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A firewall acts as a security guard controlling access between an internal protected network and an external untrusted network based on a given security policy. It helps prevent confidential inside data leaking out. ~~IT~~

There are 3 types of firewall :

1) Packet filters

- It checks for matches in the IP, TCP and UDP headers.
- It is often performed by the border routers or access routers.

2) Stateful inspection

- Here packets' TCP flags and request/ack numbers are used to check its authenticity.
- Drops the packet if the integrity fails.

3) Application level

- It is also called as deep inspection firewall.
- A proxy layer is setup between the client and server.
- It checks the application layer for worms, virus, spam, etc.
- To the client proxy appears as server and vice versa.

2)

Packet filters

1) Simple and least secure

2) Many routers provide this functionality

3) Passes or drops packets based on rules

4) Hard to manage

5) Easy to make mistakes

Application gateway

1) Most secure approach

2) Unique program for each application

3) Good for authentication and logging

4) Not always transparent to users

5) used in email, FTP, TELNET, WWW

3)

Antivirus

1) Implementations are found only in software.

2) Scans corrupt files & software

3) counters internal & external threats

4) No counter attacks are possible after malware removal

5) Basis of attack inspection on malicious software lying on a computer

Firewalls

1) Implementation in both hardware & software.

2) Monitor and filter operations

3) counters external threats only.

4) IP spoofing and routing attacks vulnerable

5) Incoming packets

④ Functionality of a firewall :

1) Access control

It filters incoming and outgoing packets

2) Address port translation

Providing a set of private addresses that could be used by system admins on their ~~system~~ internal networks but are globally invalid

3) Logging

It keeps track of all incoming and outgoing packets

4) Authentication, caching

It can be used for auth. and caching purposes also.