

OPSWAT.

NetWall

Security Gateway Solutions Powering Risk-Free IT-OT Communications





The once-clear distinction between information technology (IT) and operational technology (OT) systems, processes, and people is becoming blurred. Conventional airgaps between OT and IT network segments have eroded due to increased corporate demand for connectivity and data analytics from industrial environments.

This increased demand for connectivity exposes industrial assets to targeted cyberattacks because firewalls and next-generation firewalls are inherently bi-directional. They rely on software-based policies and are prone to misconfiguration that threat actors can exploit.

OPSWAT NetWall Optical Diode and Security Gateways provide access to real-time OT data and enable secure data transfer to OT environments without compromising the security and integrity of your critical production systems.

NetWall USG [Unidirectional Security Gateway]

OPSWAT NetWall USG provides access to real-time OT data and enables secure IT-OT data transfers—with the full benefit of speed, low latency, and functionality—and with complete reliability and no data loss. Since no return-path networking is possible, OPSWAT NetWall USG assures real-time operations data can be sent to the corporate network users without the risk of introducing security threats to protected OT networks.

NetWall BSG [Bilateral Security Gateway]

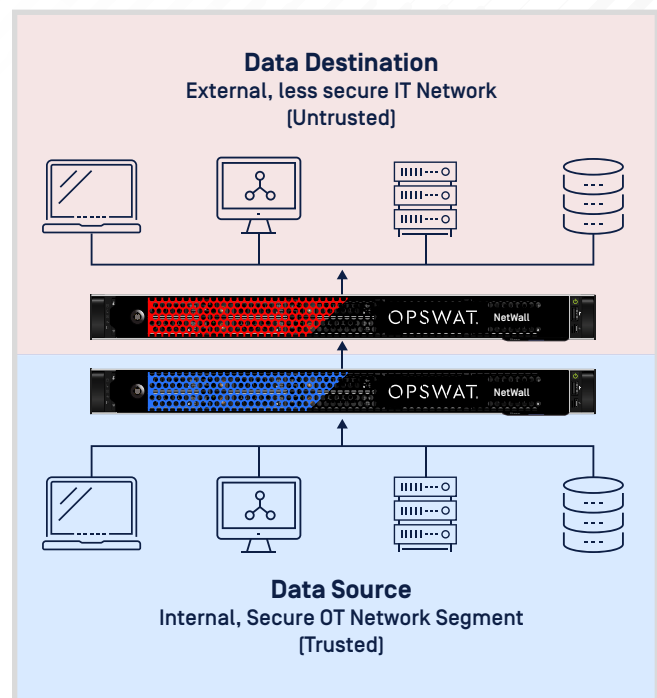
In addition to all the capabilities of NetWall USG, NetWall BSG supports applications such as historians and SQL database servers that require a data response in order to operate. OPSWAT BSG performs real-time replication of the data (with no data loss) and uses a bilateral mechanism to handle data responses without compromising the security and integrity of the OT network.

When a connection is initiated from the trusted network to a destination in the untrusted network, OPSWAT NetWall BSG performs a full protocol break. The protocol break allows select applications from the destination to securely return a data response to the source application over a non-routable connection. NetWall will not allow a connection to be initiated from the untrusted network, ensuring that the communication channel cannot be exploited.

NetWall Optical Diode

OPSWAT NetWall Optical Diode provides a hardware-enforced unidirectional transfer of real-time OT data and enables secure IT-OT data transfers over a reliable, high speed, low latency optical link. Since no return-path networking is possible, OPSWAT NetWall Optical Diode transfers real-time operations data while conforming to industry regulatory requirements for deterministic one-way transfer device. NetWall Optical Diode performs payload integrity checking and optionally supports redundant optical links, achieving unsurpassed reliability and data delivery assurance.

NetWall Optical Diode is available on enterprise servers or ruggedized Din rail servers that can be deployed in harsh industrial environments.



OPSWAT NetWall USG, BSG comprises a pair of pre-configured appliances with a non-networked serial cable between them that permits unidirectional data flows from OT assets and applications to stakeholders in external IT networks.

