
VALIANT PRODUCT & TECHNOLOGY PRESENTATION

OVERVIEW



ABOUT VALIANT COMMUNICATIONS



Introduction

- Established in 1993 in technical and financial collaboration with Vanguard Communications USA.
- An ISO 9001:2015, ISO 10001:2018, ISO 14001:2015, ISO 27001:2013 and ISO 45001:2018 certified equipment manufacturer of Communication, Transmission, Protection, Synchronization, NAS & Data Storage Servers and Cyber Security solutions.
- Provides a powerful blend of “innovation, quality and economics”.
- Successful installations in over 110 countries, worldwide.
- Global footprint with offices in USA, UK, Canada and India.
- Regional Distributor offices in 25 countries.



PRESTIGIOUS REFERENCE CUSTOMERS

End-users, using VCL equipment



ABB



Siemens



Schneider Electric



Power Grid (PGCIL)



Turkish Electricity Company



Larsen & Toubro Limited



Perusahaan Listrik Negara



Vietnam Electricity



Defense Communications Agency (DCA)



Honeywell



Lockheed Martin



Northrop Grumman



United Nations



United States Government



Raytheon



Amentum (NASA)



GE Renewable Energy



L3 Harris



Motorola



Tranelectrica



Airport Authority of India



General Dynamics



Government of Canada



Tesla

VALIANT VERTICALS



POWER & UTILITIES

Power Sector Infrastructure –
Transmission, Distribution,
Digital Substations, Smart Grid.

Grid Islanding, Wide Area Monitoring
(WAMS)

Utilities – Water, Oil & Gas, Solar and
Wind Energy, Renewables.

Railways and Metro Rail,

Airport Communication Networks.



IT/OT, DATA STORAGE, MPLS ROUTERS

NAS & Data Storage Server solutions with
Quantum-Safe and Data Diodes.

MPLS Routers (Core, Edge, Access).

Network Management Systems (NMS).

4G, 5G Communication equipment.

Industrial Automation solutions.



CYBER SECURITY

Cyber Security for critical infrastructure
sector, (Power, Railways, Airports,
Utilities, Financial Institutions, Defence
networks)

Automatic Network Isolation equipment.

Network Reliability & Failover failsafe
solutions.

VCL END-TO-END SOLUTIONS



- IT/OT end-to-end communication and transmission solutions.
- IP/MPLS, MPLS-TP, SDH/SONET Multiplexers.
- Teleprotection (Distance Protection) E1, Optical C37.94, IP/MPLS, GOOSE 61850.
- IEEE C37.94 Differential Protection communication solutions (E1, Optical, IP).
- Grid Synchronization including Time & Frequency solutions (NTP, PTP, GPS/GNSS).
- Phasor Measurement Unit (PMU), GRID Islanding and WAMS solutions.
- Cyber Security suite (designed for Power Utilities and SCADA).
- NAS & Data Storage Servers with Quantum-safe, Data Diode and EMP protection.



COMMUNICATION BACKBONE



- IP/MPLS Routers
- MPLS-TP equipment
- SDH Multiplexers
 - STM-1, STM-4, STM-16, STM-64
 - E1, FE, GE, 10G
- SONET Multiplexers (USA)
 - OC-3, OC-12, OC-48, OC-192, FE/GE
 - T1, FE, GE, 10G
- EDFA amplifiers
- 10G Optical Repeaters
- PRP, Ethernet Switches.

IP/MPLS Routers (Core, Edge, Access)



- Utility ruggedized MPLS routing equipment.
- Core, Edge, Access/Customer Premises MPLS Routers.
 - **Interfaces supported:**
 - 1G RJ45 Electrical interfaces;
 - 1G SFP Optical Interfaces;
 - 10G / 100G Optical Interfaces
 - **Routing Features:**
 - Routing protocols : OSPF, OSPFv3, BGPv4, BGPv6, IS-IS, RIPv1, RIPv2, RIPv6, Static Routing
 - MPLS, PIM, QoS, Traffic Engineering
 - IPv4, IPv6, DHCP, PPPoE, SNMP
 - VLAN, Link Aggregation Group (LAG), Bridge, VRRP
 - **Cyber Security & Encryption Features:**
 - MPLS L2VPN, MPLS L3VPN, IPSec, OpenVPN, GRE, PBR
 - Data Encryption, Protection from DDoS and SYN Attacks.
 - Access List, Route Map, MAC Layer Filtering
 - RADIUS and TACACS+

