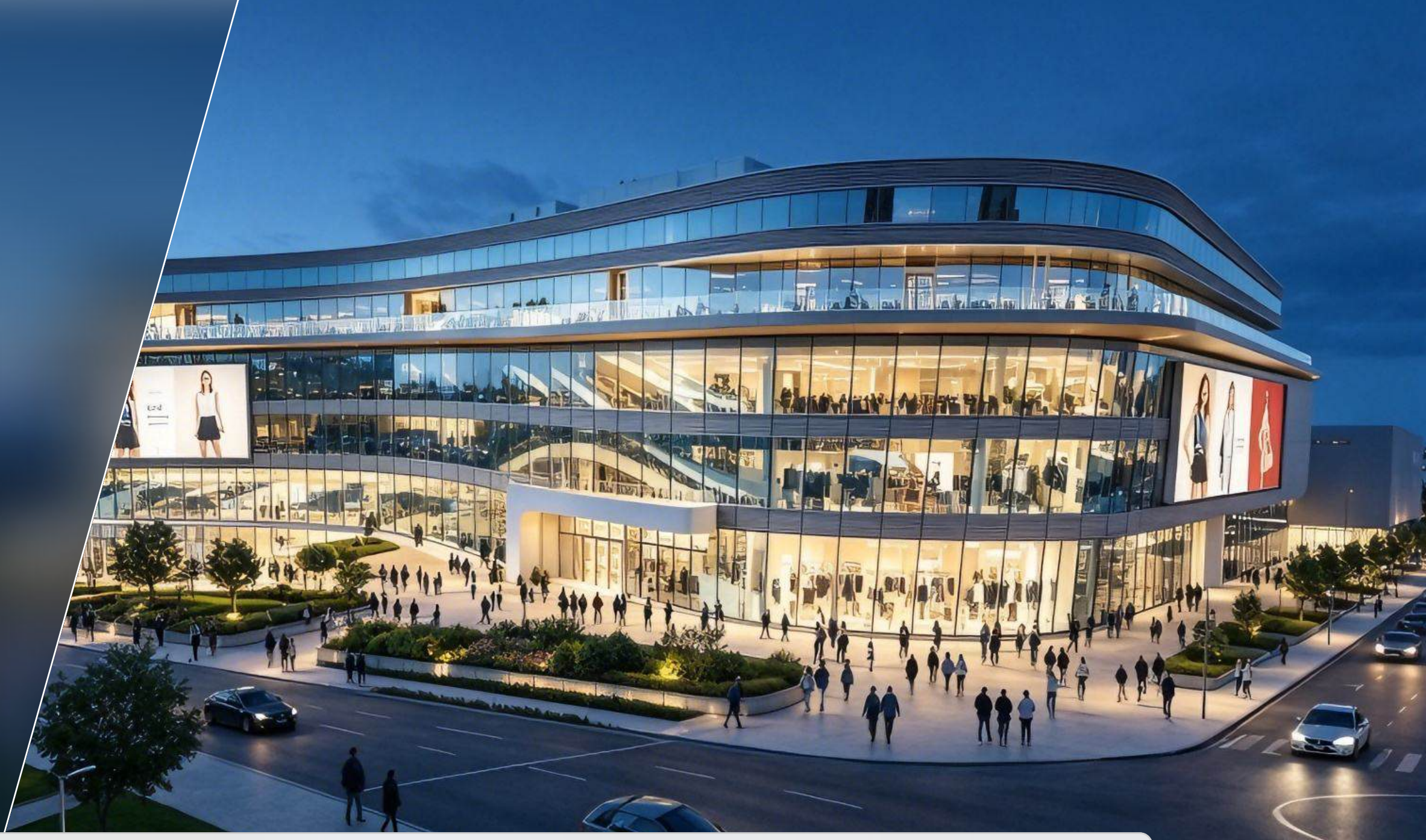


# Integrated Facility Automation for a Large Commercial Complex

