AIM: To Simulate Open Shortest Path first (OSPF) using Cisco packet Tracer.

Description:

Open Shortest path first (OSPF) is a widely used and supported routing protocol. It is a intra domain protocol, which means that it is used with in an area of a network. It is an interior galaxy protocol that has been designed with in a single autonomous system. It is based on a link state routing algorithm in which each router contains the information of every domain, and based on this information, it determines the shortest path.

The OSPF achieves by learning about every router and subnet within the entire network. Every router contains the same information about the network. The way the router learns this information by sending LSA (Link state Advertisements). These LSA's contain information about every route, subnet and other networking info.

Procedure:

Step 1: Create a network by choosing the two end devices and 2 switches and 3 routers as shown below.

Network A
192.168.1.0

Network B
155.165.7.0
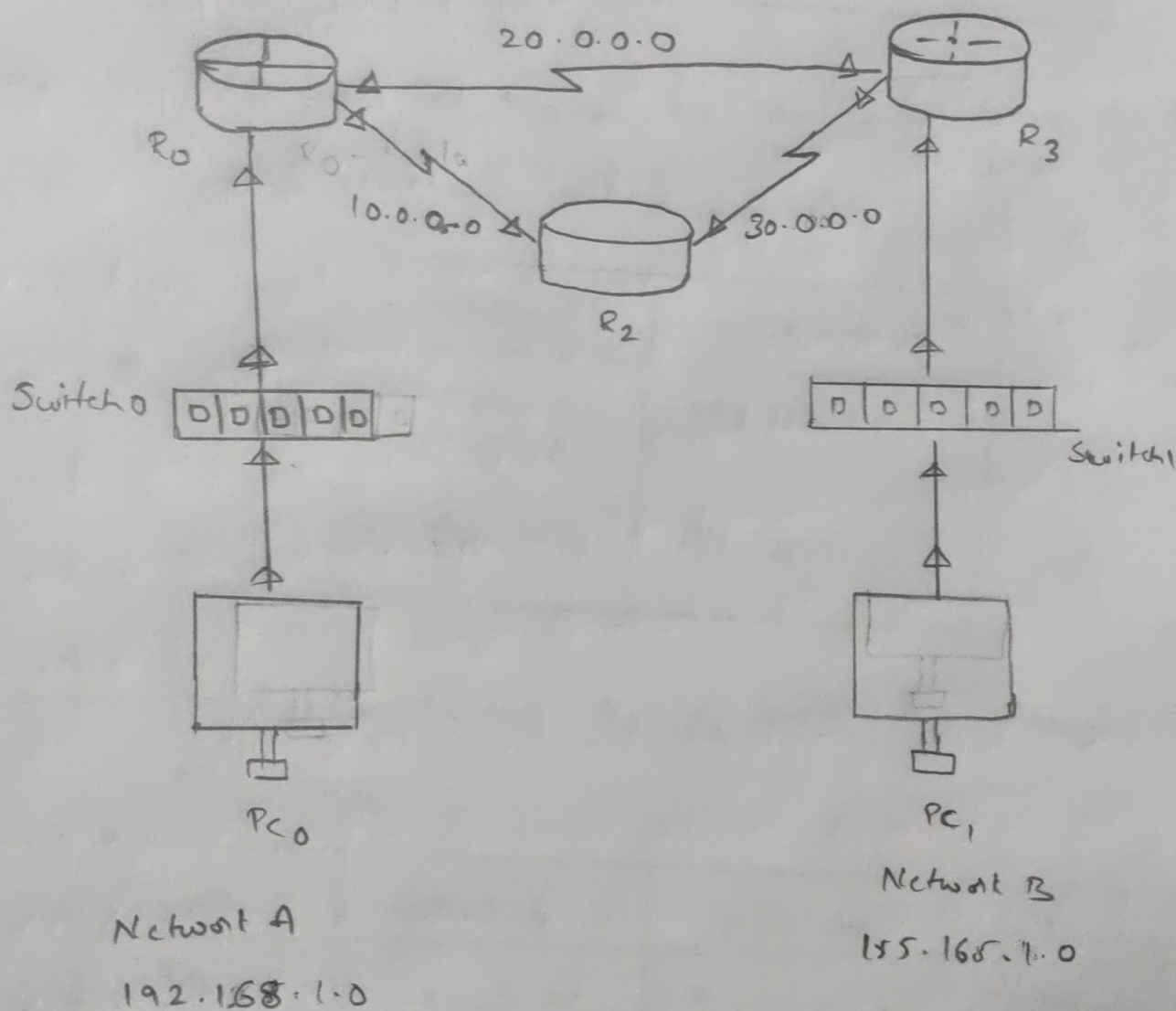
Step 2: Configure our PC's by giving the IP addresses to PC0 by clicking PC0 and clicking the tab Desktop > IP configuration

configuration a 0 PC given ar table

PC	ip address	default gateway
PC0	192.168.1.11	192.168.1.1
PC1	192.168.1.11	192.165.1.1
	r	

Step 3: config the routers by moving the cursor on the cable it shows fast ethernet folo.

Router	interface	ip address
R0	kganf65.-h.t fast ethernet 0/0	192.168.1.1
R1	fast ethernet 0/0	155.165.1.1

Step 4: config the routers R0, R1 with R2 through serial DTE cable.

