

# **VDSL Modem XV1000**

## **User Guide**

### **- Installation & Operation**



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## **NOTE : FCC**

**This equipment has been tested and found to comply with the limits for a Class B digital device, Pursuant to Part 15 of the FCC rules.**

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following Measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**CAUTION:** Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment

## **NOTE : UL**

### **Do not use upside down.**

Operator or installer must remove power and TNV connections before handling the equipment.

Caution – To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

## Chapter 1. Introduction

This chapter explains major features, operation procedure, hardware configuration and specification of XV1000, the DXO VDSL Modem.

- Introduction of XV1000 VDSL Modem
- Name and function of each part
- Specification of XV1000

### 1. Introduction of XV1000 VDSL Modem

XV1000 VDSL modem allows the PC to connect to the internet or other multimedia service network using the conventional telephone network (PSTN).

Unlike the ADSL modem, XX1000 provides 10Mbps data transmission rate. Telephone conversation is never interrupted while the modem is in use.

Features that XV1000 offers are as follows:

### 2. Applications

Features that XV1000 offers include connection to the internet, interactive communication, e-mails, file transfer, download/upload of motion pictures and others.

### 3. Easy Installation

Installation of XV1000 is so simple that users can connect to ISP's and enjoy the internet service very easily.

### 4. Low Cost

XV1000 VDSL modem uses the conventional telephone network (PSTN) so there is no need for huge amount of money nor time required for building new infra-structure installation often required for other type of technologies, like optical cable network. Therefore XV1000 is a very cost effective solution.

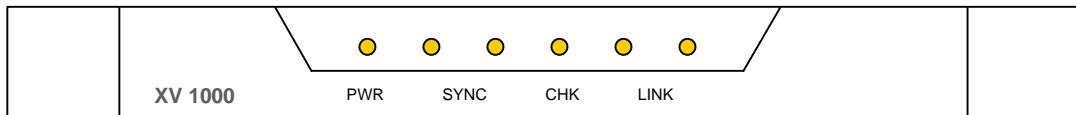
### 5. Application Area

VDSL has many application area and offers business opportunities for high speed internet service providers, e-commerce, construction companies and MDU - hotel, apartment complex, office buildings and campus.

## 6. Name of each part and function

### Front

#### XV1000 VDSL Modem Front Panel

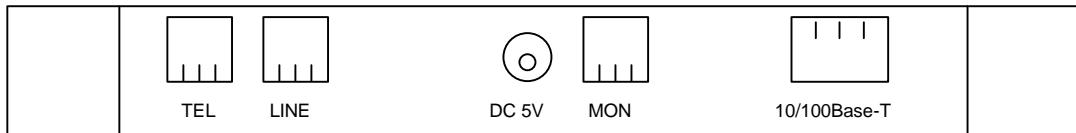


#### LEDs of XV1000 VDSL Modem

Indication	Color	Function
PWR	green	lit while AC input power is normal.
SYNC	green	lit while connected to the VDSLAM
CHK	red	flashes when error occurs in data communication with VDSLAM
LINK	green	lit while connected to the PC
RD	green	flashes while data is received from the PC
TD	green	flashes while data is received from the VDSLAM

### Rear

#### XV1000 VDSL Modem Real Panel



#### Function of XV1000 VDSL Modem Port

Indication	Port	Function
TEL	Telephone	Telephone is connected.
LINE	VDSL line	RJ-11 cable is used to connect the modem to the telephone socket on the wall. VDSL data is received/transmitted over this port.
DC 5V	Power input	Power adaptor (AC 110V/220V, DC/5V) is connected.
MON	Serial (RS232C)	This port is used by the service personnel for the maintenance of the modem.
10/100Base-T	Ethernet	PC LAN card is connected using UTP Category-3,4,5 Straight-through cable. 10/100Mbps speed is supported.

