity to target transportation solutions like fleet management for large vehicles, rail, vehicle telematics, and asset tracking. In the fishing sector, IoT finds use cases in catch reporting and regulatory compliance. We also see potential in the mining and equipment sector, vehicle management, including mileage alerts, fuel tracking, safety and security, and precision farming.

SMW: I understand that the platform can connect directly to sensors. How does it deal with sensor outputs with different protocols? Depending on the device and manufacturer, these are usually different.

The direct answer is we intend to be IP agnostic. We backhaul sensor data previously aggregated into an IP stream, disassembled it into a proprietary waveform and air protocol, and reassembled it back at the hub. Our terminals and platform support standard IP protocols along with



several standard interfaces like Ethernet, Wi-Fi, Bluetooth, and Serial enabling direct integration with existing sensors, controllers, SCADA systems, or IoT gateways.

SMW: How do you install the service and bring it online?

Let's walk through the setup and commissioning of the terminal. The process involves the service provider inputting the terminal configuration, service profile, frequency of transmission, and permissible message sizes into the network management system. Then, at the installation site, the installer applies power to the terminal, and using the smartphone application, transfers the configuration from the NMS to the terminal via Wi-Fi.

Next, the fixed terminal finds the satellite using elevation and azimuth data supplied by the smartphone applications. The mobile terminal is equipped with an ESA and finds the satellite automatically.

Coming online is a straightforward setup routine, much easier than a typical VSAT provisioning

routine. Registering and logging into the network usually takes less than forty-five seconds from power-up.

SMW: How does the end-user provision new devices and monitor the network performance?

Before installation, provisioning is done in the network management system by the service provider or at the installation site by the installer. However, the service provider may grant access to the end-user to perform specific functions and view graphical representations of network performance.

SMW: The terminals also offer voice connectivity. How does that work? Is it available today?

Support of voice capabilities is currently under development. We understand the demand for a single terminal to support data and voice. Our objective is to deliver an economically viable solution to new terminals and terminals already deployed in the field.

SMW: What about Cybersecurity? Does the platform offer military-level encryption? If not, how do you secure the network?



From a connectivity perspective, we secure the network by site encryption and SSL, and we verify the security level using scans and penetration tests. As the NMS resides in the Cloud, we leverage security packages provided by Amazon Web Services (AWS) to assure safe access and monitoring of the network.

Lastly, we urge our customers to participate in the shared security responsibility model to ensure end-to-end security from sensor to dashboard. If the customer owns the sensor network, they are obligated to secure the data before it is ingested into our IoT solution.

SMW: The IoT ecosystem is much larger than just the IoT connectivity. What are your plans to enable service providers to integrate more value-added applications?

At the moment, our IoT Solution addresses the connectivity portion of the IoT value chain. We are currently focusing on the connectivity and efficient transmission of the data.

However, our intent is to enable our ecosystem partners to innovate on our platform, which will enable them to drive more value-added services to their end-users.

The remaining components of the IoT value chain,

including value-added analytics and data interpretation, are typically addressed by third-party providers. However, we are evaluating horizontally oriented applications to jump start service providers that may be new to the IoT market.

SMW: What is the business model? How do ST and the service providers generate revenue from the offering?

We sell the terminals and hub components and offer several IoT-as-a-service options, which can also include a revenue sharing model.

SMW: I understand you have completed some field trials of the service. Can you share some customer feedback?

To ensure we had a cross-section of customers who were using both the Ka and Ku-band terminals in fixed and mobile use cases, we conducted field trials in different regions of the world. As a result of these field trials, we have gained broad experience in the

deployment of our solution.

In one specific example, we had a customer that was experiencing VSAT performance issues with their incumbent satellite IoT solution. They had limited control over their satellite resources in a critical application, suffered from network congestion, high latency, data losses and excessive connectivity costs.

Using our IoT solution running over their existing ST Engineering iDirect infrastructure, they now have greater control over the end-to-end service, higher reliability and scalability, and lower operational costs.

YOUR KEY TO MARITIME IoT

Maritime is ready for satellite IoT.
And with ST Engineering iDirect, so are you.

From vessel monitoring to electronic catch reporting to cargo tracking and more, our proven hub infrastructure ensures your network is ready to seize the IoT opportunity.

Find out more:

idirect.net/products/iot-solutions/

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