Ch1 Introduction to Linux

謝明志(Jimin Hsieh)

Agenda

1-1. What's Linux?

1-2. Linux History

1-3. Where?

1-4. Linux Distribution

1-5. Desktop Environments

1-6. How to pick up?

1-7. File System

1.8. How to interact with Linux?

1.9. Resource

1-1 What's Linux?

1. Unix-like OS

   1.1. Linux vs FreeBSD vs Mac OS

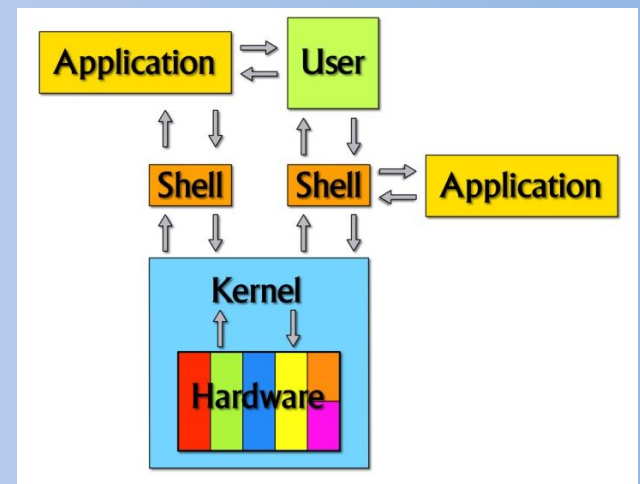2. OS kernel

3. "Monolithic" Kernel

   3.1. Monolithic (Linux) vs Microkernel (FreeRTOS)

3. Free and Open Source

   3.1. Linux vs Windows vs Mac OS

   3.2. Code License: GNU GPL v2

4. Cross-Platform OS

1-2 Linux History

cite http://tech2.in.com/

1. Who create Linux ? Linus Torvalds

2. When create Linux? 1991

3. How create Linux? Based on MINX

4. Why create Linux? MINX only limited on education use only

ps. Linus gave Nvidia the finger, because Nvidia did not give enough support to open source.

1-3 Where?

Where you could find Linux "now"?

1. Desktop

2. Servers: Facebook, Twitter, etc.

3. Embedded

    3.1. Mobile: Android, NB, etc.

    3.2. Network Devices: Home Gateway, Firewall, etc.

    3.3. Others: NAS(Storage + Network), Music Workstatons, etc.

1-4 Linux Distribution

1. Each Distribution has their own collection of application software

2. Each Distribution build on top of the Linux kernel.

3. Commercially backed

   vs.

   Community-driven

1. Debian-based

   1.1. Debian

   1.2. Ubuntu, Xbuntu

   1.3. Linux Mint / LMDE

2. RPM-based

   2.1. Fedora

   2.2. CentOS

   2.3. OpenSUSE

3. More Distribution

1-5 Desktop Environments

1. Based on GTK+(C)

    1.1. Gnome

    1.2. Xfce

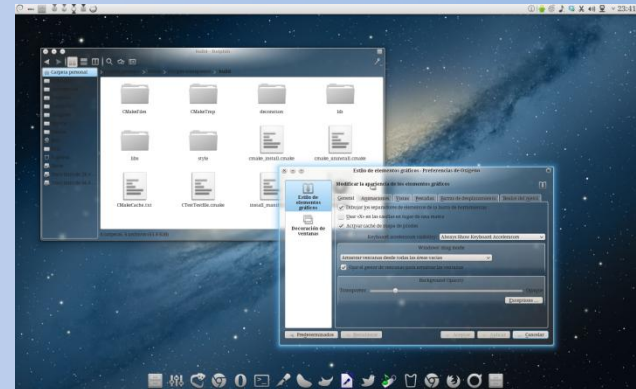   1.3. LXDE(MIT)

