



Secure Multi-Domain Video TeleConferencing

Current solutions for the Intelligence Community (IC) and the Department of Defence (DoD) require an extensive amount of equipment to support multi-domain applications where as few as two or as many as five networks, each operating on a different security level, may be required at every conference room and desktop. In this environment, the network equipment must be duplicated for each domain. In the past, this has been necessary to prevent any amount of data from being transferred from one domain to another, which would constitute a breach of security. CALIENT Technologies together with Freeport Technologies have addressed this issue drastically decreasing the capital expenses associated with Multi-Domain Video TeleConferencing (VTC) applications.

Traditional VTC Network Architecture

Traditional VTC solutions require the following dedicated resources at a conference room or desktop:

- Three or more fibers (one for each domain)
- Three CODECs (one for each domain)
- Ethernet distribution switch (one for each domain...3 ports per endpoint)
- Ethernet core switch (one for each domain...3 ports per endpoint)
- Content server for audio/video/data storage and playback (one or more for each domain)

In most cases, three network domains are required, one for Top Secret content, one for Secret content, and one for Unclassified content. As a result, at least three of each of the resources mentioned above are required for each room/desktop. Figure 1 below, demonstrates the complexity and prohibitive cost associated with this type of architecture.

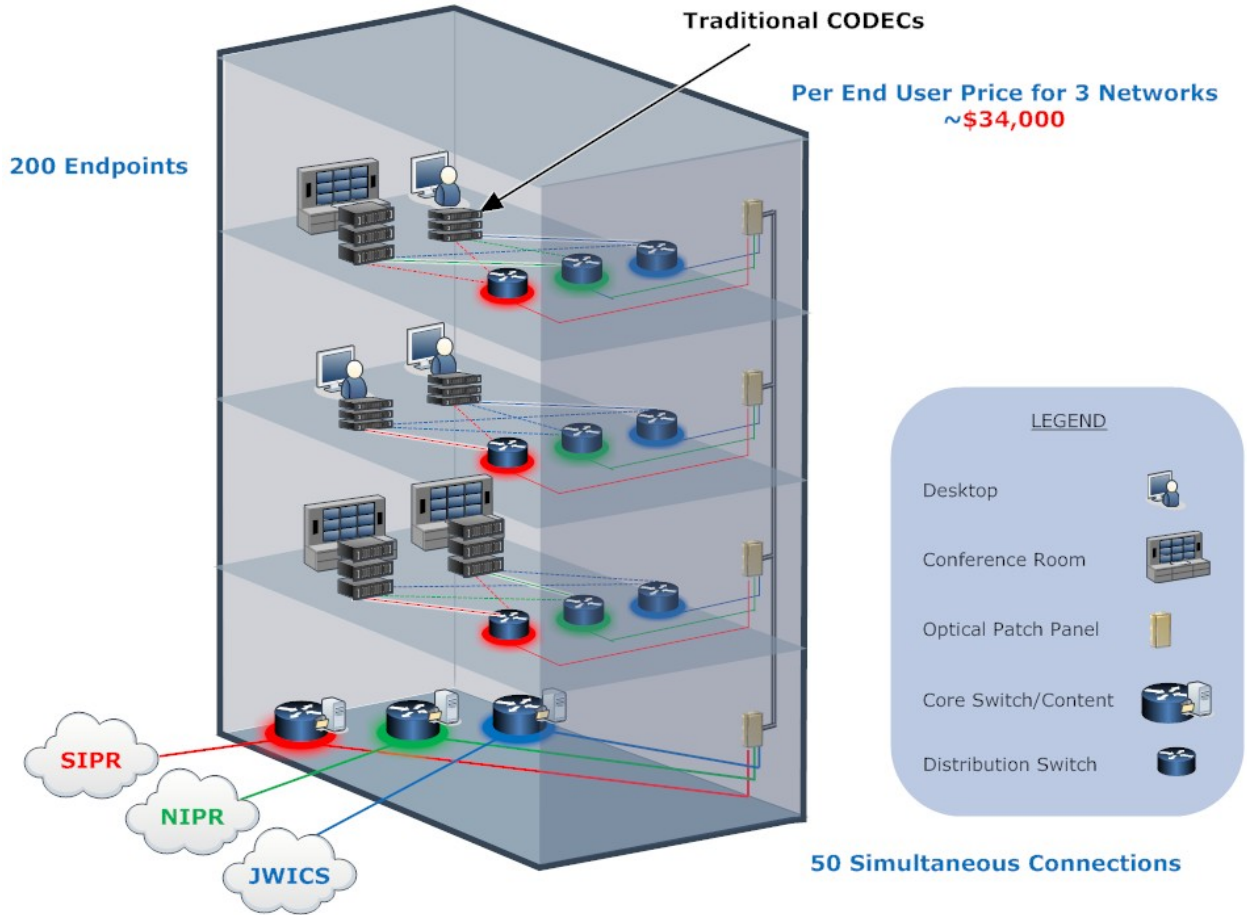


Figure 1: Traditional VTC Network Architecture

Secure Multi-Domain VTC Network Architecture

CALIENT Technologies and Freeport Technologies have teamed together to create a Secure, Multi-Domain VTC solution that radically changes the economics of multi-domain applications. Using Freeport's Enterprise-Domain CODEC with CALIENT's Cross-Domain photonic switch, IC and DoD customers can support three or more network domains per conference room or desktop with the following equipment:

- A single fiber
- One CODEC
- Dedicated port on photonic switch
- Ethernet core switch (one for each domain...3 ports per endpoint)
- Content server for storage and playback (one or more for each domain)

