

# **HOTEL NETWORK DESIGN**

A COURSE PROJECT REPORT

By

**AADARSH BANSAL(RA2111029010019)**  
**MUSKAN MAHESHWARI(RA2111029010025)**  
**AISHWARYA SHINDE(RA2111029010021)**

Under the guidance of

**Ms.M.Safa**

*In partial fulfilment for the Course*

of

**18CSC202J - COMPUTER COMMUNICATIONS**

in NWC



**FACULTY OF ENGINEERING AND TECHNOLOGY SRM**

**INSTITUTE OF SCIENCE AND TECHNOLOGY**

**Kattankulathur, Chenpalpattu District**

A

**SRM INSTITUTE OF SCIENCE AND TECHNOLOGY**  
(Under Section 3 of UGC Act, 1956)  
**BONAFIDE CERTIFICATE**

Certified that this mini project report  
**"HOTEL NETWORK DESIGN"**

is the bonafide work of

**AADARSH BANSAL(RA2111029010019),**

**MUSKAN MAHESHWARI(RA2111029010025) and**

**AISHWARYA SHINDE(RA2111029010021)**

who carried out the project work under my supervision.

**SIGNATURE**

**Ms.M.Safa**

# TABLE OF CONTENT

S. NO	TITLE	PAGE
1	Abstract	3
2	Network Requirements	3
3	Hospital Segments	3
4	Installations Cost	4
5	Features and Services	5
6	Configuration	5
7	Definitions	6
8	Configurations Screenshots	7
9	Network Diagram	13
10	Output	14
11	Conclusion	15
12	Bibliography	16

# **ABSTRACT**

This report describes the network design of Hotel management. In this network topology the nodes (i.e., computers, switches, routers or other devices) are connected to a local area network (LAN) and network via links (twisted pair copper wire cable or optical fiber cable). We have used Cisco Packet Tracer for designing the network topology It's a general design which can be implemented at any higher level to manage network system.

## **NETWORK REQUIREMENTS**

In Hotel Management Network topology, we have desktop Computer, laptops, smart phone. There is a data flow between the devices within the system. We have divided our network into segments like for Head Office, Conference Room etc. We have also used SSH for security. Our network requirements include network devices like routers, switches, server.

## **HOSPITAL SEGMENTS**

- 1**     Head Office
- 2**     Head Conference Room
- 3**     Dining Area
- 4**     IT Department
- 5**     Entrance Reception
- 6**     Lobby and Parking

# INSTALLATION COST: -

SR. NO	COMPONENTS	QUANTITY	COST(RS)
1	computer	25	125,500
2	server	2	50,000
3	WLAN	1	1500
4	switch	6	18,000
5	Router	5	25,000
6	Serial DTE cable	1000 mtr	10,000
7	Twisted LAN cable	5000 mtr	19,000

## FEATURES AND SERVICES

- DHCP
- DNS
- Subnetting
- HTTPS
- SSH
- SMTP
- FTP
- WIFI

# CONFIGURATION

The diagram is properly commented. We have divided the diagram into 6 segments as named above. Hospital Segments representing different departments of hospital.

## DEFINITIONS

### - DHCP

The Dynamic Host Configuration Protocol (DHCP) is a network management protocol used on UDP/IP networks whereby a DHCP server dynamically assigns an IP address and other network configuration parameters to each device on a network so they can communicate with other IP networks.

### - DNS

The Domain Name System is a hierarchical and decentralized naming system for computers, services, or other resources connected to the Internet or a private network.

### - SUBNETTING

A subnetwork or subnet is a logical subdivision of an IP network. The practice of dividing a network into two or more networks is called subnetting.

### - HTTPS

Hypertext Transfer Protocol Secure is an extension of the Hypertext Transfer Protocol. It is used for secure communication over a computer network and is widely used on the Internet. Hypertext Transfer Protocol Secure is an extension of the Hypertext Transfer Protocol. It is used for secure communication over a computer network and is widely used on the Internet.

### - SSH

Secure Shell is a cryptographic network protocol for operating network services securely over an unsecured network.

## - SMTP

The Simple Mail Transfer Protocol is a communication protocol for electronic mail transmission.

## - FTP

The File Transfer Protocol is a standard network protocol used for the transfer of computer files between a client and server on a computer network.

## - WIFI

Wi-Fi is the name of a wireless networking technology that uses radio waves to provide wireless high-speed Internet and network connections.

