

CanThoWassco Powers Smart Water Management in Vietnam's Mekong Delta with N3uron

[Can Tho Water Supply and Sewerage Joint Stock Company \(CanThoWassco\)](#), a key utility provider in Vietnam, has successfully implemented a city-wide Smart Water Management System. Developed by the specialized integrator [Bavitech](#), this Industrial IoT solution uses N3uron as its core data integration hub to transform traditional operations into a digitally intelligent system powered by real-time data, AI, and predictive analytics.

The Challenge

In alignment with Vietnam's national digital transformation strategy, Can Tho City—the economic heart of the Mekong Delta—sought to modernize its critical urban water infrastructure. For a major utility serving a metropolitan population of over 2 million people, the primary challenge was data fragmentation across a vast and geographically complex landscape.

The Mekong Delta presents unique operational challenges, including seasonal variability in raw water and the need to maintain stable pressure across a sprawling, low-lying urban grid. Although CanThoWassco's existing monitoring systems operated online, they were "located at each individual plant," creating isolated data silos that made a unified, city-wide operational view impossible.

The scope of the project involved consolidating critical infrastructure into a single, cohesive intelligence hub. This included integrating data from 3 treatment plants, 3 raw water intake stations, 2 booster stations, and hundreds of District Metered Areas (DMAs) distributed across the city-wide network.

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in real-time, and continuous alerts are generated. This center and its digital transformation technology operate based on Industrial DataOps and web visualization." According to the Director of the Digital Transformation Technology Monitoring and Application Center (MDC Center) at CanThoWassco Trần Võ Hoài An.

The Solution: A Unified Industrial Data Hub

Bavitech deployed N3uron as the core data integration hub to unify field devices, SCADA systems, and enterprise software. This comprehensive integration covers everything from the plant pumping stations to the entire distribution network, including water quality parameters and river source monitoring.

High-Performance Data Integration

N3uron facilitates seamless communication between all field devices, and remote operations centers. The platform manages thousands of data points with minimal server resources, providing rich visualization dashboards and real-time alarm management. Beyond field telemetry, the system also integrates live video surveillance from all plants and stations into a unified dashboard for visual incident management.

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Director of the MDC Center at CanThoWassco

“The center has completed the software integration phase, including SCADA systems, pressure and flow systems, water quality systems, network management, surveillance cameras, and customer management software. This standardizes our data and significantly improves the company’s operational efficiency,” said Trần Võ Hoài An.

AI, Big Data, and Automated Monitoring

Beyond standard telemetry, the system leverages N3uron’s flexibility to incorporate cutting-edge technologies:

- **Predictive Analytics:** Using Big Data and AI to automate monitoring processes and analyze commercial data (via Power BI) for water revenue reports.
- **Operational Optimization:** Machine Learning modules optimize chemical usage and energy consumption in treatment plants.
- **Integrated Video Surveillance:** Live cameras are integrated with smart alert systems to detect unauthorized access and ensure operational safety.

“This project represents a major milestone in the modernization of Vietnam’s urban water infrastructure, seamlessly integrating real-time data, machine learning, and AI-driven analytics across the entire network,” according to Waterworks Director at Bavi-tech Ban Nguyen Thac.



The Modular Flexibility Advantage for Smart Utilities

As part of this large-scale transformation, several key N3uron modules and integrations were deployed:

- **Scripting:** [Scripting](#) is a N3uron module that allows the execution of custom logic within the current N3uron node in response to various triggers, such as events like timers, tag changes, tag conditions, system start-up, and system shutdown.
- **OPC UA Client:** N3uron’s [OPC UA Client](#) enables the platform to make outgoing connections to any third-party compliant OPC UA server and is fully integrated with all other N3uron modules.
- **MQTT:** N3uron’s [MQTT Client](#) connects to any MQTT broker to send and receive events. CES uses this module for secure, low-bandwidth transport to its cloud platform.
- **Historian:** N3uron’s [Historian](#) — a high-performance, scalable, and cost-efficient industrial data historian — enables flexible and consistent access to historical data across the ecosystem.
- **REST API Client:** [REST API Client](#) allows for quick and easy connection of N3uron to any RESTful API server.
- **Modbus Client:** N3uron’s [Modbus Client](#) module allows users to quickly and easily connect N3uron to any Modbus-compatible device.

- **Derived Tags:** N3uron's [Derived Tags](#) module enables custom logic, advanced calculations, and data aggregation for operational data analysis at the edge. Bavitech uses Derived Tags to create calculated values, aggregations, and customer-specific points at the edge without touching the original controllers.
- **Web Vision:** [Web Vision](#), N3uron's visualization module for real-time and historical data, provided CanThoWassco with a pure web HMI/SCADA interface for centralized plant monitoring. Ultra-lightweight, Web Vision runs on minimal computing resources without impacting performance. Its reliance exclusively on open web standards makes it compatible across devices.
- **WebUI:** [WebUI](#), the interface used to configure N3uron and monitor data collected by N3uron, is used by Bavitech for browser-based configuration, diagnostics, and occasional on-site troubleshooting.

The Result: A Model for Digital Transformation in Southeast Asia

The project has achieved remarkable results in terms of technical performance and economic efficiency. By establishing a Data-Driven Decision-Making process based on real-time data, CanThoWassco has not only optimized its costs but also increased customer satisfaction through a fully digitized response process. A key indicator of this success is the digital transformation of customer services, where non-cash payments now exceed 90%, significantly reducing operational costs and saving administrative time.

The project stands as a pioneering model for Vietnam's Mekong Delta, proving that traditional utilities can successfully transition into digitally intelligent systems.

"Our long-term goal is to optimize production costs, reduce water loss, and save energy while digitizing the entire process of receiving and responding to customer requests. N3uron, combined with Bavitech's expertise, is making this possible," said Ban Nguyen Thac.