SIMPLEX SYSTEMS™

UNIDIRECTIONAL GATEWAY WITH SECURE SANDBOX

Enforce unidirectional data transfer between two systems of different security levels while preventing data leakage without compromising its confidentiality, integrity and availability with Simplex Systems.

Unidirectional data flow imposed by physical disconnection

Simplex agents will sinkhole any duplex communication

Supports ICS and TCP/IP protocols with IPv4 & IPv6

Fast data transfer rate with low latency

Low operating cost with minimal administration

Supports High Availability (HA) with Active-Passive cluster

Unidirectional Communication Module for IoT Device

SIMPLEX CUBE™
SIMPLEX DIODE™
SIMPLEX SWITCH™

EMGRAFT SYSTEMS

SOLUTIONS

Classified networks require extra protection against manipulations of critical assets as well as data leakage and pilferage of sensitive information. Most classified networks are protected by an air gap isolation. However, today's business requirements often call for the need to send information out from classified networks to unclassified networks.
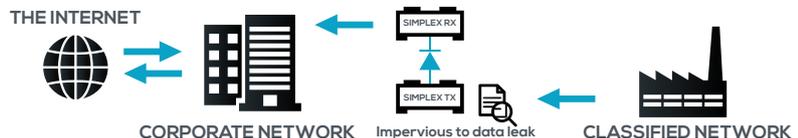
Interconnectivity between networks is essential when Information Technology (IT) networks are connected to Operational Technology (OT) networks, where many sensitive industrial systems need to connect their control units (e.g. Supervisory Control and Data Acquisition (SCADA) or Distributed Control System (DCS)) to corporate and other insecure networks. In most cases, organizations that rely on software-based solutions such as Unified Threat Management (UTM), fail to provide total security.

A comprehensive solution for connected classified networks is our Simplex Systems appliance, which by design enables only unidirectional data flow using its state-of-the-art hardware, operating system and software. Using Simplex sandbox and agents, your application is secured by the unmatched four software layers of protection, while also being defended by physics with one layer of hardware protection.
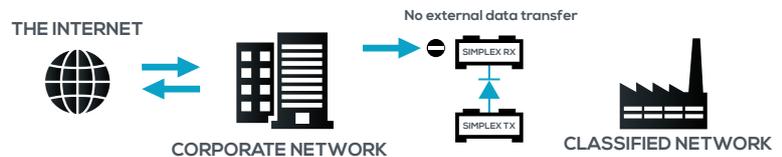
The Simplex Systems comes in three (3) variants:
- Simplex Diode is designed for mission critical applications;
- Simplex Cube is tailored for USB and/or Ethernet secure file transfer and independently configured as communication module for IoT devices; and
- Simplex Switch is built for securing Internet Protocol (IP) enabled cameras.
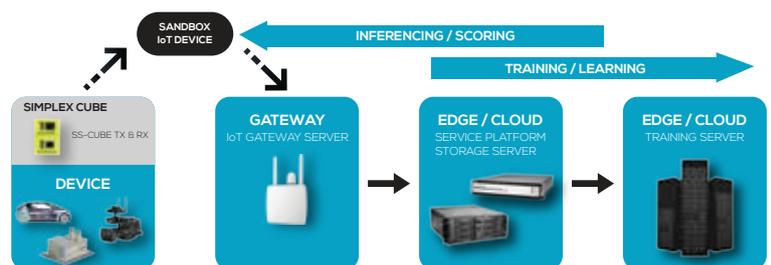
PROTECTS CLASSIFIED DATA

THE INTERNET · CORPORATE NETWORK · SIMPLEX RX · SIMPLEX TX · Impervious to data leak · CLASSIFIED NETWORK

PROTECTS CRITICAL ASSETS

THE INTERNET · CORPORATE NETWORK · No external data transfer · SIMPLEX RX · SIMPLEX TX · CLASSIFIED NETWORK

PROTECTS IoT USING IoT

SANDBOX IoT DEVICE · INFERENCING / SCORING · TRAINING / LEARNING · SIMPLEX CUBE · SS-CUBE TX & RX · DEVICE · GATEWAY IoT GATEWAY SERVER · EDGE / CLOUD SERVICE PLATFORM STORAGE SERVER · EDGE / CLOUD TRAINING SERVER

Simplex Systems provides unidirectional communication module for IoT devices and its ecosystem.