# CONFIGURATION SCREENSHOTS: -

The screenshot shows a web-based configuration interface for a router. The title bar indicates the device is 'IT\_router 192.168.1.1'. The interface has four tabs: 'Physical', 'Config' (selected), 'CLI', and 'Attributes'. On the left, a sidebar menu lists configuration categories: 'GLOBAL' (with sub-items 'Settings' and 'Algorithm Settings'), 'ROUTING' (with sub-items 'Static' and 'RIP'), and 'INTERFACE' (with sub-items 'FastEthernet0/0', 'FastEthernet1/0', 'Serial2/0' (highlighted), 'Serial3/0', 'FastEthernet4/0', and 'FastEthernet5/0'). The main area displays the configuration for 'Serial2/0'. It includes a 'Port Status' section with a 'Duplex' dropdown set to 'Full Duplex' and a 'Clock Rate' dropdown set to '128000'. Below this is an 'IP Configuration' section with 'IPv4 Address' set to '192.168.6.2' and 'Subnet Mask' set to '255.255.255.0'. At the bottom of the main area is a 'Tx Ring Limit' field set to '10'. At the bottom of the interface, there is a section titled 'Equivalent IOS Commands' containing a text area with the following commands: 'Router(config-if)#exit', 'Router(config)#interface Serial3/0', 'Router(config-if)#', 'Router(config-if)#exit', 'Router(config)#interface Serial2/0', and 'Router(config-if)#'. A 'Top' button is located at the bottom left of the interface.

IT\_router 192.168.1.1

Physical **Config** CLI Attributes

**GLOBAL**

- Settings
- Algorithm Settings

**ROUTING**

- Static
- RIP

**INTERFACE**

- FastEthernet0/0
- FastEthernet1/0
- Serial2/0**
- Serial3/0
- FastEthernet4/0
- FastEthernet5/0

**Serial2/0**

Port Status ☒ On

Duplex ☐ Full Duplex

Clock Rate 128000

IP Configuration

IPv4 Address 192.168.6.2

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config-if)#exit
Router(config)#interface Serial3/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#
```

☐ Top

Physical Config CLI Attributes**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**INTERFACE**

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

## Serial3/0

Port Status

☒ On

Duplex

☐ Full Duplex

Clock Rate

2000000

## IP Configuration

IPv4 Address

192.168.8.1

Subnet Mask

255.255.255.0

Tx Ring Limit

10

## Equivalent IOS Commands

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
```

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
```

```
Router>enable
```

```
Router#
```

```
Router#configure terminal
```

```
Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)#interface Serial3/0
```

```
Router(config-if)#
```



Physical **Config** CLI Attributes

<b>GLOBAL</b>	Serial3/0	
Settings		
Algorithm Settings		
<b>ROUTING</b>		
Static		
RIP		
<b>INTERFACE</b>		
FastEthernet0/0		
FastEthernet1/0		
Serial2/0		
<b>Serial3/0</b>		
FastEthernet4/0		
FastEthernet5/0		

Port Status	<input checked="" type="checkbox"/> On
Duplex	<input type="radio"/> Full Duplex
Clock Rate	2000000
IP Configuration	
IPv4 Address	192.168.9.1
Subnet Mask	255.255.255.0
Tx Ring Limit	10

## Equivalent IOS Commands

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Serial3/0
Router(config-if)#
```

Physical Config CLI Attributes

GLOBAL	FastEthernet0/1
Settings	
Algorithm Settings	
<b>SWITCHING</b>	
VLAN Database	
<b>INTERFACE</b>	
FastEthernet0/1	
FastEthernet0/2	
FastEthernet0/3	
FastEthernet0/4	
FastEthernet0/5	
FastEthernet0/6	
FastEthernet0/7	
FastEthernet0/8	
FastEthernet0/9	
FastEthernet0/10	

Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
Access	VLAN 1
Tx Ring Limit	10

## Equivalent IOS Commands

```
Switch(config-if) #
Switch(config-if) #exit
Switch(config) #
Switch(config) #
Switch(config) #interface FastEthernet0/1
Switch(config-if) #
```

**Setup**

Setup

Wireless

Security

Access  
RestrictionsApplications  
& Gaming

Administration

WRT300N  
Status

Basic Setup

DDNS

MAC Address Clone

Advanced Routing

**Internet Setup**Internet  
Connection type

Automatic Configuration - DHCP ▾

Optional Settings  
(required by some  
internet service  
providers)Host Name: Domain Name: MTU:  Size: 1500**Network Setup**

Router IP

IP Address:  192  168  0  1Subnet Mask:  255.255.255.252 ▾DHCP Server  
SettingsDHCP  
Server: ☒ Enabled ☐ DisabledDHCP  
ReservationStart IP Address: 192.168.0.  100Maximum number  
of Users:  50

IP Address Range: 192.168.0. 100 - 149

Client Lease Time:  0 minutes (0 means one day)Static DNS 1:  0  0  0  0Static DNS 2:  0  0  0  0Static DNS 3:  0  0  0  0WINS:  0  0  0  0[Help...](#)

