World Skills Competition

Trade 39:
IT PC and Network Support

Day 2 Competition
– Small Business –

INTRODUCTION
Company **Skills39** is a small IT service-company with about 50 workers. You are working in the IT department in Skills Company.

Because this company is new, it does not have network or any servers or computers ready. Your task is to plan, to prepare documentation and to built company's network including network equipments and computers.

DESCRIPTION OF PROJECT AND TASKS

You have 2 task in day 2:
- First task: Plan and make necessary documentation for Skill's company network (max. 0.5 hours)
- Second task: Configure and install router, switch, servers and workstations

Main tasks:
Plan and prepare documentation about the company's network
Configure the router and switch
Set up and configure Windows 2008 Server
Set up and configure Linux server
Set up and configure the virtualized system environment (VMware) and install there Vista desktops.
Configure all services

Task 1:
Plan and document the Network

Skills39 -company is a new company without any IT infra. You first duty is to plan and prepare documentation for "Skills39 company's IT infra". You work is in the IT department. All others have been layoff for a couple of weeks because of the world economy crises, so you must do all the work yourself.

The IT department takes care of customers. Because they work mostly "outside" in customer's offices they use only laptops. The other department is office, run by CEO and other office-workers. This department use Vista workstations (PC) and work only in the office. Because of the company's security issue, is not allowed to use Wireless LAN in a office.

For building-up company's network, they have purchased one Router 2811 (with 2 Ethernet ports) and one 2960 Switch. In next month when company's second floor is ready there will be another switch.

An Internet access from ISP has been ordered for the office purposes, but it isn't working yet. Router's Fast Ethernet 0/1 ("outside"- interface) should have all IP configurations from ISP.

Skills39 Company has a network LAN 10.217.X.128 /25 .You should plan correct subnets for the company's purposes.

Skills39 Company has 3 different departments.
  ➢ an IT –department (18 users) which must have full access to internet and office network.
  ➢ an Office- department (30 users) which must have access to other departments but not to the internet.
  ➢ a Public –department (max 10 users) which must have an internet access, but they don't have access to office or IT networks.

Company's servers must also have their own network (SERVER-network)

Every workstation must have TCP/IP information automatically from Linux-server. Gateway has to be the first address in the network. Both servers (Linux and Windows2008) must be in the SERVER -network. Windows server must have second IP and a Linux server must have third IP from the network.

Plan your network and make very clear documentation about it. All documentation must be printed. *NO hand-writing !!!*

Print out your documents and give them to your BOSS (the experts) before you start any installation!!!

Task 2
Install and configure company's IT systems

Network

Your boss has checked your documents and in order to save time redrawn everything again in the way he wants it to be.

You must follow his will, so you need to built up the Skills –office IT network and equipments according to the new network diagram. Also the TCP/IP table and **plan you have made before has changed**. There is also some more information about network that you must consider.

Network diagram: appendix1

Addresses: appendix2

Company's network-security policies are very tight. Because of that you must configure switches in the way that allows ports to connect only the first computer to that special port. If somebody tries to put another computer for example to port 0/20 this port will be disabled automatically. Also switches must configure such away that all departments have at least 4 ports to use.

In next month company's second floor will be ready and another switch is bought. As soon as second floor gets ready, part of office-department and IT department move upstairs. Because you have a long holiday in next month, you must make sure that everything works all right while you are away. Because of that, you must make configuration and simple instruction to your colleague that he can get this new switch working ok. Save your switch configuration and instructions you made in memory stick and also print them out .

You are very pedantic, so you want to make sure, that everything is going fine all the time. Because you are aware that something can go wrong, while you are in holiday in Cayman Island, you must make sure that you can configure all network equipments via network. Configure the router and the switch in a way that all the workers in an IT department can configure network equipment via network. Every IT department worker must be able to login to the router and to the switch using their own domain username and password, which must be authenticating by Windows.

Windows 2008 Server (the basic-system already installed)

The Windows Server is a Windows Server 2008 Standard. It's already installed (basic-installation).

This system has 1 hard disk. Operating system has been installed to the 1st partition. Create 3 more partitions. One for the Virtual Server (VS), one for the Files (users home directory, fs, etc..) and one for backup. Use for the virtual Server 100GB partition, use for FS-partition 20 GB and the rest of the HD space for backup-partition.

