

# 05\_Networking-Devices

EUAD04\_Networking-Devices

Training Clarusway

Pear Deck - August 29, 2020 at 3:52PM

## Part 1 - Summary

Use this space to summarize your thoughts on the lesson

## Part 2 - Responses

Slide 1



Networking Devices

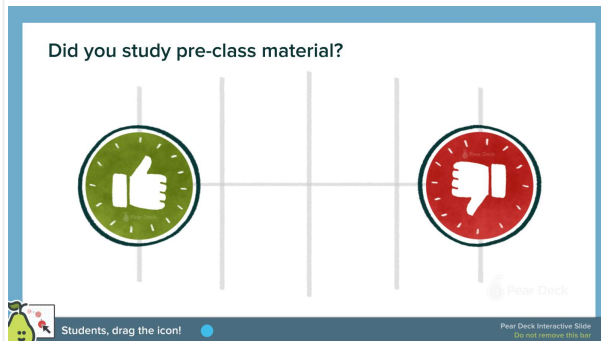


CLARUSWAY®  
HELP TO GROW YOUR BUSINESS

Use this space to take notes:

## Slide 2

## Your Response



Use this space to take notes:

## Slide 3

### Table of Contents



- ▶ Common Network Connectivity Devices
- ▶ Other Specialized Devices

CLARUSWAY®  
Real Technology. Real People.



Use this space to take notes:

## Slide 4



## Common Network Connectivity Devices

CLARUSWAY®  
WAY TO KNOWLEDGE, YOURSELF

Use this space to take notes:

### Slide 5

#### ► Common Network Connectivity Devices ►

##### **Network Interface Controller (NIC)**

- A hardware that connects computers to a network
- Every NIC has a unique MAC address



CLARUSWAY®  
WAY TO KNOWLEDGE, YOURSELF



Use this space to take notes:

### Slide 6

## ► Common Network Connectivity Devices ►

### Hub

- Broadcasts data to every computer connected to it
- Suitable for small LANs
- Not secure because all traffic can be captured
- No routing capability
- Creates a collision domain
- Half-duplex



Use this space to take notes:

## Slide 7

## ► Common Network Connectivity Devices ►

### Switch

- Connects multiple hosts together (*like Hub*)
- Works on Data Link Layer (Layer 2) (*unlike Hub*)
- Can inspect received traffic and forwards only to recipient(s) (*unlike Hub*)
- Each port on a Switch is a separate collision
- Full-duplex (*unlike Hub*)



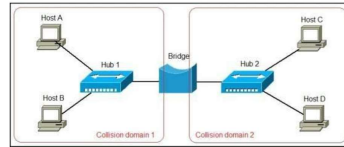
Use this space to take notes:

## Slide 8

## ► Common Network Connectivity Devices ►

### Bridge

- Divides a network into segments
- Works at Data Link Layer (Layer 2)
- Forwards or filters the Ethernet frames



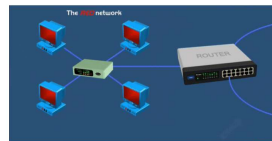
Use this space to take notes:

## Slide 9

## ► Common Network Connectivity Devices ►

### Router

- Connects multiple segments together
- Uses IP addresses to make decisions about the best way to get the data to its destination
- Works on Network Layer (Layer 3)
- Combination of hardware and software



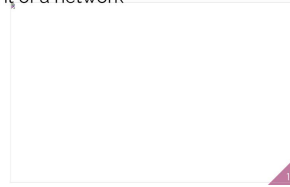
Use this space to take notes:

## Slide 10

## ► Common Network Connectivity Devices ►

### Firewall

- Prevents unauthorized access to or from a private network
- Protects a network's data and resources from outside access and threats
- Usually placed at the end point of a network
- Either a hardware (black box) or a software



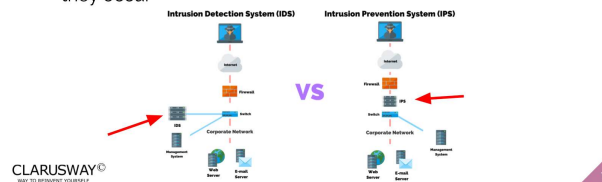
Use this space to take notes:

## Slide 11

## ► Common Network Connectivity Devices ►

### IDS/IPS

- Intrusion Detection System (IDS) monitors traffic and report malicious activities
- Intrusion Prevention System (IPS) stops threats in real-time as they occur



Use this space to take notes:

## Slide 12



2

## Other Specialized Devices

CLARUSWAY®  
WAY TO FREEDOM YOURSELF

Use this space to take notes:

### Slide 13

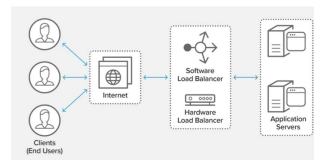
#### Other Specialized Devices



##### Load Balancer

- Distributes client requests or network load efficiently across multiple servers
- Ensures high availability and reliability by sending requests only to servers that are online
- Provides the flexibility to add or subtract servers as demand dictates

CLARUSWAY®  
WAY TO FREEDOM YOURSELF



Use this space to take notes:

### Slide 14

## ► Other Specialized Devices

### Domain Name Service (DNS) Server

- Finds the IP addresses of hostnames
- Computers use IP addresses, humans use names
- Easier to remember **www.clarusway.com** than **54.164.151.235**
- Distributed and hierarchical
- There are thousands of DNS servers
- Managed and controlled by *The Internet Assigned Numbers Authority (IANA)*
- IANA is operated by *the Internet Corporation for Assigned Names and Numbers (ICANN)*

Use this space to take notes:

## Slide 15

## ► Other Specialized Devices

### Domain Name Service (DNS) Server

- **.com** A commercial organization
- **.edu** An educational establishment, such as a university
- **.gov** A branch of the U.S. government
- **.int** An international organization, such as NATO or the United Nations
- **.mil** A branch of the U.S. military
- **.net** A network organization
- **.org** A nonprofit organization
- Some DNS names end with country name like:  
**.jp** (Japan) **.ca** (Canada) **.uk** (Great Britain)

Use this space to take notes:

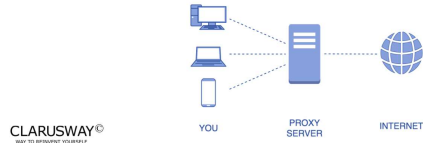
## Slide 16



## ► Other Specialized Devices

### Proxy Server

- Acts as a gateway between you and the internet
- Acts as a firewall and web filter
- Provides shared network connections
- Caches data to speed up common requests
- Provides privacy



Use this space to take notes:

## Slide 17

## ► Other Specialized Devices

### Encryption Devices

- Allows you to create secure connections over insecure channels
- Sometimes called *encryption gateway*



Use this space to take notes:

## Slide 18

## ► Other Specialized Devices

### Packet Shaping (Traffic Shaping)

- Traffic shaping (*or packet shaping*) is a congestion management method that regulates network data transfer by delaying the flow of less important or less desired packets.
- Used to optimize network performance by prioritizing certain traffic flows and ensuring the traffic rate doesn't exceed the bandwidth limit.



CLARUSWAY®  
WAY TO KNOWLEDGE, YOUR WAY



Use this space to take notes:

## Slide 19

## ► Other Specialized Devices

### Packet Shaping (Traffic Shaping)

Common uses of traffic shaping include:

- Time-sensitive data may be given priority over traffic that can be delayed briefly
- In a corporate environment, business-related traffic may be given priority over other traffic
- A large ISP may shape traffic based on customer priority
- An ISP may limit maximum bandwidth consumption for certain applications to reduce costs and create the capacity to take on additional subscribers

CLARUSWAY®  
WAY TO KNOWLEDGE, YOUR WAY



Use this space to take notes:

## Slide 20

## ► Other Specialized Devices

### VPN Concentrator

- Provides secure creation of VPN connections
- A type of router device
- It can:
  - Establish and configure tunnels
  - Authenticate users
  - Assign tunnel/IP addresses to users
  - Encrypt and decrypt data
  - Ensure end-to-end delivery of data

CLARUSWAY®  
WAY TO RESISTENT YOURSELF



Use this space to take notes:

## Slide 21

# THANKS!

### Any questions?

You can find me at:

- @Raymond
- raymond@clarusway.com

CLARUSWAY®  
WAY TO RESISTENT YOURSELF



Use this space to take notes:

