

OPSWAT.

METADEFENDER OPTICAL DIODE

# Data Diodes for Secure IT Data Transfer

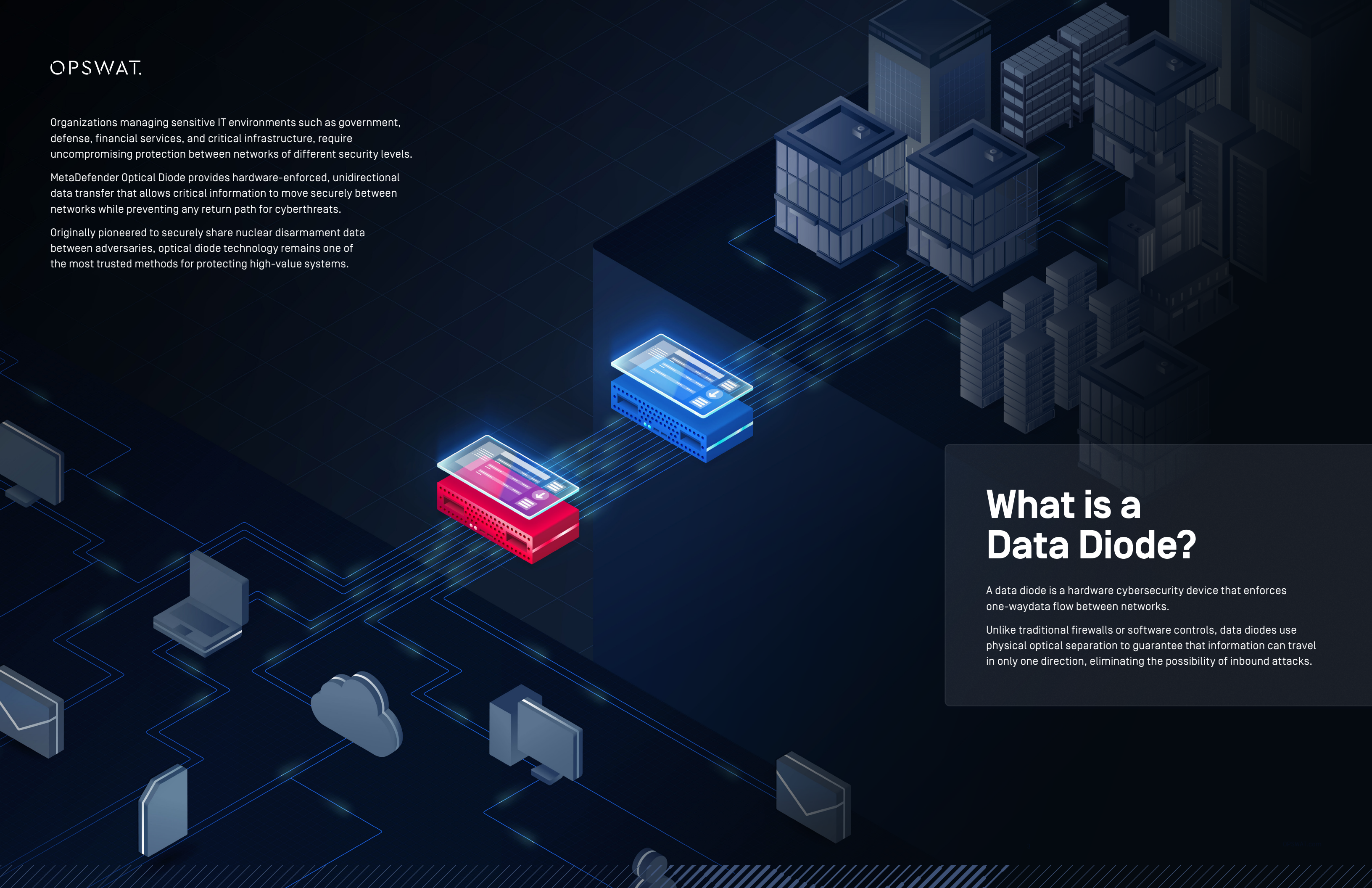
Cross Domain Solutions for Information Technology



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Protecting the World's Critical Infrastructure





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Organizations managing sensitive IT environments such as government, defense, financial services, and critical infrastructure, require uncompromising protection between networks of different security levels.

MetaDefender Optical Diode provides hardware-enforced, unidirectional data transfer that allows critical information to move securely between networks while preventing any return path for cyberthreats.

