

# IoT SOLUTIONS FOR ENERGY (OIL & GAS)

## IoT Within Reach

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The internet of things (IoT) is a steadily growing billion-dollar market largely driven by companies undergoing digitization for greater efficiency and transparency, as well as by 5G and emerging applications like smart cities. Satellite's inherent capabilities — such as its ability to reach remote areas, its ability to scale, to extend coverage for other providers — make it an essential part of a hybrid network needed to support an interoperable IoT system.

## IoT and the Energy Market

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IoT in the energy market is largely dependent on how oil & gas (O&G) industries develop toward profitable production offshore due to falling costs. For the O&G industry, the advantages of IoT lie in creating value through an integrated deployment strategy. IoT will allow the industry to digitize, optimize, and automate processes that were previously unconnected to save time and money, and to increase safety.

Most of the IoT data collected in O&G today are not used at all. In fact, of the data that are actually used — for example, in automation systems on power plants — most are only for real-time control or anomaly detection. A great deal of additional value remains to be captured by using more data and by deploying more sophisticated IoT applications, such as using performance data for predictive maintenance or to analyze workflows to optimize operating efficiency.

## Market Snapshot

Energy exploration, production, refineries and pipeline monitoring, and SCADA services are the largest use cases and drivers on IoT/M2M unit numbers.

## IoT Application Summary

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**Equipment monitoring:** O&G users can employ sensors that monitor the inventory levels of onshore equipment based on user-defined thresholds and criteria. For example, by continuously monitoring oil tanks, a company can automatically dispatch trucks when tanks need emptying while optimizing inventory transportation and minimizing costs. This data also provides operations teams with early warning signs of dangerous threshold violations.

**Asset maintenance:** Connected assets across the value chain report on threshold violations across operational parameters. These provide the time to dispatch staff for inspection and maintenance before breakdowns occur for predictive and preventive maintenance.

**Supply chain management:** Companies can analyze and process the data from different endpoints to optimize their supply chain and make data-driven decisions about process improvement.

**Flow measurement:** Flow rates, temperature, and pressure data may be aggregated at sites and relayed over the satellite network for analysis.

**SCADA:** The monitoring of sensors, valves, pumps, motors, and more through human-machine interface (HMI) software.

**Security and access control:** Real-time connectivity in remote locations enables the remote monitoring of equipment and operations, reducing the need for manual inspection or measurement. Connected cameras, access control systems and perimeter protection systems may be integrated with control rooms to reduce the amount of false alarms and increase the safety of infrastructure and employees.



## IoT Within Reach With ST Engineering iDirect

At ST Engineering iDirect, our IoT Solutions serve all of these data requirement use cases. Our Evolution, Velocity and Dialog multi-service platforms are ideal for fixed and mobility applications that range from high to very high data rates (HDR) and that require highly reliable and complex network configurations.

However, we recognize that IoT requirements also exist in the low data rate (LDR) and medium data rate (MDR) market segments. Service providers that want to build a new IoT service offering for these markets, or that are new entrants into the IoT market in general, require a highly efficient, cost-effective solution and flexible business model.

That's why ST Engineering iDirect has launched our flexible IoT Services to supplement our highly successful platforms and to ease the entry of service providers into the IoT market. This new LDR and MDR offering provides customers with a complete connectivity solution that's built on a flexible service enablement platform paired with IoT-as-a-service options. With our scalable Evolution, Velocity, and Dialog platforms and our small form-factor IoT terminal, powered by hiSky, we can support flexible business models for immediate market access of fixed and mobile IoT environments while reducing the upfront capital investments and operational complexity usually required to launch an IoT platform and service.

At ST Engineering iDirect, our IoT Services are ideal for LDR (small data bursts of 30 Kbps or 1–2 MB per month usage) and MDR (continuous, on-demand throughput of 10–500 Kbps) applications. Our solutions utilize a family of compact, lightweight IoT terminals that feature a tightly integrated satellite modem and flat-panel antenna design in Ka-band or Ku-band variants.

Need more data than that? Our iQ and MDM series modems on our Evolution, Velocity, and Dialog multi-service platforms are ideal for fixed and mobility HDR IoT applications.

