Swiftly

VTA Liberates Its Data from the Stone Age with Swiftly

VTA provides service to California's third-largest metropolitan area, including some of the state's fastest-growing communities. In the past, it would take weeks for their customer service, planning, and IT teams to collect and analyze the data they needed to improve transit service. With Swiftly, now it takes a matter of minutes.

BY THE NUMBERS

// Saved 2 weeks per punctuality analysis by reducing data retrieval from 2 weeks to 5 minutes

// Improved real-time map accuracy by 12x by reducing delays from 120 seconds to 10 seconds

// Significantly increased uptime of their real-time apps; pushing updates to Transit App now takes 3 hours, down from 3 weeks

In the land of tech, transit data stuck in the stone age

Sometimes life in Santa Clara County in Northern California feels more like the Jetsons than the modern day. Tech campuses sprawl across the county; workers hoverboard from meeting to meeting; and even the occasional autonomous vehicle roves the streets. As the geographical center of Silicon Valley, technological innovation in Santa Clara County runs deep.

The region's transit network is no exception. Santa Clara Valley Transportation Authority (VTA) is consistently rated among the most innovative public transit systems in the nation. Yet for years, the team at VTA faced a problem. Despite a supportive board and high public engagement, a silent enemy lurked below the surface. Their transit data was in disarray.

Under the hood, VTA was less like the Jetsons and more like the Flintstones. "Our approach to data was about as unholistic as it comes," says Marshall Ballard, Senior Transportation Planner at VTA. Every department had its own set of tools for data and analysis, and only a few of their systems could talk to each other. "The worst part is that nobody knew how to solve these problems," Ballard says.

VTA

2 weeks to pull a dataset and 2-minute delays for real-time

But Ballard and his team knew exactly what was at stake with such disorganized transit data. For one, VTA's transit planners were poorly equipped to conduct short- and mid-range planning. "During one of our complete streets projects, it took 2 or 3 weeks just to get the vehicle speed data we needed to get started," Ballard remembers. And once they got the data from the operations team, they had to spend multiple days in Excel to clean it up for the analysis.

> "It was weeks of work, just for one dataset," Ballard says. "It was a painful story."

The antiquated tools also painted a foggy picture of vehicle locations for the customer service team. VTA's vehicles used radio-based tools that had a 90- to 120-second delay, which meant that real-time maps could show buses far from their true location. Worse, if something blocked the radio waves — like a tunnel or a large tree — customer service couldn't see the bus at all. "Can you imagine? If a customer called to ask where the bus was, sometimes we just didn't know," Ballard says.

Data woes erode the public's confidence

Worse still, to understand repeat performance issues, the team faced a quagmire of red tape to track down the root cause. "Customer service had to email IT, who would then email our real-time vendor, who in turn might take several days to respond," Ballard recalls. "Only then would they respond back to IT, who would relay the information back to customer service. It could take 3 weeks for our customer service team to even start their investigation."

But worst of all, VTA's disjointed tech stack was susceptible to breaking at any moment. "Our system was built on a patchwork process, where the buses were coming from one vendor, and the trains were coming from another vendor," Ballard explains. "For all that data to be used, it had to be mashed up together, which meant that every few weeks something would break on the server."

Each of these problems was irksome in its own right, but the issues combined to threaten VTA's customer experience. As time went on, public trust in VTA's on-time performance, real-time apps, and the transit system as a whole began to erode. At a time when transit ridership is trending downward nationwide, VTA knew they didn't have the luxury of cutting corners.

‘It used to take 2 weeks, now it’s a few minutes’

That’s why VTA enlisted the help of Swiftly to bring their transit data out of the stone age and into the 21st century. Swiftly has revolutionized the way VTA handles their service planning, customer service, and service reliability by seizing control of their own data and delivering the most accurate real-time information possible.

With Swiftly, now the planning team is equipped to quickly make informed decisions early in the planning process, working through several scenarios in the time it used to get through one. “On the complete streets project, now we use the Swiftly dashboard and compute whatever data we need on the fly. It used to take 2 weeks, now it’s a few minutes.” Ballard says.

> “We can look up speed information for any average of days we need. It’s all right there.”

A 12x increase in location accuracy

The customer service team, too, now has an accurate and up-to-date read on the whereabouts of every vehicle in their fleet. Instead of 90- to 120-second delays, their dynamic maps receive location data every 5 to 10 seconds. “Now our customer service team can tell callers where the bus is within a couple hundred yards,” Ballard says. “And if we need to do a punctuality analysis, there’s no back and forth with IT or other third parties. It takes maybe five minutes to pull on-time performance metrics.”

Perhaps most resounding of all, Swiftly has created a single source of truth for VTA’s real-time transit data. Because everything is based on GTFS, their data now cleanly integrates with third parties as well. Real-time information flows quickly and reliably to Transit App, the go-to customer-facing app for real-time vehicle information. “Now with Swiftly, the API pushes everything through to Transit App in a couple of hours, with no more work involved,” Ballard says. This means less time spent fixing things and more uptime for riders in the community.

Data liberated, once and for all

A self-professed "open-data liberator at VTA," Ballard sees Swiftly as one of his main tools during his quest to liberate VTA's data. "For the longest time, our data was locked up in silos, leverageable only by certain people," Ballard explains. "Now everything is easily accessible, and we're the purveyor and distributor of our own real-time information. We don't have to rely on mashing up data and pushing it to someone else to do it for us."

Gary Miskell, CIO at VTA, agrees with Ballard on these points. "Our agency was an early adopter customer real-time information, but its accuracy and reliability never fully met our expectations," says Miskell.

> "Now that we're working with Swiftly, though, our customers have a much more accurate system. VTA has seen the value that seamless vehicle location information has brought to our customers."

With Swiftly at their side, Ballard and Miskell have brought VTA's stone-age approach into the 21st century, lifting the agency into the ranks of the surrounding tech companies that have made the region famous. "Swiftly has liberated us to share our data unfettered to the customer," Ballard says. "Being able to do real-time on our own terms, it's a game changer."