HOW DOES INTERNET WORKS?

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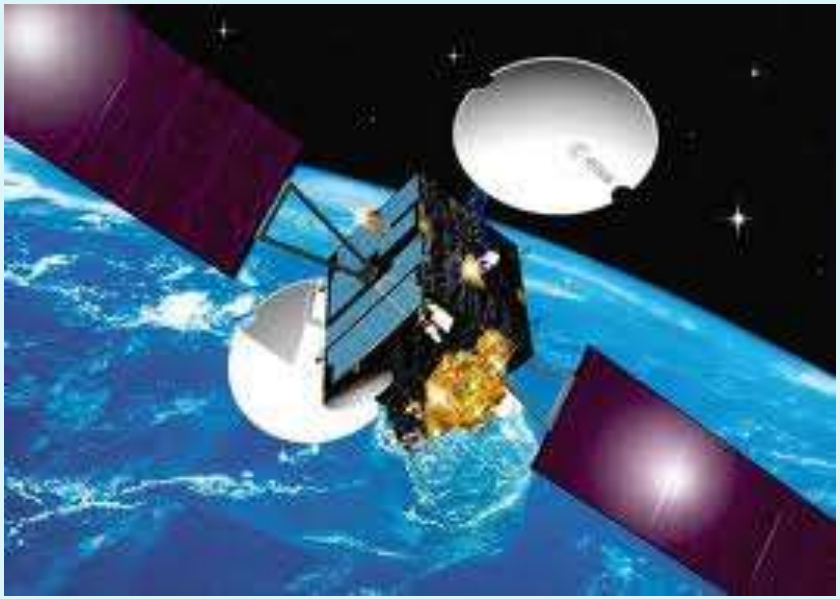
INTRODUCTION

- The **Internet** is a global system of interconnected computer networks that use the standard Internet protocol suite (*TCP/IP*) to serve several billion users worldwide.
- Who invented the internet it is not a contribution of one person but Tim Berners Lee on 25 december 1990,with the help of Robert Caillius implimented the first successful communication between a HyperText Transfer Protocol(HTTP) Client and server via internet.
- Most website are in English language . the internet user is growing at a fast phase . we use internet in many fields like banking , communication , entertainment , for our bussiness exploring the world.

Requird component

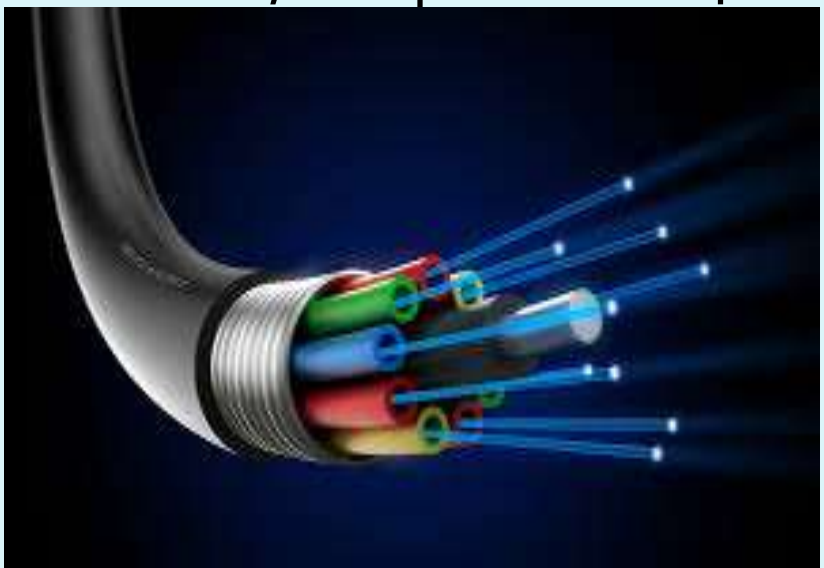
- Hardware : it carries information.

Example : Router, Server , Cellphone tower Satellite . All these device together create the network of network.



Required component

- Server : Machine that store the information we seek on the internet.
- Node : Element which serve as a connecting point along a route of traffic.
- Transmission line : which can be physical ,as in the case of cables and fiber optics . or they cam be wireless singles from satellites , cell phone or 4G towers or radios.