VCL-MX-5010-R
MPLS Router



VCL-MX-5020-R
MPLS Router



VCL-MX-5040
MPLS Router

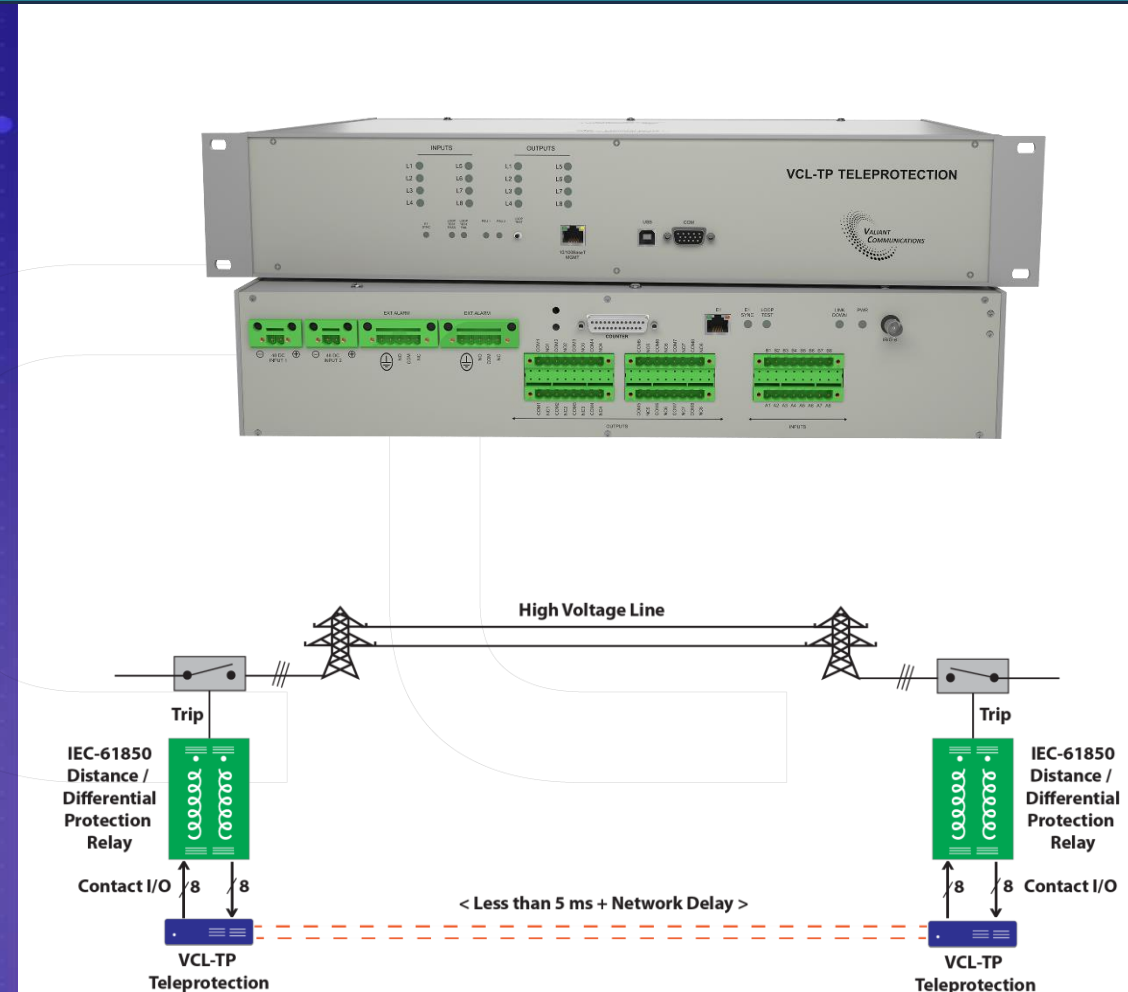


VCL-MX-5050-R
MPLS Router



Teleprotection (Distance Protection)

- Teleprotection high speed communication systems protect high-voltage transmission systems and power equipment from faults and disturbances.
- Play a crucial role in ensuring the reliable and secure operation of the power grid.
- **Interface variants:**
 - Teleprotection over E1
 - Teleprotection over Optical (IEEE C37.94)
 - Teleprotection over IP/MPLS / MPLS-TP
 - Teleprotection with IEC 61850 GOOSE, IP/MPLS / MPLS-TP



IEEE C37.94 Line Differential Protection

- Line differential protection equipment protects power transmission lines / high-voltage substations using differential relay schemes, against faults within a protected zone.
- **Interface variants:**
 - IEEE C37.94 over E1 (1E1 and Quad E1)
 - IEEE C37.94 over Optical (Multimode to Single Mode)
 - IEEE C37.94 over IP/MPLS / MPLS-TP.

