Vision VES-2500
4U Modular QAM 2-band VDSL Switch

The VES-2500 is QAM-based 2-band VDSL switch, a scalable platform for delivering VDSL service. Flexible configuration of the VES-2500 allows for maximum scalability to meet a range of requirements. It is well suited for a variety of installation scenarios including campuses, central offices, and multi-tenant unit (MTU) applications.

The VES-2500M has a 6-slot chassis, which enables administrators to add resources, as they are needed. Service providers can start with one VLC1124A VDSL line card, and add more VDSL line cards to increase deployment as the number of subscribers increase. Such flexibility minimizes the initial investment.

With the help of external Ethernet switches, the VES-2500 can be filled simultaneously with six VDSL line cards to support up to 144 subscribers. The external switches not only allow more users on one chassis, but also help increase convenience when network topology or network interfaces change. ZyXEL presents a full range of Dimension switches with different port densities and various WAN connection interfaces.

The IEEE 802 standard-based firmware in VLC1124A VDSL line card provides a rich set of features and ensures interoperability with equipments from other vendors. The firmware includes advanced features such as bandwidth management, 802.1X, IGMP snooping, and MAC address filtering to enhance service differentiation, network security and bandwidth utilization.

The advanced design of the VLC1124LA enables service providers to quickly supply broadband service to a high number of customers at lower costs than previously possible.

Benefits

External Switches Enhance Flexibility

The VES-2500 uses external Ethernet switches to aggregate traffic from different VDSL line cards. Each VLC1124LA has one Fast Ethernet interface for connecting to Ethernet switches. ZyXEL offers a full range of Dimension Ethernet switches with different port density and various WAN connection interfaces. This gives service providers a great amount of convenience and flexibility when network topology or network interfaces change.

VLAN Offers Both Security and QoS (Quality of Service)

The VLAN feature in the VES-2500 offers the benefits of both security and performance. VLAN is used to separate traffic from different users and to provide better security. Different services can be tagged and mapped into different priority queues. Thus, Quality of Service can be achieved and improved.

Multicasting Optimizes Bandwidth Utilization

Multicasting design forwards traffic only to the subscribers who request the multicast traffic. This restricts unnecessary broadcast traffic to all subscribers and optimizes bandwidth utilization for bandwidth-consuming applications such as video on demand. New mechanisms, such as 802.1p, have also emerged to ensure the quality of service.

Rate Limiting Allows Service Differentiation

In order to fulfill the needs of different customers, service providers need a network infrastructure that combines guaranteed performance and flexibility in service provisioning. Rate limiting on both Ethernet and VDSL ports allow service providers to offer tiered service.

Remote Management Minimizes the Operation Cost

In hotel applications where a Vantage SG 1000 or Vantage SG 1200 subscriber gateway is installed, remotely managing the VDSL line cards in the VES-2500 becomes a simple and easy task. The LAN device management feature in the Vantage SG 1000 and Vantage SG 1200 enables service providers to access the Dimension switches and VDSL line cards in the VES-2500 through a single IP address. Such flexibility allows for network expansion without increasing management efforts.

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F e a t u r e s

Line Cards for VES-2500M

	VLC1124A	
Interface	• 24-port VDSL • Ethernet over VDSL • One Telco-50 connector to splitter chassis • VDSL complies with 10BaseS, G.997, G.998 • Maximum transmission rate 18Mbps upstream, 16Mbps downstream • Power back-off algorithm • Fast Ethernet front access to external switch	
Maximum Power Consumption	• 30W per line card	

LED	• Status
	  Light on/off/flashing: Line card ready/not ready/booting
	• VDSL
	  Light on/off: Link on/down
	• Alarm
	  Light on: in alarm state	

L2 features	• IEEE 802.1Q tag-based VLAN
	  ▪ No. of VLAN ID: 4K
	  ▪ No. of static VLAN entries: 256
	• MAC address filtering
	• MAC counting
	• IGMP snooping; GVRP
	• IEEE 802.1p: 2 priority queues
	• IEEE 802.1x port authentication	

OAM&P	• Alarm/Status Surveillance
	  ▪ Automatic alarm and status report
	  ▪ Alarm/event history
	  ▪ LED indication for alarm and system status
	• Performance monitoring
	  ▪ VDSL line status
	  ▪ Ethernet status
	• Configuration
	  ▪ VLAN setting
	  ▪ VDSL line rate setting (bandwidth control)
	  ▪ Software upgrade through FTP
	  ▪ Default configuration
		• Security and Memory Backup
		  ▪ Support login authorization
		  ▪ Provides non-volatile memory to back-up system database
		• Self diagnostics
		  ▪ Console (mini RJ-11)
		  ▪ Web-based management
		  ▪ Standard MIB (RFC1213, 1493, 1757, 2674) and private MIB
		  ▪ SNMP manageable
		  ▪ Telnet
		  ▪ RMON (group 1, 2, 3 & 9)
		  ▪ Single IP management

Splitter Cards for VES-2500ST

	VSC1124-21	VSC1124-23
Description	• VDSL splitter card for POTS	• VDSL splitter card for ISDN
No. of channel per card	• 24	• 24
Splitter bandwidth	• DC to 20KHz	• DC to 640KHz
POTS impedance	• 900 ohm	• 150 ohm

Specifications

Physical and Environmental

VES-2500M

- 442.7(L) x 368(D) x 178(H) mm
- Rack mountable enclosure, 19" or 23" rack
- 6-slot chassis for 6 VLC1124A
- Power consumption: 400 Watts (Max.)

