New York MTA Mobile, Cloud Push No Accident

BY JEFF ERICKSON
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New York's Metropolitan Transportation Authority has turned a time-consuming, error-prone manual process for documenting vehicle accidents into a mobile application worthy of the Western Hemisphere's largest regional caretaker of bridges, tunnels, buses, subways, and railroads.

View the video of Mia Urman, CEO of AuraPlayer, discussing how her company used Oracle Mobile Cloud Service to connect MTA's IT infrastructure to the latest mobile technology.

In the process, MTA has found a way to connect its aging, if reliable, IT infrastructure to the latest mobile technology. Here's an example of why that's so important.

For decades, the MTA's Collision Accident Reporting System (CARS) worked like this: An MTA officer called to the scene of a collision on one of New York City's many bridges and tunnels filled out a two-sided form with details of the accident and the people involved, while holding up traffic as he or she worked with police, tow trucks, maybe an ambulance—whatever it took to keep people safe and get the accident cleared. At the end of the day, the officer returned to the office and handed the form to a data entry clerk, who input the information into the desktop CARS application.

That system led to errors, however, as MTA officers tried to interpret their scrawl from much earlier in the day and as the data entry clerks mistook, say, a four for a nine in the license plate number written on a paper form. It was a process ripe for a mobile application that could capture pictures, notes, and driver information, and send an accurate account of the accident immediately to an MTA database.

The MTA's first thought was to rewrite its legacy application, built on Oracle Forms technology, in a mobile-friendly language such as Java. But the vast amount of business logic programmed into CARS over the years would take months, even years, to replicate.

Powerful Partnership

Carolyn Ortega, the MTA's chief of enterprise applications, wasn't interested in waiting. So she turned to Oracle, Samsung, and Oracle partner AuraPlayer.

In a matter of days, AuraPlayer made the Oracle Forms-based application accessible to Oracle Mobile Cloud Service, while the legacy application itself remained untouched. The MTA then used Oracle Mobile Cloud Service to create a mobile version of CARS that runs on a Samsung tablet. The mobile application is currently in field testing.

MTA officers on the scene of an accident will be able to take photos and make notes with an S-Pen stylus, using circles and arrows to show how the accident played out.

Officers fill out forms on the tablet and handwrite notes on the screen that are translated into type. The information is stored on the tablet until it's synced with the cloud. The mobile app works whether or not there's cell or Wi-Fi coverage, especially important when an officer is working in a tunnel.

The MTA is developing an upgrade that will let officers scan license, registration, and other documents and have that information populate the CARS app.

With the real-time submission of traffic accident reports, MTA can assess damage much quicker, determine if a crew is needed to repair damage, and clear the scene in much shorter time—in some cases in minutes instead of hours.

"This solves so many issues both at the scene and in our business processes," Ortega says. "Now people who are familiar with the scene of the accident enter the data directly into the system instead of the back-office staff. The backlog is cleared, and there's no more going back and forth because clerks couldn't read the handwriting."

Ortega expects the application to have a ripple effect through the organization. "The ability to process citations on location, faster, and with greater accuracy allows us to reduce errors and increase revenues over time," she says. "Today, due to a lack of quality data, summons are getting overturned when they go to court, or the officers have to do repeated visits in order to provide the required information."

The mobile version of the Oracle Forms application had existing business processes translated into REST services by AuraPlayer. The REST services communicate with an Oracle Mobile Cloud Service back end, enabling authentication and push notifications, as well as application monitoring and analytics.

"Having our CARS Mobile App connected with Oracle Mobile Cloud Service, we now have the information on how the application is being used," says Dyan Ganepola, MTA's director of IT for bridges and tunnels. "But it also gives us accurate and up-to-date information that we can provide the business, allowing them to see reports and dashboards."

Oracle Mobile Cloud Service stores the files and images in the cloud, where CARS or other applications or devices can get easy access to them.

In the Shoes of the Officer

While Ganepola was able to pull together the technology quickly, it took months to ensure that the application worked in the real world.

"We focused on putting ourselves in the shoes of the officer on the bridge," he says. "What is our critical path to getting them to clear the scene quickly and safely and also accurately capture the maximum amount of data? The officers themselves were deeply involved, reviewing the mockups and explaining how things work in the field and what they would want to have to help with their jobs."

MTA officers even helped pick out accessories, such as cases that protect the tablet and help them hold it even with gloves on. "In freezing weather officers spend less time on the bridge and don't have to use pen and paper with no gloves," Ganepola says. "Handwriting recognition, cameras, and use of the touch screen make their job a lot easier."

Ganepola had another reason for using a cloud service to extend the legacy application. "Oracle Forms has been used here for a long time, and my staff has the skills of that technology," he says. "Migration would be a multiyear, multimillion-dollar endeavor. But we needed a way to quickly deliver mobile business apps to our employees today using our existing systems."

A Bridge to the Future

For Ortega, who oversees all of MTA's applications, Oracle Mobile Cloud Service is more than a way to quickly pull together a mobile app. It's a secure, scalable foundation for consolidating the transportation authority's mobile application portfolio on one enterprise-wide architecture.

"We have embarked on an effort to modernize our IT Infrastructure," Ortega says, noting that MTA does not endorse or recommend commercial products. "With mobile capabilities, we can empower our employees and improve customer service. Now we're looking at all our different legacy applications and things that we do out in the field."

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> Chief of Enterprise Applications
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Accidents on the Verrazano-Narrows Bridge can be cleared much more quickly following the New York MTA's adoption of Oracle Mobile Cloud Service. (Image courtesy of New York MTA)

For example, Ortega wants to develop a mobile application for employees who work on a train, drive a bus, or do other field work, so that they don't have to return to the office to pick their next assignment, submit a time sheet, or select vacation time.

Likewise, she wants to develop a mobile application that will help work crews adjust when people call in sick. "How can we apply the mobile technologies we have available to us to help facilitate all the things that we do?" Ortega says.

Ganepola agrees. "We're hoping this will be a steppingstone for all future and even more complex mobilization projects," he says. "The challenges are going to be enormous because of the vast, diversified transportation system we have."

The MTA's 75,000 employees manage subways, buses, and railroads that provide 2.73 billion trips a year. Its bridges and tunnels carry more than 800,000 cars on an average workday."

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