VCL-2709, IEEE C37.94 to E1 Converter



VCL-2710, IEEE C37.94 to Optical Converter



VCL-2711, IEEE C37.94 over IP/MPLS



VCL-MX-1554-RAC, Quad IEEE C37.94 to E1 Converter



LEGACY PRODUCTS

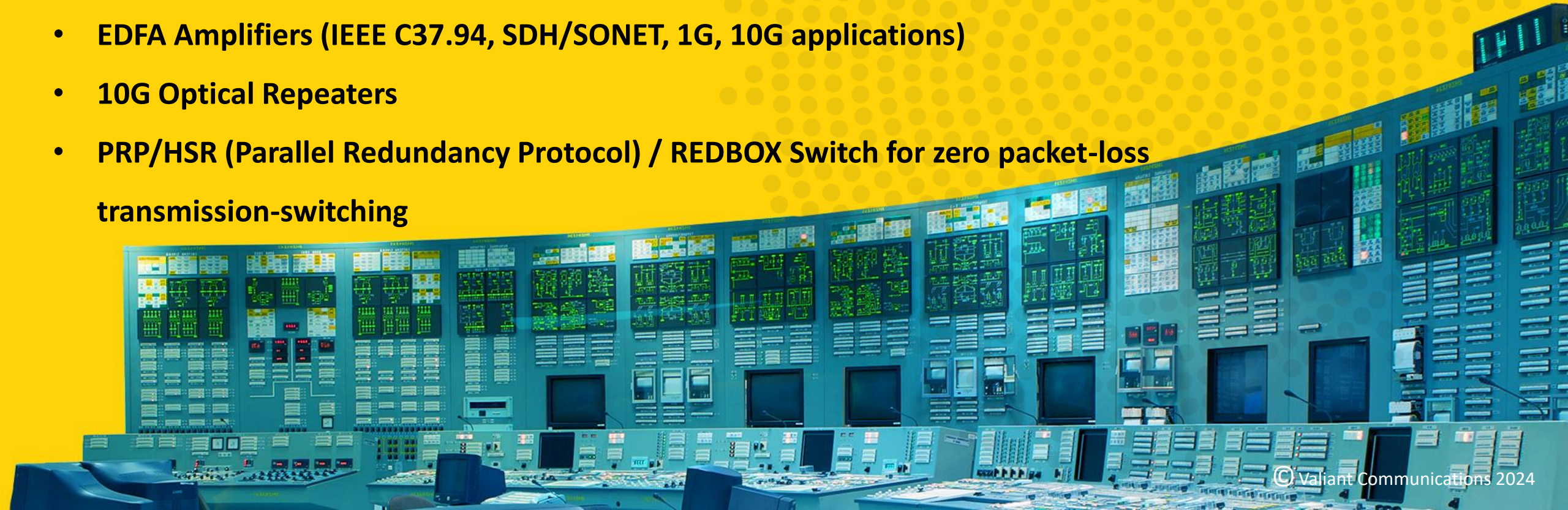


- PDH Voice and Data Multiplexers with IEEE C37.94
- E1 Digital Access Cross-Connect Switches (E1 DACS)
- T1 Digital Access Cross-Connect Switches (T1 DACS)
- IP Multiplexers - TDM over IP - TDM over Ethernet / TDM over MPLS Multiplexers (E1, E3, T1, DS3 over IP/Ethernet)
- IP over TDM (Ethernet over E1, E3, T1, DS3)
- Optical Multiplexers
- E1 and T1 Monitoring Patch Panels, Splitters
- AC to DC and DC to DC converters.

CONTEMPORARY PRODUCTS



- **1+1 Gigabit Ethernet Failover (A/B Switch / Fallback) Switches**
 - **Optical & Electrical – No single point of failure even in power down condition.**
- **Optical / Electrical Industrial Media Converters**
- **EDFA Amplifiers (IEEE C37.94, SDH/SONET, 1G, 10G applications)**
- **10G Optical Repeaters**
- **PRP/HSR (Parallel Redundancy Protocol) / REDBOX Switch for zero packet-loss transmission-switching**



SYNCHRONIZATION

- GPS / GNSS Primary Reference Clocks (ITU-T G.811)
- NTP Time Servers with 1G / 10G Interface options
- PTP 1588v2 Grandmaster Clocks
- PTP 1588v2 Slave Clocks
- PTP 1588v2 Switches / Transparent Clocks
- Time & Frequency Distribution solutions
- NTP/PTP to IRIG-B Converters.

GPS/PTP/NTP

VCL-3045,
NTP to IRIG-B
Converter



VCL-3045, NTP to IRIG-B (RS485)



VCL-2156,
NTP Server



VCL-2145-D
Dual GPS
Primary Reference
Clock



VCL-3048, NTP Time Server



VCL-2739, IEEE 1588, PTP Switch

VCL-2112,
IEEE 1588v2 Slave



EMERGING TECHNOLOGIES



- TDM and IP/Ethernet communication for transmission for Military / Defense
- 1G/10G Data Encryption Equipment.
- Fail-Safe, Transparent Firewalls designed for IEC-104, DNP3 and MODBUS RTUs
- Phasor Measurement Unit (PMU)* for Smart Grid & WAMS
- Grid Islanding solution using high-speed communication network.

