LOMBA KOMPETENSI SISWA

SEKOLAH MENENGAH KEJURUAN
TINGKAT NASIONAL XXVI 2018

MODUL C
PT - CHALLENGE

IT NETWORK SYSTEMS ADMINISTRATION

LKSN2018_ITNSA_MODUL_C

Instructions

The competition has a fixed start and finish time. You must decide how to best divide your time.

Please **carefully** read the following instructions!

When the competition time ends, please save your file and add your ID in the end of the filename (change the XX), leave the Cisco Packet Tracer program and your workstation in a running state.

The Cisco Packet Tracer program may crash and you could lose marks so DO NOT FORGET TO SAVE YOUR PACKET TRACER FILE REGULARLY!

Description of project and tasks

Network diagram has preconfigured.

Your goals are to make all devices can be connected with IPv4 and IPv6 with services according to the instruction below!

ALL INFRASTRUCTURE, SERVERS AND CLIENTS

1. Configure IP & Hostname according to the network diagram.

Router Configuration

1. See the appendix to understand IP addressing, services and network diagram.
2. Do not configure any kind of static or dynamic routing on ISP-RTR1.
3. Configure PPP CHAP authentication on the Serial Link between ISP and HQ router with **LKS** as the password.

4. Configure an IPv6 over IPv4 Point-to-Point ipv6ip between the LHQ-RTR1 and LBRANCH-RTR1, going through the ISP router and then configure OSPFv3 routing via its tunnel to advertise the below networks:

LHQ-RTR1 OSPFv6 process ID 1	**LBRANCH-RTR1 OSPFv6 process ID 1**
Fdec:cdef:1::/64 area 0	Fdec:cdef:1::/64 area 0
Fdec:cdef:2::/64 (Redistribute connected)	Fdab:cdef:3::/64 (Redistribute connected)

5. On LHQ-FW1, LBRANCH-FW1, configure IPV6 default static route to LHQ-RTR1 and LBRANCH-RTR1 respectively using next-hop ipv6 address.
6. On LHQ-RTR1, LHQ-RTR2, and LBRANCH-RTR1, configure default static route to ISP using next-hop address.

7. Configure OSPF Routing on LHQ-RTR1, LHQ-RTR2, LDSW1, LDSW2. Process ID 1. Send routing updates to the appropriate interface only (passive interface is default).
   Advertise the below networks:

LHQ-RTR1 **Router-id 1.1.1.1**	**LHQ-RTR2** **Router-id 2.2.2.2**	**LDSW1** **Router-id 3.3.3.3**	**LDSW2** **Router-id 4.4.4.4**
10.0.0.0/30 area 0	10.0.0.8/30 area 0	10.0.0.0/30 area 0	10.0.0.8/30 area 0
10.0.0.4/30 area 0	10.0.0.12/30 area 0	10.0.0.12/30 area 0	10.0.0.4/30 area 0
Redistribute default route	Redistribute default route	172.16.20.0/24 area 1	172.16.20.0/24 area 1

WIRELESS CONFIGURATION

1. Configure wireless SSID: Lombok-Wifi
2. Wireless security: WPA2-Enterprise
   - Radius server: 172.16.10.252:1645
   - Secret: LombokIndonesia
   - Encryption type: AES
4. Allow Remote AP web management with password: LombokIndonesia
5. Use mac address security filtering for laptop1 so it can connect to the wireless.
3. RADIUS-SRV Configuration:
   - Port: 1645
   - Client name: lombok-ap1
   - Key: LombokIndonesia
   - User information: user1 with password LombokIndonesia

NAT Configuration

1. Configure NAT overload in LHQ-RTR1 and LHQ-RTR2 for VLAN CLIENT IPv4 Network for internet access, Use VLAN20 for ACL name so PC Client can access ISP-RTR1 IP.

