Syncfusion®

A REAL-WORLD DESIGN FOR THE INTERNET OF THINGS

Case Study on

RUDOLPH
TECHNOLOGIES

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A REAL-WORLD DESIGN FOR THE INTERNET OF THINGS

Rudolph Technologies, Inc. is a worldwide leader in the design, development, manufacture, and support of defect inspection, advanced packaging lithography, process control metrology, and data analysis systems and software used by microelectronic device manufacturers worldwide. The company's expanding portfolio of equipment and software solutions is used in both the wafer processing and final manufacturing of integrated circuits, and in adjacent markets such as flat panel displays, LED production, and solar energy.

Equipment provided by Rudolph Technologies generates a vast amount of data. Such data is valuable for analyzing machine performance and usage, and it is vital to store and process every bit of it effectively. The data is kept in an Oracle SQL data store.

CHALLENGE

Rudolph Technologies was looking to migrate to a system that was easier to scale while still maintaining the responsiveness of their current solution. They had reviewed several options for resolving their challenge.

The challenge was to produce a system that would be cost effective, easy to scale, and still remain as responsive and up-to-date as its current solution. A concurrent challenge was to provide a seamless transition to current applications built around an Oracle backend.

SOLUTION

Since data produced by the machines was similar to log data, it was evident from the beginning 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, and better yet, inexpensive cloud-based offerings. Once stored in the 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.

Real-time reporting requirements were met by replicating a set of the data in Apache Cassandra.
Rudolph Technologies' existing applications called back into its data store using an Oracle Call Interface backend provided by the data store. Syncfusion recommended and implemented a suitable backend using industry-standard web services. These services were designed to be consumable on any platform, including mobile platforms.

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

The proposed solution offered Rudolph 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.

Rudolph Technologies was pleased with the results. It decided to implement Syncfusion's recommendations as part of its long-term data management strategy. Syncfusion will stay involved throughout 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.