Originally pioneered to securely share nuclear disarmament data between adversaries, optical diode technology remains one of the most trusted methods for protecting high-value systems.

## What is a Data Diode?

A data diode is a hardware cybersecurity device that enforces one-way data flow between networks.

Unlike traditional firewalls or software controls, data diodes use physical optical separation to guarantee that information can travel in only one direction, eliminating the possibility of inbound attacks.



# Optical Diode

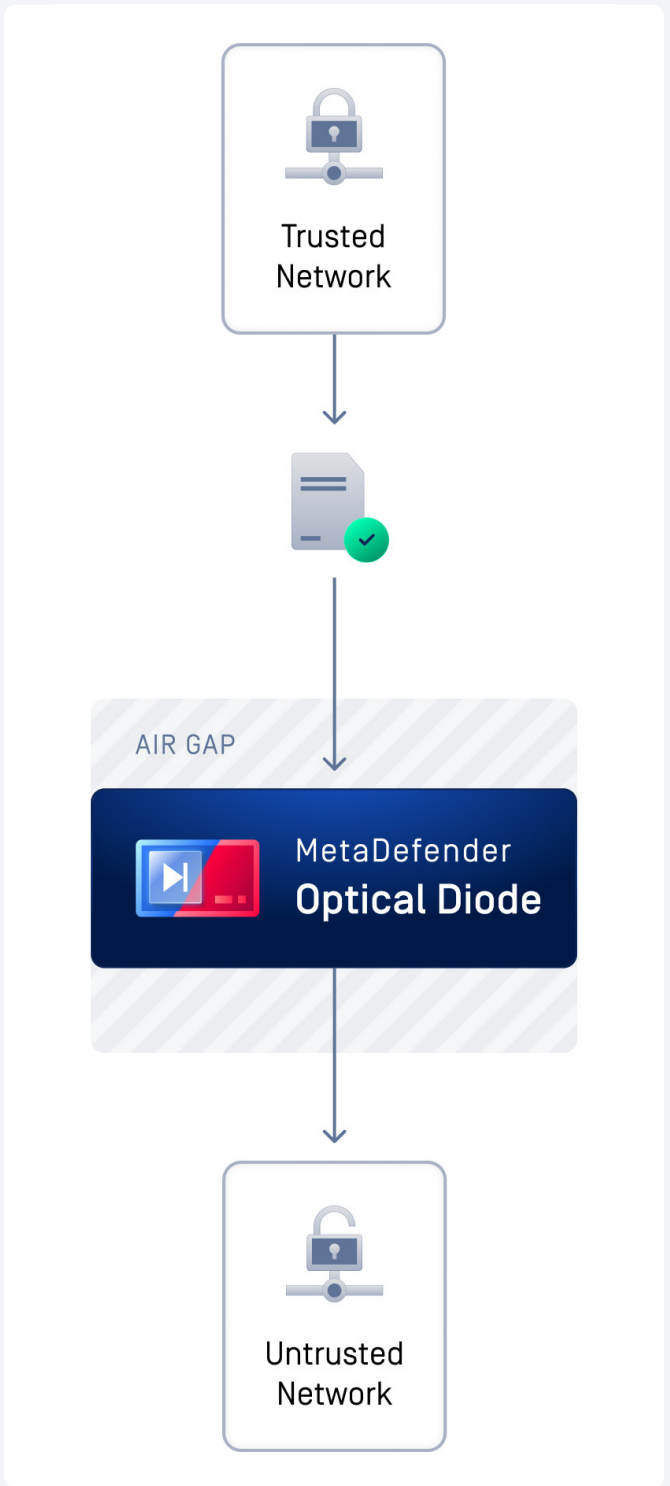
MetaDefender Optical Diode serves as a deterministic isolation device which protects critical assets while allowing multiple data types to be transferred concurrently. The hardware-enforced, one-way optical link between the source and destination servers reliably transfers data over a non-routable protocol break, ensuring complete security from network-borne threats. Optical Diode provides access to real-time data and enables secure data and file transfers without the risk of introducing security threats to critical networks and assets.