VCL-PMU-30, PHASOR MEASUREMENT UNIT (PMU)
IEEE C37.118 SYNCHROPHASOR



VCL-2724,
PRP / HSR SWITCH



VCL-2243, RTU Firewall



Various levels of NAS & Data Storage Solutions

Types of NAS Solutions & Data Storage Solutions

In today's data-driven world, efficient and secure storage solutions are crucial for businesses of all sizes. VCL Network Attached Storage (NAS) & Data Storage Systems offer a robust and flexible option for storing, managing, and accessing data over a network. Unlike traditional storage methods, VCL NAS systems provide centralized storage that can be easily scaled and accessed by multiple users and devices.

	With Ransomware-Resilient NAS	With Network Isolation Equipment	With Quantum-Safe Encryption	With Data Diode	With EMP Protection
Solution 1	✓	✗	✗	✗	✗
Solution 2	✓	✓	✗	✗	✗
Solution 3	✓	✓	✓	✗	✗
Solution 4	✓	✓	✓	✓	✓

Introduction to various levels of NAS & Data Storage Solutions

Data Storage Solutions:

Solution 1: Ransomware-Resilient NAS + Network Isolation Equipment

Solution 2: *Solution 1* + Quantum Safe Encryption

Solution 3: *Solution 2* + Additional, Vaulted Data Storage through Data Diode

Solution 4: *Solution 3* + EMP Protected Data Storage

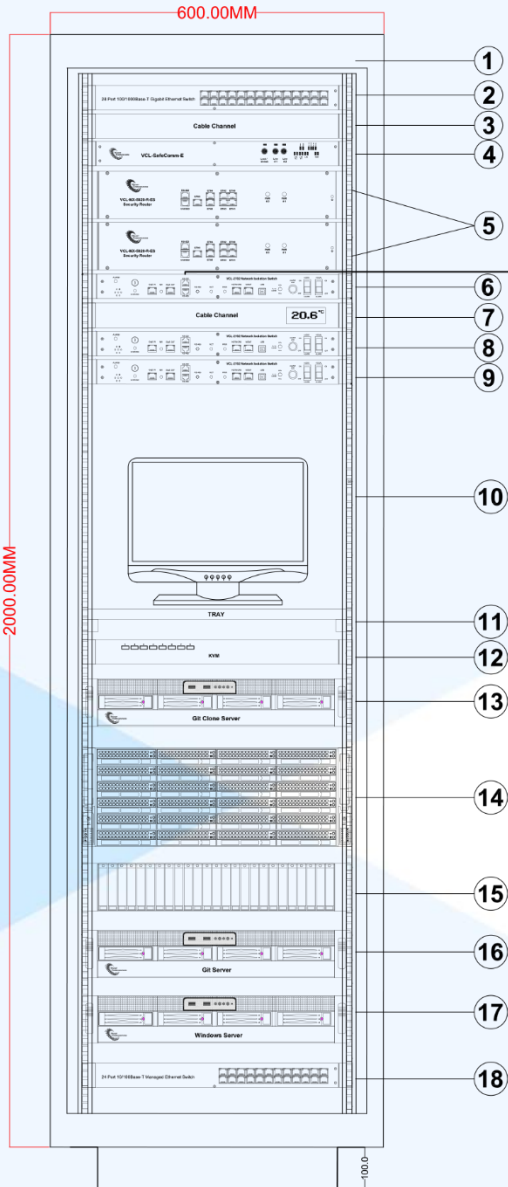
NAS & Data Storage Servers

(up to 1.2 petabytes)

- VCL Data-storage (VDE) Eco-system with comprehensive NMS
- NAS servers with up to 20 to 60 hard drives, 20 TB per drive – 1.2 petabytes
- 4 Dry Contact external alarm relays, wired to audio / visual alarms
- Real-time alerts to administrators for disk failures and security threats
- Quantum-safe cryptography, AES 256-bit Data Encryption support
- “Pull Replication” in Offsite / Offline Server with NTP Synchronization for scheduled secure and encrypted backup service
- Resilience to Ransomware Attack with Data Diode
- IP Filtering Capabilities, Network Access Protection
- Multi-factor Authentication for access.



Front View of Rack



STRUCTURED NETWORK RELIABILITY AND SECURITY RACK

..For applications where cyber security and network reliability matters

S.No.	Bill of Material - Description	Qty
1	Cyber Rack 19" (2000 H x 600MM W x 1000MM D)	1
2	28 Port 100/1000Base-T Gigabit Ethernet Switch	1
3	Cable Channel	1
4	VCL-SafeComm-E, Automatic Ethernet Failover Switch	1
5	VCL-MX-5020-R-ES (1+1 Redundant)	2
6	VCL-2702 Network Isolation Switch (Network)	1
7	Cable Channel with Mounted Temperature Sensor	1
8	VCL-2702 Network Isolation Switch (NAS)	1
9	VCL-2702 Network Isolation Switch (Git Server)	1
10	Display Unit (With Keyboard & Mouse)	1
11	Base Tray	1
12	KVM Switch	1
13	Git Clone Server	1
14	VCL-NAS (Storage Server)	1
15	Proxmox Server	1
16	Git Server	1
17	Windows Server (Active Directory)	1
18	VCL-24 Port 10/100Base-T Managed Ethernet Switch	1
19	VCL-2143 MouseTrap, an advanced Honeypot Deployed in each Network Domain	Multiple Units
(19a)	Secure Ready NAS	1
(19b)	Management Department	1
(19c)	Software Development Department	1
(19d)	Production Department	1
(19e)	Admin Department	1

