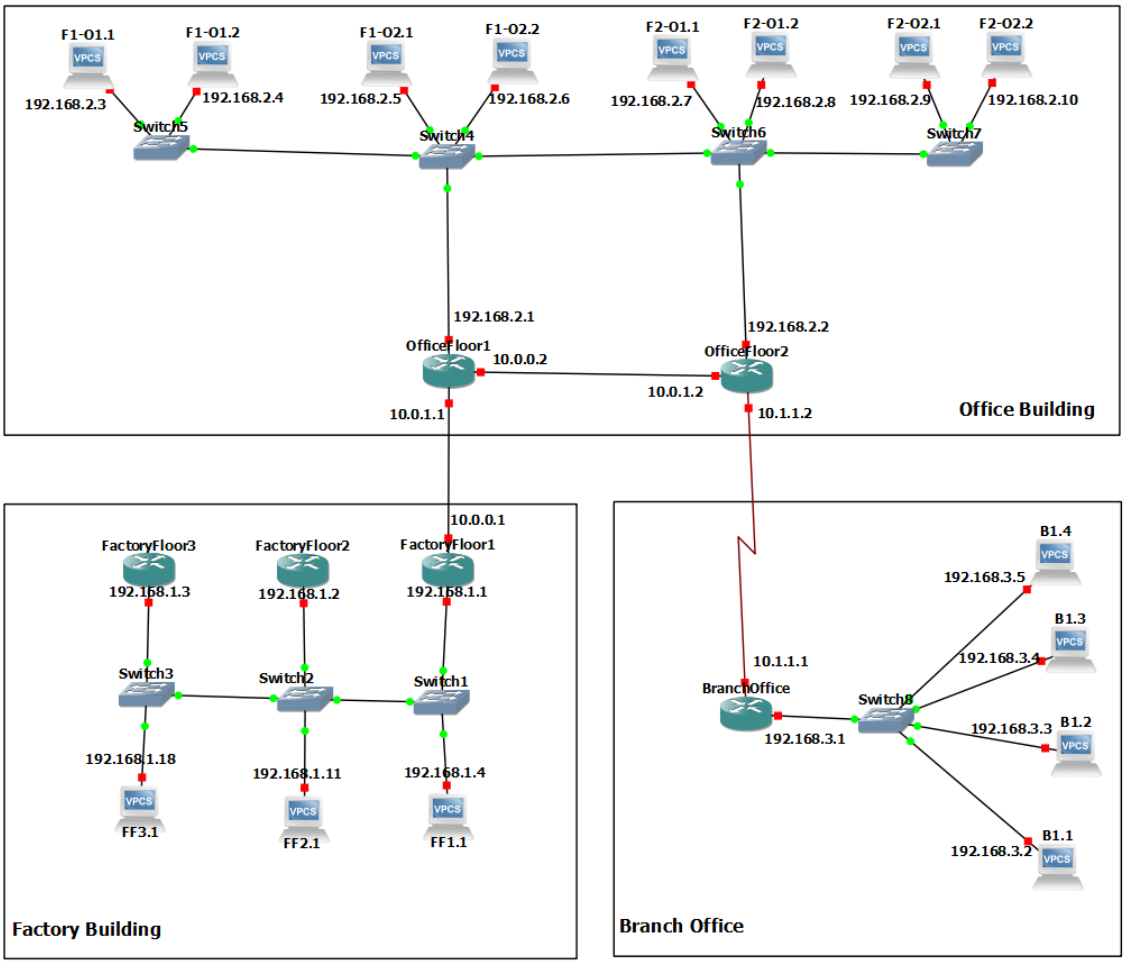
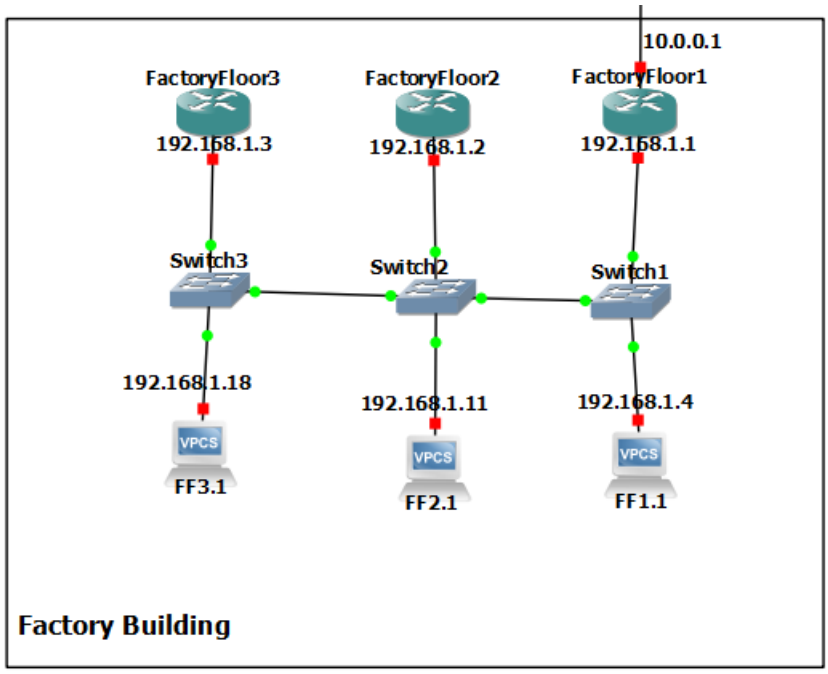
CENG422 FINAL PROJECT REPORT