    1.4. Cinnamon

    1.5. Mate

2. Based on QT(C++)

    2.1. KDE

Debian

1. 3 version: stable, testing, unstable

2. The most solid Linux – stable version

3. Support – community without commercial company

4. Link: http://www.debian.org/

Ubuntu

1. Version

   1.1. Ubuntu Releases – Based on Debian unstable

   1.2. Ubuntu LTS – Based on Debain testing

2. Support – community with Canonical Ltd.

3. Platform – phone, tablet, TV

4. Link: http://www.ubuntu.com/

Linux Mint

1. Version

   1.1. Linux Mint – based on Ubuntu

   1.2. LMDE – based on Debain Testing

2. Keep the windows-like

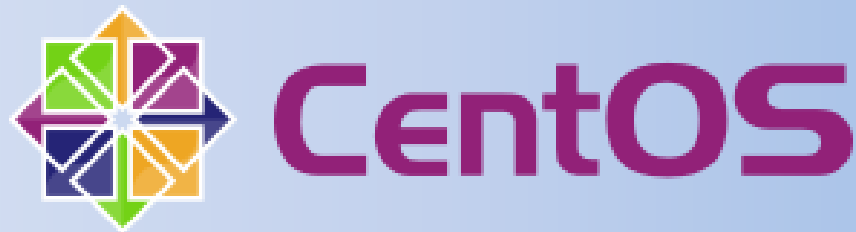3. Link: http://www.linuxmint.com/

Fedora

1. Similar – Ubuntu Releases

2. Support – community with Red Hat

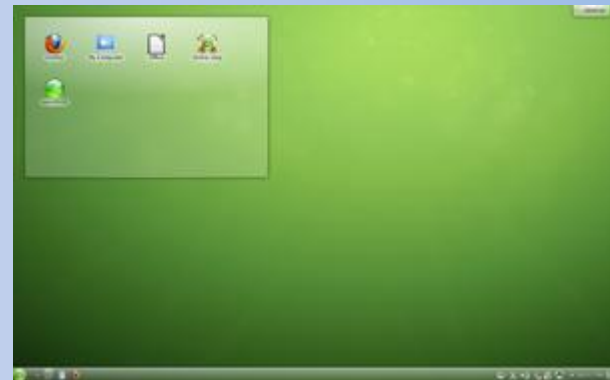3. A lot of Chinese materials

4. Link: http://fedoraproject.org/

CentOS

1. Version: Based on Red Hat Enterprise Linux
2. Similar – Debian
3. More stable than Fedora
4. Support – community with Red Hat
5. Link: http://www.centos.org/

OpenSUSE

1. Version: Based on SUSE Linux

2. It comes from German

3. Most of user in Europe

3. Link: http://www.opensuse.org/

1-6 How to pickup?

1. Newbie
   1.1. Ubuntu
   1.2. Fedora

2. Junior
   2.1. LMDE
   2.2. OpenSUSE

3. Senior
   3.1. Debian
   3.2. CentOS
   3.3. Gentoo

4. RPM or Deb?

1-7-1 File System

1. Tree Structure

"/" - root directory

/bin - binary files

/boot - boot loader

/dev - your device files

/etc - configuration files

/home - users' directories

/lib & /lib64 - system lib

/mnt - mount points

/media - removable medias devices

/proc - process information & system information

/root - administrator's directory

/sbin - system binaries

/usr - user-related programs

/var – variable files and temporary files created by user

1-7-2 File System

1. Ext2

2. Ext3

    1.1. available on Linux kernel 2.4.15

    1.2. transfer to Ext2 directly

3. Ext4

    3.1. available on Linux kernel 2.6.19

    3.1. better performance than Ext3

1-9 How to interact with Linux?

0. Prepare Linux Virtual Machine(VM)

1. Just interact with VM, but normally it would be slow.

2. Remote Login through CLI

   2.1. Putty

   2.2. "openssh-server" | "telnet-server"on Linux

   2.3. In the same network.

3. The "best" and "hardest" way:

   Just install on your NB or desktop!

1-10 Resource

Hyperlink:

1. [鳥哥的Linux 私房菜](#)
2. [Wikipedia](#)

Book:

1. [Linux in Nutshell](#)
2. [Linux Bible](#)

Q&A

Thanks for you attentions!