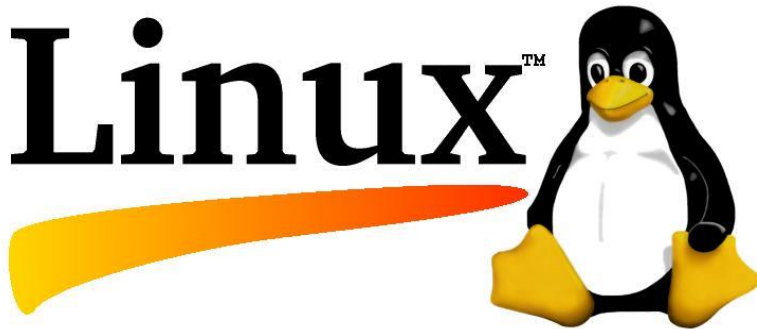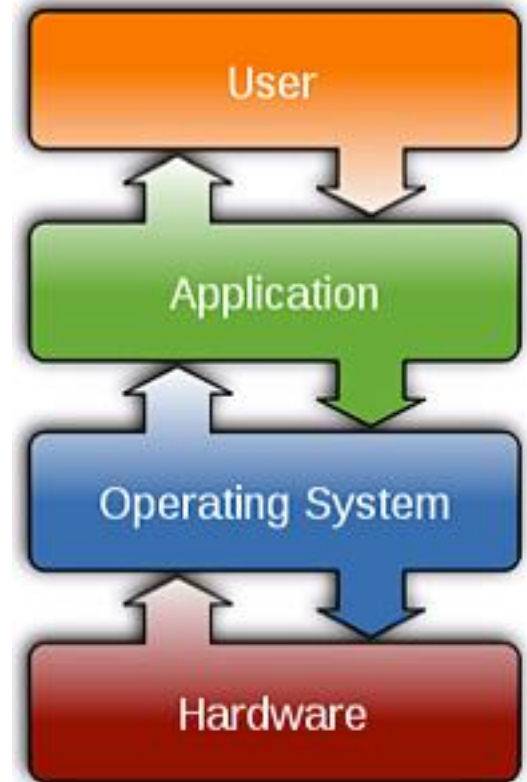# What is Linux ?

Bok, Jong Soon
javaexpert@nate.com
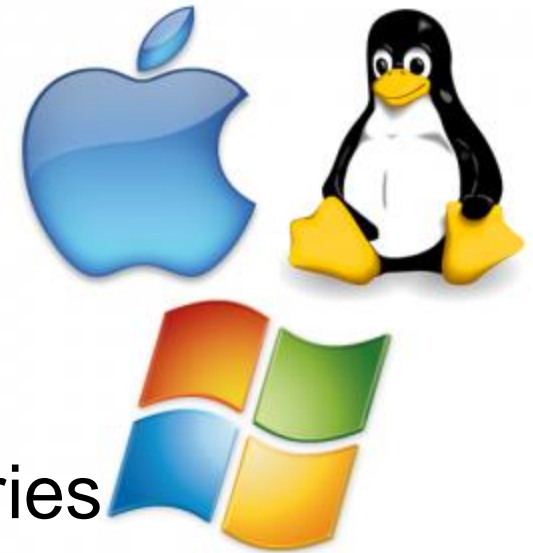**www.javaexpert.co.kr**

Operating System

- Is an interface between the hardware and the user for the management and sharing of the resources of the system.

- Every general-purpose computer must have an operating system to run other programs.
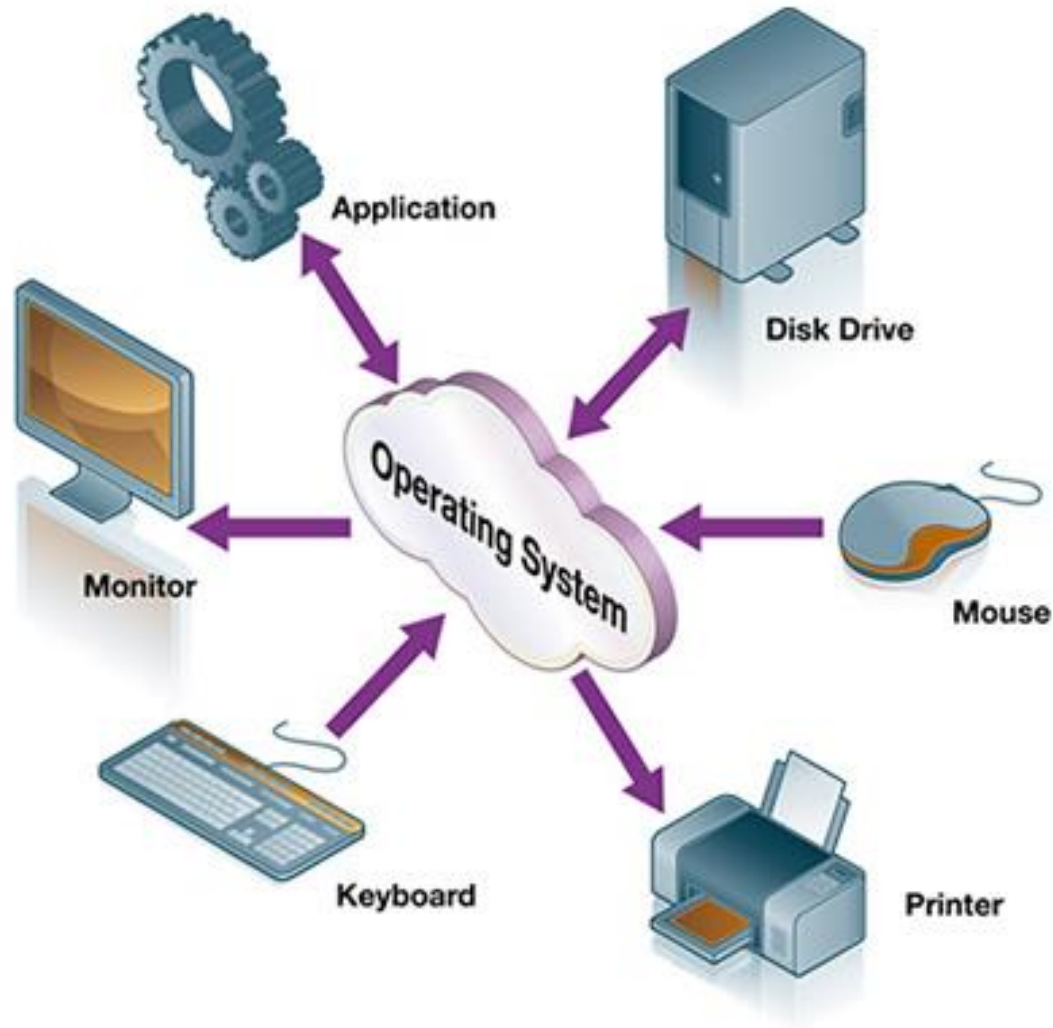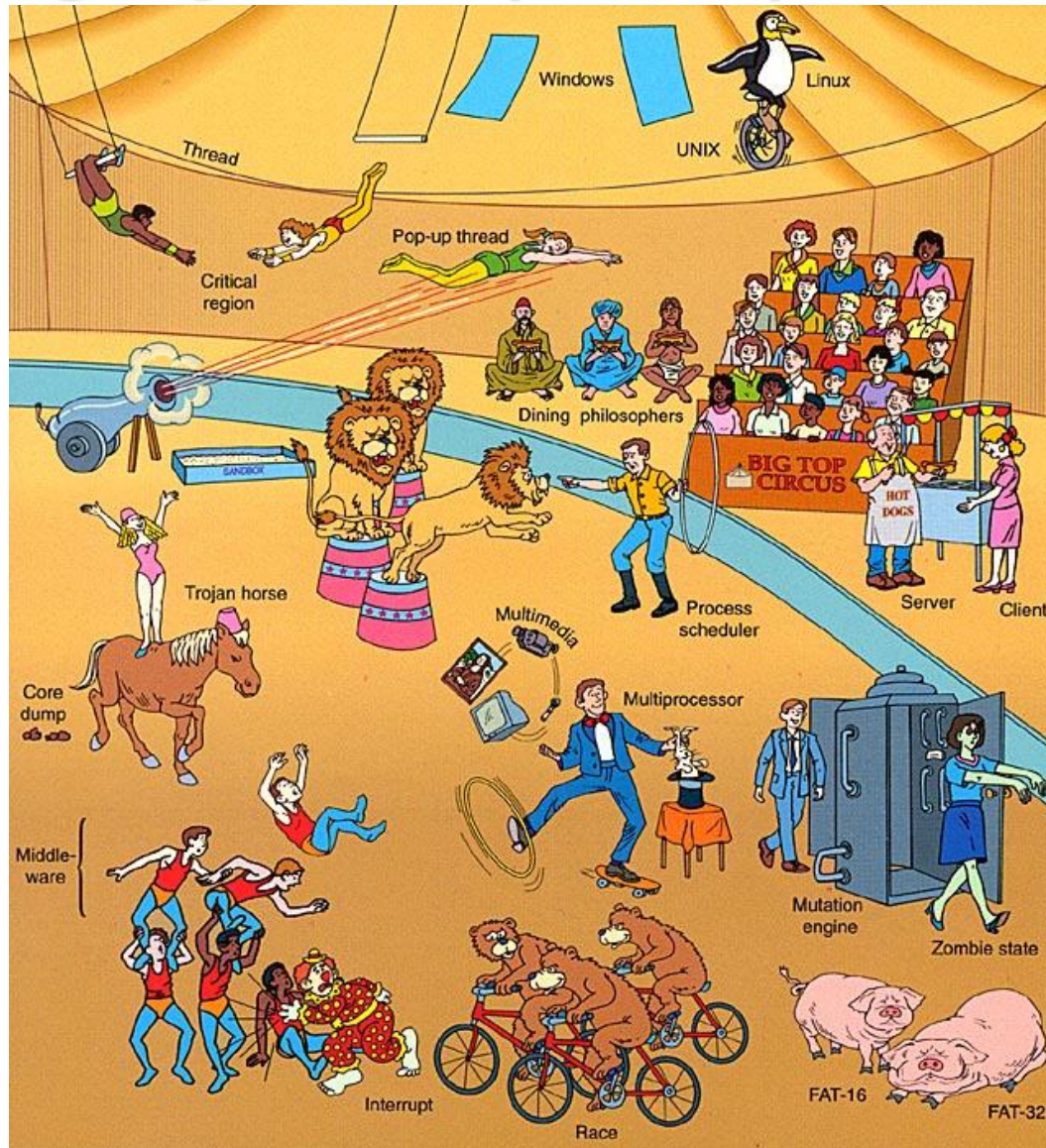

