AT&T Business

iHydrant™ trusts AT&T connectivity to help keep critical data flowing

Business needs

A way to instantly communicate main breaks and pressure and temperature changes detected in water distribution systems.

Networking solution

AT&T Global SIM connectivity enables rapid, secure transmission of data to iHydrant customers; the AT&T Control Center makes it easy for iHydrant to deploy and manage its groundbreaking solution.

Business value

Advanced diagnostic tools enable utilities and municipalities to be proactive and prevent damage.

Industry focus

Valves and hydrants, pressure management, reducing water loss.

Size

A McWane, Inc. company: 12 iron and brass foundries, 26 manufacturing and assembly plants, and 6,000 employees worldwide.

About iHydrant™

iHydrant™, part of the McWane, Inc. Valve & Hydrant Group, is a family-owned, privately held manufacturer of waterworks products. They have been sold for more than a century across North America and around the world. iHydrant is a feature-rich monitoring tool designed to save money through problem prevention and rapid-response mitigation. Near-real-time, whole-system feedback allows utilities to identify potential problem areas and proactively maintain the system to prevent main breaks. Municipal and privately owned water utilities in the U.S. and Canada rely on iHydrant.

The situation

It's crucial to know the exact moment a water system experiences a hydraulic event or rapid pressure fluctuation. iHydrant needed a way to transmit water pressure and temperature data from hydrants to water utility distribution personnel.

Solution

AT&T Business helps iHydrant connect its devices to the highly reliable AT&T IoT network. AT&T Global SIMs provide end-to-end connectivity for iHydrant technology. The AT&T Control Center gives iHydrant the ability to deploy and manage its solution with diagnostic tools and smart process automation.

Pioneering tech for utilities

iHydrant is an innovative remote monitoring solution for water utilities. It allows for full-time water pressure and temperature monitoring through a proprietary product design. With year-round, 24/7 remote monitoring and rapid data sampling every second, the solution enables a water utility to quickly identify water main breaks before significant secondary damage and liability occur.

The solution detects water pressure spikes that are detrimental to aging water infrastructure and warns of possible low temperature pipe or hydrant freezing, which could result in leaks, icy roads, and traffic accidents. iHydrant also warns of high temperatures that can cause disinfectant depletion or possibly an algae bloom.

Waterworks industry leader McWane, Inc. started iHydrant after entering the Advanced Metering Infrastructure (AMI) market, leveraging cellular communications to offer a zero-infrastructure solution. According to iHydrant National Director Karen Siu, its success led McWane to begin exploring ways to deliver actionable data to water utility customers. "The objective was to help utilities understand what was going on below the ground in the water mains so they could be proactive," said Siu.

> "We decided to partner with AT&T because our initial cellular provider had non-coverage areas, especially in less populated areas."
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> **Karen Siu**
> **National Director, iHydrant**

The initial thought was to help understand pressure fluctuations causing pipe bursts and leaks within the utility distribution system, but later it evolved into monitoring water pressure and temperature. One of the key components for a utility in reducing water loss is managing pressure.

A commitment to the environment

Sustainability is important to McWane and iHydrant. It's not just water conservation. Products are made from post-consumer materials and are recyclable.

McWane's role as one of the world's leading suppliers of waterworks products is based on the fulfillment of its responsibilities to its team members, communities, and the cities and towns that use them.

For iHydrant, the focus is to help water utilities reduce water loss and improve operational efficiency. Utilities can save money by conserving energy and limiting treatment chemicals and labor resources used in the production and distribution of drinking water.

Investments in vital infrastructure

McWane Marketing Manager Griffin Herb said iHydrant adds a great deal of value for utilities. "Whereas fire hydrants used to just sit there until they were needed, now they have become active monitoring devices that benefit the municipality or water utility," said Herb.

Within minutes of iHydrant alerting the utility of a low-pressure event, water distribution crews can respond faster to a water main break. "This allows the utility to react before the situation gets much worse—before it starts flooding a road and causing larger damage," Siu said.

iHydrant Vice President, Administration, Brian Morrow, acknowledged that third-party damages caused by water main breaks are a big concern for customers. "When we were first visiting utilities and suggesting what we could do, a large West Coast water utility was immediately focused on learning about breaks," he said.