## 7. XV1000 VDSL Modem Specification

Item	Specification	
Modulation	QAM	
Duplexing	FDD	
Data Transmission	Symmetric/Asymmetric	
Speed (DSLAM-Modem)	Downstream: max 10 Mbps, Upstream: max 10 Mbps	
Standards	ANSI T1E1.4, VDSL Coalition, FSAN	
Interface	Ethernet Port : RJ-45 (10/100Base-T) POTS Line : RJ-11 VDSL Line : RJ-11 Console Port : RJ-11	
Error detection	Reed-Soloman	
Size	152 (w) x 172(d) x 32(h) (unit: mm)	
Power	Input : AC 110/220V Frequency : 50/60 Hz Output : 5V DC	

## Chapter 2. Before Installation

Explained in this chapter are issues that users should take note of before installing the modem. This chapter includes the following sections:

- Safety Check
- Before installation
- Preparing cables

### 1. Safety Check

The following items should be checked before the installation and use of the modem.

#### Electrical safety

- Customers shall not disassemble the unit in any case, especially when the power is being applied.
- Ensure that there are no such matters that may pose danger to the installer in the installation area: wet floor, ungrounded cable, worn-out power cords, floor without proper ground.
- “This equipment does not directly connected to ISDN/PSTN line”
- “This equipment should be connected to XV2000 only.”

#### Site of Installation

- During the operation of electrical devices, heat is inevitable. Ensure that the device is installed in such an environment that proper ventilation will be able to dissipate heat, otherwise the device may not function properly.

## 2. Telephone Network Service/PC Specification

### Telephone Network Service

XV1000 VDSL modem is to be used in areas where telephone network service is provided. Users already subscribed to the telephone service can use the telephone line as it is. New users need to ask the regional telephone company for the telephone service and should have lines installed.

### PC Specification

To connect XV1000 to the PC, a LAN card (10Base-t or 10/100Base-T) must be installed inside the PC.

### 3. Preparing Cables

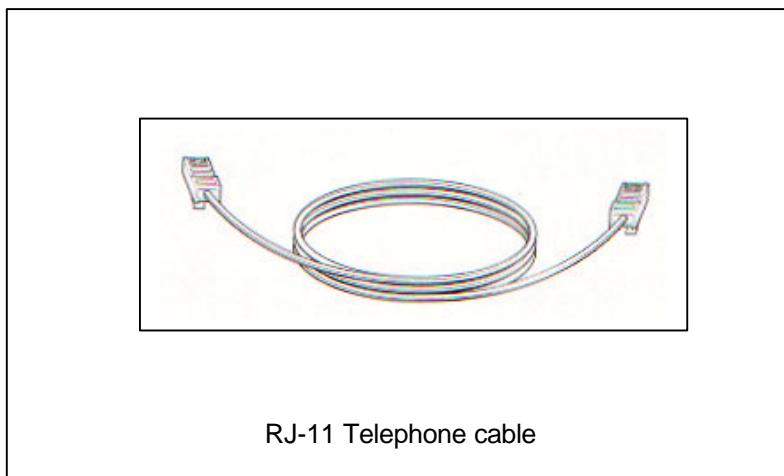
To connect XV1000 to the network, the following cables are required for each port.

#### Cables used for XV1000 VDSL modem

port	cable
Telephone line	RJ-11 cable
Ethernet (10/100Base-T)	RJ-45 UTP category-3,4,5 Straight-through cable
Console	RJ-11 cable

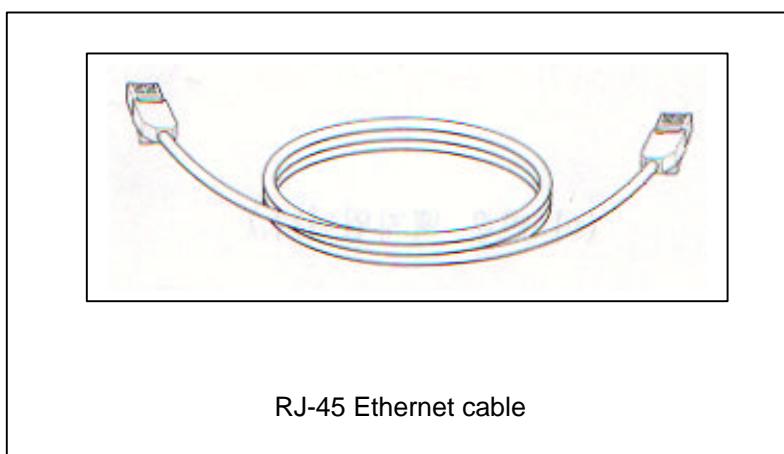
#### RJ-11 Telephone Cable

One end of the RJ-11 telephone cable is connected to the telephone line port at the rear panel of the XV1000 and the other end is connected to the telephone.



