Success Story

Zyxel Switches and Access Points Modernize Indian Prison to Improve Safety and Management Efficiency

INDUSTRY Government	**CUSTOMER** UP Prison	**COUNTRY** India	**SOLUCIÓN** Zyxel Wireless Solution

Overview

Challenges

- Construct a comprehensive surveillance system to monitor the activities of prisoners
- Establish a stable and high-speed network that can transmit large-volume videos and data
- Install fail-safe network switches and APs to ensure non-stop operation of the surveillance system
- Provide a simple, centralized management system to oversee multi-site deployment

Solution

- Zyxel Wireless Solution

Results

- Provided easy, manageable access to all the cameras to monitor the prisoner activities
- Connected the central network control room with the main centers of the prison
- Hassle-free network connectivity for easy and fast activity

Summary

Uttar Pradesh State in northern India has a total of 71 prisons accommodating over 11,000 prisoners serving terms. The state is the first to decide to introduce AI-based video surveillance to monitor inmates in the country. The state government was constructing network infrastructure to transmit video feeds, recording every activity of the prisoners, from the surveillance cameras installed in the jail cells. The installation requirements included the vendor's local presence, brand reputation, prompt on-time delivery, reasonable pricing, and scalability of the solution.
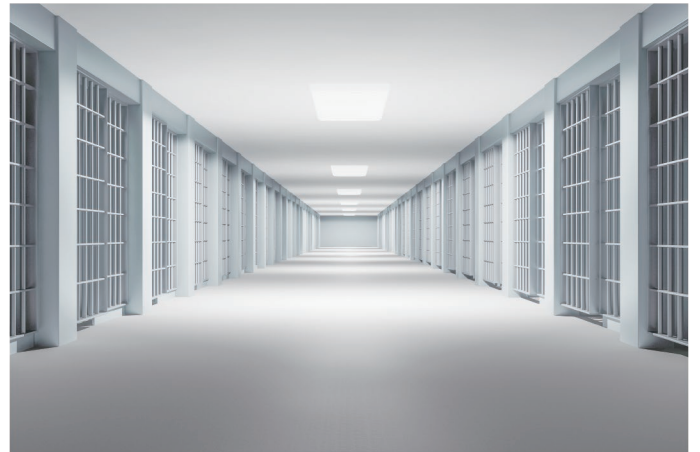
Background

Uttar Pradesh, the most populous state located in northern India, is the first to deploy AI-powered video analytics technology. The accuracy of the AI model is claimed to reach 99.6%. The prison department implemented the smart surveillance system to overcome management challenges to lower issues like prison break, dangerous behavior towards prison staff or other prisoners, drug trafficking, etc.

The tender was initiated for 71 prisons and placed in three phrases. Zyxel won the order to start building the network infrastructure for 20 prisons with the passive solution provider Schneider Electric.

Challenges

Uttar Pradesh, the most populous state located in northern India, is the first to deploy AI-powered video analytics technology. The accuracy of the AI model is claimed to reach 99.6%. The prison department implemented the smart surveillance system to overcome management challenges to lower issues like prison break, dangerous behavior towards prison staff or other prisoners, drug trafficking, etc.

The tender was initiated for 71 prisons and placed in three phrases. Zyxel won the order to start building the network infrastructure for 20 prisons with the passive solution provider Schneider Electric.

Solutions and Benefits

The project deployed Zyxel's **XGS3700-24HP 24-port GbE L2+ PoE Switch with 10GbE Uplink**, **GS1900-10HP 10-port GbE Smart Managed PoE Switch**, and **WAC6553D-E 802.11ac Dual Radio External Antenna 3x3 Outdoor Access Point** that enabled low latency while accessing the data from the CCTV cameras. 20 XGS3700-24HP switches were installed as the main core switches to link edge switches and NVRs functioning as video analytics software servers. 60 GS1900-10HP switches were deployed to provide power and connection to the powered devices. The intelligent PoE design of the switches maximizes the power budget utilization to support more surveillance cameras, enabling stable power supply and data transfer over existing LAN cabling.

