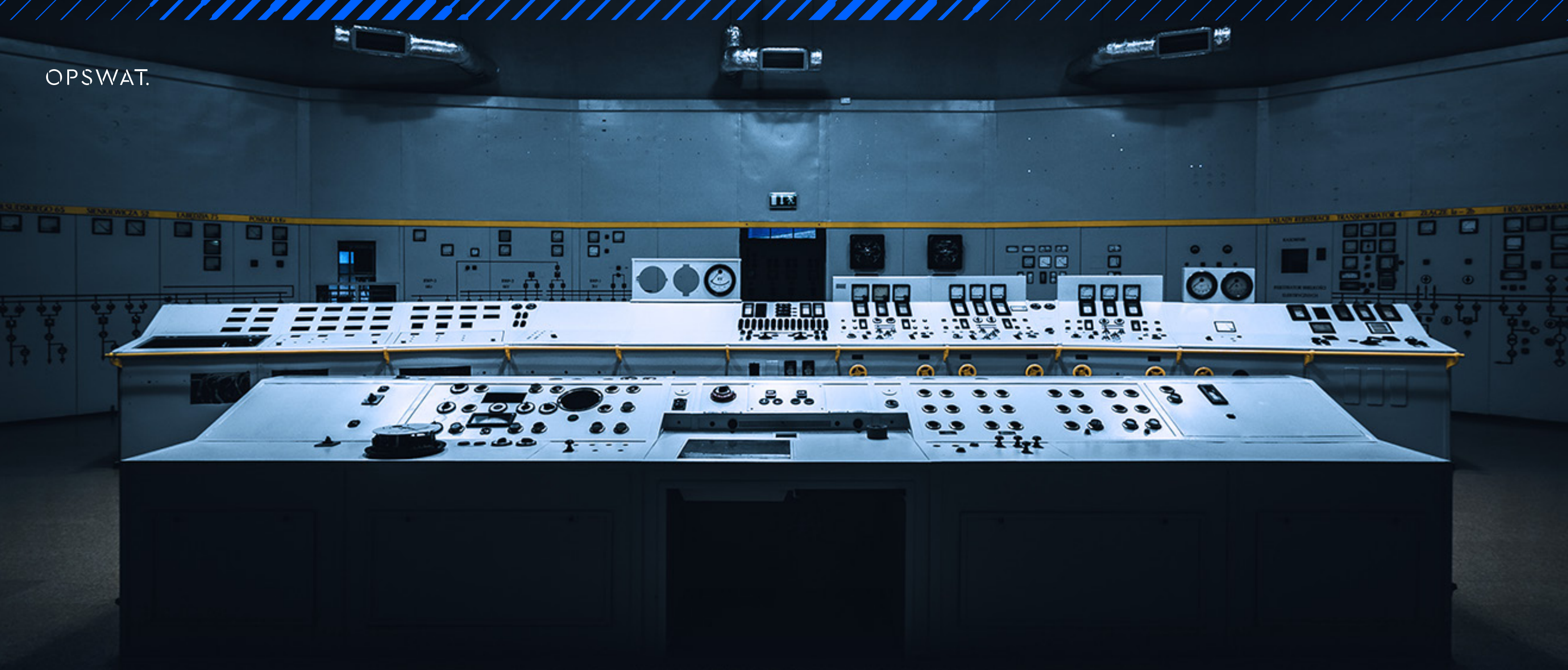OPSWAT.

MetaDefender® NetWall® Series

Security Gateway Solutions Powering
Risk-Free IT-OT Communications

Protecting the World's
Critical Infrastructure

OPSWAT.

Protecting Your Critical Network in the Converging World of IT and OT

The once-clear distinction between information technology (IT) and operational technology (OT) systems, processes, and people is becoming blurred. Conventional air gaps 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.

MetaDefender 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.

OPSWAT.

MetaDefender NetWall Series

Available Form Factors

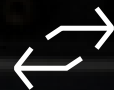**1U**

DIN Rail

OPSWAT. — NetWall

OPSWAT. — NetWall
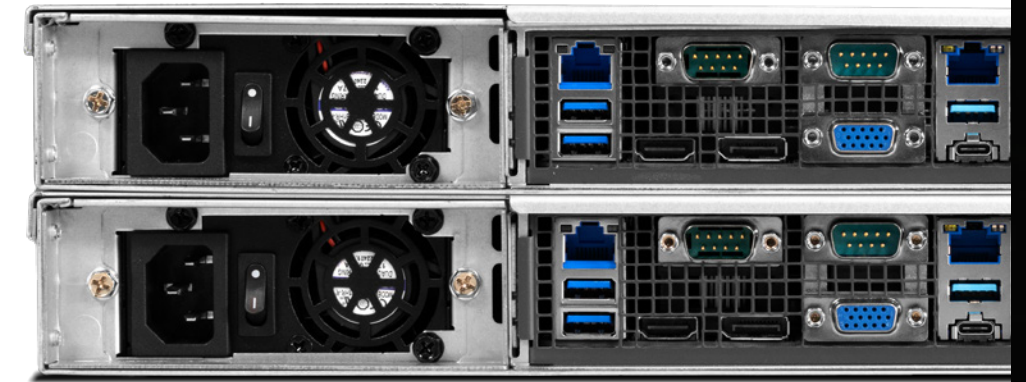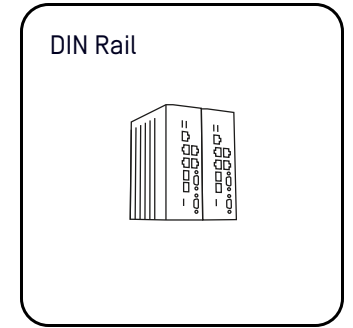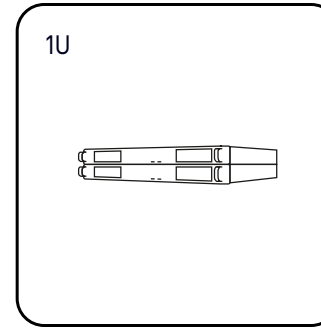
Compelling Benefits

Real-time transfers of OT data to business users without disrupting their work procedures

No risk of cyberthreats entering your protected OT network

File transfers and database/server replications without proprietary vendor hardware and software

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

Full support for industrial protocols including OPC DA, A&E, UA, IEC 104, and AVEVA PI, plus Modbus/TCP, file transfers, and TCP/UDP sockets

Fulfillment of compliance requirements including NERC CIP; NIST CSF/800-82/800-53/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

Choose 100 Mbps, 1 Gbps, or 10 Gbps throughput—all software selectable.

