LEAKWISE
OIL ON WATER DETECTION SYSTEMS

SUCCESS STORY

Protecting a Hyperscale Data Center in Singapore

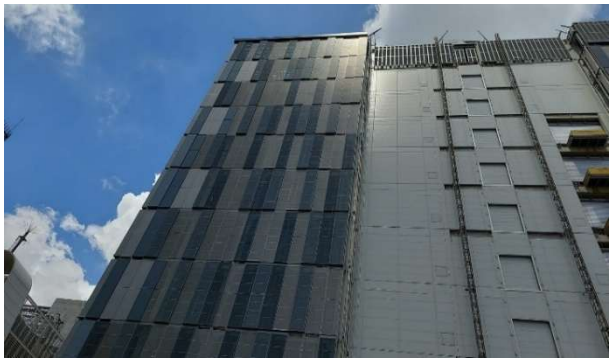
Background

As the regional hub for digital innovation in Asia, Singapore faced a unique problem: soaring demand for digital infrastructure, coupled with a critical shortage of available land. In response, a pioneering, US$1+ billion, multi-story "hyperscale" data center, spanning 170,000 square meters, was launched. The project represents a shift from traditional sprawling campuses to a vertical, high-density model. This ambitious architecture required an entirely new approach to safety and mechanical infrastructure, as stacking thousands of tons of equipment including massive oil-cooled transformers above ground level introduced environmental and operational risks never before seen at this scale.

The Challenge: A Vertical Risk

In land-scarce Singapore, the hyperscaler broke the mold by building an 11-story vertical data center. This design introduced a significant environmental and operational risk: the facility houses numerous oil-filled transformers across multiple floors.

Standard data centers are horizontal, where an oil leak is contained in a single ground-level pit. In an 11-story tower, a transformer oil leak could potentially travel through floor drains, enter the vertical cooling infrastructure, or contaminate the waterway potentially resulting in costly remediation efforts, regulatory penalties, and operational disruption.



Solution

To mitigate this, the Schneider Electric integrated Leakwise ID-223 sensors into the facility's critical infrastructure management. Unlike conventional leak-detection cables that simply detect the presence of liquid, the Leakwise sensors were chosen for their ability to distinguish between water (from the StatePoint Liquid Cooling system) and hazardous transformer oil.

- **Technology used**: The ID-223 uses Electromagnetic Absorption technology to continuously monitor liquid surfaces within containment sumps and catch basins.
- **Precision**: It detects oil sheens as thin as 0.3 mm, providing an early warning long before a leak becomes a disaster.
- **Vertical Reliability**: The sensors were installed across multiple floors, ensuring that even in "dry sump" conditions, any oil presence would be immediately flagged.

Implementation: EcoStruxure Connectivity

The "intelligence" of the system comes from its integration. Schneider Electric connected the Leakwise sensors to its EcoStruxure platform.

- **Real-Time Monitoring:** Data center operators receive instant alerts on a unified dashboard.
- **Automated Safety**: If a leak is detected, the system can automatically trigger shut-off valves in the drainage system to prevent oil from leaving the floor.

Results

1. **Enhanced Environmental Protection**: The facility maintains compliance with Singapore's strict National Environment Agency (NEA) standards regarding industrial discharge.
2. **Improved Alarm Accuracy**: The sensors ignore water and humidity - critical in Singapore's tropical climate, reducing "alert fatigue" for the operations team.
3. **Future-Proof Safety**: The hyperscale data center operator now benefits from a robust containment strategy that allows them to scale high-density power equipment vertically without increasing environmental risk.

> *By combining Schneider Electric's power expertise with Leakwise's precision sensing, the facility has set a new global benchmark for safety and sustainability in high-rise data centers.*

Conclusion: A Blueprint for Urban Hyperscale

The successful implementation of Leakwise sensors demonstrates that environmental responsibility and high-density urban engineering can go hand-in-hand. By choosing a solution that offers granular precision over generic detection, Schneider Electric provided the hyperscaler with more than just a safety tool - they delivered operational resilience. As the industry moves toward more compact, multi-story designs in land-constrained cities globally, the partnership between Schneider's infrastructure expertise and Leakwise's specialized sensing technology serves as a proven model for protecting both critical infrastructure and the surrounding environment.