

The background features a solid orange-red color. On the left and right sides, there are decorative elements. On the left, a teal square contains an orange circle, and a blue shape with a white crescent cutout is positioned below it. On the right, a teal square contains an orange circle with a white semi-circular cutout on its right side, and a blue shape is positioned above it.

Hotel Management Network

Fundamentals of Computer Networks
PBL:Phase 1

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Aim

To build an hotel management networking project using
cisco packet tracer

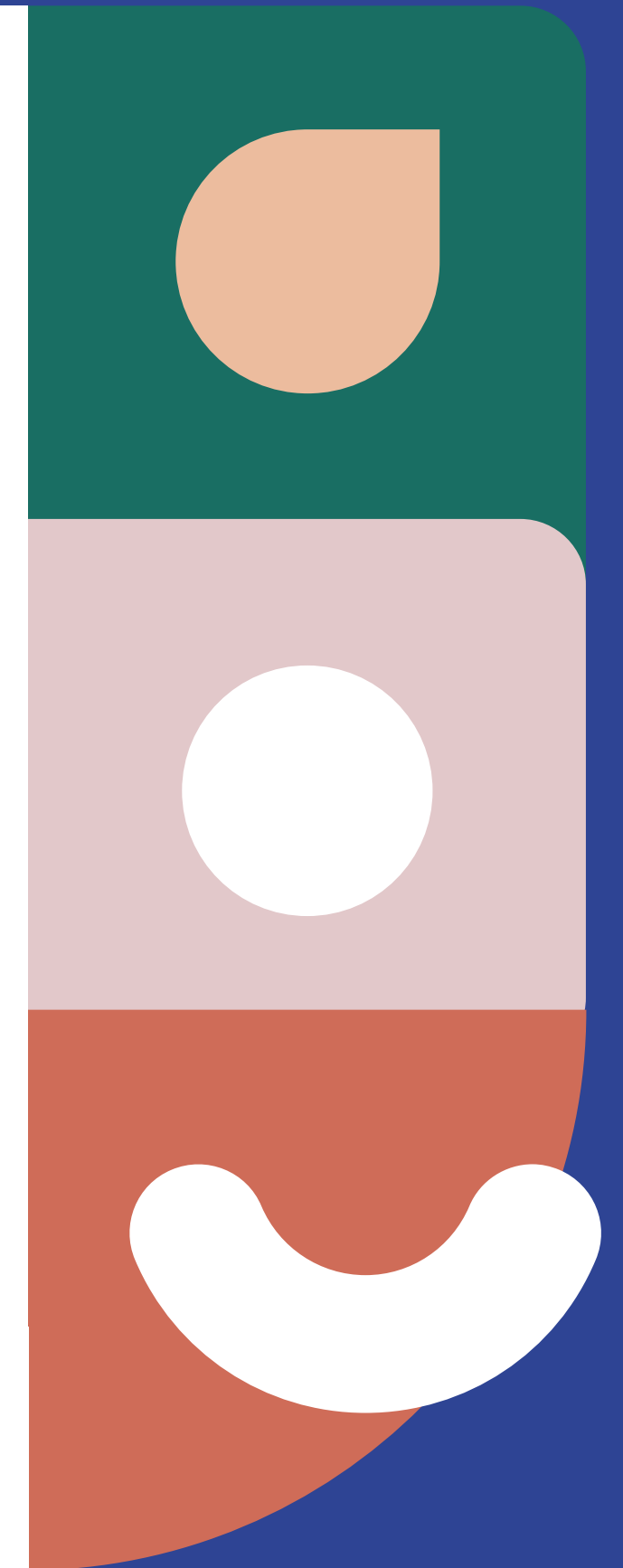


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Introduction



- The hotel has three floors: on the first floor there are three sections (Reception, store and Logistics).
- On the second floor there are three sections (Finance, HR and lodging).
- While the third floor hosts the IT and Admin. Therefore, the following are part of the considerations during the design and implementation.