## Key Challenges

- Physically enforced one-way communication
- True network isolation between security zones
- Protection from network-borne threats
- Secure sharing between high and low security environments

## Benefits

- Secure, segmented, unidirectional data paths
- True protocol break, non-routable connection
- Redundant optical connection for unsurpassed reliability
- Easy deployment and operation
- Seamlessly integrates with MetaDefender
- Kiosk, Core, and Managed File Transfer
- Hardware-enforced one-way data transfer with optional back-to-back request/response mode
- Common Criteria EAL4+



# Diode X

Previously Transfer Guard

MetaDefender Diode X extends the security of optical diodes with advanced file sanitization and threat detection only OPSWAT can provide.

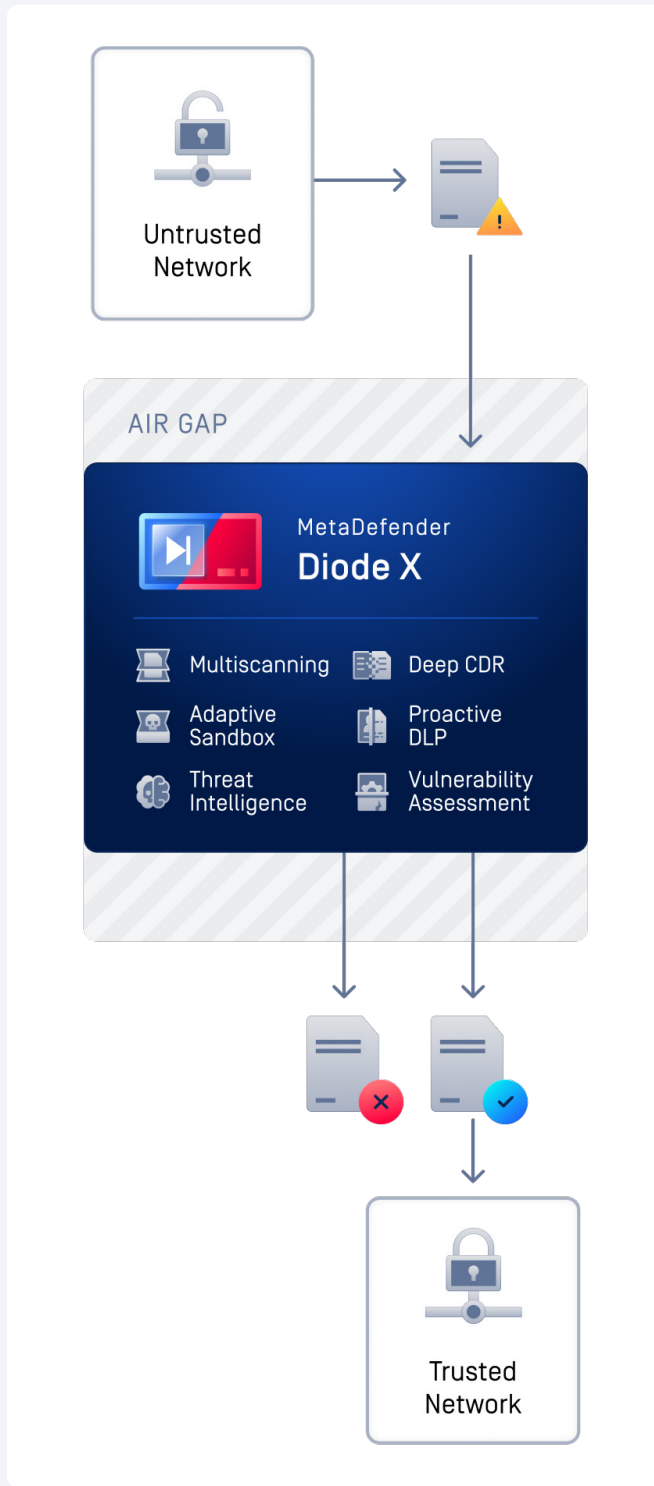
By integrating OPSWAT's MetaDefender Core, MetaDefender Diode X scans, sanitizes, and verifies files before they cross the network boundary through the optical diode.