#### RJ-45 UTP Ethernet Cable

One end of RJ-45 UTP Ethernet cable is connected to the Ethernet port (10/100Base-T) at the rear panel of XV1000 and the other end is connected to the LAN card of the PC.



Cables may look alike but they can be of totally different type or they may have different pin configuration. To avoid any confusion, attach labels to the cables for the XV1000 so that cables for XV1000 and other electrical equipments will not mix.

## Chapter 3. Installing XV1000 VDSL modem

This chapter explains the environment where the XV1000 can be installed and the method to install and connect the modem to the network.

This chapter includes the following sections:

- Installation environments
- Packing list
- Modem installation

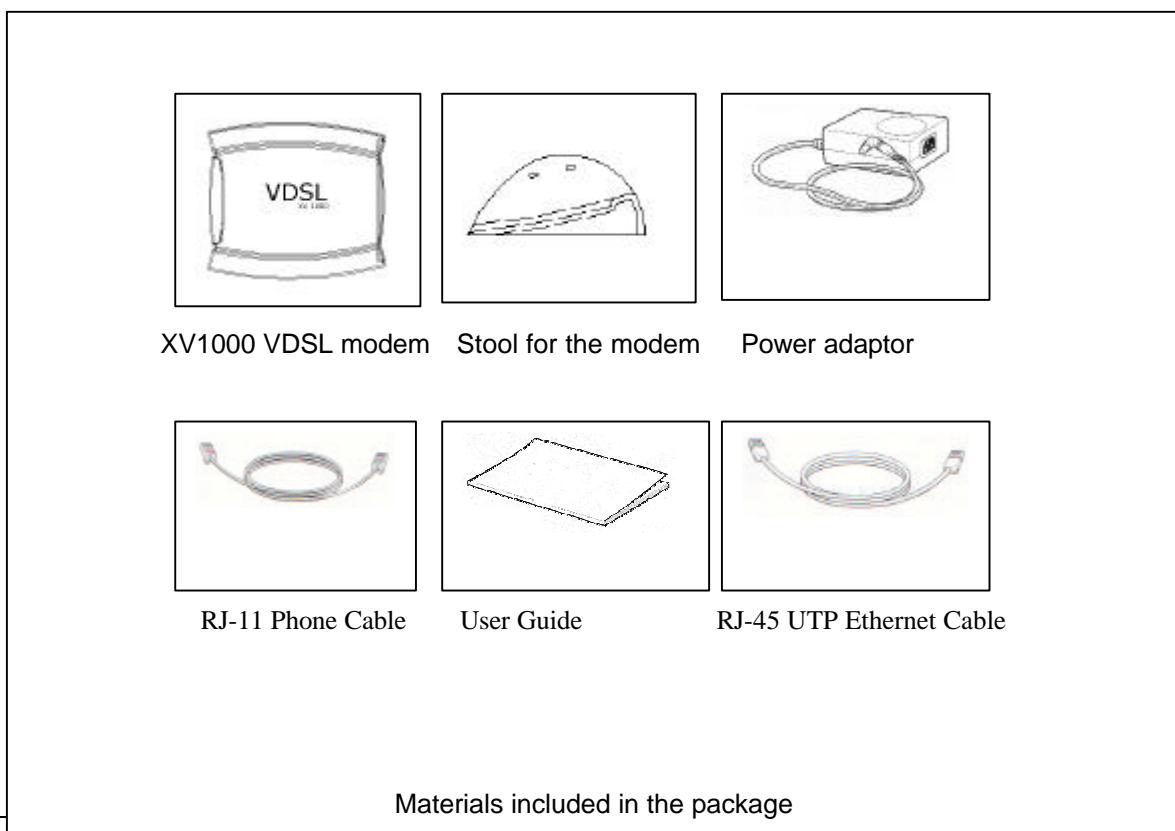
### 1. Environment

Operating Temperature	: 0 ~ 45°C
Relative Humidity	: 10 ~ 95 % (non-condensing)
