

Network of a Company

Project Report



Submitted to

Sir Mohsin

Submitted by

Muhammad Yousaf

27014

Ahmed Mujtaba

26617

Computer Network

Department of Computer Science,
Riphaah International University, Lahore Campus.

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Scenario:

- We have a network for the Company where we want to establish inter or cross-communication between departments.
- There were 11 departments in the building.
- The network must be secured.
- This Network should be scalable
- Network should be working excellently.
- Staff needed network access, even if they use it personally.

Functionality in the network:

1. Ground Floor:
 - Reception Room
 - CEO Room
 - Meeting Room
2. First Floor
 - Floor Manager Room
 - Product Marketing Department
 - IT Department
 - Finance and HR Department
 - Server Room
3. Second Floor
 - Floor Manager Room
 - Product Quality Department
 - Operation Department

Requirement According to the functionality

Ground Floor:

This floor has 3 departments:

1. Reception Room

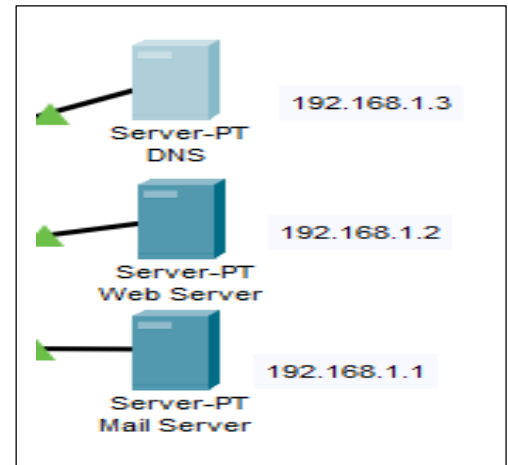


- 1 computer and 1 Printer.
- 2. CEO Room
 - 1 computer and printer.
- 3. Meeting Room
 - 1 computer and 1 printer.

First Floor

First Floor is the main floor of our building and it has 5 departments.

- 4. Floor Manager Room
 - 1 Computer and 1 Printer.
- 5. Product Marketing Department
 - 2 Computer and 2 Printer.
- 6. IT Department
 - 2 Computers and 2 Printers.
- 7. Finance and HR Department
 - 2 Computers and 2 Printers.
- 8. Server Room
 - DNS server
 - Mail server
 - Web Server
 - 1 Computer and 1 Printer.



Second Floor:

- 9. Floor Manager Room
 - 1 Computer and 1 Printer.
- 10. Product Quality Department
 - 2 Computers and 2 Printers.
- 11. Operation Department
 - 1 Computer and 1 Printer.

Devices Used In this Network:

1. Computers
2. Printers
3. Wires to Connect network
4. Switches
5. Servers
6. Router

Router:

A router is a device that connects two or more packet-switched networks or sub networks. It serves two primary functions: managing traffic between these networks by forwarding data packets to their intended IP addresses, and allowing multiple devices to use the same Internet connection



Switches:

A network switch connects devices in a network to each other, enabling them to talk by exchanging data packets.



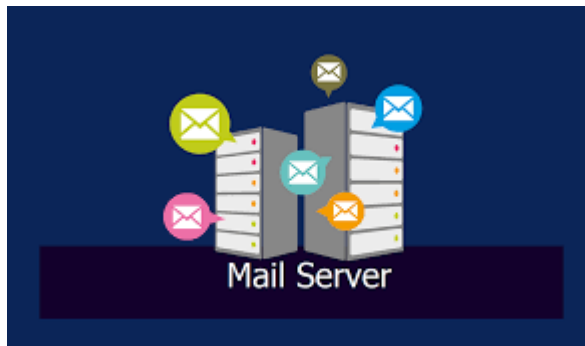
DNS Server:

DNS (Domain Name System) is a service that translates domain names, such as `www.example.com`, into IP addresses, such as `192.0.2.1`. It is an essential component of the Internet, as it allows users to access websites and other resources using easy-to-remember

domain names instead of having to remember the IP addresses of the servers hosting those resources.

Mail Server:

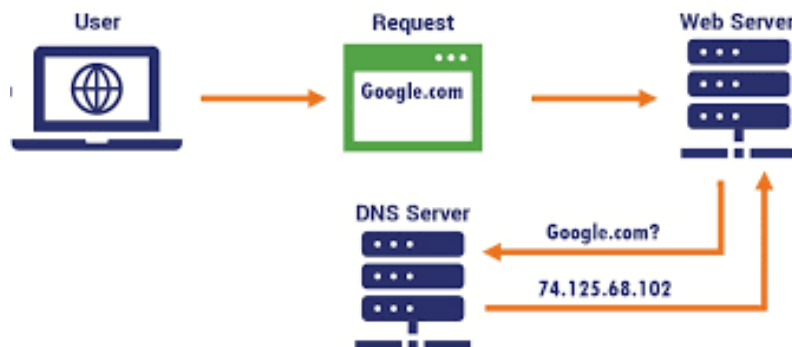
The main purpose of a mail server is to allow users to send and receive email messages within an organization or across different organizations. It receives incoming messages from the Internet or other networks and then delivers them to the appropriate users. It also receives outgoing messages from users and sends them to the appropriate recipients.



Web Server:

The main purpose of a web server is to host and serve web pages, which can include text, images, videos, and other multimedia content, to the users of the internet. When a user requests a web page through a web browser, the request is sent to the web server, which then sends the requested web page back to the user's browser. This process is known as a request-response cycle.

Web servers typically use the HTTP (Hypertext Transfer Protocol) to transfer data between the client and the server.



IP Assignment To computer connection to Switch 1.

<i>Computers</i>	<i>Printers</i>	<i>Default Gateway</i>
192.168.3.5	192.168.3.7	192.168.3.6
192.168.3.1	192.168.3.3	192.168.3.6
192.168.3.4	192.168.3.2	192.168.3.6

IP Assignment To computer connection to Switch 2.

<i>PC</i>	<i>Printer</i>	<i>Default Gateway</i>
192.168.1.7	192.168.1.8	192.168.1.20
192.168.1.9	192.168.1.10	192.168.1.20
192.168.1.11	192.168.1.12	192.168.1.20
192.168.1.13	192.168.1.14	192.168.1.20
192.168.1.15	192.168.1.16	192.168.1.20
192.168.1.17	192.168.1.18	192.168.1.20

<i>PC</i>	<i>Printer</i>	<i>Servers</i>	<i>Ip address</i>
192.168.1.4	192.168.1.5	DNS	192.168.1.3
		Web Server	192.168.1.2
		Mail Server	192.168.1.1

IP Assignment To computer connection to Switch 2.

<i>PC</i>	<i>Printer</i>	<i>Default Gateway</i>
192.168.2.1	192.168.2.2	192.168.2.8
192.168.2.3	192.168.2.4	192.168.2.8
192.168.2.5	192.168.2.6	192.168.2.8
192.168.2.7	192.168.2.9	192.168.2.8

Application Layer :

- **DNS:**

We used DNS Server to host a domain over the network so every client over the network easily communicates and send and receive email.

- **Web Server**

It is a server where the web content store. The main used of the server to host the website of a company or in for business.

- **Email Server**

It is a server used for send and receiving email from clients over the network. Two protocols are used in Email Server. Ex. SMPT, POP3.

Network Layer:

- **Subnet**

We used 2 subnets on the network layer and IP addresses assigned to clients to communicate with each other over the network.

- **Ip Address**

Every device such as PCs and printers and servers has different IP addresses for communication.

- **Router**

Data link layer:

- **switches**

