SAS® Event Stream Processing for Edge Computing

Create new analytics-driven and AI-empowered intelligence at the smarter and more autonomous edge

Does your organization need to quickly get more value from its IoT data?

Analyze data close to where it originates. SAS Event Stream Processing for Edge Computing is an in-memory, streaming analytics engine designed to be deployed at the edge, close to where data originates. It delivers advanced analytics for faster decisions to help you understand events while they're in motion – in event streams.

Understand what's relevant upfront. SAS Event Stream Processing for Edge Computing uses a new way of analyzing event streams – a stream, score then store process - instead of the traditional stream, store then score approach.

Extend intelligence where you need it. SAS Event Stream Processing for Edge Computing moves intelligence to the edge – to smart devices or processor-equipped sensors – and analyzes streaming data with an array of advanced analytics, including artificial intelligence (AI) and machine learning.

Key Benefits

Some data naturally occurs as an ongoing stream of events - a continuous feed of data from remote sensors and devices in the fast-growing Internet of Things (IoT). With SAS Event Stream Processing for Edge Computing, you can:

- Make faster, more intelligent decisions on the edge to understand events while they're happening.
- Analyze data continually as it's received, without having to send it to a traditional data center.
- Update situational intelligence and respond with agility as new events emerge.
- Capture the business value of information immediately, rather than losing it to information lag.

Analyze high-velocity big data at the edge while it's still in motion – before it's stored – so you can take immediate action on what's relevant and ignore what isn't.

Overview

Business and IT need to manage their growing list of operational streaming data sources. The growing number of streaming data sources from connected people, patients, equipment, devices and other "things" presents new challenges for data transmission and data storage. IT is being asked to deliver a complete solution that can reduce the need for transmitting all data from the edge to the cloud, and instead use more analytically driven solutions that can intelligently decide what to keep and what to discard. This intelligence is also needed to deliver decision making closer to where the data originates to eliminate delays when a situation requires attention or a customer needs service, and it needs to deliver that without connectivity to the cloud.

SAS Event Stream Processing for Edge Computing addresses these challenges by providing a scalable, flexible streaming analytics engine for problems ranging from streaming pattern matching to sophisticated and powerful computer vision algorithms for object detection and classification. SAS can be deployed quickly to various edge devices using standard container technology or bare metal deployments to maximize the value of your analytics on the edge, close to where the data originates.

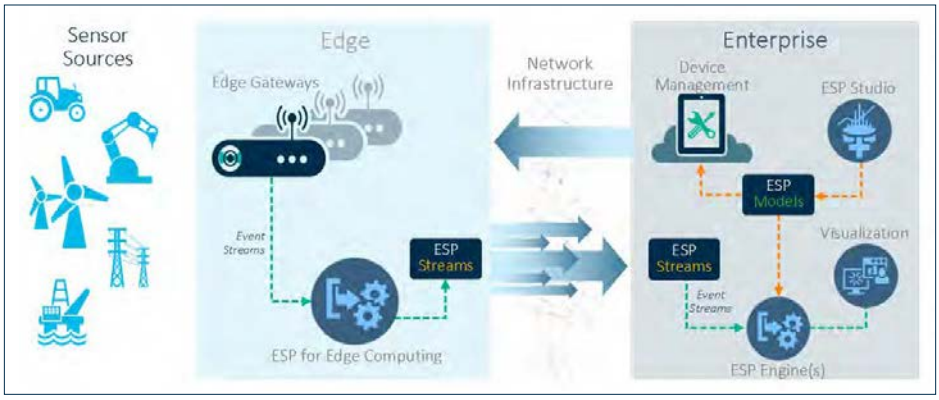

Figure 1: Move analytics, decisions and action out to the edge, close to where the data originates.

The Solution

Streaming data from operations, transactions, sensors and IoT devices is valuable – when it's well understood. SAS Event Stream Processing for Edge Computing extends SAS Event Stream Processing capabilities to the edge. It's engineered for low-latency processing of millions of events per second, running on smaller, edge-specific commodity hardware.

With SAS, you can seize opportunities and spot red flags hidden in torrents of fast-moving data flowing through your business.

