Global engineering solutions provider gains real-time data and predictive maintenance analysis to improve train uptime, lower costs and enhance customer experience

"Our customers get more mileage from fewer trains. Data analytics can speed up the root-cause analysis, reducing labor time. It is all about increasing up-time and avoiding unplanned downtime. If we predict incidents early enough, we—and our customers—can react accordingly."

Gerhard Kress, Director of Mobility Data Services, Siemens

Business challenge

Across Europe, billions of Euros are being spent for upgrading rail infrastructure. National governments are investing in faster intercity trains, rail electrification and flexible commuter train concepts, with an objective to carry more rail passengers, on more trains, running more regularly, with on-time arrival, at a lower cost. To be effective, this complex network of trains, rails and carriages needs to run at peak performance.

Siemens is a leader in engineering solutions for the rail industry, offering a wide range of systems and services for signaling, control and communication for main line, metro and light rail. Siemens is the first company to provide digitalization in rail transport and to operate a special data analytics center, led by Siemens Mobility Data Services. Siemens goes beyond rail hardware by using data from more than 300 sensors on each train and overlaying this with historical data with the key aim to predict when components might fail.

Dubbed the "Internet of Trains," this IoT-driven approach ensures greater uptime for train operators, fewer delays for passengers and more cost-effective maintenance. For Siemens, the challenge is not the collection, but the storage, management and analytics of this huge variety of data for its 300+ sensors per train. Working internationally, the company must ensure the data is stored according to local laws, yet it must do so by the most cost-effective means possible.

SIEMENS

Customer profile

Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for 170 years. The company is active around the globe, focusing on the areas of electrification, automation and digitalization. One of the world's largest producers of energy-efficient, resource-saving technologies, Siemens is a leading supplier of efficient power generation and power transmission solutions and a pioneer in infrastructure solutions as well as automation, drive and software solutions for industry.

The company is also a leading provider of medical imaging equipment—such as computed tomography and magnetic resonance imaging systems—and a leader in laboratory diagnostics as well as clinical IT. In fiscal 2017, which ended on September 30, 2017, Siemens generated revenue of $101.9 B/€83.0 Mrd. with 377,000 employees worldwide.

Headquarters
Berlin and Munich, Germany

Siemens.com

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Solution

To help solve the challenges, Teradata® partnered with Equinix to provide an interconnection-first approach to its cloud-based, active disaster recovery solution. Teradata is a provider of business analytics solutions, data and analytics solutions, and hybrid cloud products and services. The company has found its success in uniting varied and multiple siloes of data, and empowering customers to extract valuable insight.

"We're in the business of big data," said Gerhard Otterbach, Sales Team Manager, Teradata Germany, "which means a huge variety, volume and velocity of data, created at speed and needing to be accessed by many users. The rise of IoT, and the huge volumes of data generated, makes our offerings even more important."

By deploying on Platform Equinix®, Siemens re-architected its IT service management infrastructure for a digital edge by integrating digital and cloud technologies, while optimizing automation, improving reliability and boosting performance. Equinix enables Teradata to directly and securely interconnect to leading network and cloud providers via Equinix Cross Connects and Equinix Cloud Exchange Fabric™ (ECX Fabric) for greater performance at a lower cost.

For Siemens, the Teradata Analytics Platform provides an exceptional range of analytic tools and capabilities to evaluate the combined IoT data from different perspectives in near real time. It can predict engine problems and identify failed elements that triggered the malfunction of other components as much as three days in advance of the problem impacting. The data is kept away from the Siemens corporate network by accessing it through the Teradata platform.

