

Infrastructure Security

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Element of Infrastructure

Workstation

Hub

Router

Server

Repeater

Access point

Interface

Bridge

Firewall

Switch

Modem

Workstation

Victim of cyber attack

- Its work can be canceled
- Its program can be delete or modified
- Its data can be lock, delete or modified

Actor of cyber attack

- It will be member of robot group
- Can injects virus to the other computer

What can we do for protection?

- Use only necessary communication protocol
- Close all shared recourse if not necessary
- Use strong password
- Clear unnecessary user definition
- Use several antivirus program and update them periodically
- Update operating system periodically
- Do not open suspicious e-mail

For recovery

- Image copy of disk
- Copy of all data, documents, drawing, etc.
- Copy of all programs
- Copy of photos and films

Server

Victim of cyber attack

- Its work can be canceled
- Its program can be delete or modified
- Its database can be lock, delete or modified
- Beware of bomb program

Actor of cyber attack

- Its will be member of robot group
- Can injects virus to the other computer

What can we do for protection?

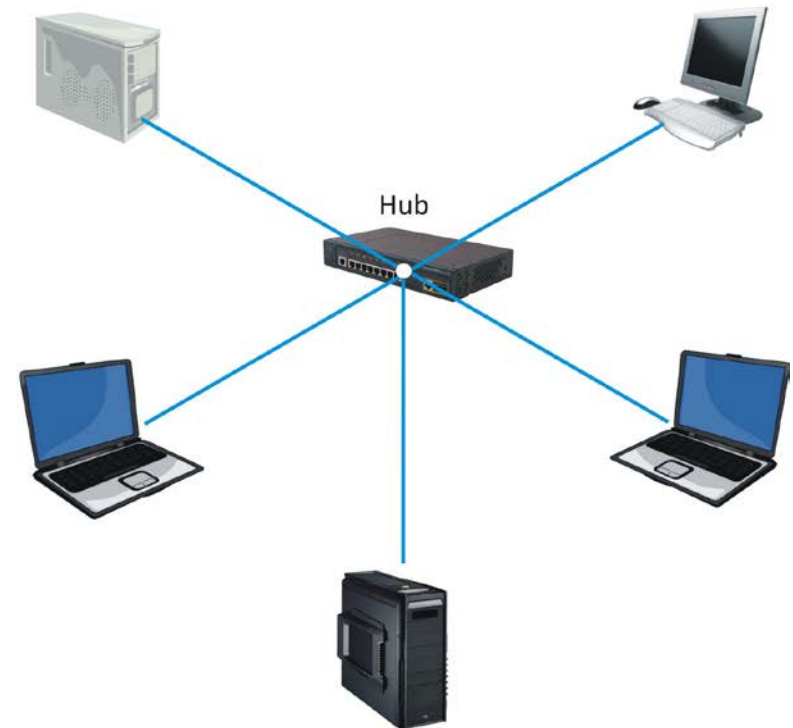
- Use only necessary communication protocol
- Close all shared recourse if not necessary
- Use strong password
- Clear unnecessary user definition
- Use several antivirus program and update them periodically
- Update operating system periodically
- Apply physical securty

For recovery

- Image copy of disk
- Copy of all data, documents, drawing, etc.
- Copy of all programs
- Copy of photos and films

