BALAI PENGEMBANGAN TALENTA INDONESIA
PUSAT PRESTASI NASIONAL
SEKRETARIAT JENDERAL
KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET, DAN TEKNOLOGI

MERDEKA BELAJAR

LKS SMK-DIKSUS

# KISI-KISI

## LOMBA KOMPETENSI SISWA SMK TINGKAT NASIONAL TAHUN 2023

## BIDANG LOMBA

**Teknologi Informasi Sistem Administrasi Jaringan**

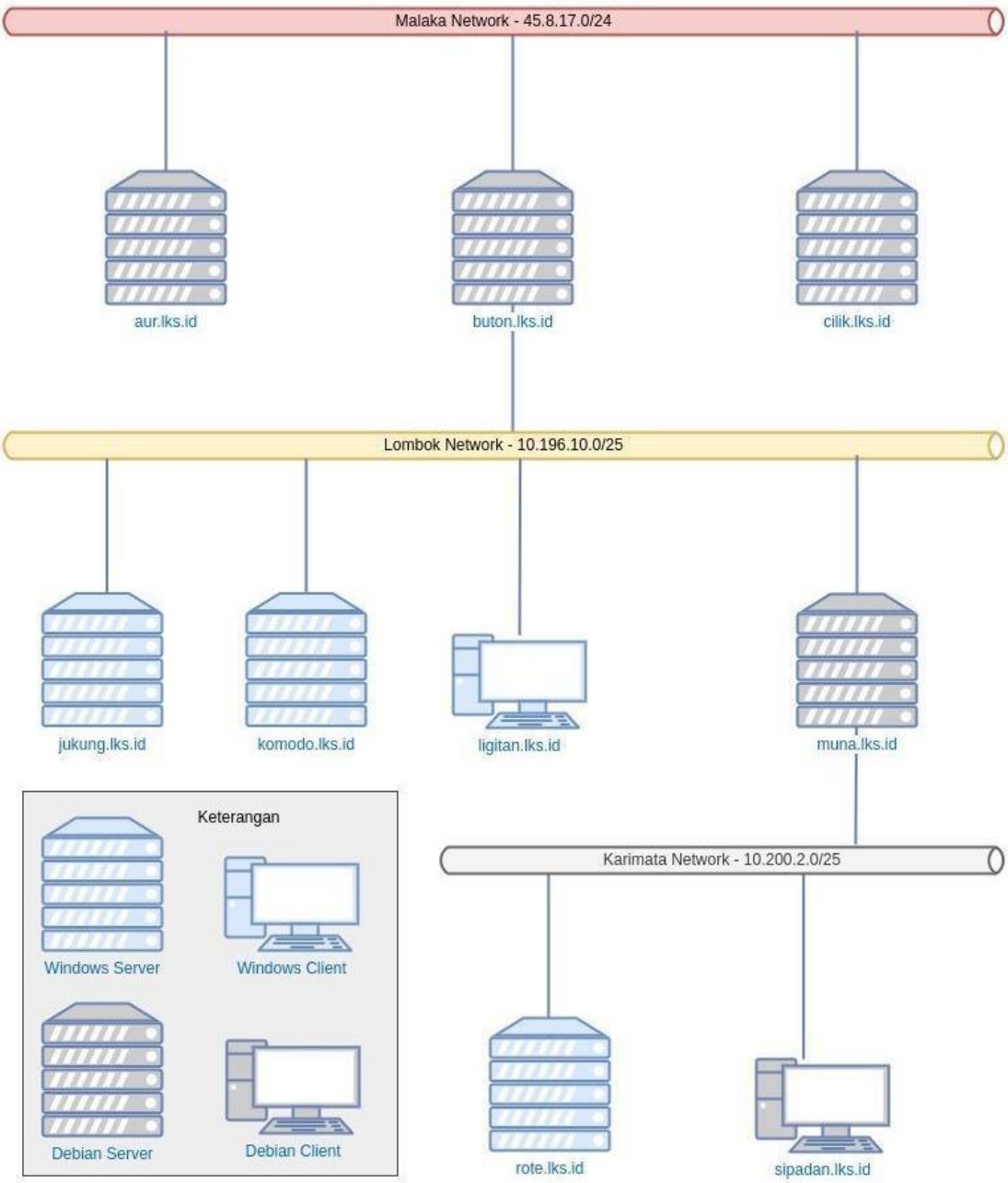
*(IT Network System Administration)*

**MERDEKA BERPRESTASI**
**Talenta Vokasi Menginspirasi**

# MODULE A – CLIENT SERVER

An e-commerce company just bought some servers to create on premise infrastructure for their application. They require both Linux servers and windows servers for their business operation. You will be responsible in configuring the servers according to their requirements.

