



CASE STUDY

SIRIUS BUILDS A CLOUD-BASED IOT PLATFORM FOR REAL-WORLD DRIVER SCORING



DOWNLOAD THE WHITE PAPER

Learn more about this solution in the white paper, *High-Throughput IoT Data Platform* by Sirius Chief Technology Officer Ramana Reddy Depa.

THE CLIENT

A tech startup that provides telematics and predictive analytics to insurers and other organizations in the transportation industry.

THE CHALLENGE

The client needed help building a scalable data platform that leverages driver data and predictive analytics.

THE SOLUTION

Sirius Managed Services' Advanced Applications Group (AAG) designed and implemented a production-grade platform that employs telematics on the Amazon Web Services® (AWS) cloud. It can house and scale multiple products that consume and realize analytical insights based on driver behavior. The platform will allow the data insights client to provide automotive telematics services that score drivers based on actual behaviors for such things as improved risk assessments and safety ratings among other services.

THE RESULTS

The IoT platform leverages IoT sensors to ingest 250,000 transactions per second and run analytics to create real-time driver scores and other analytics. The extensible platform is processing one-billion transactions per week and can ingest more volumes as needed.



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TELEMATICS AND PREDICTIVE ANALYTICS FOR THE TRANSPORTATION INDUSTRY

When the client first engaged Sirius AAG, it was providing driver-related analytics to a large automobile insurer using legacy applications. Sirius AAG was engaged to review the application architecture and the availability of the legacy applications and provide recommendations to support exponential increases in data volumes. The system uses smartphone apps and add-on devices to collect transmitted mobile data, or automotive telematics, about drivers' behaviors. The end product is a driver scoring system that monitors aggressive driving by tracking acceleration and braking speeds among other things. Location is also assessed as part of the score; for example, a driver traveling on a freeway in clear weather is at lower risk than a person driving through a bustling metropolis late at night in a snowstorm. All this data is crunched and used. The company is also providing telematics and predictive analytics to other transportation companies for such things as efficient routing and gas usage.

HOW IT CAME TOGETHER: DESIGNING AND BUILDING THE PLATFORM

Sirius AAG was tapped to design, build and implement the client's IoT data platform, a production-grade, high-volume platform that can ingest 250,000 transactions per second and run analytics to build driver scores, and can scale as required. To date, the client is processing one-billion transactions per week. Sirius AAG executed the project in two main phases over 15 months. Phase 1 defined the logical design of each moving part in the tech stack of the data platform, including its role, characteristic and scope of integration. In Phase 2, Sirius developed the physical model of the data platform, ensuring that it was built to provision the platform with one-click access and to enable tenants to onboard and use its various features and functions.

THE BENEFITS

- The platform is a foundation for breakthrough solutions such as real-time, real-world driver scores for an unlimited number of drivers.
- The client monitors drivers who opt into the service in return for insurance discounts and potential lower insurance rates for demonstrated safe driving.
- Shared-transportation clients are using the service to rate their drivers based on actual driving behavior.
- The platform has the ability to support usage-based insurance and other related insurance products.
- New breakthrough services focus on transportation routing and gas consumption efficiencies.

You can learn more about this solution in the Sirius white paper, *High-Throughput IoT Data Platform*, which provides technical details of the solution with a focus on the approach and implementation of each architecture component, as well as trip data processing and global tracing.

ABOUT SIRIUS

Sirius is a national integrator of technology-based business solutions that span the data center and lines of business. The Sirius Managed Services Advanced Application Group helps clients modernize, transform and migrate applications to cloud-delivered platforms. Call Sirius today to schedule a discussion of your needs at 800-460-1237.

SOLUTION COMPONENTS

- **Amazon Web Services (AWS):** Cloud technologies
- **Apache™ Ambari:** Central management, administration and consistent security LDAP sync
- **Apache Ambari Agent:** Collecting metrics data from each data node
- **Apache Hadoop® Distributed File System (HDFS):** Storage of raw data
- **Apache Hive™:** External tables that mimicked the table structures of Cassandra ODS
- **Apache Kafka®:** Message encryption
- **Apache Ranger:** Role-based security for authorization for users to consume external Hive tables
- **Apache Sqoop™:** Data ingestion from enterprise data warehouse to platform
- **Apache Zeppelin:** Interactive data exploration and inference analysis
- **Apache ZooKeeper:** A single zookeeper quorum was maintained between HDP and HDF (NiFi)
- **Grafana:** Metrics monitoring, alerts and notifications
- **Hortonworks DataFlow (HDF):** Scalable, real-time streaming analytics platform
- **Hortonworks Data Platform (HDP):** Distributed storage