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Operating System (Cont.)

- Perform basic tasks, such as
  - Recognizing input from the keyboard
  - Sending output to the display screen
  - Keeping track of files and directories on the system disk
  - Managing communication with other peripheral devices such as external disk drives & other USB storage devices, printers & scanners and network communication.
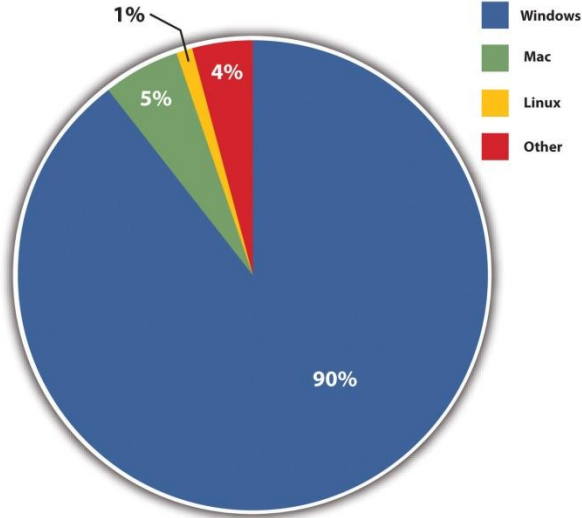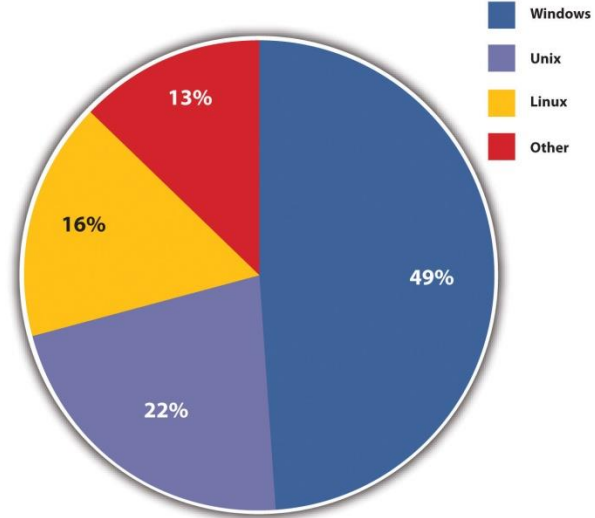
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Operating System (Cont.)

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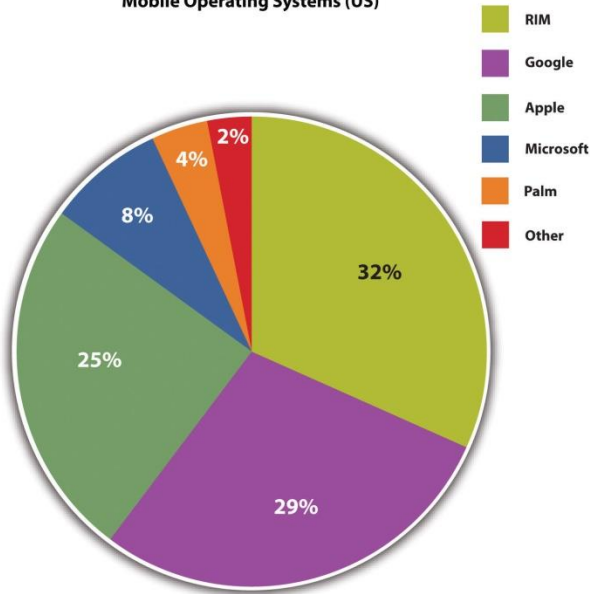# Operating System (Cont.)