[†] Available on USG model

METADEFENDER

Unidirectional Security Gateway™

MetaDefender Unidirectional Security Gateway (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, MetaDefender 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.
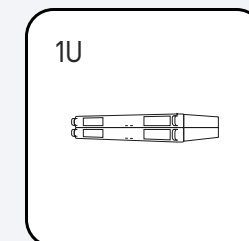
Available Form Factor

1U
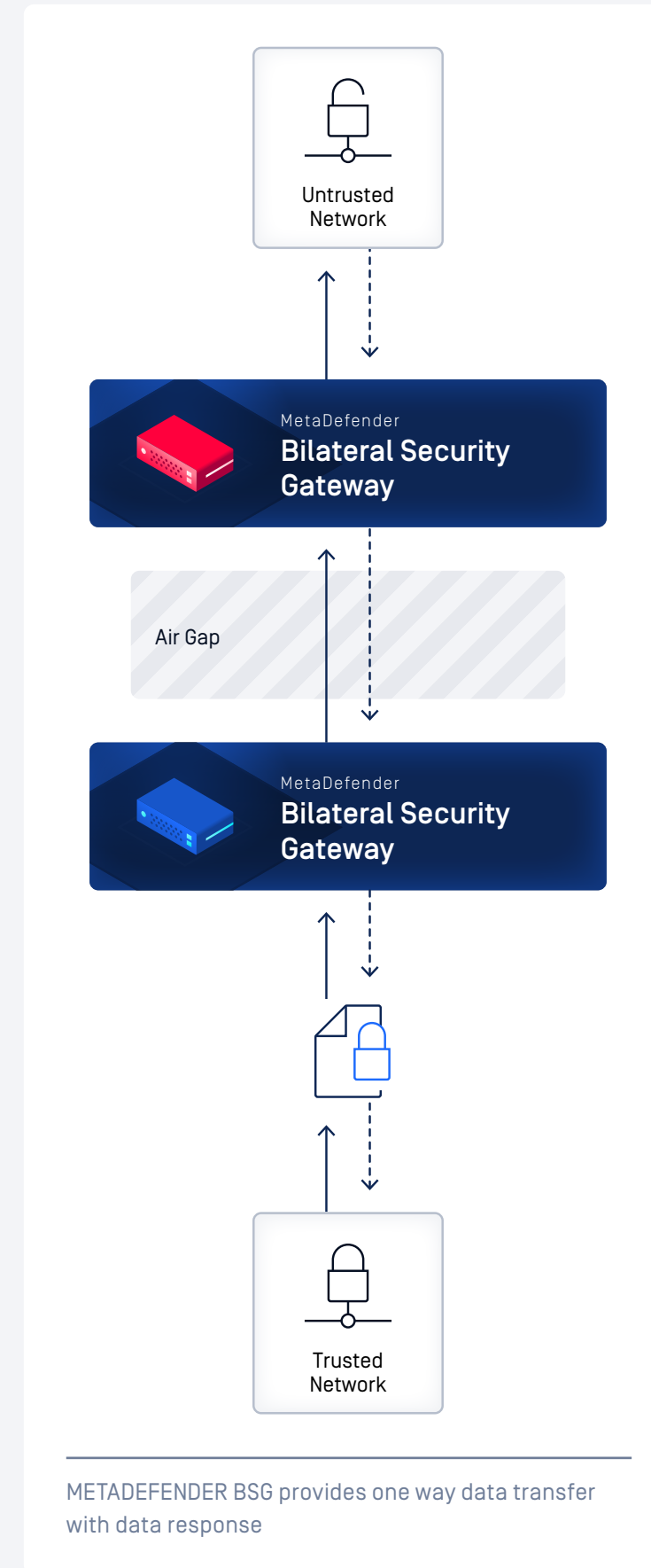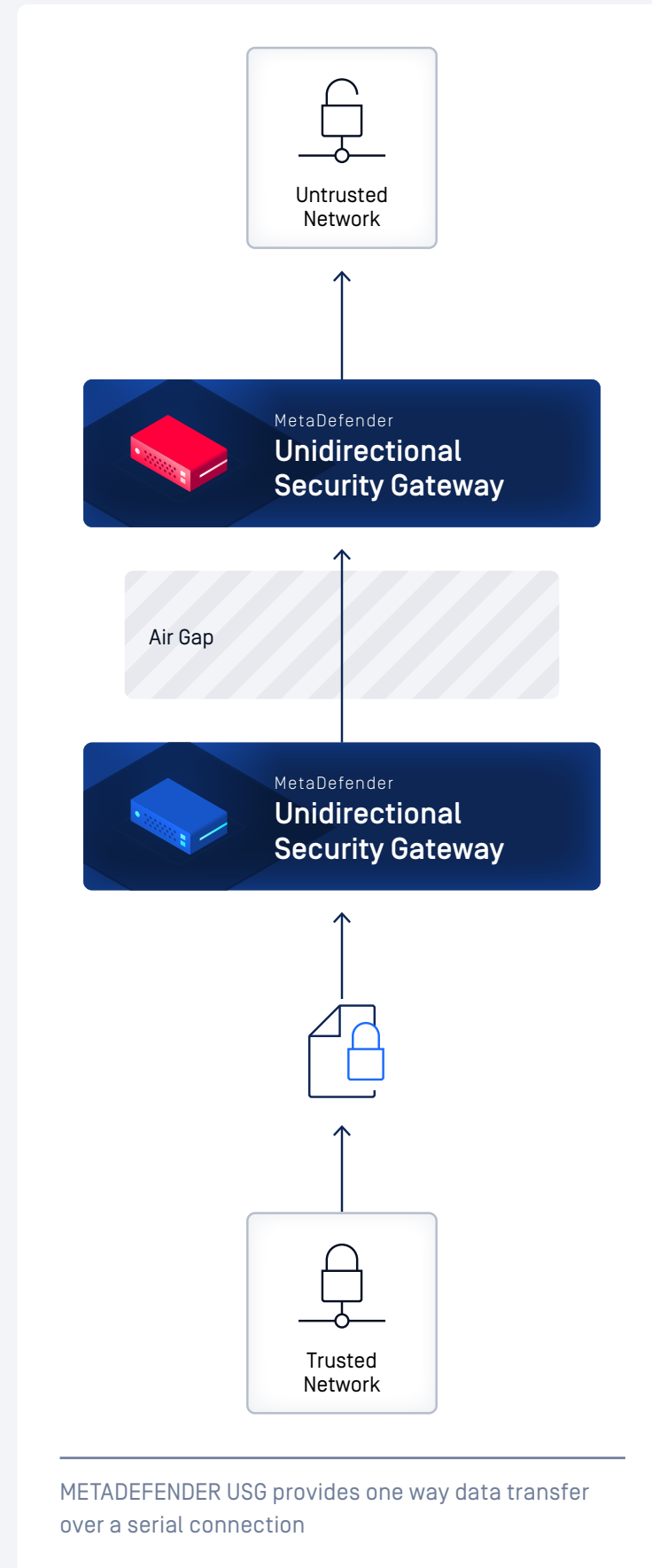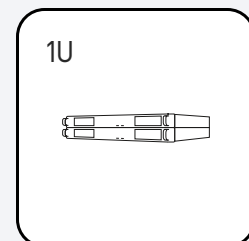
METADEFENDER