The PoE-capable XGS3700-24HP managed switches, designed for mission-critical IP surveillance applications, featuring 10GbE Uplink and dual, internal power supplies, delivers more than enough speed for the prisons' atabase access. The stacking ring technology allows uninterrupted data forwarding if any stack switch fails to ensure resiliency.

Supporting multiple mounting options and 2 extra SFP slots, the GS1900-10HP switches enable versatile and simple deployment in any environment that a jail

installation project necessitates. The switches were also chosen because of their easy, long-distance deployments, and power-saving design like built-in IEEE 802.3az Energy Efficient Ethernet (EEE).

Zyxel's switches offer a high level of scalability and proven resilience, catering for future networking and bandwidth capability, and ensuring investment protection. The IT management staff can utilize the easy-to-use, browser-based setup wizard and Zyxel ONE Network (ZON) utility tool that makes network management as easy as pie. ZON is an intuitive installation tool that can discover and configure Zyxel switches and WLAN devices, allowing users to manage everything from a single platform easily.

60 WiFi outdoor access points were used to provide wireless connectivity from the central location to the control room, where the administrators can access the live feeds of prisoners. Zyxel's outdoor APs can provide high reliability and stability through its robust IP67 industry-grade weatherproofing design when operating in the outdoor space. The dual-radio outdoor access point features 3x3 MIMO technology which optimizes and increases throughput. This helps to transmit video feeds smoothly and stably.

ZYXEL
NETWORKS

Products Used

XGS3700-24HP • 24-port GbE L2+ PoE Switch with 10GbE Uplink

- Physical stacking up to 8 units and 384 Gigabit ports
- Four 10GbE SFP+ uplink flexibility
- Internal and hot-swappable power supply design
- PoE model supports IEEE 802.3at with high PoE power budget up to 1000W

GS1900-10HP • 8-port GbE Smart Managed PoE Switch with GbE Uplink

- Easy browser-based switch management
- Quick and easy setup wizard
- Green Ethernet IEEE 802.3az support and intelligent Zyxel green features
- High-power PoE support IEEE 802.3at
- Zyxel One Network is supported

