DATA DIODE

Securing Critical Infrastructures with
Unidirectional Data Transfer

SAFEGUARD
DATA TRANSFER

SECURE
CRITICAL ASSETS

ST Engineering

Recent Cyber Attacks

Personal Info Leaked

A telecom company exposed 9 million customers' personal data, including their names, contact details, account information and service plans. – *March 2023*

Flight Disruption

A cyberattack on a third-party system used by a Canadian low-cost airline led to significant delays and left thousands of passengers stranded abroad. – *April 2022*

Potential Loss of Life

A cyberattack on a hospital in the United States forced surgeries to be rescheduled and patients to be transferred to alternative medical facilities. – *February 2023*

Oil Pipeline Shut Down

A ransomware attack on one of the largest fuel pipelines in the United States forced it to shut down for several days, resulting in fuel shortages and subsequent declaration of a state emergency. – *May 2021*

Cryptocurrency Stolen

Hackers stole $97m worth of digital coins from a Japanese cryptocurrency exchange by compromising digital wallets. – *August 2021*

Train Network Attack

A cyber attack on an IT subcontractor's software testing environment caused a major breakdown of Denmark's train network. – *November 2022*

DATA DIODE

Protecting the Integrity and Availability of Critical and Digital Assets

IPOS INTELLECTUAL PROPERTY OFFICE OF SINGAPORE

COMMON CRITERIA CERTIFIED EAL 4+

ST Engineering Data Diode is a unidirectional communication and data transfer gateway that enables organisations to transfer data securely across physically separated networks.

The high-performance solution comes in a compact design that integrates seamlessly with users' operational environments. The security design prevents data leakage and eliminates cyber threats by enforcing one-way data transfer at both physical and protocol layers.

It complements ST Engineering's suite of cybersecurity solutions to enhance the security and resilience of IT and OT architectures against cyber attacks.

Information Assurance by Design

- Patented SFP+ ensures unidirectional communication
- Ensures no data leakage
- Separate power supply to mitigate against side-channel attacks
- Certified under Common Criteria (CC EAL 4+)

High Throughput & Robust Performance

- High performance transfer speed
- Patented file lost detection capability
- Configurable for High Availability