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Oper

Desktop Operating Systems

- Windows
- Mac
- Linux
- Other

1%
4%
5%
90%

Server Operating Systems

- Windows
- Unix
- Linux
- Other

13%
16%
22%
49%

Mobile Operating Systems (US)

- RIM
- Google
- Apple
- Microsoft
- Palm
- Other

2%
4%
8%
32%
25%
29%

Mobile Operating Systems (Worldwide)

- Google
- Nokia
- Apple
- RIM
- Microsoft
- Other

3% 3%
14%
16%
33%
31%

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http://2012books.lardbucket.org/books/getting-the-most-out-of-information-systems-v1.3/s13-02-operating-systems.html
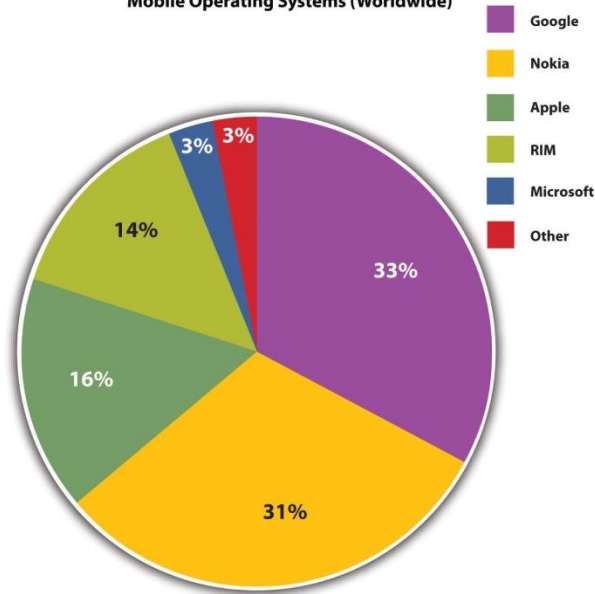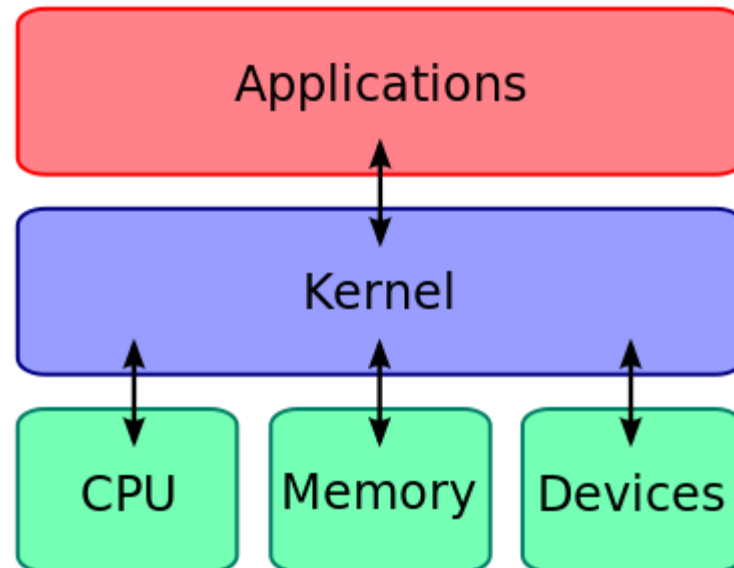
Kernel
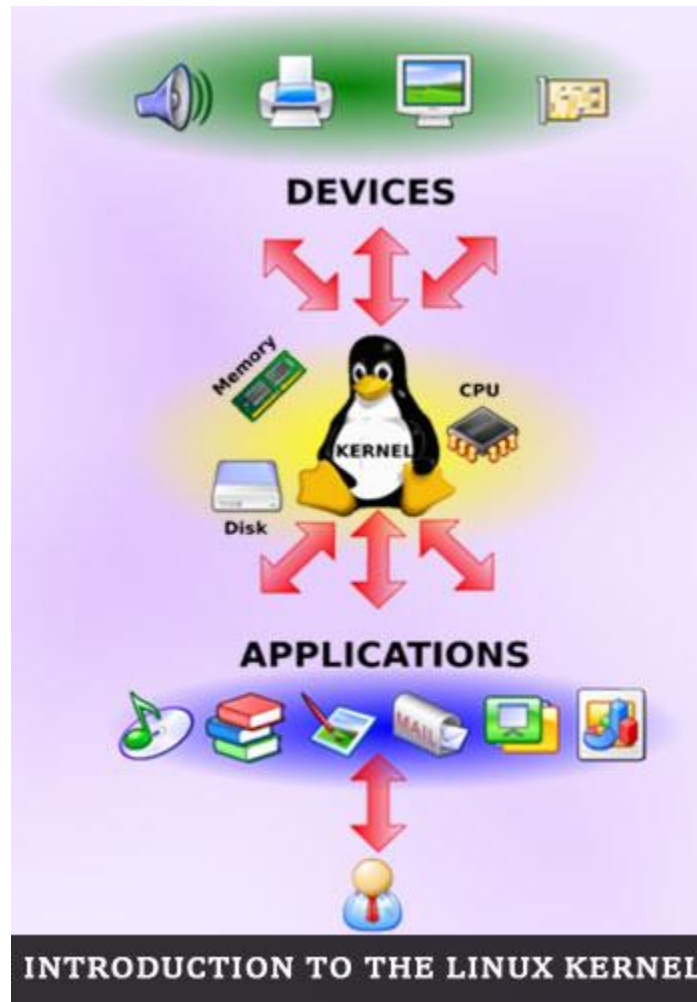

Linux kernel map
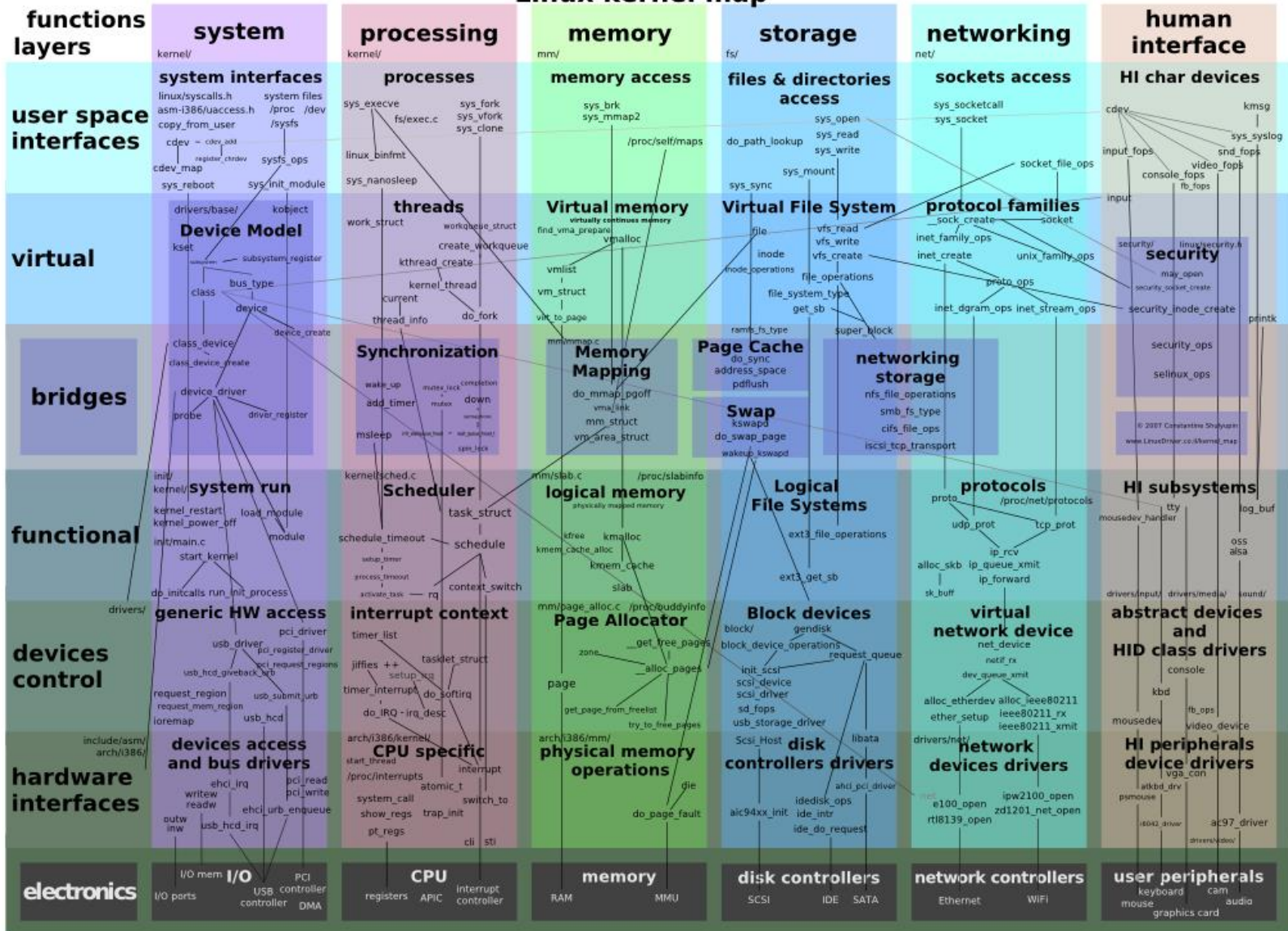
Kernel (Cont.)

- Is a fundamental part of a modern computer operating system.
  - Process Management System
  - File Management System
 - Hardware Interface

Applications

Kernel

CPU | Memory | Devices

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Kernel (Cont.)

INTRODUCTION TO THE LINUX KERNEL

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Linux…

- Is an open source operating system based on Unix environment.

- Multi-user, Multitasking, Multiprocessor.

- Has the X Window GUI.

- Is very similar to other operating systems, such as Windows and OS X.

- But something sets Linux apart from these operating systems.
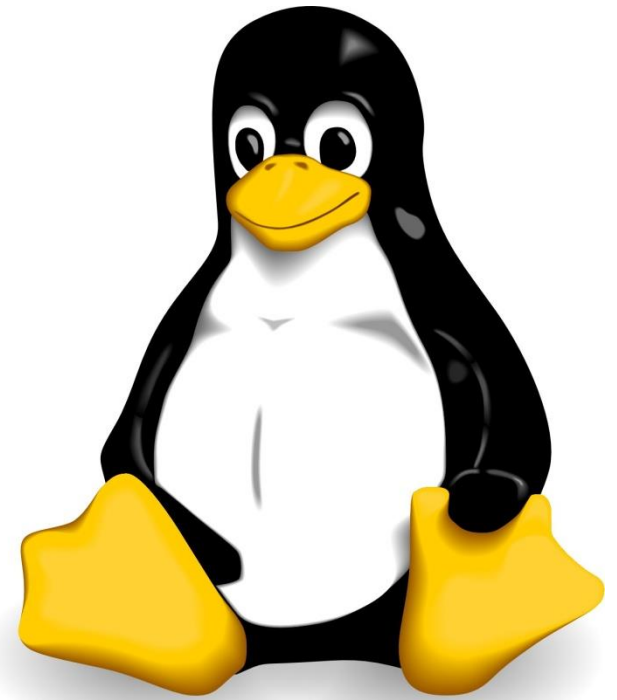
Linux… (Cont.)

- As an open operating system, Linux is developed collaboratively.

- Source Code is available.

- Means no one company is solely responsible for its development or ongoing support.

- Begins as a server OS and has become useful as a desktop OS, can also be used on all of these devices.

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Linux… (Cont.)

- https://www.kernel.org

Linux… (Cont.)

- As of June 2013, more than 95% of the world's 500 fastest supercomputers run some variant of Linux.

- Also runs on embedded systems such as mobile phones, tablet computers, network routers, building automation controls, televisions and video game consoles.

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Linux… (Cont.)

- Typically, Linux is packaged in a format known as a *Linux distribution* for desktop & server use.

- Linux distributions include the Linux *kernel*, supporting utilities and libraries and usually a large amount of application software to fulfill the distribution's intended use.

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Linux… (Cont.)

- The Four Web Bigshots, Google, Amazon, Twitter and Facebook; They All Use Linux.

- Nuclear Submarines running on Linux.

- Linux on Air Traffic Control Systems.

- Linux helping in Power Particle Physics Research.

- Linux powers The New York Stock Exchange.

http://efytimes.com/e1/fullnews.asp?edid=120870

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Linux… (Cont.)

- In-Vehicle-Infotainment And Communications Systems Of Toyota runs Linux.

- High-Tech Road Traffic Control running on Linux.

- Linux powers Japan's Bullet Trains.

- [The Most Powerful Supercomputers Today Run Linux.](#)

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Linux… (Cont.)

Dell Inspiron Mini 9 and 12

Garmin Nuvi 860, 880, and 5000

Google Android Dev Phone 1

TiVo Digital Video Recorder

HP Mini 1000

Lenovo IdeaPad S9

Motorola MotoRokr EM35 Phone

Volvo In-Car Navigation System

One Laptop Per Child XO2

Sony Bravia Television

Sony Reader

Yamaha Motif Keyboard

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Linux… (Cont.)

NimbRo-OP Humanoid TeenSize Open Platform

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Linux… (Cont.)

Linux… (Cont.)

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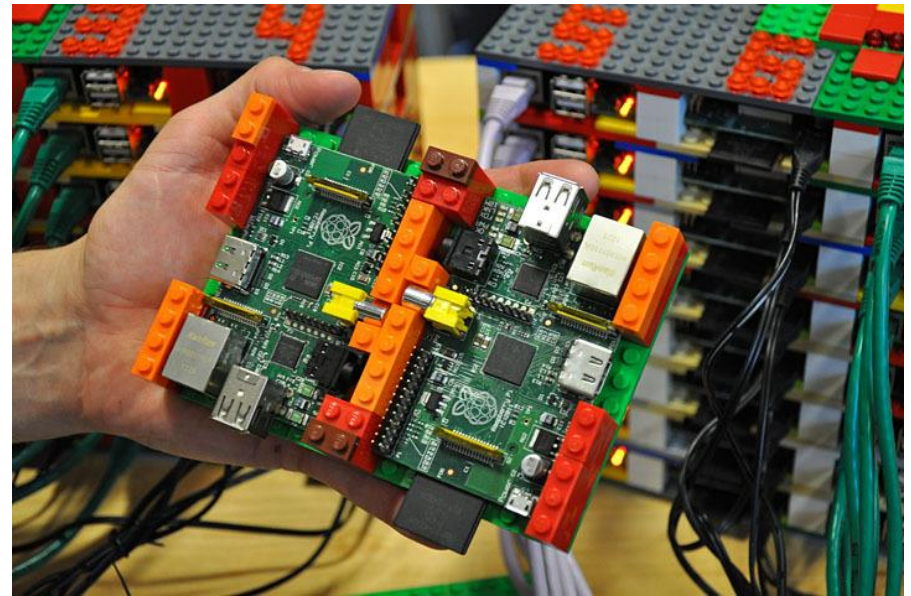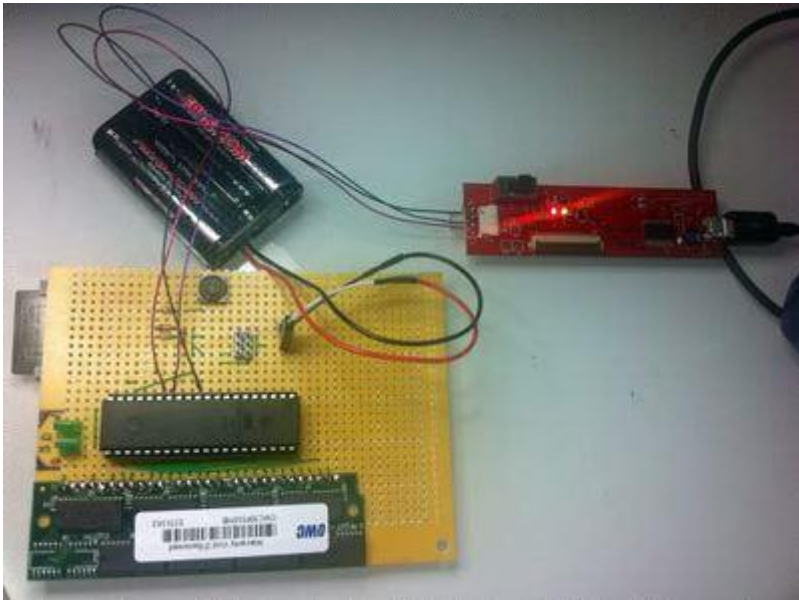
History

- An OS *Kernel*(The core of the Linux operating system) first released on October 5, 1991.