NetWall Optical Diode uses an optical fiber connection between the pre-configured appliances, transferring payload or a non-networked connection.

Compelling Benefits

- Real-time transfers of OT data to business users without disrupting their work procedures
- No risk of cyber threats entering your protected OT network
- Files transfers and database/server replications without proprietary vendor HW and SW
- High-assurance payload delivery that allows concurrent transfers of multiple data types
- No complicated firewall audit/configuration projects and risky backdoor channels to the OT network
- Easy deployment and field-upgrade software license keys for scaling

Focus on Maximum Security and Reliability

OPSWAT NetWall versus Firewall, Router rules, VLANs

Unlike firewalls, routers and VLANs, OPSWAT Network Security Gateways enforce true unidirectional communications, with no possibility of routable connections to the protected OT network domain.

Feature	OPSWAT NetWall	Networking Solutions
Routing configuration	✓	✓
Protocol break, completely removed from TCP/IP connection	✓	✗
Meets functional requirements of data diodes (NetWall USG)	✓	✗
Guaranteed delivery with non-repudiable data movement	✓	✗
No complex rule-building	✓	✗
Guaranteed prevention of malware propagation	✓	✗
No ARP, BGP, TCP/IP handshake	✓	✗

OPSWAT NetWall versus Hardware Data Diodes

Unlike data diodes, OPSWAT Network Security Gateways guarantee reliable data replication and guaranteed data delivery with no data loss, no overruns, and no sync issues.

Feature	NetWall	Data Diodes
Unidirectional Gateway (NetWall USG)	✓	✓
Complete protocol break	✓	✓
Guaranteed data delivery	✓	✗
Efficient data synchronization and replication	✓	✗
Improved throughput (reduced repeat transmissions)	✓	✗
Same hardware scales from 100 Mbit/sec to 1Gbit/sec (in BSG and Data Diode); and to 10 Gbit/sec (in USG)	✓	✗
Hardware dongle for admin access	✓	✗
Fast and easy to deploy	✓	✗
Cost effective with competitive subscription or perpetual license options	✓	✗

OPSWAT NetWall Optical Diode versus Other Data Diodes

Unlike other data diodes, OPSWAT Optical Diode offers greater delivery assurance with greater scalability as well as simpler configuration and deployment.

Feature	NetWall Data Diode	Other Data Diodes
One-Way Data Flow	✓	✓
Complete protocol break	✓	✓
High data delivery assurance	✓	✗
Improved throughput (reduced repeat transmissions)	✓	✗
Same hardware scales from 100 Mbit/sec to 1Gbit/sec	✓	✗
Hardware dongle for admin access	✓	✗
Fast and easy to deploy	✓	✗
Cost effective with competitive subscription or perpetual license options	✓	✗

