Summary

Executive summary

Oil and gas operators utilise IIoT solutions to increase operational efficiency, secure assets and achieve regulatory compliance throughout the entire value chain. Industrial control systems such as Supervisory Control And Data Acquisition (SCADA) and other industrial monitoring solutions are used to monitor and control remote facilities. These solutions enable operators to remotely monitor a multitude of data points such as pressure, volume levels, flow rates, temperature and operating status and conditions of various equipment at well sites, tank farms and pipeline facilities. A combination of wired and proprietary radio solutions is typically used for communications between sensors, controllers and systems, although cellular and satellite are increasingly used for non-mission critical monitoring applications.

Berg Insight estimates that annual shipments of wireless devices featuring cellular or satellite connectivity for oil and gas applications reached 175,000 units worldwide in 2018. Growing at a compound annual growth rate (CAGR) of 13.1 percent, annual shipments are expected to reach 325,000 units in 2023. Remote monitoring of tanks and industrial equipment in the midstream and downstream sectors comprise the most common applications for wireless solutions in the oil and gas industry. At the end of 2018, the installed base of wireless devices featuring cellular or satellite connectivity in the oil and gas industry amounted to an estimated 1.3 million units.

Internationally, the upstream oil and gas market is dominated by National Oil Companies (NOCs) and Integrated Oil Companies (IOCs), which are largely served by major industrial automation vendors including Emerson, Siemens, Schneider Electric, Yokogawa, Honeywell, ABB and Rockwell Automation. These companies are increasingly focusing on selling complete and integrated systems rather than individual control systems. Today, every major automation supplier has an industrial IoT initiative, including their own cloud-based solutions for monitoring and managing connected assets. These initiatives are aimed at helping customers collect data from assets and optimise processes further through data management and analytics.

Solutions for remote monitoring of assets such as wellheads, storage tanks and pipeline infrastructure are also offered by a large number of specialised providers. Many of the companies that specialise in wellsite automation and remote SCADA monitoring are based in North America, which has the greatest addressable market in terms of facilities. The region is home to the world's largest number of onshore wells and longest pipeline system. Examples of companies that offer end-to-end solutions for monitoring and automation of onshore wells include Zedi, eLynx Technologies, Critical Control, WellAware and ZTR Control Systems. The market is fragmented and a key consolidator in the space has been Quorum Software, which acquired the Coastal Flow Measurement family of companies and Flow-Cal in March 2019.

The US-based M2M specialist DataOnline has emerged as the largest remote tank monitoring (RTM) solution provider following its acquisitions of Wikon in April 2018, Independent Technologies in August 2018 and Sierra Wireless' iTank business in December 2018. The company has more than 300,000 tanks under management following the acquisitions. Additional major RTM solution providers with installed bases around 100,000 units include Australia-based Silicon Controls, US-based telematics specialist SkyBitz and the Polish industrial automation vendor AIUT. Other vendors that specialise in RTM include ISA, Sensile Technologies, Varec, Dunraven Systems, ATEK Access Technologies, Powelectrics, SilentSoft and Geoforce.

Due to the remoteness of oil and gas facilities, cellular and unlicensed proprietary radio solutions are typically used for data acquisition and backhaul communications. The largest provider of cellular IoT gateways and routers in the industrial space is Sierra Wireless, followed by Cisco, Digi International, Moxa, Belden, HMS Networks, Maestro Wireless, GE's industrial communications group GE MDS, Encore Networks, MultiTech Systems, Eurotech and Elecsys. While cellular solutions are today primarily used for non-mission critical use cases such as remote monitoring and metering in the oil and gas industry, there is growing support for use of private cellular networks across critical infrastructure industries. In contrast, unlicensed proprietary radio solutions are today already used in mission critical applications, primarily at well sites, where wired installations are unfit. Major vendors of proprietary radio modems are FreeWave, GE MDS, 4RF, Schneider Electric, OleumTech, Satel and Racom.

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