Vocational Skills Contest

V17 Administration and Management of Network System

1. Task Assignment

The task consists in the completion of two modules.

- Module n°1: Simulation of a WAN network connecting 4 LAN locations.

    - The WAN network will be composed of Cisco routers equipped with optical fiber and RJ45 ports.

    - The LAN network will be composed of a server, 2 desk computers and a Wi-Fi connected-laptop. A Linksys Wi-Fi router allows access to the WAN network. A Cisco switch divides the local network into 4 VLANs.

    - Contestants will have to establish inter-VLAN routing protocols to allow or deny communication between VLANs.

    - Contestants will have to establish Access-lists depending on networks and protocols.

    - Contestants will configure the addressing on the equipment using the CLASSLESS system and will define the adequate subnet masks.

    - Once the configuration is done, contestants will carry out tests to make sure the system functions properly.

    - Evaluation of the configuration will be performed automatically. A percentage of success will be displayed continuously.

- The jury will perform an evaluation of the testing, which will take into account both the tests carried out and their results. Contestants will deduce the malfunctions from the results and correct them, or validate the proper functioning of the WAN network and of the four LAN networks.

- A simulation file containing incomplete and partially completed schematics will be provided to each contestant.

- <u>Module n°2</u>: Network installation and configuration for a private firm.

    - The firm is equipped with Windows Server 2012, a Linux server, a telephony server (Trixbox), a router allowing for WAN access, an IP phone and a desk computer. Employees must be able to connect remotely using WAN.

    - The three servers will be virtualized (VMware or VirtualBox) on the desk computer.

    - The IP phone is a wire-connected desk phone.

    - Users can communicate internally as well as from outside the firm (WAN) using a "mobile user" computer equipped with a softphone program (simulation of a co-worker on outside work).

    - The Linux server provides the DHCP server.

    - Windows Server 2012 hosts the Active Directory, user accounts (except telephony), Domain control, roaming profiles, a website and an FTP server.

    - The Linux server handles file sharing within the firm as well as the connection with the FTP server.

    - Mobile users can access files by connecting to the WAN network through a VPN.

    - Contestants will prepare the installation's wiring, and then complete the different servers' configurations using the instructions provided on the day of the competition with the final task assignment. Operating systems will have been installed and updated. Servers will be pre-installed. Each contestant will have to finalize their configuration according to the technical specifications.

    - Contestants will carry out tests to make sure the system functions properly.

    - Documentation will be available in English on the desk computers' hard drives.

2. Allocated time: 6h00

6 hours of competition.

Module n°1: 3 hours.

Module n°2: 3 hours.

6:00

3. Requirements

- All computers will be equipped with an AZERTY keyboard. However, contestants may install their own keyboard before the beginning of the competition.
- The jury will collect all electronic means of communication contestants may have at the beginning of each module. They will be returned to their owners once each module is finished.
- Any contestant caught cheating, talking to someone from the public, browsing the Internet or using a communication device will suffer a penalty of 5 points for the first transgression. A second transgression will lead to an exclusion from the contest.
- Contestants will notify the jury once they have completed their tasks. In case of a tie in scores, overall completion time will decide between contestants.
- Contestants will make sure to respect the names of the equipment present on the various schematics, especially during module n°1.

4. Procedure

Day -1 (March 24th): On the day before the competition, contestants will be welcomed by the members of the jury. A briefing about the organization of the competition will be arranged. Contestants will draw lots to be assigned to a work station.

Day 1 (March 25th): The final task assignment for module 1 will be handed out to contestants. They will have 3 hours to complete the module.

Day 2 (March 26th): The final task assignment for module 2 will be handed out to contestants. They will have 3 hours to complete the module.

5. List of the provided equipment

Non-exhaustive list.

N°	Equipment	Specifications	Qty per contestant
01	HP i7 Computer		1
02	Keyboard	AZERTY	1
03	Mouse		1
04	22-inch computer screen		1
05	Router	Cisco Small Business RV 320	1
06	Wi-Fi router		1
07	Packet Tracer	Network simulation software	1
08	VMware	Virtualization software	1
09	Windows 2012 server	Server software	1
10	Softphone	Telephony server software	1
11	Trixbox	Telephony software	1
12	Debian	Linux Server	1

6. List of the equipment to be brought for each contestant

N°	Equipment	Specifications	Qty per contestant	Notes
01	Personal keyboard and mouse	Optional	1	Other than AZERTY
02	Personal pencil case	Pens, pencils, eraser…	1	

7. List of facilities installed at the contest site

N°	Equipment	Specifications	Qty	Notes
01	Desk		1	
02	Chair		1	
03	Power strip			220 volts

8. Evaluation Criteria

N°	Items to be Evaluated	Scoring scale
	Module 1	
01	Accuracy of the required simulation	35
02	Choice and relevance of the required testing protocols	15
	Module 2	
03	Accuracy of the wiring	05
04	Accuracy of the required configuration	35
05	Choice and relevance of the required testing protocols	10
	Total	100