A Review on Linux Distribution as Future Operating System

Introduction

Linux is a free and open source Operating System,Which is mainly used in servers and supercomputers.Linux is bundled with features of Windows and Mac OS X,Since it is suited to different needs of different users.

Open-source software (OSS) is computer software with its source code made available with a licence under End User Licence. Agreement (EULA) in which the copyright holder provides the rights to study, change, and distribute the software to anyone and for any purpose. Open-source software may be developed in a collaborative public manner. Open-source software is the most prominent example of open-source development. The open-source model, or collaborative competition development from multiple independent sources, generates an increasingly more diverse scope of design perspective than any one company is capable of developing and sustaining long term. The Linux kernel is an operating system kernel used by the Linux family of Unix-like operating systems. It is one of the most prominent examples of free and open source software. Linux is, in simplest terms, an operating system. It is the software on a computer that enables applications and the computer operator to access the devices on the computer to perform desired functions. The operating system (OS) relays instructions from an application to, for instance, the computer's processor.

Overall this research paper focuses on the very core aspect of the Linux Operating system based on online statistics and also tells the most valued and the best distribution (Distro) of Linux

OPEN SOURCE

Open source software is available for modification or enhancement by anyone. "Source code" is the part of software that most computer users don't ever see; it's the code computer programmers can manipulate to change how a piece of software a "program" or "application" works.

A. LICENSE

The GPL is a copyleft licence, which means that derived works can only be distributed under the same licence terms. This is in distinction to permissive free software licences, of which

the BSD licence and the MIT License are the standard examples.

B. KERNEL

The kernel is a computer program that constitutes the central core of a computer's operating system. It has complete control over everything that occurs in the system. As such, it is the first program loaded on startup, and then manages the remainder of the startup, as well as input/output requests from software, translating them into data processing instructions for the central processing unit. It is also responsible for managing memory, and for managing and communicating with computing peripherals, like printers, speakers, etc. The kernel is a fundamental part of a modern computer's operating system.

The Linux kernel is a Unix-like computer operating system kernel. It is used world-wide: the Linux operating system is based on it and deployed on both traditional computer systems such as personal computers and servers, usually in the form of Linux distributions and on various embedded devices such as routers and NAS appliances. The Android operating system for tablet computers, smartphones and smart-watches is also based atop the Linux kernel.

Distribution

A linux distribution(often called a distro for short) is an operating system made from a software collection, which is based upon the linux kernel and often a package management system. Linux users usually obtain their operating system by downloading one of the linux distributions, which are available for a wide variety of systems ranging frome embedded devices and personal computers to powerful super computers.

2 LITERATURE OVERVIEW

Many people are not aware about Linux Operating system, and are still stuck with the old windows Operating System, still not aware about the vast expansion of Linux "the future of operating   system".
 But why do companies find Linux so interesting?

- No per-unit licensing costs.
- Wide array of support options.
- Do it yourself.
- Free e-mail support from the community.
- Paid support options

3 ADVANTAGES OF LINUX OVER WINDOWS

3.1 Easy to install application

Installing new programs in Linux is easier than in Windows. You don't need to accept agreements because it's all open source so there is no need to click Next 20 times before the program is installed.

3.2 Secure

Security is not just an enhancement like in Windows. It is a pillar of the Linux Core, which makes the task hard to virus creators or to hackers. You can use your Linux without antivirus program and without being ever annoyed by a virus

3.3 Easy to change options

Linux comes with a control panel but also comes with a menu next to the Applications menu where you simply select the thing you want to change, be it the Desktop background or the network settings. Everything on the windows that appear is simple and there are just the options you need so it is easy to change the options.

3.4 Community

The community behind Linux, especially Linux is what attracts many people to the operating system.

3.5 Free

Everything about Linux is free, the operating system (you can even have them send you a copy of the operating system for a small fee that covers postage), the software installed is free (including all the software you can download) any help and support is free. The whole experience is 100% free, because it is open source. Open source means that you can distribute and even edit the code behind the program.

How Linux Works

Linux is a multi-task [6] and multi user operating sys- tem.A multitask operating system is capable of doing several tasks at the same time (well, not quite so, but it seems like that from the human point of view).

A multiuser operating system has a concept of "user quota way to identify the person that is using the system, and can allow different users to perform different tasks in the comput- er, and protect one user's tasks from interfering with another user's programs.

1. Shell

This is a program in the system that allows you to give the commands you want to execute. It is the basic program that connects you to the operating system.This is a program in thesystem that allows you to give the commands you want to execute. It is the basic programthat connects you to the operating system.

2. Process

Any task that you run in the system is called a process (again, a process is something a little more complex than just a task, but that definition is good enough to start).

3. File

It is a part of the hard disk that contains data owned by a user of the system

4. X-windows(or simply windows)

This is a mode of Linux where your screen (monitor) can be split into small "parts" called windows, that allow you to do several things at the same time (or rather change from one task to another easily) and view graphics in a nice way.

5. Text terminal

It means a monitor that has only the capability to display text stuff, no graphics (or perhaps a very basic graphics display).

6. Session

The time spent between logging on in the system and logging out of the system.

BASIC COMMANDS IN LINUX

Commands can be one of 4 different kinds

A. An executable program like all those files in /usr/bin: Within this category, programs can be compiled binaries such as programs written in C and C++, or programs written in scripting languages such as the shell, Perl, Python, Ruby, etc.

B. A command built into the shell itself, Bash provides a number of commands internally called shell built-ins. The cd command, for example, is a shell built-in.

C.Ashellfunction

These are miniature shell scripts incorporated into the environment. We will cover configuring the environ ment and writing shell functions in later lessons, but for now, just be aware that they exist.