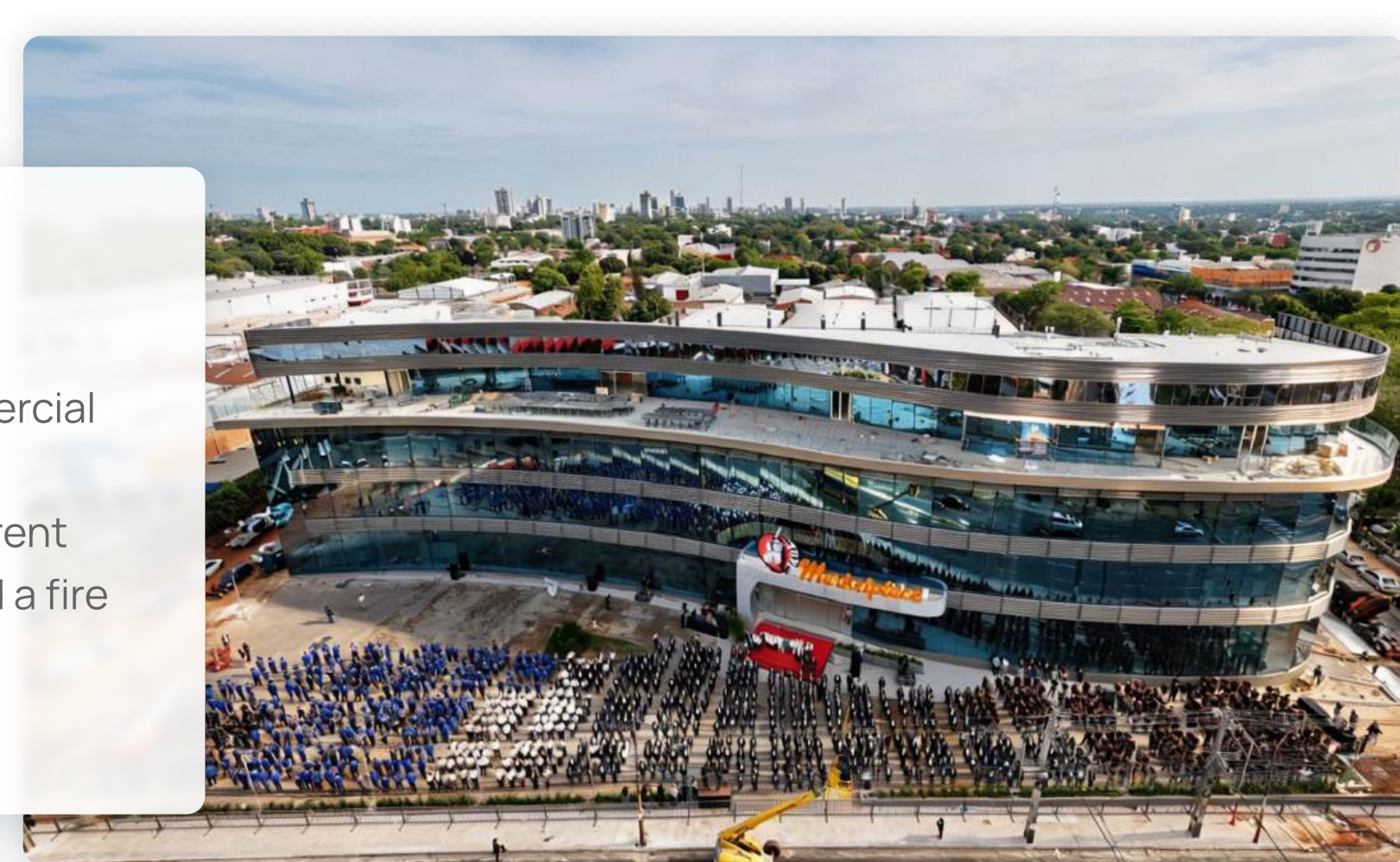
Centralized HVAC, Water, Pump, and Fire System Monitoring with LoRaWAN®-Enabled BMS Integration



