Nucleus3

Keeping water and data flowing across arid Australia

software AG | nucleus3
GreenBe

Meet our customer hero

Nucleus3 and GreenBe develops customer centric IoT solutions for Australian water authorities who need to optimize water usage in one of the driest countries on earth. The measurements from specialized sensors and digital devices like integrated smart meters, enable end-users to conserve water and save money, while end-to-end integrations allow authorities to instantly respond to billing queries and provide enhanced customer service.

Challenges

- Undetected water loss and theft in drought-prone Australia

- Lack of visibility in usage data for water consumers

- Inaccurate usage creates compliance issues and high costs for consumers

Outcomes

- 22% reduction in average water usage per consumer

- Fast visibility into network and customer digital data

- Rapid identification of leaks and water theft

- Promote water conservation with gamified education with user apps

Solution

- Cumulocity IoT

- TrendMiner self-service industrial analytics

- webMethods Integration

- iPaaS

- GreenBe – Digital Platform

" Customers using our IoT solution have reduced water consumption by 22% compared to non-users."

— David Catalovski, co-founder and CEO of GreenBe

Nucleus3 is a Melbourne, Australia-based consultancy and systems integrator with more than 75 advisory consultants focused on the utilities, telecommunications, and local government sectors. The company specializes in digital and business transformation, smart grid technologies, and traditional operational and information technology. Nucleus3 is the partner of choice for Australian water authorities looking to leverage the power of IoT to empower consumers to optimize the digital future.

Quenching a thirst for IoT in Australia

Australia is the driest inhabited continent on earth—hot, prone to drought and one of the highest consumers of fresh water. Its more than 140 water authorities serve over 25 million people and keep 135,000 farms irrigated. The population has lived through substantial periods of drought, making the consumption and storage of water a very dear, emotional matter to Australians, who feel a collective responsibility to report leakages and conserve water wherever possible. Visibility is a crucial way to promote awareness of water consumption habits. By being able to see their usage, people can adapt how they participate in taking care of this valuable resource.

With over 140 water authorities, all but 12 are "tier two"—smaller government authorities like councils and municipalities—face the same responsibilities as their larger counterparts. They need to source, store and distribute clean water. Workflows include managing wastewater reticulation and treatment as well as handling customer administration, including billing. Infrastructure budgets are primarily focused on maintenance rather than upgrades. Cost-recovery charges permitted by regulatory bodies are well below inflation.

The balance of supplying clean water efficiently while minimizing leaks and managing demand at the lowest OPEX and CAPEX costs is a recognized challenge that the industry is answering with Internet of Things (IoT) solutions that connect devices like digital water meters and leakage detecting sensors.

Getting smarter about IoT

With a focus on utilities, telecommunications and local government sectors, Nucleus3 has strong roots in the energy and water sectors industry. As a known consultancy and proven systems integrator who has helped many Australian authorities kick-start smaller IoT projects using Software AG's Cumulocity IoT platform.

Utilities in Australia were accustomed to working with industry-standard supervisory control and data acquisition architecture (SCADA). "Most authorities had well-established centralized control and monitoring of their larger material assets, such as plants, pumps, water pipes and sewers, from traditional SCADA operations," says Justin Spencer, GM - Utilities and IoT Solutions at Nucleus3. "But they still needed to learn how IoT could fit and benefit into their unique environments."

The key to meeting this more sophisticated demand is an integration layer that enables integrating IoT data with enterprise systems for a fluid flow of data. Nucleus3 offers water authorities a fully integrated IoT solution, which includes device connectivity and management, data capture and analytics. Utilities.io is an end-to-end water management solution ideal for smaller water authorities,

Offered in conjunction with strategic partner GreenBe, the solution combines three Software AG products: Cumulocity IoT for device management, uses cases and network control widgets and streaming analytics, TrendMiner for time-series analysis of utility data, and webMethods for integration into various systems including Itron, TechnologyOne, GeoSCADA or OSIPi.