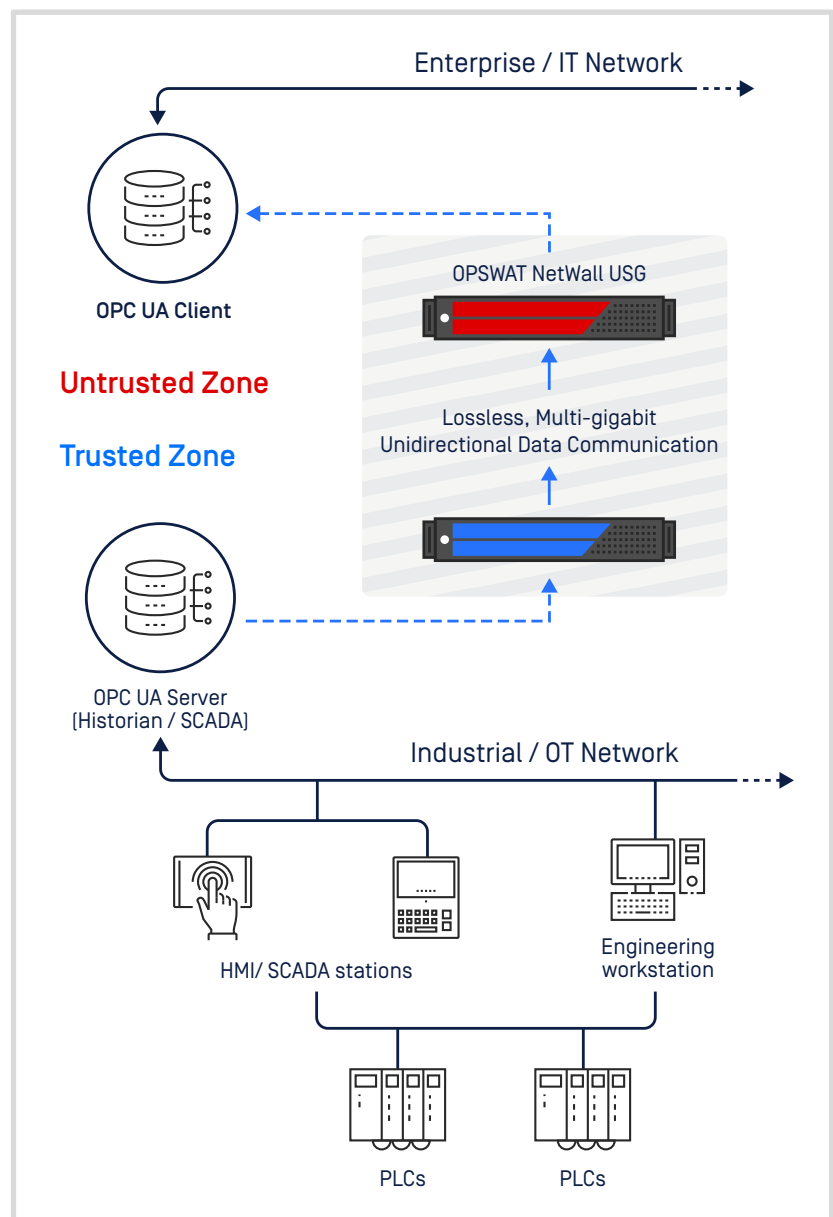
OT Cybersecurity That No Firewall Can Match

Deployed as a pair of preconfigured appliances, OPSWAT NetWall Optical Diode and Security Gateways enable secure communication from protected OT domains to external corporate users. The transmitting appliance is connected exclusively to the protected OT network and the receiving appliance to the external IT network. A non-networked serial cable joins the two, allowing only unidirectional data flows

Because return path data flows to the protected network are impossible, malicious actors cannot take advantage of data transfers to inject malware into critical OT assets. OPSWAT NetWall is an ideal solution for a number of OT cybersecurity use cases:

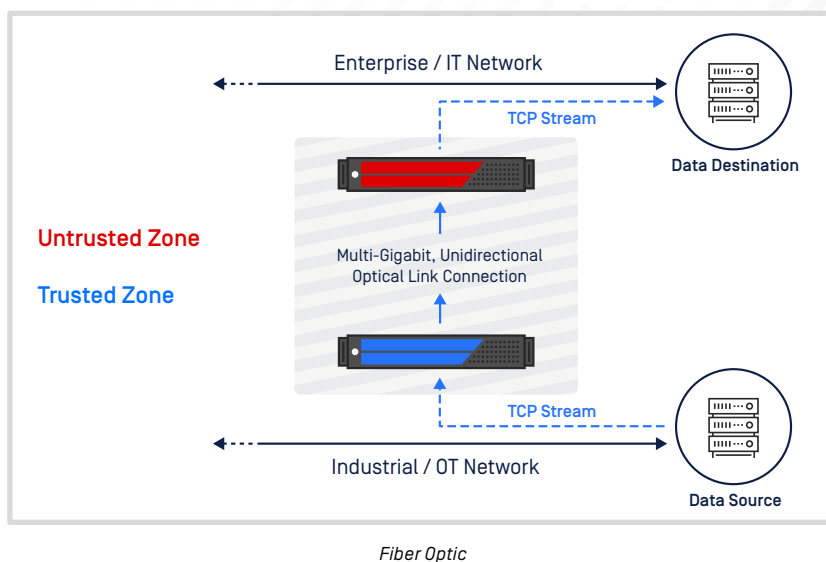
Use Case: OPC UA Server Replication with NetWall USG