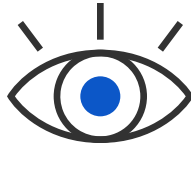
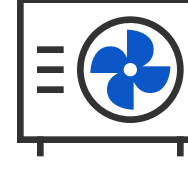


Technology Partner E-Control SRL	Location Asuncion, Paraguay	Applications HVAC Control, Water Management, Infrastructure Management	Related Product WT303*101, WT304*2, EM500-SWL*3, UC100*3, UC300*1, UG56*2
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## Background

Tupi Marketplace is a large shopping center operated by the TUPÍ household appliance chain in Paraguay. The facility consists of three shopping halls, one food hall and five office floors, forming a large-scale mixed-use commercial complex. The facility is equipped with over 50 AHUs and more than 60 fan coil units to support HVAC operations across different zones. In addition, the building includes multiple critical infrastructure systems such as 3 separate water tanks and a fire suppression system, all of which require reliable monitoring and management.



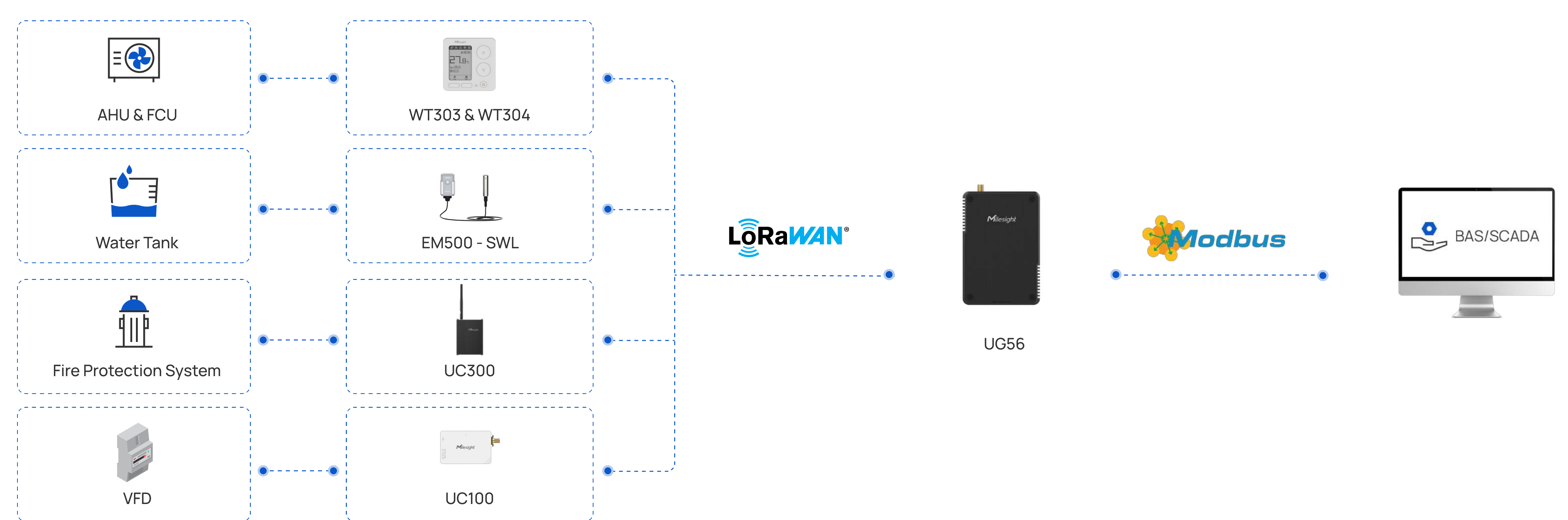
## Challenges

 <p><b>Multi-System Integration Complexity</b></p> <p>The shopping center required unified integration across HVAC, water management, fire safety, and pump monitoring systems, creating significant coordination and interoperability challenges for system deployment.</p>	 <p><b>Large-Scale Distributed HVAC System</b></p> <p>More than 100 AHU and fan coil units were distributed across multiple building zones and floors, making consistent monitoring, remote management, and long-term maintenance highly challenging.</p>	 <p><b>Deployment and Wiring Constraints</b></p> <p>Implementing centralized monitoring across multiple building systems within a large operational commercial facility required a flexible solution that could minimize wiring complexity and simplify deployment.</p>	 <p><b>Limited Visibility into Key Infrastructure</b></p> <p>Key infrastructure systems such as water tanks, pumps, and fire suppression equipment lacked centralized real-time visibility, making fault detection and operational monitoring more difficult.</p>
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## Solution

