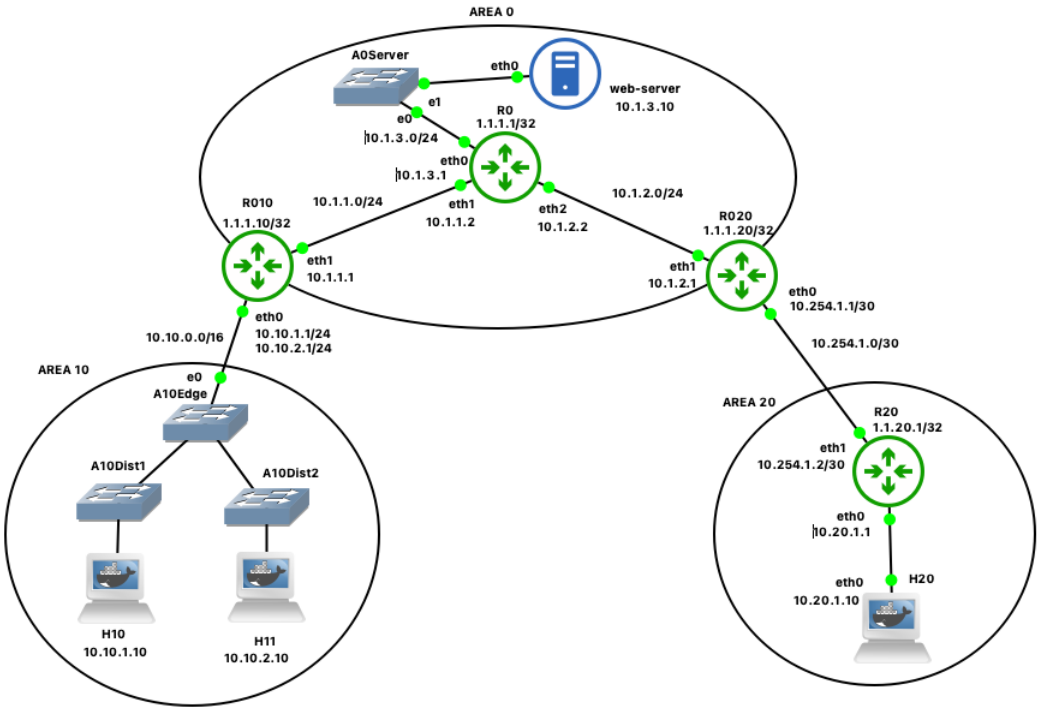
LAB 3 – Routing with OSPF – Multiarea Advanced Setup

For this final lab we are going to build a realistic enterprise network. See the picture below



This configuration consists of the following topology:

- Three OSPF areas – Area0, Area10, Area20
- Area 10 has 2 subnets, supported by TOR switches and an edge switch
- Area 20 is simulating a remote office, thus there is a /30 subnet between them
- R010 is the gateway for both the 10.10.1.0/24 and 10.10.2.0/24 subnets, notice eth0 has 2 IP addresses configured

To make your life easier, here is the IP configuration for each router:

R010:

```
vtysh
config t
interface eth0
ip address 10.10.1.1/24
ip address 10.10.2.1/24
interface eth1
ip address 10.1.1.1/24
interface lo
ip address 1.1.1.10/32
```

R0:

```
vtysh
config t
interface eth0
ip address 10.1.3.1/24
interface eth1
ip address 10.1.1.2/24
interface eth2
ip address 10.1.2.2/24
interface lo
ip address 1.1.1.1/32
```

R020:

```
vtysh
config t
interface eth0
ip address 10.254.1.1/30
interface eth1
ip address 10.1.2.1/24
interface lo
ip address 1.1.1.20/32
```

R20:

```
vtysh
config t
interface eth0
ip address 10.20.1.1/24
interface eth1
ip address 10.254.1.2/30
interface lo
ip address 1.1.20.1/32
```

Routers R0 and R20 are isolated within their own areas, so configuring OSPF is pretty straightforward:

R0:

```
router ospf
network 0.0.0.0/0 area 0
```

R20:

```
router ospf
network 0.0.0.0/0 area 20
```

The above command puts all interfaces into the correct area.

Also, don't forget to save your configuration from time to time with "do write"

Questions/Discussion

1. Think about what you need to do to configure OSPF in Routers R010 and R020. Hint, each router will require you to:
    a. Enable OSPF routing: router ospf
    b. Then enter in 2 network commands in the format: network <IP/CIDR> area X where you will give a network ID in the form of a CIDR address, for example 10.1.0.0/16, and then for area X, set X to the correct area such as 0,10,20.
2. Study the routes and make sure you understand them –
   command: do show ip ospf route
3. Make sure all of the hosts can ping each other.