



**DIPARTIMENTO INNOVAZIONE E SERVIZI AL CITTADINO
SERVIZIO TRASFORMAZIONE DIGITALE**

**PROGETTO
DEFINITIVO/ESECUTIVO**

**AMPLIAMENTO E POTENZIAMENTO
DELLA VIDEOSORVEGLIANZA
CITTADINA**

PROGETTATO

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DATA

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Trieste

Descrizione del sistema attuale di videosorveglianza del Comune di Trieste

Il sistema di videosorveglianza del Comune di Trieste è basato su una infrastruttura di rete in parte proprietaria del comune su fibra ottica (MAN Cittadina) e alcune zone "remotizzate" da operatori locali. La gestione della videosorveglianza in tempo reale e le registrazioni sono fatte con l'utilizzo di un software VMS (Video Management Systems), per la precisione il Genetec Security Center v5.7.

Il sistema è composto da otto server di cui N.7 in Sala CED di Passo Costanzi 2 e N.1 in Via revoltella 29. Degli otto server ce ne sono due che effettuano rispettivamente il ruolo di "directory" e di "failover" che gestiscono i N. 6 "archiviatori" (archiver) che si occupano della registrazione delle immagini e la sua archiviazione per un intervallo di tempo limitato (1 settimana).

Le licenze attualmente utilizzate a sistema centralizzato Genetec sono 150 le cui immagini vengono archiviate sui vari server archiviatori sopra elencati (il sistema ha caricate 198 licenze).

Dettaglio server

L'elenco della Tabella 1 riporta la descrizione degli attuali modelli dei server usati.

Tabella 1: Server

Nome	Modello	Descrizione	Note
Directory-ts	VFY: R1332S	Fujitsu PRIMERGY RX1330 M2, 3 GHz, Xeon E3-1220 v5, 32 GB, DDR4-SDRAM, Microsoft Windows Server 2012 R2 Standard, HDD 4 TB + 4 TB	
	C010IN		
Failover	VFY: R2541S	Fujitsu PRIMERGY RX2540 M1, 2,6 GHz, E5-2640 v3, 32 GB, DDR4-SDRAM, Microsoft Windows Server 2012 R2 Standard, HDD 5,6 TB + 5,3 TB	
	C050IN		
Archiver 1	S26361	Fujitsu Primergy RX1330 M3 Xeon 4-Core E3-1220 v6 3.50 Ghz 16 GB, Microsoft Windows Server 2016 Standard, HDD 1 TB + 4 TB + 11 TB	16 telecamere
	K1601		
Archiver 2	S26361	Fujitsu Primergy TX1330 M3 Xeon 4-Core E3-1220 v6 3.50 Ghz 16 GB, Microsoft Windows Server 2016 Standard, HDD 1 TB + 4 TB + 11 TB	31 telecamere
	K1601		
Archiver 3	LKN: R2524S0	Fujitsu PRIMERGY RX2520 M4. Xeon 2,1 GHz, Xeon 8-Core 4110, 16 GB RAM, Microsoft Windows Server 2016 Standard, HDD 550 GB + 2.7 TB	26 telecamere
	0011T		
Archiver 4	0VC7DK	Dell Inc. PowerEdge R540, Intel Xeon Silver 4208 CPU 2.10 GHz, RAM 32 GB, Microsoft Windows Server 2019 Standard, HDD 17 TB, 500 GB + 16.5 TB	28 telecamere
Archiver 5	0VC7DK	Dell Inc. PowerEdge R540, Intel Xeon Silver 4208 CPU 2.10 GHz, RAM 32 GB, Microsoft Windows Server 2019 Standard, HDD 17 TB, 500 GB + 16.5 TB	24 telecamere
Archiver Polizia locale Via Revoltella 29	---	Fujitsu Primergy RX1330 M1 Xeon E3-1220 v3 3.10 Ghz, 4-Core, 8 GB RAM, Microsoft Windows Server R2 Standard, HDD 460 GB + 2.7 TB	25 telecamere

Telecamere a campo

Le telecamere installate sul territorio sono principalmente delle Axis, poi in numero minore Pelco, Euklis e Uniview. I modelli attualmente in uso sono quelli riportati nella Tabella 2.

