



PERTANDINGAN KEMAHIRAN POLITEKNIK

(IT NETWORK SYSTEM ADMINISTRATION)

SOALAN PRAKTIKAL

MASA : 6 JAM

NAMA: _____

No. KP: _____

**JABATAN PENDIDIKAN POLITEKNIK
KEMENTERIAN PENDIDIKAN TINGGI**

INTRODUCTION

Warning: **SAVE ALL YOUR CONFIGURATIONS!!!** Take snapshots periodically.

The competition has a fixed start and finish time. You must decide how to best divide your time.

Please carefully read the following instructions!

PART 1

DESCRIPTION OF PROJECT AND TASKS

You are working for a new secondary school, ExtraSmart Secondary School. They plan to set up some servers to serve students and teachers. You have been assigned with building the server infrastructure at the new location. You are responsible for setting up a Linux server to provide various services such as web, DNS, email for staff and students. The webserver is used to host web pages for public and intranet browsing. The email server is used to provide internal email services. The visitor area is equipped with a few guest computers for browsing local and internet webpages. For speeding up internet access, a proxy should be used.

Work Task Linux Server

Setup the following services on a linux server.

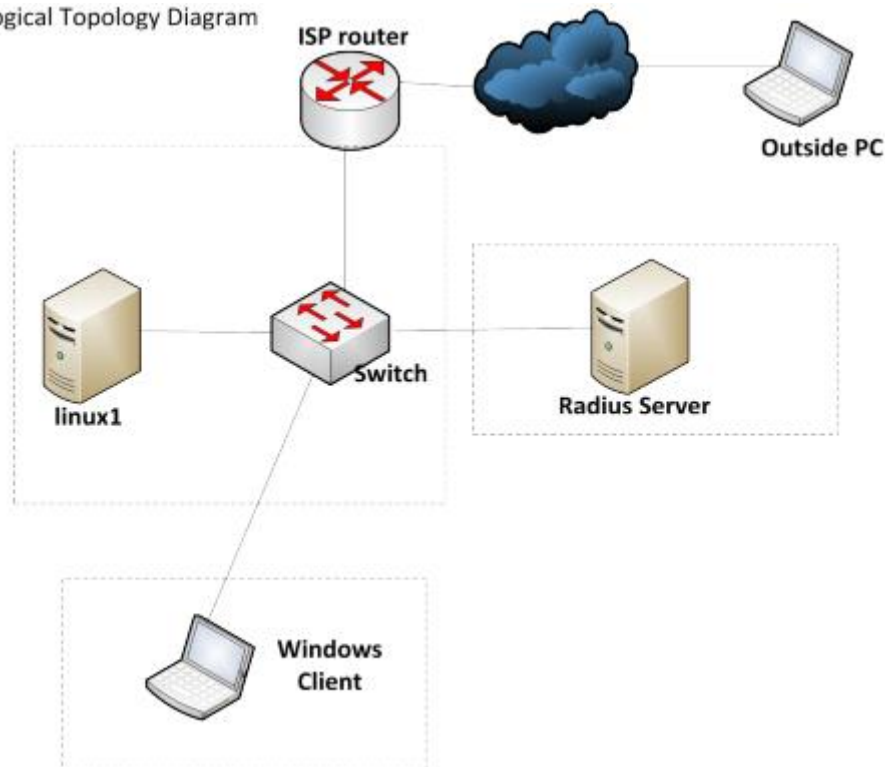
- DNS service
 - Set up DNS records to resolve domain names for web and email services.
 - Make sure the websites and email server are resolvable to 192.168.10.63.
 - Set up the reverse lookup records for the records setup above.
 - Configure DNS to forward all non-resolvable requests to the DNS server at 192.168.72.42.
- Webserver (Apache2)
 - Install php5
 - Create two websites, www.extrasmart.my and intranet.extrasmart.my, stored in the directories /home/www/extranet and /home/www/intra, respectively.
 - The www site should display "Welcome to ExtraSmart Secondary School", while the intranet should display "Welcome to ExtraSmart Intranet".
 - The intranet should have HTTPS enabled.
 - Create a personal website for user "aqief" stored in the home directory /home/aqief/public_html. Allow joe to maintain the website. The aqief's website should be protected by authentication using the login "aqief" and password "apass".
- Email Server (using the SMTP and IMAP protocols)
 - The Email server should use the hostname mail.extrasmart.my.
 - Email account should use the domain extrasmart.my.
 - Setup two email accounts admin1 and teacher1. Also, enable access via webmail.
 - Test the email service by sending emails between the email users admin1 and teacher1.
 - Install a Thunderbird e-mail client

