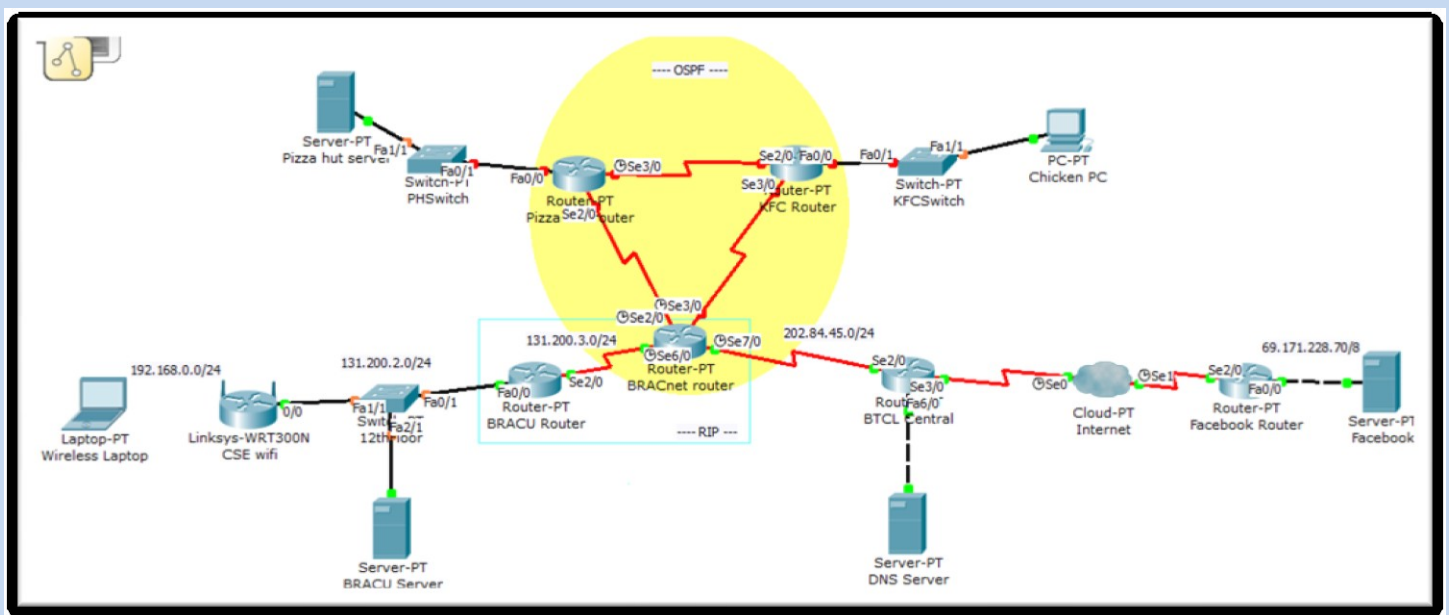


INSTRUCTION FOR PRACTICE PROBLEM

Synopsis: You are a network admin of BRAC Net which is providing internet facility to KFC, Pizza hut and of course BRAC University network. BRACU network has BRACU Router, BRACU server and CSE wifi router. KFC and Pizza hut each has one router. Pizza hut also has a web server.

BRAC Net itself is buying Bandwidth from BTCL. So any packet destined outside of BRACU, Pizzahut and KFC network is forwarded to BTCL server. BTCL also has a DNS server which provides DNS for www.bracu.ac.bd, www.pizzahut.bd and www.facebook.com. Somewhere in the internet cloud facebook server is connected.

Your mission (if you choose to accept it!) is to configure BRACnet, BRACU, KFC and Pizza Hut router. Configuration includes basic router config, rip, ospf, static and default routing. Other devices are already configured. After the configuration you will connect a laptop to CSE wifi and browse www.bracu.ac.bd. Then order a pizza from (joking! just browse) www.pizzahut.bd also browse www.facebook.com to see if you have internet. Do the same from Chicken PC in KFC network.