## Benefits

- Stop threats traditional scanning misses with Predictive Alin AI
- Metascan™ Multiscanning Technology uses multiple antivirus engines to increase detection and lower false positive rates
- Deep CDR™ Technology removes embedded threats
- Proactive DLP™ Technology redacts and/or removes sensitive data
- Sandbox integration provides advanced malware analysis

## Key Benefits

- Hardware-enforced air-gap protection
- Secure unidirectional data transfer
- Protocol break with non-routable communication
- Redundant optical links for high reliability
- Fast deployment and simple management
- Seamless integration with MetaDefender Kiosk, Core, and Managed File Transfer
- Common Criteria EAL4+ certified security



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# NetWall Series



No Return Path – Physically enforced one-way optical connection



Supports File & Streaming Protocols simultaneously



Scalable Performance – 100 Mbps upgradable to 1 Gbps or 10 Gbps



High Availability – Active/standby configurations supported



Back-to-Back Mode – Enables bidirectional workflows using two diodes



Preconfigured Deployment for rapid implementation

## Supported Protocols

**Files Transfer:** FTP/SFTP, SMB/CIFS, Windows File Share, Folder & file replication, Antivirus updates, Patch distribution [WSUS]

**Streaming:** HTTPS, Syslog, TCP, UDP



# Common Use Cases



## Government & Defense

- Secure cross-domain data transfer
- Intelligence information sharing
- Aviation weather data transfer for mission planning



## DevOps

- Secure transfer of software images and updates into restricted networks



## Financial Services

- Secure backup transfer to disaster recovery sites
- Secure alert and monitoring data transfer
- Enforcing one-way quantum key transfer into secure enclaves



## Transportation

- Secure transfer of manifest files
- Monitoring data from security screening systems



## Data Centers

- Transfer of infrastructure alarms and monitoring data
- Remote monitoring of power systems



## Intelligence

- Secure document chain-of-custody transfer
- Network-to-network intelligence data sharing

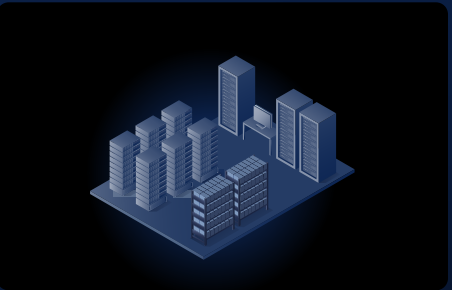


INTEGRATED SOLUTIONS

# MetaDefender Optical Diode and MetaDefender Managed File Transfer

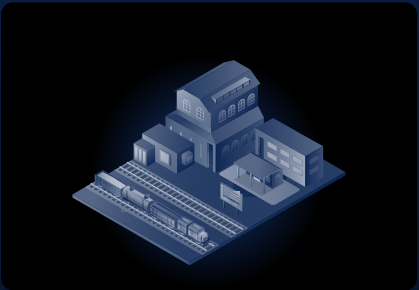
Combining MetaDefender NetWall's Optical Diode and Managed File Transfer delivers secure, automated, and compliant data transfer between networks of different security levels, without relying on manual processes or bi-directional controls.