Ease of System Integration & Customisation

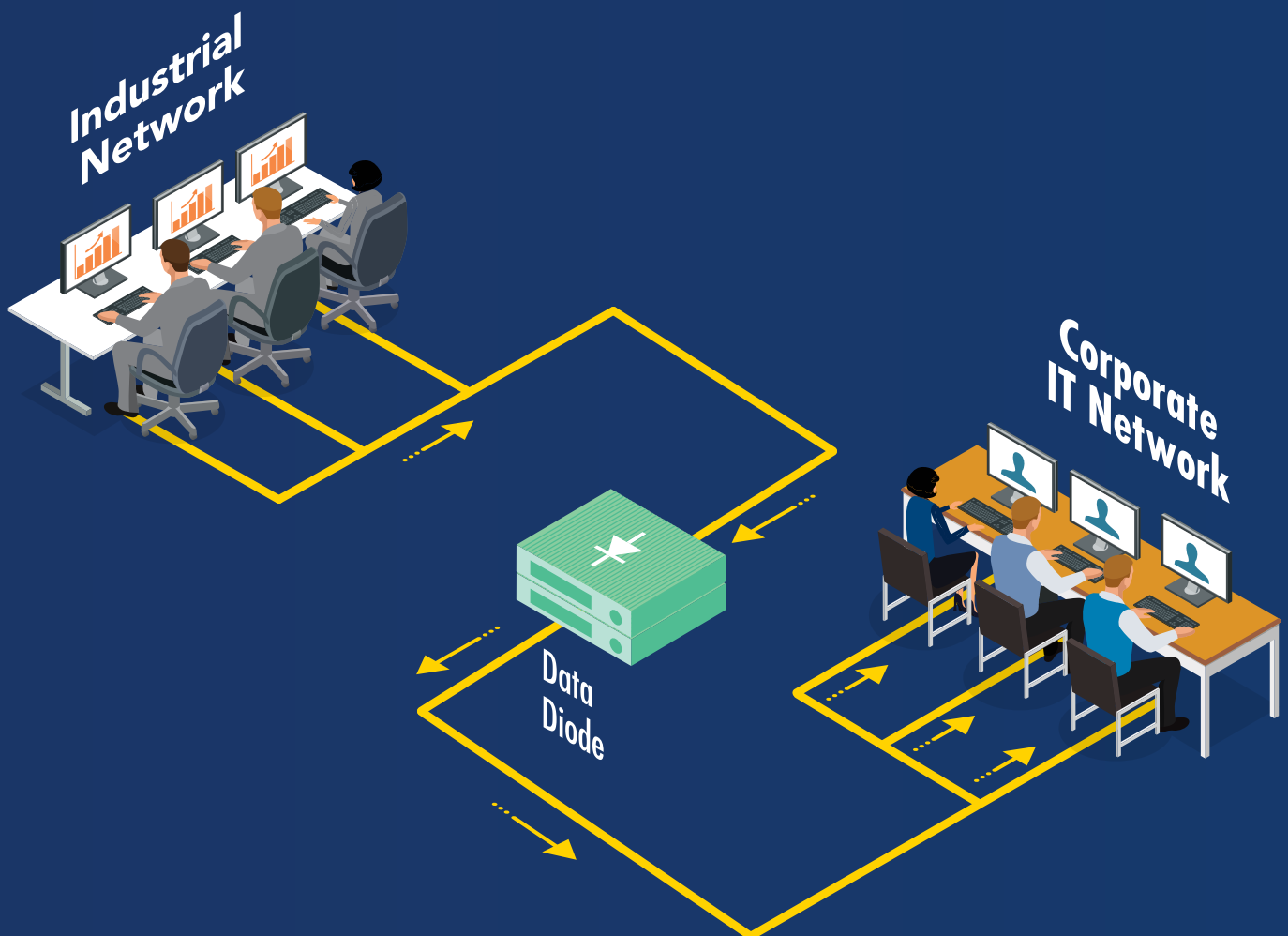
- Integrated Management Portal for ease of deployment, operation & maintenance
- Customisable hardware for integration of 3rd party solutions

Compact Design

- Allows all functionalities to be encapsulated within a compact footprint

Securing Network Systems while Allowing OT/IT Network Monitoring

Cyber threats to critical information infrastructure are on the rise. Cyber criminals have been exploiting vulnerabilities in these cyber-physical systems to cause disruption and damage.