Cyber Rack Assembly Description

Fault Tolerant, On-Site, Off-Site & Off-Line Data Storage Solutions:

- Fault Tolerant Protection: Main, Backup Data Storage
- Geographical / Location based Protection: Off-Site and Off-Line Data Storage
- Protecting data against natural disasters, man-made disasters as well as acts of war – including EMP events
- Incremental upgrades using AES 256 encryption
- Upgrade to Quantum-Safe cryptography.
- **Data Redundancy:** Off-site backups provide redundancy, reducing the risk of data loss due to hardware failures, human error, or software issues on the primary server.
- **Disaster Recovery:** Off-site data storage ensures that critical data is still accessible and can be restored in the event of a locational disaster.
- **Geographic Diversity:** Restore data in geographically distant locations, overcoming the risk of natural disaster, acts of war including EMP attacks.
- **Air-Gap Security:** Data stored offline, is immune to online threats such as hacking and ransomware.
- **Long-Term Archiving:** Offline storage is suitable for long-term data archiving and meeting the legal compliance requirements.

VCL Data Diode – Secure One-Way Data Transmission Solution

- VCL Data Diode device ensures secure, one-way data transfer between segmented networks, such as between the NAS Server and a Vaulted (Secured and Physically Isolated) NAS Server.
- Maintain physical and electrical separation between the source and destination networks.
- VCL Data Diodes create a non-routable, completely closed, one-way, secure data transfer path.
- Equipment design eliminates the exposure of the receiving system to external entry points, preventing intruders and malicious elements from infiltrating the receiving network.
- VCL Data Diodes secures all data inflows to the receiving system, making it impossible for hostile elements to access the receiving system, to access or steal its data, or accidentally cause any changes which may be detrimental in any manner.
- VCL Data Diode, used together with a VCL Vaulted (Physically Isolated) NAS Server mitigates the possibility of the occurrence of potentially devastating losses due to data theft, data destruction, data tampering, or human error.

VCL Data Diode – Secure One-Way Data Transmission Solution

Benefits:

- **Prevention of Unauthorized Access:** VCL Data Diode ensures that data can only flow in one direction, preventing unauthorized access from external networks to the Vaulted (Physically Isolated) NAS.
- **Elimination of Human Error:** The one-way data flow minimizes the risk of accidental data deletion or alteration by users from less secure networks.
- **Reduced Risk of Data Breach:** The one-way data flow significantly reduces the risk of data breaches, ensuring operational continuity and reliability.
- **Physical Isolation of Critical Data:** VCL Data Diodes help maintain a clear, physical separation between a critical network segment and other non-critical network segments of an organization, or between the critical data stored in a Vaulted (Physically Isolated) NAS and the Operational NAS, thereby enhancing overall network security and reducing the risk of cross-contamination of data.

EMP Protected Data Storage

- EMP events, whether natural or man-made, can cause significant damage to electronic systems and data corruption, or even a complete loss of critical stored data.
- The purpose of using Electromagnetic Pulse (EMP) protection with VCL Network Attached Storage (NAS) is to safeguard the integrity, availability, and security of stored data against the damaging effects of an EMP event.
- Many industries, particularly those dealing with critical infrastructure, have stringent requirements for implementing EMP protection in their data storage systems.
- EMP protection ensures that NAS devices remain functional and secure in the event of an EMP attack.

EMP Protected Data Storage

Benefits:

- Ensures that critical data is protected from an EMP attack that may be orchestrated by hostile state actors.
- Safeguards data against natural events such as solar flares.
- Protects against data corruption caused by EMP-induced surges.
- Greatly mitigates the possibility of devastating financial losses and operational risks associated with a complete loss of data and / or data storage system (NAS) failures occurring due to an EMP event.



CYBER SECURITY SOLUTIONS



CYBER SECURITY

solutions designed
for Utilities



DETECT, PREVENT, SECURE

- 👁️ Network-MouseTrap™ (Advanced Honeypot)
- 👁️ Network Isolation (Kill) Switch
- 👁️ Ethernet (A/B) Fail-Over / A/B Switches
- 👁️ 1+1 Redundant Firewalls and Routers
- 👁️ Cyber-Smart Rack Monitoring & Control Unit
- 👁️ Unified Network Management System.

