

Module - 2

1. What is SOHO network?

- SOHO (Small office and home office Networks)
- It allows computers in a home office or remote office to connect to corporate network, over access centralized shared resources.
- It is a LAN (Local area network) mainly referred to as a business category involving a small number of workers usually from 01 to 10.
- SOHO provides a lot of features and benefits such as easy to use and setup networks etc.

(2) What is NAT?

NAT (Network Address Translation) is process in which one or more local IP address is translated into one or more global IP Address and vice versa in order to provide Internet access to the local hosts.

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- Also, it does the translation of port number, i.e. masks the port number of host with another port number, in the packet that will be routed to the destination.
 - It then makes the correspondence entries of IP address and port number in the NAT table.
 - NAT generally operates on a router or firewall.

(3) What is PAT?

- Port address translation (PAT) is function that allows multiple users within a private network to make use of a minimal number of IP addresses.
- Its basic function is to share a single IP & public address between multiple clients who need to use the internet publicly. It is an extension of network address translation (NAT).
- Port address translation is also known as overload or port over-

(4) Difference between NAT & PAT?

NAT	PAT
→ NAT Stands for Network Address Translation.	→ PAT Stands for Port Address Translation.
→ In NAT, Private IP addresses are translated into the Public IP address.	→ In PAT, Private IP addresses are translated into the Public IP address via port numbers.
→ NAT can be considered PAT's superset.	→ PAT is a dynamic NAT.
→ NAT uses IPv4 address	→ PAT also uses IPv4 address but with port numbers.
→ It has 3 types: static, dynamic NAT and overloading/masquerading.	→ It also has 3 types: static PAT/NAT and overloaded PATs.

(6) What is ACL?

- Access-list is a set of rules defined for controlling network traffic and reducing network attacks.
- ACLs are used to filter traffic based on the set of rules defined for the incoming or outgoing of the network.
- Once the access-list is built, then it should be applied to inbound or outbound of the interface.
 - Inbound access lists
 - When an access list is applied on inbound packets of the interface then first the packets will be processed according to the access list and then routed to the outbound interface.
 - Outbound access list
 - When an access list is applied on outbound packets of the interface the packet will be routed and then processed at the outbound interface.

(6) What are different types of ACL ?
What is Wildcard mask ?

→ Different Types of ACL

- Standard Access-list

These ACLs permit or deny the entire protocol suite.

- Extended Access-list

These are the ACL that uses Source IP, Destination IP, Source Port, and Destination port.

These types of ACL we can also mention which IP traffic should be allowed or denied.

Two Categories of access-list

1. Numbered Access-list

2. Named access list

1. Numbered access list are access list that cannot be deleted specifically once created i.e. if we want to remove any rule from any Access-list then this is not permitted in the case or the Numbered access list will be deleted.

2. Named access list

- In this type of access list, a name is assigned to identify an access list.

(7) Explain Circuit Switching.

Wildcard Mask.

- Wildcard masks are used to specify a range of network addresses.
- They are commonly used with routing protocols and access lists.
- Just like a Subnet mask, a WildCard mask is 32 bits long.

(7) Explain Circuit switching.

- Circuit Switching is a type of network configuration in which a physical path is obtained and dedicated to single connection between two endpoints in the network for the duration of a dedicated connection.
- Ordinary Voice Phone Service uses circuit switching.

→ In Circuit Switching, the bandwidth and data transmission rate are fixed.

→ Circuit Switching is Connection-oriented. Making a physical connection between hosts is required for it to work.

8) What is difference between leased line and broadband?

→ Broadband

Leased line.

- Asymmetric speed.
i.e. higher download speed than upload speed.

- Symmetric speed.
i.e. same download speed than upload speed.

→ Lower Performance High Performance than Leased line.

→ Bandwidth is shared across multiple customers.

→ Bandwidth is dedicated to a customer.

→ Shared connection between customer premises and provider premises and local exchange.

→ Dedicated connection between customer and provider local exchange.

Broadband

Leased line

- Low Reliability → High Reliability.
- Very few options → option of Unlimited or Unlimited Usage Usage plans.
- Generally public IP is not provided for using - customer own web facing applications like web server etc.
- Public IP are generally provided for using customer own web facing applications like web server etc.