To support centralized building operations across the shopping center, E-Control implemented a LoRaWAN®-enabled automation solution powered by Milesight devices and connectivity infrastructure. The solution unified HVAC, water management, pump monitoring, and fire safety systems into a centralized BMS/SCADA platform, enabling real-time visibility, remote management, and simplified system integration across the facility.

<p><b>WT30x Smart Fan Coil Thermostat</b></p> <p>Centralized control and monitoring of 103 AHU and fan coil units is achieved with the WT30x across the HVAC system, ensuring stable and efficient operation throughout the building.</p> 	<p><b>UC100 Modbus to LoRaWAN® Converter</b></p> <p>The UC100 was connected directly to the smart Variable Frequency Drives (VFDs) to monitor the three secondary HVAC pumps, reporting operational data every 5 minutes for centralized system monitoring.</p> 	<p><b>UC300 LoRaWAN® Controller</b></p> <p>The UC300 interfaces with the fire suppression system panel to detect faults and alarm conditions, using its digital inputs to report system status to the BMS/SCADA platform.</p> 
<p><b>EM500-SWL Submersible Water Level Sensor</b></p> <p>Enabling real-time measurement of the level and volume of three water tanks, the EM500-SWL Submersible Water Level Sensor supports reliable water management across the shopping center.</p> 		






## Results

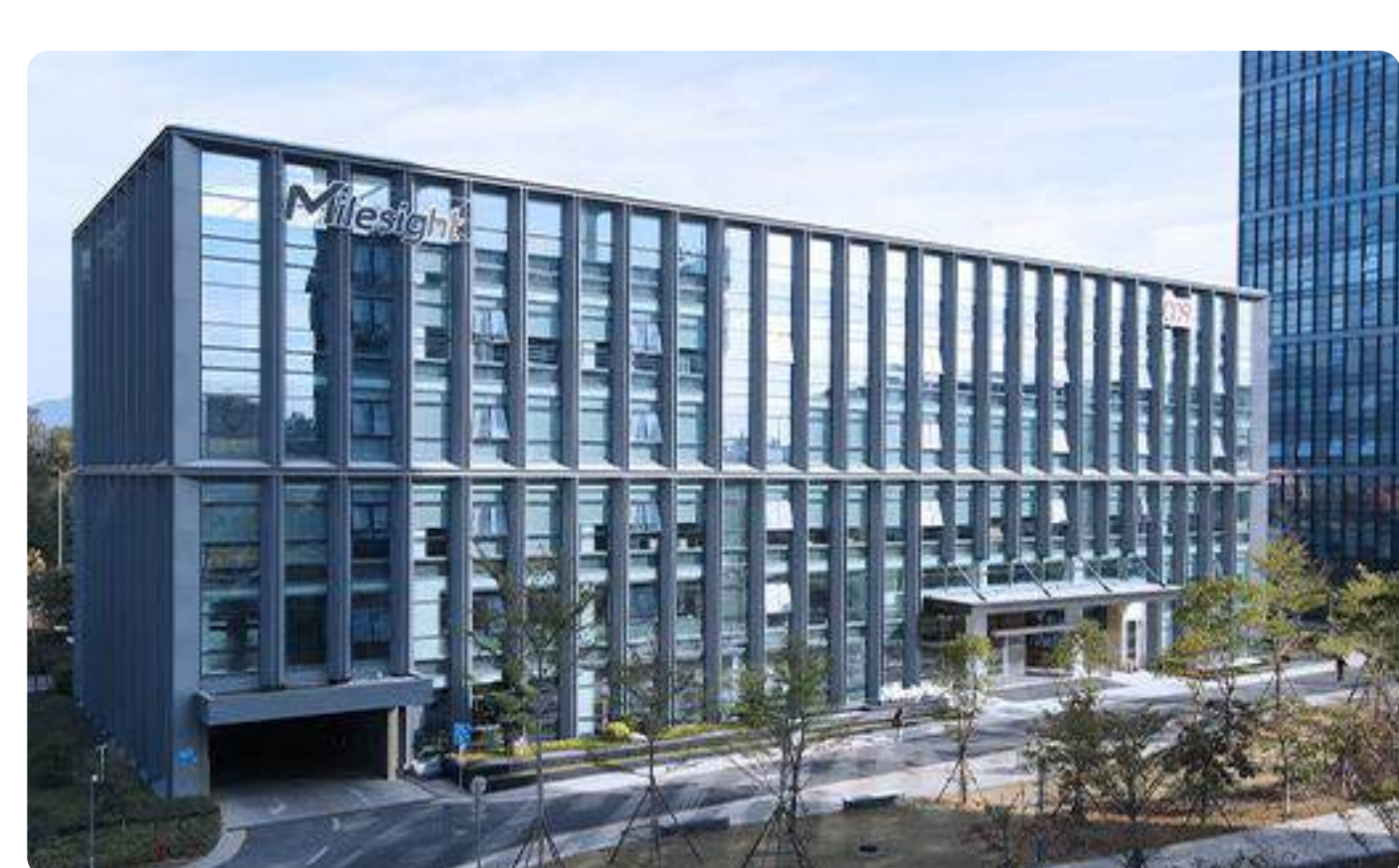
The deployment of Milesight LoRaWAN® solution has brought significant operational improvements to the shopping center:

<p><b>Achieved Full Building Automation</b></p> <p>HVAC systems now operate fully automatically with lighting integration, eliminating manual startup and shutdown processes and improving overall operational workflow.</p>	<p><b>Earlier Fault Detection for Water Refill Systems</b></p> <p>Early detection of water refill system failures improves operational reliability and helps prevent potential disruptions.</p>
<p><b>Remote Management Across Large Ceiling-Mounted Installations</b></p> <p>The owner can remotely control room temperatures, which is particularly valuable given that many devices are installed over 4 meters high in the ceiling, making manual operation impractical.</p>	<p><b>Smarter HVAC and Lighting Coordination Based on Environmental Data</b></p> <p>HVAC and lighting control were optimized using outdoor temperature data and BMS algorithms, ensuring stable indoor conditions across the shopping mall while reducing energy consumption and enabling smarter system-level monitoring.</p>

## Discover More about Milesight Products


 <p><b>WT30x</b> Smart Fan Coil Thermostat</p>	 <p><b>EM500-SWL</b> Submersible Water Level Sensor</p>	 <p><b>UG56</b> Industrial LoRaWAN® Gateway</p>	 <p><b>UC100</b> Modbus to LoRaWAN® Converter</p>
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## Why Choose Milesight



“Milesight was selected for its ability to simplify large-scale building automation deployment through flexible wireless connectivity and seamless system integration capabilities. Its wireless deployment approach helped reduce wiring and integration complexity within the operational facility, while MODBUS compatibility enabled smooth interoperability with the centralized BMS/SCADA platform. In addition, the reliable product quality and stable communication performance contributed to more efficient system management, reliable long-term operation, and scalable future expansion.”

## Partner

<p><b>About E - Control SRL</b></p> <p>At E-Control, we offer remote and automation solutions for commercial buildings, industries, and residences. We specialize in controlling HVAC systems, lighting, water pumps, elevators, curtain movement, solenoid valves, and security systems, all under a unified software platform. We provide customized in-house development tailored to each project, combining cutting-edge technology with technical expertise. Our service is efficient, sustainable, and adaptable to meet the specific needs of our clients. We partner with top-tier brands to supply high-quality controllers, sensors, and other products, strategically integrating electronic and mechanical systems. This results in more efficient, reliable, and precise operations with a focus on intelligent, secure, and sustainable resource management.</p>	
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