Internet – global information system

1. Logically linked together by a globally unique space address based on the Internet Protocol (IP)
2. Is able to support communications using the Transmission Control Protocol/Internet Protocol (TCP/IP) suite or its subsequent

Nodes – devices

Interconnection

1. Wired – actual physical connection
2. Wireless – via electromagnetic signals

Protocols – communication standards

IP address – used to identify each node correctly

1. IPv4 – 32 bit IP address
2. IPv6 – 64 bit IP address
3. Provides, uses, or makes accessible, either publicly or privately, high level services layered on the communications and related infrastructure described **(di ko gets)**

**History of the internet**

1. 4 computers thingy, ARPANET
2. Email was introduced
3. WWW was introduced by **Sir Tim Berners-Lee**. It originally was intended for scientists.

Gopher (Protocol) – TCP/IP application layer protocol designed for distributing, searching, and retrieving documents over the internet.

Usenet – worldwide distributed discussion system.

HTTP

* Hyper text transfter protocol.
* Provides a network protocol standard the web browsers and servers use to communicate

**History**

1. Tim Berners-Lee
2. HTTP 0.9
3. HTTP 1.0 (RFC 1945, May)
4. HTTP 1.1 (RFC 2068, Jan)
5. HTTP 1.1 (RFC 2616, Jun)
6. HTTP 1.1 (RFC 7230-7235, Jun)
7. HTTP 2 (RFC 7540 May) - Patterned after SPDY (protocols by google)

* HTTP runes on top of TCP/IP using TCP port 80 by default or TCP port 443 for HTTPS (SSL/TLS)
  + SSL – Secure socket layer
  + TLS – Transport layer security
* HTTP is based on a client-server architecture
  + Clients, a.k.a user agents (UA):
    - Web browsers, web crawlers/spiders, other end user tools and applications
  + Server
    - Origin server
    - Proxy server, gateways, tunnels
* HTTP uses a request-refuse standard protocol
  + The client sends an HTTP request message to the server
  + The server processes the request and replies with an HTTP response message
* HTTP is a stateess communications protocol
  + Servers do not keep information about clients in-between requests (other than a log).
* HTTP provides support for other functionalities such as:
  + Cache control
  + Content media type (MIME) specification
    - MIME – Multipurpose Internet Mail Extensions
  + Language and character set specification
  + Content/transfer codings
  + Content negotiations
  + Client-server protocol negotiations
  + Request pipelining
  + Persistent connections
    - Push was introduced in HTTP 2. (Push notifications)
  + Authentication/authorization

**HTTP RESOURCE ADDRESSING**

* HTTP resources are identified using URI’s (RFC 3986), or more specifically, HTTP URL’s

URI (Uniform Resource identifier)

* + URN (Uniform Resource Name) 🡪 ISBN
  + URL (Uniform Resource Locator)

HTTP URL:

* + Scheme (http or https)
  + Authority
    - User information or **authentication credential(deprecated)**
    - Host
      * Domain name (resolved to an IP address using DNS) of the server where the server resides (or will be created)
    - Port unmber
  + Path to resource (resolved relative to the document root on the server)
    - May refer to a static or dynamic resource
  + Query
    - Typically provided as key=value pairs, with ampersand(&) separators between key/value pairs
  + Fragment identifier

Ex.

http://usr:pwd@server.org:81/info/profile.php?id=1234#addr

**AND THAT IS THE END OF MY NOTES :v**