- By **Linus Benedict Torvalds** (born December 28, 1969)

- A Finn computer science student at the University of Helsinki.

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History (Cont.)

- On August 25, 1991, made the following announcement to the Usenet group comp.os.minux:

I'm doing a (free) operating system (just a hobby, won't be big and professional like gnu) for 386(486) AT clones. This has been brewing since April, and is starting to get ready. I'd like any feedback on things people like/dislike in minix*, as my OS resembles it somewhat (same physical layout of the file-system (due to practical reasons) (among other things).

* The, Minix, Torvalds referred to is a variant of the UNIX operating system

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History (Cont.)

- Torvalds wanted to run on the x86-based consumer PCs of the day.

- *GNU*(GNU Is Not Unix) tools first put together by **Richard Stallman** in 1983.

- Stallman's GNU tools were from a project to create an operating system as well.

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History (Cont.)

MEMORABLE LINUX MILESTONES
CELEBRATING 20 YEARS OF LINUX

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History (Cont.)

Philosophy of Linux

Openness

Efficiency

Stability

Linux Distributions

- http://distrowatch.com/

Linux Distributions (Cont.)

- http://lwn.net/

Linux Distributions (Cont.)

- http://www.linux.org/resources/categories/linux-distributions.18/

Linux Distributions (Cont.)

- https://en.wikipedia.org/wiki/Linux_distribution

Linux Distributions (Cont.)

- [Debian](#)

Linux Distributions (Cont.)

- Ubuntu

Linux Distributions (Cont.)

- Linux Mint

Linux Distributions (Cont.)

- Fedora

Linux Distributions (Cont.)

- [Red Hat Enterprise Linux](#)
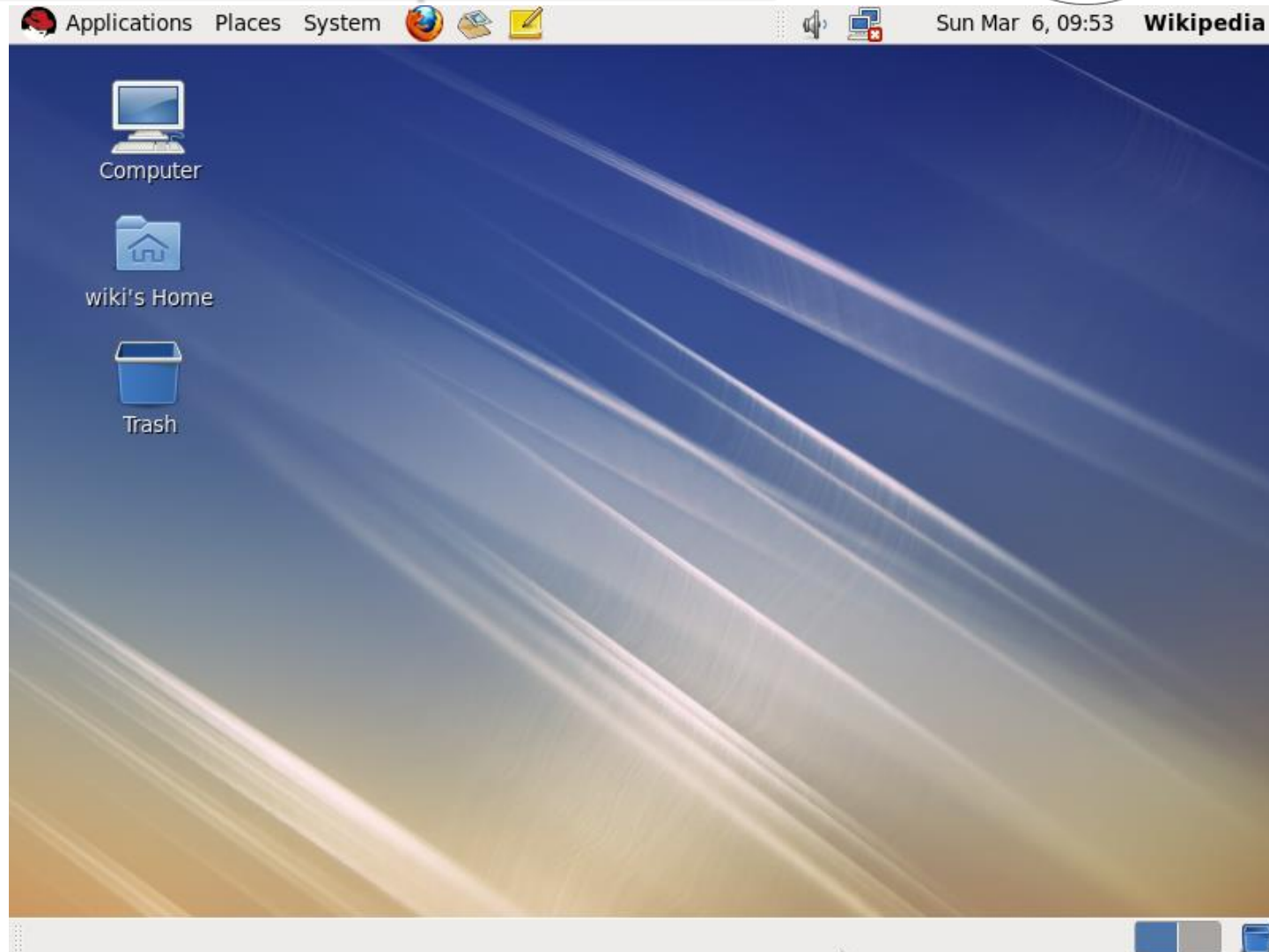
Linux Distributions (Cont.)