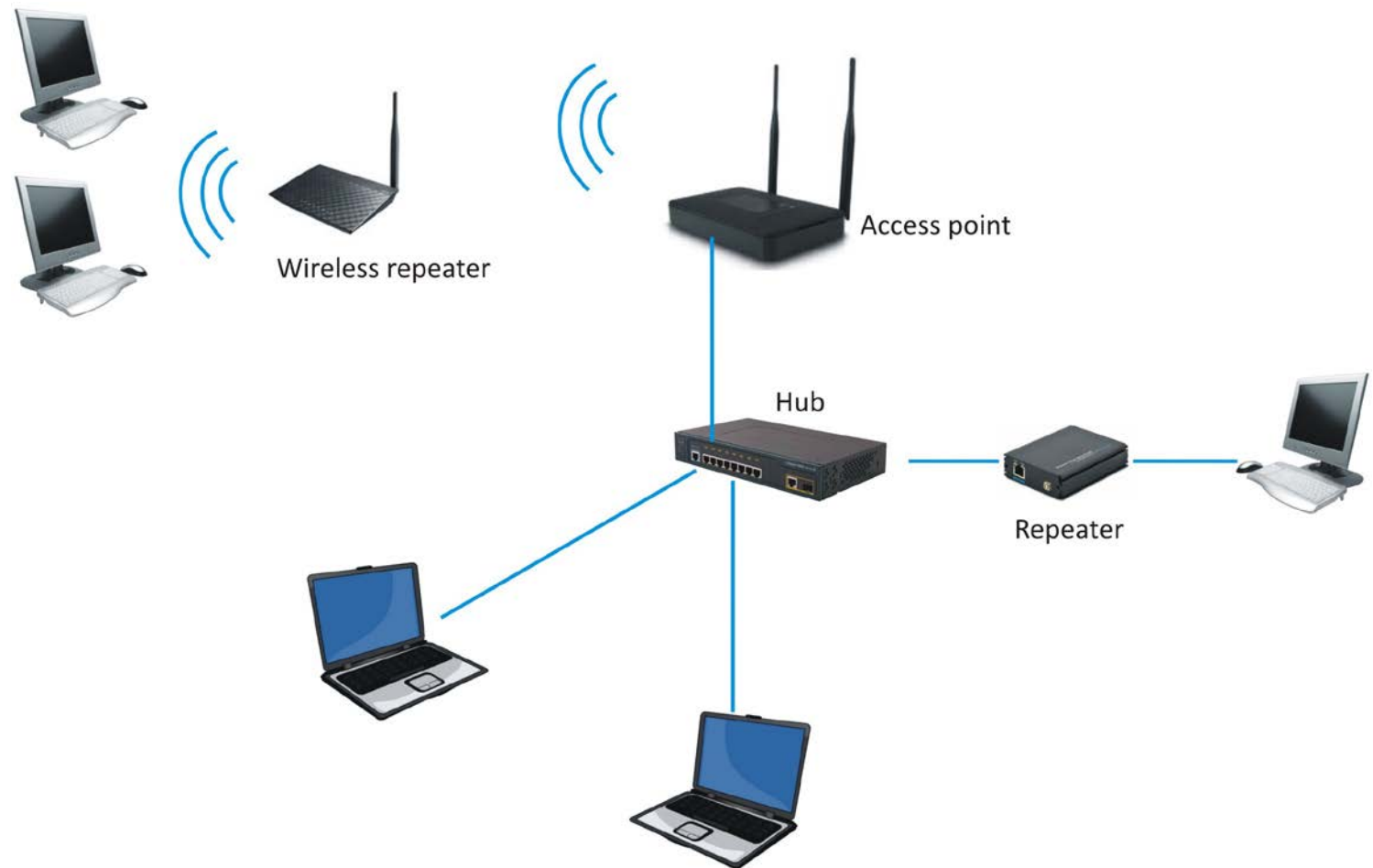
Hub

Hub is a simple switch between server and Workstation. It can connect one device at the same time



