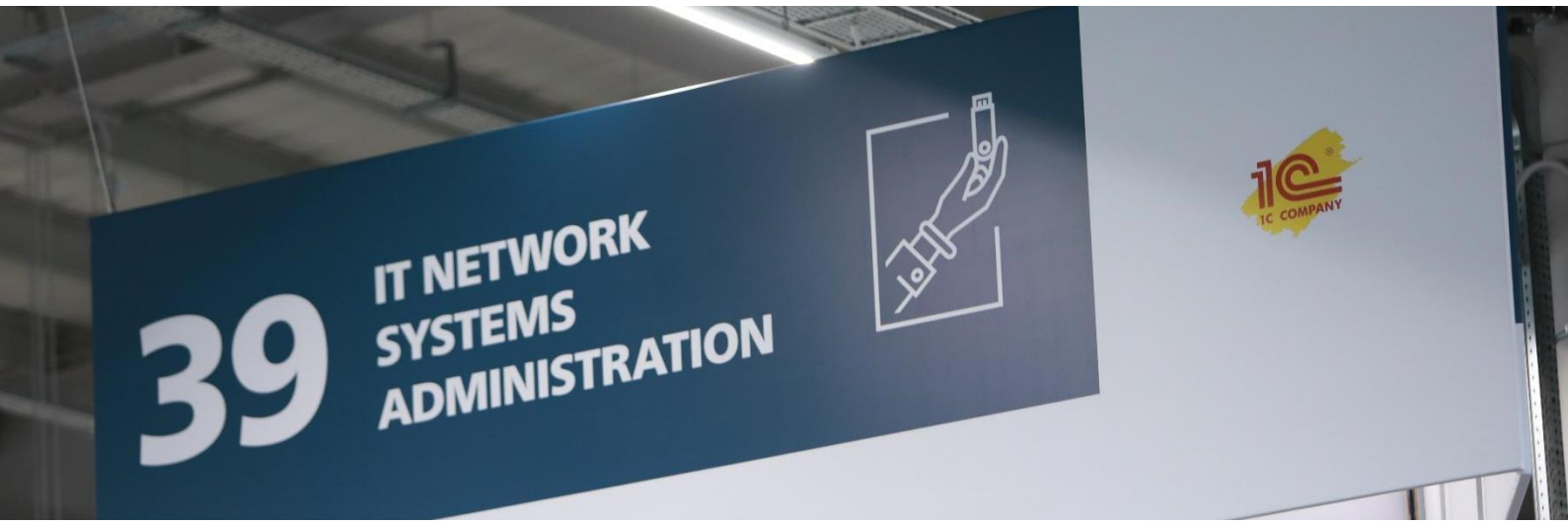
LOMBA KOMPETENSI SISWA
SEKOLAH MENENGAH KEJURUAN
TINGKAT PROVINSI JAWA TIMUR TAHUN 2023

IT NETWORK SYSTEMS ADMINISTRATION



Test Project

MODUL C – NETWORK SYSTEMS (Cisco Modeling Lab - CML)

Notice

1) Please use default settings if you are not given the details.
2) Please use "Skills39" as default password.
3) Please don't reboot your computer before assessment.

Basic Configuration

1. Configure hostnames for ALL network devices as you see on the topology.
2. Configure domain name lks2023.id for ALL network devices.
3. Configure **"Skills39"** as enable secret for ALL network devices. (In ASA, it is enable password)
4. Create user admin with password Skills39 from ALL network devices.
    1) Only encrypted hash of password should be stored in configuration.
    2) This use should have maximum privileges.

