

SECURE VIDEO DISTRIBUTION AND SIGNAL MANAGEMENT SYSTEMS TOTAL COST OF OWNERSHIP GUIDE

The need for faster and more accurate analysis of ISR (intelligence, surveillance, and reconnaissance) data is driving new investments in command and control technology, with the goal of enabling instant situational awareness and rapid decision making. Modularity and interoperability enabling a smooth transition to the next mission is also an important objective.

Next-generation signal management systems from Thinklogical deliver a host of benefits for C4ISR applications, including immediate access to video-rich information, mitigation of the insider threat, and a more productive and collaborative workspace that is nimble, flexible and responsive to changing operational requirements. Thinklogical's innovative KVM and VDS extension and switching technology offers government, defense and intelligence organizations a *measurable and sustainable* savings in total cost of ownership (TCO) when compared to alternative distribution solutions, both in capital outlay, and recurring sustainment expenses.

In these complex IT and AV environments, concerns about initial equipment procurement costs can be quickly offset by the added efficiency, reliability, and security provided by a Thinklogical solution. The ability to manage multiple classifications of information through a single IA-accredited Thinklogical system dramatically streamlines the IT and AV topology. Less computer hardware and cabling, fewer software licenses, reduced power and cooling requirements, and extended equipment refresh cycles all contribute to ongoing infrastructure and maintenance cost savings while increasing productivity and efficiency.

The chart below highlights the potential TCO benefits derived from implementing a Thinklogical system in a variety of typical use cases in defense and intelligence applications, including classroom training, secure ops and watch floors, video teleconferencing, simulation, and UAV/UAS/RPA operations.

TOTAL COST OF OWNERSHIP COMPONENTS/BENEFITS

(TYPICAL EXPERIENCE KNOWING THERE ARE EXCEPTIONS IN EVERY CASE)

Marginal Positive Impact on TCO	Some Positive Impact on TCO	Substantial Positive Impact on TCO
---------------------------------	-----------------------------	------------------------------------

TCO MEASUREMENT COMPONENT	CLASS ROOM	OPS FLOOR	VDS	VTC	SIM	UAS GROUND	UAS PILOT
CAPITAL SAVINGS							
A MORE EFFICIENT ASSET UTILIZATION							
B REDUCED NETWORK INFRASTRUCTURE							
C FEWER COMPUTERS AND LICENSES			N/A	N/A			
D FEWER CODECS	N/A	N/A	N/A		N/A	N/A	N/A
E CUSTOMER PROGRAMMABILITY (FOR CONTROL SYSTEM CHANGES)							
SUSTAINMENT & SOFT COST SAVINGS							
1 IT ADMINISTRATION COSTS LOWER DUE TO CONSOLIDATION OF ASSETS							
2 LOWER COST OF POWER & COOLING DUE TO LESS EQUIPMENT							
3 FUTURE-PROOFING FOR NEXT GENERATION TECHNOLOGY							
4 HIGH MTBF AND SIMPLIFIED IT INFRASTRUCTURE							
5 ROOM CHANGES LESS INTRUSIVE DUE TO PROGRAMMABILITY, MODULARITY AND INTEROPERABILITY. IN-HOUSE SYSTEM MANAGEMENT REDUCES CONSULTING COSTS.							
6 NETWORK UTILIZATION OPTIMIZED WITH FEWER NETWORK PORTS							
7 LESS AGGREGATE NETWORK BANDWIDTH REQUIRED FOR SAME WORK FLOW						N/A	N/A
8 REDUCED SOFTWARE LICENSING FEES ANNUALLY (FEWER COMPUTERS)						N/A	N/A
9 OPERATION AND MAINTENANCE COSTS REDUCED							
10 ROOM CHANGEOVER TIME DRAMATICALLY SHORTENED						N/A	N/A
11 REDUCED OVERALL FACILITY REQUIREMENTS FOR SAME WORK FLOW / USE CASE							
12 OPTIMIZED WORKFLOW AND HUMAN FACTORS							
SECURITY COST BENEFITS							
A MITIGATION OF INSIDER THREAT DUE TO SEPARATION OF THREATS FROM TARGETS							
B REDUCTION OF MLS PHYSICAL ASSETS							
C OPTIMIZE OPERATIONAL AREA CONTROL OF CLASSIFICATION LEVEL CHANGES					N/A	N/A	N/A
D MITIGATION OF MALWARE INTRODUCTION (USB HID)			N/A	N/A		N/A	N/A

CUSTOMER CASE STUDIES

OPTIMIZING OVER-DEPLOYED NETWORKS FOR OPERATIONS FLOOR

Legacy Approach Key Variables:

- **Ops Floor Desks:** 200
- **Networks at Each Desk (avg):** 5
- **TS Networks per Desk:** >1
- **TS Network Utilization per Operator:** 12 minutes / month
- **Operator Switching Method:** Desktop KVM Switch
- **Objective:** Remove Networks from Operators, Optimize Resource Usage and Workflow

By removing the IT hardware from the operator areas and back-racking them via Thinklogical, each desk can now easily and quickly change its purpose, configuration and use case to meet mission requirements. Additionally, the typical operator logged onto a specific TS network for about 12 minutes per month to maintain account privileges. Once computers were back-racked, the customer quickly realized that they could reduce the number of TS computer resources from 200 in the legacy method to approximately 75 and maintain the same workflow. Each operator can gain access to a TS computer, log on, log off and the computer will then be back in the “pool” and available for another operator. Power users have all the access they require without impacting ad hoc resource availability.



TRAINING AND NEXT GENERATION CLASSROOMS

Legacy Approach Key Variables:

- **Buildings:** 13
- **Classrooms:** 222
- **Seats per Classroom:** 25 plus an instructor
- **Network Resources (computers):** 5,400
- **Network Resource Utilization (max):** <20%



By pooling network and computer resources in “back-racked” IT rooms with Thinklogical, instructors can easily allocate the exact amount of resources needed for each class and then release them to other instructors at the end of the session. KVM and audio are allocated from a system of secure matrix switches and extended to the room via fiber optic cabling. Since no actual networks exist in any classrooms, they become “stateless” and not inflexible “curriculum silos” when no resources are allocated. Additionally, instructors have full monitoring access to each student’s screens and can collaborate by switching keyboard control anywhere within the classroom they want. This also eliminates a very expensive third party sub-system in each classroom for additional savings.

MULTI-LEVEL SECURE VIDEO TELECONFERENCING

Legacy Approach Key Variables:

- **VTC Rooms:** 14
- **Total Codecs for Site:** 56
- **Physical Location of Codecs:** Local to VTC Rooms
- **Associated IT Infrastructure:** VTC Room Closets

Security requirements dictate that there be sufficient preparation to each room prior to a secure VTC session. Once completed, the room must be secured once again to enable the next VTC session to occur. This required a significant burden on the IT and security personnel as well as downtime between sessions. Additionally, the number of Codecs required was maximized at several per room. The associated network infrastructure and local control software engaged network owners and programmers working under contract. Thinklogical facilitates back-racking enough Codecs to enable VTC sessions to take place in as many rooms as needed, at whatever security level required.