SWITCHING CONFIGURATION

1. Configure VTP version 2 on LDSW1, LDSW2, LASW1 and LASW2. Use LDSW1 as VTP server, other as clients. Use **lombok.id** as VTP domain name and **LombokIndonesia** as a password. VLAN database on all switches should contain following VLANs:
    a. VLAN 10 with name Server for Server subnet (172.16.10.0/24).
    b. VLAN 20 with name Client for Client subnet (172.16.20.0/24).

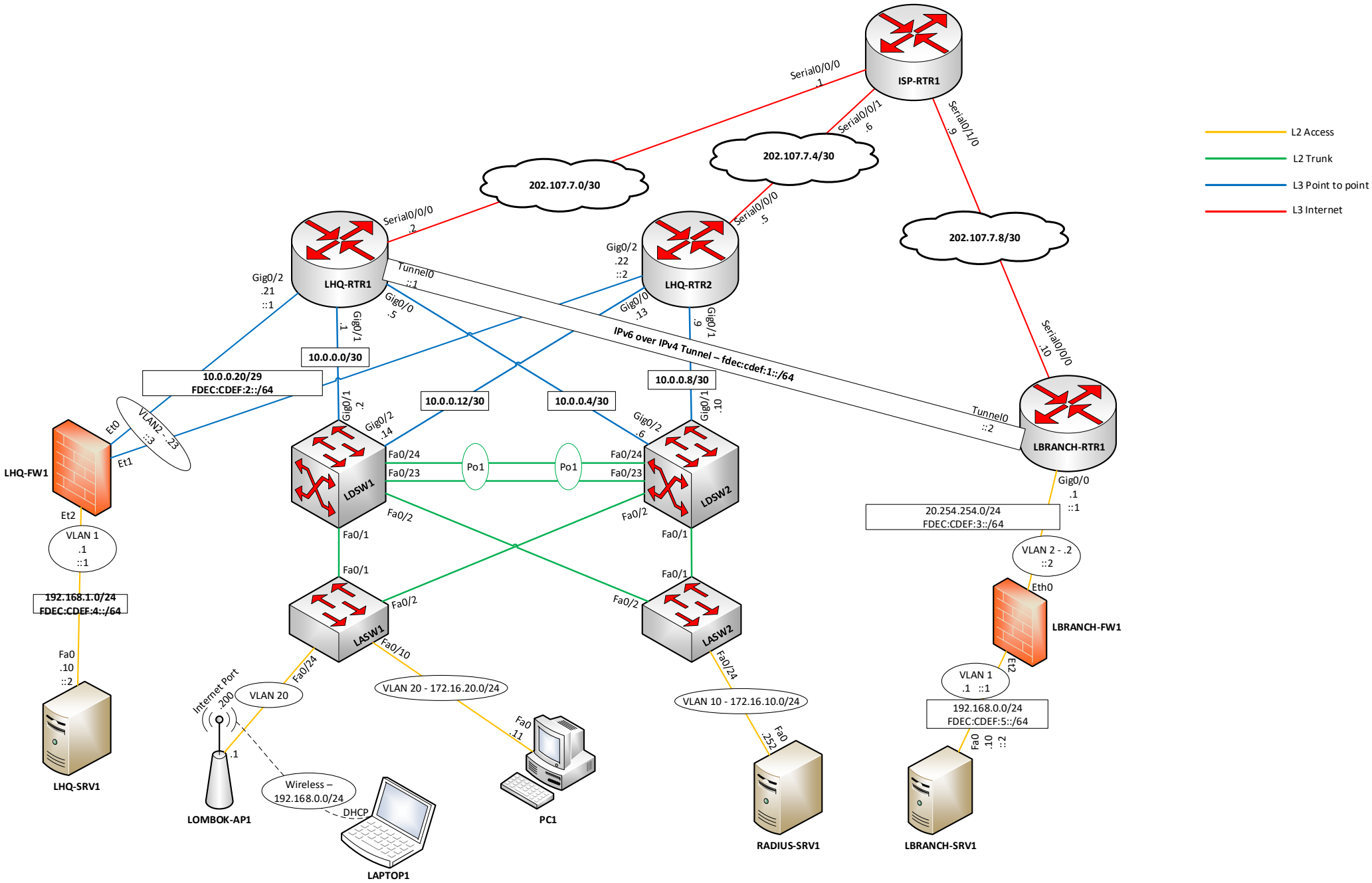
2. Configure IP for interface

Interface	**LDSW1**	**LDSW2**	**LASW1**	**LASW2**
VLAN10	172.16.10.1	172.16.10.2	172.16.10.3	172.16.10.4
VLAN20	172.16.20.1	172.16.20.2	172.16.20.3	172.16.20.4

3. Configure first-hop redundancy protocols on LDSW1 and LDSW2:
    a. Configure HSRP SERVER subnet:
        - Group number 2
        - Use 172.16.10.254 as the virtual IP address
        - Configure priority default for LDSW1 and 101 for LDSW2
    b. Configure HSRP CLIENT subnet:
        - Group number 1
        - Use 172.16.20.254 as the virtual IP address
        - Configure priority 201 for LDSW1 and 200 for LDSW2

4. Configure spanning tree RPVST for VLAN 10 and 20
    - LDSW1 as root bridge primary for VLAN10, LDSW2 as secondary root bridge
    - LDSW2 as root bridge primary for VLAN20, LDSW1 as secondary root bridge

