ZYXEL NETWORKS

Success Story

India's Leading Power Plant Grateful for Centralized, Hassle-free Network with Zyxel Wireless Solution

INDUSTRY	CUSTOMER	COUNTRY	SOLUCIÓN
Energy	National Thermal Power Corporation	India	Zyxel Wireless Solution

Overview

Challenges

- Huge area of 20,000 square feet makes seamless, high-speed WiFi connectivity a difficult task
- Signal loss and dropped connections common due to unstable connectivity
- Messes of cables from previous network expansions litter the premises

Solution

- Zyxel Wireless Solution

Results

- High-quality wireless connectivity achieved through WLAN optimization and enhanced RF management
- Resilient WiFi and simplified management realized without complex cable deployments
- Scalable solution makes plant ready for further network expansion at any time

Summary

For countless companies across India and the world, the headaches that come with legacy networks are all too familiar: compatibility issues, numerous interfaces, drop-outs, weak signals, and cables everywhere. This was the situation that Indian power utility NTPC found itself in at one of its large coal-fired plants. To resolve the problem, it wanted new infrastructure capable of providing not only stable WiFi connectivity and wide coverage but also unified, centralized management of every access point, indoors and out. Read on to see how we delivered.

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Background

Feroze Gandhi Unchahar Thermal Power Plant, located in the northern Indian state of Uttar Pradesh, is a coal-fired power plant. It plays a crucial role in the economy and everyday life there, powering the region through its installed capacity of 1,550 megawatts. The power plant belongs to National Thermal Power Corporation (NTPC), a state-owned enterprise and India's largest power utility. Headquartered in New Delhi, NTPC also undertakes consultancy and turnkey project contracts that involve engineering, construction and project management as well as operation and management of power plants.

Challenges

To say that the power plant's legacy network was hindering operations would be putting it mildly. The wireless coverage was highly unreliable across the site, with staff frequently suffering connectivity issues. And things weren't any kinder to the plant's IT staff. The network could not be centrally managed; rather, its infrastructure was spread across various equipment in various locations and connected by a patchwork of standalone apps. This was causing severe management headaches. There was also a critical lack of redundancy in the legacy network; this made it vulnerable to technical problems as there was no fail-safe mechanism to provide backup if any portion of the network went down.

NTPC knew something needed to be done and turned to its system integrator, Creative Communication, to revamp its network and replace the aging, slapdash infrastructure with a hassle-free alternative. Resolving the plant's problems would require powerful access points, with unified, centralized management also a must for addressing the time wasted by the current system.

Solutions and Benefits

The system integrator knew Zyxel's wireless solution and product range fit the bill, and it quickly got to work. First, 200 **WAC6103D-I 802.11ac Dual Radio Dual-optimized Antenna 3x3 Access Points** were installed across the site's indoor areas. Meanwhile, five **WAC6553D-E 802.11ac Dual Radio External Antenna 3x3 Outdoor Access Points** were installed outside, powered by **POE12-HP 802.3af/at PoE Injectors**.

By leveraging dual-optimized antenna technology, the WAC6103D-I APs provide switchable signal patterns to reduce inter-floor interference in the high-density environments. In addition, advanced WiFi features such as load balancing and smart-client steering ensure a smooth, consistent, and uninterrupted wireless experience throughout the factory. Outside it, the WAC6553D-E outdoor APs deliver up to IP66 industry-grade weather and dust proofing, ensuring robust, long-lasting service for the plant's exposed areas.

Finally, for the all-important task of unifying the network, two **NXC5500 Wireless LAN Controllers** were installed in the main server rooms. The NXC5500 provides the convenience of AP planning, deployment, monitoring, and maintenance with centralized management as well as authentication in an all-in-one device.

The controller facilitates resilient WiFi deployments and simplified, cable-free management, enabling the plant to say goodbye to complex cable deployments. In addition, the auto-provisioning function is like auto-pilot for access points, with every AP able to be set up without the extra effort of assigning channels and MAC addresses. And, to ensure the highest WiFi quality, the controller features WLAN optimization and RF enhancements that can automatically monitor the capabilities of all wireless clients and then steer each one to the best radio, as well as detects AP status and adjusts output power to ensure continuous, dropout-free WiFi service.

Now with the network makeover completed, the plant looks and operates in entirely different ways. Outages and connection issues are down, work efficiency is up, managing the network is hassle-free for IT staff, and employees can access connections across the entire premises. And perhaps most appreciated of all is the ability of employees to work with confidence in their technology and with the knowledge that a scalable solution is already in place, ready to meet whatever demands the future brings.

Products Used

NXC5500 • Wireless LAN Controller

- Centralized WLAN management and auto provisioning
- Manages up to 1,024 APs with granular access control
- ZyMesh simplifies complex, inconvenient cable-heavy WiFi deployments
- Comprehensive features for WLAN performance optimization and always-on WiFi connectivity
- Wireless LAN performance optimization via dynamic channel selection and load balancing
- QR code-based guest authentication
- Zyxel One Network supported

WAC6103D-I • 802.11ac Dual-Radio Dual-Optimized Antenna 3x3 Access Point

- Dual-optimized antenna allows pattern optimization adapting to wall- or ceiling-mounted installation
- 3x3 802.11ac supports combined data rates of up to 1.75 Gbps
- NebulaFlex Pro allows users to switch among standalone, on-premises controller managed or intuitive Nebula cloud managed modes as needed
- Dynamic Channel Selection, Load Balancing and Smart Client Steering ensure optimal wireless experience
- Stylish, ultra-slim ID design as the 32 mm height blends perfectly into modern interior decorations

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
- 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

ANT2105 • Dual-Band 5 dBi Omni-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

POE12-HP • 802.3af/at PoE Injector

- IEEE 802.3af and IEEE 802.3at Power over Ethernet (PoE) standards compliant
- Install anywhere taking advantage of PoE technology
- Superior safety with overloading and short-circuit protection

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.