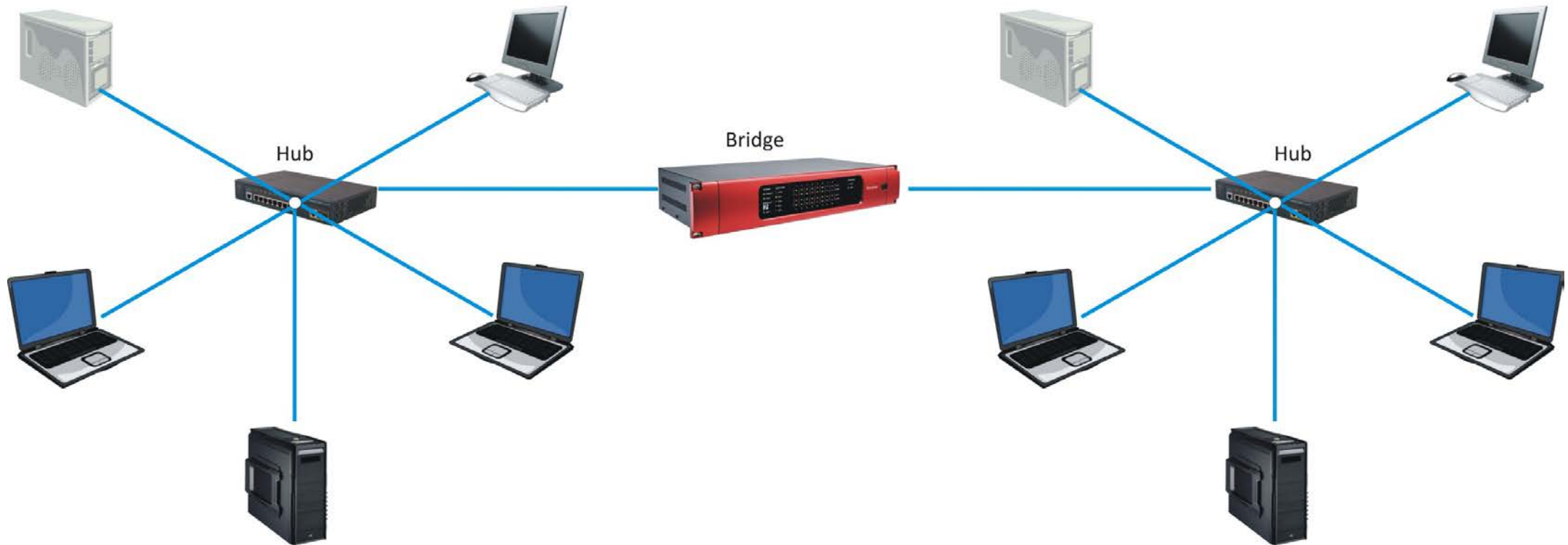
Repeater

- Repeater extends the distance of network. In order to do this repeat input data.
- Today wired or wireless repeater can be used.



Bridge

- It works as a bridge between LAN
- It can control all package in terms of error