Concepts

DCE Cable/Serial DCE:

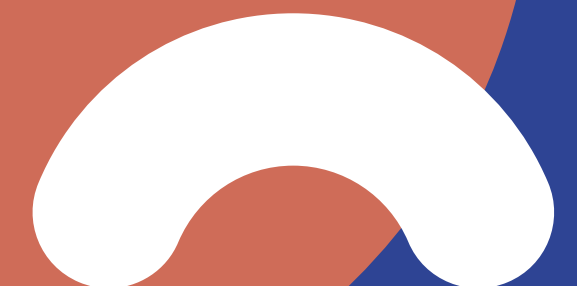
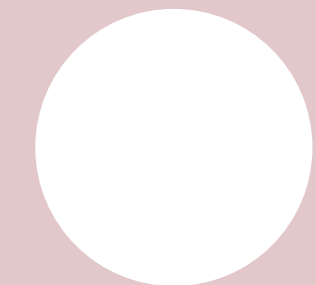
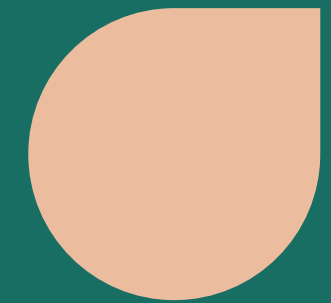
A DCE provides a physical connection to a network and forwards traffic. A DTE connects to a network through a DCE device. Typically, a DTE device is connected to a DCE device (or vice versa) rather than another DTE device.

VLAN:

A VLAN is a subnetwork which can group together collection of devices on separate physical local area network. The primary advantage of VLAN is that it reduces the size of broadcast domains.

OSPF routing protocol:

Open Shortest Path First (OSPF) is a link-state routing protocol that is used to find the best path between the source and the destination router using its own Shortest Path First). It is a network layer protocol .



Concepts

SSH:

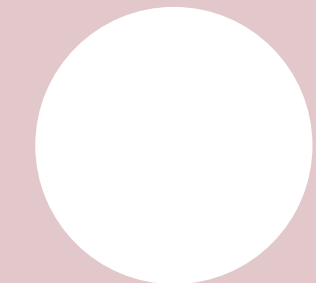
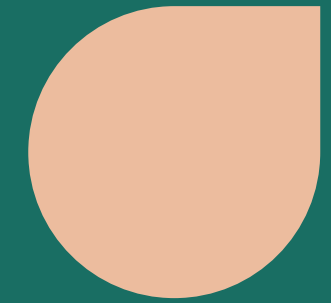
The Secure Shell Protocol is a cryptographic network protocol for operating network services securely over an unsecured network. Its most notable applications is remote login.

Access Point:

A Wireless Access Point (WAP) is a networking device that allows wireless-capable devices to connect to a wired network. Instead of using wires and cables to connect every computer or device in the network, installing WAPs is a more convenient, more secure, and cost-efficient alternative.

Crypto keys:

A cryptographic key is a string of data that is used to lock or unlock cryptographic functions, including authentication, authorization and encryption. Cryptographic keys are grouped into cryptographic key types according to the functions they perform.