Some points to remember:

- 1st IP means first usable IP.
- Use next hop IP as the target IP address while giving static routes
- For security reason you cannot ping wireless laptop from outside the wifi network.

Task:

1. Make Basic Configuration in BRACNet router.
 - a. hostname: BRACnet
 - b. Enable password: BRACnet
 - c. Banner: AUTHORIZED PERSONAL ONLY. OTHERS WILL BE SHOOT
 - d. console password: cisco
 - e. VTY (0 to 4): class

2. Divide 172.19.4.0/25 network in 5 subnets according to following groups. (If host numbers are same for multiple groups, Assign IP's according to the group which is written earlier, Give 64000 as clock rate in appropriate serial links, *see Hint 1 below*)
 - a. Serial link between Pizza hut and BRACnet needs 2 hosts. Assign first IP to se2/0 of pizza hut.
 - b. Serial link between KFC and BRACnet router needs 2 hosts. Assign first IP to se3/0 of KFC.
 - c. Serial link between KFC and Pizza hut router needs 2 hosts. Assign first IP to se2/0 of KFC.
 - d. Ethernet network of Pizza hut needs 31 hosts. Assign 1st IP to fa0/0 of Pizza hut.
 - e. Ethernet network of KFC needs 30 hosts. Assign 1st IP to fa0/0 of KFC Router. Last IP to Chicken PC. In chicken PC give DNS 4.2.2.1
3. Give a static route in BRACU Router for CSE-wifi network, use the IP of 0/0 port of CSEWifi router (internet port) as next hop IP. Also give a default route towards BRACnet router
4. In BRACnet Router give a default route towards BTCL central router.
5. Configure OSPF in BRACnet, Pizza hut and KFC router.
 - a. Use default process and area ID.
 - b. For BRACnet router do not advertise the network towards BTCL central and network towards BRACU router. Otherwise advertise all networks.
 - c. Make sure OSPF updates are not sent through BRACnet router's se6/0, se7/0 ports and KFC and Pizza hut router's fast ethernet ports.
 - d. Make sure BRACnet router includes its static routes in OSPF updates.
 - e. Ensure BRACnet router's se2/0 interface has 64kbps bandwidth and se3/0 interface has 128kbps bandwidth.
 - f. Make 3 "loopback 0" interfaces in BRACnet, Pizzahut and KFC router (one in each) using IP of 10.1.1.1, 10.2.2.2 and 10.3.3.3. Choose addresses in such a way so that BRACnet becomes the DR, KFC becomes the BDR. (See Hints 2 below) Clear the ip ospf process after you configure these.
6. Configure RIP BRACnet and BRACU router.
 - a. Use version 2.
 - b. disable auto-summary
 - c. Advertise all connected networks in BRACU router. In BRACnet router advertise only the network towards se6/0.
 - d. redistribute the static route in BRACU router. (*See hint 3*)
7. BRACnet router is a common router who runs both RIP and OSPF, so it should exchange routing information of two regions (RIP, OSPF). This is not in the syllabus. I'm giving the commands. Just enter in BRACnet routers conf. term. mode

```
router rip
redistribute ospf 1 metric 1
exit
router ospf 1
redistribute rip
redistribute static
exit
```

8. Connect the Wireless laptop using PC wireless icon of Desktop tab. Wifi SSID is Bangla tiger. Wifi password is *arifkhan*

Connectivity Test: If you do everything properly, your completion will be 100%. Now from wireless laptop browse, www.facebook.com, www.pizzahut.bd, www.bracu.ac.bd. Browse the same sites from Chicken PC. Note that for first time browsing, it will take some time.

Hints:

1. Give clock rate to one end of serial link which has the clock sign on their port label. If port label is not ON, just switch it on by going to Options -> Preferences and tick "Always show port labels".
2. For this topology DR, BDR election actually do not take place. But choose loopback addresses assuming that election happens. This just affects the router ID's.
3. Give redistribute static command in BRACU router. Thus BRACnet router will know about wifi network.