Save Settings

Cancel Changes

## Command Prompt

```
C:\>
C:\>
C:\>
C:\>ping 192.168.0.1

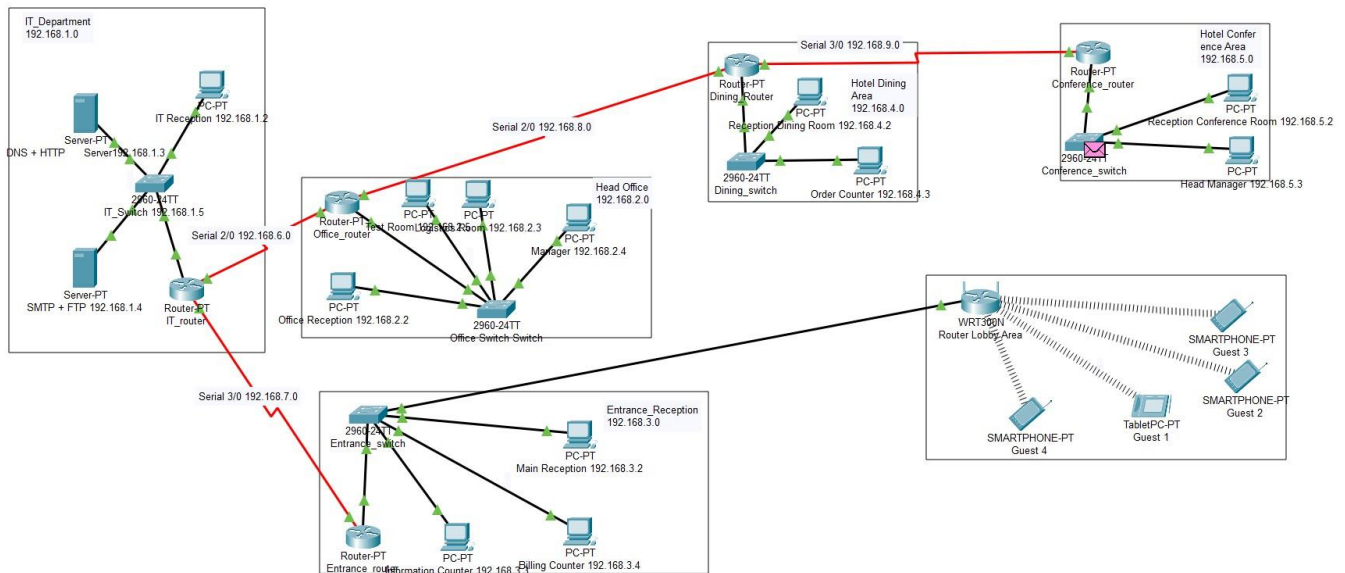
Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time=8ms TTL=255
Reply from 192.168.0.1: bytes=32 time=8ms TTL=255
Reply from 192.168.0.1: bytes=32 time=10ms TTL=255
Reply from 192.168.0.1: bytes=32 time=3ms TTL=255

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 10ms, Average = 7ms

C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
C:\>
```

# NETWORK DIAGRAM



## OUTPUT: --

Logical (Physical) x 1681, y 755

Vis.	Time(sec)	Last Device	At Device	Type
	0.002	--	IT Reception 192.168.1.2	ICMP
	0.003	IT Reception 192.168.1.2	IT_Switch 192.168.1.5	ICMP
	0.003	IT_Switch 192.168.1.5	IT_router 192.168.1.1	ICMP
	0.003	IT_router 192.168.1.1	Office_router	ICMP
	0.004	IT_Switch 192.168.1.5	IT_router 192.168.1.1	ICMP
	0.004	IT_router 192.168.1.1	Office_router	ICMP
	0.004	Office_router	Office Switch Switch	ICMP
	0.005	IT_router 192.168.1.1	Office_router	ICMP
	0.005	Office_router	Office Switch Switch	ICMP
	0.005	Office Switch Switch	Office Reception 192.168.2.2	ICMP
	0.006	Office_router	Office Switch Switch	ICMP
	0.006	Office Switch Switch	Test Room 192.168.2.5	ICMP
	0.006	Office Reception 192.168.2.2	Office Switch Switch	ICMP
	0.007	Office Switch Switch	Test Room 192.168.2.5	ICMP
	0.007	Test Room 192.168.2.5	Office Switch Switch	ICMP
	0.007	Office Switch Switch	Office_router	ICMP
Visible	0.008	Test Room 192.168.2.5	Office Switch Switch	ICMP
Visible	0.008	Office Switch Switch	Office_router	ICMP
Visible	0.008	Office_router	IT_router 192.168.1.1	ICMP

Reset Simulation Constant Delay Capturing...

PLAY CONTROLS

Time: 00:20:47.794

Event List Filters - Visible Events

ACL Filter, ARP, BGP, Bluetooth, CAPWAP, CDP, DHCP, DHCPv6, DNS, DTP, EAPOL, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, IoT, IoT LACP, LLDP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PaGr, POP3, PPP, PPPoE, PTP, RADIUS, REP, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, USB, VTP

Edit Filters Show All/None

Event List Realtime Simulation

## **CONCLUSION**

This report describes how we have designed network topology of hotel (Hotel Management System). With VLSM for Subnetting, segmented the diagram into 6 segments. This topology can also be implemented for higher level of hotels.

# BIBLIOGRAPHY: -

<https://www.studocu.com/row/document/the-university-of-lahore/softwareengineering/hospitalnetwork-design-project-report/21105675>

<https://epublications.regis.edu/cgi/viewcontent.cgi?article=1359&context=theses>

<https://pdfcoffee.com/report-for-hospital-network-design-pdf-free.html>

<https://c2technologies.eu/wpcontent/uploads/hospital-networking-guide-brochure-en.pdf>