Bilateral Security Gateway™

In addition to all the capabilities of MetaDefender USG, MetaDefender Bilateral Security Gateway (BSG) supports applications such as historians and SQL database servers that require a data response in order to operate. MetaDefender 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, MetaDefender BSG performs a full protocol break, allowing select applications from the destination to securely return a data response to the source application over a non-routable connection. MetaDefender BSG will not allow a connection to be initiated from the untrusted network, ensuring that the communication channel cannot be exploited.

Available Form Factor

1U

Left diagram:

Untrusted Network

MetaDefender
Unidirectional Security Gateway

Air Gap

MetaDefender
Unidirectional Security Gateway

Trusted Network

METADEFENDER USG provides one way data transfer over a serial connection

Right diagram:

Untrusted Network

MetaDefender
Bilateral Security Gateway

Air Gap

MetaDefender
Bilateral Security Gateway

Trusted Network

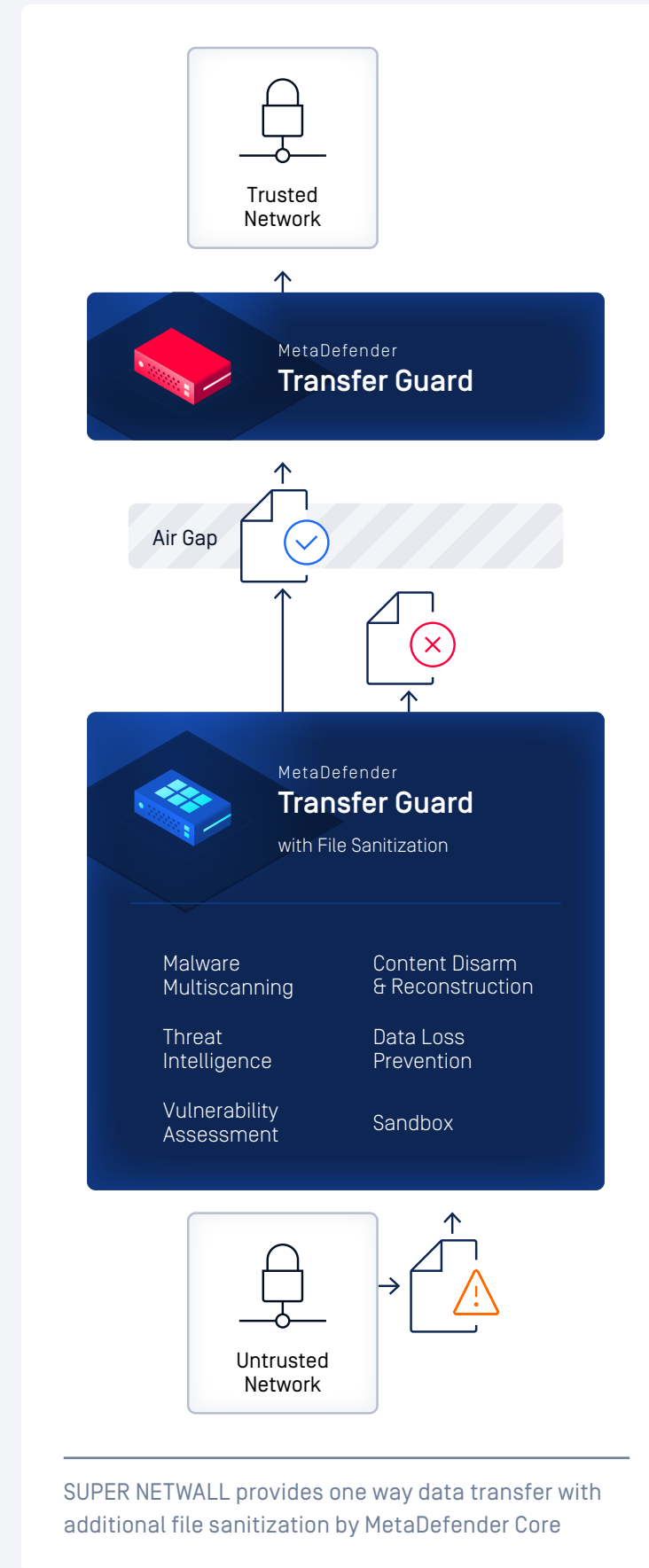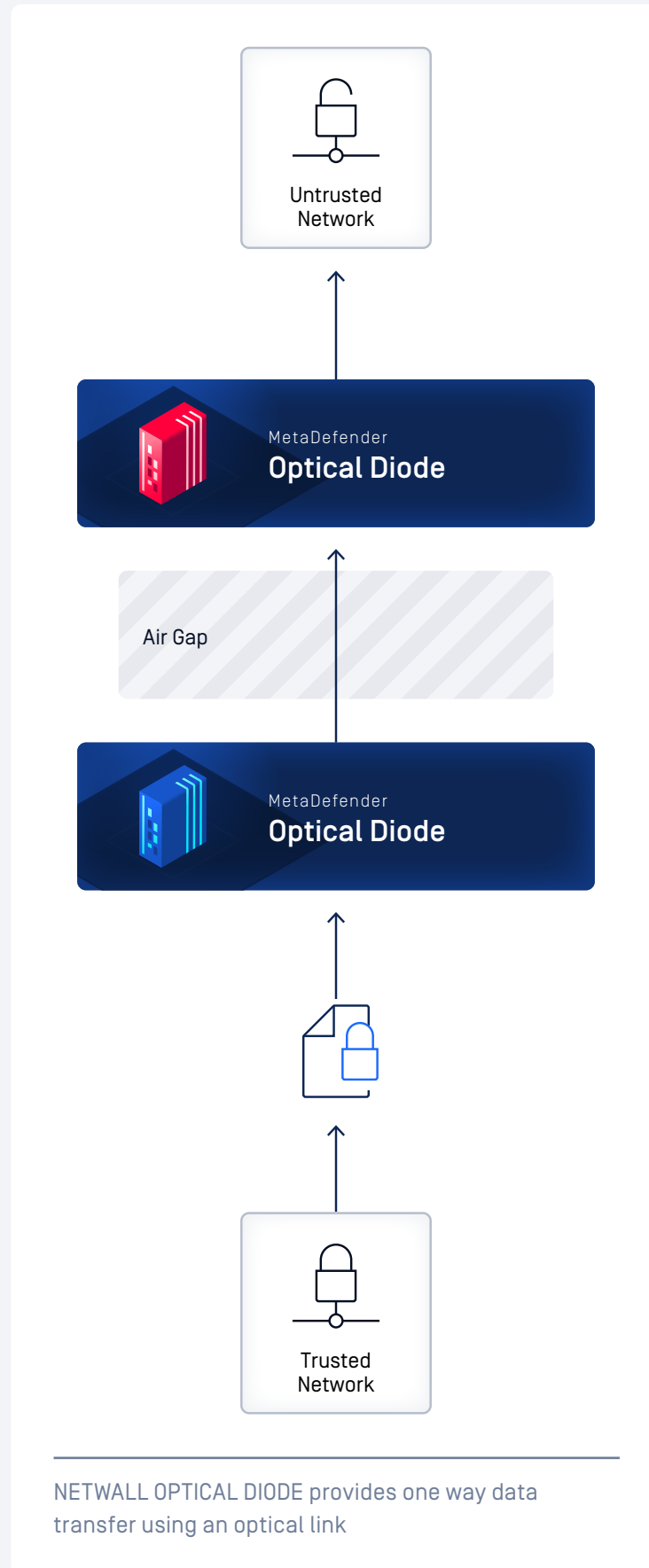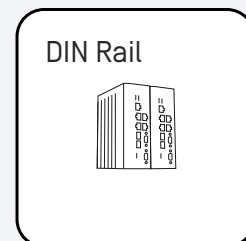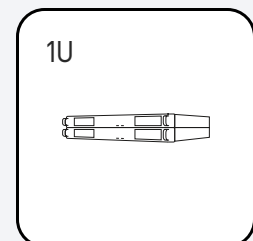METADEFENDER BSG provides one way data transfer with data response