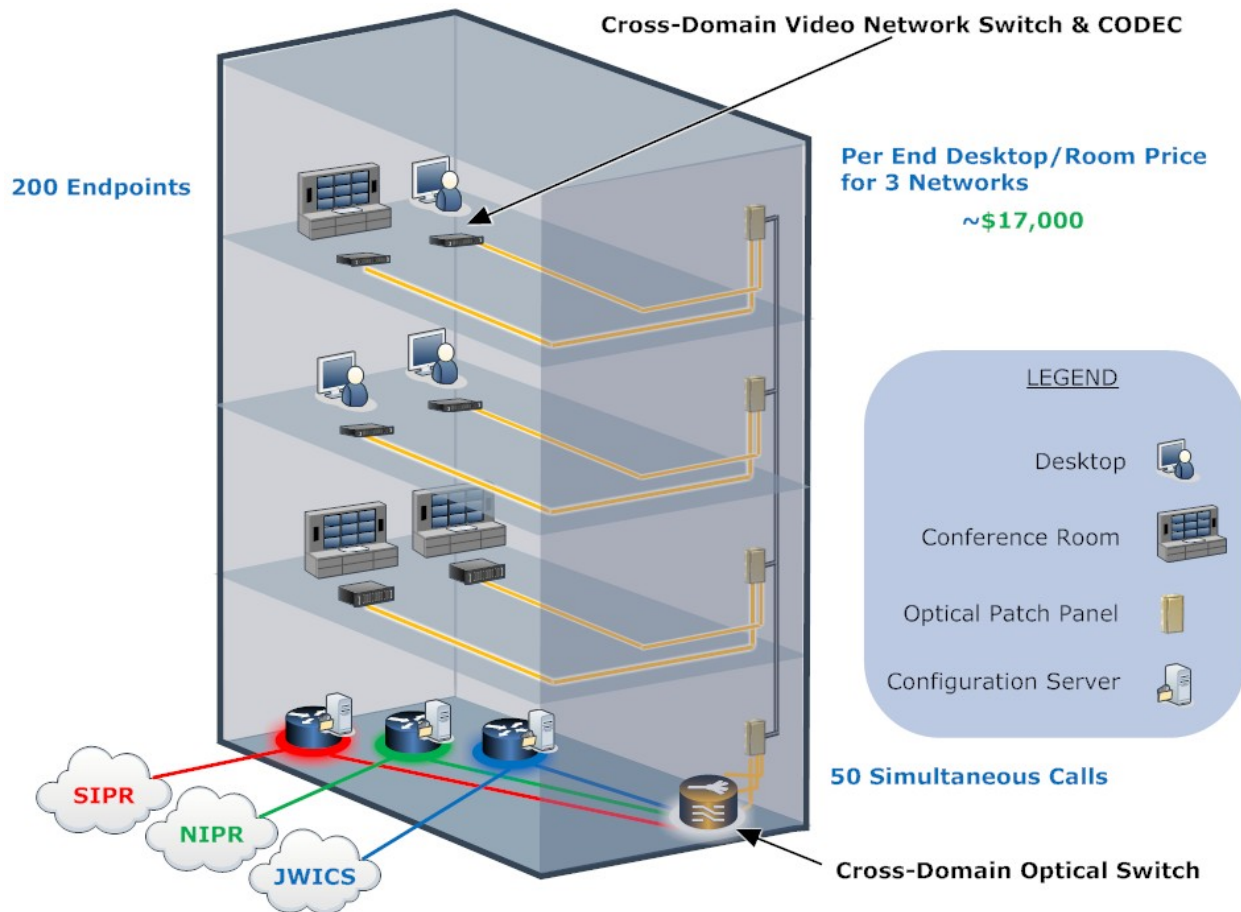




Figure 2: Secure Multi-Domain VTC Network Architecture

Enabling Technology

Freeport's Enterprise Multi-Domain Video Network Switch (VNS) allows a single CODEC to be used for multiple security levels. When a user wishes to switch to a different security level, control software in the switch flushes the CODEC returning it to its original state free of any residual data. Then, the CODEC is rebooted. The same control software interfaces with CALIENT's Multi-Domain photonic switch to establish a lightpath to the desired network domain assets. The Multi-Domain photonic switch uses 3-D MEMS to switch a lightpath from one fiber to another. The switch is transparent to data-rate, protocols, and wavelengths. As shown in Figure 3 below, a point-to-point path is dedicated through the switch for each connection, and since there is no physical or logical path between the management plane and the lightpath, security is assured.

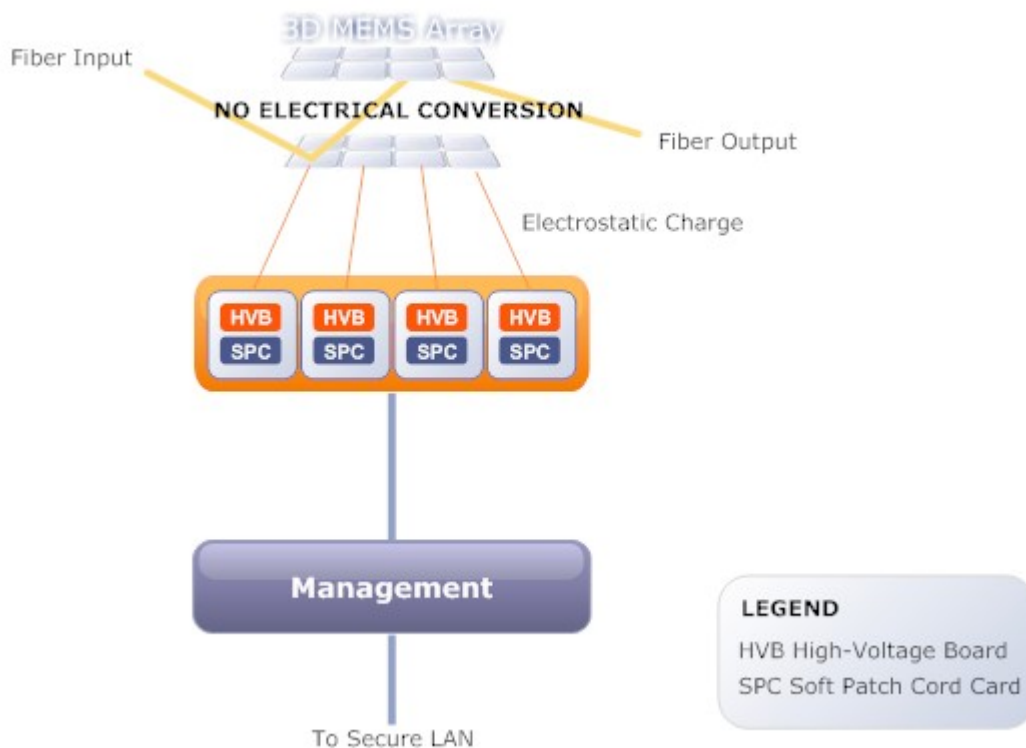


Figure 3: Separation of Management and Data Planes



Secure Domain VTC Solution Business Case

Using the scenario previously shown, a strong business case can be made for adopting the Multi-Domain VTC model for applications requiring even fewer than 10 rooms or 15 desktops. The models below compare the price of current VTC architectures against Freeport and CALIENT's joint, Secure Multi-Domain architecture. The table below illustrates the cost comparison for VTC desktops which use a much less expensive CODEC.

Table 1: VTC to the Desktop Business Case Cost Comparison

# of Network Domains	MD Solution \$ Per Desktop	Current \$ Per Desktop	% Savings
2	\$16,568	\$22,355	26%
3	\$17,483	\$33,532	48%
4	\$18,398	\$44,710	59%
5	\$19,313	\$55,888	65%

** Case assumes 50 simultaneous connections with 200 endpoints. Full, simultaneous connectivity increases the MD solution by \$3000 per desktop. Full simultaneous connectivity represents a slightly higher % in savings for the proposed solution.*

The following table illustrates the cost comparison of the two solutions for VTC rooms which use a much more expensive CODEC.