Switch, Router

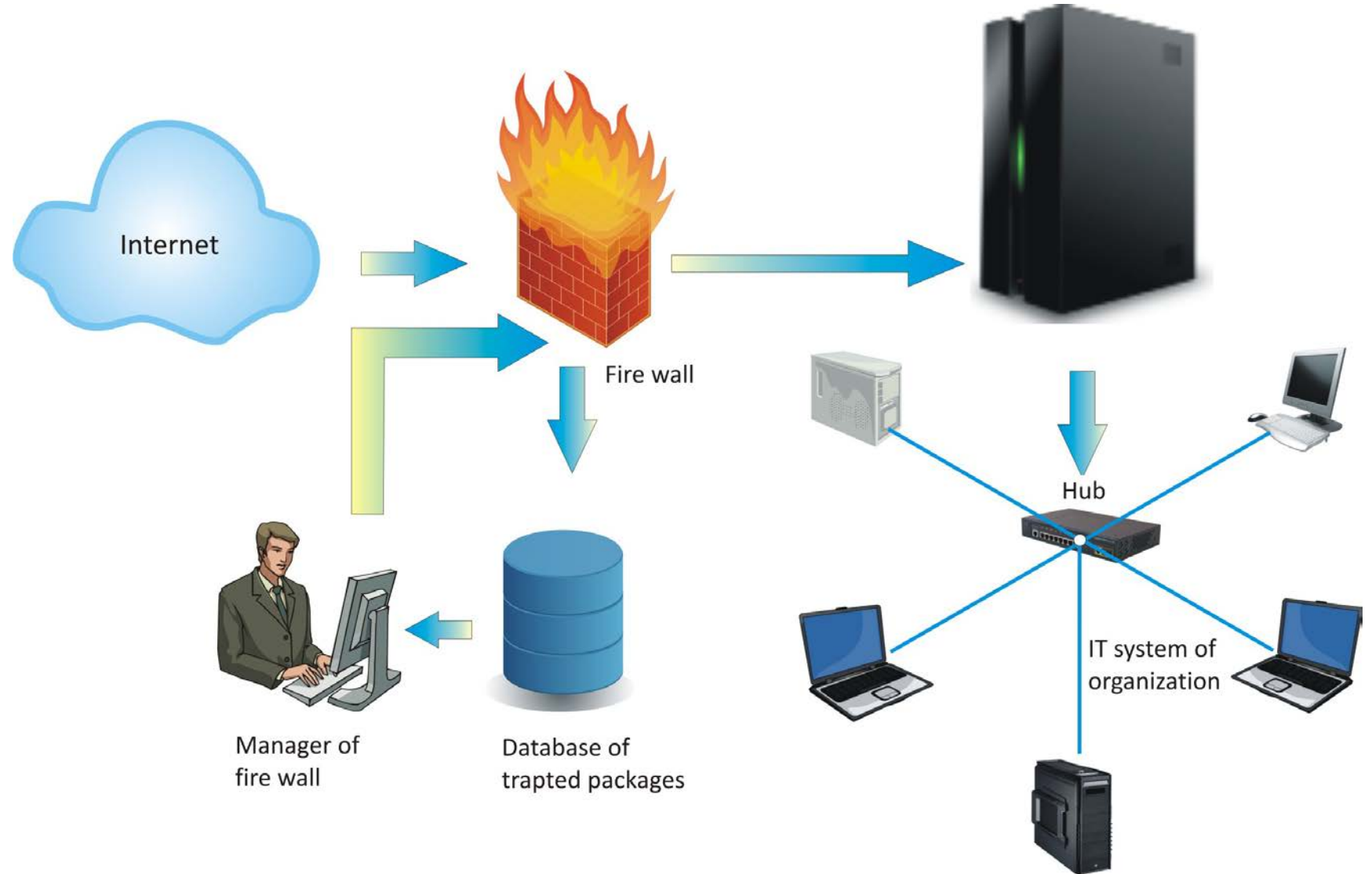
Switch works as automatic telephone switch so it can connect all network devices at the same time

Router has more capability than switch. It is used between different kind of networks. Router controls package, learn source and destination address and define the best route.

Firewall

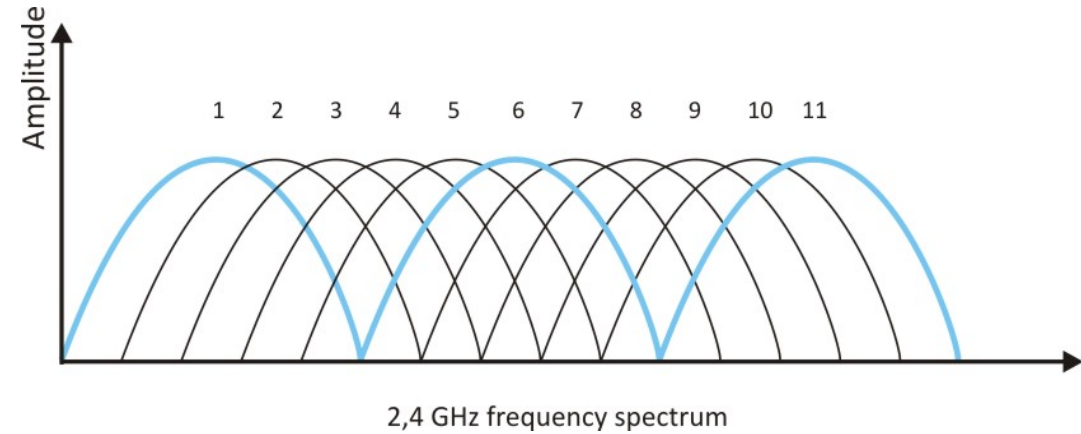
Functions of fire wall are

- Conversion of LAN address
- Basic Intrusion detection
- Comprehensive intrusion detection
- Access Control List
- Proxy for application layer