METADEFENDER
Optical Diode™

MetaDefender 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, MetaDefender Optical Diode transfers real-time operations data while conforming to industry regulatory requirements for deterministic one-way transfer device. MetaDefender Optical Diode performs payload integrity checking and supports redundant optical links, achieving unsurpassed reliability and data delivery assurance.

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

Available Form Factors

1U

DIN Rail

Untrusted Network

MetaDefender
Optical Diode

Air Gap

MetaDefender
Optical Diode

Trusted Network

NETWALL OPTICAL DIODE provides one way data transfer using an optical link

Trusted Network

MetaDefender
Transfer Guard

Air Gap

MetaDefender
Transfer Guard
with File Sanitization

Malware Multiscanning	Content Disarm & Reconstruction
Threat Intelligence	Data Loss Prevention
Vulnerability Assessment	Sandbox

Untrusted Network

SUPER NETWALL provides one way data transfer with additional file sanitization by MetaDefender Core

METADEFENDER
Transfer Guard™
with File Sanitization

MetaDefender Transfer Guard integrates OPSWAT's award-winning MetaDefender Core™ file sanitization engine. MetaDefender Core thoroughly scans and sanitizes files before they are securely transferred by Transfer Guard across a network security boundary to the desired destination. It can be delivered on the MetaDefender USG and Optical Diode platforms.

Available Form Factors

1U

DIN Rail
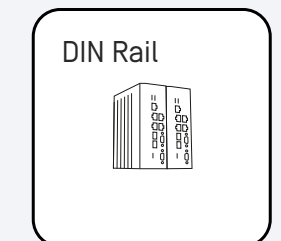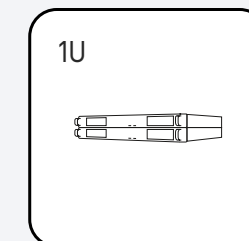
OPSWAT.

Focus on Maximum Security and Reliability

MetaDefender NetWall vs. Firewalls, Router Rules, and VLANs

Unlike firewalls, routers, and VLANs, MetaDefender NetWall network security gateways enforce true unidirectional communications with no possibility of routable connections to the protected OT network domain.

Feature	NetWall	Networking Solution
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	✓	✕

MetaDefender NetWall vs. Hardware Data Diodes

Unlike data diodes, MetaDefender network security gateways guarantee reliable data replication and guaranteed data delivery with no data loss, no overruns, and no sync issues.