Table 2: VTC to the Room Business Case Cost Comparison

# of Network Domains	MD Solution \$ Per Room	Current \$ Per Room	% Savings
2	\$46,568	\$82,355	43%
3	\$47,483	\$123,532	62%
4	\$48,398	\$164,710	71%
5	\$49,313	\$205,888	76%

** Case assumes 50 simultaneous connections with 200 endpoints. Full, simultaneous connectivity increases the MD solution by \$3000 per desktop. Full simultaneous connectivity represents a slightly higher % in savings for the proposed solution.*



Conclusion

With an industry leading 320x320 port density, lowest price per port, redundant processors and field replaceable, high-voltage power supplies, CALIENT's Multi-Domain photonic switch is the clear choice for the IC and DoD. Coupled together, Freeport and CALIENT are offering the industry's first Enterprise Secure Multi-Domain VTC solution that can be scaled cost effectively and reliably to meet even the most demanding applications.

About CALIENT Technologies

Headquartered in Santa Barbara, CA, CALIENT Technologies is the global leader in adaptive photonic switching with systems that build service providers, cloud computing, content deliver and government networks for today's content explosion. CALIENT's 3D MEMS switches have demonstrated years of reliability, with eight years of successful continuous operation at large companies in diverse markets. With more than 70,000 optical connections shipped, CALIENT has one of the largest installed bases of photonic switches worldwide. For more information visit us at www.calient.net or contact us at sales@calient.net.

Media contact for CALIENT Technologies:

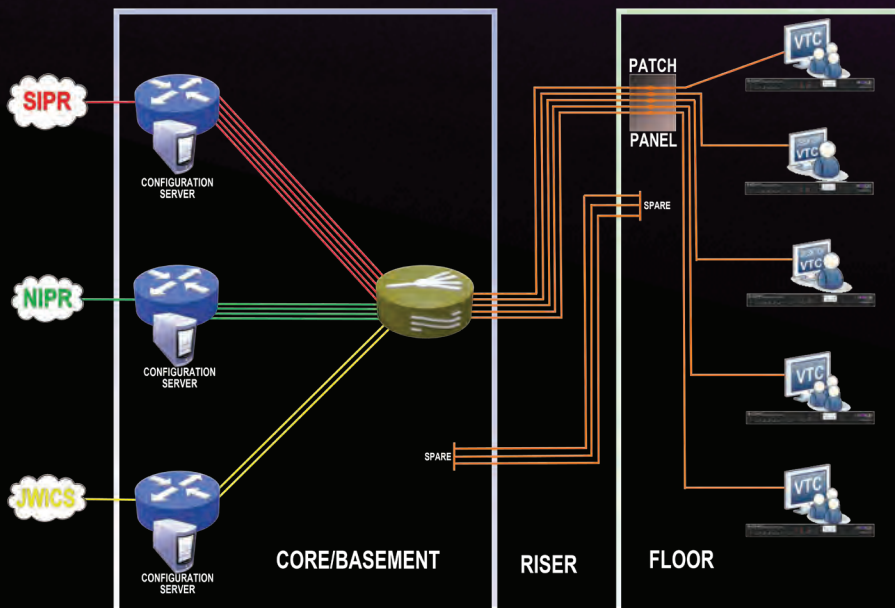
CALIENT Technologies PR Team
David Rodewald/Amber Hack, 805-494-9508
pr@calient.net

E-CD-VNS

Enterprise Cross Domain Video Network Switch



- **Supports up to 5 IP video networks in a 1U solution.** You can now afford to enable the desktop VTC and conference rooms with cross domain capabilities enhancing mission readiness.
- **Flexible licensing.** Each Enterprise Cross Domain VTC system comes with 2 networks enabled. Enterprise licensing allows any desktop or room to have additional networks enabled without a change to the infrastructure. Endpoints can include 2, 3, 4, or 5 network variations, all managed from a central licensing server.
- **Schedule and control VTC calls from the enterprise.** The scheduling system can schedule calls at all security levels. Ad hoc calls are also supported.
- **Supports existing VTC systems.** Retrofit existing buildings with cross domain VTC capabilities cost effectively, ensuring all assets have the same capabilities and flexibility.
- **Purpose-Built solution** will handle Secret and TS/SCI networks while having the capability to operate on an Unclassified network when needed. No compromises. The system is ready to communicate when you are.
- **Cost Effective.** Approach results in significant cost savings; eliminates the need for dedicated TS level VTC rooms, scalability through licenses, no additional infrastructure or hardware needed.



FREEPPOINT
TECHNOLOGIES

Building Rooms That Empower You
 470 Springpark Place •
 Suite 100 •
 Herndon, VA 20170 •
 571-262-0400 •
 fax 571-262-0401 •
www.freepointtech.com •

