Here's a concise lab report for "OSPF Routing Between PCs" in Cisco Packet Tracer, structured according to your specified format:

Lab Report: OSPF Routing Between PCs in Cisco Packet Tracer

Title

OSPF Routing Configuration Between PCs in Cisco Packet Tracer

Objective

To configure OSPF (Open Shortest Path First) routing between two PCs connected through two routers and verify connectivity.

Equipment

- Cisco Packet Tracer Software
- 2 Routers (Router0, Router1)
- 2 Switches
- 2 PCs (PC0, PC1)
- Copper Straight-Through Ethernet Cables

Theory

OSPF is a link-state routing protocol that uses a more efficient algorithm to calculate the shortest path for routing packets within an IP network. It supports large and complex networks with rapid convergence and scalability.

Procedure

1. **Open Cisco Packet Tracer:** Launch the Cisco Packet Tracer application.

2. **Create the Topology:**

   - Drag and drop 2 routers and 2 switches onto the workspace.
   - Add 2 PCs to the workspace.

3. **Connect Devices:**

   - Use Straight-through Ethernet cables to connect:
     - PC0 to Switch0.
     - Switch0 to Router0.
     - PC1 to Switch1.
     - Switch1 to Router1.
     - Router0 to Router1.

4. **Assign IP Addresses:**

   - **PC0:**
     - IP: 192.168.1.2
     - Subnet Mask: 255.255.255.0
     - Gateway: 192.168.1.1 (Router0)
   - **PC1:**
     - IP: 192.168.2.2
     - Subnet Mask: 255.255.255.0
     - Gateway: 192.168.2.1 (Router1)
   - **Router0 Interfaces:**
     - Interface to Switch0: 192.168.1.1 /24
     - Interface to Router1: 10.0.0.1 /30
   - **Router1 Interfaces:**
     - Interface to Switch1: 192.168.2.1 /24
     - Interface to Router0: 10.0.0.2 /30

5. **Enable OSPF on Routers:**

   - Select Router0, go to the **Config** tab, choose **Routing**, and enable **OSPF**:
     - Set Router ID to 1.1.1.1.
     - Add networks: 192.168.1.0 and 10.0.0.0 with area 0.
   - Repeat for Router1, setting Router ID to 2.2.2.2 and adding networks: 192.168.2.0 and 10.0.0.0 with area 0.

6. **Verify OSPF Configuration:**

   - Check the routing tables on both routers to ensure that OSPF has learned routes to both networks.

7. **Test Connectivity:**

   - Open the command prompt on PC0 and ping PC1 (192.168.2.2) to verify successful communication.

Results

Successful pings between PC0 and PC1 indicate that the OSPF routing configuration is functioning correctly, allowing data packets to traverse between different subnets.

Conclusion

The lab effectively demonstrated the configuration of OSPF routing between two PCs in Cisco Packet Tracer. The PCs successfully communicated across routers, validating the implementation of OSPF for dynamic routing.

Feel free to modify any specific details or numbers as necessary for your lab report!