Tabella 2: Telecamere

Marca	Tipo di prodotto	Numero
Pelco	IMM12018-E-BASE	4
Axis	AXIS Q7401	29
Euklis	AXIS M3114	1
Euklis	KLIS_IP_MICRO-FHDN	1
Euklis	KLIS IPCAM-2M-IRN	12
Euklis	KLIS IP MICRO-FHDN	1
Euklis	KLIS IPCAM-4K	3
Euklis	KLIS D20X-IP-ME	2
Euklis	KLIS MD-FHD-IR	11
Uniview	IPC2328SBR5-DPZ	3
Euklis	KLIS D30X-IP-3MEGA	2
Axis	AXIS Q1765-LE	2
Axis	AXIS P1427-LE	2
Axis	AXIS P5635-E	1
Axis	AXIS P1428-E	4
Axis	AXIS P5624-E Mk II	4
Axis	AXIS Q3708-PVE	4
Axis	AXIS Q6055-E	5
Axis	AXIS Q6128-E	17
Axis	AXIS P3225-LVE Mk II	3
Axis	AXIS P3225-V Mk II	1
Axis	AXIS P1448-LE	27
Axis	AXIS M3027	1
Axis	AXIS Q1786-LE	1
Axis	AXIS Q6155-E	2
Axis	AXIS Q1798-LE	2
Axis	AXIS Q6075-E	5
Tot.		150

Licenze

- Security Center v5.7
- Dispositivi mobili 10
- Web client 6 + 4 (in fase di acquisto)
- Telecamere e monitor analogici 198

Sistema richiesto da capitolato

Si vuol aggiornare il VMS attuale passando all'ultima versione di Genetec disponibile o mediante passaggio tramite migrazione ad sistema equivalente (come ad esempio Milestone). In entrambi i casi, si vuole almeno mantenere il numero di licenze e funzionalità che attualmente sono utilizzate in modo da garantire una non regressione delle funzionalità del sistema ed avere lo stesso numero di licenze per telecamera attualmente utilizzate, ovvero 150.

Si vuole dismettere i due server di directory e failover in quanto le macchine sono obsolete, ed aggiungere al sistema 2 nuovi archiver, giungendo a una configurazione con un server directory, uno failover e otto archiver.

La ditta appaltatrice deve assicurarsi che TUTTI i dispositivi della tabella 2 siano compatibili con il nuovo sistema di VMS.

Deve inoltre procedere alla rivisitazione dei rack in sala CED di Passo Costanzi 2, installare, configurare, inserire le licenze sui nuovi server e quelli in essere, procedere alla rimozione dei server dismessi, spostare se necessario i vecchi server, fornire tutti i cavi, viti e accessori necessari al corretto funzionamento del sistema e ad una installazione a regola d'arte. Migrare tutto l'esistente sul nuovo sistema e assicurarsi che il tutto funzioni correttamente.

La scelta di aggiornamento Genetec o migrazione a VMS equivalente o superiore dovrà essere motivata e concordata con la D.L.

L'aggiornamento o migrazione del VMS dovrà esser eseguito da personale certificato verso il sistema proposto (es. Genetec o Milestone o equivalente).



HPE FLEXFABRIC 5710 SWITCH SERIES



KEY FEATURES

- High-performance, low-latency data center top-of-rack (ToR) switch aimed at expanding port connectivity while adding local switching capacity
- HPE Intelligent Resilient Fabric (IRF) for virtualization and 2-tier networks
- High 1/10GbE wire speed ports with 40GbE and 100GbE uplinks
- Layer 2 and Layer 3 features with static routing, RIP, OSPF, and BGP
- Support converged applications with Data Center Bridging (DCB) features such as Priority-based Flow Control (PFC) IEEE 802.1Qbb, Quantized Congestion Notification (QCN) IEEE 802.1Qau, Enhanced Transmission Selection (ETS) IEEE 802.1Qaz, and Data Center Bridging Capability Exchange (DCBX) IEEE 802.1Qaz, and FCoE

PRODUCT OVERVIEW

HPE FlexFabric 5710 Switch Series is a family of high-performance, low-latency access switches aimed at providing superior edge device connectivity in modern spine leaf data centers.