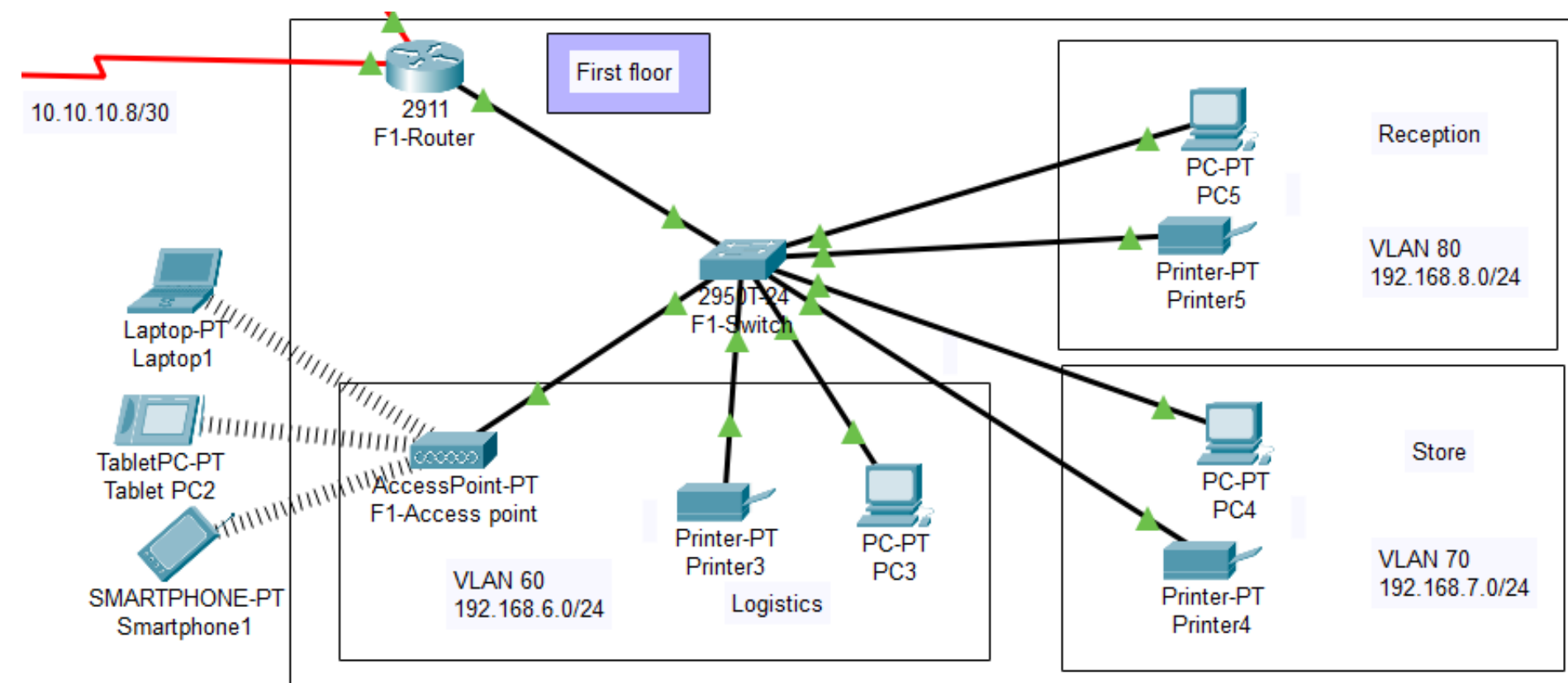
Task

1. There should be three routers connecting each floor .
2. All routers should be connected to each other using serial DCE cable.
3. The network between the routers should be 10.10.10.0/30,10.10.10.4/30,10.10.10.8/30
4. Each floor is expected to have one switch (placed in the respective floor).
- 5 Each floor is expected to have WIFI networks connected to laptops and phones.
6. Each department is expected to have a printer.

Task

7. Configure SSH in all the routers for remote login.
8. All the devices in the network are expected to communicate with each other.
9. Use OSPF as the routing protocol to advertise routes.
10. Each floor is expected to have one switch (placed in the respective floor).