## TOPOLOGY



**SERVICES, PROTOCOLS OR TECHNOLOGIES THAT NEED TO BE PREPARED:**

- **Malaka Network**
  - DNS Server
  - Web Server
  - IP Forwarding
  - Site-to-Site VPN with OpenVPN
  - Iptables Traffic Logging

- **Lombok Network**
  - Site-to-Site VPN with OpenVPN
  - Remote Access VPN with OpenVPN and LDAP Integration
  - File & Folder Sharing
  - Linux ISCSI Target Server
  - Windows ISCSI Initiator
  - Windows Backup
  - Cron/Scheduled Task
  - Sudo Restriction
  - OpenLDAP
  - DNS Server
  - Email Server with SMTP and IMAP
  - Roundcube Webmail
  - DFS Replication

- **Karimata Network**
  - Web Server
  - DHCP Server
  - Raid
  - Certificate Authority
  - Webmail Client

## MODULE B – PACKET TRACER – NETWORK TROUBLESHOOTING

A company is experiencing problems in its network system. You will be asked to observe and analyze the problems that occur as well as fix the problems that occur. Here you are required to understand command tools in verifying network service functions. In this module the environment used is Cisco Packet Tracer Physical Mode. Competitors do not see the score or check results. Everything runs in a simulation but as in reality in physics.

*The topology in this module is part of a test project that tests Competitors to understand during competition as part of analyzing problems that need to be resolved.*

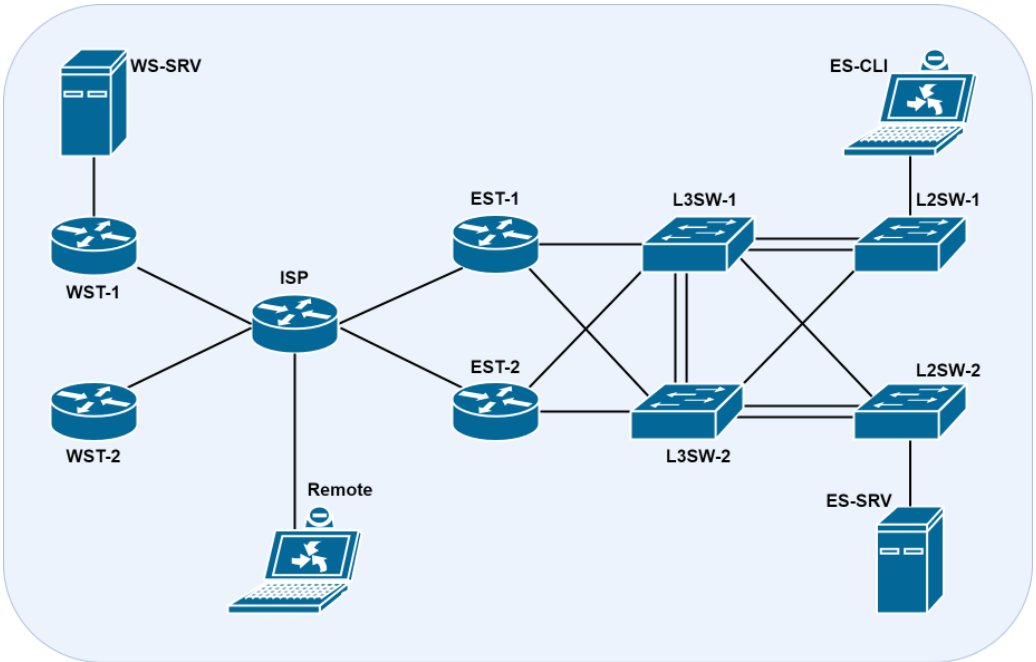
**SERVICES, PROTOCOLS OR TECHNOLOGIES THAT NEED TO BE PREPARED:**

- Basic Configuration & IP Addressing
- Switching
  - VLAN
  - EtherChannel
- Routing
  - Inter-Vlan Routing
  - OSPF
- Services
  - Dynamic Address
  - WEB
  - DNS
- Security
  - LAN Security
  - Access Control List

# MODULE C – NETWORK SYSTEMS

A multinational company is currently installing their latest network scheme for a new area. You are asked to configure the network starting from switching, routing to other network services. The purpose of this task is to connect the network so that all nodes can be connected through both static and dynamic routing. To improve performance, this network system uses radius services and server monitoring. As a security key component, it is also part of the Test Project task.

