

Success Story

400-year-old Swiss Monastery Gets New Divine Connection with Zyxel Wireless Solution



Religion

INDUSTRY



CUSTOMER

St. Andreas
Monastery



COUNTRY

Switzerland



SOLUCIÓN

Zyxel
Wireless
Solution

Overview

Challenges

- Overcome signal-blocking barriers posed by monastery's thick stone walls to deliver total WiFi coverage
- Ensure stable network connectivity and compatibility with site's recently added VoIP system

Results

- Highly durable high-performance network deployed for the monastery and its residents
- Uninterrupted connectivity in every room, powered by reliable high-speed network
- Centralized, user-friendly network management for large numbers of network devices

Solution

- Zyxel Wireless Solution

Summary

The St. Andreas Monastery in Sarnen, Switzerland, was looking to get with the times and utilize new technology, like IP-based telephony and WiFi systems, to help with their missionary work. Just one problem: the thick interior walls of the 400-year-old monastery were standing in the way – literally – of phone and wireless signals. However, it didn't take a miracle to turn things around, just some highly adaptive high-performance access points, switches, and security gateways from Zyxel. Here's how we did it.

Background

St. Andreas is a monastery of the Benedictine Sisters in Sarnen, a small town on the shores of Lake Sarnen in central Switzerland. Despite having a rich, centuries-long history, it was eager to move with the times and adopt new technologies to better communicate with other church members and engage in its missionary work.

Phone and digital communication is particularly important considering the mountainous, difficult-to-travel terrain of the area. This meant the monastery was on the hunt for a solution that would ensure WiFi coverage and uninterrupted phone coverage for the residents and visitors.

Challenges

It was immediately clear that this wasn't going to be a straightforward case like you might have for a new office. The thick stone walls of the monastery presented a serious challenge to the goal of wall-to-wall WiFi coverage. Indeed, these signal-blocking walls already made it nearly impossible to get a mobile signal strong enough to make or receive a

Solutions and Benefits

The monastery turned to ParCom Systems AG, which specializes in telecommunications, particularly telephone, alarm, network infrastructure, and security solutions. With their help, Zyxel designed a comprehensive communication system based on an all-IP solution. Seventy access points and other Zyxel network devices were deployed across the monastery's grounds, including the **NXC5500 Wireless LAN Controller**, **XGS4600-32F 28-Port Gigabit L3 Managed Switch with 4 SFP+ Uplinks**, **GS2210-48HP 48-port Gigabit L2 PoE Switch**, **WAC6303D-S 802.11ac Wave 2 Dual-Radio Unified Pro Access Points**, **WAC6553D-E 802.11ac Dual Radio External Antenna 3x3 Outdoor Access Points** and **ZyWALL ATP500 ATP Firewall**. This infrastructure in turn enabled us to install an SIP-based telephone system, which can connect to smartphones and IP-based telephone systems. In addition, IP intercoms at the site's entrances were installed, providing WiFi connectivity for residents and visitors.

The WAC6303D-S AP features 3x3 802.11ac wave 2 MU-MIMO (Multi-User MIMO) and supports 3G/4G interference immunity capabilities, making it perfect for the monastery's cumbersome-to-connect environment. Furthermore, the rugged WAC6553D-E AP, with its IP66-rated weather protection, is designed for use outdoors and can maintain its powerful signal strength even in harsh conditions.

The NXC5500 Wireless LAN Controller centrally manages the WiFi network. The controller monitors every AP's status to ensure optimal radio resource usage and adjusts output power automatically so that the users experience the best possible wireless network performance. Meanwhile, GS2210

When it comes to the requirements, the monastery wanted to build a reliable communication system at the main gate, and WLAN network for residents and visitors. The WiFi network is used for the residents to talk to each other via their smartphones as well as for the internet access for their computers and smartphones. Additionally, the guests can use a guest WiFi for internet access.

For the project, the system integrator planned to use Mitel's MiVoice 470 telephone system and Zoiper's VoIP Softphone software to provide phone services.

call. And strong connectivity in every room wasn't the only difficult box to tick. The monastery also needed a compatible and easy-to-use VoIP solution. Plus, given the less than tech-savvy nature of would-be users, the solution's durability and user-friendliness had to be immaculate.

series switches, featuring effective traffic management for converged applications like VoIP, video conferencing, IPTV, and IP surveillance, were connected to the 70 access points to ensure they never lose power. The switches also substantially streamlined the deployment process, enabling fast and easy installation. Worth noting is that Zyxel's XGS4600 layer 3 switch range features Gigabit connectivity and four built-in 10 Gigabit SFP+ ports, enabling them to deliver ultra-fast uplink connections while maintaining their reliability and affordability.

Safeguarding the monastery's new infrastructure is the ZyWALL ATP500 ATP Firewall, an advanced threat protection solution designed for networks with high security requirements. In addition to using cloud intelligence to optimize network protection even for unknown threats, it also provides comprehensive security services including web filtering, application filtering, and malware blocking.

The only thing left to be equipped was the residents' knowledge – something ParCom addressed by organizing a short series of training sessions with the monastery's residents to help them master the new solution's many practical benefits. Now, with the equipment in place and knowledge under their belt, each resident has received smartphones with applications for WiFi voice over IP and for alarms. Plus, the new IP intercom at the main entrances can easily be operated via a smartphone. With Zyxel's mission accomplished and the monastery connected, its inhabitants can now focus on their work with ease and the benefit of clear communications.

Products Used

ZyWALL ATP500 • ATP Firewall



- Machine learning threat intelligence with global sync
- Sandboxing defeats unknown threats
- Hybrid scanning leveling up malware blocking
- High assurance multi-layered protection
- Reporting and analytics on cloud and device
- 1-Year full functional license services

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

XGS4600-32F • 28-Port Gigabit L3 Managed Fiber Switch with 4 SFP+ Uplinks



- Four built-in 10G SFP+ uplinks enable congestion-free, smooth data delivery for high-bandwidth applications
- Dynamic routing protocols such as RIP and OSPF
- Provides high-bandwidth with true physical stacking of up to 4 units
- L2 and L3 stacking capability to fulfill larger network deployment needs
- High resiliency with redundant power supply units

Products Used

GS2210-48HP • 48-port Gigabit L2 PoE Switch



- Fully managed Layer 2 switching solution
- GbE RJ-45 and GbE SFP connectivity
- Complies with IEEE 802.3af PoE and 802.3at PoE Plus with a high 375-W power budget
- L2 multicast, IGMP snooping, MVR, and voice VLAN for convergence
- Enhanced network protection with IP source guard, DHCP snooping, ARP inspection, and CPU protection
- L2, L3, and L4 filtering, MAC freeze, port isolation, and guest VLAN for improved isolation and access control
- Future-proofed with IPv6 support
- Supports ZON Utility and Smart Connect for easier, more efficient setup and management

WAC6303D-S • 802.11ac Wave 2 Dual-Radio Unified Pro Access Point



- NebulaFlex Pro allows users to switch among standalone, on-premises controller managed or intuitive Nebula cloud managed modes as needed
- Excellent wireless coverage and performance with the latest 3x3 Wave 2 802.11ac technology
- Unparalleled high-density performance boosted by Smart antenna, next generation beamforming and MU-MIMO technologies
- Solid state capacitors and advanced heat dissipation ensure high reliability and long life—even in the toughest environments
- Advanced Cellular Coexistence minimizes interference from 3G/4G cellular networks

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

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.

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