In the protected network domain, the OPSWAT NetWall transmitting server listens via filtered ports on its local network interface for incoming data from the OPC UA server. As activity is received, it is disassembled. The payload and connection metadata are then delivered to the receiving OPSWAT NetWall OPC UA server in the corporate network domain. The OPSWAT NetWall OPC UA server assimilates the data and makes it available to customers' OPC UA clients in the corporate network domain. The replication process is transparent both to external users and to the OPC UA server. Corporate users access the replica just as they would the OT native server, eliminating the need to learn new processes or procedures.



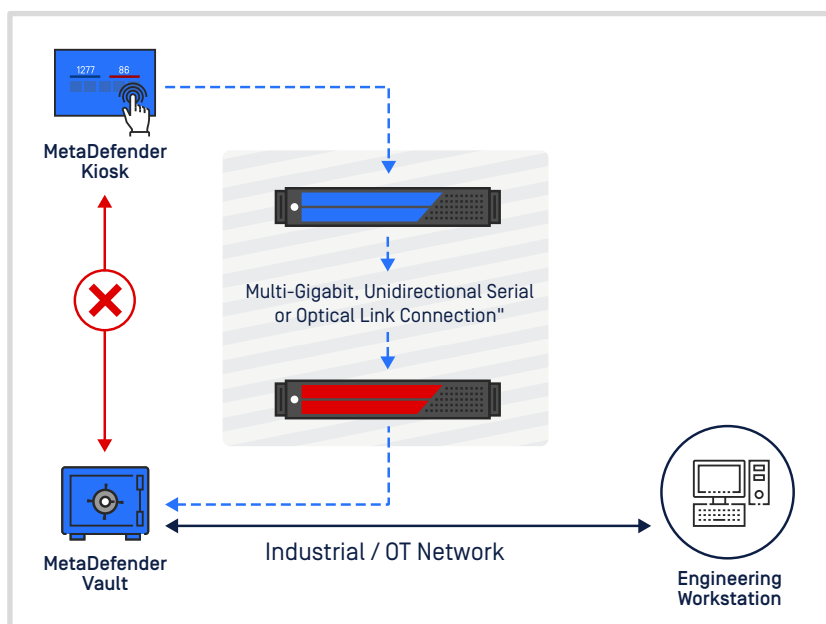
Use Case: Fast and Secure File Transfer with NetWall Optical Diode

One-way file transfer assures quick file delivery and guarantees file integrity. OPSWAT NetWall supports FTP, Windows File Share and most file transfer tools as well as Active/Passive transfer modes, ASCII/Binary transfer types, and selective file/folder replication. Use OPSWAT NetWall USG to replicate OT data and to enforce one-way communication in real-time. Any attempt at two-way sessions or back-channel access are stopped at the industrial network perimeter.



Use Case: No-Risk Transfer from Kiosk to Vault with NetWall USG or Optical Diode

The convenience of portable and removable media has made them popular methods for transferring files into and out of a networked environment. Since this practice is fraught with risk, it has given rise to digital security guards – or kiosks – that inspect portable media for malware, vulnerabilities, and sensitive data, before allowing them into the OT environment. Kiosks typically employ a vault, a secure file storage and retrieval solution that provides a multi-tiered approval process and a detailed audit log for data transfers within the organization.