- Less preferred for voice and video traffic.
- Preferred choice for voice and video applications.
- cheaper cost than Leased line.
- costlier than Broadband connection.
- There is quite a probability of data breach and security issues.
- there is a very less chance of data breach or any other security issues.

(9) Practice on Printer sharing.

1. Install the printer drivers.
2. Open the Control Panel.

3. Open the Network and Sharing Center.

4. Click the "Change advanced sharing settings" link.

5. Expand the profile you need to change.

6. Enable "File and Printer Sharing".

7. Toggle the Password Protection.

8. Share the Printer.

10) Use of IIS.

- IIS uses various protocols for communication, and data exchange with remote clients over computers, such as HTTP, SMTP, and FTP.
- IIS uses for website hosting.
- Logging.
- Use for native support.

11) What is Ping. ?

- Ping (Packet Internet Groper), is a method for determining communication latency between two networks.
- Simply Put, Ping is a method of determining latency or the amount of time it takes for data to travel between two devices or across a network.
- A low ping this is critical in situations where the timely delivery of data is more important than the quantity and quality of desired information.

12) What is Traceroute. ?

- Traceroute is a widely used command-line utility available in almost all operating systems.
- It shows you the complete route to a destination address.

→ It also shows the time taken between intermediate routers.

13) What is nslookup?

- Nslookup is the name of a program that lets users enter a host name and find out the corresponding IP address or domain name system(DNS) record.
- Users can also enter a command in nslookup to do a reverse DNS lookup and find the host name for a specified IP address.
- Network administrators use nslookup to troubleshoot server connections or for security reasons.

Example of nslookup cmd

/server name

/root

/set type = X

/exit

14) Explain Core Switches.

- A Core Switch is a high-capacity switch generally positioned within the backbone or physical core of a network.
- Core Switches serve as the gateway to a wide area network or the internet. They provide the final aggregation point for the network and allow multiple aggregation modules to work together.
- A Core Switch is also known as a tandem switch or a backbone switch.

15) What is network management?

- Network management is the procedure of administering, managing and working a data network using a network management system.
- Current network management systems use software and hardware to constantly collect and analyse data and push out configuration change for

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increasing performance, reliability, and security.

→ It involves Configuring monitoring and possibly reconfiguring components in a network with the goal to providing optimal performance, minimum downtime, proper security, accountability and flexibility.

16) Explain Event Viewer

→ The Event Viewer is a Microsoft Management Console (MMC) Snap-in that enables you to browse and manage event logs. It is an indispensable tool for monitoring the health of systems and troubleshooting issues when they arise.

* Event Viewer enables you to perform the following tasks:

- Views events from multiple event logs.
- Save useful event filters or custom views that can be reused.
- Works with event logs on remote computers.

17) Practice "Parental Control" or "Family Safety" option in Control Panel.

→ Select Start and choose Setting to launch the windows Settings app.

→ Select Accounts.

→ open Control Panel, you can search for it from the Start Screen or from the Desktop Dashboard.

→ Select User Accounts And Family Safety, then choose Set up parental controls for any user.

→ Select the Child's account.

→ Under Parental Controls, choose Enforce Current Settings.

→ Under Activity Reporting, choose Collect Information About PC Usage.

- Select the links provided for the following options and configure as desired.
- o - Web filtering to block certain websites and prevent downloads.
 - Time limits
 - windows store and Blame restrictions
 - APP restrictions.
- You'll receive an email that includes information about the Microsoft Family Safety login page.

(8) What is a network Vulnerability?

- A network Vulnerability is a weakness or flaw in software, hardware or organizational processes, which when compromised by a threat, can result in a security breach.
- Nonphysical network Vulnerabilities typically involve software or data.
- Physical network Vulnerabilities involve the physical protection of an asset such as locking & security.

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19) What are the types of network security attacks?

→ The 10 most common way of ~~attack~~. Cybercriminals can attempt to target your network.

- Trojan Horse.
- Malware.
- Botnet
- Man in the middle.
- Packet sniffer.
- IP Spoofing.
- Denial of service
- Distributed denial of service
- Worm
- Virus.

→ Cyber Criminals have modified their network attack strategy because of an increasing public understanding of the importance of keeping online transactions and documents safe.