ZyXEL

Success Story

ZyXEL DSLAM Technology Ensures Smooth Internal Communication in Buddhachinaraj Hospital Phitsanulok, Thailand

"The old telephone system was outdated and was costly to upgrade. I needed an upgrade that uses the hospital budget efficiently. The VoIP solution from ZyXEL not only satisfied all our requirements, but also solved potential problems by handling all the additional phone lines."

Mr. Narong Oonlamai,
IT Technician,
Buddhachinaraj Hospital Phitsanulok, Thailand

Overview

Customer Name
Buddhachinaraj Hospital Phitsanulok, Thailand

Customer Industry
Health Care

Challenges
• Large-volume data transmission and recording on a daily basis
• Prompt pre-service is needed due to the nature of hospital services

Solution
IES-6000M, VOP1248G-61

Benefits
• Smoothly processes large amount of data
• Speeds up internal communications between Buddhachinaraj Hospital and other departments as well as divisions
• Reduces cost for more than 50%
• Supports future telephone service expansions

Challenges

Buddhachinaraj Hospital Phitsanulok required a PABX telephone system to ensure smooth internal communication among over 1,000 users. In preparation for increased workload, the hospital planned to install an additional telephone system capable of handling another 2,000 users. The project required a budget of more than THB 10 million for the PABX and remodeling of the existing system to cope with the new phone lines.

Background

Buddhachinaraj Hospital Phitsanulok is a General Hospital and the Royal Hospital of the Ministry of Public Health. The hospital provides medical analyses and treats various diseases at the tertiary level. The hospital is also a part of the Health Promoting Hospital project and serves under the Ministry of Public Health as a medical education institution in co-operation with the faculty of Medicine at Naresuan University. Buddhachinaraj Hospital Phitsanulok leads the cooperation between the various departments and divisions to ensure swift internal communications via the telecom system.

Solutions and Benefits

After evaluation, the current PABX was found outdated and an upgrade would require a substantial amount of budget; therefore repairing the old system is not worthwhile. Due to the lack of budget, the hospital is considering using a VoIP system. The hospital's internal communication system would need to run the new VoIP system in parallel with a PABX system to properly handle the workload. The parallel system should avoid delays and disruptions, and it should give the hospital personnel an opportunity to

gradually learn the new system before making the complete switch. The hospital must choose a system that takes value, price, maintenance and compatibility with future technology into consideration. A total of three ZyXEL MSAN IES-6000M (12.5U Central MSAN) devices and 42 48-port VOP1248G-61 VoIP line cards for the POTS subscriber interface have been adopted. These devices connected to the telephone system were divided into specific lines by department to handle multiple concurrent uses.

After implementation of the VoIP system, the telephone cost has been reduced to a half of the current THB 100,000 per month—a 50% saving. This not only helps the public to save money but also devotes the additional funding to other communication projects to cope with the expansion of the ZyXEL VoIP system.