The provided network diagram illustrates a segmented network architecture comprising three main areas: the Office Building, Factory Building, and Branch Office. Each area is interconnected to facilitate communication across different segments of the organization. In our network infrastructure, Cisco 3640 routers have been deployed to ensure robust and reliable connectivity across various network segments. The Cisco 3640 series routers are well-suited for enterprise-level operations due to their versatility, scalability, and support for a wide range of network services. There are 3 routers for Factory Building, 2 for Office Building and 2 for Branch office. FactoryFloor1 router is connected to OfficeFloor1 router with fast ethernet ports 10.0.0.1 and 10.0.1.1. OfficeFloor2 router is connected to BranchOffice router with serial leased line with ports 10.1.1.2 and 10.1.1.1. So, the buildings have connections between them.

Now we are going to examine each building's topology separately.

Factory Building



The factory building has 3 Cisco3640 routers for every floor, 3 ethernet switches with 7 ethernet ports in each to connect their devices and 3 PCs to demonstrate (We can connect 7 PCs to each switch but in picture we have one for each because of easiness). FactoryFloor1 (192.168.1.1) router serves as the main gateway for the Factory Building, with an external link (10.0.0.1) connecting it to Office Building. Each router is directly connected to its corresponding switch, establishing a clear hierarchy and segregation of network traffic. The IP addressing scheme follows a structured format, with each segment assigned a unique range within the 192.168.1.x subnet. This organization simplifies network management and troubleshooting.

```
FactoryFloor1#show ip interface brief
Interface                  IP-Address      OK? Method Status                Protocol
FastEthernet0/0            192.168.1.1     YES NVRAM  up                    up
FastEthernet1/0            10.0.0.1        YES NVRAM  up                    up
FastEthernet2/0            unassigned      YES NVRAM  administratively down down
FastEthernet3/0            unassigned      YES NVRAM  administratively down down
```

FactoryFloor1 Router Interface

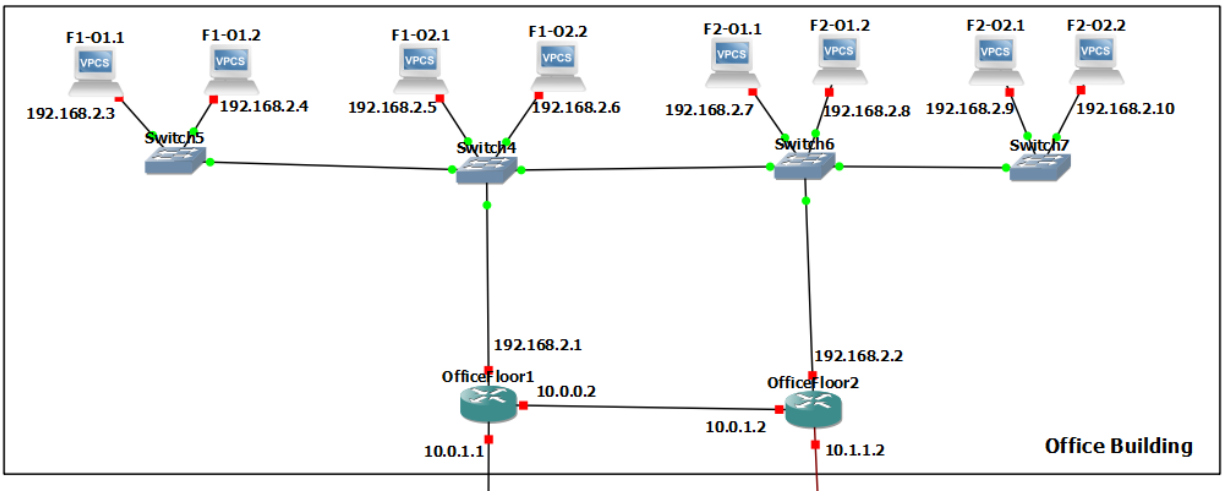
```
FactoryFloor2#show ip interface brief
Interface                  IP-Address      OK? Method Status                Protocol
FastEthernet0/0            192.168.1.2     YES NVRAM  up                    up
FastEthernet1/0            unassigned      YES NVRAM  administratively down down
FastEthernet2/0            unassigned      YES NVRAM  administratively down down
FastEthernet3/0            unassigned      YES NVRAM  administratively down down
```

FactoryFloor2 Router Interface

```
FactoryFloor3#show ip interface brief
Interface                  IP-Address      OK? Method Status                Protocol
FastEthernet0/0            192.168.1.3     YES NVRAM  up                    up
FastEthernet1/0            unassigned      YES NVRAM  administratively down down
FastEthernet2/0            unassigned      YES NVRAM  administratively down down
FastEthernet3/0            unassigned      YES NVRAM  administratively down down
```

