Syncfusion®

TRACKING AND ANALYZING TRUCKING DATA

Case Study on

FROTCOM®

Vehicle Tracking - Fleet Intelligence

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TRACKING AND ANALYZING TRUCKING DATA WITH A SCALABLE BIG DATA SOLUTION

Frotcom provides an intelligent GPS vehicle tracking system for fleet management. Frotcom, headquartered in Portugal, has provided solutions in this field since 1996 and is trusted by fleet operators in more than 30 countries. With Frotcom, customers can locate their vehicles, communicate with drivers, control their fleet's costs, and access detailed vehicle usage patterns.

CHALLENGE

Frotcom relies on input from GPS and other sensors to track and record vehicle movements. Each data point received from vehicles was stored in a SQL data store for further processing and reporting. As Frotcom was expanding rapidly into many new markets and acquiring new customers in current markets, the total amount of data being stored was also expanding at a very fast pace. Frotcom projected that several terabytes of data would need to be stored efficiently in order to continue to expand at their current pace.

Frotcom was finding it difficult to scale their current data center to handle the size of loads they were experiencing. Scaling was prohibitively expensive, though technically feasible. As the data stored in their SQL solution increased, the time required to run routine reports was also increasing and was expected to soon reach unacceptable levels.

SOLUTION

Syncfusion worked closely with Frotcom to identify data storage patterns, and concluded that much of the data could be more effectively stored in an Apache Hadoop-based data warehouse. Such a warehouse offers essentially unlimited horizontal scalability with commodity hardware or, better yet, inexpensive cloud-based offerings
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Once stored in a Hadoop warehouse, data can be analyzed in a scalable manner using batch processes written in Java, C#, Python, or higher level languages such as Hive and Pig. Frotcom required a real-time web layer always be available to the company's customers. Syncfusion proposed combining batch-layer reporting with real-time reporting, provided by a caching layer to be implemented using Apache Cassandra. A subset of the data was also replicated in Cassandra to ensure that up-to-date views were always available for certain classes of reports.

Existing data would be imported into the Hadoop data warehouse using Apache Sqoop. Once the initial import was done, ongoing data would be received using a highly available queuing system, Apache Kafka. This would ensure there would be no single point of failure and that the system would be available at all times to accept incoming data.

The reporting UI was to be implemented using Syncfusion's web frameworks.

Syncfusion presented an end-to-end solution to Frotcom, and also implemented a working proof-of-concept that included all layers of the solution.

The proposed solution offered Frotcom the following benefits:

- **Minimal risk** - Used industry-standard tools that are widely used and have a solid track record.
- **Lower license costs** - Involved no additional licensing costs.
- **Commercial support** - Available for all aspects directly from Syncfusion.
- **Easy scaling** - Supported horizontal scaling with commodity hardware.

Frotcom was pleased with the results and initiated work on a solution that implemented Syncfusion's recommendations. Syncfusion will stay involved during the process, offering commercial support as needed.

The Syncfusion Big Data Platform integrates big data products and services in one compelling offering, making it easy to obtain big data expertise and tools, especially for developers working on the Microsoft Windows platform. It allows developers to easily work with Apache Hadoop from within the Windows environment, and deploy to local Hadoop clusters or cloud-based clusters such as those hosted on Microsoft's HDInsight.