VCL-2143, MouseTrap



VCL-2702, Network Isolation Switch



VCL-2778, Automatic Ethernet Failover Switch



UNMS



VCL-2457,
Smart Rack Unit



Detect Network Intrusion

- VCL-2143, Network MouseTrapTM
- An Advanced Honeypot
- Early warning system with detection and alerting of cyber breaches and network intrusion
- Detect network intrusions and firewall breaches.
- Detect the presence of moles and trojans within an existing network.
- Integrated real-time audio and visual alarms.
- Attacker trace root with forensics.
- Maintain complete log of intruder credentials such as IP address, domain and the originating location details, with time-stamp.
- Create automated daily, weekly or monthly network status reports for security audits .
- Out-of-band access and security alerts.
- White-list / black-list options.
- Port based, IP Address based, and IP Domain based programmable filters.
- Graphical User Interface (GUI).



Dashboard


Devices


Login History

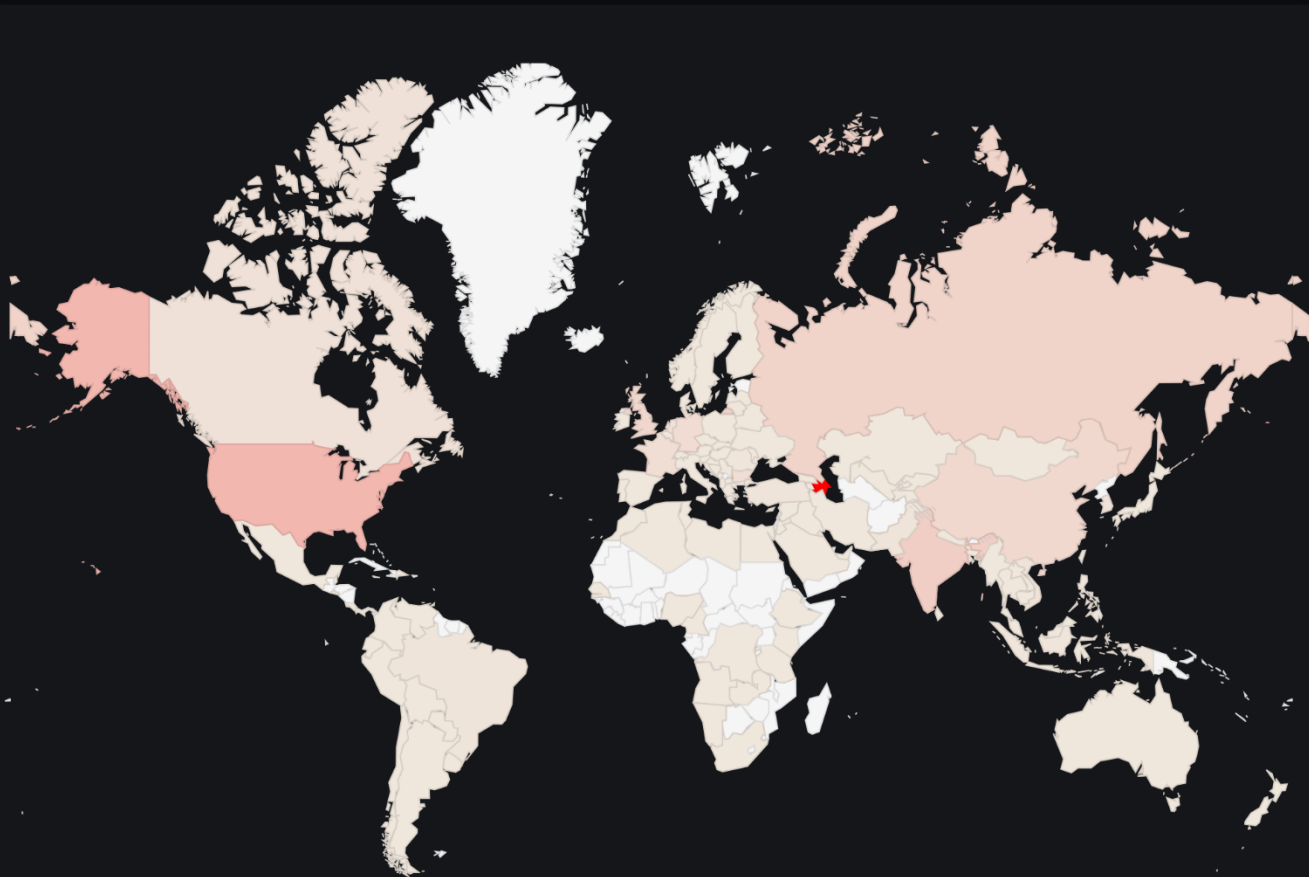

Users


Analytics











Preferences

Russian Federation United States Azerbaijan India
United Kingdom

San Francisco North Charleston Moscow Delhi

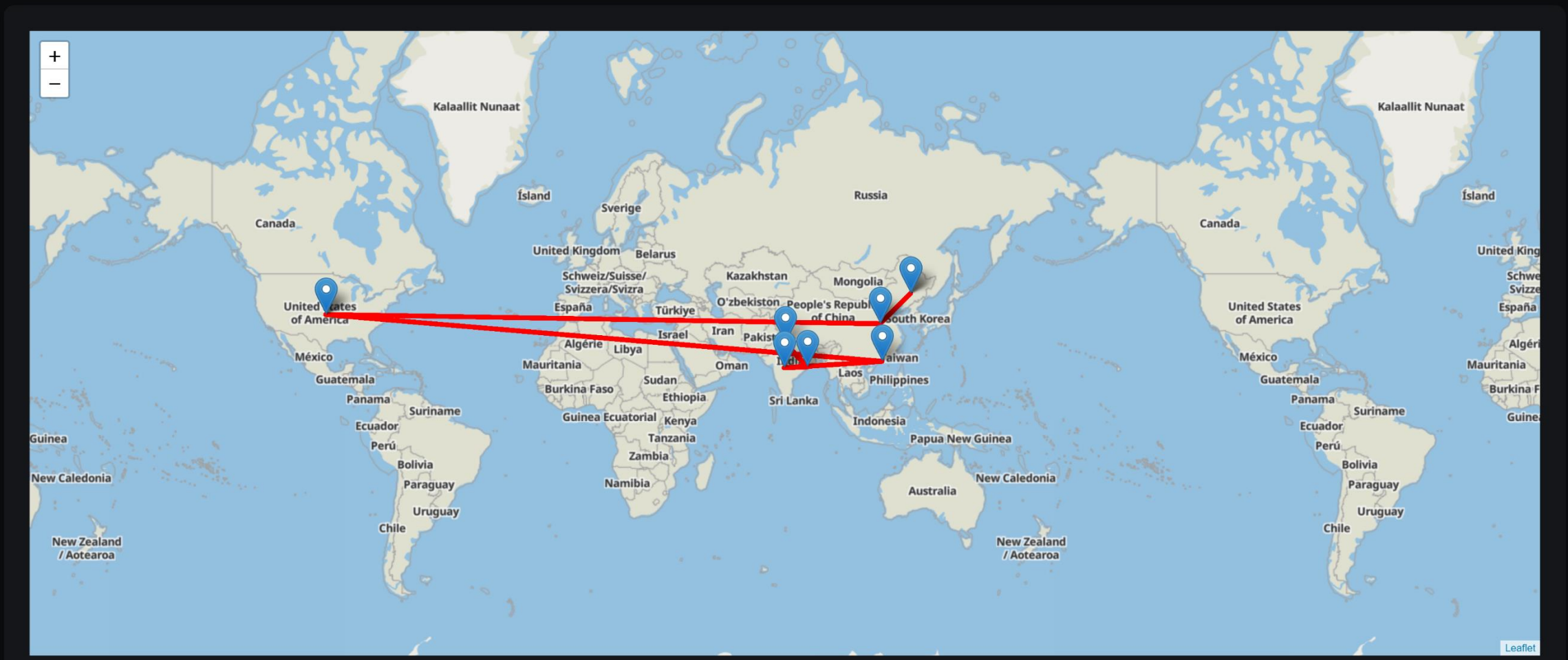


Attempted Threats: 220677

Country Name	Logs Counter	
 Azerbaijan	86033	38.99%
 United States	17681	8.01%
 India	9014	4.08%
 Russian Federation	6895	3.12%
 United Kingdom	5784	2.62%
 China	5236	2.37%
 Germany	3792	1.72%
 France	3540	1.60%
 Bulgaria	3282	1.49%
 Canada	1895	0.86%

← TraceRoute

TimeStamp:	07/06/23-02:02:26.952950	Source IP:	175.31.168.212	Destination IP:	192.168.1.20
