



## Executive summary

# SAS® Viya™ edge-to-enterprise IoT analytics

The number of devices connected to the internet is growing exponentially, with Gartner projecting 8.4 billion in use this year.<sup>1</sup> These devices and the connections among them are known as the Internet of Things (IoT). Every one of these billions of devices and the sensors attached to them produces data. The volume of information is enormous, as is its potential to provide businesses with actionable insights. But businesses can realize this potential only when they have effective tools to gather, analyze, and control the massive amounts of IoT data available to them.

In one popular model, systems collect data from IoT devices and sensors in remote—or edge—locations and transfer this information to the datacenter, where it remains stored until businesses get around to analyzing it. While this approach is viable in certain industries and when a limited number of devices are generating a small volume of data, it becomes less effective at scale and in settings where timing is critical. Many use cases warrant a method where the data from real-time sensors undergoes real-time analysis, enabling real-time action.

The SAS® Viya™ edge-to-enterprise IoT analytics platform moves data analysis to the edge. This can reduce the time to gain actionable insights from the data. It can also reduce the footprint of the data through intelligent data-reduction techniques, which has great value in scenarios that require transporting data from the collection points to the datacenter or cloud using cellular technology.

The core component of the solution is the SAS Event Stream Processing (SAS Viya Enabled) product that supports real-time analytics on data in motion. SAS ESP has multiple flavors that can run on a wide range of hardware in both the edge and datacenter. These instances of SAS ESP can allow businesses to gather and process data streams at the edge, then transfer them to the datacenter for further processing. The SAS IoT analytics platform also includes a suite of supporting software applications to help users analyze and mine IoT data and develop analytical models that assist with real-time analytics and processing.

In our full reference architecture, we have demonstrated that businesses could use the SAS Viya edge-to-enterprise solution to distribute analytics between the edge and the datacenter. Analytics running at the edge is closer to the data's source, and helps reduce latency in the decision-making process. Analytics that runs at the edge must work in harmony with datacenter and cloud analytics. Together, they establish a multiphase analytics lifecycle that allows organizations to quickly iterate as they reach new findings.

## Components of the SAS® solution

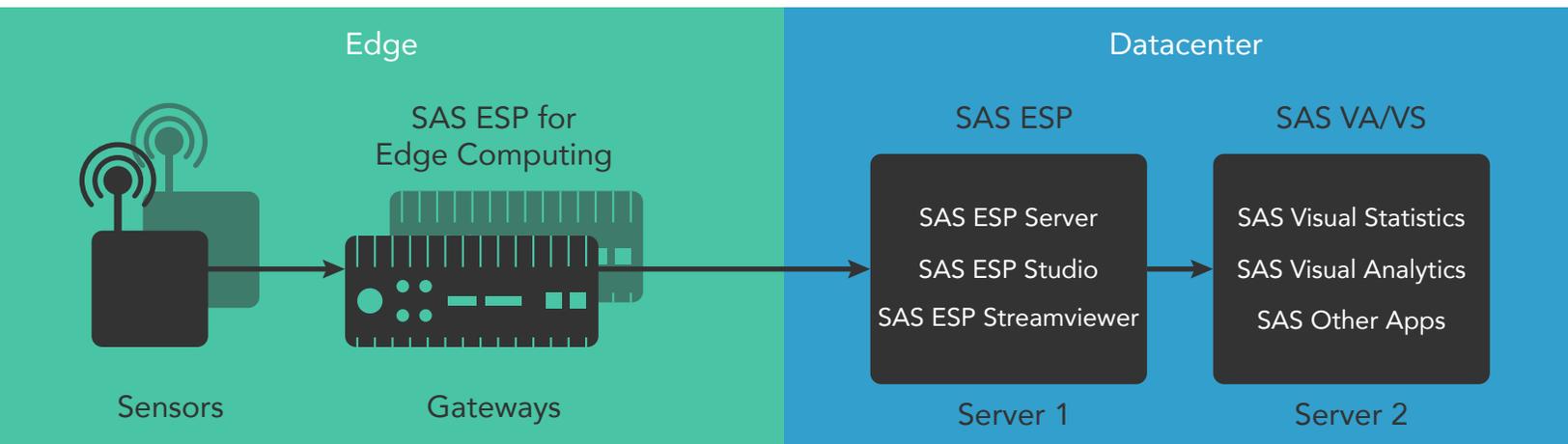
The SAS solution is made of several software and hardware components. Here's an overview of the specific components we used in our environment.

### Software components

In our implementation, we used the following SAS Viya components and versions:

- SAS Event Stream Processing 4.3 for Edge Computing
- SAS Event Stream Processing 4.3
- SAS Event Stream Studio
- SAS Event Streamviewer
- SAS Visual Analytics 8.1
- SAS Visual Statistics 8.1

Below, we present a logical diagram of our test configuration and the SAS Viya components we implemented.



### Hardware components

We deployed SAS software onto three different dedicated systems, all powered by Intel processors and each with its own role. SAS ESP, SAS ESP Streamviewer, and SAS ESP Studio all ran on a Dell EMC™ PowerEdge™ R630 in our datacenter. SAS Visual Analytics and supporting software ran on a Dell EMC PowerEdge R730, also in the datacenter. SAS ESP Edge ran on a Dell Edge Gateway 5000, a dedicated, low-power device in a different location in the same building. We connected all three systems to the same 1GbE network and subnet. SAS supports many other configurations that can increase fault tolerance and storage capacity and leverage multiple servers for increased compute power.

## Conclusion

The Internet of Things has arrived, and the data is pouring in. From manufacturing to power production to fleet management, companies across many industries are experiencing an information explosion—in terms of both the types of data available to them and its sheer volume. Multiphase analytics with the SAS Viya edge-to-enterprise solution could help your business sort through all the noise.

Read the full report at <http://facts.pt/Lmdxjs>. ▶

1 Gartner says 8.4 Billion Connected “Things” Will Be in Use in 2017, Up 31 Percent From 2016, accessed: 08/18/17, <http://www.gartner.com/newsroom/id/3598917>



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