HPE FlexFabric 5710 Switch Series is ideally suited for deployment at the server access layer of large and medium-sized enterprise data centers. It delivers lower TCO while enhancing networking performance to support demanding virtualized applications and server-to-server traffic. Resilience and ease of management come hand-in-hand with the HPE FlexFabric 5710.

FEATURES AND BENEFITS

Quality of service (QoS)

- Powerful QoS features

- Flexible classification

Flow classification is based on DSCP field, MAC address, IP protocol type, source address, destination address, or port number of an application.

- Feature queue scheduling

Flexible queuing and scheduling algorithms are configured on a per-port or per-queue basis, including strict priority (SP), weighted round robin (WRR), SP+WRR, weighted fair queuing (WFQ), and SP+WFQ.

- QPPB

QoS Policy Propagation via Border Gateway Protocol (BGP), often abbreviated to QPPB, is a mechanism that allows propagation of QoS policy and classification by the sending party based on access lists, community lists, and autonomous system paths in the BGP thus helping to classify based on destination instead of source address.

Data center-optimized

- Versatile server connectivity

HPE FlexFabric 5710 Switch Series enables scaling of the server edge with 1GbE and 10GbE ToR deployments with high-density 24- and 48-port solutions delivered in a 1 RU form factor. These switches can be set up as stand-alone Layer 2 and Layer 3 switches. The high server port density of HPE FlexFabric 5710 Switch is backed by 40GbE QSFP+ or 100GbE QSFP28 uplinks to deliver the availability of needed bandwidth for demanding applications. Each 40GbE QSFP+ port can also be configured as four 10GbE ports by using a 40GbE-to-10GbE splitter cable.

- High-performance switching

Cut-through and nonblocking architecture delivers low latency (1.5 to 2.5 μ s for 10GbE) for very demanding enterprise applications. HPE FlexFabric 5710 switches also deliver high-performance switching capacity and wire speed packet forwarding. Local switching capacity and wire speed packet forwarding for demanding data center environments.

- Higher scalability

HPE IRF technology simplifies the architecture of server access networks; up to 10 HPE FlexFabric 5710 physical switches can be combined into one virtual switch configuration and are managed using a single IP address. HPE IRF enables this switch to deliver the unmatched scalability of virtualized switches and flatter 2-tier networks, which reduces cost and complexity.

- Advanced modular network operating system

Comware v7 network operating system's modular design and multiple processes bring native high stability, independent process monitoring, and a restart. The OS also allows individual software modules to be upgraded for higher availability and supports enhanced serviceability functions like hitless software upgrades with In Service Software Upgrade (ISSU).



- Reversible airflow

It is enhanced for data center hot-cold aisle deployment with reversible airflow—for either front-to-back or back-to-front airflow.

- Redundant fans and power supplies

1+1 internal redundant and hot-pluggable AC or DC power supplies and multiple fan trays enhance reliability and availability.

- Data Center Bridging (DCB) protocols

It provides support for IEEE 802.1Qbb Priority Flow Control (PFC), Quantized Congestion Notification (QCN) IEEE 802.1Qau, Enhanced Transmission Selection (ETS) IEEE 802.1Qaz, and Data Center Bridging Capability Exchange (DCBX) IEEE 802.1Qaz for converged applications.

- FCoE support

Provides support for Fibre Channel over Ethernet (FCoE) including Fibre Channel Forwarder (FCF), transit, and N-Port Virtualization (NPV).

- Jumbo frames

Frame sizes of up to 10,000 bytes allow high-performance remote backup and disaster recovery services to be enabled.

