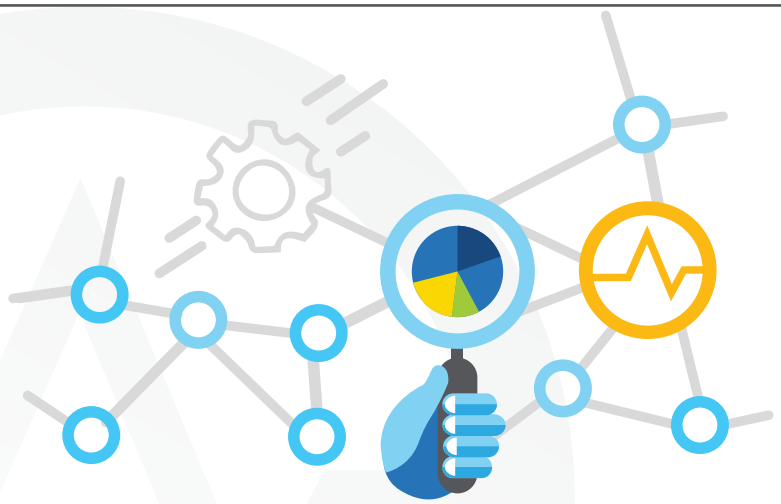
WSO2 Analytics Platform



One Platform for Data Driven Intelligence

From smart homes and smart cities to fitness devices and connected cars, Internet of Things (IoT) solutions are capturing new types of information. This vast amounts of data hold valuable keys to serving customers better, creating new business and revenue models, driving greater efficiency, and ensuring robust security.

The WSO2 Analytics Platform delivers a single, integrated open source platform to unlock the insights into these opportunities by combining the ability to analyze the same data at rest and in motion with predictive analysis. At the same time, the platform offers the flexibility to scale to millions of events, whether running on-premises or in the cloud, to support today's high-volume, highly interactive IoT, mobile and Web apps, which demand immediate responses.

Most initial analytics use cases were batch, but they take time to produce results. For some use cases (e.g. stock markets, traffic, surveillance, and patient monitoring) the value you can gain from insights degrades very quickly over time. Real-time analytics technologies support these use cases, understanding that most organizations end up with having to do both.

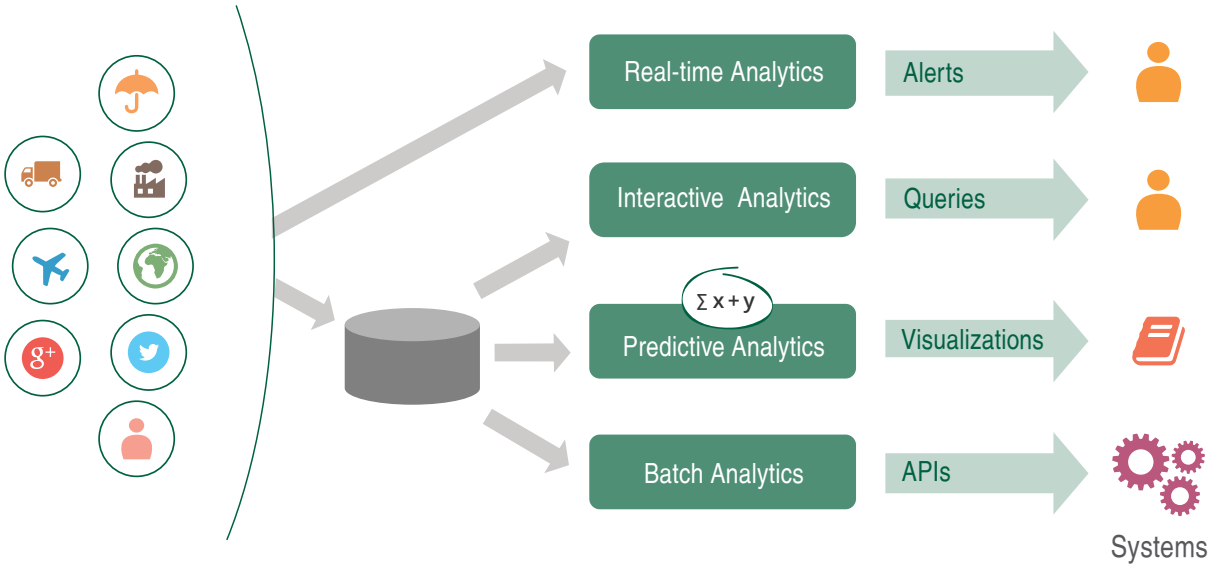
The advantages of a single platform include

1. One API to publish events to both batch and real-time pipelines.
2. Run the similar query in batch pipeline and real-time pipeline. (a.k.a Lambda Architecture)
3. Train a machine learning model (e.g. Fraud Detection Model) in the batch pipeline, and use it in the real-time pipeline. (use cases: fraud detections, segmentation, predict next value, predict churn)
4. Detect conditions in the real-time pipeline, but switch to detail analysis using the data stored in the batch pipeline. (e.g. fraud, giving deals)

The streaming analytics offering of the platform was recently named a Strong Performer in The Forrester Wave™: Big Data Streaming Analytics, Q1 2016 report, the report notes.