Power Consumption	: 2.5 Watts (max)
AC Power Input Voltage	: AC 110/220V
AC Power Input Frequency	: 50/60 Hz

### 2. Packing list

Please ensure that the following materials are included in the packing box.

- XV1000 VDSL modem
- Stool for the modem
- Power adaptor
- RJ-11 telephone cable
- RJ-45 UTP Ethernet cable
- User Guide



### 3. Modem Installation

Following is the procedure to configure the network using XV1000.

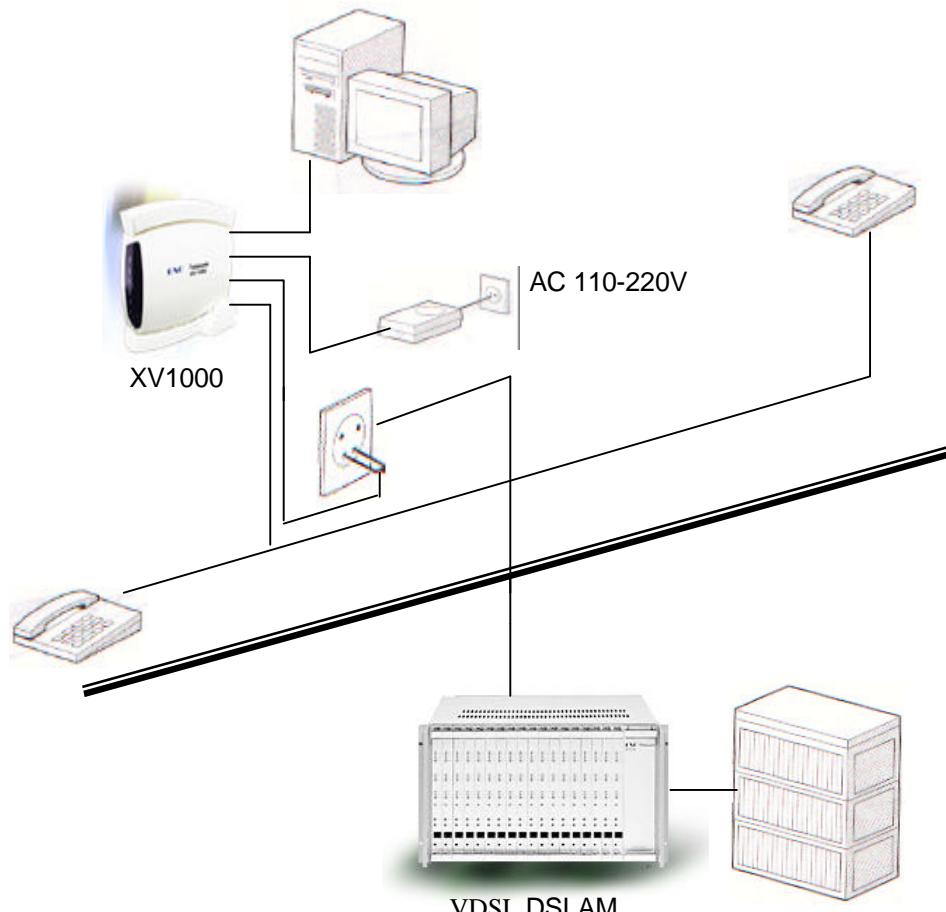
- .. ¢ Drawing network configuration diagram.
- .. ¢ Installing the stool.
- .. ¢ Disconnecting the power cord
- .. ¢ Connecting the telephone cable
- .. ¢ Connecting the PC
- .. ¢ Applying the power
- .. ¢ Checking the connection status

#### .. ¢ Drawing network configuration diagram

It is recommended that the network configuration diagram be drawn first before the actual installation. The following issues must be taken into consideration.