- Proxy server (Squid)
 - The guest computer should be configured to use the proxy server when going online.
 - Configure the server in transparent mode
 - Configure it to block HTTP access to all hosts in the facebook.com domain.
- Samba service
 - Setup two shares for sharing between the Linux server and Windows client
 - Share “staff”
 - Path is /samba/staff
 - Give access only to user “admin1 ” with password “adpass”
 - Make sure the share is not shown in the network browser of the clients
 - Share “forall”
 - Path is /samba/forall
 - Enable read-only access to everyone
- SSH service
 - use RADIUS for your SSH authentication instead of using your local user accounts
 - Allow only users (admin1 and admin2 with password adpass) to login to the server using ssh
 - It has to listen on port 2222
 - Root access should be prohibited
 - If the RADIUS failed, the authentication should fallback to using local user accounts
- Backup
 - Schedule a daily backup of /etc folder at 11:30pm.
- Firewall
 - Set the IPtable to allow for all the services listed above such as SSH, WWW, email, samba.

APPENDIX

SPECIFICATIONS

Logical Topology Diagram



INSTRUCTIONS TO THE COMPETITOR

- Warning: **SAVE ALL YOUR CONFIGURATIONS!!!** Every device will be rebooted before marking.
- Do not bring any materials with you to the competition.
- Mobile phones and any electric devices are prohibited.
- Do not disclose any competition material / information to any person during each session's competition.
- Read the whole competition script prior to starting your work.
- Be aware of different tasks attract a percentage of the overall mark. Plan your time carefully.

PART 2

DESCRIPTION OF PROJECT AND TASKS

You are working for a new secondary school, ExtraSmart Secondary School. In addition to the Linux services you setup previously; you have also been assigned to setup some windows services and group policies to support teachers and admin staff.

Work Tasks Windows Server

- Install Active Directory Domain Services (domain controller) for xs.whk
 - Use Password1 as the Active Directory Recovery Password
 - Create 3 new Organizational Unit named TT, Adm and GG (TT to contain teachers, Adm to contain admin staff and GG to contain guest users)
 - Create the user and security global group with members as indicated in the following table. Use Password1 as the password for all user accounts.

Groups	Members
Teacher	tX (1 – 9)
Adm	aX (1 – 9)
Guest	g1, g2

- DNS service
 - Set up DNS to resolve domain names for all web and ftp sites
 - Create a forward zone called “extrasmart.my” pointing to the IP address 192.168.1.22
 - Create a reverse zone for the IP addresses for the network 192.168.1.0/24.
 - Configure DNS to forward all non-resolvable requests to the DNS server at 192.168.72.42
- Certificate Services
 - Install the Enterprise Root (certification authority) CA
 - The CA server name is EXTRASMART, and valid for 5 years.
- Webserver (IIS)
 - Create a website www. extrasmart.my to display “Welcome to Extra-Smart Secondary School”.
 - Configure an HTTPS binding to the (CA) EXTRASMART.
 - Create a virtual directory called “Teacher” beneath the above site. (The physical path is C:\Teacher. When accessed, it should display “This directory belongs to teachers of Extra-Smart”.
- File server (FTP)
 - Create a file server site: ftp.extrasmart.my
 - Create a virtual directory called “Admin” pointing to the physical drive C:\adm Also, enable directory browsing.
- DHCP Server
 - Ranges:
 - 192.168.20.100-192.168.20.200/24 (Client)
 - Default Gateway 192.168.20.1, DNS: 192.168.10.5

- Group Policies (GPO) – password policies
 - Ensure the user passwords must meet the following criteria:
 - Domain passwords will be at least 5 characters. (Except Adm users should use 7 characters)
 - Strong passwords need not be enforced.
 - Passwords will be changed every 90 days.
 - Accounts will be locked out for 3 minutes after five invalid logon attempts.