USE CASES



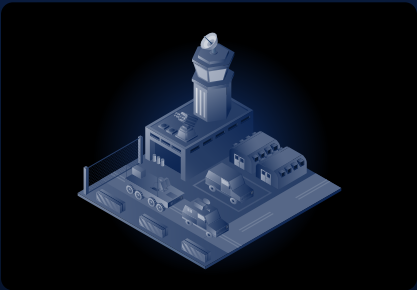
**Dev Ops**

Secure transfer of software images



**Critical Infrastructure**

Securely send inspection reports and maintenance data



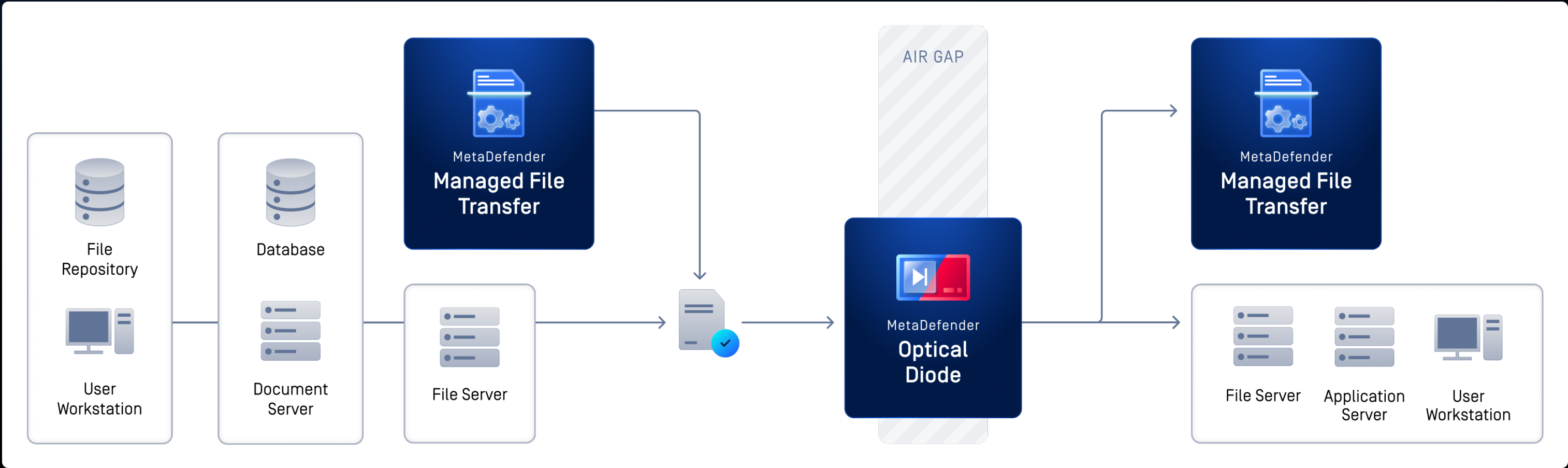
**Defense**

Move files between different classification levels



**Government**

Secure cross-domain file transfer



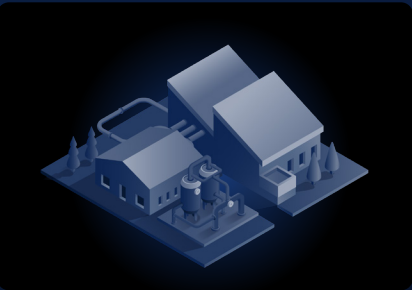


INTEGRATED SOLUTIONS

# MetaDefender Optical Diode and MetaDefender Kiosk

This integration stops threats at the physical entry point while ensuring files move only in one direction—into your secure core—with no exposure.

