ZyXEL

Success Story

Swiss Construction Contractor Brings Network Up to Speed with ZyXEL Solution

Overview

Customer Name
Unnamed General Contractor

Customer Industry
Construction

Challenges
• Connect branch offices with headquarters
• Servers must be internally and externally accessible
• Stable and robust network for handling VoIP communication
• Synchronized real-time storage over multiple locations

• Ability to handle heavy data traffic loads

Solution
• 802.11 a/b/g/n Dual-Radio Unified Access Points
• 24 GbE L2+ Switches
• Next-Gen Unified Security Gateways
• Next-Gen Unified Security Gateway Extreme Series

Benefits
• Ability to automatically prioritize service
• Stable and secure network
• Robust bandwidth easily handles data loads

• No negative impact on VoIP performance from data loads
• Easy to manage
• Full UTM protection including application intelligence, IDP, antivirus and content filtering

Challenges

The company's three larger branches are networked via VPN tunnel, but still operate partly autonomous infrastructures with a storage systems and hybrid PBX. Both internally and between branch locations, staff uses VoIP to place voice calls, while outgoing calls are carried over ISDN.

At the headquarters, there are additional central systems, such as an exchange and terminal server with RDP gateway, as well as a SharePoint server, all of which need to be externally accessible.

Since all employees need to have constant access to up-to-date data for planning, the storage system is synchronized over three locations in real time. The intensive data traffic affects the network and leads to telephone interference via Voice-over-IP.

Background

The client is a general contractor in the building industry. The company has grown at a rapid pace and now currently employs around 100 workers at six sites throughout the Switzerland. The company headquarters is located in Davos, and it maintains several building sites, home-offices and sales representatives at outdoor locations in Bern and Chur.

As the company grew, it eventually reached the limits of its network through use of digitized planning and increasingly levels of data traffic. ZyXEL partner Weihrich Computer Science was commissioned to bring upgrade the network to meet modern demands and enable unimpeded voice-over-IP operation, as well as improve overall performance.

Solutions and Benefits

Five parallel WAN connections provided high stability and redundancy to several network services in this project. The project was carried out by ZyXEL solution partner Weihrich Computer Science in cooperation with a system engineer of Studerus AG, a ZyXEL local representative. The goal was to upgrade the network and enable unimpeded voice-over-IP operation, as well as improve performance. Products used in this solution include ZyXEL USG1100 and USG310 Unified Security Gateways serving as UTM firewalls, XGS3700-24 GbE L2+ Switches and NWA5123-NI 802.11 a/b/g/n Dual-Radio Unified Access Points.

Several considerations lead the client company to go from a multi-WAN infrastructure to a more well-founded solution. At the headquarters, a ZyXEL USG1100 Next-Gen Unified Security Gateway Extreme Series was in installed, which had the necessary WAN interfaces through its free configurable ports. In this particular case, there are five WAN ports that had each been configured for a single service. At the larger locations, a USG310 with three WAN-ports was used, and at smaller locations a USG110 was implemented.

This strict division offers several advantages, particularly prioritization and stability of the services. Only when a WAN interface is exhausted will the QoS prioritization utilize VoIP with conditions. Asymmetrical bandwidths and high latencies under load at the WAN connection can further compound the problem. Since server synchronization can rapidly push a WAN uplink to capacity, simultaneous operation with VoIP inevitably leads to problems that degrade the quality and speed of voice transmission.

In spite of separation on an exclusive WAN interface, VoIP determines the management of bandwidths over the ZyXEL USG solutions in order to prioritize connections for internal firewall processes. With the telephones and PBX, VoIP package are identified by means of DSCP (Differentiated-Services-Code-Point), which the firewall recognizes and prioritizes internally.

Multi-WAN offers a series of advantages. In this particular case, port 1 (Internet traffic) and port 2 (server) are configured as passive WAN trunks. During normal operation, the interfaces continue to be isolated from each other. If a link fails, another interface takes over until the original connection is restored. Moreover, the distribution over five WAN ports with DSL and cable creates very high redundancy.

For a firewall to achieve maximum protection, it is mandatory for UTM services like IDP, antivirus and content filter to be used. During the project, encrypted external connections such as OWA are checked initially only with IDP, i.e. signature-based detection. This wards off most of the attempted attacks from vulnerabilities like Poodle or Heartbleed. Access to the front-end exchange server (and from there to the actual exchange server) is then stringently controlled by all services, especially by antivirus.

Connections between the three locations are classified as "trusted" and are not checked due to this status. Connections within the "trusted" zone on the Internet order and vice versa pass the firewall and are inspected by UTM services for malicious software or attacks.

Product Used

NWA5123-NI
802.11 a/b/g/n Dual-Radio Unified Access Point

- Ceiling and wall mountable
- Plenum rated housing
- 2-in-1 standalone/managed AP design
- CAPWAP management supported
- 2.4 GHz and 5 GHz concurrent dual-band
- High-performance RF technology: Tx Beamforming and Rx Maximum Likelihood Demodulation (MLD)

XGS3700-24
24-port GbE L2+ Switch

- Full Layer 2 feature set with Layer 3 features including static routing, policy-based routing, VRRP and ECMP support
- Four (4) 10GbE SFP+ uplink flexibility
- 24 ports of Gigabit Ethernet desktop connectivity
- Hot-swappable power supply and fan modules
- Internal redundant power supply design

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USG110 and USG310
Next-Gen Unified Security Gateway
Advanced Series

- Anti-malware protection with firewall, anti-virus, anti-spam, content filtering, IDP, next-generation application intelligence and SSL inspection
- Robust SSL, IPSec and L2TP over IPSec VPN connectivity and VPN high availability (HA)
- Built-in WLAN controller for centralized AP management and effortless WLAN scalability of up to 18 APs
- Comprehensive mobile broadband USB modem compatibility and multi-WAN load-balancing, failover and fall back support

USG1100
Next-Gen Unified Security Gateway
Extreme Series

- Anti-malware protection with firewall, anti-virus, anti-spam, content filtering, IDP, next-generation application intelligence and SSL inspection
- Robust SSL, IPSec and L2TP over IPSec VPN connectivity and VPN high availability (HA)
- Unified security policy streamlines the configuration and management efforts
- Built-in WLAN controller for centralized AP management and effortless WLAN scalability of up to 18 APs

About ZyXEL Communications

ZyXEL Communications Corp., founded in 1989 and headquartered in Taiwan, is the leading provider of complete broadband access solutions. As one of the early modem manufacturers, ZyXEL has gone through transformations in the fast-paced networking industry. Delivering cutting-edge communications innovations to more than 400,000 businesses and more than 100 million consumers throughout the world, today ZyXEL is one of the few companies in the world capable of offering complete networking solutions for Telcos, small to medium-sized businesses, and digital home users for a wide range of deployment scenarios. Telco solutions include Central Office Equipment, Customer Premise Equipment, Wired and Wireless Access Network Devices, and Carrier Switches. SMB and Enterprise solutions include Unified Security Gateways, LAN Switches, WLAN, and IP Telephony. Digital Home solutions include Network Connectivity Devices and Multimedia Solutions.

The company has 1000 employees and distributors in 70 countries, reaching more than 150 regional markets. The ZyXEL Communications Corp. includes 35 subsidiaries and sales offices and two research and development centers worldwide. For more information, visit the company's Website, http://www.zyxel.com.