How cellular-enabled sensors **are saving over 30B liters of water**

Case study **Alert Labs**

Executive summary

Powering Alert Labs' award-winning water management platform

The challenge

Over one trillion gallons of water are wasted every year in American homes and commercial buildings—enough drinking water to quench the thirst of the entire United States for over two years. Catching leaks early is an effective way to reduce this water waste while preventing high water bills, property damage, insurance claims, and business disruptions. But manually monitoring water use is impractical or even impossible.

Alert Labs set out to tackle this problem with an innovative Internet of Things (IoT) solution for real-time water monitoring and leak detection. Particle's cellular connectivity now powers Alert Labs' award-winning AlertAQ™ water intelligence platform, enabling reliable and scalable leak alerts in more than 12,000 buildings throughout North America.

8 billion

Gallons of water saved with AlertAQ™ water intelligence platform.

12,000+

Buildings in North America with reliable, scalable leak alerts from Alert Labs.

24/7

Real-time water monitoring and leak detection IoT solution.

The solution

AlertAQ™ water intelligence platform

AlertAQ combines smart water sensors with an intelligent cloud analytics system to provide real-time visibility and alerts for abnormal water flow and potential leaks. Battery-powered and plug-in sensors with battery back-up connect via LoRa to Alert Labs' Sensor Relay communication hub, which leverages the LTE-M cellular network to transmit data to the AlertAQ cloud. Sophisticated machine learning algorithms analyze trends to detect anomalies and trigger notifications and leak alerts on facility team member's phones.

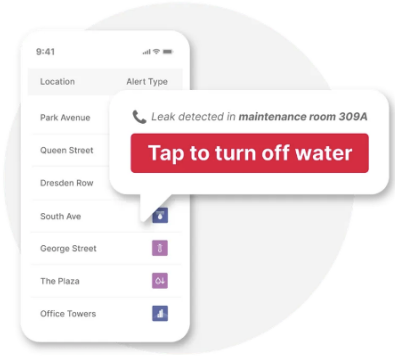

Image credit: Alert Labs

Leveraging Particle's IoT connectivity

Reliable, low-power, wide-area connections are crucial for scaling **AlertAQ** across thousands of buildings. Wi-Fi networks are inconvenient for retrofits and suffer communication dead zones. Prime areas for water leak monitoring, such as basements or water meter pits, are often located in these Wi-Fi dead zones. Cellular connectivity via LTE-M handles dynamic conditions better while simplifying installs without on-site gateways.

By integrating Particle's carrier-certified hardware and cloud platform, **AlertAQ** streamlines large-scale deployments. The Alert Labs Sensor Relay, powered by Particle, provides a plug-and-play access point to connect LoRa-based sensors to the cloud over LTE-M networks optimized for long battery life and low costs. Robust security protects data transfers making the Sensor Relay ideal for commercial and institutional buildings where data protection is paramount. And Particle's global SIMs and integrations with major carriers simplify connectivity.

With an end-to-end certified edge-to-cloud platform trusted by leading enterprises, Particle allows the Alert Labs team to focus on their sensor hardware and analytics. The result is faster time-to-value with "it just works" connectivity out of the box.

The results

Creating powerful **environmental change**

This award-winning solution has helped conserve over thirty billion liters (eight billion gallons) of water to date—equivalent to 16,000 Olympic-size swimming pools. Preventing damage and utility overages also reduces the carbon footprint associated with water waste in homes and businesses. As the AlertAQ solution expands across North America, Particle's IoT connectivity paves the way for ongoing sustainable impact.

Scalable impact, today and tomorrow

By preventing water waste in real-time, **AlertAQ** not only conserves precious resources but also reduces the carbon emissions associated with water extraction, treatment, distribution, and heating. To date, **AlertAQ** has prevented over 82,000 metric tonnes (180 million pounds) of CO2e from polluting the atmosphere—the amount absorbed annually by three million trees. These important savings combined with over $80M in avoided water damage and water costs demonstrate that water conservation enhances both financial and environmental outcomes.

Looking ahead, **AlertAQ** will continue to enrich its proprietary analytics. Reliable connectivity remains the springboard for realizing transformative environmental and commercial outcomes from IoT.

With hassle-free cellular connectivity from Particle, Alert Labs' AlertAQ water intelligence platform makes scalable water savings and leak prevention a reality. The results speak for themselves—reduced waste, lower costs, and a smaller carbon footprint. Reliable IoT connectivity helps drive both Particle and Alert Labs business success while making environmental progress.

Particle is the leading edge-to-cloud infrastructure for the Internet of Things, helping thousands of companies power world-class connected machines, sensors, and devices. Particle provides everything you need to build an IoT product in one tightly-integrated platform, so you can focus your time and energy on what matters: your product, application, data, and customers. Hundreds of manufacturers, thousands of startups, and 260,000 developers use Particle to power their IoT products; to learn more, visit particle.io.