IoT for Oil & Gas: Energizing and Monetizing Your Data Pipeline

The Internet of Things represents the constantly growing universe of sensors and devices that create a flood of granular data about our world. The "things" include everything from environmental sensors monitoring weather or energy usage to "smart" household appliances and telemetry from production-lines and vehicles. Devices of all types are coming online and connecting via networks at faster than ever; in aviation, vehicle manufacture and mining, many companies already convert data from smart, connected devices into profits. Analytics-driven, often automated decisions can contribute millions to the bottom line.

There's so much hype around the Internet of Things (IoT), with seemingly more questions than answers. But there are two questions most companies struggle with most— what is the real value of the ubiquitous data, and how can it be monetized?

Breaking Down the IoT

While there is not a one-size-fits-all template, there are some distinct components that organizations should first recognize before diving into an IoT-deployment plan.

Simple View of Internet of Things
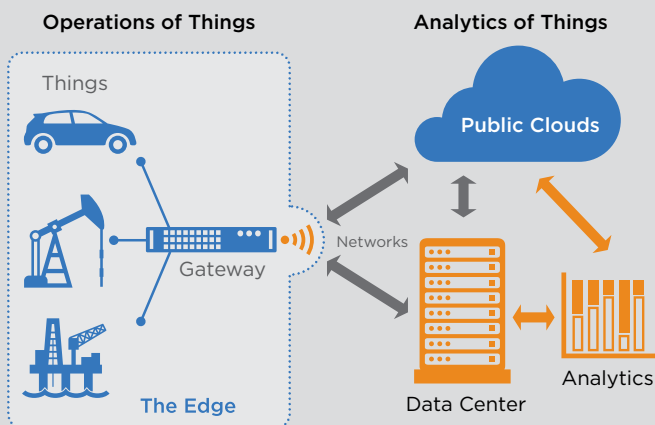
The "Operations of Things" (aka "The Edge")

This is the "doing" part of the business, where systems run, where services are delivered, and devices are used. In organizational terms, this is where Operational Technology (OT) departments have always taken responsibility, often with significant autonomy. Systems operating in the Edge can react to their environment with far greater nuance than before because they aren't just "doing", but are "thinking" as well, using data inputs to decide on the best course of action.

> Oil & gas operations will likely demand a variety of technologies that cross operational, departmental and inter-organizational boundaries to service all aspects of the IoT.

The "Analytics of Things"

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But who sets the guidelines? That is the domain of the Analytics of Things. This is where informed decisions can be made quickly and confidently on the basis of potentially huge amounts of data. Organizationally, Corporate IT functions usually take the lead.

The importance of bringing together operations and analytics gets to the heart of the IoT revolution. It becomes possible to deliver significant value by using sensor data dynamically and systematically, bringing together OT & IT to dramatically improve existing processes—and even create new ones.

Power by the Hour

There are many examples of IoT driving new business models and creating once inconceivable revenue streams. One of the best comes from aviation, where jet engines

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The advent of the Internet of Things has the potential to deliver dramatic new business models such as the ability to sell (and buy) outcomes instead of products. Executives driven by performance measured in dollars and cents do not care about bits and bytes, and have therefore been fairly dismissive of Big Data as a B2C phenomenon to date. That mindset changes with IoT, and companies who cannot deliver optimal performance through analytics will not be able to compete.

The new reality is that ubiquitous sensor data means disrupt or be disrupted, and the challenge to senior management is two-fold: develop business models that maximize competitive advantage, and build organizational structures that bridge the OT/IT divide and enable the delivery of those models.

are not always sold as high cost, capital-intensive products, but as services that are run as operating expense. That service is about charging only for what the airline needs—power to fly the aircraft.

An engine manufacturer contracts to provide power to an aircraft operator, along with certain performance guarantees. The operator pays for the service when the aircraft flies, verified by data (operational data from engines and onboard components throughout the aircraft, asset data from logistics and other support systems), which helps them continually improve performance under specific conditions. Instead of profiting predominantly from spares and repairs, the engine manufacturer is rewarded for good performance, and minimization of unplanned maintenance—a powerful alignment of business incentives for supplier and operator.

Applying the Aviation Model to the Oilfield

The oil & gas industry is already highly service-intensive and subcontracting essential, but non-core engineering functions is the norm. Those services rely on a wide range of complex, expensive engineering equipment, supplied and built by a 3rd party, but only used periodically— just like a jet engine. Using sensors to measure their performance, it is possible that critical equipment such as blowout preventers (BOPs) might be better delivered as a service. In fact, in early 2016, GE and Diamond Offshore announced the delivery of the first significant such contract—to deliver pressure control as a service, reversing prior BOP sales in the Gulf of Mexico.

One of the world's largest E&P companies uses analytics to keep an eagle-eye view of their complete enterprise, including near-instant access to data and actionable insights around all functions—from management to individual contributors. Empowered with critical supplier line-of-sight, the business has a deeper understanding of equipment pricing to services.

The Teradata Advantage

For years, Teradata has supplied oil & gas companies with sensor-fueled analytics to improve operational efficiency and equipment utilization. Businesses are empowered with the proven technology and solutions within their Proven "Analytics of Things" technology and solutions empower businesses to unlock the full value of their IoT investment, with rapid implementation and onsite manufacturing experts to facilitate every step of the way.

To learn more, visit teradata.com.

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