OWL Cyber Defense

V3CDS
Voice, VTC, FMV, & XML Cross Domain Solution

The Owl Solution

V3CDS is a multi-domain, scalable, secure software-based cross domain solution for sharing high-definition video and audio among multiple classified or coalition domains. Designed with a base 3-domain architecture, it can support Voice / Video teleconferencing (VTC), full-motion video (FMV), and XML Structured/Fixed Format data transfer between up to 7 or more domains (depending on throughput requirements). V3CDS can be configured as requirements grow to add additional domains, data types, and/or call and stream volume.

Designed for multi-domain collaboration, V3CDS builds off of Owl's revolutionary voice and video cross domain technology, enabling flexible data sharing and calling across multiple classified and/or coalition networks in real-time. From FMV feeds to video teleconferencing, V3CDS is the world's most capable multi-domain voice and video cross domain solution.

Voice & Video

V3CDS supports Voice over IP (VoIP) and Video Teleconference (VTC) cross-domain voice calls between at least 3 domains, with support for LDAP and Active Directory.

FMV

V3CDS supports full motion video (FMV) such as cameras for force protections and Unmanned Aircraft System (UAS) with metadata in Key Length Value (KLV) format. Supports geofencing which enforces sharing rules based on where the camera is pointed. The level of content filtering can be configured per stream based on threat level, quality, and sharing requirements.

XML Structured / Fixed Format

V3CDS is type accredited for XML and supports fixed format messages for structured streaming data, providing XML schema (XSD) validation and XSLT modification.

Geofencing

V3CDS supports geofencing, a location-based technology that captures and manages global positioning (GPS) coordinates from the KLV metadata for creating blackout regions for FMV sharing by setting virtual perimeters around a geographic boundary. The defined geofenced coordinates can be output so that the eXtensible Stylesheet Language for Transformation (XSLT) filter in the Assured Pipeline appends a redacted tag to any XML file that contains the geographic coordinates that fall within any of the specified regions.

KEY FEATURES:

- Designed for Multi-Domain
- Voice/VTC, FMV, XML Streaming
- Scalable, Flexible Configuration
- Remote Administration & Monitoring
- In LBSA Testing, Anticipated Completion Q4 2024

SUPPORTED DATA FORMATS & TRANSPORT LAYER PROTOCOLS:

- Session Initiation Protocol (SIP)
- Real Time Transport Protocol (RTP)
- Transmission Control Protocol (TCP)
- User Datagram Protocol (UDP)
- ISA C2 sensor control protocol
- H.263, H.263+, H.264, XML

MANAGEMENT & MONITORING FEATURES:

- Remote Monitoring (RMON) rsyslog support
- Remote Management (RMAN) 2 factor authenticated secure console administration via HTML5 in web browser
- High Side Management and DCO network interfaces

V3CDS Components

DISPATCHER:
The Dispatcher verifies domains attempting to exchange data are allowed (based on the Security Policy) and routes the data to an available Pipeline Appliance (PLA).

PIPELINE APPLIANCE (PLA)
Manages the data transfer between domains. Filters the data (based on the Security Policy) and routes it through the Dispatcher to a Gateway on another domain.

GATEWAY SERVER
The Gateway Server contains the Protocol Adapters to accept and connect various data types between domains.

V3CDS Components

As shown in **Figure 1. Sample High-Level V3 CDS Deployment** Domain 1 (red) has two Gateway Servers, a Call Manager, a sink that receives FMV video, and a Dispatcher that connects to all the Gateway Servers in the other domains.

Gateways 2 and 3 each have an FMV source (camera) that sends video to Domain 1 FMV Sink. If these domains are allowed to communicate (based on the Security Policy), when Domain 2 initiates a call to Domain 3, the call flows through its Gateway to the Dispatcher in Domain 1, where the Dispatcher verifies whether Domain 2 is allowed to communicate with Domain 3. If Domain 2 is verified, the Dispatcher in Domain 1 filters the call data (audio, video, text) through the Egress connection to the Ingress Pipeline Appliance (PLA). The Dispatcher receives the filtered call data and double checks that communication between the domains is allowed.
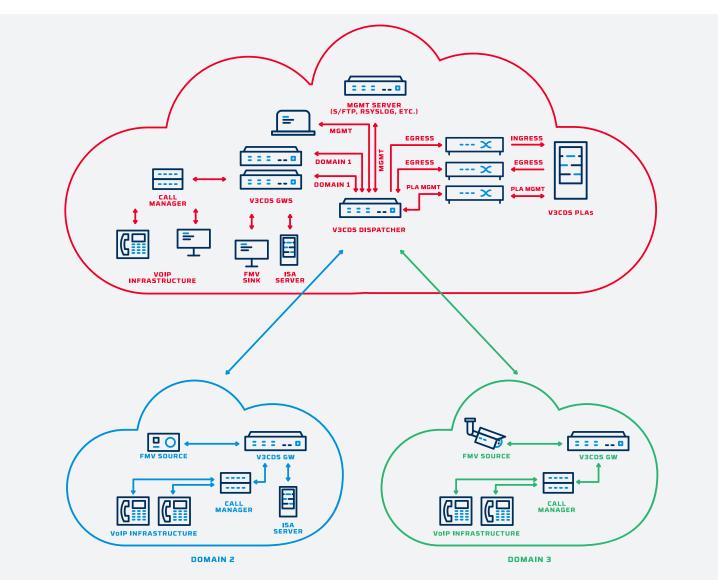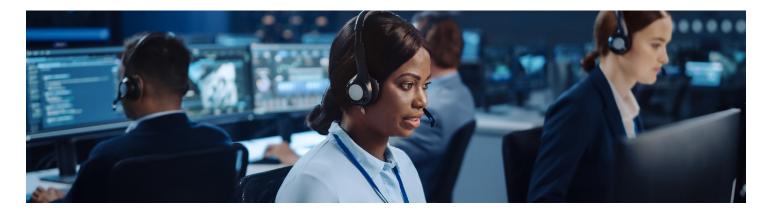