- What is the purpose of using XV1000?
- Will the XV1000 and telephones be used together?
- All the equipment necessary are ready? (PC, telephone, network cable and others)

The following figure is an example of VX1000 connected to the PC and the telephone. Please draw your own diagram appropriate for your purpose.

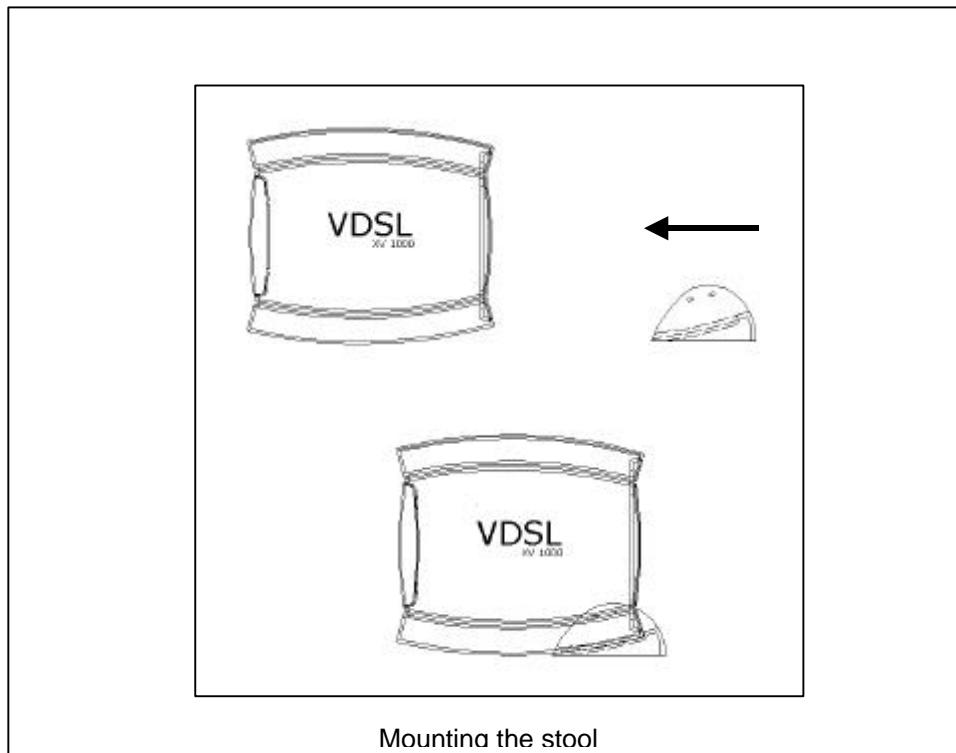


Example: Network configuration diagram

## “ è **Installing the stool**

To use the XV1000 in its vertical position, install the stool at the side of the modem in the following manner.

1. XV1000 VDSL modem has groove at the right rear side. Slide the stool into the groove..
2. When installed correctly, the printed letters 'VDSL' can be read. If the stool is inserted in the wrong side, then the letters are placed upside-down.