------------	--------------------------	------------	----------------	-----------------	--------------



Isolate digital assets in a Cyber attack



- [VCL-2702, Network Isolation \(Kill\) Switch](#)

- Network Isolation in a cyber-attack.

- Isolate NAS, Data Storage, Back-up servers.

- Create LAN / WAN isolation.

- Create operational isolation zones.

- Provides manual and automatic isolation of the Local Area Network from Wide Area Network, in an event of a network security breach / cyber-attack ransomware attack.
- Create Operational Zones or secure parameter zones with the external network isolate the network in the event of the detection of a network intrusion / breach in the cyber-security perimeter of the network's demilitarized zone.
- Port for isolation of Network Port and Management Port.
- External triggers using dry-contact alarm relay.
- Script assisted switching through serial interface.
- **Fail-safe.** *The unit itself should never becomes a point of failure, even in power down condition.*

Valiant's Cyber Security Suite - Unique Features:

- Automatically executes a counter-defense strategy if a network intrusion / cyber-attack is detected by isolating the critical infrastructure assets
- Provides audio-visual alerts in the event of detection of a network intrusion / cyber-attack
- Monitoring and visualization of all cyber-security equipment, alarms, and events in real-time
- Assists in providing forensic analysis in near real-time
- Provide 1+1 redundancy with automatic failover of equipment and networks
- Leave **No-Single-Point-Of-Failure** and implement enhanced security and network resilience



