OWL Cyber Defense

XD**MATRIX**

KEY FEATURES

- Package multiple (8 or more) independent OWT connections in a single rack-mounted (1U) appliance.

- The system is modular such that the number of OWT connections can be adjusted (options for 8, 16, 24 or 32 ports) to suit the requirements of a specific installation.

- Hardware root-of-trust validates the administrative processor's secure operating system at boot.

- Each input channel will enforce one-way transfer of UDP packets.
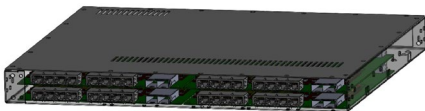
A high-density OWT appliance can be assembled using multiple "block" modules. A set of up to four 8-port "blocks" can be combined to form a 32-port system.

The Challenge

Raise the Bar (RTB) requirements for Cross Domain Solutions (CDS) implementations (will) require that all accredited CDSs support logging functionality. CDS log data must pass through an independent, evaluated One-Way Transfer (OWT) device to enter a Defensive Cyber Operations (DCO) analytics environment. To meet the OWT requirements, all medium-to-large scale CDS deployments will require a large number of OWT systems. In some deployments, simple "network taps" will not be a suitable OWT approach, and more sophisticated, configurable OWT devices will be required to support the adoption and roll-out of future CDS systems.

The Solution

Owl Cyber Defense, a world leader in data diode technology, has developed the scalable XD Matrix appliance that combines up to 64 hardware enforced OWT devices (32 channels) in a single 1U rack unit. The Generation 1 XD Matrix will perform reliable, FPGA-enforced one-way data transfer from multiple source CDSs to one or two destination DCOs. Future generations will conduct secure sessions, perform simple-to-complex packet filtering, and deliver configuration updates and patches via local or remote connections.

Benefits

- Lower Total Cost of Ownership (TCO): Significantly reduce the cost to acquire, install, operate, and support a large number of OWT connections

- Small form factor: Save valuable rack space with a multi-port 1U appliance

- High bandwidth: Each input channel can handle data rates up to 1 Gb and feed into a 10 Gb output switch

- Scalable: High density appliance can be configured with 8, 16, 24 or 32 independent OWT channels

The recommended architecture for the consolidated OWT solution consists of an array of FPGA-based diodes connected to an embedded switch.

1 System administration is achieved through a dedicated admin processor using a secure operating system and anchored by a hardware root-of-trust.

2 The admin processor can update each OWT module through an SPI interface. The Serial Peripheral Interface (SPI) connection is OWT-isolated from the admin processor to ensure that there can be no "cross talk" among the OWT modules through the admin interface.

3 Each of the 8 incoming ports may support up to 1 Gbps UDP traffic which gets consolidated into a 10 Gbps embedded switch.

4 Two output ports allow routing to separate destination networks.
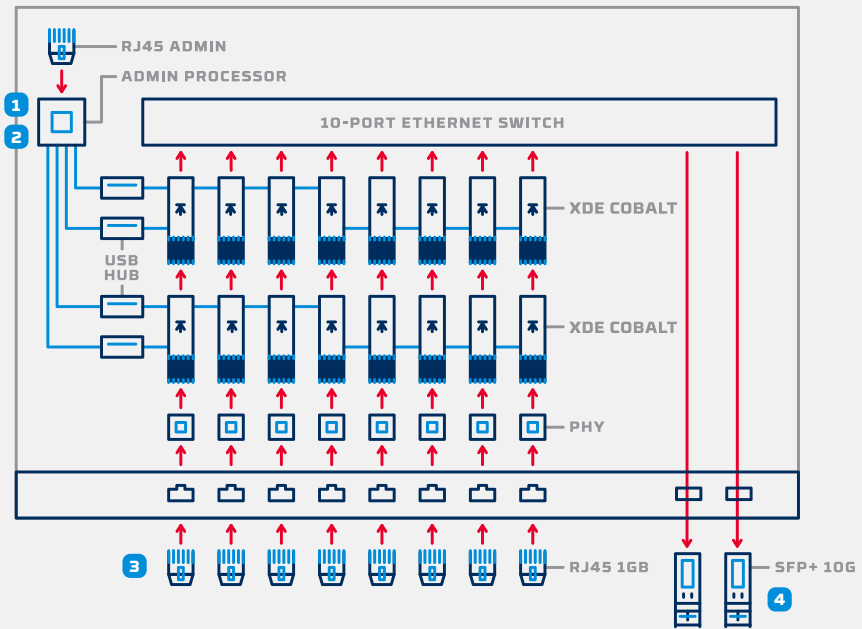
OWT elements can be consolidated into modular "blocks" where each unit contains 8 independent 1 Gbps OWT channels connected to a 10 Gbps switch with 2 output ports.

Technical Specifications

	ONE BLOCK MODEL	TWO BLOCK MODEL	THREE BLOCK MODEL	FOUR BLOCK MODEL
DIMENSIONS	29.5 × 19 × 1.75in	29.5 × 19 × 1.75in	29.5 × 19 × 1.75in	29.5 × 19 × 1.75in
WEIGHT	22 lbs (est)	25 lbs (est)	28 lbs (est)	31 lbs (est)
POWER CONSUMPTION	140W @ idle 190W @ max (est)	210W @ idle 280W @ max (est)	280W @ idle 360W @ max (est)	350W @ idle 450W @ max (est)
COOLING	470 BTU typical 650 BTU maximum	720 BTU typical 960 BTU maximum	960 BTU typical 1230 BTU maximum	1200 BTU typical 1540 BTU maximum
POWER SUPPLY VOLTAGE	100~264 VAC Full Range	100~264 VAC Full Range	100~264 VAC Full Range	100~264 VAC Full Range
FRONT PANEL PORTS	8× 1Gbe RJ45 2× 10G SFP+	16× 1Gbe RJ45 4× 10G SFP+	24× 1Gbe RJ45 6× 10G SFP+	32× 1Gbe RJ45 8× 10G SFP+
OPERATIONAL TEMPERATURE	0ºC to 40ºC	0ºC to 40ºC	0ºC to 40ºC	0ºC to 40ºC
STORAGE TEMPERATURE	-20ºC to 70ºC	-20ºC to 70ºC	-20ºC to 70ºC	-20ºC to 70ºC
ALTITUDE (UNPRESSURIZED)	3048m / 10,000ft	3048m / 10,000ft	3048m / 10,000ft	3048m / 10,000ft
HUMIDITY	30% - 70%	30% - 70%	30% - 70%	30% - 70%
PROTOCOLS	UDP, TCP (Future)	UDP, TCP (Future)	UDP, TCP (Future)	UDP, TCP (Future)
REAR PANELS	1× 1Gbe RJ45 1× USB 1× HDMI 1× Data Key	2× 1Gbe RJ45 2× USB 2× HDMI 2× Data Key	3× 1Gbe RJ45 3× USB 3× HDMI 3× Data Key	4× 1Gbe RJ45 4× USB 4× HDMI 4× Data Key