First floor



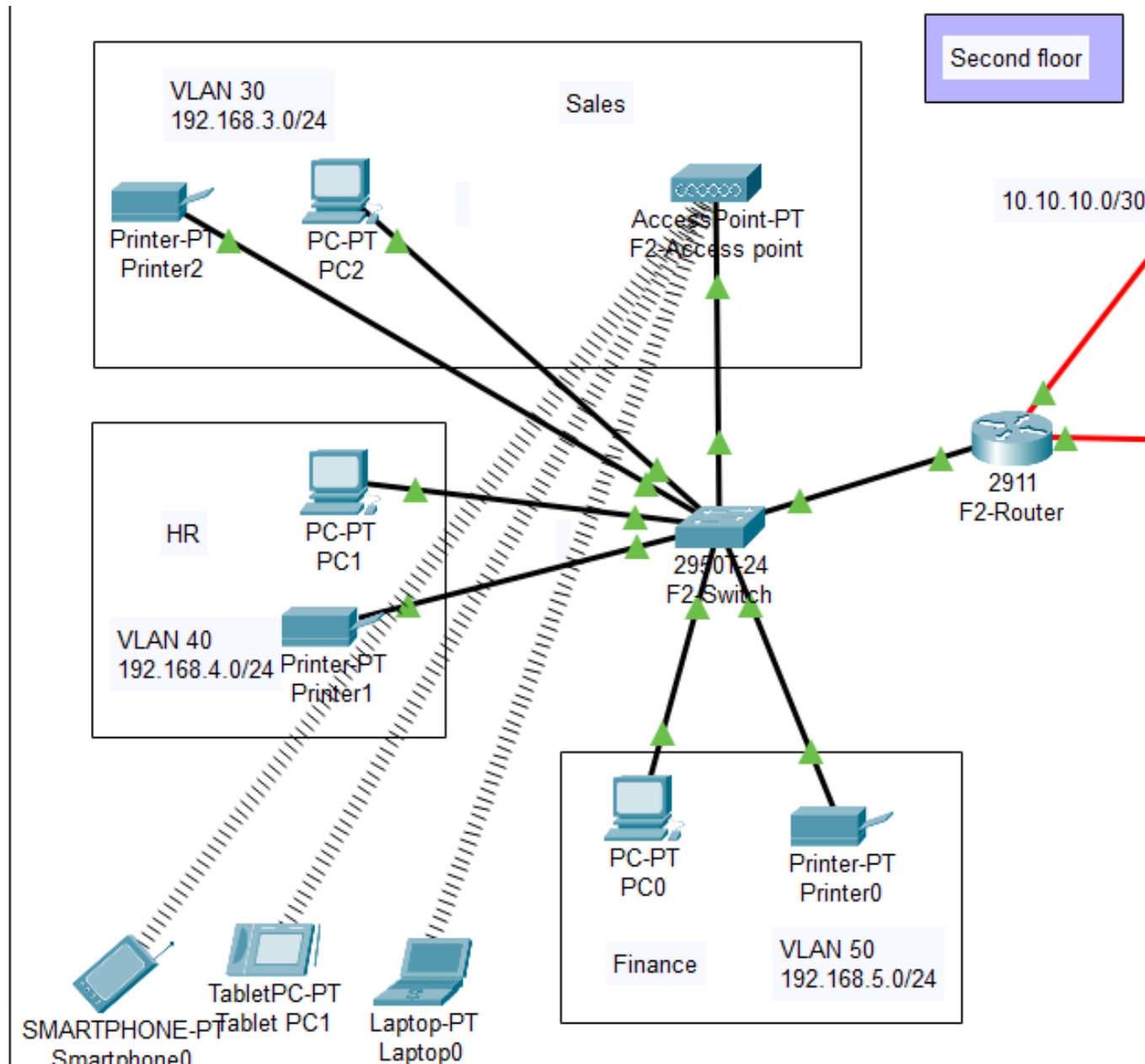
1st Floor

Reception- VLAN 80, Network of
192.168.8.0/24

Store-VLAN 70, Network of
192.168.7.0/24

Logistics- VLAN 60, Network of
