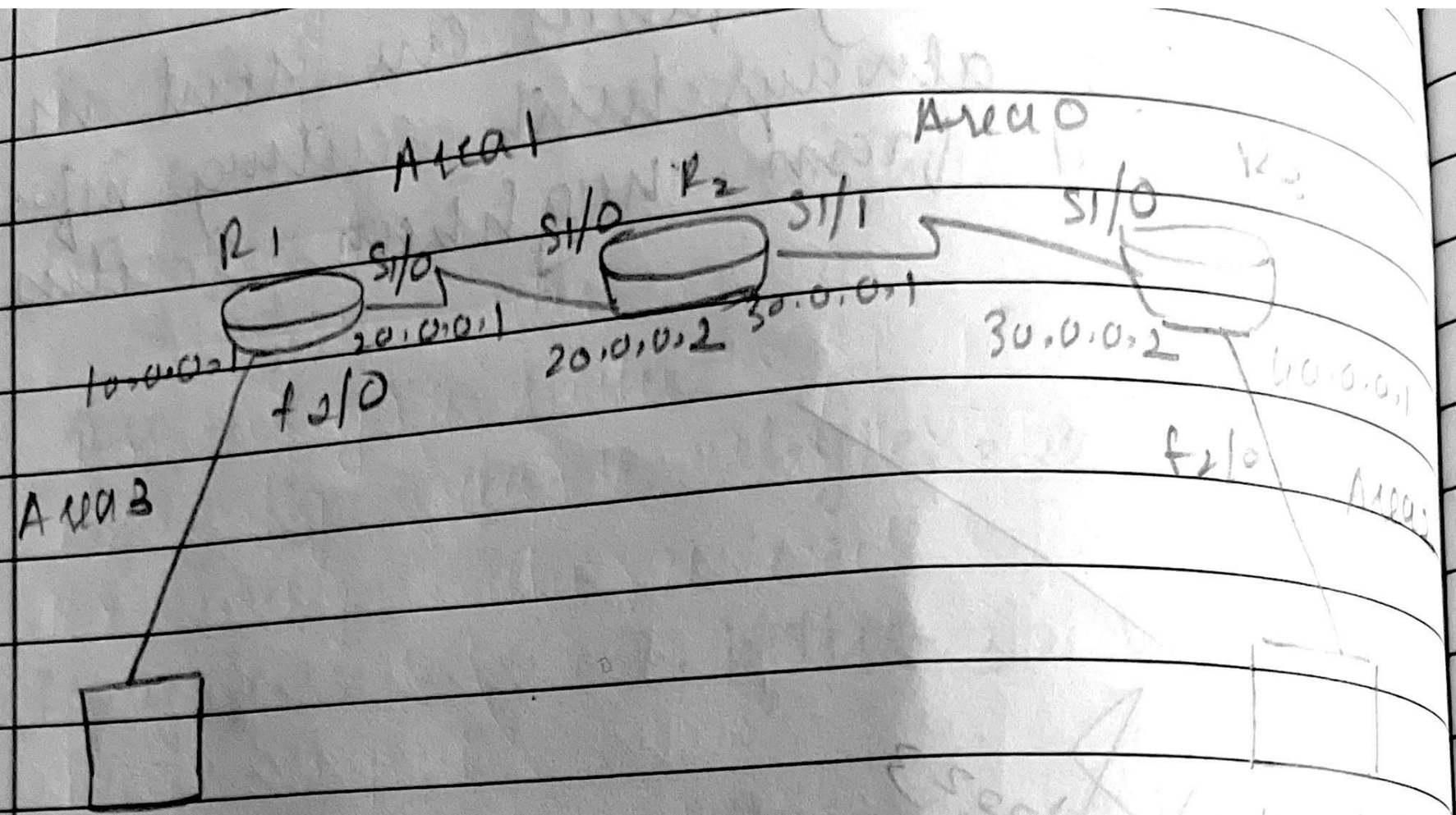


PROCEDURE:

1) Configure the routers and PCs with IP address and gateway according to topology
2) Configure each of the routers according to IP address given
3) Encapsulation PPP and clock rate need to be set as done in RIP protocol experiment

Router 1

R1 (config) # router ospf 1
R1 (config-router) # router-id 1.1.1.1
R1 (config-router) # network 10.0.0.0 0.255.255.255 area 0
R1 (config-router) # network 10.0.0.0 0.255.255.255 area 0
R1 (config-router) #

Step 5: ip-addrss 10.0.0.10 255.0.0.0
Step 6: No shut
Step 7: Exit
Step 8: Interface Se 2/0
Step 9: IP address 20.0.0.10 255.0.0.0
Step 10: Encapsulation ppp //
Step 11: Clock rate 64000 //
Step 12: No shut

→ Here for router with fastethernet execute only till step 9 and type no shut.
→ Only for router to router connection execute all steps also execute the step 11 only for the router connection which has a clock symbol at start.
→ Again go to router 0 → CLI mode and type these steps
Step 1 - config T
Step 2 - router rip
Step 3 - Network - 10.0.0.0
Step 4: Network 20.0.0.0
Step 5: Exit
→ Repeat these ~~type~~ steps for all routers
→ Atlast now go to each router and type show IP route: Here the IP address associated with that router will be labelled as C and other IP addresses are labelled as R.
→ Lastly go to PC0 and ping a message PC1 using ping destination IP address command.

