USE CASE

Grid Operator Protects Plants and Secures Remote Monitoring

Plant isolation for secure, real-time data transfer

Summary

Problem:

A grid operator managing several regional power generation plants needed to transfer SCADA/historian data, alarms, and ad hoc requests to remote users—including the Market Operator—without exposing the plants to inbound threats.

Cause:

Real-Time Demands Without Added Risk

Utilities needed to securely share operational data like eDNA and alarms to support market decisions—without opening the door to cyber threats. Multiple systems and protocols had to be integrated safely and efficiently across plants.

Benefits:

Secure Data, Isolated Operations

Plants stayed segmented and protected from inbound threats

Real-time data sharing enabled faster decision-making

Low-maintenance, compliance-ready infrastructure with room to scale

Challenge: Operational Exposure During Data Sharing

A regional grid operator needed to enable real-time visibility into production data across multiple power generation plants. SCADA outputs, historian logs, alarms, and ad hoc files had to be transferred to remote users—including the market operator—to support time-sensitive decisions and grid adjustments. However, the challenge was clear: how to securely move critical operational data out of secure, isolated environments without creating any inbound threat vectors that could compromise plant security.

Requirements:

- → Provide a secure, one-way transfer of multiple data types from multiple sources over a single device
- → Replicate eDNA servers in each plant to external eDNA servers accessible by market operator
- → Support redundant eDNA servers
- → Ability to transfer multiple data flows (2 from historians, 3 for alarms and 1 for files) and multiple protocols (eDNA replication via TCP/IP, FTP for alarms, RFTS for files) simultaneously
- → Can expand throughput as future requirements are identified and implemented

Solution: Owl Talon™ Protocol Filtering Diodes

Each plant was equipped with an Owl Talon OneTM:1U, a hardware-enforced, one-way Protocol Filtering Diode (PFD) that securely transferred eDNA data and files, enabled real-time server replication, supported multiple protocols, and offered expansion-ready architecture for future needs.

Outcomes: Real-Time Security, Simplified Operations, Future-Ready Infrastructure

- → All required data flows securely through the PFD in near real-time (single-digit millisecond latency)
- → A drop-box mechanism enables internal users to automatically send ad hoc data to external recipients
- → Redundant eDNA servers are replicated and accessible by the Market Operator for continuity
- → Plants remain fully segmented, eliminating all inbound cyber risk
- → Low-maintenance, compliance-ready design aligned with NERC CIP
- → Future expansion supported through built-in upgrade and throughput flexibility

