



ENABLING THE SMART AIRPORT

PROTECTING AIRPORT INFRASTRUCTURE FROM EVOLVING CYBER THREATS

Customer	A Major European International Airport Hub
Customer Requirement	Enable real-time visibility of operational data while protecting ATC, runway operations and safety, baggage handling and cargo systems, biometric security systems and flight information display systems from threats emanating from the interconnection of these systems to less-trusted IT networks.
Waterfall's Unidirectional Solution	Secure the operational network perimeter from external threats and provide real-time enterprise monitoring – Unidirectional Security Gateways protect all operational systems with an impassable physical barrier to external network threats.

UNIDIRECTIONAL NETWORK PROTECTION FOR AIRPORT INFRASTRUCTURE

Cyber attacks on civil airport systems and infrastructures can lead to catastrophic consequences. Airports rely on SCADA and industrial control systems for utilities, baggage systems, radar systems, runway operations and safety, biometric security systems for safe and reliable passenger travel. Waterfall Unidirectional Security Gateways and related products replace firewalls on industrial networks to enable safe IT/OT integration while physically preventing online and remote attacks on airport operations networks.

THE CHALLENGE

To protect safe, reliable and continuous operation of airport infrastructure operational systems and safety networks from cyber threats emanating from less trusted IT networks and the Internet. At the same time provide real-time access to operational data for the airport enterprise and the public, as well as periodic and on-demand inbound access for updates and vendors.



WATERFALL SOLUTION

A Waterfall Unidirectional Gateway provides safe IT/OT integration, connecting the operations control system network to the Enterprise network. The gateway replicates OSISoft PI and Syslog servers from the control network to the enterprise network. Enterprise clients interact normally and bi-directionally with these replicas in real-time.

A Waterfall FLIP, a hardware-enforced Unidirectional Security Gateway whose orientation is reversible, permits disciplined, scheduled updates of operations systems. By schedule, or by exception, an independent control mechanism triggers the FLIP hardware to change orientation, allowing specific updates to flow back into the protected control system network as needed.

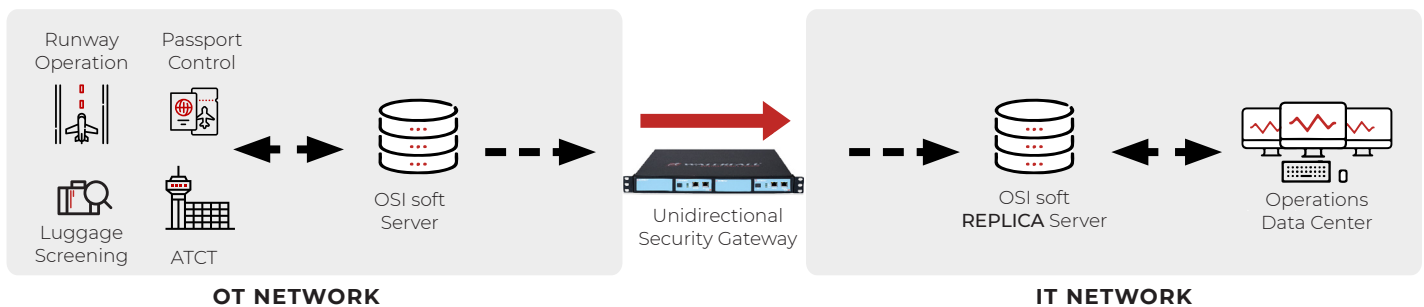
RESULTS & BENEFITS

100% Security: Having replaced the IT/OT firewall with hardware-enforced physical protection in the form of a Unidirectional Gateway and a FLIP, airport control networks are now physically protected from online attacks originating on IT, Internet or other external networks.

100% Visibility: Existing airport systems continue to operate normally. Instead of accessing servers on the critical operational network through a vulnerable firewall, users on the enterprise network now access real-time data from the replica PI System for all informational and security requirements.

100% Compliance: This architecture facilitates compliance with even the most rigorous industrial cybersecurity standards and regulations, world-wide.

THEORY OF OPERATION



Waterfall Unidirectional Security Gateways replace firewalls in classified high-security network environments, **providing absolute protection from online data exfiltration attacks**. 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 a low-security network to a high-security network, but is physically incapable of propagating any online data exfiltration attacks back into the protected high-security network, not even when targeted by sophisticated trojans or by insiders actively trying to create such information leaks.

The Waterfall Unidirectional Security Gateways enable out of the box replication capabilities of dozens of commonly-used applications, including relational databases, message-passing middleware, video streams, file servers, electronic mail servers, anti-virus servers and Microsoft WSUS servers. As a result, Unidirectional Gateway technology represents a plug-and-play replacement for firewalls, without the vulnerabilities and maintenance issues that accompany firewall deployments.

UNIDIRECTIONAL SECURITY GATEWAYS BENEFITS:

- » Safe, real-time continuous monitoring of airport critical infrastructure and operational control systems
- » Absolute protection from remote attack consequences, including unscheduled downtime, equipment damage and threats to workers, and public safety
- » Simplified audits, change reviews, and security system documentation
- » Real-time OSISOFT PI server data and functionality are available to business network users and applications
- » Disciplined, on-demand and scheduled updates of airport systems, without the vulnerabilities that always accompany firewall deployments

GLOBAL CERTIFICATIONS AND COMPLIANCE

- **Certified:** Common Criteria EAL 4+, ANSSI CSPN, NITES Singapore
- **Assessed by:** US DHS SCADA Security Test Bed & Japanese Control Systems Security Center Bed, Idaho National Labs, Digital Bond Labs, GE Bentley Nevada Systems Labs, and NISA Israel
- **Complies with:** Global ICS Standards & Regulations, Single European Sky (SESAR), NERC CIP, IEC 62443, NRC 5.71, NIST 800-82r2, CFATS, ISO, IIC SF, ANSSI, and many more

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ABOUT WATERFALL SECURITY

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

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 Logo, "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.

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