STATISTICA®

EXARA

Unlock powerful decisions by extending analytics to field level assets

Edge Analytics for Oil & Gas industry from Statistica and Exara

At a Glance

BUSINESS CHALLENGE

To truly take advantage of remote instrumentation and the data it generates, oil companies need more intelligent systems—systems that allow them to do more with data at the edge and transmit it cost-effectively when necessary.

SOLUTION

With the Statistica-Exara solution, oil companies can store several years of extremely high fidelity data that remains "owned" by well owners/operators with full and flexible access to advanced analytics. Exara software can filter and aggregate this stored data at the edge, where it can be used to enrich Statistica's predictive models or transported offsite for deeper analysis.

BENEFITS

- **Improve efficiency and unlock savings** through the use of machine data generated by high value, field-based units.

- **Avoid costly data transfers at peak cost times** by analyzing data where it lives, where decisions are most critical.

- **Make smarter decisions** with a larger picture of your operations drawn from a combination of operational and legacy historical data.

ADDRESSING THE O&G INDUSTRY'S STRATEGIC CHALLENGES

As oil prices hold at historic lows and layoffs continue, oil companies must boost efficiency and cut costs. Technology can help streamline operations, reduce waste, and increase productivity. One of the most promising solutions is capturing equipment data to gain actionable insight that enables proactive operational improvements. But while the use of instrumentation on wellheads and other remote equipment is prevalent, the cost to take full advantage of all this data is high.

Most data is forwarded to a central office for analysis because local storage and compute options are scarce. But communication systems in remote locations are slow and often down, putting data at risk. High fidelity data is expensive, and low fidelity views make it hard to extract insightful information.

To truly take advantage of remote instrumentation and the data it generates, oil companies need more intelligent systems—systems that allow them to do more with data at the edge and transmit it cost-effectively when necessary.
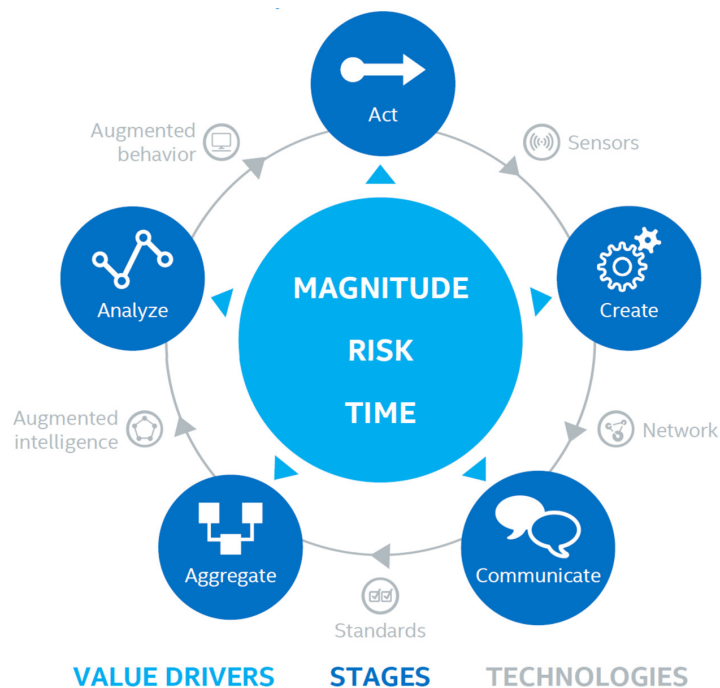

Figure 1: The information value loop. [Adapted from Deloitte Center for Energy Solutions report: "Connected Barrels: Transforming Oil & Gas Strategies with the Internet of Things," 2015.] Used with permission by Exara.

STATISTICA®

"DIGITAL OIL FIELDS"

Many organizations are moving toward analyzing data where it lives. Edge-based analytics capability enables high frequency sampling that improves quality and reduces latency for critical operational decisions. Pre-filtering and qualifying data at the edge, while retaining local, full fidelity storage, also reduces cost of transmittal and core storage for often repetitive, non-anomalous sensor data without sacrificing quality.

Edge gateways are now powerful enough to leverage tailored software like Exara Chronicle

Make predictive decisions in near-real time to optimize production and mitigate risks.

to deliver on the promise of high frequency data storage (tens of billions of events). This gives advanced analytics platforms like Statistica the ability to execute sophisticated analysis in near-real time at the edge or in centrally managed platforms, or even in between. This enables companies to go beyond monitoring assets to maximizing them, from reactive to predictive "digital oil fields."

THE FULL DATA STREAM

A technology convergence called the Industrial Internet reflects the tendency of operational technology (OT) and information technology (IT) to seamlessly take advantage of—and act on—all information assets. Such convergence promotes agile decision making and solution delivery for production operations. Convergence of experience between OT groups (adept at managing complex industrial machines) and IT groups (adept at managing data and analytics at scale) will define success for industrial IoT strategies.

As more "smart" machines are incorporated into industrial operating assets, we will see an ever increasing need to create a separate (for security and risk) yet unified (for accuracy and agility) information system that handles upstream data, downstream data, and

a combined view for strategic decision making.