L2 Configuration

1. Configure Etherchannel between SW1 and SW2 according to the following requirements.
    1) Use **"1"** as port-channel group number.
    2) Use LACP Protocol.
    3) SW1 should initiate negotiation.
    4) SW2 listen negotiation but does not initiate it itself.
2. Configure trunks on all links between switches including etherchannel.
3. Configure VTPv2 Domain for synchronization of VLAN between switches.
    1) Configure SW3 as VTP Primary server.
    2) Use **"lks2023.id"** as VTP domain name.
    3) Use **"Skills39"** as VTP password.
4. Configure the following VLANs for ALL Switches inlcluding name vlan.
    1) VLAN 10 (HQ10) – Fa0/1 interface of SW3 should be accessed in this VLAN.
    2) VLAN 20 (HQ20) - Fa0/2 interface of SW3 should be accessed in this VLAN.
5. Configure STP.
    1) SW1 should be STP root of VLAN10. When SW1 is failed, SW2 should become a root.
    2) SW2 should be STP root of VLAN20. When SW2 is failed, SW1 should become a root.
6. If BPDU arrives on the port on SW3 which is connected to PCs, applicable port should be blocked.
7. The port on SW3 which is connected to PCs should be forwarded immediately without waiting.

L3 Configuration

1. Assign IPv4/IPv6 addresses to interface of network devices according to configuration tables.
2. Configure OSPF with Prosess ID 5 and area 0
    - Configure ISP Router with Interface Configuration and other routers with network statement
    - Configure OSPF so that routing updates are not sent into networks where they are not required.
3. Configure HSRP for VLAN 10 on R3 and R2
    1) R3 must be active router. If Gig0/1 interface of R3 is failed, R2 must be master router.
    2) Use **"104"** as group number of IPv4 Address and
    3) Use **"192.168.10.254"** as virtual IPv4 address and
    4) HSRP preemption should be enabled.

5) HQ-SRV should use this VIP as default-gateway.

4. Configure HSRP for VLAN 20 on R3 and R2
   1) R3 must be active router. If Gig0/1 interface of R3 is failed, R2 must be active router.
   2) Use version 2.
   3) Use **"20"** as group number
   4) Use "**192.168.20.254"** as the VIP.
   5) HSRP preemption should be enabled.
   6) HQ-CLI should use this VIP as default-gateway.

Service Configuration

1. Configure DHCP Server for VLAN20 network on R3.
   1) 192.168.20.1-10 addresses must be excluded from DHCP assignment.
   2) DHCP clients should use 192.168.20.254 as default-gateway.
2. Configure DHCP Server on R1.
   1) 172.16.10.1-172.16.10.10 addresses must be excluded from DHCP assignment.
   2) DHCP clients should use 172.16.10.254 as default-gateway.
3. Configure PAT on R3, R2, R1 and FW1
   Use name INTERNET-ACCESS for the name ACL
4. Configure SSH version 2 for remote management on ISP.
   1) Use local account.
   2) It must start in exec mode after being authenticated as **admin** user.

Security Configuration

1. Configure ASA Firewall according to the following requirements.
   1) Set **"outside"** as name of Gig0/0 interface with 0 security-level.

Configuration Table

Device	Interface	Address
SW1	Vlan10	192.168.10.10/24
		2001:1010::10/64
	Vlan20	192.168.20.10/24
SW2	Vlan10	192.168.10.20/24
		2001:1010::20/64
	Vlan20	192.168.20.20/24
SW3	Vlan10	192.168.10.30/24
		2001:1010::30/24
	Vlan20	192.168.20.30/24
R3	Gig0/1.10	192.168.10.253/24
		2001:1010::253/64
	Gig0/1.20	192.168.20.253/24
	Gig0/3	210.103.5.1/30
	Gig0/2	210.103.6.2/30
	lo 0	3.3.3.3/32
R2	Gig0/1.10	192.168.10.252/24
		2001:1010::252/64
	Gig0/1.20	192.168.20.252/24
	Gig0/0	210.103.5.5/30
	Gig0/2	210.103.6.1/30
	lo 0	2.2.2.2/32
R1	Gig0/2	210.103.5.13/30
	lo 0	1.1.1.1/32
ISP	Gig0/3	210.103.5.2/30
	Gig0/0	210.103.5.6/30
	Gig0/1	210.103.5.10/30
	Gig0/4	210.103.5.254/25
	Gig0/2	210.103.5.14/30
	lo 0	8.8.8.8/32
R4	Gig0/1	210.103.5.9/30
	lo 0	4.4.4.4/32
FW1	Gig0/0(outside)	210.103.5.129/25

Network Topology