Benefits and business results

- Ensures availability of data in real time, supporting predictive maintenance planning and optimization of the supply chain

- Creates a service differentiator, with an opportunity to leverage predictive maintenance to evolve into a whole new business model

- Enables easy and flexible scale opportunities, allowing the company to add locations for data capture to scale IT up or down capacity as required

- Provides customers nearly 100% reliability of rolling stock for better usage of assets and cost reduction
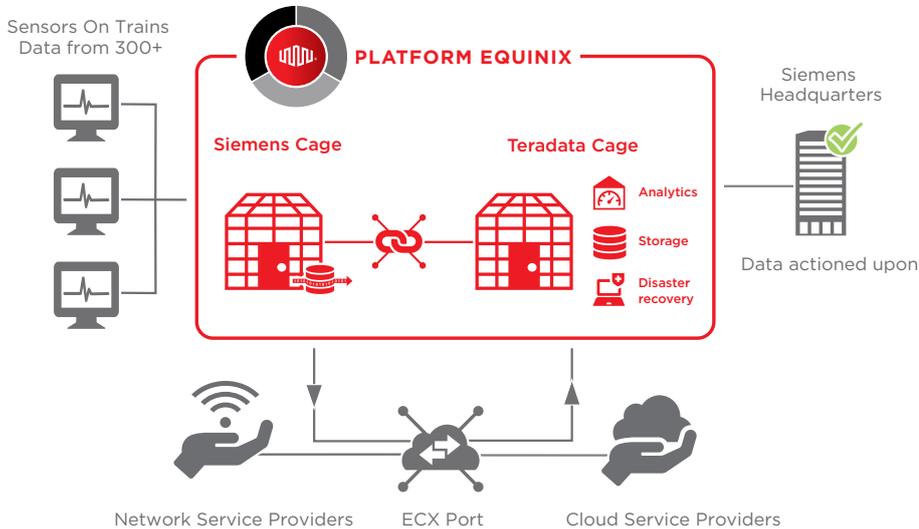
Value realized

For Teradata, working with Equinix enabled Siemens to scale its worldwide business quickly, with access to leading cloud and network partners. This continues to allow Teradata to meet local data privacy requirements and ensure regulatory compliance.

The Teradata relationship with Equinix supports a long-term strategic view of the way big data customers will approach the market. Teradata research suggests that 90% of its customers will adopt a hybrid deployment by 2020 by using a hybrid solution of on-premises and cloud resources, while 85% are expected to want this as a service.

About Teradata

Teradata empowers companies to achieve high-impact business outcomes through analytics. With a powerful combination of industry expertise and leading hybrid cloud technologies for data warehousing and big data analytics, Teradata unleashes the potential of great companies. Partnering with top companies around the world, Teradata helps improve customer experience, mitigate risk, drive product innovation, achieve operational excellence, transform finance and optimize assets.

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PLATFORM EQUINIX

Sensors On Trains Data from 300+

Siemens Cage

Teradata Cage

Analytics
Storage
Disaster recovery

Siemens Headquarters

Data actioned upon

Network Service Providers

ECX Port

Cloud Service Providers

Platform Equinix enables Teradata and Siemens to realize the "Internet of Trains" by directly and securely interconnecting to leading network and cloud providers within Equinix.

"Firstly, we have the global reach with Equinix, but we also have the professionalism," said Otterbach. "We can invite any customer in to audit an Equinix data center, as the Equinix services are highly secure, high performant and highly scalable."

The success of predictive maintenance may also see a shift in Siemens' business model, which is disrupting the rail industry. Rather than paying up front for a purchase, Siemens customers might pay a fee based on engineering uptime. If the train is fully operational, customers will pay an ongoing fee. This creates a point of differentiation for Siemens compared to other train OEMs.

"We are able to provide completely new services with uptime guarantees, risk-sharing models and performance-based contracts for mobility systems," Kress said.

About Equinix
Equinix, Inc. (Nasdaq: EQIX) connects the world's leading businesses to their customers, employees and partners inside the most-interconnected data centers. In 48 markets across five continents, Equinix is where companies come together to realize new opportunities and accelerate their business, IT and cloud strategies. In a digital economy where enterprise business models are increasingly interdependent, interconnection is essential to success. Equinix operates the only global interconnection platform, sparking new opportunities that are only possible when companies come together.

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