Date: 11.24 Computer Networking.

Devices:

Firewall: It comes after routers.

⊞ + r: firewall.cpl ↵ (enter). will open the firewall.

firewall does different type of filtrerations.

Advanced setting (click).

→ Inbound Rules. (when applic. install then allow them/deny them.

→ To disable m-torrent (rt. click → disable).

Same in outbound.

Allow/Deny. These are rules on basis of which it allow/deny the send/receive data packets.

There are H/w firewalls also.

Open Google: cisco.Asa.firewal search.

dee the image: This is a 9500series firewall has only RJ45 ports in it. These are very costly due to Cisco is worlds no. 1.

It provides connectivity and provide special facility to filter data, we implement on basis of parameters that we do on our requirements

(i) IP address

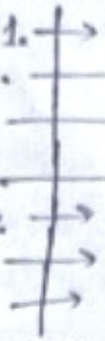
(ii) services related to some protocols (protocol has a no; Telnet port no. 23). To block website on basis of protocol: To not open http protocol then close port no. 80. In some cases.

Rules : On basis of Mac we do blocking ip.
On basis of ip Then user will change ip.
Then Mac also changed by mac id.
Then : make user id.

To secure the in, out then services are blocked!

Firewall

(i) Provides security
(ii) Security Parameters.



(iii) It can allow / deny the data packets.
(iv) It can be implemented at the boundary of the network or inside the network.
(v) Types of firewall:
(i) H/w based : eg Cisco ASA 5500 firewall.
(ii) Application based : eg : Windows ~~Defender~~ Defender.

Application based has inbound / outbound rules

new rule:

Program.
port
predefined
◉ custom.
→ To revoke all program
→ To revoke a particular program.
→ To find path of OS / program in C drive and then in programfiles.

C:\ Prog Files\ AnyDesk \ AnyDesk. select and put in that set on all programs.

Then it asks the port no. for protocol wise in the list: we set Any.

Then on Ip based: Specify the i.p address.

we need to define for Specific Ip: Add an ip

→ 192.168.10.20 is the i.p of that machine.

→ or define the range of i.p

Then next: Do you need to Allow / Block / Allow if secure. Then block.

If site is domain based.

If private network.

If public network: It asks a rule:

AnyDesk Cimage, write description, finish.

In the inbound Rules: It shows blocked and status: block.

Then we make the outbound Rule

To configure on cisco, we need commands in ACL Access control list to configure the h/w firewall.

The ACL has 2 types:

Standard ACL & Extended ACL. The setting of firewall is seen in Antivirus, where that Antivirus will restrict the sites. The Router also has firewall (write Keywords of the site to block). firewall will not scan the data packet.

Antivirus will scan the data packet to see vulnerability.

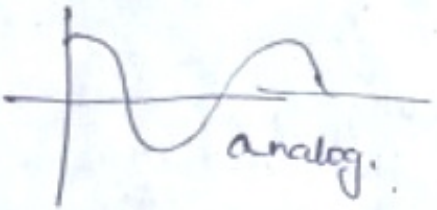
MTU firewall made by a company claims to scan the packets of data and block if required. Cisco has not this facility.

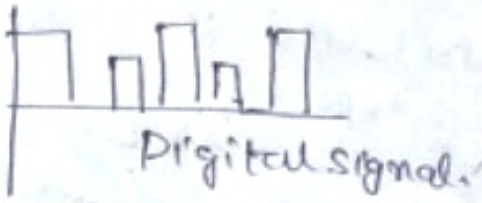
Antivirus will block site, if it is finding the data packets to be suspicious. If we see that attacks are coming from a site, then we create the rule to close the connection from that source in the firewalls.

Mode of Transmission:
All the media and the devices needed a path is established. How is Transmission done?
for transmission, a carrier signal is needed
(i) analog signal.
(ii) digital signal.

analog signal: The computer is digital:
The internet connection is analog.
The intermediate device that interconnect the digital and analog signal is required refer to call as: Modem.

Analog signal travels in form of waves (sine-wave).
Digital signal makes the square wave discrete. pattern.
Digital signal and Analog Signal. (images).





There are many ways of conversion of one form to other form.
for that line coding is done.

Manchester encoding Analog to Digital.
Shift Keying is done in digital to analog. conversion
Pulse code modulation (analog) to digital Conversion.

The Transmission run in 3 modes

Simplex	Serial
half duplex.	parallel.
full duplex	Synchronous
	Asynchronous.

(i) Simplex mode: One-way
One is sender, Other is forever receiver.
T.V channel, Radio (sender); user (receiver)

(ii) half-duplex: Both direction communication
Transmit and Receive but One process at
one Time. The device: Hub will work in
halfduplex. Either will send/receive.
walki-talki is also an eg.
If communication is done through hub. Then
done in half duplex mode.

(iii) send-receive (both) at a time. is the full
duplex. The Switch and Router are the device
that follow the full duplex mode.

In simplex: one way; one time receive/send
In half duplex: one node can receive/send at a time
In full duplex: One node can send/receive at the
same time.