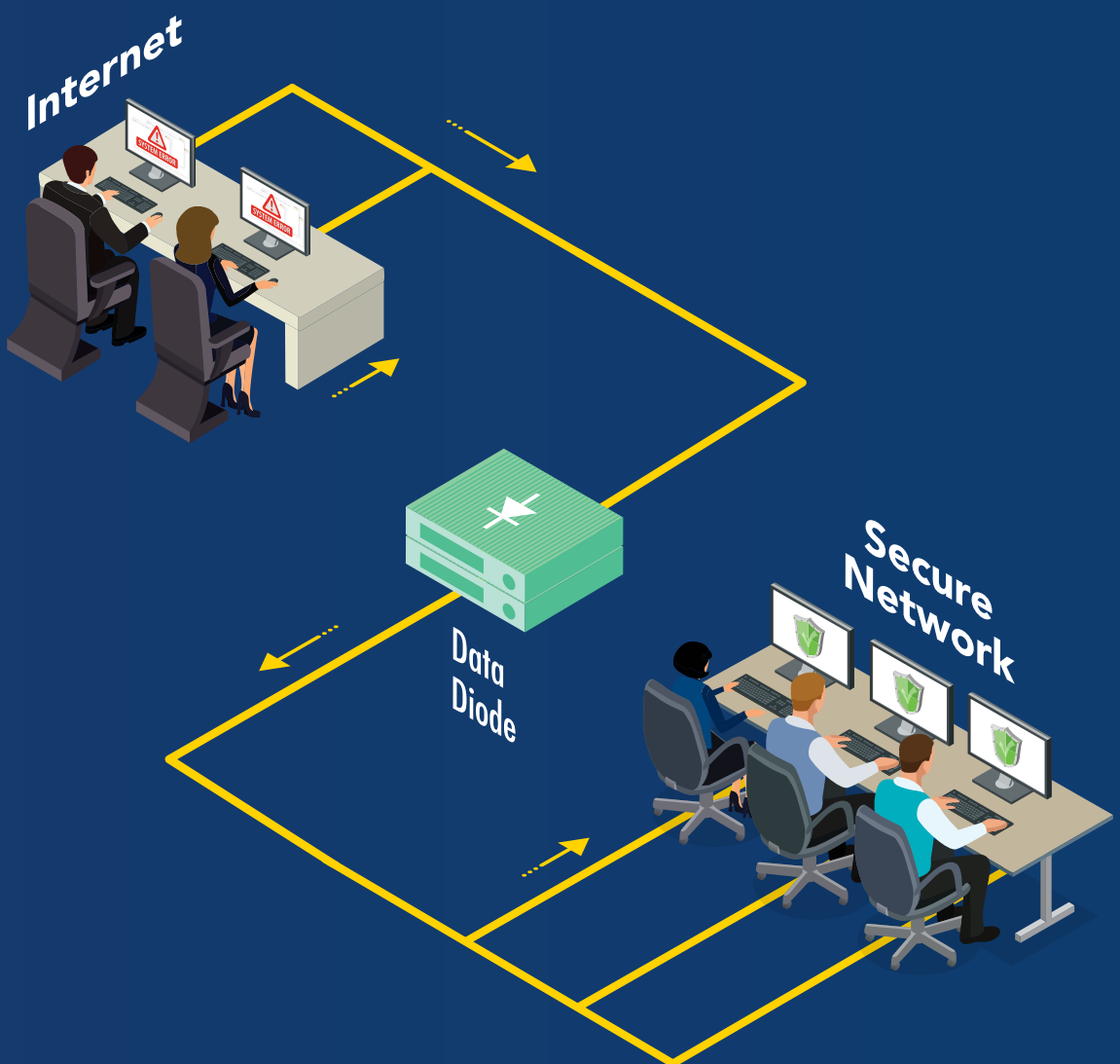
Industry 4.0 is driving the convergence of OT and IT networks due to the emphasis on Big Data analytics and machine learning to support productivity growth. However, this integration of networks increases organisations' vulnerability to cyber attacks, threatening the availability and integrity of critical systems.

ST Engineering Data Diode is designed specifically for secured data transfer while maintaining the air-gap between the separated IT and OT networks, i.e., allowing whitelisted network connections to transfer data across air-gap networks. Any data leakage (or back flow of data) is prevented due to its hardware-enforced unidirectional data transfer.

By establishing a secure connection between OT and IT networks using ST Engineering data diode, the real-time operational status of each OT component can be securely transmitted and centrally monitored at corporate headquarters. This ensures that critical infrastructure remains isolated from potential cyber threats.

Preventing Classified Information Systems from Data Leakage

Protecting confidential information from data leakage is a constant challenge. The ultimate protection – complete isolation from Internet connectivity – is an impractical solution and an impediment to businesses.



ST Engineering Data Diode protects critical networks against data leakage. Users are able to transfer files securely between networks, such as Internet and Corporate Intranet, while ensuring that critical information does not flow in the reverse direction.

ST Engineering Data Diode is designed with high reliability in mind to meet the most stringent operational requirements

ST Engineering Data Diode

ST Engineering Data Diode is essential to safeguarding industrial systems, enterprises and web applications.

Fortifying the Monitoring of IT/OT Networks

- Mitigates network-based attacks
- Enforces unidirectional transfer of operational data from the operational network to the enterprise network
- Ensures seamless continuity of current operations with zero disruptions

Securing File Transfer

- Ensures no data leakage during transferring of files
- Prevents malicious injects via Content Disarm & Reconstruction (CDR) and Multi-AV Scanning Engines
- Customise workflow for different file types

Securing e-Application Gateway

- Supports bi-directional HTTP web services
- Protects enterprise web/apps from SQL injections, XSS and data leakages

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