5. Configure an Etherchannel on ports Fa0/23-Fa0/24 on LDSW1 and LDSW2. Use a cisco based protocol.
    - Interface on ports LDSW1 not attempt to negotiate an EtherChannel.
    - Interface on ports LDSW2 attempt to negotiate an EtherChannel.


ISP-RTR1
Serial0/0/0
.1
Serial0/0/1
.6
Serial0/1/0
.9
202.107.7.0/30
202.107.7.4/30
202.107.7.8/30
LHQ-RTR1
LHQ-RTR2
LBRANCH-RTR1
Serial0/0/0
.2
Serial0/0/0
.5
Serial0/0/0
.10
Gig0/2
.21
::1
Tunnel0
::1
Gig0/0
.5
Gig0/1
.1
Gig0/2
.22
::2
Gig0/0
.13
Gig0/1
.9
IPv6 over IPv4 Tunnel – fdec:cdef:1::/64
Tunnel0
::2
10.0.0.0/30
10.0.0.20/29
FDEC:CDEF:2::/64
10.0.0.12/30
10.0.0.4/30
10.0.0.8/30
LHQ-FW1
Et0
Et1
VLAN2 - .23
::3
Gig0/1
.2
Gig0/2
.14
Gig0/2
.6
Gig0/1
.10
LDSW1
LDSW2
Fa0/24
Fa0/23
Po1
Po1
Fa0/24
Fa0/23
Fa0/2
Fa0/2
Fa0/1
Fa0/1
Et2
VLAN 1
.1
::1
192.168.1.0/24
FDEC:CDEF:4::/64
Fa0/1
Fa0/1
LASW1
LASW2
Fa0/2
Fa0/2
Fa0
.10
::2
LHQ-SRV1
Fa0/10
Fa0/24
Fa0/24
Internet Port
.200
.1
VLAN 20
VLAN 20 - 172.16.20.0/24
VLAN 10 - 172.16.10.0/24
Fa0
.11
Fa0
.252
LOMBOK-AP1
Wireless –
192.168.0.0/24
DHCP
LAPTOP1
PC1
RADIUS-SRV1
Gig0/0
.1
::1
20.254.254.0/24
FDEC:CDEF:3::/64
VLAN 2 - .2
::2
Eth0
LBRANCH-FW1
Et1
VLAN 1
.1 ::1
192.168.0.0/24
FDEC:CDEF:5::/64
Fa0
.10
::2
LBRANCH-SRV1
L2 Access
L2 Trunk
L3 Point to point
L3 Internet