



ENABLING THE DIGITAL OIL FIELD

PROTECTING OFFSHORE EXPLORATION AND PRODUCTION FROM EVOLVING CYBER THREATS

Customer	Global Offshore Oil and Gas Company
Customer Requirement	To secure the safe and continuous operation of offshore platforms from remote cyber attacks, while enabling reliable real-time monitoring of costs, production and the status of essential platform systems.
Waterfall's Unidirectional Solution	Secures the platform control system network perimeter from external threats with Unidirectional Security Gateways, enabling Real-Time Enterprise Connectivity and Third Party Monitoring and creating fully operational Wonderware PCS, OPC-DA, power turbine monitoring and file server replicas.

OFFSHORE PRODUCTION MODERNIZATION AND CONTAINING MODERN CYBER THREATS

The energy industry has become the second most prone to cyber attacks with **nearly three-quarters of U.S. oil & gas companies experiencing at least one cyber incident annually**. Remote cyber attacks on offshore oil and gas platforms can result in severe consequences to human and environmental safety in the form of ruptures, explosions, fires, releases, and spills.

THE CHALLENGE

To secure the safe, reliable and continuous operation of platform control and safety networks from threats emanating from less trusted external networks. In parallel, provide safe, real-time reporting of operations data to business, vendor, regulatory and cloud systems: including predictive maintenance applications, scheduling optimizers, and outsourced network and security monitoring.



WATERFALL SOLUTION

A Waterfall Unidirectional Gateway was installed connecting platform control system networks to the on-platform extension of the enterprise IT network. Unidirectional Gateway software connectors replicate OPC-DA servers from the control network to the enterprise network where OSIsoft PI servers query and otherwise interact normally and bi-directionally with the OPC replicas.

In addition, Waterfall's Unidirectional CloudConnect provided visibility into natural gas turbine operating parameters for cloud-based turbine monitoring and predictive maintenance applications. A file server replication connector was also deployed, to eliminate the routine use of USB drives and other removable media.

Waterfall's Unidirectional Gateway and CloudConnect hardware physically prevent cyber threats from reaching sensitive industrial control networks by transmitting data in only one direction to external networks.

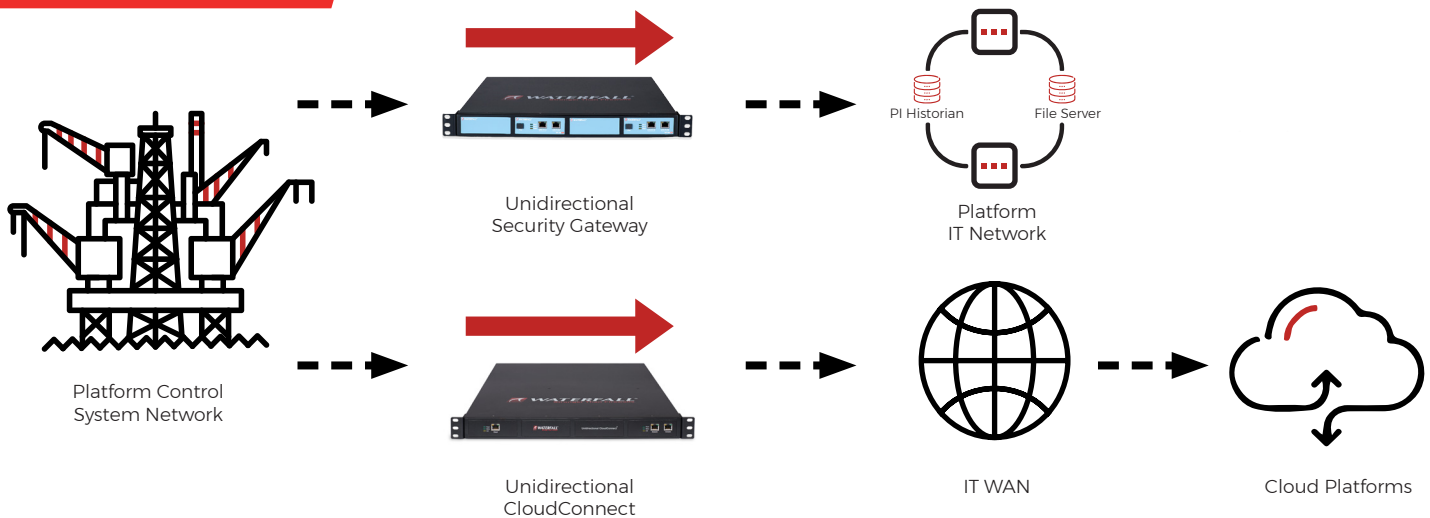
RESULTS & BENEFITS

100% Security: The offshore network is now physically protected from threats emanating from external, less-trusted, Internet-exposed and cloud-based networks.

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

100% Compliance: Unidirectional Gateways simplify compliance with global industrial-control-system cybersecurity standards and regulations.

THEORY OF OPERATION



Waterfall Unidirectional Security Gateways replace firewalls in industrial network environments, **providing absolute protection to control systems and operations networks from attacks originating on external networks.** 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 always accompany firewall deployments.

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 network.

UNIDIRECTIONAL SECURITY GATEWAYS BENEFITS:

- » Safe, continuous monitoring of critical systems
- » Safe cloud vendor/services supply chain integration
- » Protect product quality and the safety of personnel, property and the environment from remote Internet-based attacks
- » Simplify audits, change reviews, and security system documentation
- » Replace at least one layer of firewalls in a defense-in-depth architecture, breaking the attack path from the Internet to important control systems

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, and ENISA. Waterfall's solution also facilitates safe real-time data monitoring for compliance with the requirements of the US Department of the Interior's BSEE Well Control Rule.

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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

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