**TOPOLOGY**




**SERVICES, PROTOCOLS OR TECHNOLOGIES THAT NEED TO BE PREPARED:**

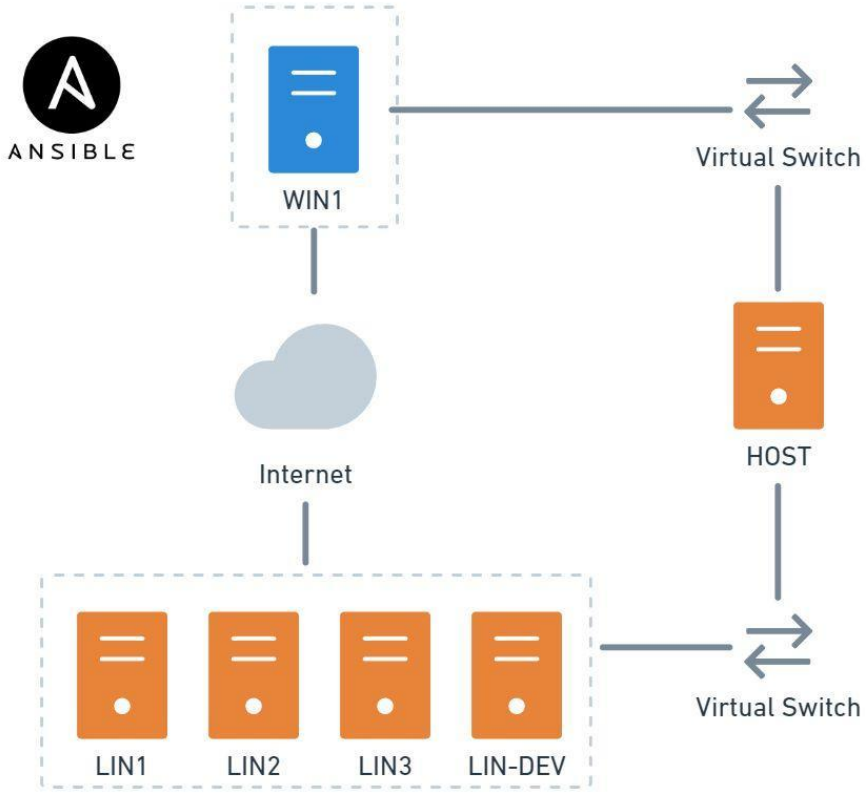
- Basic Configuration & IP Addressing
- Switching
  - VLAN
  - Spanning Tree Protocol (STP)
  - EtherChannel
  - FHRP
- Routing
  - Inter-VLAN Routing
  - Static Routing
  - OSPF
- Services
  - Dynamic Addressing
  - Network Address Translation

    - Radius
    - Network Monitoring
- Security
    - Secure Communication
    - LAN Security
    - Access Control List
    - Virtual Private Network

# MODULE D – INFRASTRUCTURE PROGRAMMABILITY & AUTOMATION

A small company decided to adopt automation technologies to their servers. You are asked to install and configure basic Ansible and Docker to their small infrastructure that uses six servers. There is one host 'Bastion' that will be used to manage all other nodes.

**Topology:**




**SERVICES, PROTOCOLS OR TECHNOLOGIES THAT NEED TO BE PREPARED:**

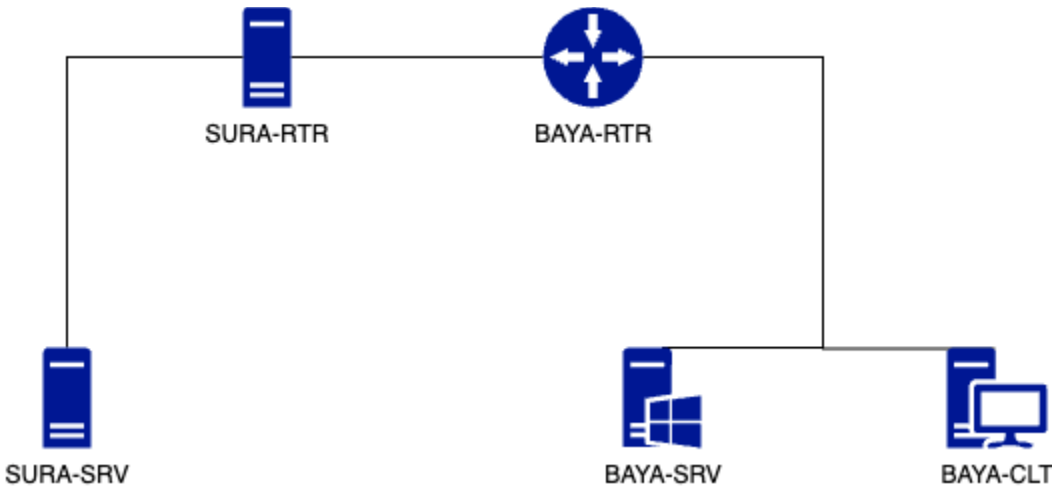
## Tasks Summary:

- Python Programming
- Create Inventory File
- Ansible Installation
- SSH Key Authentication
- Create Ansible Playbook
  - Windows Configuration
  - Linux Configuration

## MODULE D – SYSTEM INTEGRATION TROUBLESHOOTING

This time your role is to become a support engineer, your job is to help a non-profit organization to resolve issues they had encountered in their office. They are using an integrated system of debian servers, windows servers, cisco routers, windows client and debian client.

**Topology:**




**SERVICES, PROTOCOLS OR TECHNOLOGIES THAT NEED TO BE PREPARED:**

- Routing
- VPN
- Firewall
- Web Server
- Reverse Proxy
- Active Directory
- DNS Server
- SSH Server
- Remote Desktop
- File Sharing