192.168.6.0/24

Second floor

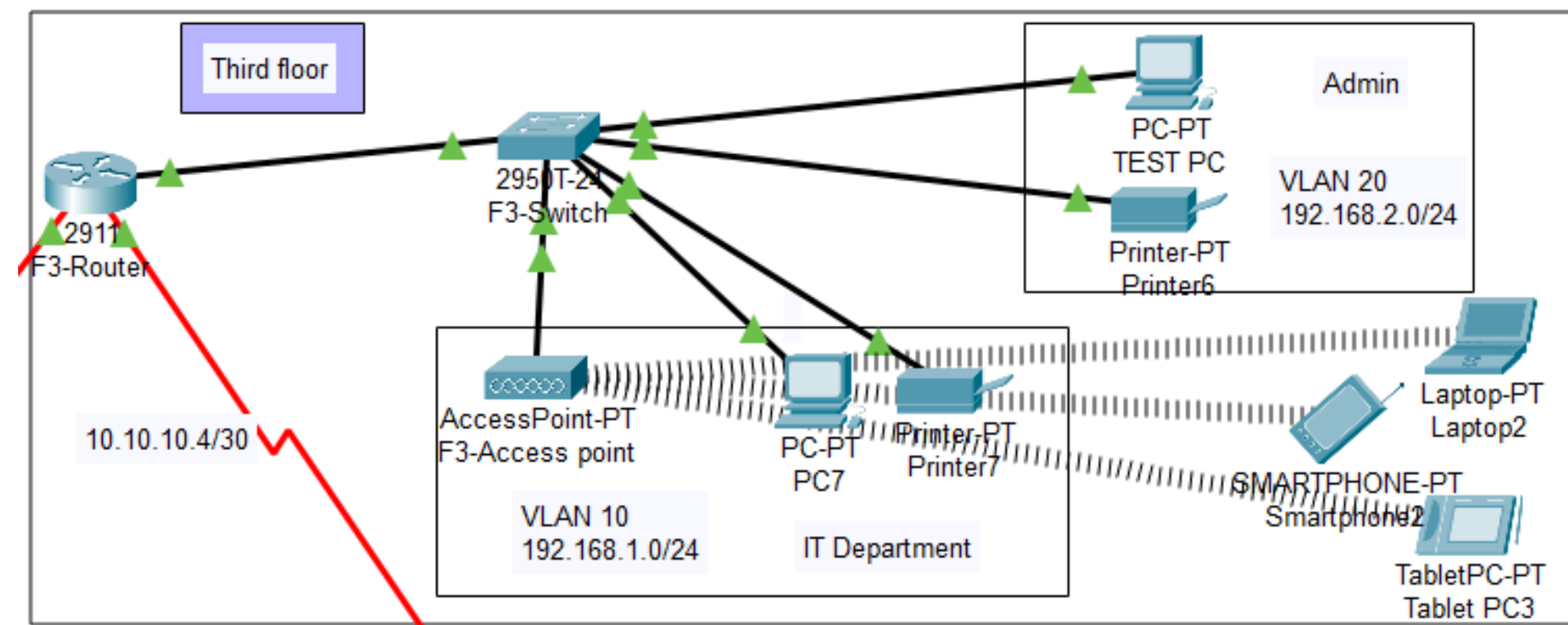


2nd Floor
Finance- VLAN 50, Network of 192.168.5.0/24

HR-VLAN 40, Network of 192.168.4.0/24