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

MetaDefender Optical Diode vs. Other Data Diodes

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

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

USE CASE
OPC UA Server Replication

PLCs and RTUs

OPC UA Server

MetaDefender
Unidirectional Security Gateway

Air Gap

MetaDefender
Unidirectional Security Gateway

OPC UA Client

In the protected network domain, the MetaDefender Unidirectional Security Gateway transmitting server listens 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 MetaDefender Unidirectional Security Gateway OPC UA server in the corporate network domain. The 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.
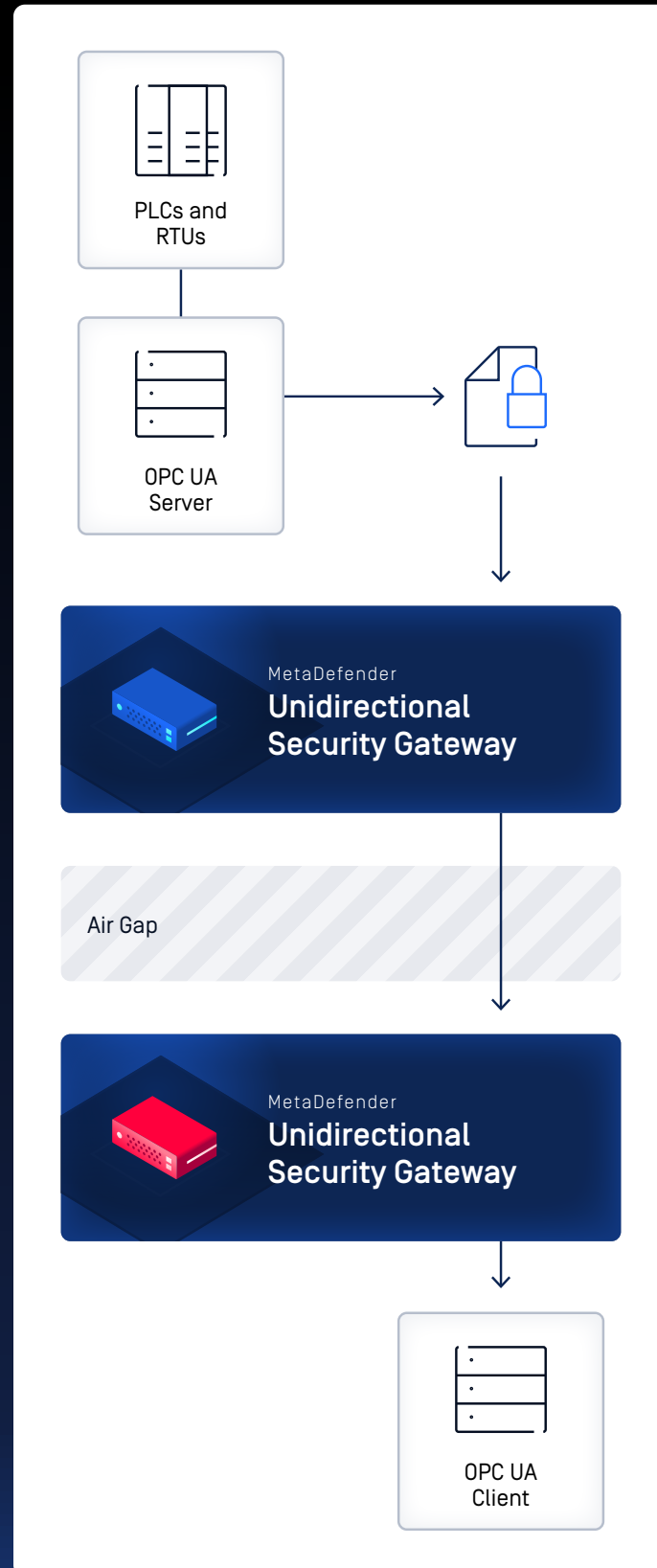
USE CASE
SQL Server Replication

SQL Server Database

MetaDefender
Bilateral SecurityGateway

Air Gap

MetaDefender
Bilateral Security Gateway

Replicated SQL Server Database

When access to SQL databases is required, MetaDefender 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. MetaDefender maintains Microsoft replication constraints and does not introduce any additional requirements

OPSWAT.

No-Risk Transfer from Kiosk to Managed File Transfer

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 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 MetaDefender Unidirectional Security Gateway or Optical Diode to enforce one-way file delivery from a kiosk to data storage, assuring secure transfer of files and data into your production environment. Working together with Kiosk and Managed File Transfer solutions to eliminate risk, MetaDefender Unidirectional Security Gateway enables quick and secure delivery of patches, signatures, and other product updates to the OT assets that need them.

MetaDefender security gateways are seamlessly integrated with MetaDefender Kiosk and MetaDefender Managed File Transfer solutions, providing end-to-end security for IT-OT convergence.

Removable Media

MetaDefender
Kiosk

Air Gap

MetaDefender
Unidirectional
Security Gateway

MetaDefender
Unidirectional
Security Gateway

MetaDefender
Managed
File Transfer

Engineering
Workstation

SCADA /
HMI
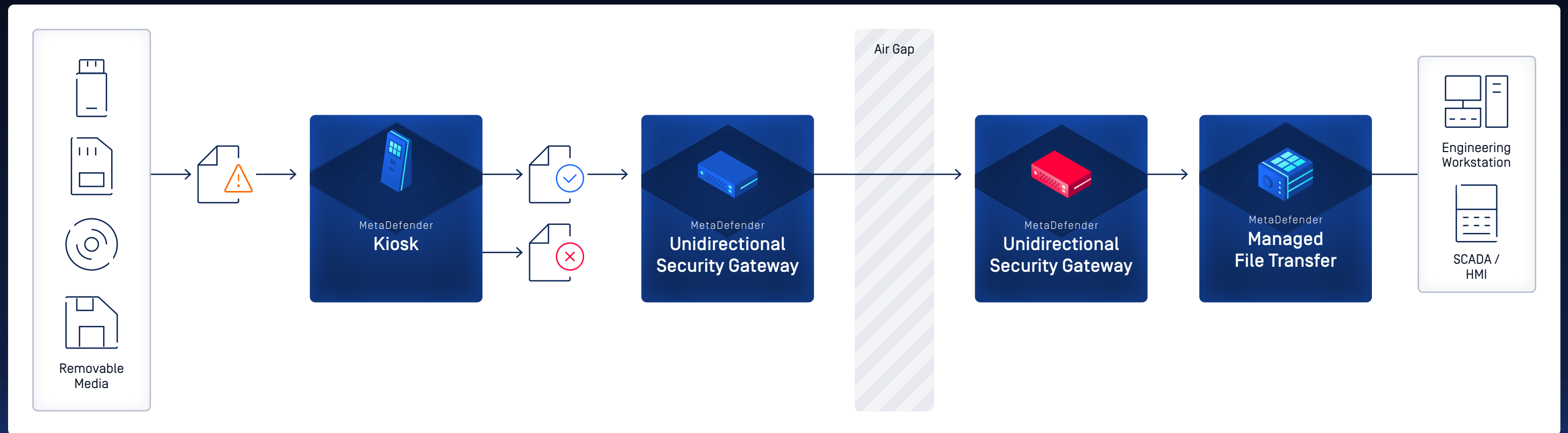
USE CASE

AspenTech IP.21 Replication Between Plant and Enterprise Historian

Challenge

Plant historical data is captured in special purpose databases referred to as historians. When a security perimeter is established around plant assets, there needs to be a way of securely sharing historian data with the outside business network.