Management and manageability

- Fully featured console

Provides a safe, easy-to-use CLI for configuring the module via SSH or a switch console; provides direct real-time session visibility

- Remote configuration and management

Is available through a secure CLI over Telnet and SSH; Role-Based Access Control (RBAC) provides multiple levels of access; configuration rollback and multiple configurations on the flash provide ease of operation; remote visibility is provided with sFlow® and Simple Network Management Protocol (SNMP) v1/v2/v3; and is fully supported in HPE Intelligent Management Center (IMC)

- Management security

Restricts access to critical configuration commands; offers multiple privilege levels with password protection; access control lists (ACLs) provide Telnet and SNMP access; local and remote syslog capabilities allow logging of access

- Command authorization

Leverages Remote Authentication Dial-In User Service (RADIUS) to link a custom list of CLI commands to an individual network administrator's login; an audit trail documents activity

- Troubleshooting

– Ingress and egress port monitoring

Enable network problem solving

– Traceroute and ping

Enable testing of network connectivity



- File copy
Allows users to copy switch files to and from a USB flash drive
- Support for multiple configuration files
- Dual flash images
Provides independent primary and secondary operating system files for backup while upgrading
- SNMPv1, v2c, and v3
Facilitate centralized discovery, monitoring, and safer management of networking devices
- Out-of-band interface
Isolates management traffic from user data plane traffic for complete isolation and total reachability, no matter what happens in the data plane
- ISSU and hot patching
Provides hitless IRF-based software upgrades and hitless patching of the modular operating system
- Auto-configuration
Provides automatic configuration via Dynamic Host Configuration Protocol (DHCP) auto-configuration, NETCONF, and Python scripting
- IPv6 over IPv4, 6to4, and ISATAP Tunnel
- RSPAN and ERSPAN
- Ethernet OAM (802.3ah) and Connectivity Fault Detection (CFD) (802.1ag)
- Symmetric load balancing for link aggregation and ECMP
- Layer 2 protocol tunneling (L2PT) support for virtual private networks (VPNs)
- Buffer monitoring
- OVSDB QoS and OVSDB ACL
- IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
Advertises and receives management information from adjacent devices on a network, facilitating easy mapping by network management applications
- sFlow (RFC 3176)
Provides scalable ASIC-based wire speed network monitoring and accounting with no impact on network performance; this allows network operators to gather a variety of sophisticated network statistics and information for capacity planning and real-time network monitoring purposes



- Logging

Provides local and remote logging of events via SNMP (v2c and v3) and syslog; provides log throttling and log filtering to reduce the number of log events generated

- Information center

Provides a central repository for system and network information; aggregates logs, traps, and debugging information generated by the system and maintains them in order of severity; outputs the network information to multiple channels based on user-defined rules

- Local/Remote port mirroring

Mirrors selected traffic to destination on same device or mirrors destination on different devices

- Puppet/Chef/YANG support

- Network management

[HPE IMC](#) centrally configures, updates, monitors, and troubleshoots

Resiliency and high availability

- HPE IRF technology

Enables an HPE FlexFabric to deliver resilient, scalable, and secured data center network for physical and virtualized environment; groups up to 10 HPE FlexFabric 5710 Switch Series in an HPE IRF configuration, allowing them to be configured and managed as a single virtual switch with a single IP address; simplifies ToR and spine/leaf deployments and management, reducing data center deployment and operating expenses

- IEEE 802.1w Rapid Convergence Spanning Tree Protocol

Increases network uptime through faster recovery from failed links

- IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)

Provides high link availability in multiple VLAN environments by allowing Multiple Spanning Trees

- Hitless patch upgrades

Allows patches and new service features to be installed without restarting the equipment, increasing network uptime and facilitating maintenance

- Device Link Detection Protocol (DLDP)

Monitors link connectivity and shuts down ports at both ends if unidirectional traffic is detected, preventing loops in STP-based networks

- Smart Link and RRPP and load balancing among Smart Link multiple instances and RRPP multiple instances

- DRNI

Provides a resilient interconnect using multiple links among one or more nodes in a network

- ERPS

Provides fast protection and recovery switching for Ethernet traffic



Security

HPE FlexFabric 5710 Switch Series fully meets customer requirements in security design and provides a complete network security solution. It provides the following network security features:

- ACLs

Provides IP Layer 3 filtering based on source, destination IP address, or subnet, and source, destination TCP, or UDP port number