Products Used

IES-6000M
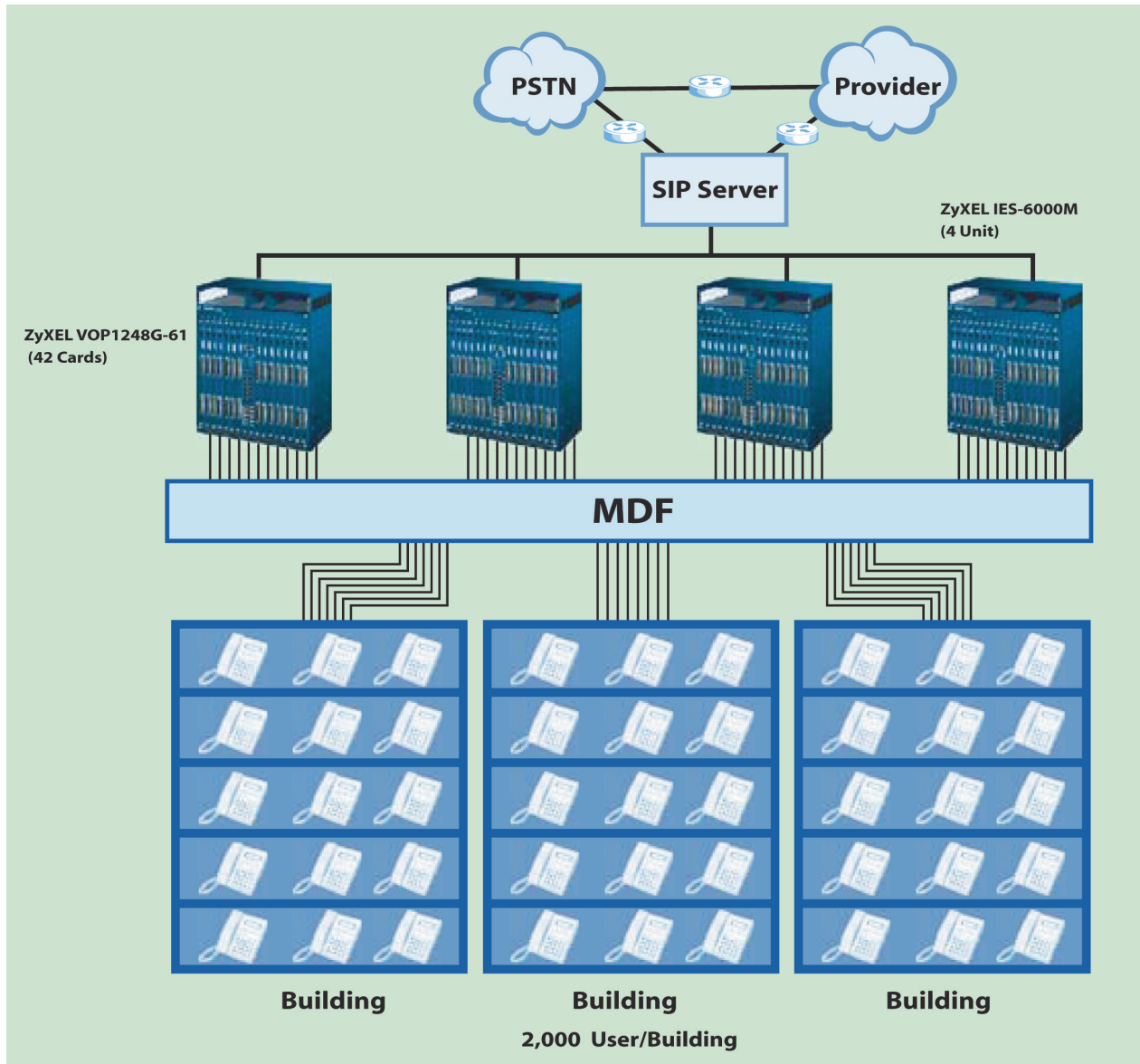### 12.5U 17-slot Chassis MSAN

- 768/1152 ports, 17 vertical slots with a maximum configuration of 1 MSC card and 16 Line cards
- Multi-service interfaces including ADSL2/2+, G.SHDSL.bis, VDSL2 and VOIP (SIP & H.248), fiber-based FE and E1 IMA
- 10G Ethernet uplinks to provide non-blocking network interfaces
- Comprehensive QoS to enhance user experience of Triple-play services
- Field proven IGMP v1, v2, v3 snooping and proxy for IPTV deployment
- Flexible ACL, VLAN-aware DHCP and Anti-IP/MAC address spoofing to prevent malicious attacks
- DHCP option 82 and PPPoE IA features support versatile IP address assignment
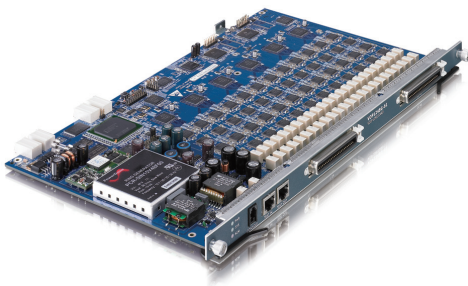
VOP1248G-61
48-port VoIP Line Card

- Supports H.248 version 2 or SIP singling protocol
- Compatible CPE include POTS phone, fax, analog modem and pay phone
- Supports G.711 a/μ, G.726, G.729 a/b G.723.1
- 20K Busy Hour Call Attempts (BHCA)
- Configurable jitter buffer
- Supports generation of dial tone, second dial tone, ringing tone (ring-back tone), busy tone, off-hook warning tone
- Supports call waiting, call hold, call transfer, return and call back on busy
- Emergency call local route
- Local dial available
- MLT (Metallic Loop Testing for subscriber lines) and GR-909 loop diagnostic

Diagram

PSTN **Provider**

SIP Server

ZyXEL IES-6000M (4 Unit)

ZyXEL VOP1248G-61 (42 Cards)

MDF

Building **Building** **Building**

2,000 User/Building