STRENGTHENING RESIDENTIAL SECURITY WITH FIBER-BACKED CCTV NETWORKING AT VATIKA CITY



Strengthening Residential Security with Fiber-Backed CCTV Networking at Vatika City

CASE STUDY

Name : **VATIKA CITY**

Industry : **REAL ESTATE**

Location : **GURUGRAM**

BACKGROUND

Vatika City Apartment Owners Association (VCAOA), located in Sector 49, Gurugram, sought to strengthen the security infrastructure of its residential complex through a state-of-the-art CCTV-based surveillance system. The objective was to provide security personnel and residents with better surveillance capabilities for addressing day-to-day security challenges.

The proposed system was designed to cover sensitive areas across the complex while bringing camera streams to a central command environment. This would enable security personnel to monitor multiple locations from a common platform, identify potential threats more quickly, and retrieve recorded information when required for investigation.

Supporting this surveillance environment requires a robust networking foundation. The project called for an Optical Fiber Cable-based backbone connecting distributed network points, switches, and the central NVR environment. Digisol was identified as an approved brand for key networking categories including network switches, CAT6, Fiber, LIU, and UTP cable

THE CHALLENGE

TVatika City's distributed physical environment presented the first major challenge. Surveillance coverage had to extend across residential towers, lifts, driveways, gardens, activity areas and entry points. These locations could have different camera densities and connectivity requirements, but all needed to operate as part of a unified surveillance environment.

A second challenge was creating a reliable Fiber-based backbone. The project required the optical Fiber network to be supplied, laid, spliced, and terminated as part of the deployment. Local camera locations therefore needed to connect through an appropriate combination of PoE switching, CAT6 cabling and Fiber uplinks before reaching the central surveillance environment.

The network also needed to support centralized recording and stringent availability requirements. The architecture had to provide continuity across the distributed surveillance network, with particular attention to critical entry and exit locations. The project further required the final Fiber architecture to demonstrate ring topology and continuity during User Acceptance Testing.

Since the deployment would take place within a residential community, the physical installation presented another consideration. Cabling, conduits, equipment and enclosures needed to be installed systematically while maintaining site aesthetics, safety and professional working standards.

THE SOLUTION

Digisol's proposed solution addresses the networking and structured connectivity layer of the CCTV system through a combination of PoE switching, CAT6 structured cabling, single-mode optical Fiber, LIUs, and SFP-based uplinks. The architecture creates a continuous connectivity path from distributed cameras to the centralized NVR and control room environment.

At the camera level, CAT6 cabling connects IP cameras to local PoE switches. The PoE access layer provides both network connectivity and power to compatible cameras, while different switch configurations can accommodate varying requirements across different areas of the complex.

The local switches connect into the optical backbone through Fiber uplinks. Single-mode Fiber provides the backbone transport medium, while LIUs, SFP modules and Fiber patch cords provide the termination and optical connectivity required between distributed switching locations and the central network.

At the central location, the Fiber backbone aggregates connectivity from the distributed surveillance areas toward the NVR and control-room environment. This creates a unified network architecture in which camera feeds from different parts of the complex can be brought together for centralized monitoring and recording.

EXECUTION

The project scope follows an end-to-end implementation approach covering requirement study, equipment supply, installation, cabling, testing, commissioning, training, and system handover. The deployment is structured across different areas of the residential complex, beginning with the backbone and priority outdoor locations before extending to lifts, lobbies, basements and terrace-gate areas.

Fiber deployment forms a critical part of the implementation. The backbone has to be planned alongside the location of network racks, switching points and camera clusters, with appropriate Fiber termination and splicing carried out as part of the installation. CAT6 cabling then provides a structured connection between local PoE switches and cameras.

The physical deployment also requires careful cable routing, conduits, enclosures and mounting arrangements. Since the system is being installed within a residential environment, the implementation needs to balance technical requirements with aesthetics, safety, and minimal disruption to the premises.

Testing and commissioning are followed by training and formal handover. The project scope includes complete system testing, User Acceptance Testing, training for facility management staff and documentation covering system manuals, warranty information, as-built drawings or installation diagrams and relevant configuration details.

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THE OUTCOME

The proposed architecture establishes a structured networking foundation for centralized CCTV surveillance across Vatika City. Distributed camera locations can connect through local PoE switching and CAT6 cabling into a common Fiber-backed network, which in turn connects to the central NVR and monitoring environment.

The separation between the access layer and Fiber backbone provides a consistent architecture across different surveillance zones. Local camera connectivity can be scaled according to the requirements of each location, while the common optical backbone provides the transport path back to the central environment.

The result is a planned surveillance networking architecture built around centralized visibility, structured cabling, Fiber-backed connectivity and scalable access switching. The supplied project documents describe the proposed solution and do not independently establish post-deployment performance results, so specific claims regarding achieved uptime or incident reduction have not been included.

DIGISOL VALUE PROPOSITION

The project documentation identifies Digisol as an approved brand across several of the core networking categories required for the CCTV infrastructure, including network switches, CAT6, Fiber, LIU and UTP cable. This allows the proposed networking layer to be addressed through a coordinated set of connectivity technologies.

Digisol's value within the proposed architecture comes from connecting these layers into one structured networking solution. PoE switching addresses camera access, CAT6 provides local connectivity, single-mode Fiber forms the backbone, LIUs provide Fiber termination, and SFP modules provide optical uplinks. Together, these components create a defined path from the camera edge to the centralized surveillance environment.

BUSINESS IMPACT

For a large residential community, security infrastructure needs to provide visibility across a wide physical area while remaining manageable as the environment evolves. The proposed Digisol architecture creates a common networking foundation that connects distributed surveillance locations to a centralized monitoring and recording environment.

Centralized connectivity can help security personnel monitor different areas from a common location and retrieve recorded information when required. The Fiber backbone also provides a scalable transport layer, allowing additional surveillance locations to be integrated into the established network architecture as requirements evolve.

PoE switching simplifies the camera access layer by combining power and network connectivity over structured CAT6 cabling. Combined with organized Fiber termination and SFP-based uplinks, this creates a clearer network structure that can support maintenance, troubleshooting, and future expansion.

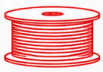
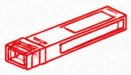
The project also incorporates testing, training, documentation, warranty, and maintenance requirements. Together with the proposed Fiber-backed architecture, these elements establish a structured framework for long-term operation of the surveillance network.

CONCLUSION

Vatika City's CCTV requirement called for more than camera deployment. It required a structured network capable of connecting surveillance locations distributed across a large residential environment to a centralized monitoring and recording system.

The proposed Digisol architecture addresses this requirement through PoE switching, CAT6 structured cabling, single-mode optical Fiber, LIUs, and SFP connectivity. By combining these layers into a Fiber-backed network, the solution provides a scalable foundation for centralized surveillance and future expansion.

VATIKA CITY, GURUGRAM / BILL OF MATERIALS (BOM)

1 PoE NETWORK SWITCHES	2 CAT6 UTP CABLE	3 SINGLE-MODE OPTICAL FIBRE CABLE	4 FIBRE LIUs	5 1G SFP MODULES
				
PoE Switches for network connectivity and power delivery to surveillance devices	CAT6 UTP cable for structured network connectivity	6-Core single-mode optical fibre cable for backbone connectivity	Fibre LIUs for fibre termination and interconnection	1G SFP modules for high-speed fibre uplinks
Qty: 90	Qty: 155	Qty: 10,000 m	Qty: 60	Qty: 120