- RADIUS/TACACS+

Eases switch management security administration by using a password authentication server

- Secure shell (SSH)

Encrypts transmitted data for safe remote CLI access over IP networks

- IEEE 802.1X and RADIUS network logins

Controls port-based access for authentication and accountability

- Terminal and user access control

- Hierarchical user management and password protection

- IP source guard

- Blackhole MAC address entries

- MAC learning limit

- MAC address and port number binding

- SSH 2.0

- Port isolation

- IEEE 802.1X-compliant user access authentication

- Port security: Allows access only to specified MAC addresses, which can be learned or specified by the administrator

- Local and RADIUS authentications

- Ethernet frame and upper-layer packet filtering and validity authentication:

- ACL

- Packet filtering based on packet header fields from Layer 2 through Layer 4, including source MAC, destination MAC, source IP (IPv4/IPv6), destination IP (IPv4/IPv6), port number, and protocol type

- SNMPv3 encryption and authentication

- Address Resolution Protocol (ARP) attack protection features such as ARP attack detection

- RA guard, and ND snooping and detection



Layer 2 switching

- ARP

Supports static, dynamic, and reverse ARP and ARP proxy

- Flow Control

IEEE 802.3x Flow Control provides intelligent congestion management via PAUSE frames

- Ethernet link aggregation

Provides IEEE 802.3ad Link Aggregation of up to 1024 groups and 32 ports; support for Link Aggregation Control Protocol (LACP), LACP Local Forwarding First, and LACP Short-time provides a fast, resilient environment that is ideal for the data center

- Spanning Tree Protocol (STP)

STP (IEEE 802.1D), Rapid STP (RSTP, IEEE 802.1w), and Multiple STP (MSTP) (IEEE 802.1s)

- VLAN support

Provides support for 4094 VLANs based on port: VLAN mapping, Q-in-Q, and Selective Q-in-Q

- Internet Group Management Protocol (IGMP) support

Provides support for IGMP Snooping v1/v2/v3, Protocol Independent Multicast (PIM) snooping, Multicast Listener Discovery (MLD) snooping v1/v2, and IPv6 PIM snooping

- DHCP support at Layer 2

Provides full DHCP snooping support for DHCP Snooping Option 82, DHCP Relay Option 82, DHCP Snooping Trust, and DHCP Snooping Item Backup

Layer 3 services

- ARP

Determines the MAC address of another IP host in the same subnet; supports static ARPs; gratuitous ARP allows detection of duplicate IP addresses; proxy ARP allows normal ARP operation between subnets or when subnets are separated by a Layer 2 network

- DHCP

Simplifies the management of large IP networks and supports client and server; DHCP Relay enables DHCP operation across subnets

- Connectivity Fault Management (IEEE 802.1AG) and Ethernet in the First Mile (IEEE 802.3ah)

Provides additional monitoring that can be used for fast fault detection and recovery

- VXLAN L2 and L3 gateway support for up to 2K tunnels



Layer 3 routing

- Equal-Cost Multipath (ECMP)

Enables multiple equal-cost links in a routing environment to increase link redundancy and scale bandwidth

- Layer 3 IPv4 routing

Provides routing of IPv4 at media speed; supports static routes, RIP, OSPF, and BGP

- Dual IP stack

Maintains separate stacks for IPv4 and IPv6 to ease the transition from an IPv4-only network to an IPv6-only network design

- Bidirectional Forwarding Detection (BFD)

Enables link connectivity monitoring and reduces network convergence time for RIP, OSPF, BGP, IS-IS, Virtual Router Redundancy Protocol (VRRP), and IRF

- Layer 3 IPv6 routing

Provides routing of IPv6 at media speed; supports static routing, RIPng, OSPFv3, and BGP

Convergence

- LLDP-MED (Media Endpoint Discovery)

Defines a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones

Warranty and support

- 1-year warranty

See hpe.com/networking/warrantysummary for warranty and support information included with your product purchase

- Software releases

To find software for your product, see hpe.com/networking/support; for details on the software releases available with your product purchase, see hpe.com/networking/warrantysummary

