

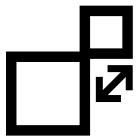
# Maximizing the Value of Heavy Machinery

GroundHog enables mining companies to capture vital data underground and in remote locations with Couchbase





GroundHog creates intuitive and reliable mobile apps that drive transformational results in physically demanding, capital-intensive industries such as mining. Using GroundHog solutions such as rapidInspect and formHound, mining companies are tracking performance and capturing vital data from equipment deployed above and below ground. Companies can use this data to optimize fleet management, improve worker productivity, streamline inspections, reduce equipment downtime, and more. With Couchbase, GroundHog can empower its customers to optimize resources and protect miners in the harshest, most remote locations.



## THE CHALLENGE: Deliver easy sync without excessive development

Mining companies need efficient ways to collect information about machinery and people. “Companies might want to determine how many hours a piece of equipment has been in use and track its pattern of usage,” says Krishna Kunam, chief technology officer with GroundHog. “With that data, they can identify equipment that requires preventative maintenance or replacement parts without the time, effort, and opportunity cost of returning that equipment to the maintenance shop. They can also monitor fleet movement and track performance so they can maximize the utilization of equipment and enhance worker productivity.”

With GroundHog solutions on their mobile devices, mining personnel can collect data easily and accurately, and seamlessly transfer this data to a backend database – thereby eliminating time-consuming, error-prone manual data entry.

But there are some challenges. “Mining sites are often in remote locations that lack dependable network connectivity,” says Kunam. “When equipment is underground, there can sometimes be no connectivity at all. Our apps have to capture data without requiring Wi-Fi or cellular service and then reliably sync data with a database when a connection becomes available.”

Initially, GroundHog developed its own sync functionality. “We invested a lot of time and money building that capability,” says Kunam. “But we should have been focusing on enhancing our core features and building out the experience for collecting, reviewing, and analyzing data.”

“To use an analogy, we realized that we should concentrate on building a better car and let a transmission expert build the transmission,” says Aniket Sawant, vice president of product at GroundHog. The GroundHog team began searching for a new data platform with a built-in sync capability. The team also needed a platform that could support both cloud and on premises deployments to match a variety of customer preferences.

The new platform also had to be robust and reliable. “Mining companies take safety very seriously. When they use our apps to monitor the maintenance status of equipment, potentially life-changing information is flowing through the system every minute,” says Sawant. “All data captured with mobile devices must be sent to the database without delay or error.”





## THE SOLUTION: Unearthing the robust Couchbase sync capability

**To support customers in mining, manufacturing, construction, and other fields, GroundHog needed a data platform that could:**

- Support an offline app mode by providing robust sync capabilities
- Offer the flexibility for both on-premises and cloud deployments
- Deliver the resiliency to maintain uptime and the reliability to protect critical data

The GroundHog team first tried a mobile backend as a service platform, but it couldn't support on-premises deployments. "Many of our customers want an on-premises solution, with the database running in their datacenter," says Kunam. "So we can't use a cloud-only data platform."

The team also tried open source platforms, such as Apache CouchDB and MongoDB. "In each case, it was a huge exercise, and we ran into important limitations with offline support," says Kunam.

Ultimately the team decided to migrate to Couchbase, which supports offline mode and offers robust sync. "The sync capability was the tipping point for choosing Couchbase," says Kunam. "Everything else was a bonus."

Chief among those capabilities were the platform's reliability and resiliency. "Our data platform has to be robust to make sure data is captured and transmitted quickly and without errors—and Couchbase is robust," says Sawant.

Couchbase also helps minimize solution downtime. "If a server goes down, an administrator can easily pull up another instance of a virtual machine and have it join the cluster," says Kunam. "Our customers can keep working without interruption."

The company deployed an Engagement Database, with Couchbase Server and Couchbase Sync Gateway supporting three key GroundHog solutions used by mining customers: rapidInspect and formHound. Both rapidInspect and formHound are cloud-based apps while GroundHog is supported by on-premises infrastructure.

