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## About GE

General Electric is the world’s Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive, and predictive. GE is organized around a global exchange of knowledge, the “GE Store,” through which each business shares and accesses the same technology, markets, structure, and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology, and scale, GE delivers better outcomes for customers by speaking the language of industry.

## Building custom industrial applications that don’t rely on a network

**GE Digital uses Couchbase to help ensure applications always work—even in remote locations**

Sensors on state-of-the-art machines are opening new opportunities for organizations to resolve equipment problems and improve efficiencies in real time. But the vast amounts of data generated by those machines are also creating challenges for organizations.



**The Challenge: Power a revolutionary software platform regardless of network connectivity**

GE Digital’s software team developed an innovative solution to address these data challenges head-on. The team’s Predix cloud-based platform allows organizations to build tailored mobile apps that help field personnel collect and analyze data from intelligent machines.

The initial release of Predix was a great step toward helping field workers monitor, maintain, and troubleshoot equipment. But the GE Digital team also learned that Predix required a data platform that could provide strong stability without relying on internet connectivity.



**The Solution: Transforming businesses with help from Couchbase**

The Couchbase NoSQL data platform for mobile and web offered the synchronization capability GE needed. Thanks to the flexible base model from Couchbase, GE was able to migrate to the new solution, replacing all of functionality built with the first version, in 30 days. “With Couchbase, my top engineers didn’t have to focus on the mobile sync and data management challenges anymore,” says Michael Hart, director of Predix mobile engineering at GE Digital. “That meant I could instead focus our engineering resources on the core features of our platform.”

By connecting industrial equipment, analyzing data, and delivering real-time insights, Predix-based apps help unleash new levels of performance for GE customers. Organizations can optimize machine performance, prevent failures, and make sure field personnel are working where they’re needed most.

## SOLUTION:

- Field Service
- IoT Data Management

## APPLICATION:

Industrial IoT data collection and analysis

## USE CASE(S):

- User profile
- Operational dashboarding
- Endpoint/device management

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## The Benefits: Enabling secure, seamless data delivery from even the most remote locations

### Gaining easy offline support

With Couchbase integrated into Predix, data is stored locally on workers’ mobile devices, so their Predix-powered app continues to work, even when they’re offline. When the network becomes available, data is automatically synchronized to the cloud in a process that’s secure, seamless, and invisible to the user. “Offline support is hard to do right,” says Hart. “Couchbase Mobile gave us a great starting place and allows us to better support our customers.”

### Enabling complex customer analytics

To support analytics, Predix must integrate with customers’ enterprise resource planning software and other backend systems. With Couchbase, GE Digital can allow organizations to write custom logic in Predix to sync data between Couchbase’s Sync Gateway and their own enterprise systems. GE Digital built the integration component on Predix using Couchbase’s APIs so data flows smoothly without affecting the user experience.

### Supporting more complex, flexible data modeling

Couchbase Mobile allows the Predix platform to provide richer, more complex, and more flexible data modeling because all of the data is stored and transmitted as JSON. JSON is supported on the device, in the database, and across all of the APIs. “To deliver a fully featured platform for our customers, we couldn’t make a trade-off between data complexity and offline access,” says Hart. “Couchbase allows us to offer both.”

### Providing data management and processing options

Couchbase Mobile offers flexible data management and processing options for Predix, enabling GE customers to tailor their solution to their particular requirements. “Our customer use cases are all unique—we can’t limit ourselves to a set of simplistic data processing options,” says Hart. “Couchbase allows us to offer a variety of solutions within the same data management platform to support the diverse kinds of solutions that connect workers in very harsh environments.”

### Achieving award-winning IoT

GE Digital’s implementation of Couchbase Mobile was named a winner of TechTarget’s 2017 Modern Mobility Innovation Awards for providing offline and synch capabilities for Predix. According to Hart, “Couchbase delivers the technology that allows us to connect vast parts of the economy that were previously remote and isolated—it’s a revolutionary way to engage with the machines powering our lives.”

### Learn more

Visit [couchbase.com](http://couchbase.com) to learn more about the enterprise-class NoSQL database built for business-critical applications.

### About Couchbase

Couchbase’s mission is to be the database platform that enables a revolution in application innovation. To make this possible, Couchbase created an enterprise-class NoSQL database to help deliver ever-richer and ever more personalized customer and employee experiences. Built with the most powerful NoSQL technology, Couchbase was architected on top of an open source foundation for the massively interactive enterprise. Our geo-distributed database provides unmatched developer agility and manageability, as well as unparalleled performance at any scale, from any cloud to the edge.