CASE STUDY

Bolivian Power Distribution Company Upgrades IT and OT Networks to Improve Service for 1 Million People

Distribuidora de Electricidad La Paz (DELAPAZ) is the only electric power distribution company for La Paz, one of Bolivia's nine federal states, including the nation's capital. The company is a mixed-capital enterprise and part of the state-owned ENDE Corporation, which the Bolivian government has tasked with distributing electricity nationwide. The company employs 836 individuals across one main office, 42 regional administrative offices, and 38 power substations. ENDE Corporation aims to achieve 100% coverage across the country by 2025. For DELAPAZ, this goal involves reaching at least 100,000 families, adding 1 million to its current customer base in urban and rural areas.

DELAPAZ operates critical infrastructure that demands high availability and strict security. Any compromise can impact thousands of customers. DELAPAZ thoroughly reviewed its communications and networks, identifying several vulnerabilities that significantly threatened its operations. These vulnerabilities came from outdated equipment, devices needing more functionality, and expensive license renewals.

The company faced frequent cyberthreats, and the IT team felt unprotected because it lacked traffic visibility on the corporate network. Network management was challenging, requiring individual access to each device to determine what was happening. Security threats often went unnoticed.

A Unified Platform for High Visibility

"We sought a unified connectivity and security solution that would simplify management, as we don't have enough staff to handle it," says Rolando Quisbert, head of the information technology department at DELAPAZ. "Fortinet offered us multiple integrated solutions within a single platform."

The company initiated the deployment of Fortinet solutions by installing FortiGate Next-Generation Firewalls (NGFWs) at the main office where the primary data center is located and at its 42 regional offices. The hybrid mesh firewalls enabled DELAPAZ to create an integrated and secure network that provides visibility into network activity and simplifies device management from a single platform. "With FortiGate, obtaining information on security events and threats is much easier. Centralized management saves us a significant amount of time," Quisbert remarks.

Simultaneously, the company integrated FortiAnalyzer VM to increase network traffic visibility and protect against external threats. This solution provides security analysis and reports managed through an integrated single console, enabling better decision-making through enhanced visibility.

DELAPAZ
DISTRIBUIDORA DE ELECTRICIDAD LA PAZ

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"Fortinet offers scalable solutions that allow us to shift from a manual operational model to a more controlled and automated management system. Besides being a great value, Fortinet solutions are robust and feature-rich."

Rolando Quisbert
Head of the Information Technology Department, Distribuidora de Electricidad La Paz

Details

Customer: Distribuidora de Electricidad La Paz (DELAPAZ)

Industry: Power and Utilities

Location: Bolivia

Number of Secure SD-WAN Locations: 81

Business Impact

- Significant time savings with a centralized platform for controlling and monitoring security threats
- Reduced operational costs and improved IT and OT teams' response times

Highly Reliable Solution Tailored for OT

DELAPAZ decided to extend its implementation to 38 substations after verifying the effectiveness of FortiGates at its administrative offices; these are in remote areas, some up to 12 hours away from the main office. At these sites, the company manages a critical operational technology (OT) network that controls essential industrial equipment like transformers, relays, high-voltage grids, and hubs responsible for regulating electrical flow. Given the demanding conditions at the substations, DELAPAZ deployed the FortiGate Rugged NGFWs designed to offer enterprise-grade threat protection for challenging industrial environments.

With FortiGate Rugged, the company has comprehensive visibility in its OT network, allowing it to differentiate between administrative and industrial traffic. For instance, it can monitor the supervisory control and data acquisition (SCADA) traffic system at the substations to detect threats or resolve communication issues when faults occur. "The equipment is robust and helps us to ensure secure traffic across the OT network for managing industrial applications," says Daniel Aranibar, information network manager at DELAPAZ.

The company used to experience two remote location failures per month, but these have now been eliminated. The company also used to experience an average of eight hours of communication loss per month in rural areas; downtime has now been reduced to mere seconds. The support team no longer needs to travel to these remote sites to restore connections; some locations haven't required a visit in several months. "Failures are practically indistinguishable. Communication remains constant, and we can remotely access a device to resolve issues if it malfunctions," Aranibar highlights.

