WATERFALL®
Stronger Than Firewalls

SECURING POWER GENERATION WITH THE WF-600 UNIDIRECTIONAL GATEWAY

Customer/ Partner	A hydropower generating utility
Customer Requirement	Enable safe operations monitoring, remote access for the turbine vendor, and cloud-based backups as part of a NIST Cybersecurity Framework-based upgrade to cybersecurity programs
Waterfall's Unidirectional Solution	WF-600 Unidirectional Gateways were deployed to make copies of OPC-UA servers to the enterprise historian, replicate Syslog and SNMP monitoring data to the corporate SOC, provide Remote Screen View to turbine vendors, and push OT backups to a cloud-hosted service

POWER PLANTS FACE CYBER THREATS

Ransomware attacks causing physical outages or damage to critical infrastructure sites are more than doubling annually. When ransomware and other malicious attacks gain access to an industrial control systems, they can sabotage operations and safety processes, leading to costly outages, damaged turbines, threats to personnel safety and even environmental disasters. This is why NERC CIP and other industrial security regulations urge operators to thoroughly secure networks, especially IT/OT interconnections, to protect high-consequence physical operations from cyber attacks originating on the Internet.

THE CHALLENGE

Upgrade generating stations' cyber security programs to protect reliability and align with the NIST CSF, especially the detect, respond, and recover pillars of the framework.

Make generating unit OPC-UA data available safely to enterprise users, connect all plants to the enterprise SOC, and connect all Windows assets the new ransomware-proof enterprise cloud backup service.

WATERFALL SOLUTION

A Waterfall WF-600 Unidirectional Gateway in each power plant replicates OPC-UA servers to the IT network, for use by the enterprise historian and remote turbine vendor.

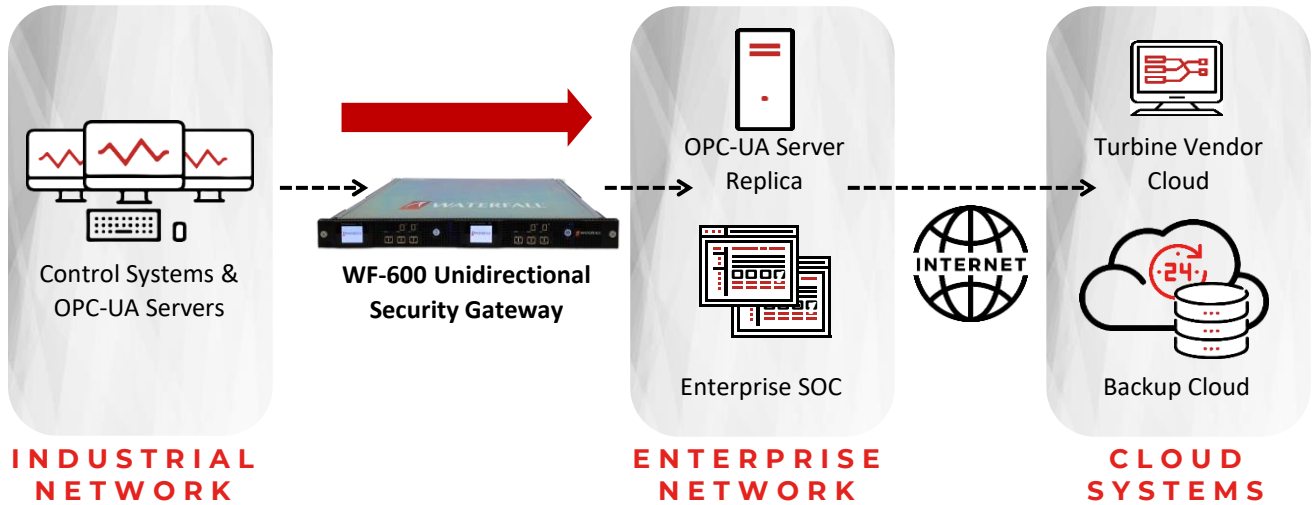Each gateway replicates Syslog and SNMP to the corporate SOC.

The gateways also replicate the turbine vibration management system displays via Remote Screen View to enable turbine vendor oversight of turbine adjustments, satisfying a key vendor contract obligation.

Finally, a high speed 10Gbps file transfer connector enables safe, regular, full backups of all Windows hosts in all OT networks to the cloud-hosted disaster recovery service.

RESULTS & BENEFITS

✓ **Performance:** 10 Gbps throughput with copper and fiber options for any network need.

✓ **Unbreachable protection:** The WF-600 hardware is impervious to network attacks from external networks.

✓ **Unlimited Visibility:** Hundreds of proven connectors replicate servers to IT networks and cloud systems. IT and cloud users and applications use the replicas normally.

✓ **Compliance:** Unidirectional Gateways simplify compliance with global ICS / OT security standards and regulations.

THEORY OF OPERATION

INDUSTRIAL NETWORK — Control Systems & OPC-UA Servers → **WF-600 Unidirectional Security Gateway** → **ENTERPRISE NETWORK** — OPC-UA Server Replica, Enterprise SOC → INTERNET → **CLOUD SYSTEMS** — Turbine Vendor Cloud, Backup Cloud

WF-600 Unidirectional Security Gateways replace firewalls in industrial network environments, **providing unbreachable protection to control systems and industrial control networks from attacks emanating from external networks.** Unidirectional Gateways contain both hardware and software components. The hardware is physically able to send information in only one direction. The software replicates servers and emulates devices. Unidirectional Gateway software is all part of the Waterfall OS (operating system) and runs entirely within the gateway device – there is no need to install Waterfall software on any other OT or ICS device. All interactions with the Waterfall OS software are via a simple, powerful web GUI that is used for all configuration, monitoring, management and troubleshooting.

Unidirectional Gateways **enable safe IT/OT integration, vendor monitoring, industrial cloud services, and visibility into operations** for modern enterprises and customers.

UNIDIRECTIONAL SECURITY GATEWAY BENEFITS:

» No cyber attacks can penetrate to industrial networks through the Unidirectional Gateway

» Self-contained operations – all unidirectional software is contained within the gateway hardware and managed by a simple web-based user interface

» Simplified compliance with regulations & standards including NERC CIP & NIST CSF

» 1 Gbps and 10 Gbps standard throughput options, standard High Availability, backfill, metadata synchronization and many other options

GLOBAL CYBERSECURITY STANDARDS RECOMMEND UNIDIRECTIONAL SECURITY GATEWAYS

Waterfall Security is the market leader for Unidirectional Gateway technology with installations at critical infrastructure sites across the globe. The enhanced level of protection provided by Waterfall's Unidirectional Security Gateway technology is recognized as best practice by leading industry standards bodies and authorities such as NIST, ANSSI, NERC CIP, the ISA, the US DHS, ENISA, TS50701 and many more.

ABOUT WATERFALL SECURITY SOLUTIONS

Waterfall Security Solutions' unbreachable OT cybersecurity technologies keep the world running. For more than 15 years, the most important industries and infrastructure have trusted Waterfall to guarantee safe, secure, and reliable operations. The company's growing list of global customers includes national infrastructures, power plants, nuclear generators, onshore and offshore oil and gas facilities, refineries, manufacturing plants, utility companies, and more. Waterfall's patented Unidirectional Gateways and other solutions combine the benefits of impenetrable hardware with unlimited software-based connectivity, enabling 100% safe visibility into industrial operations and automation systems. Visit us at www.waterfall-security.com.