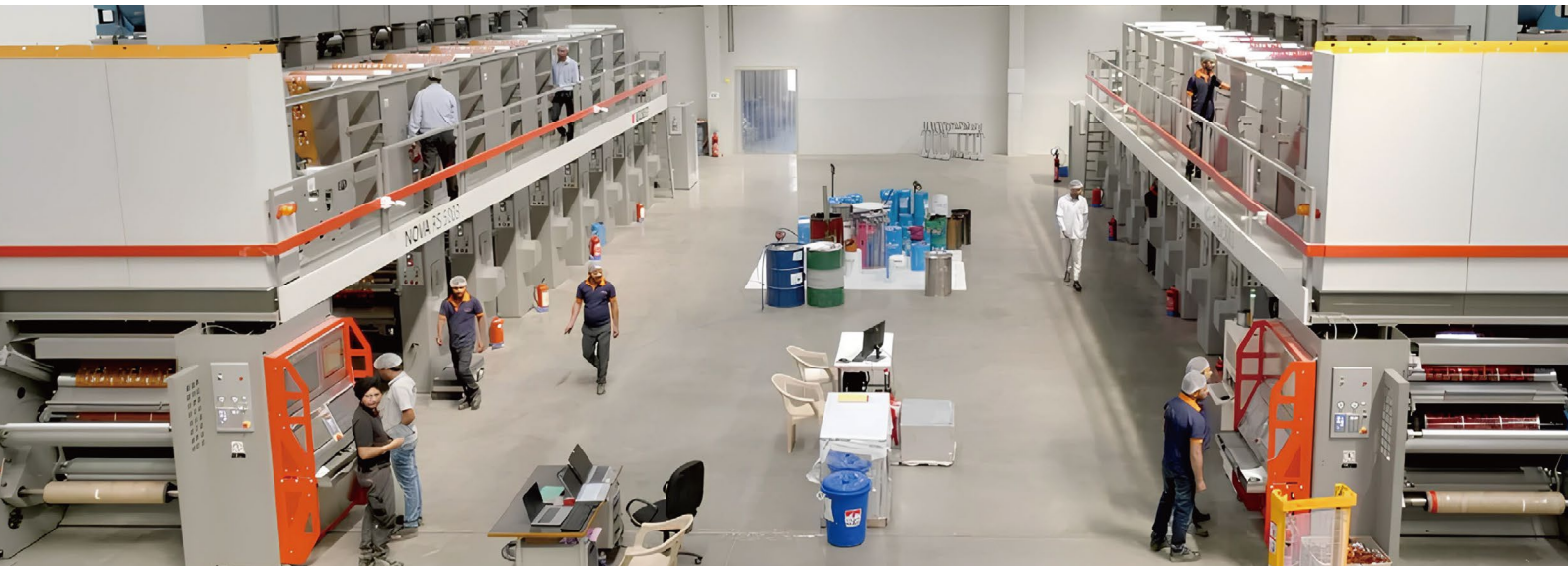

Vaibhav Plasto: Building India's Smart Packaging Plant of the Future

Overview

Vaibhav Plasto Printing & Packaging Pvt. Ltd., a pioneer in flexible packaging solutions, embarked on a visionary journey to build a state-of-the-art smart manufacturing facility at Butibori, Nagpur. Spanning a massive 116,000 square meters, this newly constructed plant was designed to redefine operational excellence, network automation, and end-to-end digital control. After years of relying on a fragmented and outdated IT infrastructure, the company's leadership decided to build a robust, fully connected, and future-proof network from the ground up. It set clear objectives: interconnect 12 distributed operational zones, link 337 data nodes and 311 IPC nodes, and enable centralized control, real-time monitoring, and uninterrupted high-speed access across the facility. To achieve this vision, Vaibhav Plasto partnered with Aarkay Techno Consultants, a premier system integrator in Nagpur, and selected Zyxel Networks for their proven expertise in delivering enterprise-grade wired, wireless, and passive networking solutions tailored for industrial resilience and digital transformation. Now, Zyxel Networks' fully integrated network ecosystem allows Vaibhav Plasto to operate an intelligent, agile, and digitally enhanced manufacturing environment. Besides, the transformation goes beyond connectivity, it introduces a new operational paradigm where uptime, visibility, and real-time responsiveness define the company's digital DNA.

Challenges

Transitioning from a legacy plant to a modern smart factory presented complex infrastructure hurdles. The previous facility operated on a flat, non-segmented network architecture, where data and IPC traffic shared common pathways. This led to persistent congestion, intermittent packet loss, and slow response times across departments. Outdated switches and reliance on media converters created bottlenecks, limited bandwidth, and introduced multiple points of failure that disrupted uptime.

Customer
Vaibhav Plasto Printing & Packaging Pvt. Ltd.

Industry
Manufacturing

Location
Nagpur, Maharashtra, India

Partner
Aarkay Techno Consultants Pvt. Ltd.

Customer Background

Vaibhav Plasto Printing & Packaging Pvt. Ltd. is a leading manufacturer specializing in flexible packaging solutions. Based in India, it offers a wide range of products, including laminated films, pouches, and rolls, catering to industries such as food, beverages, pharmaceuticals, and FMCG, focusing on quality and innovation.

