

Turku Energia extends IT reach to secure IoT

Unifying the IT and OT network to drive threat protection with Cisco Extended Enterprise



Turku Energia

Industry
Utilities

Location
Finland

Number of employees
300



Challenges

- Limited visibility into the network
- Separate OT and IT networks
- Difficult daily maintenance and operations
- Threat vulnerability at the IoT endpoints



Solutions

- Industrial networking designed for harsh environments
- Network security to drive visibility and rapid threat detection, data integrity, and role-based access from any location
- Centralized, end-to-end management across IT and OT networks



Results

- 100% visibility into the network
- Increased security with disparate OT and IT networks
- Simplified management & operations with unified solution

Network vulnerability for the Power grid

For Turku Energia, a secure, optimized network is much more than simply a technical requirement. It is essential to keeping two hundred thousand citizens throughout the region supplied with dependable power and other necessities. Founded in 1898, Turku Energia is owned by the City of Turku, providing heat, power generation, distribution and sales, and related services throughout the region.

As its infrastructure evolved over the years, Turku Energia had established separate networks. Its headquarters was secured and managed by its own IT organization, while remote utility networks were maintained by local operational technology (OT) network operators. Keeping networks separate hampered management and made it difficult to safeguard both environments.

“Cybersecurity is getting increasingly more important in the utility industry,” says Antti Nieminen, Group Manager, Substations and Automation at Turku Energia. “Previously, we had almost zero visibility on the network controlling the power grid; it fundamentally operated as a separate component. A cyber attack causing complete power failure would be devastating to Finland.

Turku Energia understood that it had to make a fundamental change to its network infrastructure. Keeping the IT and OT networks as separate entities is a well-established security best practice in the industry, yet it often has led to completely disparate technologies. The organization sought to unify its OT and IT networking technology to take full advantage of all the expertise of its IT team. Bringing these environments together to a unified technology platform would enable IT to more effectively

secure, manage, and extend the network to the utility areas while enabling easier daily maintenance and operation by local network administrators.

Going from 0% visibility to 100%

After evaluating a variety of solutions, Turku Energia consolidated its network environments under one unified Cisco® Industrial Ethernet and Cisco Catalyst® switches. The utility deployed a complete, end-to-end infrastructure featuring Cisco Industrial Ethernet switches, Cisco Aironet® wireless access points, as well as Cisco Stealthwatch® and Identity Services Engine (ISE) security solutions.

“Cisco Extended Enterprise has enabled us to transform our operations end to end,” says Nieminen. “It’s about strengthening the IT and OT partnerships, as both groups are critical to securing the business.”

Across its substations, Turku Energia upgraded to Cisco Industrial Ethernet 2000 and 4000 Series Switches for additional flexibility and to reduce the risk of mechanical failure.

“These rugged switches are passively cooled so that no fans could break or attract dust,” says Nieminen. “We can even use the built-in SD card feature to store and retrieve network configurations to replace broken devices and provision them. We are protected not just from attacks, but also from network failure across multiple locations.”

Cisco Prime® Infrastructure provides a centralized point of management and provisioning for the utility, and with this unified networking solution, the administration of both IT and OT environments is greatly simplified.

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Antti Nieminen

Group Manager, Substations and Automation, Turku Energia

“This new network has transformed the way we work,” says Nieminen. “The IT team now manages the network. They are the experts in network management and really understand how the technology works, so we are free to concentrate on our job of supplying power.”

Security was another key objective for the deployment. The remote utility stations’ OT network operator runs the SCADA system, which in turn runs the entire electrical grid. In recent years, the utility SCADA systems had become a target of hackers, because of the enormous damage that can be inflicted by sending cities dark or even damaging the grids.

Previously at Turku Energia, the network servicing the SCADA system was disparate from the IT network, and with limited security features. Neither IT nor local OT network operators had visibility into potential threats, making every utility station a potential security target. This made the organization vulnerable to physical and network security risks outside the direct headquarters.

Now, with Cisco Stealthwatch and ISE, the utility’s IT team has extended its reach to ensure data integrity, visibility, and rapid threat detection and remediation to both IT and OT environments, and role-based access control from any location. They can set policies and secure the environment from a unified, remote location. Both IT and OT teams can leverage the superior visibility and context across the environments.

Enhanced security and performance for critical utilities

The Cisco Extended Enterprise solution, backed by the expertise of the utility’s IT team, enables the Turku Energia network to be safer and more straightforward to operate.

“With Cisco, it’s beyond a simple network upgrade. We’ve unified IT and OT to transform the way we work, saving us time and money on maintenance and staffing costs,” says Nieminen. “We now have one unified network that is the backbone for our entire operation, is managed and secured by our IT team, and is giving us operational efficiencies and cost savings.”

Simplifying the network and enhancing its management has also freed up the utility’s IT staff to spend less time troubleshooting network issues, and more time providing better services to customers.

“The less we spend working on the network, the more time we can spend working for the communities we serve,” says Nieminen. “Cisco technology has enabled us to do this, and even a non-network engineer like me can understand how the network works. Now, our work life is less frustrating.”

Together, Cisco Stealthwatch and ISE have dramatically enhanced the security of the combined infrastructure. Using telemetry from the network infrastructure and industry-leading behavioral analytics and machine learning, Cisco Stealthwatch provides security visibility that enables the utility to discover and respond to threats proactively. Cisco ISE enhances access control through sophisticated policy management for wired, wireless, and VPN users. It provides rich contextual information about connected users and devices, as well as enables secure management access to the infrastructure devices.

“With Cisco ISE and Stealthwatch, we now have 100% visibility into the entire wired and wireless network, so we know it is secure,” says Nieminen.

Although it would seem like common sense to manage networks this way, Turku Energia is very much an innovator in its industry.

“We are now safe in the knowledge we have an efficient, simple to operate, and most importantly, a secure network running our grid, power stations, and substations,” says Nieminen. “With this network transformation, we feel Turku Energia is leading the way in the utility sector.”

Products and solutions

Routing and switching

- Cisco Industrial Ethernet 2000 Series Switches
- Cisco Industrial Ethernet 4000 Series Switches
- Cisco Catalyst 2960 Series Switches
- Cisco Catalyst 4500 Series Switches

Wireless

- Cisco Aironet wireless access points

Security and management

- Cisco Stealthwatch
- Cisco ISE
- Cisco Prime Infrastructure

For more information

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