FEATURES

Unidirectional Data Flow

Simplex Systems provides a way to send application data out of classified network while protecting its integrity via segregation from any external networks. This unidirectional communication eliminates any online network attacks originating from an external network. These include attack on packets, viruses, worms, malwares, commands or information of any sort that might attempt to pass through the external network hosting the receiver router (RX) back to the sending-only network hosting the transmitter router (TX).

The Simplex Diode hardware is connected solely by a single strand fiber optic cable from the TX to the RX router. The RX is physically incapable of sending any information to the TX router - this setup is known as unidirectional data flow.

Both Simplex Cube and Simplex Switch come with TX and RX router that are connected via proprietary unidirectional cables that will ensure the physical disconnection between them.

Sinkholes Duplex Communication

Simplex Systems comes with hardware and software designed with built-in self-defense, providing a fail-safe security needed by any critical system. When a duplex communication or non-routable connection is initiated to the classified network, the Simplex agent will redirect it to the sinkhole. This is a foolproof security for your classified networks where selected data may go out, but no data can come in.

Multi Protocols Support

Simplex Systems is an RFC compliant with IPv4 and IPv6 friendly solution, while all packet states are maintained during transmission. The current and growing lists of TCP/IP supported protocols are RTP, RTSP, static HTTP/S, SMTP/S, POP3/S, IMAP/S, FTP, SFTP, TFTP, NTP, UDP SIP and DNS.

Simplex Systems also supports Industrial Control System (ICS) protocols over TCP/IP such as Modbus, Siemens S7, BACnet, EtherNet/IP and OMRON FINS.

Fast Data Transfer

Simplex Systems is fast since it does not require any content transformation. Flow control and error detection mechanisms make data transfer fast, reliable and alert to any data loss. It also protects against equipment failures, handles buffering and replay of data internally, and avoids the need for modified applications to handle retransmissions.

Simplex appliance acts like an air gap in preserving the isolation of critical networks. Every transmitting or receiving channel can be given different priorities and allocated with a minimum or maximum bandwidth across a unidirectional data path to ensure that each application gets an appropriate level of service.

Minimal Administration

Simplex Systems is a security router that can be managed via a simple and user-friendly web interface, which gives your organization value for money and performance. The periodic vulnerability assessments' costs are reduced, because there is no complex firewall configuration to be made, no tangled Intrusion Prevention System (IPS) logs to be verified, and no possibility of remotely controlling protected assets. Internal and external audit costs are reduced, as there are less systems, hence security configurations are simpler and faster to audit.

High-Availability

Simplex Systems offers a high-availability hardware configuration in an active-passive cluster [1][2]. In this mode of configuration, two TXs and two RXs operate in tandem. This feature is highly advisable to eliminate a single point of failure in your network.

Communication Module for IoT Devices

Simplex Systems provides unidirectional communication module for IoT devices. Specifically, the Sandbox acts as intermediary between the real IoT device and its infrastructure using non-IP communication. Data originating from the real IoT device is first received by the Sandbox, and then sent through its gateway and further to the service platform, over a secure connection. This setup using Simplex Systems eliminates attacks such as jamming, Denial of Service (DoS), data injections and manipulation of sensors or actuators.

ORDERING INFORMATION

SS-Cube	Simplex Cube Transmitter and Receiver pair
SS-Switch	Simplex Switch Transmitter and Receiver pair
SS-Diode	Simplex Diode Transmitter and Receiver pair
SS-P1	Professional consultation, customization and implementation services
SS-P2	Annual software upgrade and patches (year 2 onwards)
SR-SS2	Annual support for hardware parts and replacement (year 2 onwards)

SS-CUBE TX & RX

SS-DIODE TX

SS-SWITCH TX & RX

SS-DIODE RX

[1] Simplex Diode Active-Passive clustering requires two (2) units of TX and two (2) units of RX to be installed as a dual pair.

[2] Simplex Cube and Simplex Switch comes with transmitter and receiver modules designed for specific sets of operations hence it does not support clustering. All basic copper cables are included in a single order.

[3] All orders except replacement must come with professional consultation, customization and implementation services (SX-P1).

[4] All products, product specifications and data are subject to change without notice to improve reliability, functionality or design or otherwise.

EMGRAFT SYSTEMS SDN. BHD. (875234-V)

Block C2, UPM-MTDC
Technology Incubation Center 1,
Lebuh Silikon, Universiti Putra Malaysia,
43400 Serdang, Selangor, Malaysia.
Phone: +603 8959 1928
Fax: +603 8941 1689
Email: sales@emgraft.com
Website: http://www.emgraft.com

MSC
MALAYSIA
Status Company