Sales-VLAN 30, Network of 192.168.3.0/24

Third floor

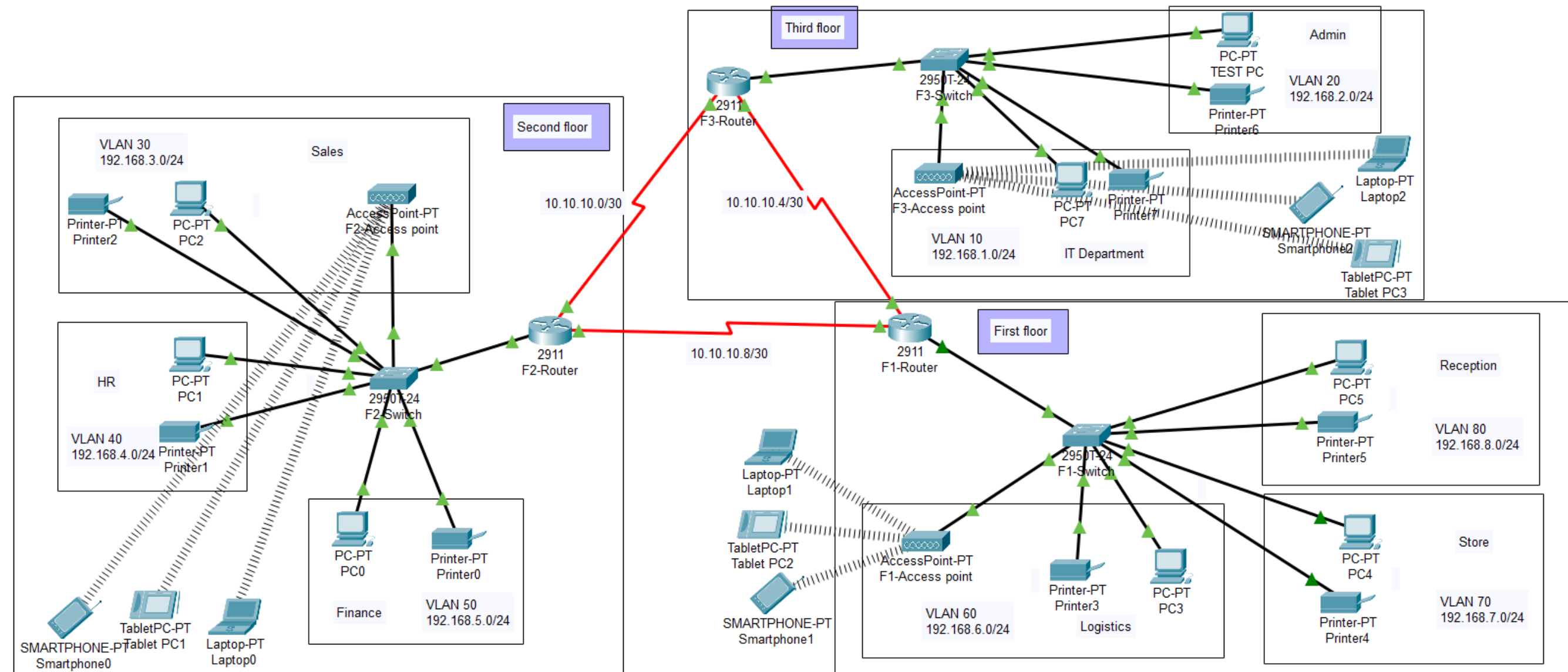


3rd Floor

**Admin- VLAN 20, Network of
192.168.2.0/24**







**IT-VLAN 10, Network of
192.168.1.0/24**