The complete switchover to Couchbase took under eight months. Assistance from a Couchbase engineer helped ensure a smooth transition. "Having an expert sit down with our development team and point them in the right direction made a huge difference," says Kunam. Several mining customers have deployed GroundHog solutions based on Couchbase, including Barrick Gold Corporation—the largest gold mining company in the world. "Every ounce of gold extracted by Barrick at one of its premier mines—almost a billion dollars worth on an annualized basis—passes through our GroundHog app and therefore through Couchbase," says Sawant.





## THE RESULT: Developing new innovative apps faster than before

“Companies are likely to increase data collection for each mine and add more mines every year. With Couchbase, they have the scalable performance for supporting increasing data volumes without jeopardizing the responsiveness of apps.”

—KRISHNA KUNAM,  
CHIEF TECHNOLOGY OFFICER

**GROUNDHOG**  
CONNECTED MINE SOFTWARE

### ABOUT GROUNDHOG

GroundHog creates intuitive, reliable, and scalable apps for some of the world's largest companies. Its products and solutions are focused on solving complex, mission-critical problems and driving digital transformation across mining, oil & gas, construction, and more. Based in Silicon Valley, GroundHog counts global industry leaders such as Cargill, Barrick Gold, Freeport-McMoRan, AECOM, and Atlas Copco among its customers.

### Gaining scalable performance for significant data growth

The Couchbase Data Platform delivers the scalable performance that mining companies need for supporting rapidly rising data volumes. “Just one mine, in one year, might collect 800GB of data,” says Kunam. “Companies are likely to increase data collection for each mine and add more mines every year. With Couchbase, they have the scalable performance for supporting increasing data volumes without jeopardizing the responsiveness of apps.”

Mining companies often must retain that data for several years. “To comply with mining safety and health regulations, mining companies might need to keep equipment inspection data for ten years,” says Kunam. “By using Couchbase, we enable our customers to scale their environment seamlessly so they can retain and access large data volumes for long periods of time.”

### Refocusing on innovation

By eliminating the need to develop and manage database sync capabilities in-house, the GroundHog team has been able to refocus its efforts on building new apps, solutions, and experiences. “We no longer have to spend time and money developing all the backend technologies,” says Kunam. “With Couchbase, we can concentrate on delivering innovative user experiences that meet our customers’ evolving needs.”

### Accelerating time to market for new products

Adopting the Couchbase Data Platform has helped the GroundHog team speed up development of those new apps. “It took us about four years to develop our own sync capabilities,” says Kunam. “But we fully implemented Couchbase in less than eight months. As a result, we were able to start rolling out new products much faster than before.”

### Boosting revenues by using a robust, trusted data platform

Switching to Couchbase has given GroundHog customers even greater confidence in the company's apps. “Our customers see Couchbase as a very stable platform,” says Kunam. “We're able to sell more because mining businesses know that we've built our solution on a reliable, trusted foundation.”





## LOOKING AHEAD: Integrating big data capabilities

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As more mining companies start using Internet of Things (IoT) sensors on underground equipment, they will need solutions that can collect and analyze even greater volumes of data. “Mining companies could generate insights that help them find the fastest, most efficient ways to extract minerals,” says Kunam. “With Couchbase, we know we have a foundation for incorporating big data analytics capabilities and other features that help mining companies capitalize on these important new data resources.”

### Learn More

Visit [www.couchbase.com](http://www.couchbase.com) to learn more about the Couchbase Data Platform, built on the world’s most powerful NoSQL technology.



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Modern customer experiences need a flexible database platform that can power applications spanning from cloud to edge and everything in between. Couchbase’s mission is to simplify how developers and architects develop, deploy and consume modern applications wherever they are. We have reimagined the database with our fast, flexible and affordable cloud database platform Capella, allowing organizations to quickly build applications that deliver premium experiences to their customers—all with best-in-class price performance. More than 30% of the Fortune 100 trust Couchbase to power their modern applications.



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