"WSO2 is an open source middleware provider that includes a full spectrum of architected-as-one components, such as application servers, message brokers, enterprise service bus, and many others. Its streaming analytics solution follows the complex event processor architectural approach, so it provides very low-latency analytics."

How the WSO2 Analytics Platform lets you build analytics applications



Collect data:

- Define schemas for your data (via event streams) in JSON.
- Publish events from IoT devices or any part of your architecture through many languages such as Java, JavaScript, C++, C# and more.
- Send events to batch pipeline, real-time pipeline, or both via configurations.

Analyze: If you can afford to wait for results (e.g. 10 minutes), events are stored and processed at regular intervals. We call this batch analytics. If you need to take decisions based on a stream of events within sub-second latency, we call that real-time analytics.

Using the WSO2 Analytics Platform, you can:

- Define batch analytics with SQL-like queries written with Spark SQL.
- Define real time analytics with SQL-like queries written with Siddhi Query Language.
- Predict outcome in real time using machine learning models.
- Explore data with ad hoc queries.

Communicate: Communicate the results and cover the last mile with

- Alerts: Detect conditions using the real-time engine and take decisions when conditions are met. Decisions can take many forms and include alerting users via email or SMS, pushing notifications to mobile apps or pagers, invoking services or business processes, triggering a physical alarm, or generating another event stream for further analysis. The real-time engine comes with a predefined set of alerts, which can easily be extended.
- Visualize: Build clear, visually appealing, customizable dashboards and give users an “overall idea” at a glance. Then, let them drill down and uncover the details. The WSO2 Analytics Platform includes a series of tools to help you build dashboards via a drag-and-drop interface.
- Share: Expose analytics results as APIs beyond the boundaries of the organization using API management to secure APIs and control when, how, and by who the data is accessed.

Predictive Analytics

Predictive analytics lets you learn “logic” from examples where such logic is complex. For example, you can build “a model” using machine learning algorithms applied to historical data about fraudulent and non-fraudulent transactions, and use that model to detect fraudulent transactions.

The WSO2 Analytics Platform supports predictive analytics in multiple forms:

- Use the Machine Learner wizard to build machine learning models that you can use within your business logic. You can execute those models as part of real-time queries, WSO2 Enterprise Service Bus integration flows, or from the machine learning engine itself.
- R is a widely used language for statistical computing, and you can build models using R, export them as PMML (an XML description of machine learning models), and use the models within the real-time analytics engine. In addition, you can directly call R Scripts from real-time queries.
- The real-time analytics engine also include several streaming regression and anomaly detection operators.

IoT/Edge Analytics

The WSO2 Analytics Platform provides a solid foundation for an IoT analytics solution, should it be for device manufacturers or device users allowing customers to

- React in a few hours, a few minutes, or a few minutes to a condition, leveraging batch and streaming analytics.
- Implement closed loop control (autonomic computing) leveraging machine learning.
- Embed streaming engine in IoT devices or gateways.
- Use an SDK and data agent to directly publish events at the device hardware level.

WSO2 Advantages

Single Platform ▸ Deliver a single platform to address all analytics styles

High Performance ▸ Processing 100k of events per second (30X faster than Apache Hadoop)
Finalist for DEBS Grand Challenge 2014
(800,000 events per second with 4 nodes)

Easy to learn and adapt ▸ High level SQL Like language | No Java programming involved | Lowest learning curve

Highly available and scalable by design ▸ Increase the usage of platform independent of client applications. Each component of the Analytics platform can scale independently, and leverage leading open source projects, such as Apache Storm and Spark

Ready-To-Use Solutions

The WSO2 Analytics Platform can be used to implement a wide variety of use cases, from managing smart cities to targeted marketing. We have built a Fraud and Anomaly Detection Solution through Static Rules, Markov Chains, and scoring. When an alert is triggered, it allows you to zoom in and interactively analyze each alert through visualizations, and to make appropriate decisions.

The WSO2 Analytics Platform is available as WSO2 Data Analytics Server. Customers also have the possibility to buy the real-time analytics engine separately as WSO2 Complex Event Processor or machine learning capabilities as WSO2 Machine Learner.

WSO2

Contact bizdev@wso2.com for more details
on how we can help with your next enterprise IT project.