

OVERVIEW

Organisations with complex on-premise network infrastructure and cloud-based applications face a significant challenge in terms of complying with both privacy and security regulations. Some regulations, such as the General Data Protection Regulation (GDPR), require organisations to take a risk-based approach to security. For high risk environments, where strict data flows need to be enforced, solutions capable of executing unidirectional data flows may need to be deployed.

The Sphyrna Security portfolio of cross domain solutions, which is comprised of data diodes, unidirectional gateways and guards, provides high assurance, fast throughput and low costs in order to address ever evolving security challenges. And unlike next generation firewalls, with their complex configurations, data diodes and unidirectional gateways can be deployed quickly and effectively with relatively little to no configuration.

MARKETS

Traditionally, both military and public safety government agencies deployed cross domain solutions in order to ensure that sensitive data from classified systems is not leaked to unauthorised users, and to prevent external threat actors gaining access to sensitive data. Today, many organisations are under threat from sophisticated hackers and state sponsored agents. Finance, health, utility, telecommunications and cloud providers are now looking at leveraging these high assurance cross domain solutions in order to protect both their sensitive data and their vulnerable networks.

PRODUCT PORTFOLIO

Data diodes (Figure 1) are one-way information transfer devices that control information flow in one direction while preventing information flow in the reverse direction. Sphyrna Security offers both active and passive data diodes.

A unidirectional gateway (Figure 2) is a rack-mounted appliance consisting of two onboard systems interconnected by data diodes. The system initiating the transfer is often referred to as the pitcher while the system on the receiving end is often referred to as the catcher. The Sphyrna Security Unidirectional Gateway is an evaluated 1U appliance consisting of a pitcher and catcher connected by dual 10 Gbps (Gigabits per second) data diodes for maximum throughput.

ENTERPRISE READY

Dual 10 Gbps data diodes allow the Sphyrna Security Unidirectional Gateway to reliably perform high speed data transfer. In addition to redundant data diodes each system comes equipped with dual RAIDed hard drives in order to provide continued operation in the event of hard drive failure. Role-based administration is provided in multiple languages through a custom administrative interface. The administrative interface can be accessed using an Internet Protocol (IP) Keyboard Video Mouse (KVM).



Figure 1
Sphyrna Security Data Diode



Figure 2
Sphyrna Security Unidirectional Gateway

PROTOCOL SUPPORT

The data diode serves to provide a protocol break, ensuring that no protocol can be transferred directly from one network to another. This effectively mitigates attack vectors that leverage traffic control data. This is accomplished through the use of unidirectional protocols.

The Sphyrna Security Unidirectional Gateway supports both unidirectional TCP and User Datagram Protocol (UDP) streaming, as well as unidirectional transfer of data via (Secure) File Transfer Protocol (FTP/SFTP). Extensible Markup Language (XML) validation and filtering is supported using a specialized instantiation of the FTP/SFTP protocol adapter. These protocol adapters can be seen in Figure 3. Custom protocol adapters are also easily developed to support an organisation’s specific information flow requirements.

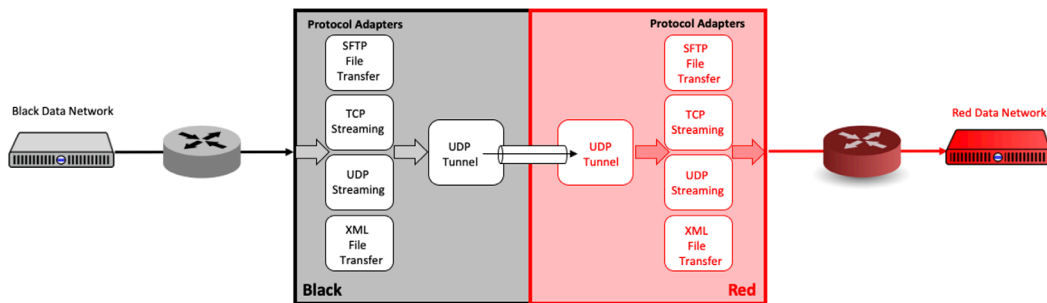


Figure 3
Protocol Adapters

ASSURANCE & COMPLIANCE

The Unidirectional Gateway has undergone extensive third-party assurance and compliance activities, including the following:

- **Common Criteria EAL4+** – The Unidirectional Gateway, and specifically the data diode component, has undergone Common Criteria EAL4+ certification. The plus refers to a number of augmented assurance requirements. The certification was conducted by Lightship Security in conjunction with the Canadian Communications Security Establishment (CSE).
- **High Assurance Testing** – The CSE has successfully assessed the Sphyrna Security Unidirectional Gateway for use in high assurance environments throughout the Government of Canada (GC).
- **National Recognized Testing Laboratories (NRTL) Safety Testing** – The Unidirectional Gateway has successfully completed safety testing, including electrical safety testing and emission testing.

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