WAC6553D-E • 802.11ac Dual Radio External Antenna 3x3 Outdoor Access Point

- NebulaFlex Pro allows users to switch among standalone, on-premises controller managed or intuitive Nebula cloud managed modes as needed
- Dual-band 2.4-GHz and 5-GHz 802.11ac Wireless Access Point
- Designed with IP66-rated weather protection which is ideal for harsh outdoor environments
- Advanced IEEE 802.11ac delivers up to 1.75 Gbps combined data rates
- Industry-leading receive sensitivity as low as -102 dBm
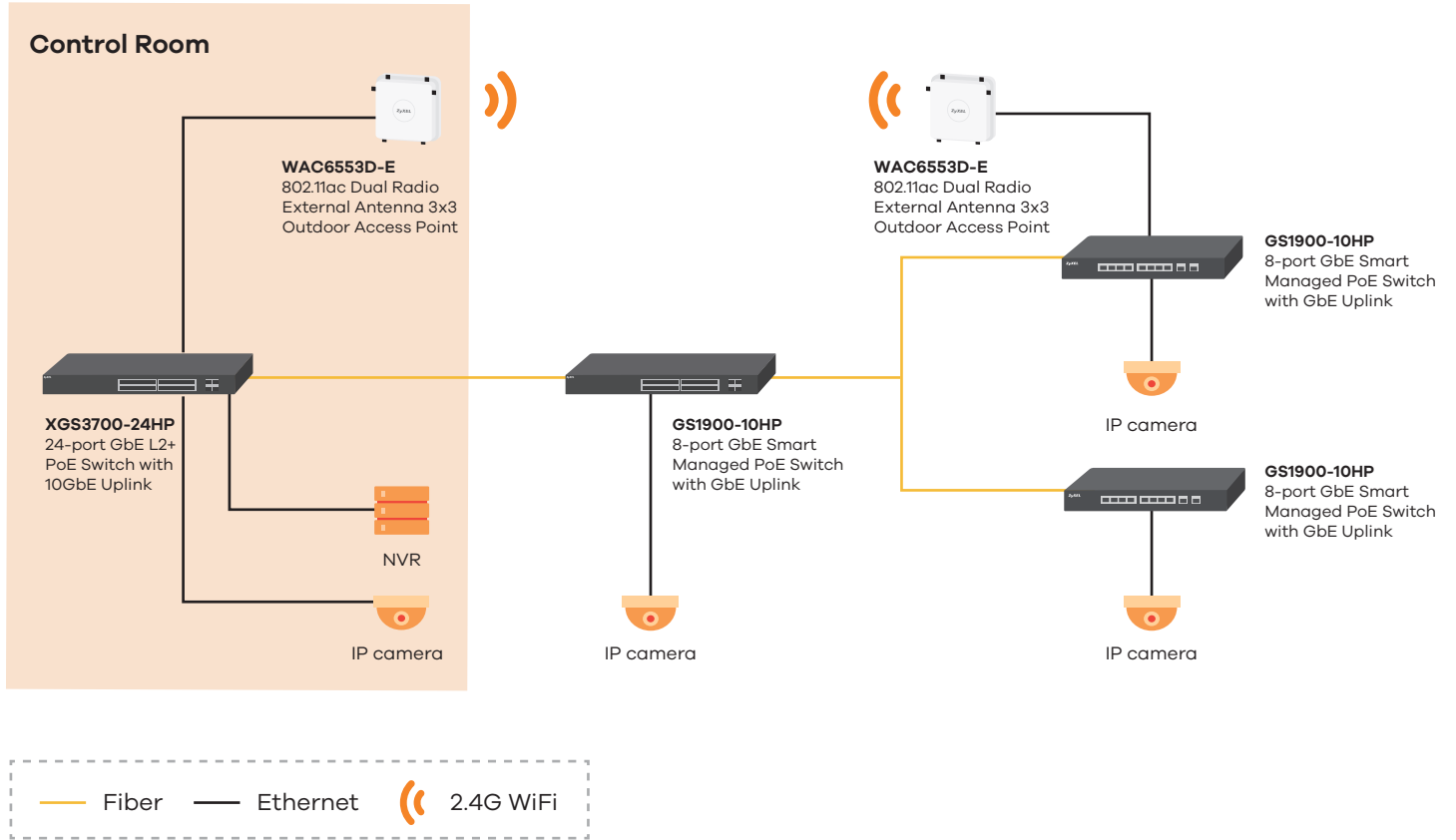- APFlex™ and DCS for streamlined deployment

Products Used

ANT1313 2.4Ghz • 2.4 GHz 13 dBi MIMO Directional Outdoor Antenna

- Compatible with Zyxel WLAN devices to get optimal signal quality
- Matching colors and exterior looks
- Multiple options to meet your current network environments

ZYXEL
NETWORKS

Diagram

Control Room

WAC6553D-E
802.11ac Dual Radio
External Antenna 3x3
Outdoor Access Point

WAC6553D-E
802.11ac Dual Radio
External Antenna 3x3
Outdoor Access Point

GS1900-10HP
8-port GbE Smart
Managed PoE Switch
with GbE Uplink

XGS3700-24HP
24-port GbE L2+
PoE Switch with
10GbE Uplink

NVR

GS1900-10HP
8-port GbE Smart
Managed PoE Switch
with GbE Uplink

IP camera

GS1900-10HP
8-port GbE Smart
Managed PoE Switch
with GbE Uplink

IP camera

IP camera

IP camera

Fiber ── Ethernet ── 2.4G WiFi

About Zyxel Networks

Focused on innovation and customer-centricity, Zyxel has been connecting people to the Internet for over 30 years. Our ability to adapt and innovate with networking technology places us at the forefront of creating connectivity for business and home users.
We're building the networks of tomorrow, unlocking potential, and meeting the needs of the modern workplace — powering people at work, life, and play.
Zyxel, Your Networking Ally.