Figure 1. Sample High-Level V3CDS Deployment

Technical Specifications*

Dispatcher: HPE Proliant DL560 Gen10 6230

DIMENSIONS:
(H x W x D) (with bezel)
- 8.75cm x 44.54cm x 75.47cm or 3.44 x 17.54 x 29.71 in

FORM FACTOR
- 2U rack

PROCESSOR
- AMD® EPYC® 7002 Series Processors

TEMPERATURE
Standard Operating Temperature
- 10° to 35°C (50° to 95°F) at sea level

POWER SUPPLY
- 1600 W at 200 VAC to 240 VAC input, 1600 W at 240 VDC input

ALTITUDE
Operating
- 3050 m (10,000 ft)

WEIGHT
Minimum:
- 34.12 kg or 75.23 lb
Maximum:
- 18.45 kg 40.67 lb

HUMIDITY
Operating
- 8% to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.

PLA: DL385 GEN 10+ v2 (Pre-configured model)

DIMENSIONS:
SFF Drives:
- 8.75 x 44.54 x 71.1 cm 3.44 x 17.54 x 28 in
LFF Drives:
- 8.75 x 44.54 x 74.9 cm 3.44 x 17.54 x 29.5 in

FORM FACTOR
- 2U rack

PROCESSOR
- AMD® EPYC® 7002 Series Processors

TEMPERATURE
Standard Operating Temperature
- 10° to 35°C (50° to 95°F) at sea level

POWER SUPPLY
For 1400W Power Supply:
- 1400W (at 240 VAC), 1400W (at 240 VAC)

ALTITUDE
Operating
- 3050 m (10,000 ft)
Non-operating
- 9144 m (30,000 ft)

WEIGHT
Minimum:
- 15.1 kg / 33.25 lbs
Maximum:
- 24.7 kg / 54.5 lbs

HUMIDITY
Operating
- 8% to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.

Gateway: HPE DL360 GEN 10

DIMENSIONS:
SFF Drives
- · 4.29 x 43.46 x 70.7 cm
- 1.69 x 17.11 x 27.83 in
LFF Drives
- · 4.29 x 43.46 x 74.98 cm
- 1.69 x 17.11 x 29.5 in

FORM FACTOR
- 1U rack

PROCESSOR
- Intel® Xeon® Scalable Processor Family with up to 28 cores

TEMPERATURE
- 10° to 35°C (50° to 95°F) at sea level

POWER SUPPLY
For 1600W Power Supply:
- 5918 BTU/hr (at 200 VAC), 5888 BTU/hr (at 220 VAC), 5884 BTU/hr (at 240 VAC)

ALTITUDE
Operating
- 3050 m (10,000 ft)
Non-operating
- 9144 m (30,000 ft)

WEIGHT
SFF Minimum
- 13.04 kg (28.74 lb)
SFF Maximum
- 16.27 kg (35.86 lb)
LFF Minimum
- 13.77 kg (30.36 lb)
LFF Maximum
- 16.78 kg (37 lb)

HUMIDITY
Operating
- 8% to 90% - Relative humidity (Rh), 28°C maximum wet bulb temperature, non-condensing
Non-operating
- 5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing

Default Data Center Configuration

Administrators

V3CDS Administrators can execute only those functions assigned to their respective role. The V3CDS administrators are divided into four roles:

- Security Administrators (SecAdmin)
- System Administrators (SysAdmin)
- Log Administrators (LogAdmin)
- Policy Administrators (PolAdmin)

V2CDS / V3CDS Comparison Matrix

	V2CDS	V3CDS
Certification & Current Version	V2CDS v2.0 on NCDSMO baseline	V3CDS v1.0 in LBSA testing
Multi-domain	Multiple CDSs along with additional Collaboration Hub UC components	One managed CDS with comprehensive administration across all domains
Remote Management & Monitoring	Yes	Yes
DFDL Messaging	Planned v2.1 (Q1 2025)	Planned v2.0 (2025)
Full Motion Video	Separate configuration (CDFMV)	Included, may require performance upgrades
Performance	Dedicated per connection. Scales up with multiple CDSs	Load balanced per PLA (3 connections). Scales up with additional PLAs
Redundancy / HA	HA failover per connection with SIP trunk grouping	Failover requires additional complete system
Cost	Can be less expensive for some high availability and high-performance requirements	Less expensive for multiple domains without high availability, and if major performance upgrades are not required

OWL Cyber Defense

Owl Cyber Defense Solutions, LLC leads the world in data diode and cross domain network cybersecurity. With a constant focus on customers in the military, government, critical infrastructure, and commercial communities, Owl develops market-first, one-way data transfer products to meet a variety of operational needs, from entry level to enterprise.

For more information on Owl, or to schedule a demo, visit www.owlcyberdefense.com

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