- CentOS
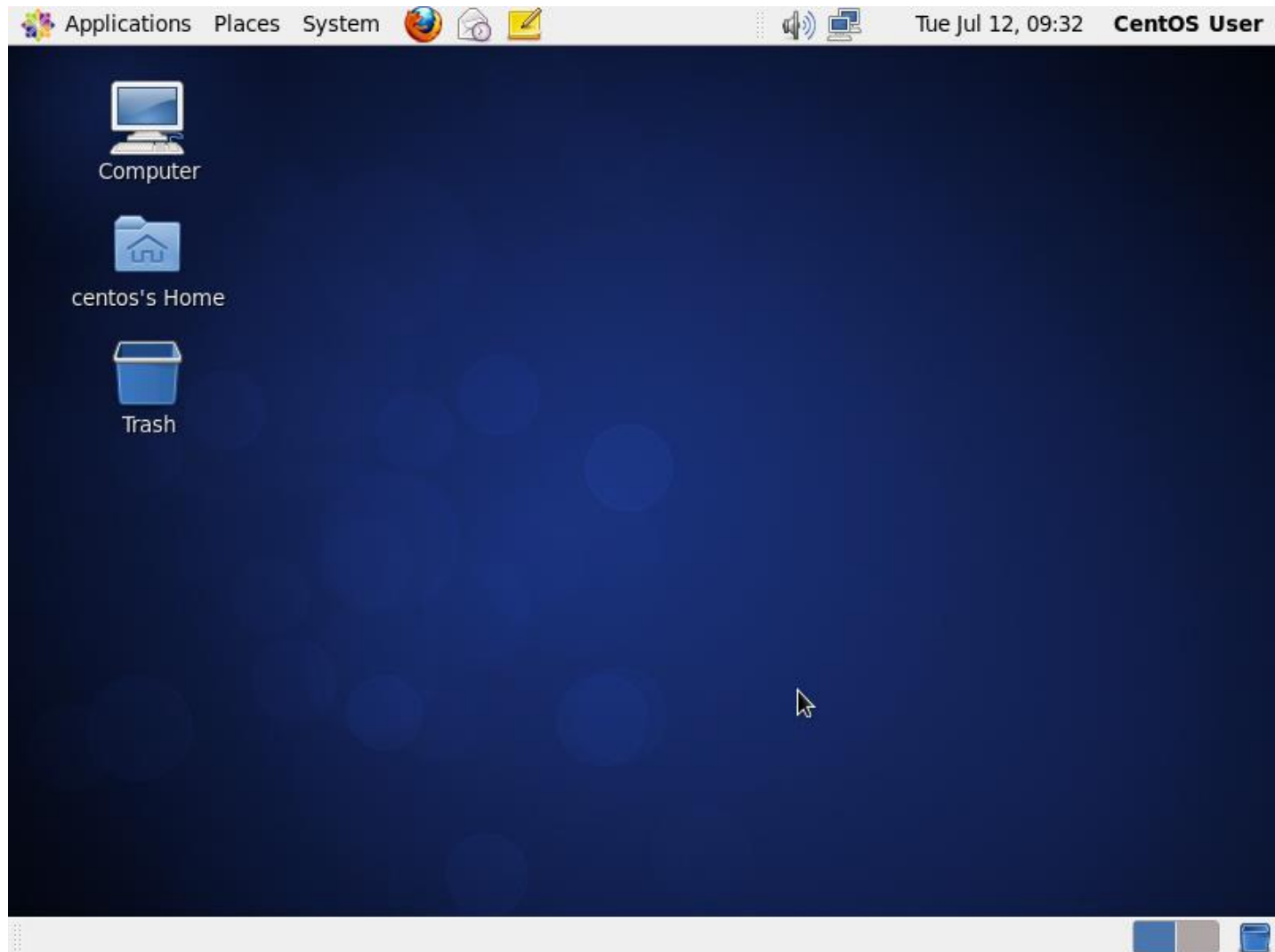
Linux Distributions (Cont.) ⭐ Mandriva

■ Mandriva Linux
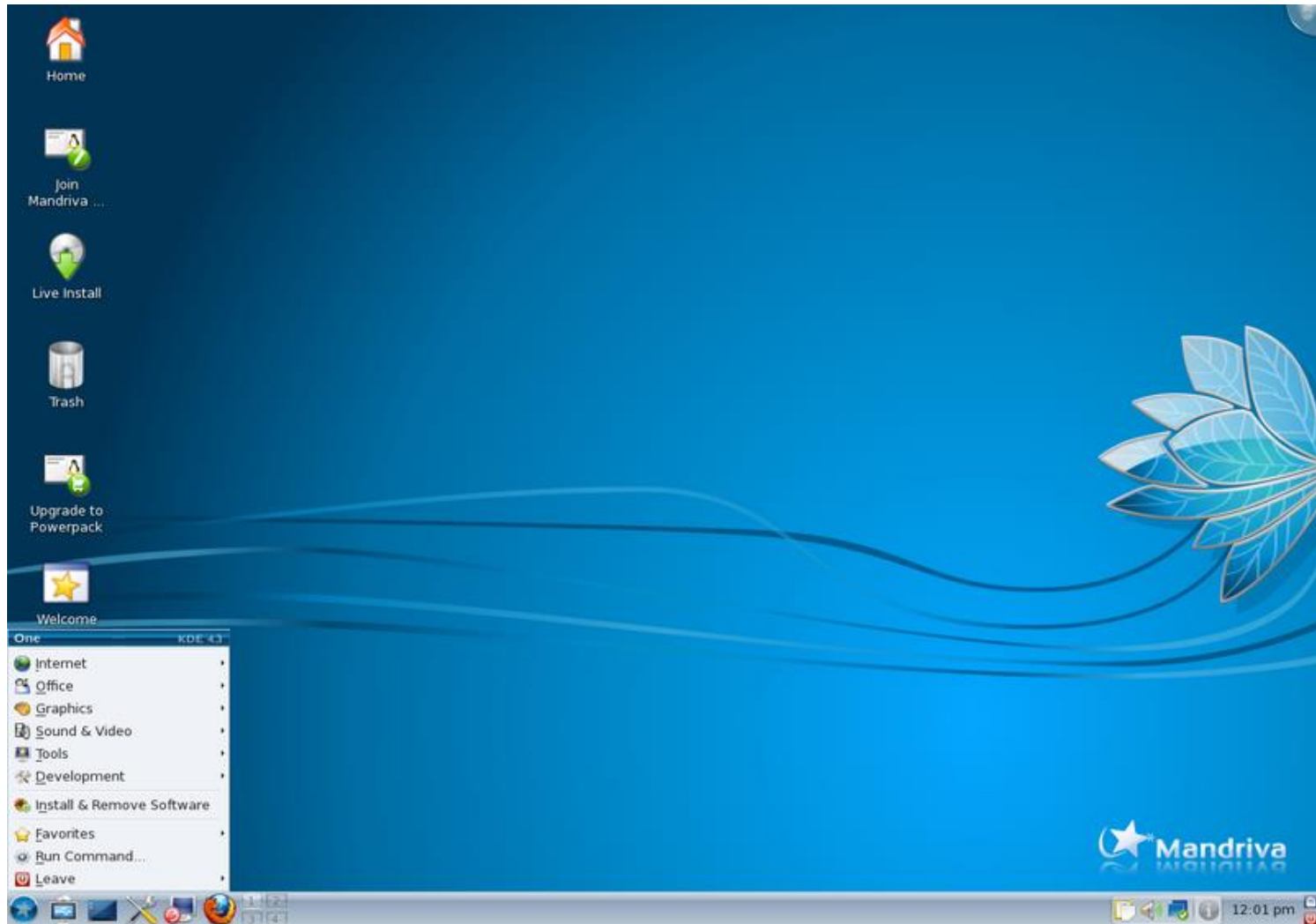
Linux Distributions (Cont.)