Earlier, we faced constant network drops and had no visibility over system performance. With Zyxel Networks' solution, we now have a stable, high-speed network and complete control through a single application. The difference is remarkable."

Mr. Vaibhav Agrawal, Director
Vaibhav Plasto Printing & Packaging Pvt. Ltd.

The wireless network added further complications. Existing APs failed to cover the full operational footprint, especially in warehouse and production zones, leaving blind spots that restricted mobile access, real-time monitoring, and cloud integration. Additionally, the IT team lacked visibility and control due to manual configurations and the absence of centralized monitoring. This not only hampered efficiency but also made troubleshooting a time-consuming process, often requiring on-site interventions that led to operational delays. The organization needed an integrated, high-throughput infrastructure capable of supporting 10G backbones, robust VLAN segmentation, cloud-managed controls, and intelligent wireless coverage, all within a tightly defined implementation timeline and with absolute reliability from day one.

Solutions

To solve network issues, Zyxel Networks delivered a turnkey solution that combined cutting-edge active networking components with a meticulously engineered passive fiber backbone. The result is a unified infrastructure that blends performance, control, and scalability to meet both current and future needs. At the core, XGS1930 series switches, including 28-port and 52-port Lite Layer 3 models, formed the high-speed backbone across all 12 operational zones. These switches provided Gigabit connectivity with 10G uplink, a combination of Layer 2 and Layer 3 features, and Nebula cloud management. Their robust VLAN support enabled clean segmentation of data and IPC networks, drastically reducing congestion and improving application-specific performance. Connectivity between nodes and the server room was powered by 76 Zyxel SFP modules (1G/10G), ensuring seamless, high-throughput fiber uplinks with hot-swappable flexibility. The entire network architecture was designed for zero signal loss and ultra-low latency, vital for the smart plant's real-time operations and industrial automation systems.

To provide wireless coverage, Zyxel Networks deployed WAX510D WiFi 6 Dual-Radio access points in administrative zones, which were offering superior throughput with dual-radio performance, OFDMA, and MU-MIMO support. These access points delivered dense, interference-free access even in high-traffic environments. Then, NWA1123ACv3 access points in production zones ensured robust connectivity where heavy machinery and walls typically cause signal attenuation. Network security was elevated through the implementation of the ATP800 next-gen firewall, a high-performance UTM device that enabled VLAN isolation, deep packet inspection, advanced threat filtering, and secure remote VPN access. The firewall's role was crucial in maintaining a secure operational edge while ensuring compliance with enterprise-grade cyber hygiene. The passive network backbone was equally critical to the solution. Zyxel Networks provided a comprehensive fiber architecture using the Fiber Patch Cords (Single Mode, 3M) to enable switch-to-LIU connectivity.

At Butibori, we designed a hybrid network a architecture from scratch using Zyxel Networks' versatile solutions. The result is a future-ready network that the customer can easily manage, monitor, and scale as needed."

Mr. Rakesh Andhare, Managing Director
Aarkay Techno Consultants Pvt. Ltd.

Centralized termination was structured using 2 units of 24-core Fiber LIU (SM loaded with Duplex LC adapters and pigtails, while distributed zones were served by 10 units of 6-core LIUs, offering localized patching and flexible expansion. This high-quality, loss-minimized setup ensured that every port, path, and node was built for consistent performance and scalability for the future. CAT 6A UTP Patch Cords (5M were used for switch-to-end-device links, supporting 10G transmission for devices in control rooms, admin offices, and interface panels.

All devices, including switches, access points, and firewalls, were integrated into the Nebula cloud platform and assigned PRO Pack licenses, empowering the IT team with centralized provisioning, live monitoring, diagnostics, and alert-based management. Whether troubleshooting from remote locations or configuring new zones, the team now had the power to control the entire plant's network through a single pane of glass. Today, Vaibhav Plasto stands as a leader in flexible packaging and a benchmark for intelligent, connected manufacturing in India's rapidly evolving industrial landscape.

Results

Today, the network supports uninterrupted communication across 12 zones, with each data and IPC node operating in its own isolated VLAN to ensure optimal performance. Smart wireless coverage extends throughout the facility, supporting everything from tablets and smart TVs to mobile inventory tracking devices. The Nebula cloud networking solution now gives the IT team unified control over every access point, switch, and firewall, enabling proactive maintenance, performance analytics, and future expansion with ease.

- Up to 10X improvement in network throughput and stability
- Intelligent VLAN segmentation for fully isolated IPC and data networks
- Full coverage across all nodes and zones with real-time cloud visibility
- Up to 80% reduction in troubleshooting and manual configuration time
- Scalable, future-ready 10G backbone built on professional-grade fiber infrastructure

Product List

- WAX510D WiFi 6 Access Point
- NWA1123ACv3 WiFi 5 Access Point

- XGS1930-52/28/28HP Lite-L3 Smart Managed Switch
- GS1920-24HPv2/8HPv2 Smart Managed PoE Switch
- SFP 1G/10G Transceiver Module

- ATP800 Firewall

- CAT 6 UTP Patch Cord
- Fiber Patch Cord
- Fiber LIU Loaded – 6F/12F