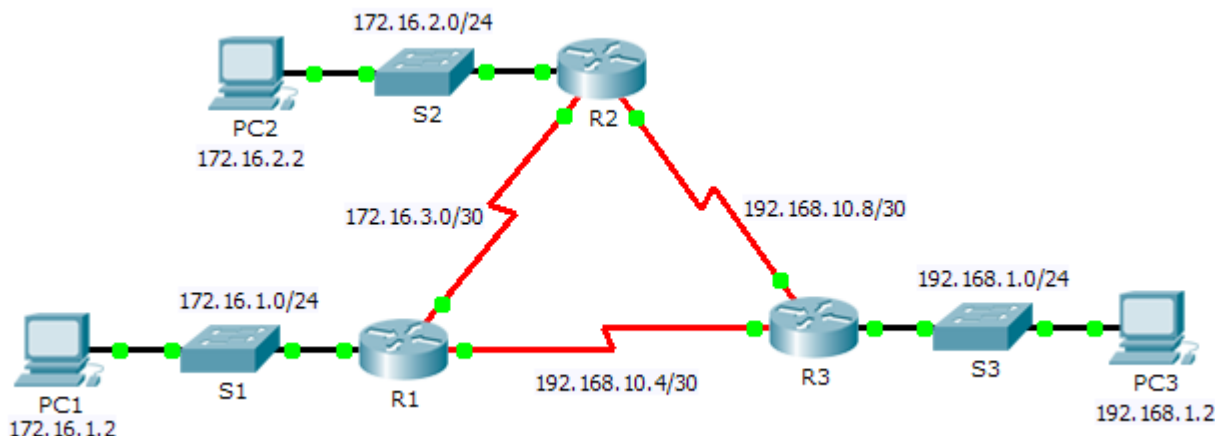# Packet Tracer – Configuring OSPFv2 in a Single Area

Topology

Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	G0/0	172.16.1.1	255.255.255.0	N/A
	S0/0/0	172.16.3.1	255.255.255.252	N/A
	S0/0/1	192.168.10.5	255.255.255.252	N/A
R2	G0/0	172.16.2.1	255.255.255.0	N/A
	S0/0/0	172.16.3.2	255.255.255.252	N/A
	S0/0/1	192.168.10.9	255.255.255.252	N/A
R3	G0/0	192.168.1.1	255.255.255.0	N/A
	S0/0/0	192.168.10.6	255.255.255.252	N/A
	S0/0/1	192.168.10.10	255.255.255.252	N/A
PC1	NIC	172.16.1.2	255.255.255.0	172.16.1.1
PC2	NIC	172.16.2.2	255.255.255.0	172.16.2.1
PC3	NIC	192.168.1.2	255.255.255.0	192.168.1.1

Objectives

Part 1: Configure OSPFv2 Routing

Part 2: Verify the Configurations

Part 3: Change OSPF Metrics

IMPORTANT: For each of your routers hostnames insert your student number. E.g. R1 – 2015111R1

Background

In this activity, the IP addressing is already configured. You are responsible for configuring the three router topology with basic single area OSPFv2 and then verifying connectivity between end devices.

Part 1: Configure OSPFv2 Routing

Step 1: Configure OSPF on the R1, R2 and R3.

Use the following requirements to configure OSPF routing on all three routers:

- Process ID 10
- Create loopback interfaces on each router and for each loopback assign the addresses accordingly so that the Router ID for each router is: R1 = 1.1.1.1; R2 = 2.2.2.2; R3 = 3.3.3.3
- Network address for each interface

Step 2: Verify OSPF routing is operational.

On each router, the routing table should now have a route to every network in the topology.

Part 2: Verify the Configurations

Each PC should be able to ping the other two PCs. If not, check your configurations.

Part 3: Change the routing across the network

By default, traffic from the LAN on R1, (e.g. including PC1) to the LAN on R2 (e.g. including PC2) should travel across from R1 to R2 directly. It chooses this route because it has a lower metric rather than travelling from R1-R3-R2.

However, you would like to change how the traffic travels. Change the costs of the links (hint: to ensure all traffic destined to 172.168.2.0 use the **ip ospf cost ?** on the outgoing interface of the path you wish to modify) the question mark is the value you will place on the cost of the link. **Remember you will need to do this in two places.**

Use the **show ip ospf interface** command to verify the costs have changed and the

Show ip route to determine traffic is travelling from R1-R3-R2 to reach 172.16.2.0/24. You can also use the simulation tool to simulate your traffic across the links.