VES-2500ST

- 442.7(L) x 280(D) x 89(H) mm
- Rack mountable enclosure, 19" or 23" rack
- 6-slot chassis for VSC1124-21/23

Reliability

- Hot-swappable

Temperature

- Operating: 0ºC ~ 50ºC
- Storage: -25ºC ~ 70ºC

Humidity

- 5% ~ 95% (non-condensing)

Power

- 100 ~ 240VAC, 50/60Hz

Certification

EMC

- FCC Part 15 Class A
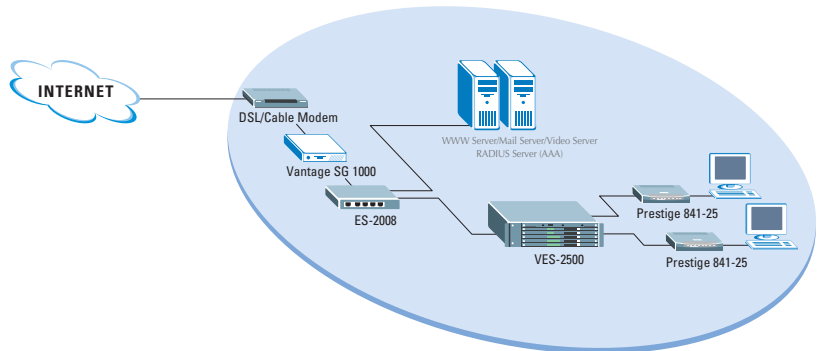- CE-EMC Class A

Safety

- UL60950-1
- CSA60950-1
- EN60950 -1
- IEC60950-1
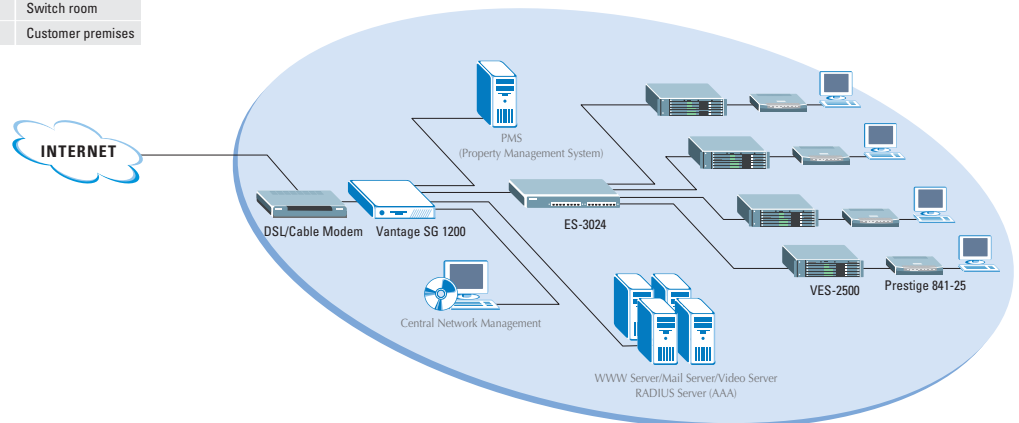- ITU-T K.21 (Version 2000)

Application Diagram

Configuration to support 144 rooms

Equipment	Product description	Quantity	Place to install
Vantage SG 1000/1200	Service gateway	1	Switch room
ES-2008	8-port L2 Ethernet switch	1	Switch room
VES-2500M	DSL concentrator (Main chassis)	1	Switch room
VES-2500ST	DSL concentrator (Splitter chassis)	1	Switch room
VLC1124A	VDSL line card for VES-2500M	6	Switch room
VSC1124	VDSL splitter card for VES-2500M	6	Switch room
Prestige 841-25	VDSL modem	144	Customer premises

Configuration to support 500 rooms

Equipment	Product description	Quantity	Place to install
Vantage SG 1000/1200	Service gateway	1	Switch room
ES-3024	24-port L2 Ethernet switch	1	Switch room
VES-2500M	DSL concentrator (Main chassis)	4	Switch room
VES-2500ST	DSL concentrator (Splitter chassis)	4	Switch room
VLC1124A	VDSL line card for VES-2500M	21	Switch room
VSC1124	VDSL splitter card for VES-2500M	21	Switch room
Prestige 841-25	VDSL modem	500	Customer premises

Prestige 841-25
Compatible CPE

Features

VDSL Interface
- One RJ-11 connector
- Ethernet over VDSL
- Maximum transmission rate 18Mbps upstream, 16Mbps downstream
- Power back-off algorithm

POTS/ISDN Interface
- One RJ-11 connector
- POTS/ISDN splitter built-in
- 4-wire POTS support

Ethernet Interface
- One 10/100 Ethernet port
- RJ-45 connector

System Control
- Firmware upgrade from VLC1124L
- Plug and play

Network Protocols
- IEEE 802.3/3u/3x
- Flow control in full duplex mode
- Back pressure in half duplex mode
- Transparent bridging

Specifications

Hardware Specification

LED and Switch
- Power: Light on & off: System on or off
- VDSL
  - Light on: Link on
  - Light flashing: link active
  - Light off: link is down or no connection
- Ethernet
  - Green light: 10M Ethernet
  - Orange light: 100M Ethernet
  - Light off: Ethernet not ready or failed
  - Light on: Ethernet link ok; color indicates if 10 or 100M LAN is on
  - Light flashing: Snd/Rcv

Power
- 110V or 240VAC, 50/60Hz

Physical Specification

Dimensions
- 181(L) x 128(D) x 30(H) mm
- Standalone box

Operating Environment

Temperature
- Operating: 0ºC ~ 50ºC
- Storage: -25ºC ~ 70ºC

Humidity
- 10% ~ 90% (non-condensing)

Certification

EMC
- FCC Part 15 Class B
- CE-EMC Class B

Safety
- UL60950-1
- CSA60950-1
- EN60950 -1
- IEC60950-1
- ITU-T K.21 (Version 2000)

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