The Growing Hydropower Industry and Facing Modern Cyber Threats

With an average growth of 4% per year, hydropower has become the leading renewable source for electricity generation - globally supplying 71% of all renewable electricity. Today, hydropower offers not only clean energy but its infrastructure is also used for fresh water management, such as water supply, and flood management. The importance of hydropower has increased significantly in the past decade, leading to the adoption of innovative technology, advanced control systems, and stronger equipment.

When malicious attackers gain access to an industrial control system they are able to sabotage industrial control 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 IT/OT interconnections in order to protect these high-risk access points against cyber terrorism and other attacks.

The question is - how to achieve 100% protection from remote cyber threats?

## Waterfall Solution

A Waterfall Unidirectional Gateway was installed between the industrial control system network and the enterprise network. Unidirectional Gateway software connectors replicate OSIsoft PI, GE OSM, and ICCP servers from the control network to the enterprise network where enterprise clients can interact normally and bi-directionally with the replicas. A file server replication connector was also deployed, to eliminate the routine use of USB drives and other removable media.

Enterprise users and applications, as well as vendors and NERC Balancing Authorities interact bi-directionally with replica servers, while the Unidirectional Gateway hardware physically prevents any Internet-based attack from reaching protected control networks.

## Results & Benefits

100% Security: The industrial network is now physically protected from threats emanating from external, less-trusted networks.

100% Visibility: The enterprise network continues to operate as if nothing has changed. Instead of accessing servers on the critical operational network, users on the external network now access real-time data from replicated servers for all informational and analytical requirements.

100% Compliance: Unidirectional Gateways are recognized by the NERC CIP standards, as well as other North American and global industrial cyber security standards and regulations.
Waterfall Unidirectional Security Gateways replace firewalls in industrial network environments, providing absolute protection to control systems and industrial control networks from attacks emanating from external less-trusted networks. Unidirectional Gateways contain both hardware and software components. The hardware components include a TX Module, containing a fiber-optic transmitter/laser, and an RX Module, containing an optical receiver, but no laser. The gateway hardware can transmit information from an industrial network to an external network, but is physically incapable of propagating any virus, DOS attack, human error or any cyber attack at all back into the protected industrial network.

The Gateways enable vendor monitoring, industrial cloud services, and visibility into operations for modern enterprises and customers. Unidirectional Gateways replicate servers, emulate industrial devices and translate industrial data to cloud formats. As a result, Unidirectional Gateway technology represents a plug-and-play replacement for firewalls, without the vulnerabilities and maintenance issues that accompany firewall deployments.

GLOBAL CYBERSECURITY STANDARDS RECOMMEND UNIDIRECTIONAL SECURITY GATEWAYS

Waterfall Security is the market leader in 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 many leading industry standards bodies, including NIST, ANSSI, NERC CIP, the ISA, the US DHS, ENISA and many more.

ABOUT WATERFALL SECURITY SOLUTIONS

Waterfall Security Solutions is the global leader in industrial cybersecurity technology. Waterfall products, based on its innovative unidirectional security gateway technology, represent an evolutionary alternative to firewalls. The company’s expanding portfolio of customers includes national infrastructures, power plants, nuclear plants, offshore oil and gas facilities, rail transport, refineries, manufacturing plants, utility companies, and many more. Deployed throughout North America, Europe, the Middle East and Asia, Waterfall products support the widest range of leading industrial remote monitoring platforms, applications, databases and protocols in the market. Please contact: info@waterfall-security.com, sales: sales@waterfall-security.com

Waterfall’s products are covered by U.S. Patents 8,223,205, 7,649,452, and by other pending patent applications in the US and other countries. “Waterfall”, the Waterfall Logos, “Stronger than Firewalls”, “In Logs We Trust”, “Unidirectional CloudConnect”, and “CloudConnect, and “One Way to Connect” are trademarks of Waterfall Security Solutions Ltd. All other trademarks mentioned above are the property of their respective owners.

Waterfall Security reserves the right to change the content at any time without notice. Waterfall Security makes no commitment to update content and assumes no responsibility for any mistakes in this document.

Copyright © 2018 Waterfall Security Solutions Ltd. All Rights Reserved. www.waterfall-security.com