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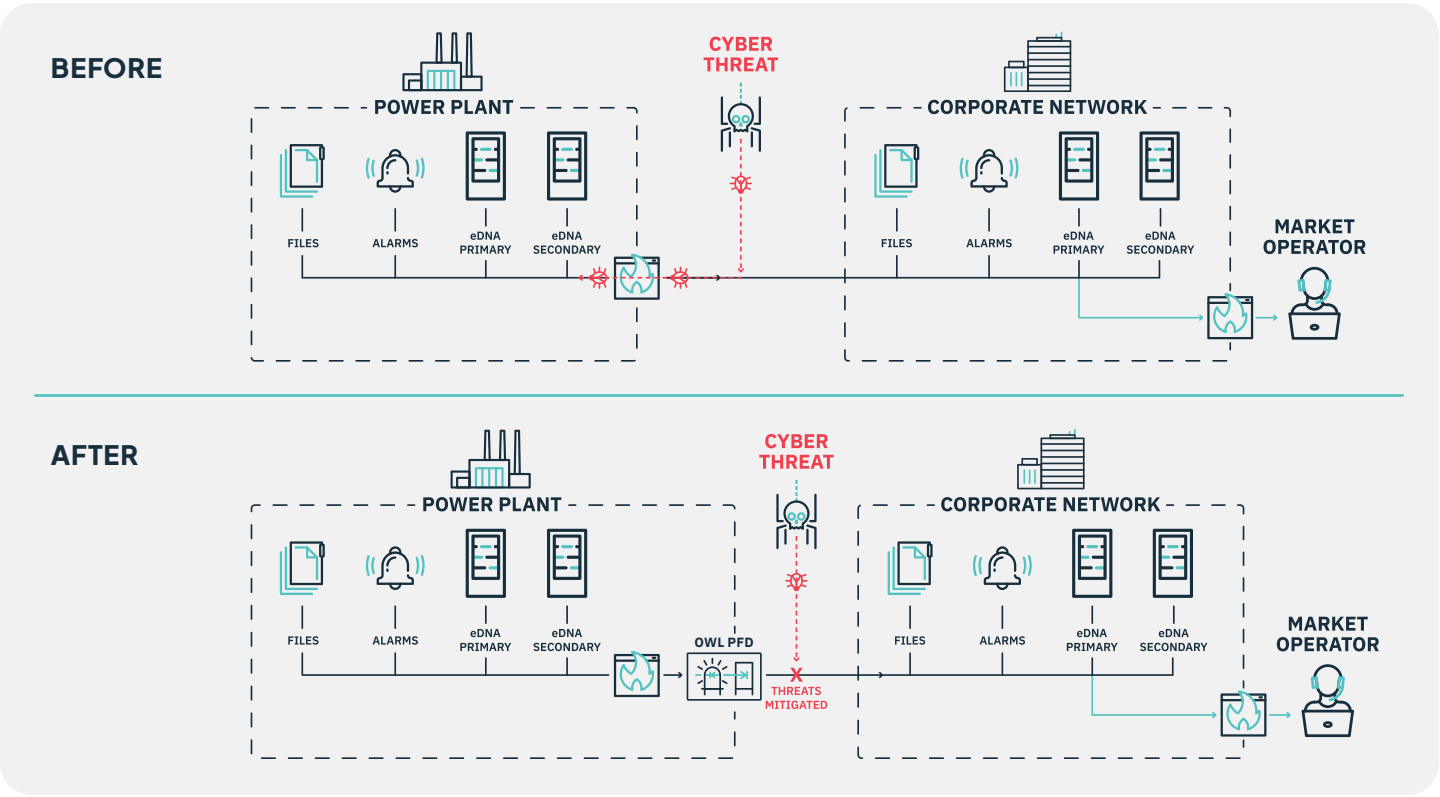

Owl Talon™ One: Secure, Flexible, Easy One-Way Transfer.

The Owl Talon One: 1U was selected to protect the plants in three separate regions from network attacks and securely transfer data to end-users. It is a single, low maintenance device with an MTBF of 25+ years. Each device is configured to handle the various data flows, data sources, protocols and replication requirements of the plant with capacity still available to handle future growth and expansion.

Building on more than 25 years of one-way networking expertise, Owl Talon™ is the latest iteration of Owl's award-winning, industrial-strength data diode platform, designed for fast and easy configuration with an all new, modern user interface, unmatched interoperability, and secure, reliable operation. To save you additional time and SWaP, Owl Talon One can support multiple, simultaneous data flows and protocols on one device. With an extensible foundation for a broad range of OT and IT protocols and interfaces, Owl Talon enables all your one-way data transfer use cases.

OWL Cyber Defense™

Owl Cyber Defense Solutions, LLC, headquartered in Columbia, MD, is a pure play cybersecurity company solely focused on purpose-built, made-in-the-USA data diode and cross domain solutions. Trusted to protect the most sensitive government and commercial networks worldwide, our technologies are developed and manufactured to meet the strictest U.S. security standards. Owl enables secure, near-instantaneous collaboration across network boundaries—powering faster, safer, and smarter decisions for military, federal, and commercial critical infrastructure organizations. With a focus on scalability, interoperability, and regulatory compliance, Owl ensures resilient communication in the most high-threat environments. Rigorously tested. Globally trusted.

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