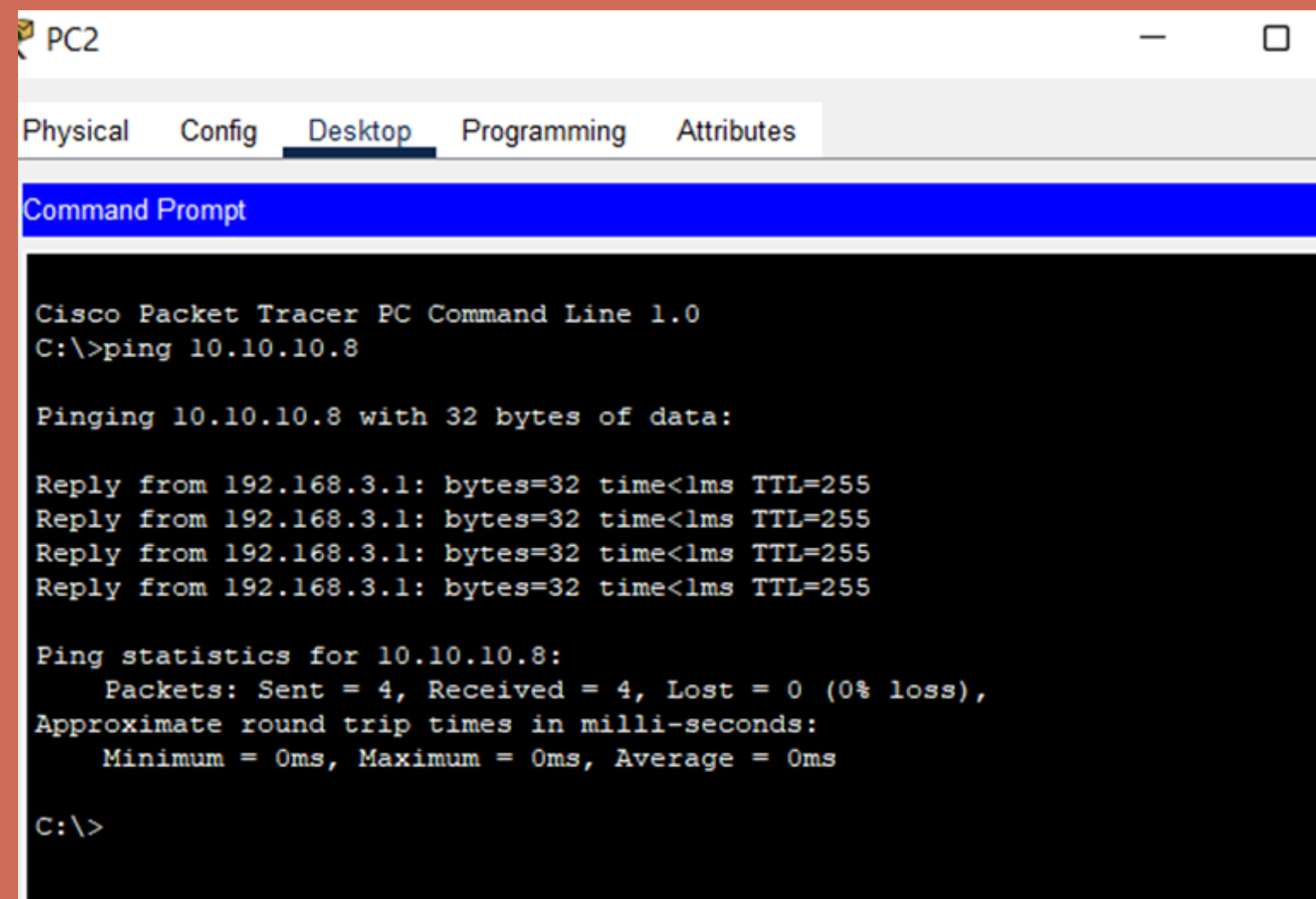
Final Design



Outcomes..

Packet sent from PC-2 on second floor to Laptop 1 on first floor and Tablet on Third floor