Protocols

- All of this hardware wouldn't create a network without the second component of the internet that is protocols.
- Protocols are sets of rules that machine follow to complete tasks.
- Hypertext transfer protocol is what we use to view web sites through a browser . That's what the http at the front of any web address stand for.
- Two of most important protocols are the transmission control protocols (TCP) and internet protocols (IP). We often group the two together -- in most discussions about Internet protocols you'll see them listed as TCP/IP
- Each device connected to the Internet has an **IP address**. This is how one machine can find another through the massive network.

Protocol's working

Application layer:

- It provides a way for applications to have access to networked services.
- This layer also contains the high level protocols.

Transport layer:

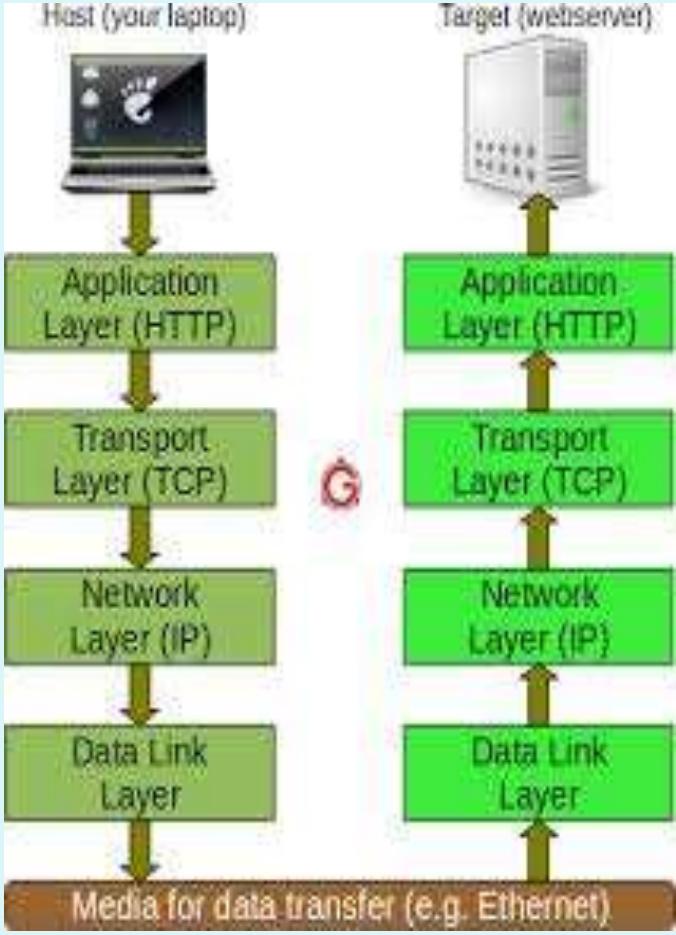
- This layer acts as the delivery service used by the application layer. Again the two protocols used are TCP and UDP.

Network layer:

- The routing and delivery of data is the responsibility of this layer and is the key component of this architecture.

Data link layer:

- This includes wires, network interface card cards . it responsible for placing the data within a frame . frame is the package that holds the data in the same way as an envelope holds a letter.



Working

- The browser broke the URL into three parts:
  - The protocol ("http")
  - The server name ("www.howstuffworks.com")
  - The file name ("web-server.htm")
- The browser communicated with the help of ISP to a name server to translate the server name "www.howstuffworks.com" into an **IP Address**, which it uses to connect to the server machine.
- Following the HTTP protocol, and a specific port number the browser sent a GET request to the server, asking for the file "http://www.howstuffworks.com/web-server.htm.
- The server then sent the HTML text for the Web page to the browser . and browser read the HTML text and convert into plane text which is readable by us.