Solution

MetaDefender Bilateral Security Gateway reliably replicates historian data using the native AspenTech IP.21 replication facility. Data is transferred over non-routable protocol breaks enhancing security and confidentiality of the source network.

IP.21 PC Publishers

Air Gap

MetaDefender
Bilateral Security Gateway

MetaDefender
Bilateral Security Gateway
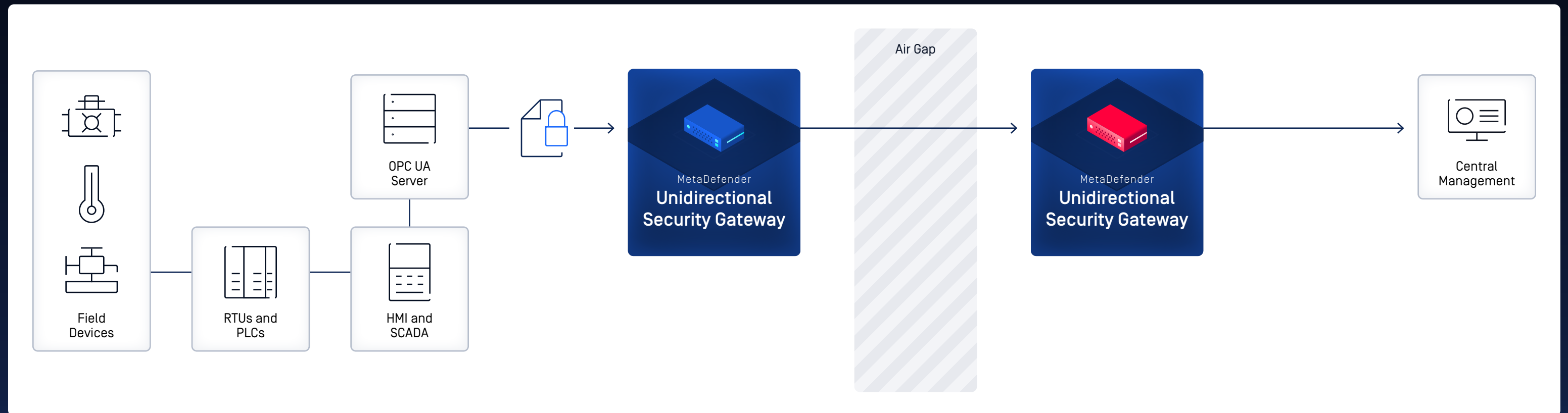
IP.21 Enterprise Subscriber

OPSWAT.

Water Treatment Plant Requires Real-Time Replication of OPC Data

Challenge

Transfer real-time operational data for OT to IT without compromising OT infrastructure security in water/waste-water facilities.

Solution

MetaDefender Unidirectional Security Gateway, which natively supports Open Platform Communications Unified Architecture (OPC UA), will integrate with OPC UA server in the OT domain and transfer real time values to IT over an enforced one-way transfer using a non-routable protocol.

Field Devices

RTUs and PLCs

HMI and SCADA

OPC UA Server

MetaDefender
Unidirectional Security Gateway

Air Gap

MetaDefender
Unidirectional Security Gateway
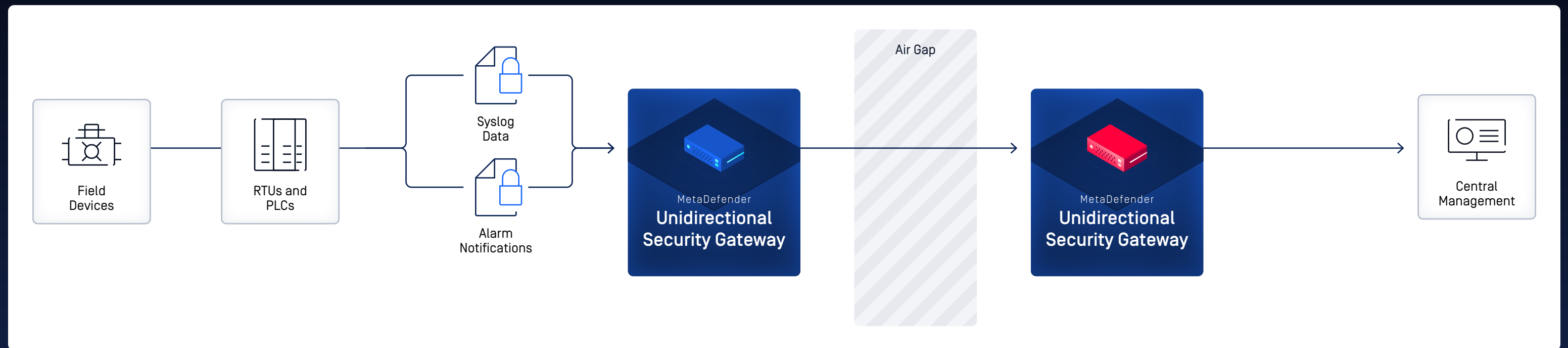
Central Management

OPSWAT.

Efficiently Monitor Electrical Substation while Complying with NERC CIP Requirements

Challenge

Comply with NERC CIP requirements to protect data substations from outside threats while creating an operationally efficient means to monitor substations.

Solution

MetaDefender Unidirectional Security Gateway (USG) replicates log files and supports transferring syslog to one or more SIEM systems. MetaDefender USG's assured data delivery architecture delivers data in real time, supporting highly efficient system monitoring and alert management.