	Router	interface	ip address	clock rate
(R0-R2)	R0	serial 2/0	10.0.0.2	64000 Not set
	R2	serial 2/0	10.0.0.1	64000
(R0-R1)	R0	serial 3/0	20.0.0.1	64000
	R1	serial 3/0	20.0.0.2	Not set

| $R_2 - R_1$ | R_2 | Suial 3/0 | 30.0.0.1 | 64000 |
| | R_1 | Suial 2/0 | 30.0.0.2 | Not net |

Switch all the routes to ON position.

Step 5: The packet is transfering with in the network but

if the packet from one network doesn't transmitted to another network

i.e.,

Packet from Pc0 → route 0 is successful

Packet from Pc0, → route 1 is successful

packet from Pc0 → Pc0 is failed.

Step 6: Config the route with other networks to transmit the data

for Route R0.

Route (config) # exit

Route (config) # route ospf 1

Route (config-route) # network 192.168.1.0 0.0.0. 255 area 0

Route (config-route) # network 10.0.0.0. 0.255.255.255 area 0.

Route (config-route) # network 20.0.0.0 0.255.255.2

area 0.

Routu (Config - routu) # exit

Step 7: config OSPF for Route 2

Routu (Config - if) # exit

Routu (config) # route ospf 1

Routu (config) # network 10.0.0.0. 0.255.255.255 area 0

Routu (config - route) # network 30.0.0.0   0.255.255.255

area 0.

Routu (config - route) # network exit

Step 8: config OSPF for route 3.

Routu (config - if) # exit

Routu (config) # route ospf 1

Routu (Config - route) # network 20.0.0.0 0.255.255.255

area 0.

Routu (config - route) # network 30.0.0.0   0.255.255.255

area 0.

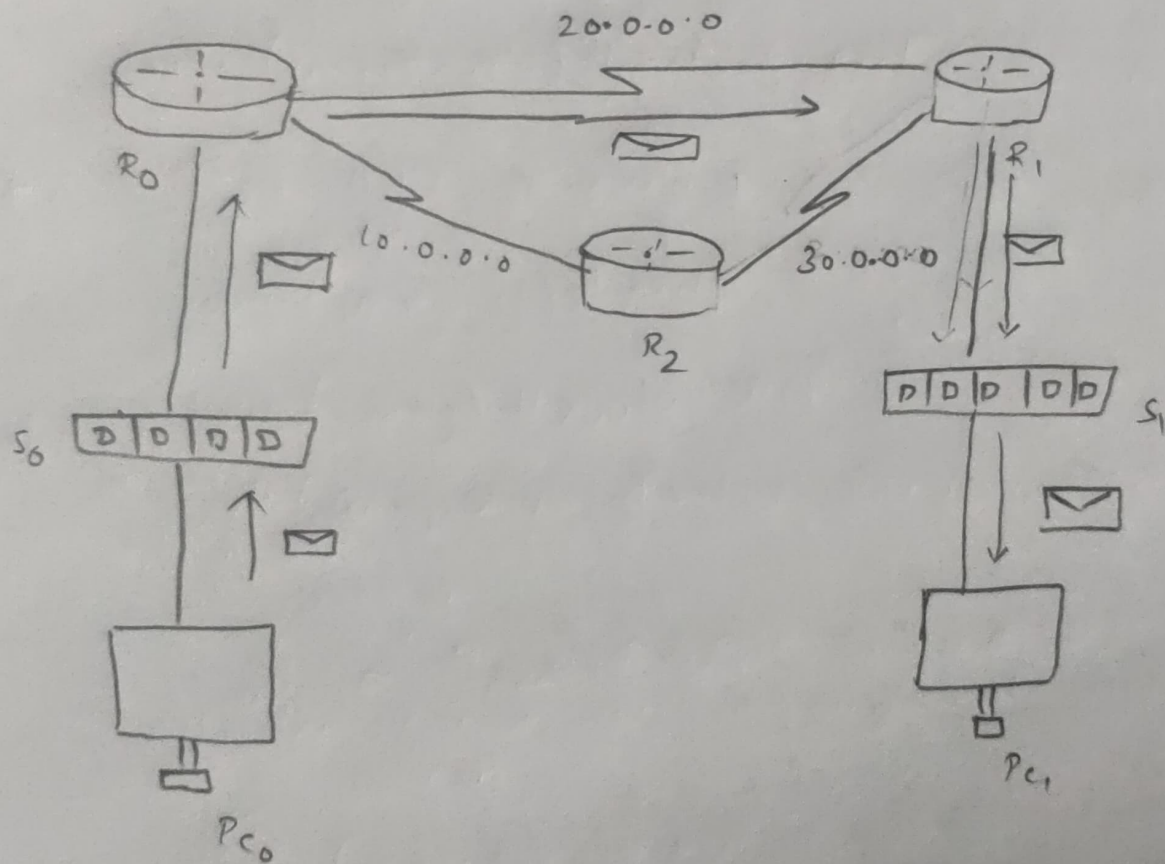Routu (config - route) # network 155.165.1.1. 255.255.0.0.

area 0.

All the routers are configured with ospf.

The packet from PCo to Pc₁ in successful.

The packet in travelled through the shortest path
as $PC_0 \rightarrow S_0 \rightarrow R_0 \rightarrow R_{01} \rightarrow Pc_{01}$

The other way is i.e. $PC_0 \rightarrow S_0 \rightarrow R_0 \rightarrow R_2 \rightarrow R_1 \rightarrow Pc_1$
in longer path

output!

The packet from PCo to Pc₁ transmitted to Pc₁ through
the shortest path