451 Research

Impact Report

SAS improves usability of Event Stream Processing

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With the launch of version 3.1 of SAS's Event Stream Processing (ESP) technology, the firm has decided the time is right to make more noise about its capabilities in the space. Not only does it feel it has the right feature set, but it thinks stream processing will grow in popularity in the era of the Internet of Things (IoT).

The 451 Take

While we still don't see data streaming and complex event processing being for the faint of heart, SAS has come a long way in improving the ease with which SAS ESP can be implemented and models built. Having built up a roster of about 30 streaming customers since it launched the product two years ago, it's made steady, rather than spectacular, progress so far. The ease-of-use improvements, additional connectivity options and standard support with the latest version, 3.1, should help it win some new logo customers, especially as we see growing demand for streaming offerings in the era of IoT.

Context

SAS Institute is the Cary, North Carolina-based developer of analytics software, and one of the largest privately held companies in the world. It has a broad and deep portfolio of analytics and visualization technology. It first launched its ESP technology in Q2 2013. But what is stream processing, and how does it differ from more traditional OLAP?

Data streaming allows continuous and fast analysis of very large volumes of moving data to help improve the speed of business insight and decision-making. Its use is only set to grow in the era of IoT, because sensors and smart devices that are networked will produce data every second or even in fractions of a second, creating a stream of data that needs rapid analysis for it to be of value.

Whereas more traditional OLAP business intelligence tools require the data to be at rest in a database on disk before it can be analyzed, streaming platforms can analyze the data in-memory as it streams in, dramatically reducing latency, and enabling actions to be taken based on the analysis of the data in real time. Streaming platforms also have the potential to reduce the volume and cost of data storage, because it might be decided that not all data should actually be kept – a subset of the data might be stored in a database after it's been analyzed in real time, based on predetermined rules or thresholds.

In the two years since its launch, SAS says it has amassed about 30 customers for its ESP. These customers are across banking, communications, capital markets, energy, government, insurance, services, manufacturing and healthcare, showing just how broadly applicable streaming technology is.

Technology

SAS concedes that earlier versions of ESP were overly complicated, requiring complex programming with little in the way of visual tools to help. It

says it has fixed the issue with version 3.1, which just launched.

Perhaps the biggest new feature is ESP Studio, a graphical interface that enables process designers to create and test their streaming models. The firm says it uses a drag-and-drop paradigm to make it simpler to build models. Designers still have the option of building models using XML or C++, however. The firm says ESP Studio means that building models can now be done not just by programmers but by database analysts, ETL developers, process designers or solution architects.

That said, for the initial implementation of ESP 3.1, some programming skills are still required. That's because the initial implementation requires the engine to be connected to the sources of the data: streams/adapters/pub-subscribe mechanisms and so on. The kinds of roles likely to be tasked with initial implementation then are the likes of application developers, enterprise or technical architects or systems architects.

Aside from the new ESP Studio, there are quite a few other enhancements with version 3.1. There is a new REST Adapter, giving Web-service integration with SAS Real Time Decision Manager. Real Time Decision Manager is the piece that creates alerts or kicks off a business process when certain thresholds are reached or patterns detected.

There are new connectors to Gigamon – a network visibility and security third party – and Radius, which offers a marketing-intelligence platform. On the standards side, there is enhanced support for XML and JSON support. SAS has also added a Twitter adapter for real-time Twitter-streams processing.

On the notification and alerting side, a new notification window is able to generate emails, SMS and MMS notifications. And finally, on the text side, ESP is able to ingest both structured and unstructured data, so there is a new Text Category window and Text Sentiment window for text analytics processing.

Customers

While it can't reference its streaming customers by name just yet, it has a number of examples. For instance, an oil and gas customer used ESP to analyze data from 2.1 million sensors in real time – that equates to three trillion rows of data per minute, according to the firm. Combining ESP with predictive modeling, SAS says the customer saw a 70% reliability increase because parts could be replaced before they failed, while downtime was reduced from three days to six hours. This equated to an estimated saving of $3m per failure.

In a telecoms example, ESP was used for the contextual real-time analysis of the streaming call data records – about 20,000 requests per second. According to SAS, the telecoms firm saw a 10x increase in offer acceptance – from about 3% to about 30%. In this scenario, ESP was essentially being used for marketing optimization.

Meanwhile, a major European bank used ESP for real-time fraud detection. Using a combination of tools and manual processes, the bank previously struggled with a huge number of false positives. With ESP, it was able to do real-time analysis of the transactions with very short latency to trigger real-time alerts and actions – this helped it reduce its quarterly fraud losses from $160,000 to $30,000.

Competition

Informatica, although better known for its integration software, has a streaming product called Ultra Messaging Streaming Edition. Besides that, there are also the products of former event-processing specialists StreamBase Systems, Apama and Aleri, which are now owned by TIBCO, Software AG and SAP, respectively.

Among the largest vendors with a stream-processing offering are IBM, with InfoSphere Streams, and Oracle, with Stream Explorer, which is a stand-alone event-stream-processing platform and runtime, a component of SOA Suite. Microsoft's answer is Microsoft StreamInsight, a platform that can be used to develop and deploy CEP applications.

Smaller competitors include DataTorrent, which has a stream-processing application that sits on a Hadoop cluster and can be used to analyze the data as it streams in, and SQL-based event-processing specialist SQLstream. In the open source space, there are two projects of note: Apache Storm, which is supported by a growing list of companies including Hadoop distributors MapR and Hortonworks. Another distributor, Cloudera, has added support for the Apache Spark in-memory data-processing engine and its related Spark Streaming project.

In the cloud, potential customers may also consider Amazon Web Services' Kinesis stream-processing service, which is likely to become a more popular choice, particularly where companies are streaming data into the cloud.

SWOT Analysis

Strengths

It has a well-proven data-streaming offering that has now been made considerably easier to use; the other advantage of SAS ESP is integration with other technologies in the SAS analytics portfolio.

Weaknesses

Although much improved, SAS's tendency to try and solve the most complex analytical challenges means ESP isn't the most straight-forward streaming engine around when it comes to implementation and model building.

Opportunities

We believe the demand for streaming engines is only set to rise, as companies use them to analyze fast-moving data coming from IoT, as well as filter out which data they need to keep and which can be discarded as irrelevant.

Threats

With a very broad portfolio, SAS isn't able to focus all its efforts in one product direction like some of its smaller rivals, and there's competition from some of the largest vendors too.

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