- openSUSE
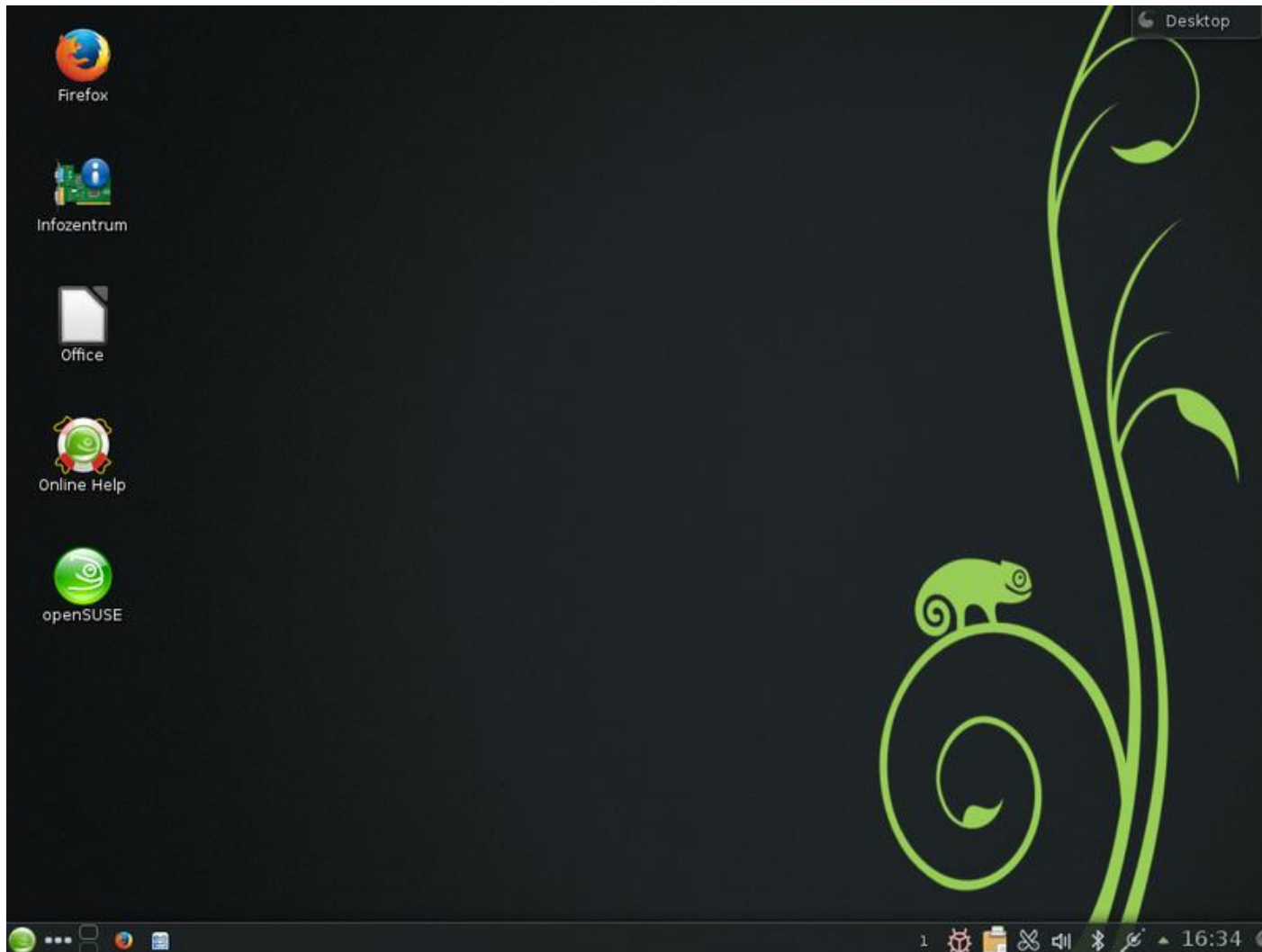
Linux Distributions (Cont.)

- [Asianux](#)

Linux Graphical Desktop Environments -GNOME Shell

Linux Graphical Desktop Environments -KDE Plasma

Linux Graphical Desktop Environments -Unity
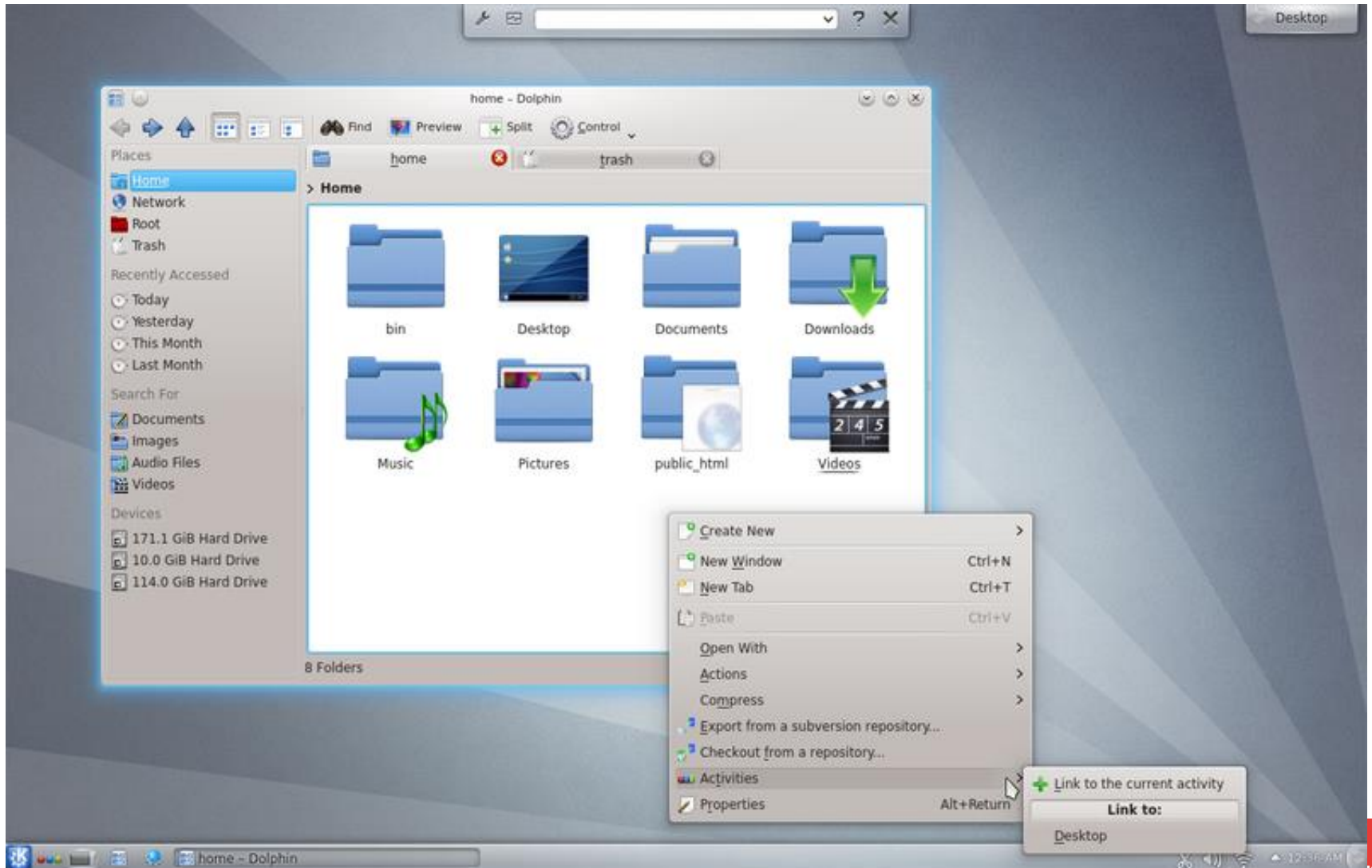
Linux Graphical Desktop Environments -Xface
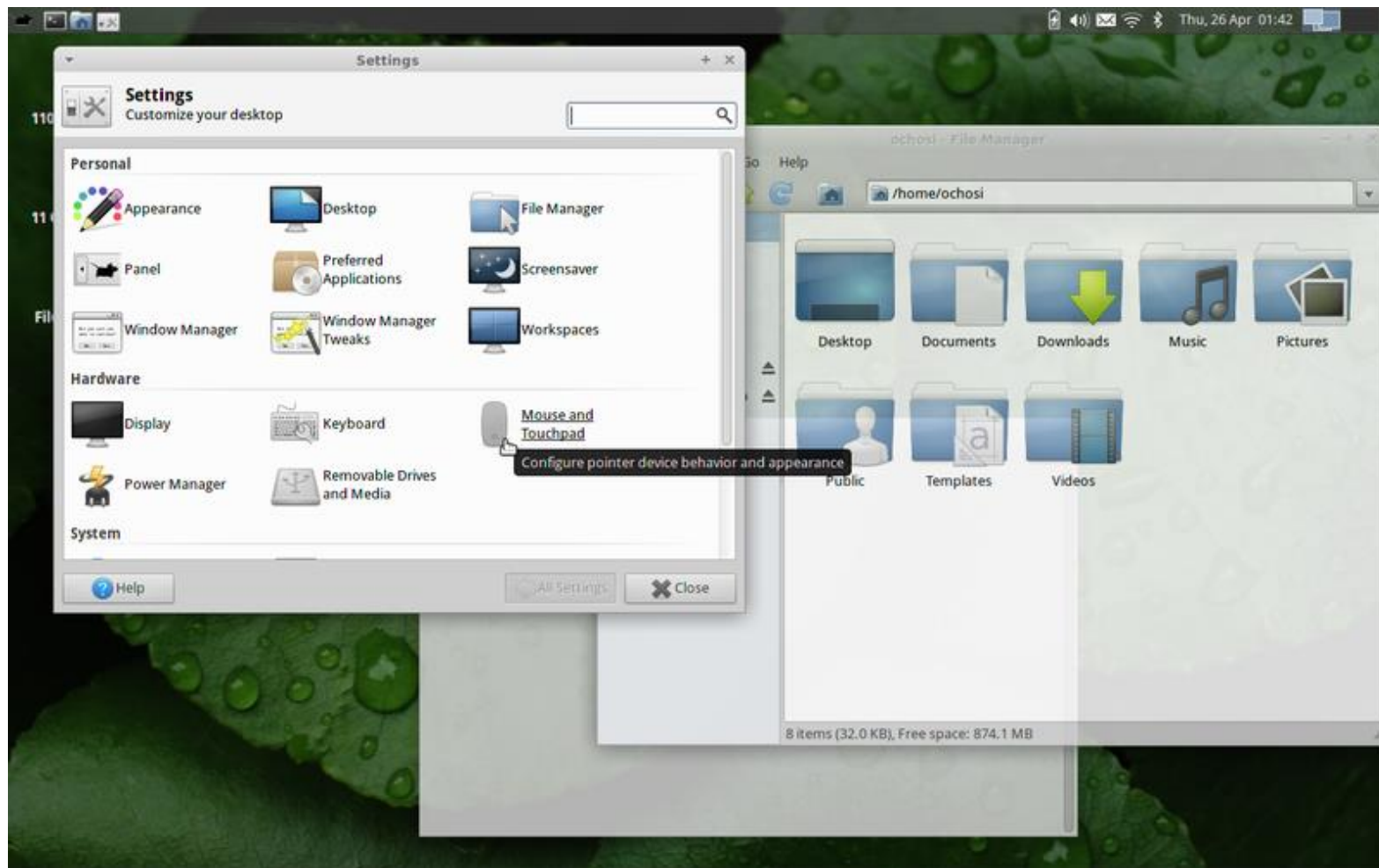
Linux Graphical Desktop Environments -LXDE

