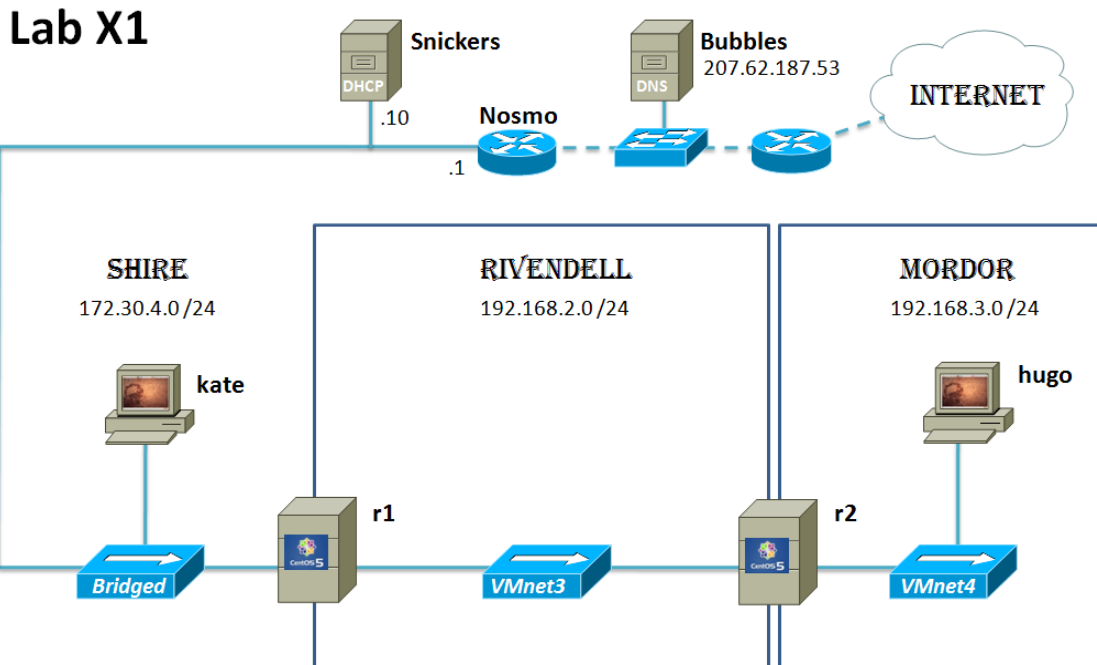**Lab X1: Permanent NIC configuration (Extra Credit)**

This extra credit lab is a modified version of Lab 3. Instead of using temporary NIC configuration methods you will instead edit configuration files so the settings will persist after system restarts.

Supplies

- VMWare Server 1.08 or higher
- 192 VMs: Frodo, Celebrian, Elrond, and Sauron
- Virtual networks: VMnet3 (Rivendell) and VMnet4 (Mordor)

Preconfiguration

- Original versions of all VMs. Note, this will set the network configurations back to down or DHCP settings.

Forum

Use the forum to ask questions, collaborate, post tips and any lessons learned when you have finished. Forum is at: http://opus.cabrillo.edu/forum/viewforum.php?f=5

Procedure

Implement the diagram above using permanent network configurations on each system. You will be changing hostnames (not the VM names) so use this table as a guide:

Virtual Machine	Hostname
Frodo (Ubuntu)	kate
Celebrian (CentOS)	r1
Elrond (CentOS)	r2
Sauron (Ubuntu)	hugo

1. Make a network map showing all networks (with prefixes), all interfaces (showing interface name and IP address), systems (showing hostname, default gateway and any static routes). For this lab you will need to do an **electronic version** that can be emailed.
2. Cable your VMs
3. Configure permanent configuration settings on each system:
   a. hostname
   b. static IP address(es) using IP table in the appendix
   c. default gateway
   d. DNS settings
   e. static routes (as needed)
   f. IP forwarding on the routers
4. Test
   a. Ping kate from hugo
   b. Ping google.com from r1

To turn in

A) Results
   Your *labX1* **text** file should contain the following sections.

   - Standard boilerplate information:
     – CIS 192 Lab *XX*
     – *Name*
     – *Date*
     – TBA hours*: X.X*
     – Station number: CIS-Lab-*XX*
   - For the CentOS routers:
     ▪ All /etc/sysconfig/network-scripts/ifcfg-eth* files
     ▪ /etc/sysconfig/network
     ▪ All /etc/sysconfig/network-scripts/route-eth* files
     ▪ /etc/sysctl.conf
     ▪ /etc/resolv.conf
   - For the Ubuntu hosts:
     ▪ /etc/network/interfaces

- /etc/hostname
- /etc/resolv.conf
- The successful ping from hugo to kate
- The successful ping from r1 to google.com
- Command summary (documented examples of key commands for future reference)

Check your work for completeness then submit as many times as you wish up until the due date deadline. Remember, **late work is not accepted**, so start early, plan ahead for things to go wrong and use the forum to ask questions.

[p]scp labX1 cis192@opus.cabrillo.edu:labX1.lastname

B) Your network map

Email me an electronic version at **risimms@cabrillo.edu**

Grading rubric (30 points)

2 points for complete submittal, professional appearance and quality
3 points for correct network configuration on kate
3 points for correct network configuration on r1
3 points for correct network configuration on r2
3 points for correct network configuration on hugo
4 points for successful kate ping (from hugo)
4 points for successful Google ping (from r1)
2 points for useful command summary
6 points for complete and accurate network map