A downtown water break had flooded a university, and leaks in the surrounding hills damaged houses, which caused them to begin sliding down the hill. "They were experiencing third-party damage, and that was a major driver for them to try to get the pressure under control," Morrow said.

iHydrant officials also spoke with a Northeast city that hadn't adequately buried some of its fire hydrants. The frost level got down to the base (the "shoe" of the fire hydrant) and cracked the hydrant. This resulted in water being released and flooding the roads, creating ice that caused car accidents. "So, in many cases it's the consequential damage, not just the initial immediate effects of the break," Morrow added.

Optimizing water systems

Water main breaks can be very destructive, and “water hammer,” the concussion caused by sudden fluctuations in water pressure, can eventually cause main breaks.

The problem is magnified by aging infrastructure. “The challenge that utilities have right now is dealing with 50- to 75-year-old pipes that need replacing. Detecting and correcting water hammers helps a utility eliminate rapid pressure spikes throughout their system and prioritize where capital improvements need to be made, thereby prolonging the life of the infrastructure,” Siu said.

Many utilities monitor pressure at critical operating locations like pump stations and tanks but face challenges in determining pressure and finding leaks throughout their water distribution system. iHydrant gives utilities insights within other areas, providing data to help them understand pressure and temperature throughout the system.

This data not only helps utilities but also first responders. Saving a life may depend on knowing if there is adequate flow during a fire and when boil alerts may need to be issued.

Improved response times

Knowing the exact moment that a water system experiences a hydraulic event or rapid pressure fluctuation is critical. With near-real-time alerts, utilities can be more proactive and respond quicker to pressure and temperature changes due to water main breaks, natural disasters, accidental damage, and other customer issues.

iHydrant initially used a cellular aggregator to deliver data from hydrants, but the aggregator was unable to help iHydrant diagnose communications issues in the field. Morrow stated, “When we had strange behaviors or a unit went dead in the field, the aggregator was unable to provide any level of insider diagnostics through the cell system as to what was happening at that device. Did it have a cell signal? Was it talking to the tower? When did it suddenly go down? We just couldn't get any of this information.” The company needed a reliable communications provider that could help deliver data on which customers could rely to detect and prevent water loss and avoid the damage that can occur due to water main breaks.

Rapid, highly secure transmissions

iHydrant turned to AT&T Business for assistance in delivering data that helps utilities be more proactive. AT&T Global SIMs provide connectivity that enables rapid, reliable transmission from water mains to iHydrant customers. “We decided to move to AT&T because our initial cellular provider had non-coverage areas, especially in more rural areas where many of our customers are located,” Siu said. “And our aggregator was unable to provide any insight into cellular network behavior when units failed to communicate as expected.”

The solution enables iHydrant to transmit over a secure VPN network to a cloud-based software platform. Utilities can access information with their phone, tablet, or computer in an easy-to-use graphical interface to get water pressure and temperature information within the area where an iHydrant is located. Basically, once the iHydrant device is deployed, it can begin transmitting data without the need for additional IT resources or infrastructure. The AT&T Control Center gives iHydrant the ability to deploy and manage its technology with advanced diagnostic tools and smart process automation.

“AT&T IoT connectivity, especially in more rural areas or suburban municipalities, can allow smaller water utilities to benefit from iHydrant data for around the cost of a monthly cell phone bill,” Siu said. “This enables a small team of utility workers to be as effective as a larger team because they know where to target their efforts, based on the alerts received.”

A vital collaboration in the waterworks industry

Morrow said AT&T Business has made it easier to determine when something goes wrong. When a few units recently went down, iHydrant turned to AT&T Business and learned AT&T was performing cell tower maintenance. “After the maintenance was complete, the units came back up. Without it, we would have had to roll a truck out to a fairly remote location to see what was going on,” he said.

iHydrant has become a vital partner in the waterworks industry. In less than a decade, the company has developed an impressive portfolio of patents. “We’ve invested in the technology; we stand behind it, and we are well-positioned in the industry with it.”

As iHydrant continues to help municipalities and utilities solve water challenges, AT&T wireless coverage will be crucial for communicating data without the need to install additional network infrastructure. Siu said, “The U.S. has such a large geographic spread, and relying on a single communications network for different applications can be challenging. Having the flexibility of a cellular-based solution to provide near-real-time data is both economical and efficient.”

Morrow said his team is likely to call on AT&T Business as iHydrant builds on its legacy of leadership and launches new products and services. “Our AT&T representative has been terrific to work with; we’ve enjoyed the relationship, and it has worked particularly well for us. We're working on a third-party solution now, and we're heavily using AT&T,” he added.

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