

# SAS<sup>®</sup> Analytics for IoT: Smart Cities

Improve government efficiency and service delivery by fusing analytics with IoT data



## Key Benefits

With SAS Analytics for IoT, you can:

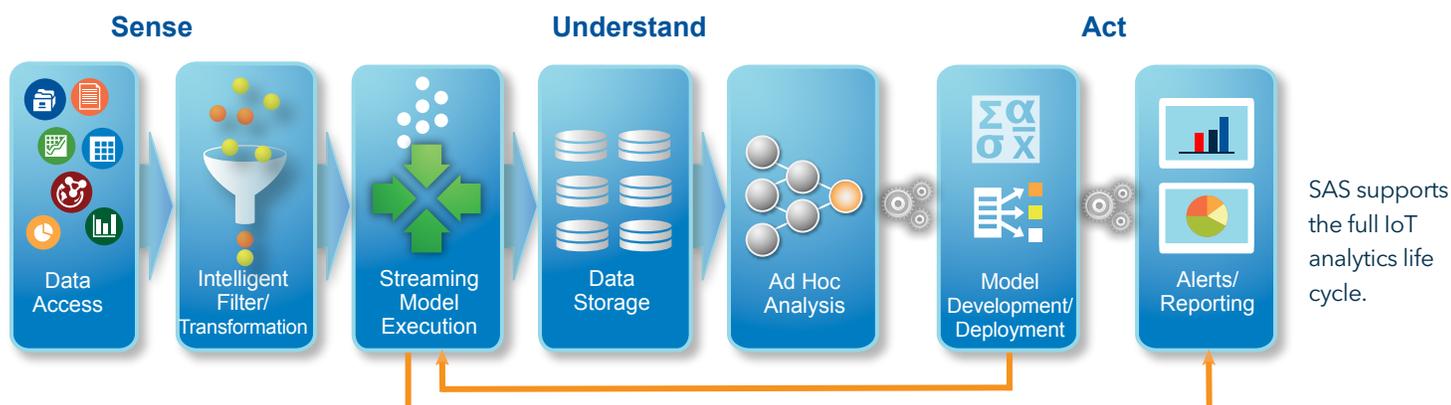
- **Reduce cost and increase government transparency** by collecting, managing and analyzing data where it lives. SAS lets you integrate, visualize, transform and analyze IoT data across the ecosystem - edge devices, data centers or the cloud.
- **Respond quickly to changing conditions and improve citizen service delivery** by tapping into the full potential of all your data to make better-informed decisions.
- **Skip complexity** when you streamline and automate processes across your IoT infrastructure for incremental and long-term improvements in local governance.

## Overview

From cars to factories to cities, many governments are already collecting information from citizens and connected devices that send and receive data over the internet of things (IoT). 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 citizens, sensors, systems or products is not enough. To benefit from the promise of IoT data, government agencies need to 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 the data torrents flowing from ever-increasing numbers of things.

Whether they're managing resources like water and energy, controlling local traffic and parking, or collecting and responding to citizen-provided information, local governments need more flexibility about where, when and how to manage and act upon IoT data. And they must understand which data is relevant, so they'll know what to store and what to ignore. To get there, they need a trusted, automated solution.



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

- **Boost energy efficiency.** Optimize delivery of energy and electricity by applying analytics to data that's streaming from smart grid sensors.
- **Improve citizen services.** Automatically detect when citizen services are needed – such as trash or recycling – and provide those services more effectively.
- **Take control of transportation issues.** Dynamically manage traffic flow and parking availability – helping boost the economy while decreasing citizen transit and shipping delivery times.
- **Proactively maintain public assets and infrastructure.** Automatically know when vehicles, bridges and other assets or infrastructure are likely to need maintenance.
- **Anticipate disruptions.** Dynamically sense the citizen environment and mitigate government service disruptions through social media and other citizen data.

## 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 agency.
- **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 can help solve a variety of government issues.

## Capabilities

### Support for the IoT analytics life cycle

The IoT opens many opportunities to transform how you interact with your citizens, 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 city to make faster, better-informed decisions in this new landscape. Find out more at [sas.com/analytics-iot](http://sas.com/analytics-iot).

To contact your local SAS office, please visit: [sas.com/offices](http://sas.com/offices)