Guaranteed Connectivity with Higher Security

Today, DELAPAZ operates a network of 81 interconnected locations within a secure, centrally managed platform. With Fortinet Secure SD-WAN integrated into the NGFWs, the company built a high-availability network that guarantees constant communication. Redundant links at some locations enable the solution to reroute traffic, ensuring uninterrupted communication automatically. In the event of failure, the system switches to the optimal link. Security has also improved significantly. Under the previous model, the internet provider could access and inspect traffic. Now, Fortinet Secure SD-WAN protects the data and reduces security risks.

The platform approach also enabled DELAPAZ to expand its Fortinet deployment. The company deployed FortiSwitch Ethernet switches in its administrative offices and OT network substations, extending NGFW security and segmentation to the edge of their networks. Additionally, it rolled out FortiAP access points for secure wireless communication at the administrative offices in conjunction with FortiAuthenticator, which provides centralized user identity management for transparent network user identification. DELAPAZ plans to extend FortiAP coverage to all substations in the future.

Reliable Network with Significant Cost Savings

The unified model prompted the company to reassess its connectivity infrastructure to increase availability and cut costs. The MPLS links were replaced with internet connections supported by Fortinet Secure SD-WAN in the administrative offices. The savings are over 95%; while an MPLS link could cost up to $800, internet links cost just $30.

Business Impact (cont.)

- Over 95% cost savings by replacing MPLS links with internet connections supported by Fortinet Secure SD-WAN
- Reduced fines due to enhanced network reliability and preventing power service interruptions
- Reduced downtime in rural areas from an average of eight hours of communication loss per month to mere seconds

Solutions

- FortiGate Next-Generation Firewall
- FortiGate Next-Generation Firewall Rugged
- Fortinet Secure SD-WAN
- FortiSwitch
- FortiAP
- FortiManager VM
- FortiAnalyzer VM
- FortiAuthenticator

Services

- FortiCare Premium Support
- FortiGuard OT Security Service
- FortiGuard AI-Powered Advanced Threat Protection Bundle
- FortiGuard AI-Powered Unified Threat Protection Bundle

The company previously used a private radio frequency network for the substations, which required a line of sight between each point to maintain communication. This infrastructure was costly, requiring specialized labor and equipment for installation and maintenance. DELAPAZ had significantly saved equipment and management costs by switching to internet links. Furthermore, the Fortinet platform enabled the company to use LTE connectivity for redundancy at the substations; the NGFWs support this technology and integrate it seamlessly into the network. Previously, a backup link for a substation could cost $120; now, with mobile data networks, the cost is only $9.

Another area of savings comes from reduced fines. The government monitors power outages, and the more outages occur, the higher the penalties for the company. With high network availability, DELAPAZ no longer experiences outages caused by network failures. "With this Fortinet solution, we have reduced fines and expect them to drop even further, particularly in rural areas where we deployed the FortiGate Rugged," Quisbert states.

Comprehensive Offering for Flexible Scalability

The most significant benefit for DELAPAZ is having everything work together seamlessly with one point of control. "The integration of all elements within the wider ecosystem is incredibly valuable," Quisbert mentions. Using FortiManager VM, the IT team has centralized control and management over NGFWs, FortiSwitches, and FortiAPs. The solution also provides complete visibility and protection against security threats. Moreover, the company utilizes FortiCare Premium Support, which offers expert assistance for deploying and optimizing its entire implementation.

DELAPAZ has already identified the next steps for modernizing its technology infrastructure. The company has explored models such as zero-trust network access and privileged access management and potentially setting up a security operations center by 2025. "Fortinet offers scalable solutions that allow us to shift from a manual operational model to a more controlled and automated management system. Besides being a great value, they have robust and feature-rich solutions." Quisbert says. "Fortinet's local support is essential for building trust in the implemented solutions. We are confident that our company is secure and that our information and infrastructure are protected," he concludes.

"The FortiGate Rugged is robust and helps us to ensure secure traffic across the operational technology [OT] network for managing industrial applications."

Daniel Aranibar
Information Network Manager,
Distribuidora de Electricidad
La Paz

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