Module Future Network / New Technology

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World Skills Competition 2021 Shanghai

INTRODUCTION

In this module you are asked to design a network and server system. After the design, you are asked to implement the design on the server that has been provided and ends by presenting everything.

Desain System

Draw your design using an application that you use often. May use visio, draw.io or other applications. Describe physical topology like node and link, also logical topology like service and IP Address. The aspects that must be fulfilled from the design of this system are:

- Virtualization
- Automation
- Integration
- Programming

Deploy Systems

Implement the design that you created using the infrastructure that has been prepared below:

Server:

- Spesification:
  - RAM : 20GB
  - SSD : 100GB
  - Extend SSD : 2 x 50GB
- SSH to : 10.220.XX.1
  - Username : competitor
  - password *: [omitted]*
  - root_pw : Skill39
  - (by default ssh disable root login)
- interface ens18 (10.220.XX.0/24) has internet accesss, use IP 10.220.XX.10 for gateway
  - this is the management interface, do not misconfigure it so that you wouldn't lose access to the server.
  - there are no DHCP, feel free to setup one or use any IP aside from .10, .100 and .101
- interface ens19 are private/internal, it doesn't connect to anything other than this server
- there are extra 2x50GB disks on /dev/sdb and /dev/sdc

ISO:

- mirror ISO (direct) : http://10.220.XX.101/iso/
  - win server
  - win 10
  - esxi 6.7
  - ubuntu 18.04 server
  - cumulus linux 4.2.0 vx
- debian 10 iso (DLBD) is attached directly to server (/dev/sr0)

CASE STUDY

This year the National Competition will be held online or virtual. The IT Network field is one of the fields of enthusiasm because it is an opportunity to apply some of the latest technology in network systems and system administrators. Cloud will of course be used as the main infrastructure. But some of the obstacles that will be faced are:

1. The competition is held from home or school by remote remoting to the cloud prepared by the jury and the committee. Although connecting via the internet, participants may only connect to the cloud infrastructure and may not connect to the public for browsing or other communications.
2. The competition will take place using the rolling module method. Every day is divided into 3 groups (Linux, Windows & Cisco) that work on modules simultaneously and the next day everyone will work on different modules. (A -> B; B -> C; C-> A).
3. The marking process will be carried out every day by experts because the next day the infrastructure of each module will be used by other competitor. So it takes a quick time to reset everything empty again.
4. Infrastructure & layout of the competition is centered on one server for all modules and participants only need to remotely use a laptop or computer only. every day participants are only assigned according to the rolling module whether modules A, B or C.
5. Servers, routers and storage are all virtual based. Until now it is not known how many participants in the IT Network systems field, so the preparation of the number of environment is not yet certain. Still in this case you are required to prepare a number of participants who may have just known C-2. As for efficiency requirements, if there are participants who do not participate in the competition on that day, the participant's environment must be turned off.
6. The jury and the committee need storage or file sharing for file or program distribution needs with participants. Maybe this file sharing is only for specific participants not all.