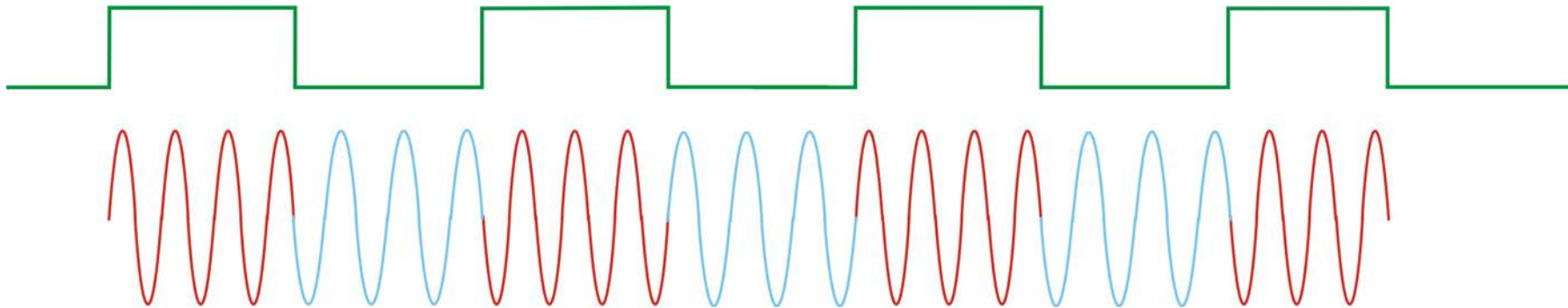
Access Point

- Access point work as switch
- They use 2,4 GHz band with 90 MHz bandwidth.
- Each of them have 14 channel and one channel has 30 MHz bandwidth.



