

City of Frisco

AMI Designed for a Growing City: The City of Frisco's Migration from Mobile to Fixed Network

The City of Frisco, Texas is young, vibrant, and growing. This tech-savvy, water-conscious community in the Dallas-Fort Worth metro area was home to 6,138 people in 1990. Just three decades later, the population has exceeded 230,000. Before this boom, the City read its water accounts manually. By the year 2000, however, the growth meant that the Public Works Department needed to begin implementing radio frequency (RF) technology for mobile Automatic Meter Reading (AMR).

Kevin Grant, Assistant Director of Water Operations, was pleased with the longtime investment Frisco had made in its metering system from Neptune Technology Group. Over the course of several years, Grant's team had installed an average of 50 to 60 meters a week, amassing more than 50,000 accounts. Information was being captured and transmitted by Neptune's E-CODER[®])R900*i*[™], the integrated absolute encoder register/endpoint.

For years the City had collected monthly readings for its tens of thousands of connections via mobile routes, with over 99 percent accuracy. Even in meters more than 15 years old, accuracy remained greater than 98 percent. However, Grant saw the opportunity to do more, especially considering it took two meter readers nearly all month, each month, to read each account at least once.



CUSTOMER City of Frisco, Texas, Public Works Department

SERVICE TERRITORY Serves 67,000+ customers (90% residential)

SOLUTION BENEFITS Easy migration from mobile AMR to fixed network AMI with existing endpoints

Transparency for customers on actual water consumption

Conserve precious water resources

Phased implementation guided by available resources and budget

Used existing assets





Grant and the Public Works Department made the decision to implement a pilot program for fixed network metering data collection. This Advanced Metering Infrastructure (AMI) would be tested in a new subdivision that was under construction. The initial installation of 200-300 meters expanded to 600-700 over the course of six months. While the City was impressed with the efficiencies shown through the pilot, a nationwide economic downturn put a halt on further AMI installations.

By 2014, the economy improved and the need to leverage data beyond a monthly meter reading increased.

"Water's only going to get more expensive, and we need to conserve as much as possible," Grant said. "Right now, 90 percent of our customers are residential. And 90 percent of our residential customers have automatic irrigation systems. Our end goal is to empower our customer to see exactly what their water usage is, so that they can set their own budget – and save water and money."

MOVING FORWARD TO AMI WITHOUT STRANDING ASSETS

Grant endeavored to make the most of Frisco's already well-performing endpoints, a fifth of which were less than a year-old. The City moved forward from mobile AMR to fixed network AMI using its existing – and migratable – R900® technology from Neptune®. "It was the only feasible way to make the transition," Grant said. The innovative technology enabled Frisco to phase in AMI as budget allowed and implement a continuous changeout/replacement program to cycle their older meters.

Grant sees Neptune AMI as an integral part of Frisco's effort to create a Smart City. Propagation studies helped Grant and his team plot ideal locations for fixed network data collectors. As Frisco had already begun implementing the infrastructure for a Smart City, crews started installing the collectors on traffic signal poles at intersections, light poles on medians, SCADA (Supervisory Control and Data Acquisition) antennas, water storage tanks, lift stations, and weather stations across nine defined zones. Each data collector was strategically placed for a one-mile operating radius.

The collectors capture consumption data from the same endpoints as before, now at 15-minute intervals instead of once a month. As of April 2024, this information is collected from 95 percent of the meter population, which has reached more than 67,000 meters. Information is received via interleaved signals, enabling mobile and fixed network reading methods simultaneously. The Smart Water endpoint requires no programming to switch from one to the other.

"It's a win-win," said Grant. "We save on truck rolls, and we can always use mobile and handheld readings as a backup. We still use all the reading equipment we've invested in."

This also applies to human as well as technology resources. "We don't have to grow our department as fast, so we're not having to invest in new personnel."

USING DAILY DATA TO ANSWER CUSTOMER QUESTIONS

Operational efficiency has improved for the Public Works Department, as has customer service. "Before our AMI System, we answered high bill questions by being able to point to the meter's [rate of] accuracy," Grant said. Now he can pinpoint their daily consumption down to times and amounts and explain their water usage to them. "We can look at data, pull up an address, and say to them, 'We can see that you're using 2,000 gallons every Tuesday and Thursday night. Could that be your irrigation system?' They may not have known how much water they were using. It 'turns on the light bulb' for a lot of people." To help in proactive notifications to customers, Frisco incorporated the Neptune[®] 360[™] cloud-based platform, which among other advanced features, provides detection of continuous leaks.

According to Grant, "This system has helped us answer the question: 'What can we do to work smarter and provide a better product to our customer?' Information that we get back on water consumption is the single-most beneficial result so far."

In addition to improving customer service, the R900 System has made data collection more efficient for the utility.

"While we're completing the installations in our zones, we can pick up the 'leftovers' by drive-by. We couldn't do it with just two people if we weren't getting 80 percent of reads through fixed network."

Meanwhile, the AMI technology has empowered Grant's team to make the transition to more and more fixed network data collection over time.

"By not having to change out everything at once, we can continue to do business just like we do every day."



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