Managing a Network Using Linux

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Members Contribution:

Gurkamal Bassi: Compared different Linux distributions.

Installed Ubuntu Distribution for the project.

Installed and configured the DHCP server.

Sukhveer Sohi: Installed and configured the DNS server

Installed and Configured user authentication over the network

Premgeet Singh: Installed and configured Apache Server

Challenged faced in the project

Gurkeerat Singh: Designed the webpage for the group project

Compared WINDOWS SERVER VS LINUX Server

Introduction

Managing a network simply means setting up, administering and troubleshooting a network. Basically, the purpose of a computer network is to share the resources (files and documents) on other devices, hardware devices (for example - printers) and to be able to communicate within and with other networks. Network management can be done using different operating systems like Microsoft Windows Server, Novell Open Enterprise Server, Linux Based OS like Ubuntu server, openSUSE, etc. Mostly all the OS used for network management can achieve the same functionalities.

In this project we have chosen to work on a LINUX based OS. LINUX based OS is also very popular among big companies like Oracle, IBM, and Amazon.

Major Goals of our project:

a) *Installing a LINUX operating system on a virtual box.*

b) *Setting up and configuring various services such as*

   DHCP

   DNS

   Web Server

   User authentication service over the network.

c) *Creating folder shares using NFS or SAMBA that could be gained by other clients.*

Weakness and Strengths of Linux distributions:

1) Debian:

Strengths –

a) Packaging System - Debian GNU/Linux has a packaging system that helps to install new applications, set up old ones and supervises the system without being dependent on libraries and even there is no need to re-write the configuration files.

b) Easy to Install - Debian is one of the easiest to install OS. It can be easily installed from CD, DVD, over the network or even a USB-stick.

c) A lot of Software - Debian includes more than 59000 different types of software and all are available for free. Most of them are already installed by an installer in Debian and are ready to use upon installation of OS.

Weakness –

a) Problem with Free Software - In Debian adding software to the system is as easy as assessing a service from storage. But even this is difficult for some users. Therefore, they depend on using other derivatives like Linux Mint or Ubuntu in which it is easier to get the software (non-free drivers) or some tools like Flash.

b) Usage of Systemd – Since the introduction of the system as an administrative tool many users are not comfortable using it as it is too powerful. And some of the users consider this introduction as a conspiracy by Red Hat.

2) Fedora

Strengths –

a) Fast Boot -   Fedora OS is famous for its fast boot. Upon turning on the PC running Fedora the boot happens in less than 20 seconds. While it might not be the fastest in the world. But it is very fast for a complete Linux distribution.

b) Graphics - There are a lot of features in FEDORA that lets users control the system. For example, users can control the language settings, users, authentications, network shares, web servers, and firewalls, etc. Moreover, we can configure 3D support for graphic cards and more convenient color management.

Weakness –

There are not many cons of FEDORA but of the cons is that the new version of the OS comes out every six to nine months and we cannot go back to earlier versions so our work can get a bit messed up.

3) Ubuntu

Strengths-

a) This OS is one of the easiest to install with a very easy to use interface.

b) The apt package is the most efficient way of installing programs among the other available ways. Plus, Ubuntu comes with Ubuntu Software Centre.

Weakness –

a) apt is not user friendly for non-Linux users.

b) Ubuntu gives a very substandard support for the printers.

Advantages of Managing the network using LINUX

➔ **Stability-** Linux servers are the most stable platform and the main reason for this is because there is no need to reboot the system even for months. It is unlikely that your system will freeze or there will be a lag in the performance.

➔ **Overall Performance-** On various networks and workstations Linux provides an environment that is powerful, reliable and stable. It can be connected to multiple devices without any issues.

➔ **Affordability-** Linux being an open-source solution brings the affordability with the package. Also, the setup cost is very low. There are many free applications designed to run with it. Overall, it is much cheaper to run than the Windows Server.

➔ **Security-** Linux servers are highly secure because of antispyware and firewall services. Also, because the code is open sourced everyone is free to examine the code due to which bugs and issues are found and resolved very easily.

➔ **Multitasking-** One of the reasons that Linux servers are used so widely is because they support multitasking capabilities. Multiple users can connect very easily and users can run multiple apps at the same time without crashing or freezing the system.

Disadvantages of Managing the network using LINUX

➔ Linux integration is not so user-friendly. New users may find it difficult to operate a Linux machine.

➔ Many programs which are basically windows friendly won't run in Linux.

➔ There are very few hardware driver selections in Linux.

Challenges and difficulties faced by the group:

➜ Most of us being Windows users found the Linux system a bit hard to understand and confusing. So, a lot of research and hard work was put in by each member of the group in order to understand and implement setting up the server.

➜ Many unexpected errors and problems occurred while setting up the server for which we found solutions on the Internet, but they were hard to implement.

➜ In Windows, all the setup is done in GUI (Graphical User Interface) while in the case of Linux it is done in the terminal which is a little bit harder. You must take extreme care of command syntax as well as system functionality.