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC2	PC0	ICMP		0.000	N	0	(edit)	(delete)
	Successful	PC2	Laptop1	ICMP		0.000	N	1	(edit)	(delete)
	Successful	PC2	Tablet PC3	ICMP		0.000	N	2	(edit)	(delete)



```
PC2
Physical Config Desktop Programming Attributes
Command Prompt

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.10.10.8

Pinging 10.10.10.8 with 32 bytes of data:

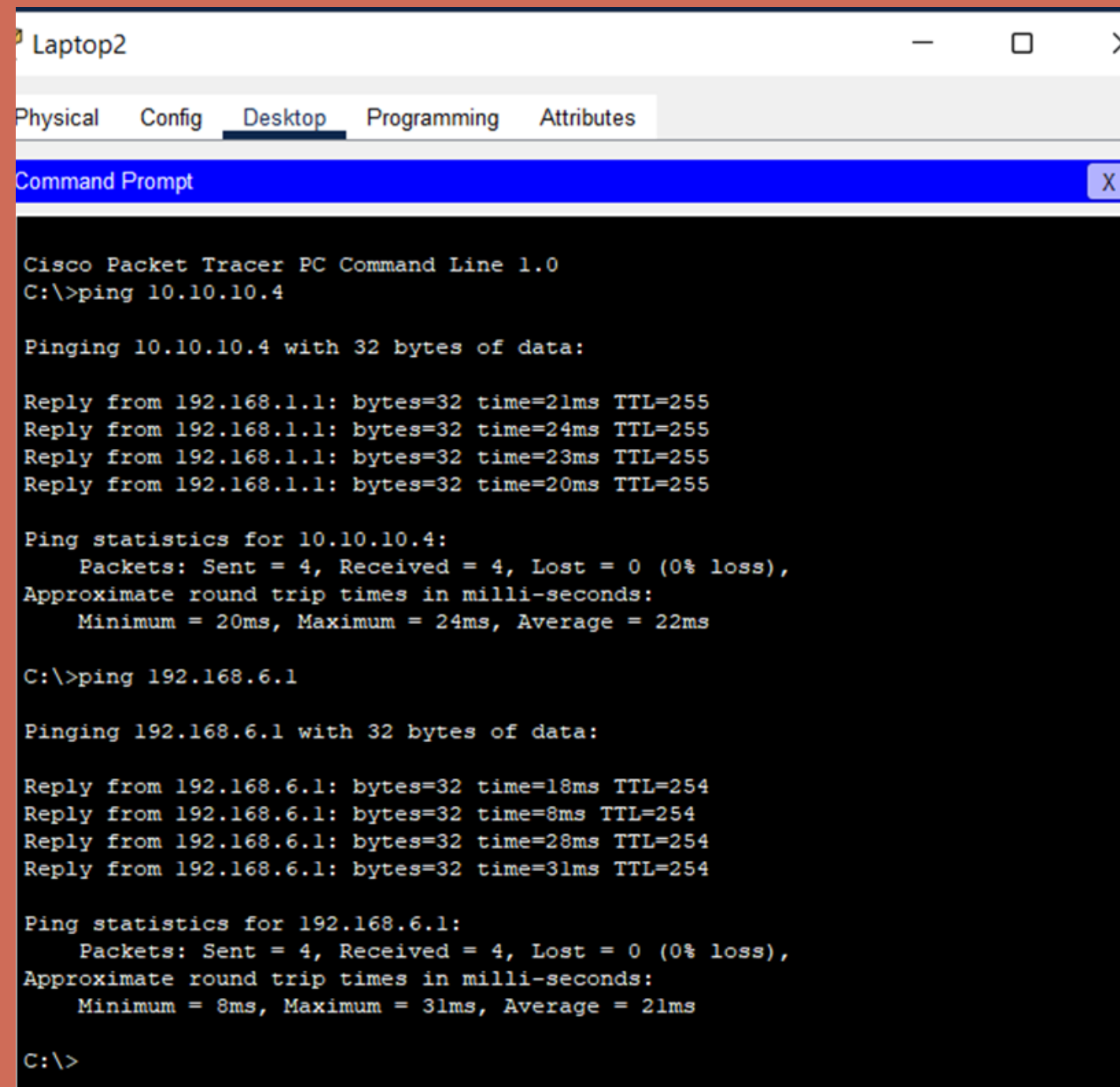
Reply from 192.168.3.1: bytes=32 time<1ms TTL=255
Reply from 192.168.3.1: bytes=32 time<1ms TTL=255
Reply from 192.168.3.1: bytes=32 time<1ms TTL=255
Reply from 192.168.3.1: bytes=32 time<1ms TTL=255

Ping statistics for 10.10.10.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Outcomes..

Packets sent from Laptop 2 (Third floor) to Laptop 1 (Second floor)



```
Laptop2
Physical Config Desktop Programming Attributes
Command Prompt X

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.10.10.4

Pinging 10.10.10.4 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=21ms TTL=255
Reply from 192.168.1.1: bytes=32 time=24ms TTL=255
Reply from 192.168.1.1: bytes=32 time=23ms TTL=255
Reply from 192.168.1.1: bytes=32 time=20ms TTL=255

Ping statistics for 10.10.10.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 20ms, Maximum = 24ms, Average = 22ms

C:\>ping 192.168.6.1

Pinging 192.168.6.1 with 32 bytes of data:

Reply from 192.168.6.1: bytes=32 time=18ms TTL=254
Reply from 192.168.6.1: bytes=32 time=8ms TTL=254
Reply from 192.168.6.1: bytes=32 time=28ms TTL=254
Reply from 192.168.6.1: bytes=32 time=31ms TTL=254

Ping statistics for 192.168.6.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 8ms, Maximum = 31ms, Average = 21ms

C:\>
```


Conclusion

Thus we have successfully built an hotel management networking project using cisco packet tracer.

To test remote login we have placed an PC named test PC in the IT department

Able to get clear view of different components and their connection with each other

Also we got to learn about different protocols like OSPF and SSH.



**Thank
You**