Field Devices → RTUs and PLCs → Syslog Data / Alarm Notifications → MetaDefender Unidirectional Security Gateway → Air Gap → MetaDefender Unidirectional Security Gateway → Central Management
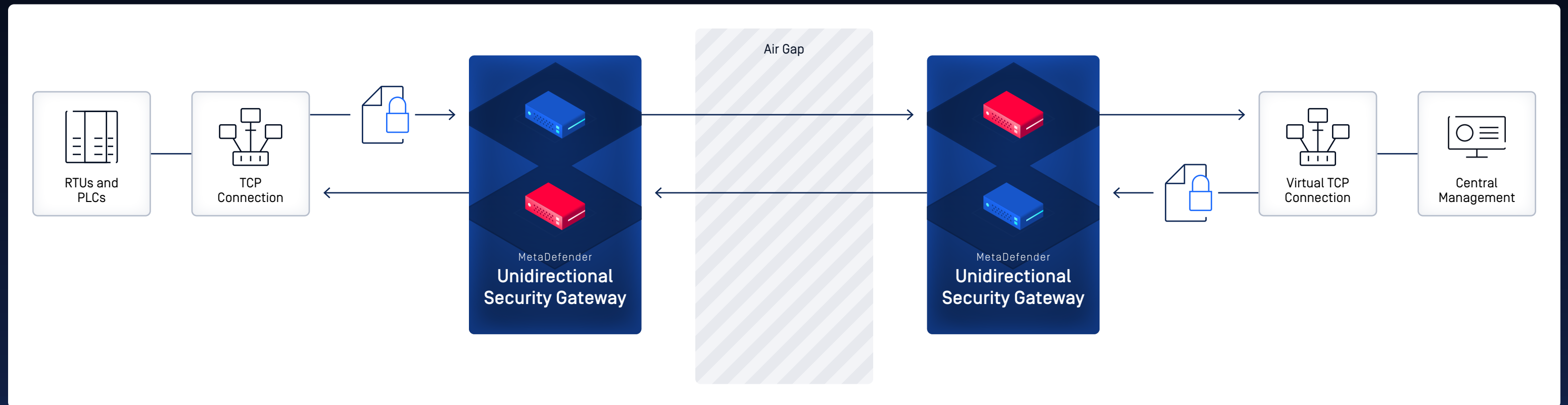
OPSWAT.

Bidirectional Command and Control of Substation Remote Terminal Units

Challenge

Maintain a high level of operational efficiency while isolating and protecting substation assets from outside threats.

Solution

Deploying a pair of MetaDefender Unidirectional Security Gateways (USGs) to create a secure bidirectional communication between the substation and central command and control facility. The bidirectional pair of MetaDefender USGs replaces vulnerable firewalls to secure each substation.

RTUs and PLCs

TCP Connection

Air Gap

MetaDefender
Unidirectional Security Gateway

MetaDefender
Unidirectional Security Gateway

Virtual TCP Connection

Central Management

OPSWAT.

USE CASE

Creating a Secure Backup at a Disaster Relief Facility for Power Generation Plants

Challenge

A secure backup site is needed to restore operations in the event of a physical or cyber issue where normal operations are compromised. The site needs to be isolated to prevent malware from propagating to the disaster recovery facility.

Solution

MetaDefender Optical Diode replicates real time supervisory control and data acquisition [SCADA] data to the backup disaster recovery site while isolating it from the compromised environment. MetaDefender Managed File Transfer [MFT] to MFT replication stores the latest version of device software at the backup facility.
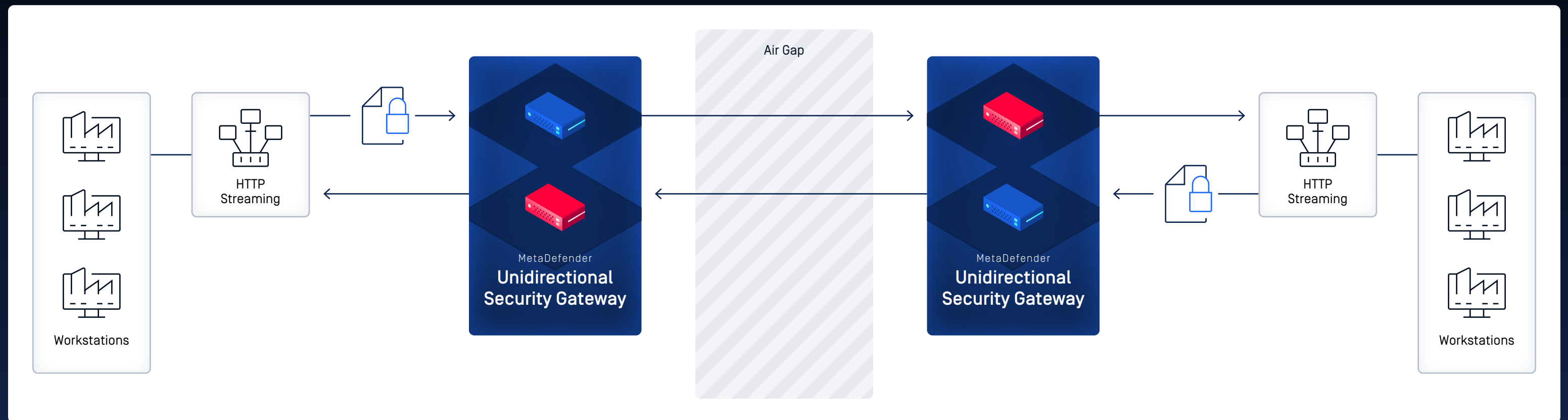
OPSWAT.
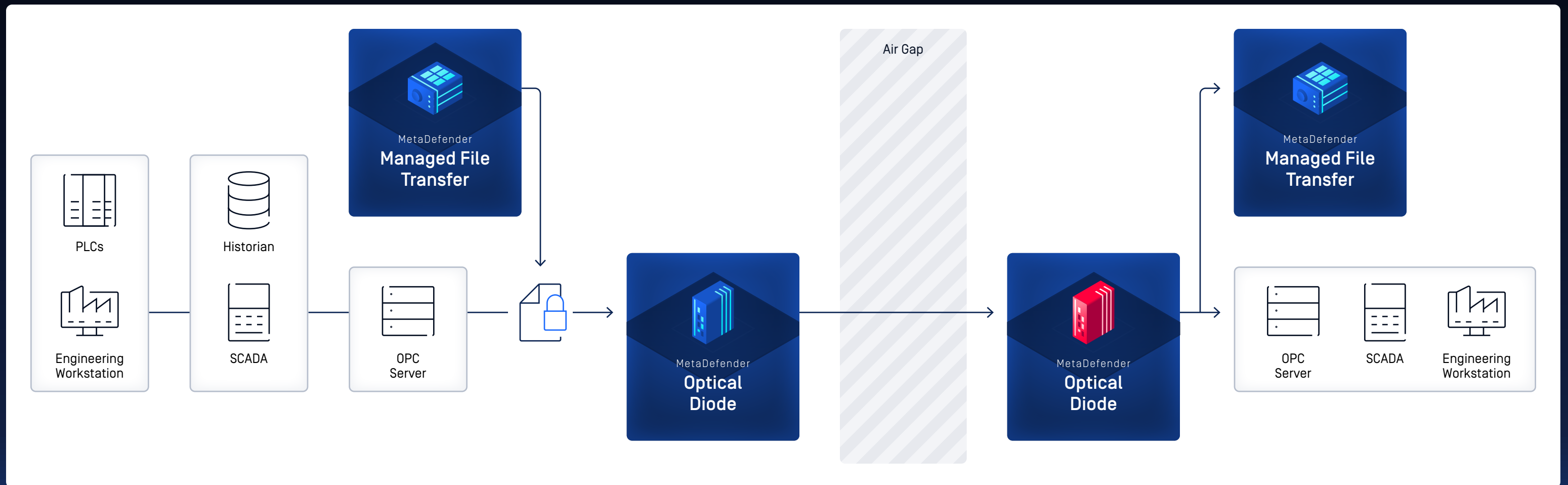
Protecting Intellectual Property by Isolating Engineering Environments