D. An Alias- Commands that you can define yourselves, built from other commands. This will be covered in a later lesson

4 POPULAR LINUX DISTRIBUTERS

6.1 Debian

GNU/Linux is a distribution that emphasises free soft- ware. It supports many hardware platforms. Debian and distributions based on it use the .deb package format and the DPKG package manager and its frontends.

6.2 Knoppix

It is based on Debian. It is a live distribution, with automated hardware configuration and a wide choice of software, which is decompressed as it loads from the drive.

6.3 Ubuntu

It is a distribution based on Debian, designed to have regular releases, a consistent user experience and commercial support on both desktop and server.

6.4 Unofficial variants

This distribution and derivatives are not controlled or guided by Canonical Ltd. and generally have different goals in mind.

6.5 Gentoo

This is a distribution designed to have highly optimised and frequently updated software. Distributions based on Gentoo use the Portage package management system which emerges as one of the alternative package managers.Red Hat Linux and SUSE Linux

These are the original major distributions that used the RPM file format, which is today used in several package manage- ment systems. Both of these later divided into commercial and community-supported distributions. Red Hat Linux divided into a community-supported distribution sponsored by Red Hat called Fedora, and a commercially supported distribution called Red Hat Enterprise Linux, whereas SUSE divided into openSUSE and SUSE Linux Enterprise.

6.6 Pacman

It is a package manager that is capable of resolving depend- encies and automatically downloading and installing all nec- essary packages. In theory, a user need only run a single command to completely update the system.

6.7 Slackware

It is known as a highly customizable distribution that stresses ease of maintenance and reliability over cutting-edge software and automated tools. Generally considered a distribution for advanced users, it is often suggested to those who want to learn the inner workings of a Linux operating system.

6.8 Independent

This are the operating system made by the independent users.

5 POPULAR LINUX DISTRIBUTION BASED ON FAMILY

Some Debian operating System

Kali Linux made to be a completely customizable OS[9], used for penetration testing. It is based on Debian GNU/Linux NepaLinux A Debian and morphix Linux based distribution focused for desktop usage in Nepali language computing.

7.1 Some UBUNTU operating system

Ubuntu is a project that is an official derivative of the Ub- untu operating system that is "lighter, less resource hungry and more energy-efficient", using the LXDE desktop environment.

An official derivative of Ubuntu using MATE, a desktop environment forked from the now-defunct GNOME 2 code base, with an emphasis on the desktop metaphor.

A complete Linux based operating system targeted for pri- mary and secondary education. It is freely available with community-based support. The Edubuntu community is built on the ideas enshrined in the Edubuntu Manifesto: that software, especially for education, should be available free of charge and that software tools should be usable by people in their local language and despite any disabilities.

7.2 Unofficial Distribution

Specifically for the Eee PC range of netbooks, based on Debian. Previously named Eeebuntu and based on Ubuntu.

Linux Mint synchronizes its release-cycle with Ubuntu's long-term support, and is tailored to user-friendliness for desktop users. Also features a Debian-based edition.

For academic and scientific use. Based on Ubuntu, but en- hanced by e.g. GIS/maps, numerical modeling, 2D/3D/4D visualization, statistics, tools for creating simple and complex graphics, programming languages.

7.3 Some Gentoo based operating system

Chrome OS is used on various Chrome Books, Chrome box- es and tablet computers. It is primarily Internet-based, launching each app within the Chrome browser. The OS fea- tures a user interface that is very similar-looking to Chrome instead of GNOME, KDE, etc.

Sabayon Linux is a European Linux distribution based on Gentoo. However, it follows the "out of the box" philosophy, aiming to give the user a wide number of applications ready to use and a self-configured operating system. Like Gentoo, Sabayon uses the rolling release model; it uses a customized version of Red Hat's Anaconda Installer and includes a Me- dia Center application.

7.4 Some Packman Based Operating System

An i686- and x86-64-optimized distribution targeted at expe- rienced users. Arch runs on a rolling release system and uses the pacman utility for package management.

Originally derived from Arch Linux, with the latest KDE desktop. For now uses the pacman utility for package man- agement. Strives to be Qt-only.

Frugalware Linux is a general purpose Linux distribution designed for intermediate users. Has some influences from Slackware, and uses a heavily modified version of the Pac- man package manager, Pacman-G2, a fork of a cvs version of the complete rewrite of Pacman-G1 by Aurelien Foret (the old monolithic Pacman-G1 is written by Judd Vinet). The packages are tar archives that are compressed using xz.

7.5 Some Slackware Based Operating System

SimpleLinux uses LZMA compression to compress its sys- tem files. The project started in 2007 by a group of Malaysian developers. simpleLinux is a Slackware-based distribution that comes in both Live CD and Persistence version that can be installed to a medium. simpleLinux comes to be a multitasking operating system that runs the X Window System

Frugalware Linux is a general-purpose Linux distribution designed for intermediate users who are familiar with com- mand-line operations. Early versions were based on Slack- ware, but it is now an independently developed distribution.

7.8 Some Independent Operating System

Void is a general-purpose operating system, based on the monolithic Linux kernel. Its package system allows you to quickly install, update and remove software; software is provided in binary packages or can be built directly from sources with the help of the XBPS source packages collec- tion.

GoboLinux An alternative Linux distribution which rede- fines the file system hierarchy by installing everything be- longing to one application in one folder under /Programs, and using symlinks from /System and its subfolders to point to the proper files.

CONCLUSION

The above studies has been done in through reference to the manuals and distro documents. It has come to a depth under- standing of how every Linux based disro functions and also their different flavour. With this document anybody can able to identify the need based selection of the appropriate distro and use it.

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