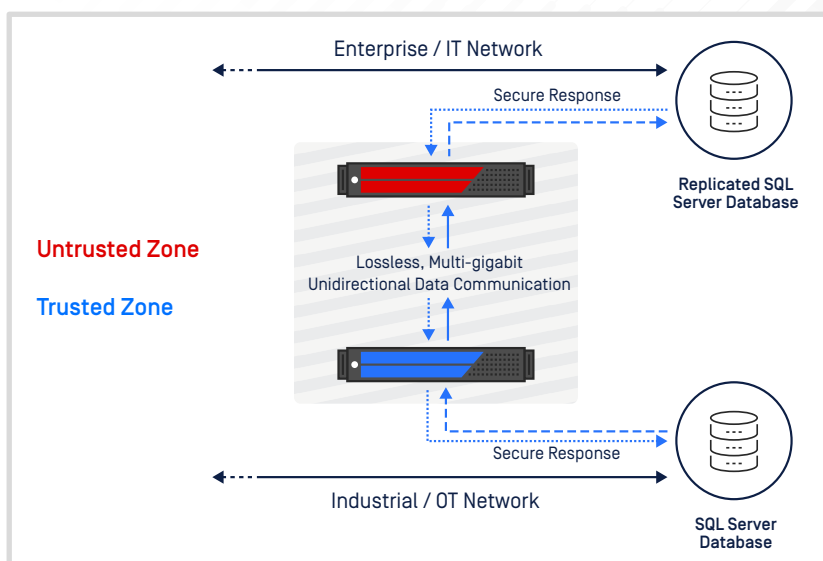
In this case, use OPSWAT NetWall USG or Optical Diode to enforce one-way file delivery from a kiosk to a vault, assuring secure transfer of files and data into your production environment. Working together with Kiosk and Vault solutions to eliminate risk, OPSWAT NetWall USG enables quick and secure delivery of patches, signatures, and other product updates to the OT assets that need them.

OPSWAT NetWall Security Gateways are seamlessly integrated with OPSWAT MetaDefender Kiosk and MetaDefender Vault solutions, providing end-to-end security for IT-OT convergence.

Use Case: SQL Server Replication with NetWall BSG

When access to SQL databases is required, OPSWAT NetWall Bilateral Security Gateway employs Microsoft's standard transactional replication services, removing the need for complicated scripting, custom installation, or modification of the SQL environment. SQL server replication is also transparent to users.

Standard buffering takes over if the connection is temporarily lost. OPSWAT maintains Microsoft replication constraints and does not introduce any additional requirements.



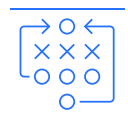
Transfer from Source to Destination is configured in the NetWall USG, using console software and USB dongle.

Key Features



Guaranteed Payload Delivery

Absolutely no data loss with NetWall USG and BSG.



Anti-Overflow

No data overflow, retransmissions, and sync issues.



No Return Path

One-way data flows are enforced by a non-networked serial connection between the NetWall server pair. The bilateral support mechanism in NetWall BSG permits data replies while enforcing full protocol break and physical isolation.



Easy deployment

Preconfigured platform deploys quickly and seamlessly without interrupting workflows.



Simple setup

Ready for use in minutes after one-time initial setup. No firewall audit or configuration needed.



Simple scalability

Choose, 100Mbit/sec, 1Gbit/sec or 10Gbit/sec throughput - all software selectable.



Full support for industrial protocols

Including OPC DA, A&E, and UA, plus Modbus/TCP, file transfers, and TCP/UDP sockets.



Fulfills regulatory compliance

For many requirements of Industrial Cyber Security standards, including NERC CIP, NIST CSF, NIST 800-82, NIST 800-53, NIST ICS, IEC 62443, NRC 5.71, CFATS, ISO 27001/ 27032 / 27103, ANSSI, IIC SF, and more. Protects against Industrial attack techniques outlined by MITRE ATT&CK for ICS.



Transparent to users

Fast and high-fidelity data replication means there is no need to alter work procedures of corporate users.



Never Compromise on Security for OT-IT Communications

Contact us at sales-inquiry@opswat.com to set up a personal demo and let us show you how OPSWAT NetWall Optical Diode and Security Gateways can power secure and reliable IT/OT communications in your industrial enterprise.

Trusted by over 1,500 enterprises and government organizations worldwide. OPSWAT protects critical infrastructure. Our goal is to eliminate malware and zero-day attacks. We believe that every file and every device pose a threat. Threats must be addressed at all locations at all times—at entries, at exits, and at rest. Our products focus on threat prevention and process creation for secure data transfer and safe device access. The result is productive systems that minimize risks of compromise. That's why 98% of U.S. nuclear power facilities trust OPSWAT for cybersecurity and compliance.

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