UPSTREAM ANALYTICS OBJECTIVES

- **Optimize exploration and production** – integrate disparate data across sensors, geology, geophysics, and reservoir engineering
- **Increase reliability of reserves** – spatial relationships between geological elements and petro-physical properties
- **Predict production performance** and reserves with forecasting
- **Reduce outages, maintenance costs and work hours** by predicting failure of field equipment
- **Identify drivers of well production** – determine optimal drilling and completion programs
- **Automate supplier reviews** – monitor, aggregate, configure, and centralize data (materials, parts, specs, etc.)
- **Achieve regulatory compliance and safety** with product traceability, SPC, root cause analysis, stability & shelf life analysis, and validated reporting
- **Emissions reduction** – meet regulatory needs and improve public health
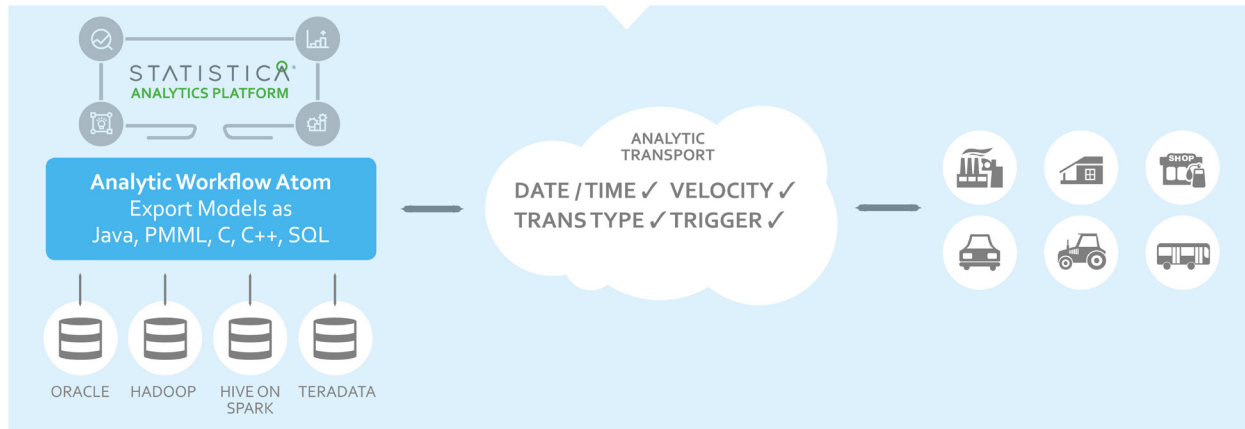
Figure 2: Statistica's proprietary Native Distributed Analytics Architecture (NDAA) is an agnostic, in-database methodology that executes platform-specific analytics on aggregates computed in any database, edge gateway or device/sensor.

DOWNSTREAM ANALYTICS OBJECTIVES

- **Demand forecasting** – predict right run rates/times to meet marketing demands
- **Facility integrity and reliability** – predict outages and root causes using data like temperatures, chemical composition degradation, mechanical wear and tear, and life expectancy of parts
- **Commodity trading and risk management** – understand and minimize portfolio risk
- **Credit risk management** – optimize credit decisions
- **Fraud detection** – detect fraud and compliance issues before they become a problem
- **Regulatory risk and compliance** – automate record keeping and reporting for regulators in a validated environment

DIGITAL TRANSFORMATION, BUSINESS INNOVATION

With advanced software and gateway solutions, oil companies can store several years of extremely high fidelity data that remains "owned" by well owners and operators, giving them flexible, full access to mine this data at any time. Exara software can filter and aggregate the stored data at the edge, where it can be used to enrich Statistica's predictive models or transported offsite for deeper analysis.

By leveraging more industrial assets and analyzing the data where it resides, innovative industrial operators will be able to improve efficiency and unlock savings through the use of machine data generated by high value, field-based units. Analyzing data at the edge allows for agile decision making when and where decisions are most critical, and it avoids the costly transference of data at peak cost times. By plugging into more industrial assets, you will be able to see a larger picture of your operations, instilling greater confidence in your predictive models, as well as enabling the combining of operational and legacy historical data for smarter decisions.

ABOUT EXARA

Exara is revolutionizing the way industrial companies capture, curate, and consume machine data from high value field-based assets. Exara provides dynamic access to high fidelity, high volume machine data in a wide range of remote and mobile industrial applications on a proven, field-deployed device loaded with an innovative software defined platform. Enterprise data consumers enjoy immediate access and ability to explore highly granular data from assets deployed in the field. www.exara.net

ABOUT STATISTICA

Statistica's advanced analytics, big data and IoT offerings provide you endless possibilities to innovate your enterprise. Statistica produces an easy-to-use predictive analytics software which brings the analytics to the data, and allows oil and gas operators to drive innovation and solve business challenges. By embedding analytics everywhere and empowering a wider community, you can transform the way you collect, analyze and make decisions. Satatistica allows you to embed analytics everywhere and to run analytics on any data anywhere, to drive better decisions across your organization—without breaking the bank. With an easy-to-use interface, Statistica accelerates innovation by empowering more people, helping them improve collaboration among data scientists, business analysts and business users within a single workbench. Quickly and easily uncover hidden opportunities by analyzing all data—streaming or at rest, wherever iit resides. You'll accelerate innovation, improve customer experiences, and streamline your enterprise for the future. http://statistica.io

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