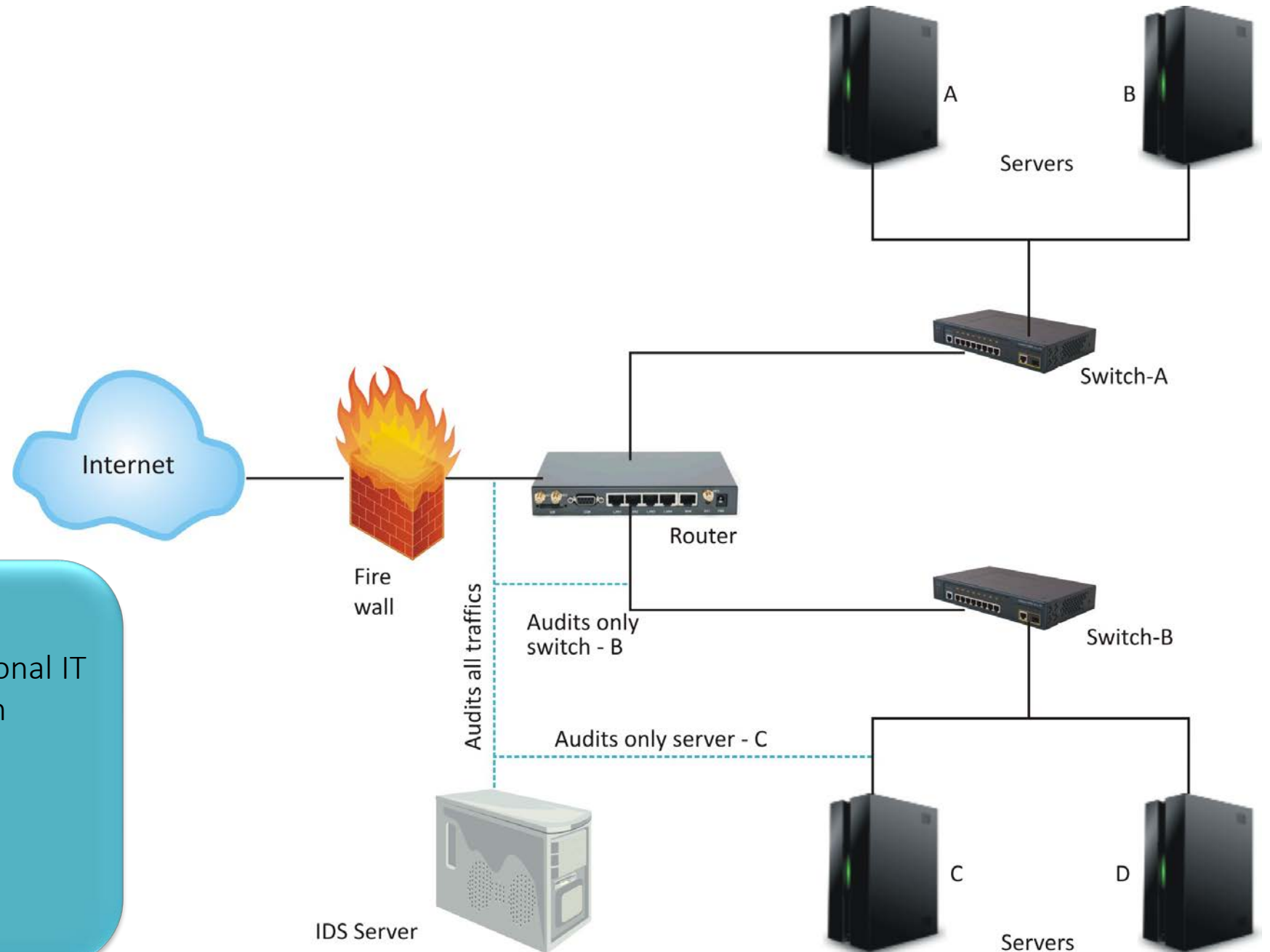
Modem

- Modem is used as interface between computer and PSTN
- PSTN uses alternative signal but computer uses DC
- The bandwidth of a telephone line is about 2400 Hz.
- 2025 Hz for zero and 2225 Hz for one are generated by modulator
- In demodulator 2025 Hz is converted to zero and 2225 Hz is converted to one