In Router R1,

R1(config)# router ospf 1

R1(config-router)# area 1 virtual-link 2.2.2.2

~~In Router R2,~~

~~R2(config)# router~~

R2(config)# router ospf 1

R2(config-router)# area 1 virtual-link 1.1.1.1

R2(config-router)# exit

Ping output

Router Then PC command line 1.0

PC> Ping 40.0.0.10

Pinging 40.0.0.10 with 32 bytes of data

Request timed out

Reply from 40.0.0.10: bytes=32 time=11ms TTL=125

Reply from 40.0.0.10: bytes=32 time=11ms TTL=125

Reply from 40.0.0.10: bytes=32 time=8ms TTL=125

Ping statistics for 40.0.0.10:

Packets: Sent = 4 Received = 3 Lost = 1 (25% loss)

Approximate round trip times in milliseconds:

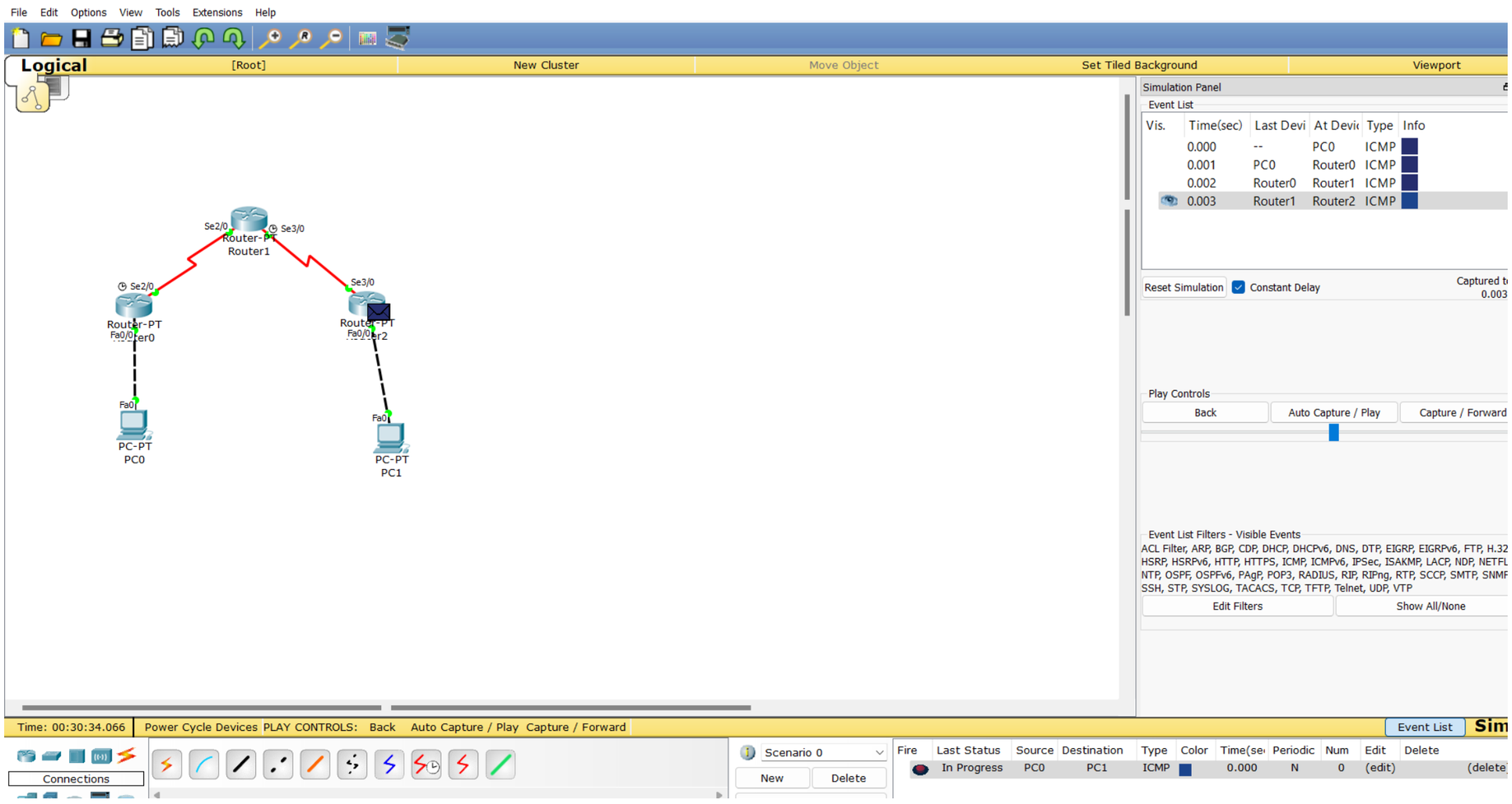
Minimum = 8ms, Maximum = 11ms Average = 10ms

Observations:

8/8/2023

→ OSPF is a link state routing protocol that is used to find the best path between source and destination router using its own SPF algorithm

→ After we make the virtual link between the area which is not connected to the backbone area, we can ping messages successfully.




```
PC>ping 40.0.0.10

Pinging 40.0.0.10 with 32 bytes of data:

Request timed out.
Reply from 40.0.0.10: bytes=32 time=4ms TTL=125
Reply from 40.0.0.10: bytes=32 time=6ms TTL=125
Reply from 40.0.0.10: bytes=32 time=12ms TTL=125

Ping statistics for 40.0.0.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 4ms, Maximum = 12ms, Average = 7ms

PC>
```