Terminology

- ISPs : a home computer may be linked to the Internet using a phone-line modem, DSL or cable modem that talks to an Internet service provider (**ISP**)
  - ISP using a high speed line like a T1 line.ISP then connected to larger ISPs and the largest ISP maintain fiber optic " backbones" for an entire nation or region.backbon are connected by fiber optics or satallite and other method.in this way every computer on internet connected to each other
  - each machine on the Internet is assigned a unique address called an **IP address**. IP stands for **Internet protocol**, and these addresses are 32-bit numbers

- Domain name : because most people have trouble remembering the strings of numbers that make up IP addresses, and because IP addresses sometimes need to change, all servers on the Internet also have human-readable names, called **domain names** . it contains three parts:
  - The host name ("www")
  - The domain name (" howstuffworks ")
  - The top-level domain name ("com")

Terminology

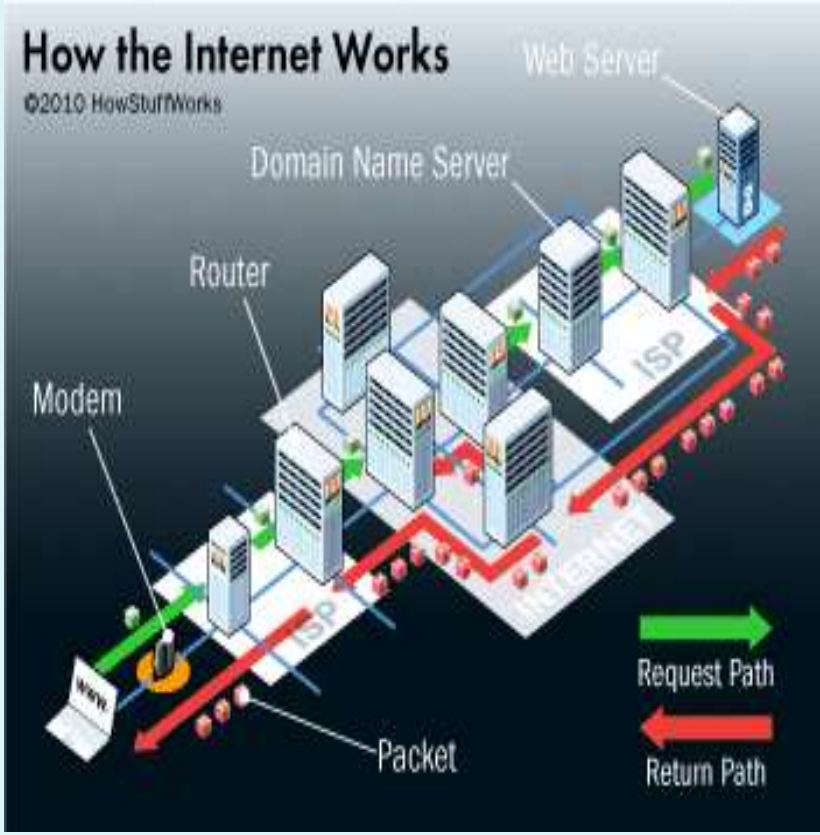
- DNS : a set of servers called domain name servers (DNS) maps the human-readable names to the IP addresses. These servers are simple databases that map names to IP addresses, and they are distributed all over the Internet.
- Port number : any server machine makes its services available to the internet using numbered **ports**, one for each service that is available on the server.
- If the server machine accepts connections on a port from the outside world, and if a firewall is not protecting the port, you can connect to the port from anywhere on the Internet and use the service.

Terminology

- **Domain names** within the ".com" domain are managed by the registrar called VeriSign. VeriSign also manages ".net" domain names.
- VeriSign also maintains contact information for each site and runs the "whois" database. The host name is created by the company hosting the domain. "www" is a very common host name.
- www is invented by Tim bernes lee . it is not internet . but it is a collection of large number of websites , images , video , audio etc which is connected by HTML.

summary

Now we know that when you type a URL into a browser, the following steps occur:
The browser breaks the URL into three parts:
The protocol ("http")
The server name ("www.howstuffworks.com")
The file name ("web-server.htm")
The browser communicates with a name server to translate the server name, "www.howstuffworks.com," into an **IP address**, which it uses to connect to that server machine. The browser then forms a connection to the Web server at that IP address on port 80. Following the HTTP protocol, the browser sends a GET request to the server, asking for the file "http://www.howstuffworks.com/web-server.htm." The server sends the HTML text for the Web page to the browser. The browser reads the HTML tags and formats the page onto your screen.



References

- www.howstuffworks.com
- www.google.com


Thank You