The server name must be SRV2008. Set the organisation name to Skills39.local and domain name to skills39.com.

Rename the Administrator account to "admin" and create accounts. You will find a file with names, roles and units of all workers in your memory stick. Every user should be able to logon the domain. Every user must have own home-folder on the server. When user login, his/her home folder must be automatically drive H: Users "my documents"-folder must also be inside user's home folder.

All users' files/folders must be on the 3rd partition. All shared folders will not be visible. Every OU´s must have its own share for OU´s users. This common –share must map to drive W: automatically, when user logon.

Make also a user-account template to every OU, that you can make new user-accounts simply by copying this template so this new user will have exactly same properties that others in same OU.

Each user will be limited to 300 MB of disk space and users are not allowed to exceed that. Users who work in the Office -department are not allowed to save batch files on the server.

Every user password must be Qwerty1. Users will have only 4 chances to logon in hour. Un-successful logins are logged and the user is locked out for 5 minutes.

Workers in the IT department should have local administrator rights to their laptops, but not to the server. Firefox must be installed automatically to every laptop.

Office- department users use common computers (because second floor is not ready yet). Because of that you must configure user's account such a way that they can login to any workstation and have their own "desktop" (colour, shortcuts,…) from whatever computer he/she is using in the office.

Public user accounts have been made only for the internet use. When you login in these accounts your desktop must be totally empty, except IE shortcut placed on the desktop.

The Skills-office has only one printer. Company's CEO is very busy and needs his printouts always immediately. Install this printer for all users and make sure that CEO´s printing goes always first. This printer should be automatically installed when users logon to the domain.

Configure the server to accept incoming VPN via the internet. Only IT personnel who are outside the office can access internal network services by using VPN on his Laptop. The VPN gateway will assign the necessary internal IP addresses to incoming users.

Install company's Web server to your Windows Server. Web –pages must be on the 3rd partition and have access from Internet. Copy the provided HTML File (from memory stick) as a default HTML Page to the folder named WWW. This page is accessible by http://www.skills39.com

The server also provides Certificate Services for authentication of the HTTP server. Install a certificate from the CA Server when configuring IIS. Provide your own information when

requesting the certificate. This web page is only accessible to internal users. Deny all external users to access this page. This page is accessible by https://intranet.skills39.local

Linux (already installed the basic-system)
Name your Linux server "Linuxsrv". Use the password Qwerty1 for the root account. Create also the account name "admin" with the Password Qwerty1. This Account will be used as SSH administrator.

Install Linux Debian Server as backup DNS server. Linux –server must also work as the company's proxy and firewall server. The Firewall must block all incoming/outgoing network traffic except DNS, HTTP / HTTPS. Disable all non-essential services on the firewall and allow only incoming/outgoing DNS, HTTP and HTTPS network traffic from the Server. All information should be provided from the proxy server. Use port 8080 / all access permitted.

Any user from the internal network, who wishes to access internet pages, should go through this proxy. Stop all other services.

Configure Linux server as a backup web-server and configure backup-service that makes automatically backup all web-page files every 12 hours to the Linux Server's.

Laptop /Workstation in VMware
IT department laptops must be installed using WDS. This installation must be so automatic that you don't have to do anything. After first logon in, all the requirements of the IT department must be in use. All the software you need or can use is in the memory stick.

You must install one Vista PC in VMware Server for the use of the office –department and one Vista PC also for the use of the public-department. Both Vista computers must be powered on automatically when Windows Server starts. Make sure that these workstations are in use for correct department.

Here is more information to to experts (not for competitors):

When competitor gives his/her documentation to us, we will give him/her our plan which includes correct version! This plan is the correct network document with IP plan.

Of course, if we want, we can change this task and let competitors without our plan!

To our competitors we give a memory stick /or common server which includes
- one Excel-file which includes a list of users, groups, OU:s and other information . In Calgary we can decide what kind of information we put in it.
- Drivers for laptop
- WAIK
- Firefox (FM Firefox) or other software we would like to use
- some software they don't need making it more difficult to choose what they really need.