- GPO – Group Policies
 - All domain users should see the following message before logging in: “Welcome to ExtraSmart Secondary School.”
 - Disallow access to the display settings on the Control Panel for all users, except the Adm group users
 - Disable the use of “cmd” and “run” for the Guest group users
 - Hide Network Connections from Start Menu for all teachers
 - Hide All Programs list from the start menu for all guests
 - Hide Recycle Bin icon from desktop for all guests
 - Redirect the “MyDocuments” of teachers to the same location for all teachers

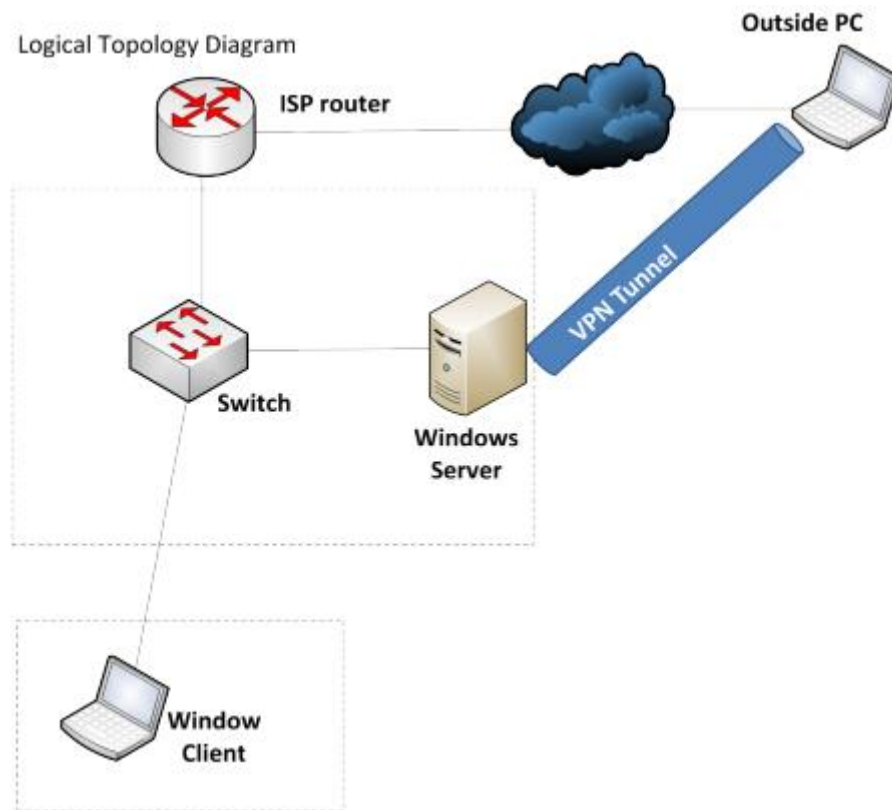
- VPN service
 - Install VPN Server:
 - use the following IP address Range for the VPN Clients: 192.168.10.110
 - 192.168.10.140 (provided by RRAS service)
 - With a VPN connection, the user should be able to access to the shares on the server
 - Only users in the adm group should be able to connect to the VPN server. Remote Clients should be able to access the vpn server via the IP address 172.19.100.5

- GPO – Application Installation
 - Create GPO to automate software installation
 - Using the firefox msi provided on the desktop, create a policy at the domain level called “firefox” to publish the program automatically to all computers in the domain, so it is available on the control panel, but not installed.

- Map Network Drives and Folder Redirection
 - Create users’ home folder \\extrasmart.my\home \username and ensure it is mapped to Z: at each logon automatically.
 - limit the storage space to every home folder to 40MB
 - ensure only users can access their own home folder
 - Redirect the Documents folder to \\extrasmart.my\home\username\Documents.
 - Create departmental share folders on \\extrasmart.my\home\TEACHER and \\extrasmart.my\Admin and map the respective share folder to Y: at logon, depending on the department the user is in. Users should not be allowed to access other departments’ or users home shares.

APPENDIX

SPECIFICATIONS



INSTRUCTIONS TO THE COMPETITOR

- Warning: **SAVE ALL YOUR CONFIGURATIONS!!!** Every device will be rebooted before marking.
- Do not bring any materials with you to the competition.
- Mobile phones and any electric devices are prohibited.
- Do not disclose any competition material / information to any person during each session's competition.
- Read the whole competition script prior to starting your work.
- Be aware of different tasks attract a percentage of the overall mark. Plan your time carefully