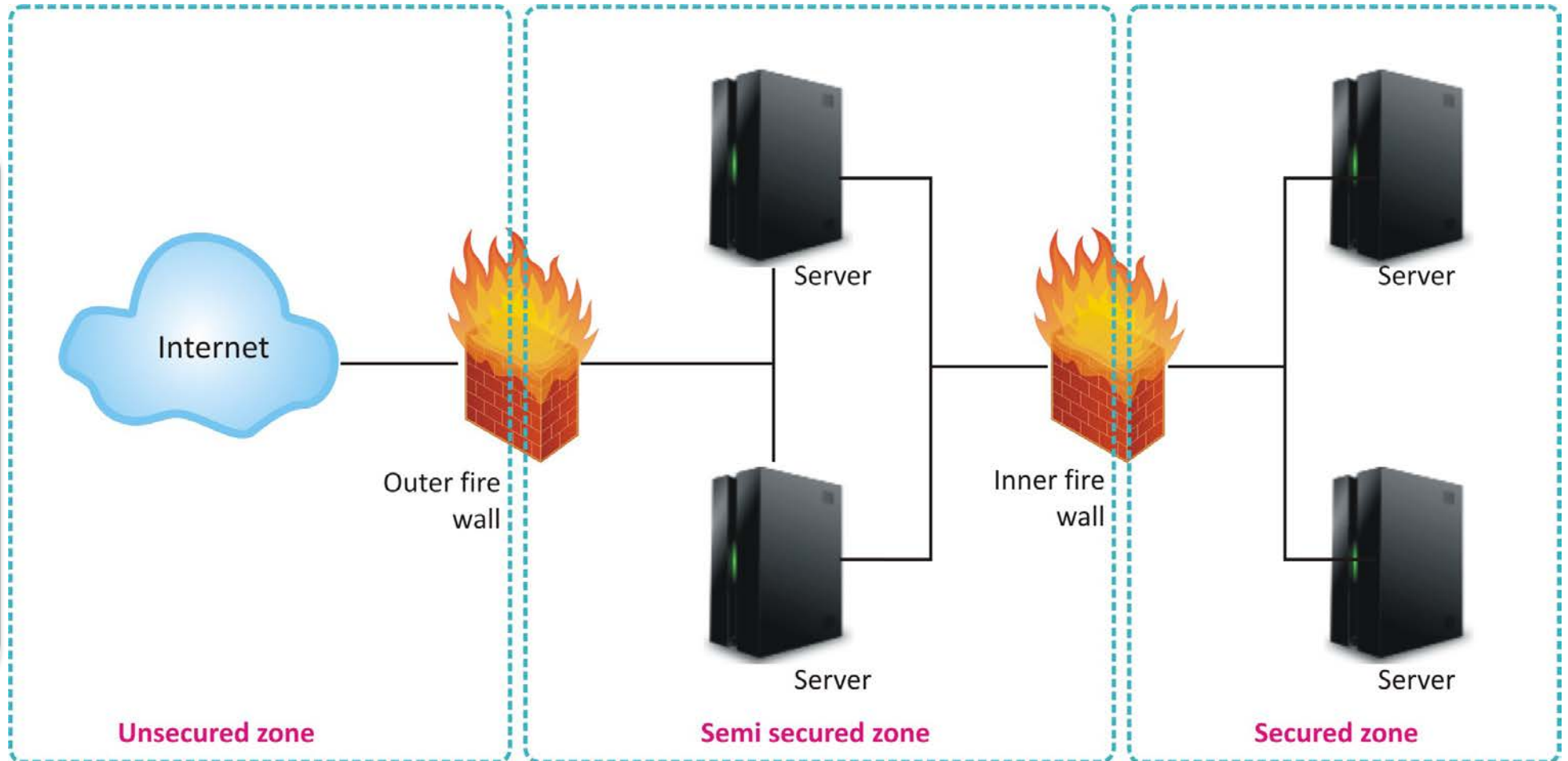
Intrusion Detection System (IDS)

- In order to protect organizational IT system an Intrusion Detection System is used.
- It can control all traffic.
- Detects intrusion



Secure Allocation

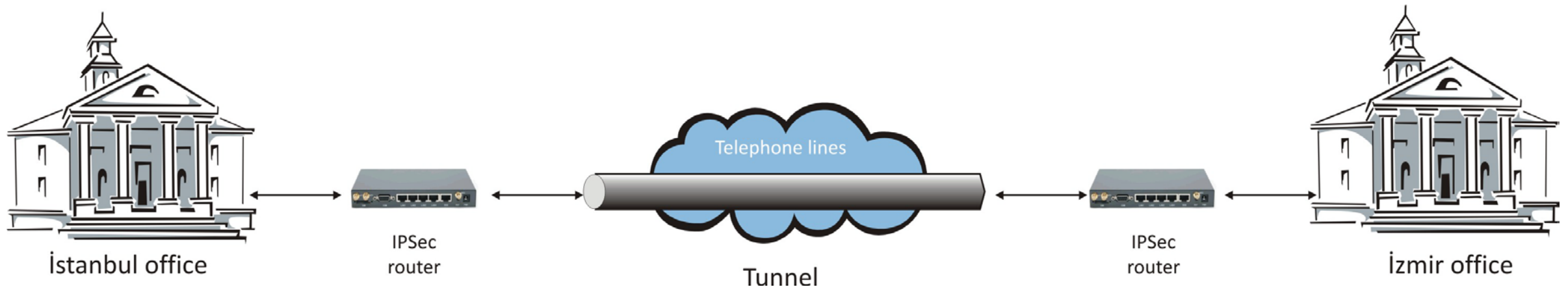
Computer must be allocate like military application : The Demilitarized Zone : DMZ



Virtual Private Network (VPN)

Intranet : Big company sets up a private network for their users and branches

Extranet : Big companies sets up a private network for their companies



Physical Connection

Coaxial cable

Twisted pair cable

Fiber cable

Wireless connection