**Some Things To Consider**

* *Draw the topology and write down IP addresses/port numbers.   
  Use a large sheet of paper so that the diagram is easy to read!*
* *Update preferences to FILTER BUFFERED EVENTS ONLY.*
* *Filter only ICMP events to make debugging easier  
  And delete/new simulations once you’ve tested an action*
* *Test the topology as you make changes to find any errors earlier*
* *Regularly save topology so you can go back to it if you need to.*
* *Name your PKT file: Practical3-lastname.PKT*
* *All cables MUST use the correct cable type – Crossover or Straight Thru.*
* *Use 4331 routers with an additional port configured.*
* *PC terminology: This lab will refer to PC’s by the last byte of their ip address  
  (ex: PC configured as x.x.x.4 will be referred to as PC4).*
* *Please have your topology visually laid out the same as the directions.*
* *Please label routers and switches as per the topology.*

**Part I – Network Address Translation**

Subnet 1 – Using NAT

|  |  |
| --- | --- |
| 1. Create subnet topology and add a textbox with your NAME and CLASSID. Label devices Router1, Switch1,PC2 and PC3. Connect the switch to the router’s PORT 0. 2. Configure this as a /24 subnet using the non-routable CLASS A NETWORK address.  *Note: Remember the three parts of an address: the network id, the subnet id, the host id. We’re creating a /24 subnet with an /8 class A network address.* 3. Configure the PC’s and Router with correct the ip addresses. (*note: PC2 should be configured as x.x.x.2*) 4. The ISP is assigning a PUBLIC CLASS C address of 200.*yourclassid*.5.0 /24. 5. Create static NAT commands for PC2 and PC3 to use public addresses 200.*yourclassid*.5.2 and 200.yourclassid.5.3 6. Add a textbox below the PC’s indicating the private and public subnets |  |

Subnet 2 – Testing NAT

|  |  |
| --- | --- |
| 1. Add Switch2 and connect to R1, port 2. *Place the new switch to the left of the router.* 2. Add PC99 3. Configure as subnet 192.168.*classid*.0 /24 4. Add a textbox (as shown) with the subnet 5. To verify proper NAT configuration ensure that you can Ping between PC99 and PC2/PC3   *NOTE: test this doing an actual ping from the PC. DO not test using the simple PDU.* |  |

**Part II – Static Routing**

Subnets 3, 4, 5, 6 and 7

|  |  |
| --- | --- |
| 1. Expand the topology by adding three more routers. 2. Configure each of the subnets as shown in the diagram.   *Note: I strongly recommend that you draw out the topology and indicate port numbers and ip addresses to be assigned to each port number*   1. Configure static routing on all routers such that pings from PC99 to PC5 go through R2 and R3, but pings from PC5 to PC99 go thorough only R2   *Note: do not configure static routes to subnet 1 (which has public/private address configuration).*     1. Ensure you have connectivity and that pings travel through the specified routes. |  |

**Part III – Dynamic Routing**

Subnet 8

|  |  |
| --- | --- |
| 1. Add Switch3 and connect to R3. Add PCs 6 and 7. 2. Configure the subnet as 99.0.0.0 /8 3. To provide full topology connectivity, configure RIPv2 on each router. **When configuring R1 DO NOT configure the subnet1 network.** 4. When successful, you should be able to ping between PC6/PC7 and PC5/PC99   *Note: You may want to add the RIP simulation filter during testing Once RIP is fully running remove the RIP filter from simulation.* |  |

**Part IV – InterVLAN Routing**

|  |
| --- |
| 1. Now reconfigure subnet 8 (subnet 99.0.0.0) to create two VLANs   VLAN 60 should be titled FACULTY  VLAN 70 should be titled STUDENTS 2. Configure PC6 in VLAN 60 and PC7 in VLAN 70. 3. Configure “ROUTER ON A STICK so that the PC’s can ping each other. *Hint: First remove the previously configured IP address of the router port.*   Verify the configuration: PC6 should be able to ping PC7. |

**Practical Completion**

Submit your PKT file: Practical3*-lastname.*PKT