- **Bring advanced analytics and AI to data in motion at the edge.** SAS Event Stream Processing for Edge Computing supports streaming data quality and analytics – and a vast array of SAS and open source machine learning and high-frequency analytics – for connecting, deciphering, cleansing and understanding streaming data in one solution.
- **Establish a smarter and more autonomous edge.** SAS Event Stream Processing for Edge Computing applies continuous queries to the event stream at the edge. You can execute advanced analytics right at the edge without requiring constant connectivity to a central processing engine.
- **Use machine learning to gain insights for taking the right action.** No matter how fast your data moves, how much data you have, or how many data sources you're pulling from, it's all under your control via a single, intuitive interface. Available GPU support means you can analyze structured and unstructured data sources – including video, text, and image classification and identification – to create richer context for better, faster decisions.
- **Make decisions on sound, trusted data.** Filter, normalize, categorize, aggregate, standardize and cleanse sensor data on the edge before it's transmitted – saving significant transmission and storage resources. Apply prebuilt data quality routines and text processing execution to data in motion so edge data is filtered and ready for consumption.
- **Scale economically for growing data volumes.** Take advantage of low-latency, high-volume throughput on smaller hardware footprints. Deploy SAS Event Stream Processing for Edge Computing in environments with smaller CPUs, smaller disks and reduced RAM – or scale to support larger, more compute-intensive GPU environments when needed for computer vision.

Capabilities

Proven edge capabilities built for speed

SAS Event Stream Processing for Edge Computing analyzes huge volumes of data in motion (millions of events per second) with extremely low latency (in milliseconds). Data is analyzed continually as it's received, updating situational intelligence as new events take place.

Ready for real-time action

Customizable alerts, notifications and updates provide situational awareness so you can react appropriately to what's happening or predicted to happen at the edge. Capture the business value of information immediately rather than losing it to information lag.

Flexible, open modeling environment

Easily define, test and refine event stream processing projects – even those that integrate machine learning and AI – using the intuitive SAS Event Stream Processing studio visual designer interface (available with a license for SAS Event Stream Processing server on SAS® Viya®). There's no need for specialized programmers. If preferred, Python developer interfaces also support your developers' choice of interfaces, such as Jupyter Lab notebook environments using ESPpy.

Complete multiphase analytics

SAS Event Stream Processing for Edge Computing moves advanced analytics to the edge, including neural nets, regression, classification, text analytics, audio processing, and other powerful machine learning and AI techniques.

You can embed SAS Analytics at the edge, in the fog and in data at rest, cleansing and analyzing data at each streaming event phase. In-depth SAS and open source analytical models are portable to the stream and the edge.

Image and video analytics

Combine streaming analytics, video and image ingestion with powerful neural networks to process video and still image data, including image preprocessing and object detection and classification at the edge (with available GPU support).

In-stream learning model windows

Use different SAS Event Stream Processing window types – Train, Score, Calculate, Model Supervisor, Model Reader – for different tasks, such as specifying data stream input sources, continuous in-stream model updates, model comparison, detecting patterns of interest and defining derived output actions. Define patterns and address scenarios from all aspects of your business so you have the power to stay agile and tackle issues as they arise.

Flexible deployment options for compute and memory needs

Deploy SAS Event Stream Processing for Edge Computing using standard container technology to deploy the server capacity that meets your needs, from core streaming analytics or GPU-enabled computer vision.

Automated edge deployment and monitoring

Simplify and automate the deployment and monitoring of multiple event stream processing projects and servers with SAS Event Stream Manager (available with a license for SAS Event Stream Processing server on SAS Viya). Streamline analytical model updates on the edge and ensure rapid deployment of the latest models as needed, in a secure and managed manner.

Learn More

High-performance IoT devices and environments with thousands of connection points are turning the IoT into the new standard. Advances in computing, light-speed communications and analytics make it possible to create analytics-driven intelligence wherever it's needed, even at the fringes of the network.

See how you can gain the business value of rapid intelligence at the edge of the IoT. Take a free trial or request a demo of SAS Event Stream Processing for Edge Computing at sas.com/esp.

For more information about SAS solutions, please visit sas.com