SAS® Analytics for IoT: Smart Grid

Get more value from your smart grid by fusing analytics with IoT data

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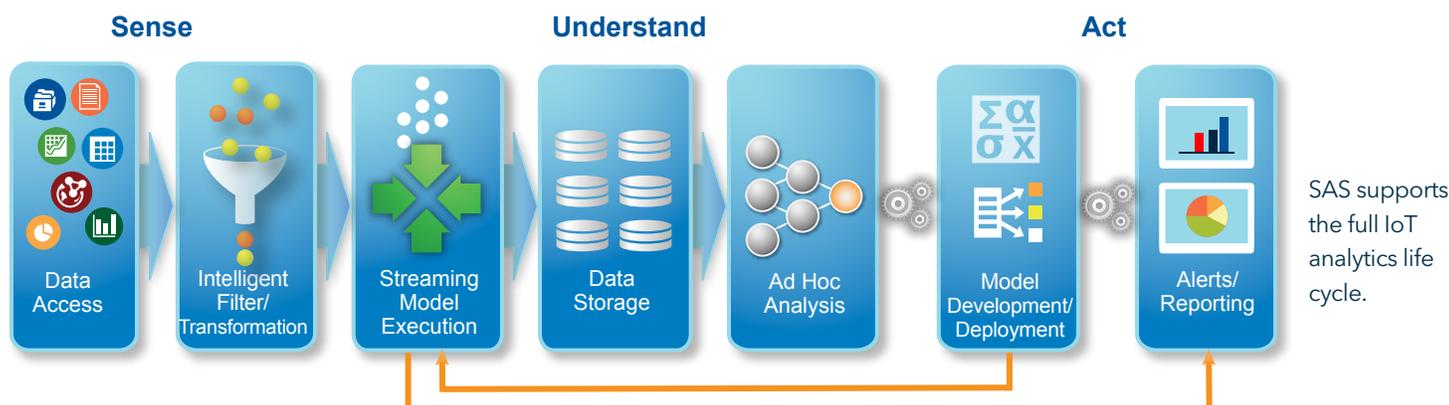THE POWER TO KNOW®

Key Benefits

With SAS Analytics for IoT, you can:

- **Maximize value from smart grid investments** by using more new data sources without clogging operational systems. SAS lets you integrate, visualize, transform and analyze IoT data from a data center, hosted environment, edge device or cloud.
- **Optimize your analytics infrastructure** by taking the algorithms to the data, reducing data movement and automating processes across your IoT infrastructure for incremental and long-term business gains.
- **Develop new business opportunities** with a more dynamic platform for innovation, both in customer and grid applications.

Overview

To build a cost-competitive business model for reliable power delivery, utilities must reduce the latency and increase the insight of data-driven decisions. Many utilities are already collecting information from the connected devices that send and receive data over the internet of things (IoT) – a digital twin of the physical smart grid. While analysts expect the IoT to soar to tens of billions of devices by 2020, no one knows how many or what new types of intelligent devices will emerge. But we do know that traditional approaches to data management and analytics may not be sufficient for sustaining value in this new, connected world.

Simply collecting data from connected sensors, systems or products is not enough. To benefit from the promise of IoT data, utilities must be able to shift analytics from traditional data centers toward devices on the edge – the "things." The challenges arise from the complexity – and risks – inherent in capturing and analyzing extreme volumes and varieties of data torrents flowing from ever-increasing numbers of things. Whether it's sensors on distributed energy resources or phasor measurement units, utilities need more flexibility about where, when and how to manage and analyze IoT data. And they must understand which data is relevant, so they'll know what to store versus ignore. To get there, they need a trusted, automated solution.

Sense   **Understand**   **Act**

Data Access — Intelligent Filter/ Transformation — Streaming Model Execution — Data Storage — Ad Hoc Analysis — Model Development/ Deployment — Alerts/ Reporting

SAS supports the full IoT analytics life cycle.

Does your utility need to get more out of the connected world? With SAS® Analytics for IoT, you can:

- **Use data at rest and data in motion** to predict critical equipment failures before they occur – avoiding the high cost of reactive maintenance.

- **Integrate renewable resources more efficiently onto the grid**. Edge algorithms smooth the transition between power resources while maintaining grid stability.

- **Get more accurate insight on power quality.** Streaming analytics applied to data collected from transmission and distribution lines gives real-time insight into grid events as they unfold, improving your ability to predict them in the future.

- **Restore power faster after a storm.** Optimize resources to minimize the duration of customer interruptions and increase restoration efficiency.

- **Personalize energy services for each customer**. Become the company of choice, not just for power but also for other home services.

The Solution

Building from a proven technology foundation, SAS integrates streaming data with analytics and visualization so you can get more value from the IoT. Whether your data is at the edge, in motion or at rest, SAS technology helps you make swift decisions while reducing data movement and storage costs. Our solution covers the full analytics life cycle, starting with data capture and integration and extending to analytics and deployment. With SAS, you can:

- **Sense what matters**. SAS incorporates a proven event stream processing engine so you can do real-time data management against IoT data. This includes intelligent filtering that deciphers signals from noise so you'll know what's relevant for your utility.

- **Understand the signals in data**. Use SAS to mine and analyze IoT data throughout the connected ecosystem. Combine IoT data with other sources that add context, and detect patterns of interest as events occur.

- **Act with speed and confidence**. SAS decision management capabilities drive real-time action – from simple alerts to complex, automated responses.

SAS Analytics for IoT encompasses event stream processing along with visualization and analysis capabilities in a storage platform of your choice. It supports analytics at the edge – as well as analysis, visualization and data integration on the server side (data center or cloud). SAS Analytics for IoT gives utilities the speed and insight they need.

Capabilities

Support for the IoT analytics life cycle

The IoT opens many opportunities to transform the way you interact with your customers, products, services and operations. To capture its full value, you need an analytics solution that takes an enterprise approach. SAS supports analytics throughout the IoT infrastructure – from the data center or cloud all the way to the edge, and at any point in between.

Proven event stream processing capabilities

Our IoT solutions are built on SAS Event Stream Processing, which analyzes data in motion by processing huge volumes at very high rates (in the range of millions per second) – with extremely low latency (in milliseconds). You can also embed this powerful solution in devices to shift intelligence to the edge.

Comprehensive analytics capabilities, proven data management techniques

SAS offers the widest and deepest range of analytics capabilities – from basic reporting and traditional statistics to descriptive, predictive and prescriptive techniques – as well as machine and cognitive learning. We develop and continuously improve upon the latest techniques to find those best suited for high-frequency and streaming data. And our industry-leading data management capabilities can take IoT data – generated anywhere – and make it analytics-ready.

Flexibility to run on a range of hardware, or in the cloud

SAS runs on a wide variety of platforms, including low-cost commodity hardware. It can exploit big data appliances and run in the cloud. SAS also works with many communication and hardware vendors to support embedded analytics in their edge devices – especially IoT gateways.

Learn More

Organizations today are shifting from an IoT *planning* to an IoT *executing* strategy. By fusing analytics with IoT data, SAS positions your utility to make faster, better-informed decisions in this new landscape. Find out more at sas.com/analytics-iot.

To contact your local SAS office, please visit: sas.com/offices

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