

Securely Scale Energy Digital Infrastructure Connections



Challenges

Ensuring Secure Communication at Scale

As energy systems become increasingly decentralized and intelligent, utilities and energy providers see an increased opportunity to capitalize on AI and edge computing. Yet they also face mounting challenges in securing the growing number of edge devices—from solar inverters and battery systems to EV chargers and smart thermostats. Virtual power plants managing thousands of distributed assets, often with AI, demand trusted data interoperability and robust security.



The Solution Eurotech & Intertrust

Cloud-to-Edge Security to VPP and Energy Grid Deployments

Virtual power plants aggregate distributed energy assets to function as a single power plant, but each connected device represents a potential entry point for cyberattacks that could destabilize the grid. XPN's framework, implemented through Eurotech's ReliaGATE gateways, provides zero-trust architecture with explicit trust verification, end-to-end encryption, and scalable key management for millions of devices—addressing critical gaps in current solutions that cannot scale or adapt to modern energy systems.

The joint solution combines Eurotech's edge computing products and services with Intertrust XPN's trusted data interoperability and scaled key management. Eurotech's purpose-built edge gateways are designed to meet and exceed security requirements like IEC 62443-4-2, offer advanced logging, no-code programming and field protocol support combined with lifecycle management and custom integration services. Intertrust contributes application-layer security expertise and TEIA standards alignment for vendor-neutral interoperability..

These IoT edge systems collect, compute and communicate securely vital data from assets in the field to the cloud. The XPN-enabled ReliaGATE AIoT gateways offer the capability to operate assets using their native protocols, maintaining a consistent structure across various asset providers, simplifying operations, and enhancing efficiency. They ingest and aggregate data from diverse sources including energy field buses (i.e. Modbus, OPC-UA, IEC 60870, IEC 61850, DNP3, etc.), and smart systems and sensors. Edge AIoT framework ESF and management platform Everywhere Cloud facilitate and speed up deployment and configuration of the edge, with full device management and powerful health monitoring, enabled by EC installed in the customer's IT infrastructure, whether on premise or in the cloud.



Benefits

Breach Cost Avoidance

Save ~\$4M+ per avoided breach through XPN unified trust fabric that shrinks attack scope, enables faster containment, and lowers incident costs when attacks occur.

Optimized Asset Management and Situational Awareness

Real-time monitoring enables predictive maintenance and optimized service scheduling based on actual field data, reducing downtime and improving asset availability.

Compliance Assurance

Advanced logging provides immutable detailed audit trails and continuous monitoring, reducing compliance risk and fines.

Eurotech with Intertrust XPN

Eurotech is a multinational company that designs, develops and supplies ruggedized Edge Computers and Internet of Things (IoT) solutions to system integrators and enterprises. The portfolio ranges from AIoT software stacks to Edge Gateways and Edge Servers to High Performance Edge Computers and Edge AI Systems. Eurotech complements the Intertrust offerings by enabling customers with application optimized Edge / IoT building blocks for demanding verticals like manufacturing, transportation, agriculture, energy and utilities.

Intertrust XPN provides enterprise-grade security frameworks for IoT and edge computing deployments, with a particular focus on critical infrastructure applications. The XPN solution enables trusted data interoperability, secure device-to-cloud communication, and scalable key management operations for deployments ranging from hundreds to millions of connected devices.

Features



Effective Development and Reduced Time-to-Market

The Eurotech offering marries certified hardware with a full software stack, including a managed Linux OS and a powerful AIoT device middleware ESF (Everyware Software Framework). ESF comes with a low-code/no-code development solution, a wide range of supported field protocols and ready to use cloud integrations. The IoT Management Platform EC (Everyware Cloud), enables remote and full lifecycle management, advanced logging and health monitoring features.



Clear Focus on Low TCO and Risk Mitigation

The offering addresses major aspects that add to the total ownership costs of an IoT solution, like security, device software lifecycle management, health monitoring and logging. Security, a major challenge in critical infrastructure is ensured by products designed to meet security requirements by standards including IEC 62443-4-2. Risk aspects are further mitigated by long product life support, extended warranty options and a broad professional services offering.

Case Study:

Connect & Manage PV Power Generation Assets



Challenges



Utilities deploying virtual power plants face critical security and interoperability gaps as they aggregate distributed energy resources. Current fragmented security tooling cannot scale to millions of IoT devices. At the core is replacing multiple point products with a unified, device-to-cloud trust fabric that delivers measurable ROI including ~\$4M+ breach cost avoidance.

Solution



Containerized XPN on Eurotech ReliaGATE 15A-12 gateways with zero-trust architecture, explicit trust verification, end-to-end encryption, and scalable key management. Required where IEC 62443-4-2 (or ISA Secure) certification, container management, Zero-Touch-Provisioning, and OT protocol connectors are needed to ensure rapid deployment with low total cost of ownership.

Results



Utilities deploy secure VPP infrastructure at scale with measurable ROI including seamless integration for analytics and control. Improved operational efficiency through unified trust fabric replacing fragmented tooling. Breach cost avoidance: ~\$4M+* saved per avoided breach. Risk containment through lower lateral movement. Compliance assurance with built-in security controls reducing fines and remediation costs.

*\$4.4M per breach, according to IBM's *Cost of a Data Breach Report*, <https://www.ibm.com/think/x-force/2025-cost-of-a-data-breach-navigating-ai>

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