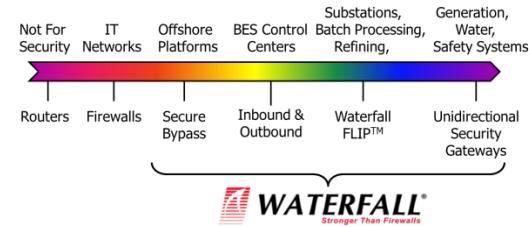


Stronger Than Firewalls

Waterfall's Spectrum of Solutions Meets a Spectrum of Needs



Solution Spectrum

- Unidirectional Security Gateways: unidirectional server replication
- Remote Screen View: unidirectional screen replication
- FLIP™: reversible unidirectional server replication
- Inbound/Outbound: continuous unidirectional server replication both into and out of ICS networks
- Secure Bypass: temporary, emergency remote control
- Central Engineering: all Waterfall solutions are compatible with dedicated operations WANs

Overview

Waterfall Security Solutions produces a wide spectrum of solutions based on and complementing Waterfall's world-leading Unidirectional Security Gateways. Industrial Control System sites world-wide increasingly deal with cyber attacks ranging from disgruntled insiders, to pervasive viruses and botnets, to advanced remote control attacks. These attacks routinely defeat firewalls and other IT-focused protections. Every element of the Waterfall Security Solutions suite is a hardware-enforced solution, is stronger than firewalls, and is designed to defeat even advanced online attacks.

WATERFALL <i>Stronger Than Firewalls</i>	Spectrum of Needs						
	Continuous monitoring	Rare, routine, inbound data	Frequent, routine, inbound data	Continuous, read-only remote access / support	Emergency remote control	Central engineering	
Unidirectional Gateway (UGW)		✓	✓				✓
FLIP™	✓		✓				✓
Inbound/Outbound Gateways (IOG)	✓			✓	✓		✓
Secure Bypass (SB)						✓	✓

Waterfall always recommends deploying the strongest protections, which meet each site's critical communications requirements, from the spectrum of solutions highlighted above.

Note that the term "Inbound data" above represents the need of data to enter into an industrial network by any method, including configuration files on USB sticks or CD-ROMs, anti-virus signatures over a network connection, and even text files containing reports or contracts.

Use Cases

Generator: Base Load

Needs: Push historian data to IT WAN & push ICCP to generation dispatch center. Turbine vendor needs monitoring and diagnostics.

Deployed: UGW for historian and other replications, including turbine vibration data and ICCP to dispatch center. Remote Screen View for turbine vendor.



Chemicals: Batch Processing

Needs: Push historian data to IT. Get batch recipes, AV updates & Active Directory updates twice daily. Support central engineering team

Deployed: FLIP™ for historian data, recipes & AV updates connect centrally-managed, dedicated OT WAN to IT WAN.



BES: Balancing Authority ICCP WAN

Needs: Constant ICCP feed from utilities over private WAN. Constant ICCP setpoint feed out to same utilities. Provide access to WAN to maintain WAN-facing equipment.

Deployed: Independent ICCP inbound / outbound UGW replications. Dedicated connections to WAN from computers in engineering offices.



Transmission Substations

Needs: At remote substations, push DNP3 status to control center, push occasional DNP3 commands, maintenance commands, and configuration files to substations.

Deployed: FLIP™ for substations, with DNP3 and file replications, and a Waterfall substation management module to automate maintenance operations.



Offshore Platform

Needs: Push OPC data from platform historian to a different vendor's corporate historian. Emergency remote control during hurricane evacuations.

Deployed: UGW replicates platform historian data to corporate historian via OPC. In evacuation emergencies, Secure Bypass enables remote control over dedicated, leased-spectrum link.



Safety: SIS Monitoring

Needs: Continuous monitoring of safety systems via Modbus, syslog and SNMP traps, with no risk of online attacks from monitoring network.

Deployed: UGW replicates Modbus, SNMP and syslog.



Replication Solutions for Waterfall Spectrum

Leading Databases/Applications/Historians

- OSIsoft PI, PI AF, GE iHistorian, GE iFIX, AspenTech
- Scientech R*Time, Instep eDNA, GE OSM
- Siemens WinCC, SINAUT/Spectrum, Emerson Ovation
- Matrikon Alert Mgr, Wonderware Historian, ClearSCADA
- SQLServer, MySQL, Postgres, Oracle, SAP

Leading IT Monitoring Applications

- Log Transfer, SNMP, SYSLOG CA Unicenter, CA SIM
- HP OpenView, HP ArcSight, McAfee ESM & ePO

File/Folder Mirroring

- Local folder, tree mirroring, remote folders (CIFS)
- FTP/FTFS/SFTP/TFTP/RCP/Rsync/SMB

Leading Industrial Protocols

- Modbus, OPC (DA, HDA, A&E, UA)
- DNP3, ICCP, IEC 60870-104

Remote Access

- Remote Screen View™, Secure Bypass

Other connectors

- UDP, TCP/IP, NTP, SNTP, Multicast Ethernet
- Video/Audio streams, Netflow, SMTP
- IBM MQ, Tibco, Microsoft MQ, Active MQ
- AV updater, patch (WSUS) updater, OPSWAT
- Remote print server

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