USE CASES



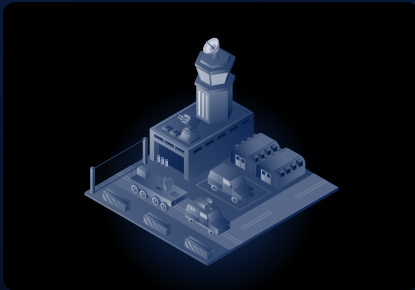
**Industrial Facilities**

Safely transfer operational files, patches and software updates



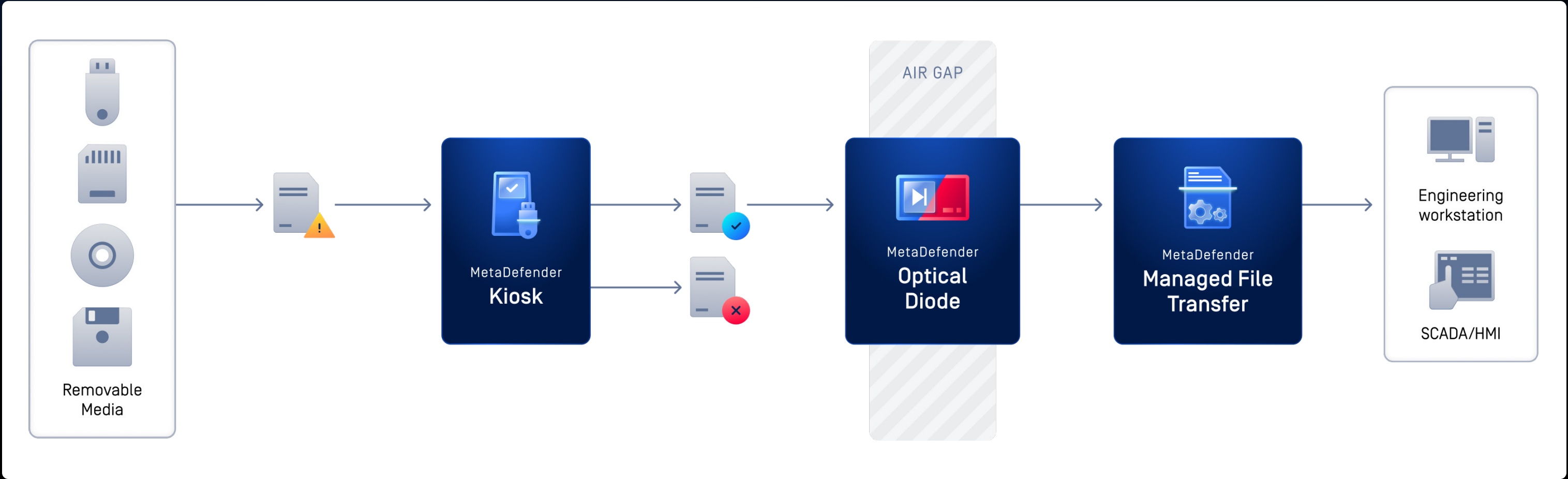
**Defense & Public Sector**

Controlled USB scanning and intake into classified zones



**Military**

File sanitization of patches and software updates for military assets.





INTEGRATED SOLUTIONS

# MetaDefender Optical Diode and MetaDefender Core

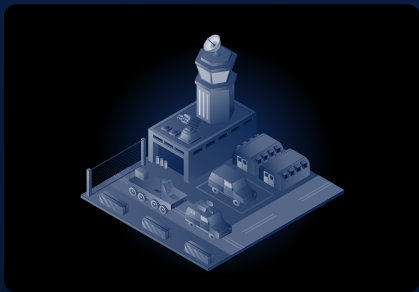
This integration delivers the best of both worlds: MetaDefender Optical Diode guarantees one-way data movement at the hardware level, while MetaDefender Core eliminates hidden threats within files. The result is uncompromising security for environments where sensitive data must cross network boundaries—with zero risk of backflow or malware infiltration.

USE CASES



**Critical Infrastructure**

File sanitization and secure transfer of operational files, patches and software updates



**Defense & National Security**

Move sanitized intelligence files between classified and operational zones



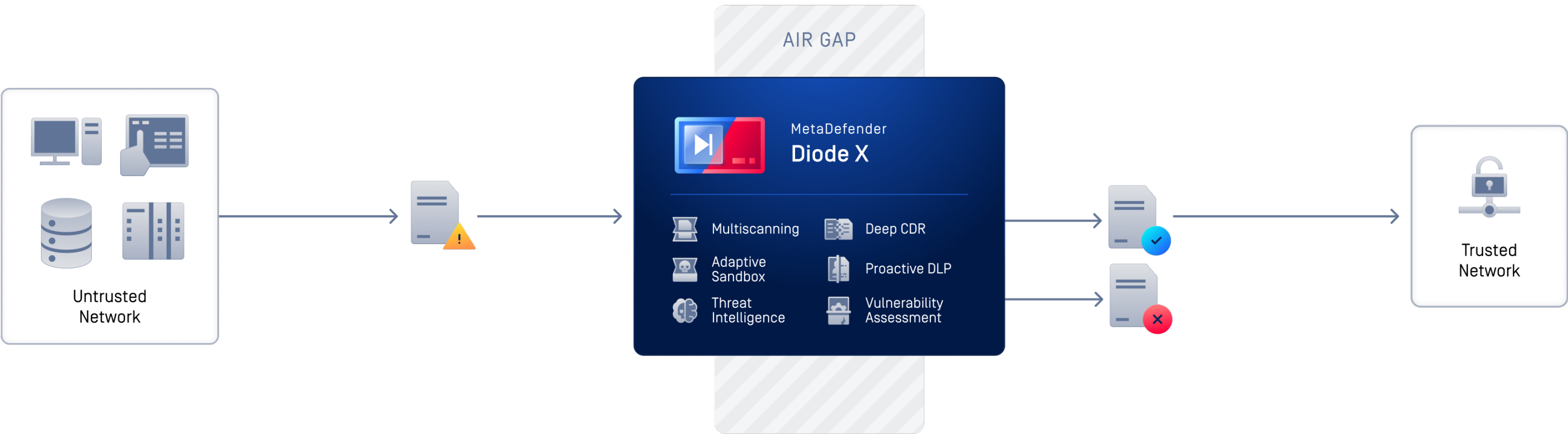
**Healthcare & Pharma**

Ensure safe data exchange of patient records or lab results across secure tiers



**Military Aviation**

File sanitization and secure file transfer of weather data into high security network



GET STARTED

# Are you ready to put MetaDefender Optical Diode 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](https://opswat.com/get-started)

[sales@opswat.com](mailto:sales@opswat.com)



## OPSWAT.

Protecting the World's Critical Infrastructure

For over 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 1,900 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](https://www.opswat.com).