POWER UTILITY SCADA

- ABB
- APTRANSCO (AP), India
- Arizona Public Services Co. USA
- Arizona, Salt River Project
- Basin Electric Power Cooperative
- Besalco, Chile
- BHEL, India
- Brazos Electric Power
- Consorcio Energetico De Huancavelica S. A., Peru
- Delhi Transco (NCR), India
- EGAT, Thailand
- Electrica Transilvania, Romania
- ESO, Bulgaria
- GE Renewable Grid Solution, UK
- GETCO (Gujarat Energy Transmission Corporation Limited)
- Hanoi Power, Vietnam
- Jamaica Public Service Company, Jamaica
- Larsen & Toubro, India
- National Grid SA, Saudi Arabia
- Nepal Electricity Authority
- Nova Scotia Power Inc. Canada
- Paiute Pipeline, US
- Power Grid Corporation of India
- Schneider Electric
- Siemens
- Sulaymaniyah Power Station, Iraq
- Tampa Electric Company
- TAN Transco, India
- Turkish Electricity Company (TEIAS)
- Transelectrica, Romania
- VietNam Electricity (EVN)
- Viesgo Distribucion Electrica Spain
- WAPA (Western Area Power)
- Western Power, Australia

End-users, using
VCL equipment

- Airports Authority of India
- Air Navigation Services, Rep. of North Macedonia
- Aeronautical Radio of Thailand
- Bangladesh Air Force
- Bombardier, Australia
- Brunei Airport Authority, Brunei
- Department of Civil Aviation, Brunei
- Dubai International Airport Authority
- FAA (Federal Aviation Authority, USA)
- Hanoi & Ho Chi Minh Airport Authority
- Jordan Air Force
- Kabul Airport, Afghanistan
- Ministry of Defense Kuwait
- Ministry of National Defense, Vietnam
- Mitsubishi Aircraft Corporation, US
- NASA (US Space Program)
- Ports of Jersey, Jersey Harbours
- Prefectura Naval Argentina (PNA)
- Royal Jordanian Air Force
- Royal Air Force of Oman
- Sri Lanka Airport Authority
- Tetrasviaz, Russia
- Turkey Airport Authority
- Vietnam Air Traffic Management Corporation

AVIATION & AIR

Traffic Control

End-users, using VCL equipment

CELLULARIMOBILE



BACKHAUL

End-users, using VCL equipment



- ArmenTel, Armenia
- Alestra - ATT Mexico
- Bharti Airtel India
- Bristol BayTelephone Corp. Inc. USA
- BSNL India
- British Telecom
- Cable & Wireless
- Camintel Cambodia
- Celltel Malaysia
- Clearwave Communications
- Cook Islands
- DMC Wireless Systems S.A., Bolivia
- Etisalat, Afghanistan
- Etisalat, Nigeria
- Etisalat, UAE
- France Telecom
- Fujitsu, Ireland
- GL Communications Inc., USA
- Harris CapRock
- KurdTel, Iraq
- LankaCom, Sri Lanka
- Mobicom, Mongolia
- Ministry of Communication, Kuwait
- Mobifone, Vietnam
- Nocholas Stanziola / Motorola Solutions, USA
- One Macedonia
- Orange Group, Hong Kong
- PT. INDOSAT, Indonesia
- Roshan, Afghanistan
- Sri Lanka Telecom
- TeleCaymen
- Telecom, Seychelles
- TelBru, Brunei
- Telikom PNG, Papua New Guinea
- Telefónica Spain
- Tunisia Telecom
- Utah Communication Agency Network, USA
- XL / Excelcomindo Indonesia

OIL & GAS

End-users, using VCL equipment

- ADMA, Abu Dhabi Oil
- Bharti Airtel India.
- Brunei Shell Petroleum, Brunei
- BSNL India
- ENI Saipem
- GORE Nitrogen, USA
- Petronas Cargili, Malaysia
- Qatar Gas, Qatar
- RAS Gas, Qatar
- San Diego Gas & Electric, USA
- TECO / Peoples Gas, Tampa, Fl

Global Distribution Network



Contact Us

For more details, visit us at our Website
www.valiantcom.com

U.K.

Valiant Communications (UK) Ltd
Central House Rear Office,
124 High Street, Hampton Hill,
Middlesex TW12 1NS, United Kingdom

E-mail: gb@valiantcom.com

U.S.A.

Valcomm Technologies Inc.
4000 Ponce de Leon Blvd.,
Suite 470, Coral Gables,
FL 33146, U. S. A

E-mail: us@valiantcom.com

INDIA

Valiant Communications Limited
71/1, Shivaji Marg,
New Delhi – 110015
INDIA

E-mail: mail@valiantcom.com