**CCNA Notes (Book 1)**

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**CCENT/CCNA Chapter 1**

Exam focuses heavily on TCP/IP

* **Enterprise network** – IT world refers to a network created by one corporation, or enterprise, for the purpose of allowing its employees to communicate.
* Purpose move data from one device to another.
* **Networking model** – (network architecture or networking blueprint) – refers to a comprehensive set of documents.
  + IBM SNA (Systems Network Architecture)
  + **ISO (International Organization for Standardization**) created OSI to standardize data networking protocols to allow communication among all computers across the entire planet.
  + **IEEE (Institute of Electrical and Electronic Engineers)** – defines Ethernet LAN’s
    - Ethernet card built in to the computer implements some LAN standards by the TCP/IP model.
  + DOD helped build the TCP/IP architecture
    - TCP/IP avoids repeating work already done by others
    - 1 Architecture – TCP/IP Original
      * **Application** – HTTP, POP3, SMTP
        + **HTTP** – subsequent HTTP messages omit the header
        + **URL (Uniform Resource Locators)** – HTTP is used to transfer the web pages.
      * **Transport** – TCP/UDP
        + **TCP** – provides error recovery for Application layer. Guarantees delivery

**Segment** – TCP message with sequence number

Has each header and sequence number sent with each message.

* + - * **Internet** – IP
        + **IP** – defines that each host computer should have a different IP address

Routers act like the post office forwarding packets of data to the correct destination. Helps to be identified in the network.

**Routers**  - are networking devices that connect the parts of the TCP/IP network together for the purpose of routing IP packets to the correct destination.

**DDN (Dotted**-decimal notation) – 1.1.1.1

**Host** – refers to any device, regardless of size or power and has an IP address and connects to any TCP/IP network.

**IP Header** – includes a source IP address and a destination IP address of Bob’s IP

**IP Routing** – process of forwarding an IP packet.

* + - * **Link (network access or network interface layer**) – Ethernet, PPP, T1
        + Refers to physical connections, between two devices and the protocols used to control those links.
        + **Frame** – encapsulated IP packet between an Ethernet header and Ethernet trailer
    - 2 Architecture – TCP/IP Updated
      * **Application** – provide services to the application software running on a computer. Provides an interface between software running on a computer and the network itself. Defines services the application needs.
      * **Transport -** provides error recovery for Application layer. Guarantees delivery
      * **Network –** provides addressing and routing to the Transport layer. Upper layers ask lower layers to deliver a message. Provides a service for forwarding IP packets from one device to another.
      * **Data Link –**
      * **Physical**
  + **Layers** – small number of categories broken down into functions
    - Each layer provides a service to the layer above it
    - **Adjacent-layer interaction** – refers to the concepts of how adjacent layers in a networking mode on the same computer work together.
    - **Same-layer interaction** – particular layer on one computer wants to communicate with the same layer on another computer.
* **Protocol** – set of logical rules that devices must follow to communicate.
  + RFC (Requests For Comments)
  + Use headers as a place to put information used by that protocol
* **SOHO** – smaller networks at home, when used for business purposes, often go by the name small office/home office
* **Cloud** – part of a network whose details are not important to the purpose of the diagram.