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— T.J. Crawford,
Founder & CEO,



About Innovative Transit Solutions

Innovative Transit Solutions is helping transit agencies increase ridership with a powerful suite of consumer-focused payment and fare management products. Transit Cloud was built from the ground up to let agencies focus on serving their riders and communities through an open, omnichannel fare solution. By providing the most frictionless rider experience, delivering real-time rider insights, and reducing systems management nightmares, agencies are seeing ridership growth and improved operations.

Next-generation Transit Ticketing

Innovative Transit Solutions provides a fast, convenient experience for mass transit riders with Couchbase

Innovative Transit Solutions grew out of an initiative to modernize fares for the Las Vegas Monorail—a 3.9-mile transit system that provides an easy way to explore the city’s casinos, hotels, shops, and other sites. Transit Cloud—the company’s fare solution—offers digital alternatives to traditional magnetic-stripe tickets, giving riders a convenient way to purchase and validate fares.



The Challenge: Transform how riders buy and use transit tickets

To support the end-to-end solution, which stretches from backend payment processing to edge-of-network station gates, Innovative Transit required a database with low-latency performance. “When a rider scans a ticket at a gate, the gate has to open quickly,” says T.J. Crawford, founder of Innovative Transit. “We needed a data platform that would let us provide a seamless, responsive experience for riders.”

The solution also had to provide offline functionality. “If you keep all account information in the cloud and the cloud service goes down for any reason, the gates won’t open. That will cause huge problems for riders and transit organizations,” says Crawford.



The Solution: Capitalizing on strong performance and offline capabilities with Couchbase

The company selected Couchbase as the database for its end-to-end transit fare solution. “Couchbase delivers strong performance and supports the offline mode we need to keep riders moving,” says Crawford.

The Transit Cloud architecture includes a cloud-based Linux server running the company’s custom application. The application supports online purchases plus self-service kiosks and customer service booths at stations. Within stations, each entry gate has a small-form-factor PC running Couchbase. When riders scan a digital ticket or the barcode on a printout, Couchbase validates the ticket and opens the gate. Couchbase replicates redemption information back to the application running on the cloud-based server.

SOLUTION:

Customer 360

APPLICATION:

Transit fare solution

USE CASE(S):

- Mobile data management
- Operational dashboarding
- Session store
- Shopping cart
- User profile store

“By integrating the transit fare with the ConExpo badge, we helped boost ridership by nearly 30%, and increased revenue by an even more impressive 50%, compared with the previous year’s show.”

— Ingrid Reisman,
Chief Marketing Officer



The Benefits: Providing a smooth rider experience and gaining a platform for innovation

Moving from initial pilot to large-scale deployment in a few months

The company conducted an initial pilot of Transit Cloud with 10,000 users during the Consumer Electronics Show (CES) in early 2017. The successful pilot enabled the company to undertake a larger-scale deployment for ConExpo-Con/Agg, North America’s largest construction trade show a few months later. “We were able to scale up from a test of 10,000 users at CES to a live solution at ConExpo with approximately 136,000 people fairly easily,” says Ingrid Reisman, chief marketing officer of the Las Vegas Monorail Company (LVMC).

Spurring increased use of mass transit

ConExpo demonstrated the potential for this solution to increase mass transit ridership. “By integrating the transit fare with the ConExpo badge, we helped boost ridership by nearly 30%, and increased revenue by an even more impressive 50%, compared with the previous year’s show,” says Reisman.

“That increase suggests that providing a convenient digital ticket could help municipalities get more people out of their cars and onto mass transit,” adds Crawford.

Achieving efficient, scalable performance

The Innovative Transit team has found that Couchbase can handle a heavy load of concurrent transactions. “In our initial testing, we were able to sell approximately 40,000 fares per second without any database hiccups,” says Crawford.

During ConExpo, the Couchbase environments at the gates never approached capacity. “Even using the relatively low-power, small-form-factor PCs, the processors and memory barely exceeded 50%,” says Crawford. “That efficiency will let us expand deployments while keeping our capital costs in check.”

Delivering a fast experience for riders

Couchbase works with the other solution components to provide lightning-fast performance that keeps transit riders moving. “From the moment someone purchases a ticket to the moment it’s ready to be redeemed at a station gate is typically less than one second,” says Crawford. “That’s revolutionary speed for the transit industry.”

Focusing on innovation

Innovative Transit now has a strong foundation for innovation. Both Government and privately ran rail systems can benefit from similar innovative efficiency increases. According to Crawford, “Couchbase takes care of the data platform so we can focus on innovating our product and delivering a service that makes life easier for our customers.”

Learn more

Visit 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.