Transforming data into water conservation

With the Utilities.io solution deployed at water authorities around Australia, IoT data is fueling tangible improvements in consumer engagement and customer satisfaction. So having that data connection in near real-time and being able to view it quickly and easily at 15-minute intervals instead of once per quarter transforms their ability to spot problems and influence behavior."

"Automating water meters can decrease costs by 15-20%, but there are benefits beyond the economic to be had," explains Tom Bryan, CEO of Nucleus3. "By using Utilities.io, authorities can manage leakages, improve consumption awareness, and streamline billing," he says. "We are helping authorities to interact with consumers on so many levels to educate, change behavior, and engage. Rather than just seeing invoices or workers digging up a road, consumers are engaging with councils and water authorities. That engagement builds advocacy and leads to better outreach to make sure that constituents are getting the right services at the right time." Nucleus3 aims to keep data—and water— flowing freely across Australia wherever it's needed.

Authorities running proof of concept implementations have been able to detect leaks that have been losing water for years. Thanks to integrated smart meters placed in homes or sensors at each end of a street allowing for checks of pressure points between two meters, they've been able to identify and repair major leaks. In other councils, significant water theft has been uncovered for the first time only because of digital sensors and meters and in one case saving 700 liters every 30 minutes.

"With a much closer endpoint, you've got that direct connection with the constituents in your municipality," says Bryan. "Councils would normally only have that connection through a bill, or a complaint lodged in an office. With our strategic partner, GreenBe's technology picks up all the data that we connect with, including billing data." With throughput billing integration and gamification, consumers are encouraged and empowered to change their water usage behaviors. In near real-time they can see how much water their home appliances, pools, or air conditioning are consuming, which leads to changes in behavior. Consumers enter the "virtuous circle" of saving on their water bills and conserving a precious Australian resource. With GreenBe, the customer relationship—and associated all data, services, products and value-add offerings—are owned and controlled by the Council. Not by third-party social media platforms.

Pouring on the benefits

Utilities.io offers a plug-and-play water management IoT solution without complexity or a large capital investment. Systems, expertise, and resources are all part of the solution. Connectivity via the cloud reduces capital costs. API adapters enable the utilities to plug enterprise and operational systems into the IoT solution for a complete asset-to-customer view of all operations. Utilities.IO is a multi-network, multi-meter and sensor enabled platform that prioritizes the customer, community and the environment while ensuring the delivery of the highest level of service.

Nucleus3 will have deployed and be managing over two hundred and fifty thousand sensors and integrated smart water meters around Australia in the next five years and all monitored via the utilities.IO solution which is powered by SoftwareAG and GreenBe.

With this IoT data readily available and the leading-edge capabilities of GreenBe, the team has observed positive change with customers and community engaging impact. By becoming conscious of their water consumption behaviors, the relationship between the community and the environmental benefits brings everyone closer to a more sustainable future for the next generations and beyond.

"Customers using GreenBe are reducing water consumption by 20% compared to non-application users. Now they can see their day-to-day data and connect it to their recent activities, like doing laundry or watering the garden. This empowers people to make water and money saving choices about when and how they consume," says David Catalovski, co-founder and CEO of GreenBe.

As IoT has become more accessible to even the smaller authorities, utilities are demanding more from their solutions - improved intelligence, the ability to collect data more frequently, pressure sensing across networks in near real time, monitoring of sensor and meter conditions and sewer manhole levels to prevent spills, as well as assuring asset integrity. The real driver is the benefits that the power of the data brings to the consumer.

"We have some really terrific data in terms of demand management and how you can shift demand by using targets, incentives, and social norming for layering behavioral demand management on top of data," says David Catalovski, co-founder and CEO of GreenBe. "If you can't measure it, you can't manage it. By measuring customers' data, we can show them where they're using more than they should and better manage the water network."

As IoT quickly becomes a best practice not just in water authority management, but in gas and electricity as well, Nucleus3 is pushing intelligence to the edge of the grid and maximizing the benefits for consumers.

Meet the product behind the hero

Cumulocity IoT

TrendMiner self-service industrial analytics

webMethods for integration

GreenBe

ABOUT SOFTWARE AG