## “ è **Disconnecting the power cord**

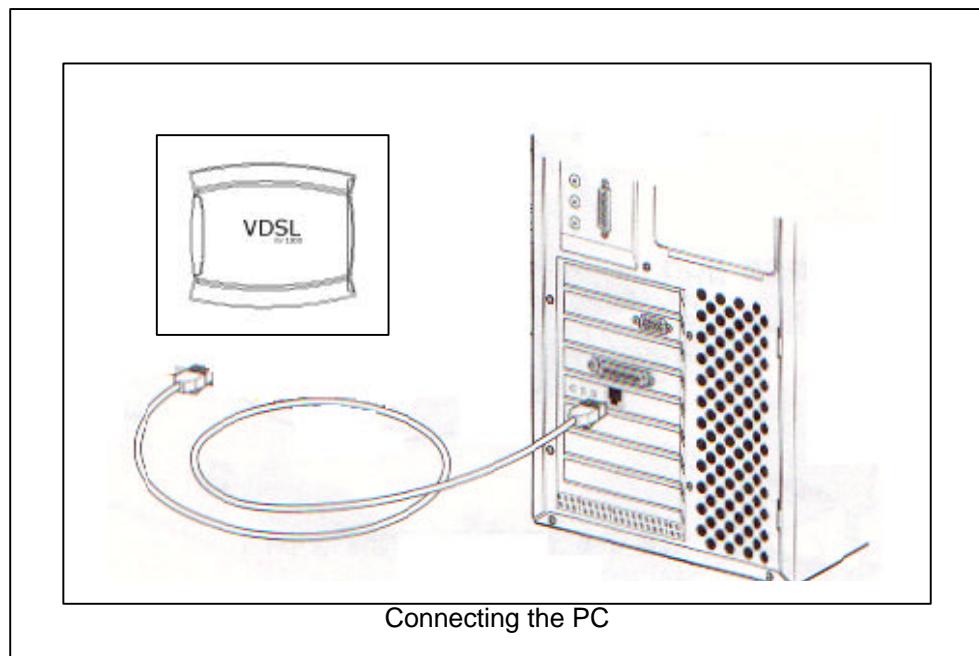
Unplug the adaptor jack from the power input port to disconnect power to the modem, or unplug the power cord of the adaptor from the AC power outlets.

## “ è **Connecting the telephone line**

1. Unplug the telephone lines from the wall in the room and plug it into the line port of XV1000 modem.
2. Connect one end of the RJ-11cable to the telephone and the other to the telephone port of XV1000 modem.

## “ e Connecting the PC

Connect one end of the RJ-45 UTP Ethernet cable to the Ethernet port (10/100Base-T) of XV1000 and the other to the LAN card of the PC.



- The PC connected to the XV1000 should have LAN card supporting 10Mbps or 10/100Mbps. Please refer to the manuals provided with the LAN card for details on installing the LAN card into the PC.

## “ i Applying power

Connect the power adaptor to the XV1000 modem power input port (DC 5V) and plug the power cable into the power outlet. Now the installation is completed.

- Only the power adaptor provided with the XV1000 modem shall be used.

## “ i Checking the connection status

The cable connection to each XV1000 modem port can be checked and verified in the following way.

### **VDSL line connection status**

VDSL line connection is successful if the SYNC LED is lit within a few seconds after power is applied to the XV1000 modem.

### **PC connection status**

PC connection is successful if the LINK LED of the XV1000 modem and the LINK LED on the LAN card of the PC turn on green.

## Telephone connection status

Telephone connection is successful if normal dial tone is heard when the handset is lifted and if speech can be heard without cross-talk during the conversation over the phone.

# Chapter 4. Trouble Shooting

This chapter explains problems that may arise during the operation and suggests solutions.

This chapter include the followings:

- Items to check before asking for technical support
- Problems and solutions

## 1. Items to check before asking for technical support

Please ask for technical support if problems occur while in use that cannot be resolved by customers. The followings need to be checked by users before contacting the technical support group.

- Product model name
- Product serial number
- Date of product installation
- Problem description
- Actions taken by customers to resolve the problem and the results

## 2. Problems and solutions

Problems that may arise are categorized with explanations and the solutions are suggested.

### Category of problems

- Problems related to power
- Problems related to network connection

#### Problems related to power

- ✓ PWR LED does not turn on green after the power adaptor is connected and power cable is plugged into the power outlet

Check followings:

- Check power outlet.
- Unplug the power jack from the power input port (DC 5V) at the rear panel of the XV1000 modem and plug the jack again.

If the problem does not get resolved, please remove the jack from the power input port of XV1000 right away and call the service center.

#### Problems related to network connection

- ✓ Internet connection fails.
- ✓ SYNC or LINK LED does not turn on.

Please check the followings:

- Check the cable connection between the XV1000, telephone and PC.
- Check the status of the LAN card of the PC.
- Check if the PC itself is working properly.