FactoryFloor3 Router Interface

Office Building



The network diagram provided represents the Office Building's network architecture, showcasing a structured and hierarchical design aimed at efficient traffic management and robust connectivity. The diagram features routers, switches, and virtual PCs (VPCS) distributed across two floors. OfficeFloor1 (192.168.2.1) router acts as the main gateway for the first floor, handling traffic and providing a connection to the broader network via the 10.0.1.1 and 10.0.0.2 interfaces. OfficeFloor2 (192.168.2.2) router manages network traffic for the second floor and ensures connectivity to other network segments through the 10.1.1.2 and 10.1.1.1 interfaces. The IP addressing within the Office Building follows a structured format, with all devices assigned addresses in the 192.168.2.x subnet.

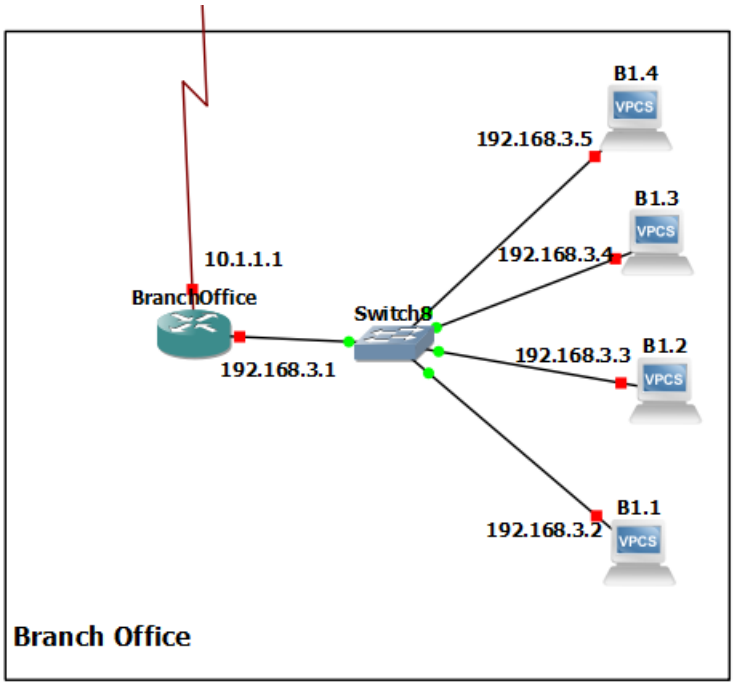
```
OfficeFloor1#show ip interface brief
Interface                  IP-Address      OK? Method Status                Protocol
FastEthernet0/0            10.0.1.1        YES NVRAM  up                    up
FastEthernet1/0            10.0.0.2        YES NVRAM  up                    up
FastEthernet2/0            192.168.2.1     YES NVRAM  up                    up
FastEthernet3/0            unassigned      YES unset  administratively down down
OfficeFloor1#
```

OfficeFloor1 Router Interface

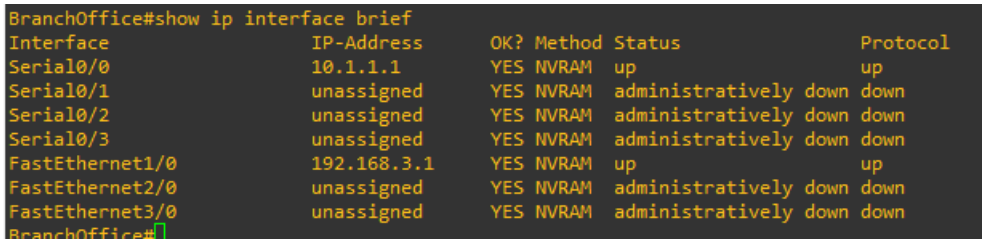
```
OfficeFloor2#show ip interface brief
Interface                  IP-Address      OK? Method Status                Protocol
Serial0/0                  10.1.1.2        YES NVRAM  up                    up
Serial0/1                  unassigned      YES NVRAM  administratively down down
Serial0/2                  unassigned      YES NVRAM  administratively down down
Serial0/3                  unassigned      YES NVRAM  administratively down down
FastEthernet1/0            10.0.1.2        YES NVRAM  up                    up
FastEthernet2/0            192.168.2.2     YES NVRAM  up                    up
OfficeFloor2#
```

OfficeFloor2 Router Interface

Branch Office



The network diagram segment provided illustrates the Branch Office's network architecture. This setup is designed to ensure efficient traffic management and reliable communication within the branch and connectivity to the broader organizational network. BranchOffice (192.168.3.1): This router serves as the central hub for the branch office network, managing both internal traffic and external connections. It is connected to the Office Building's OfficeFloor2 router via the 10.1.1.2 link, enabling communication with other network segments. The structured IP addressing within the 192.168.3.x subnet ensures simplified management and troubleshooting, contributing to a reliable and scalable network infrastructure.



BranchOffice Router Interface