Challenge

An engineering firm needs to secure their engineering environment from outside threats while allowing finished documents such as an application bill of materials (ABOM) to be securely transferred to the enterprise system.

Solution

MetaDefender Unidirectional Security Gateway (USG) transfers files from the engineering environment to the enterprise system over a secure one-way link. Two MetaDefender USG pairs provide secure bidirectional file transfer between the enterprise network and the engineering application.

Workstations — HTTP Streaming — Air Gap — MetaDefender **Unidirectional Security Gateway** — MetaDefender **Unidirectional Security Gateway** — HTTP Streaming — Workstations

OPSWAT.

USE CASE

Major Healthcare System Needs to Efficiently Monitor Their Data Centers

Challenge

Maintain a high level of security to protect data centers from outside threats while creating an operationally efficient means to monitor the data centers from a central monitoring facility.

Solution

MetaDefender Unidirectional Security Gateway (USG) was selected to replicate log files and support transferring email alerts to a central monitoring facility. The MetaDefender USG assured data delivery architecture delivers data in real time, supporting highly efficient system monitoring and alert management.

Servers

MetaDefender
Unidirectional Security Gateway

Air Gap

MetaDefender
Unidirectional Security Gateway

Central Management

OPSWAT.

Securing an Offshore Oil Rig

Challenge

Securely transfer historical data from the oil rig over a satellite connection while supporting sending software updates back to the rig.

Solution

MetaDefender Unidirectional Security Gateway (USG) and Bilateral Security Gateway (BSG) deliver superior security as compared to a firewall plus, they offer the guaranteed data delivery that an optical diode can't provide. MetaDefender security gateways reliably deliver data over the satellite connection and other networks that may experience intermittent availability.
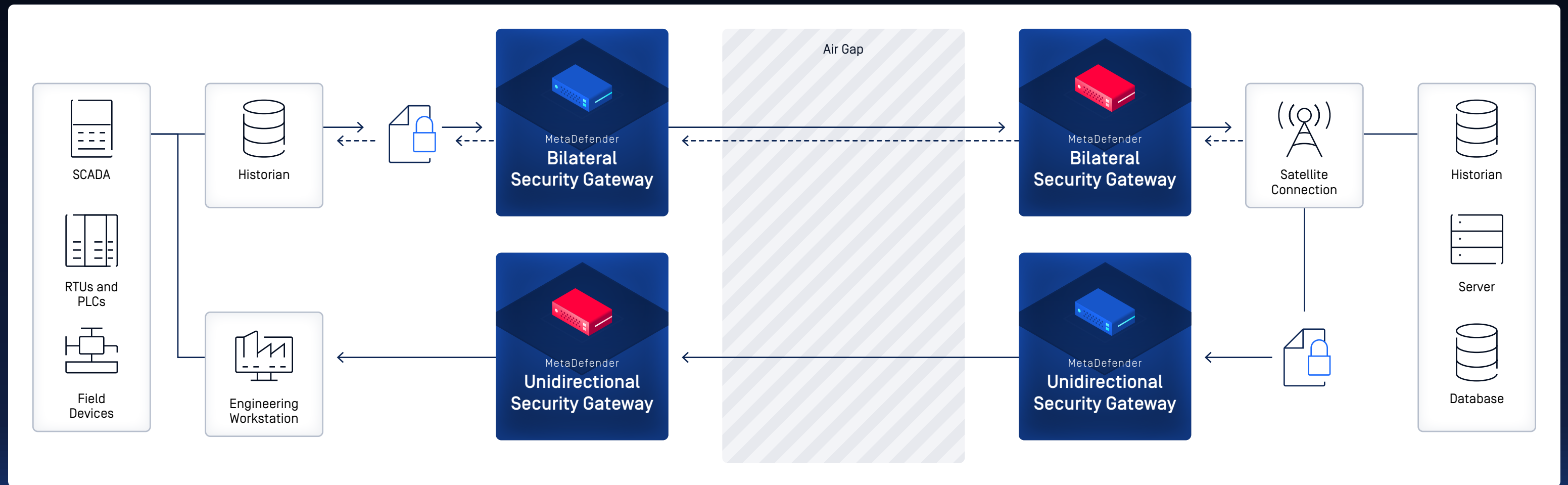
Are you ready to put MetaDefender NetWall on the front lines of your cybersecurity strategy?

Talk to one of our experts today.

Scan the QR code or visit us at:
opswat.com/get-started
sales@opswat.com

OPSWAT.

Protecting the World's Critical Infrastructure

For the last 20 years OPSWAT, a global leader in IT, OT, and ICS critical infrastructure cybersecurity, has continuously evolved an end-to-end solutions platform that gives public and private sector organizations and enterprises spanning Financial Services, Defense, Manufacturing, Energy, Aerospace, and Transportation Systems the critical advantage needed to protect their complex networks from cyberthreats. Built on a "Trust no file. Trust no device.™" philosophy, OPSWAT solves customers' challenges like hardware scanning to secure the transfer of data, files, and device access with zero-trust solutions and patented technologies across every level of their infrastructure. OPSWAT is trusted globally by more than 1,500 organizations, governments, and institutions across critical infrastructure to help secure their devices, files, and networks from known and unknown threats, zero-day attacks, and malware, while ensuring compliance with industry and government-driven policies and regulations. Discover how OPSWAT is protecting the world's critical infrastructure and securing our way of life; visit www.opswat.com.