- Check if the IP address is correct for the network connection service.

If the problem does not get resolved, please remove the jack from the power input port of XV1000 right away and call the service center.

## Chapter 5. Glossary

<b>10Base-T</b>	A 10 Mbps Ethernet LAN that runs over twisted-pair wiring. This network interface was originally designed to run over ordinary twisted-pair (phone wiring) but is predominantly used with Category 3 or Category 5 cabling.
<b>VDSL</b>	Very High Data Rate Digital Subscriber Line VDSL can service both voice and high speed data simultaneously. A technology that delivers 13 to 52 Mbps downstream and 1.5 to 2.3 Mbps upstream over a single copper twisted-pair. The operating range of VDSL is limited to 1,000 to 4,500 feet (304.8 to 1,372 meters) from the CO.
<b>Ethernet</b>	A type of network that supports high-speed communication among systems. It is a widely implemented standard for LANs developed by Xerox, Intel and DEC. All hosts are connected to a coaxial cable where they contend for network access using a Carrier Sense, Multiple Access with Collision Detection (CSMA/CD) paradigm.
<b>IP Address</b>	Any computing device that uses the Internet must be assigned an Internet or IP address. This 32-bit number is written in 4 decimal fields or "octets" separated by periods, e.g., 192.9.200.1. All workstations on a given IP network use the same IP network number, and each workstation has a unique IP host address and an optional subnetwork number. The network and subnetwork numbers together are used for routing, while the host number is used to address an individual host within the network or subnetwork. A subnet mask may be used to extract network and subnetwork information from the IP address.
<b>Switch</b>	Switch is a device that filters and transmits frame according to the destination address of each frame. Switch operates in the data link layer of the OSI layer model.
<b>TCP/IP (Transmission Control Protocol/Internet Protocol)</b>	Transmission Control Protocol/Internet Protocol. The dominant protocol suite in the worldwide Internet, TCP allows a process on one machine to send data to a process on another machine using the IP. TCP can be used as a full-duplex or one-way simplex connection.
<b>PSTN</b>	Public Switched Telephone Network. A network shared among many users who can use telephones to establish connections between two points. Also known as dial network.
<b>POTS (Plain Old Telephone Service)</b>	Plain Old Telephone Service. Standard telephone service over the PSTN, with an analog bandwidth of less than 4 KHz. This term commonly refers to standard telephony, as in placing and receiving telephone calls. This is more or less interchangeable with PSTN (Public Switched Telephone Network). A POTS splitter enables both DSL digital data and standard telephone analog transmissions to share a single connection. The only name recognized around the world for basic analog telephone service. POTS takes the lowest 4kHz of bandwidth on twisted pair wiring. Any service sharing a line with POTS must either use frequencies above POTS or convert POTS to digital and interleave with other data signals.

<b>WW (World Wide Web)</b>	An Internet facility that links documents locally and remotely. The Web document, or Web page, contains text, graphics, animations and videos as well as hypertext links. The links in the page let users jump from page to page (hypertext) whether the pages are stored on the same server or on servers around the world. Web pages are accessed and read via a Web browser, the two most popular being Internet Explorer and Netscape Navigator.. In the last half of the 1990s, the Web became "the" center of Internet activity, because the Web browser provided an easy, point and click interface to the largest collection of online information in the world. Ever since the Web became the focal point of the Internet, the amount of information has increased at a staggering rate. The Web has also turned into an online shopping mall as almost every organization has added e-commerce capabilities. In addition, the Web has become a multimedia delivery system as new browser features and plug-in extensions allow for audio, video, telephony, 3-D animations and videoconferencing. Most browsers also support the Java language, which allows applications to be downloaded from the Net and run locally. The <b>www.</b> prefix used on most Web addresses is actually the mnemonic name of the Web server used at the Web site. Most Webmasters name their servers WWW in order to provide a recognizable address for everyone. Web addresses (URLs) are read from right to left, so that the WWW is the last component of the address, which is the name of the Web server itself.
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