Systems Integration assignment 2

Configuring a server

12th October 2022

The aim of this assignment is to create and document a server configuration for the Linux VM created in the labs. The server should be set up to provide the following functionality:

- A DNS server for the domain example.lan, including *both* forward and reverse lookup
- A DHCP server, which can lease clients an IP address in the range 192.168.1.150 to 192.168.1.200
- An NFS server, allowing the file /home/<username>/shared on the server VM to be shared with clients
- An FTP server, allowing files stored on the server to be transferred to a client
- A router, allowing a client machine connected to the server to access the Internet

You will be required to do the following:

- Setup and configure the servers outlined above. The server will have to be demoed in a lab, proving that the behaviour matches the specification above
- Submit the configuration files for each of the servers
- Submit a howto document, explaining how the configuration files can be used to set up a fresh Ubuntu Server installation to replicate the functionality of the setup you have produced

The howto document should be self-contained: in other words, it should not reference previous labs, but should be written to be useful for somebody who has never seen or completed any of the labs. However, you can assume that the reader will understand what each of software packages being used actually do (for instance, you don't have to explain what a DNS server is or what it does -- the reader can be expected to know this).

This assignment is worth 30% of your total mark for this class. The marking scheme is as follows:

- 10% for the demo
  - 1% for showing a DNS resolver successfully resolve the domain example.lan to the IP address you set up for it
  - 1% for showing a reverse DNS lookup, where querying the IP address returns example.lan
  - 2% for showing the DHCP server successfully assigning an IP address in the specified range to a client machine
  - 2% for successfully transferring a file from a client machine to the server using NFS
  - 2% for successfully downloading a file from the server to the client using FTP
  - 2% for showing a client machine without a direct Internet connection of its own pinging an external website (e.g. Google) using the server as a router/gateway
- 5% for the configuration files
- 15% for the howto document
  - 3% for each of the 5 servers

- The howto should cover all of the commands used, showing each command and explaining what it does. It should also specify clearly where each configuration file goes on the filesystem
- Both the clarity and correctness of the explanations will be marked

Submission

Submit the configuration files and howto document to Brightspace by 9am on Friday, 2nd December 2022. Demos will take place during lab time (11am-1pm) on the **7th and 14th December**.

Remember you do not need to upload your VM image -- this will generally be too large to upload to Brightspace anyway!