Linux Graphical Desktop Environments -Enlightenment
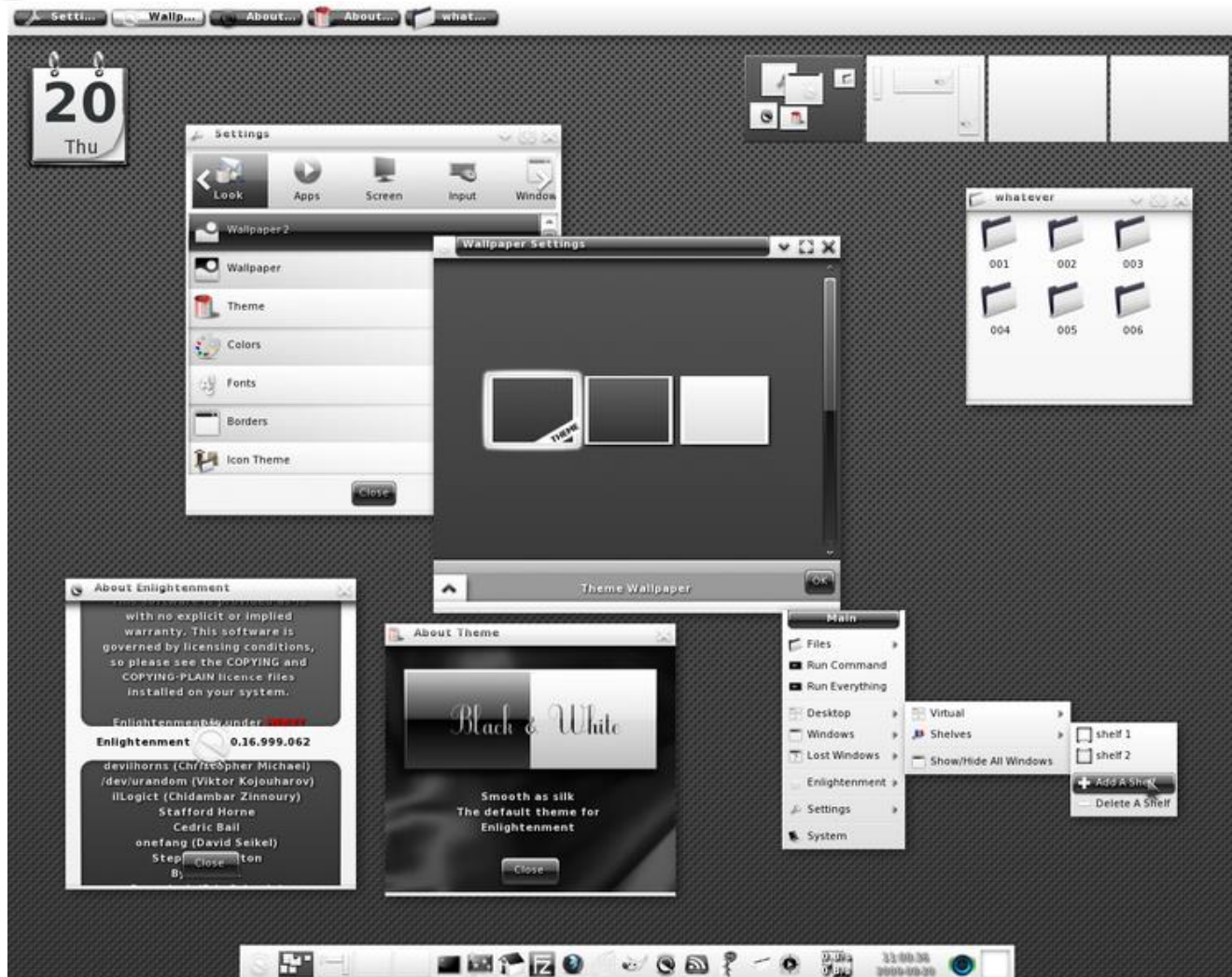
Linux Graphical Desktop Environments -Cinnamon
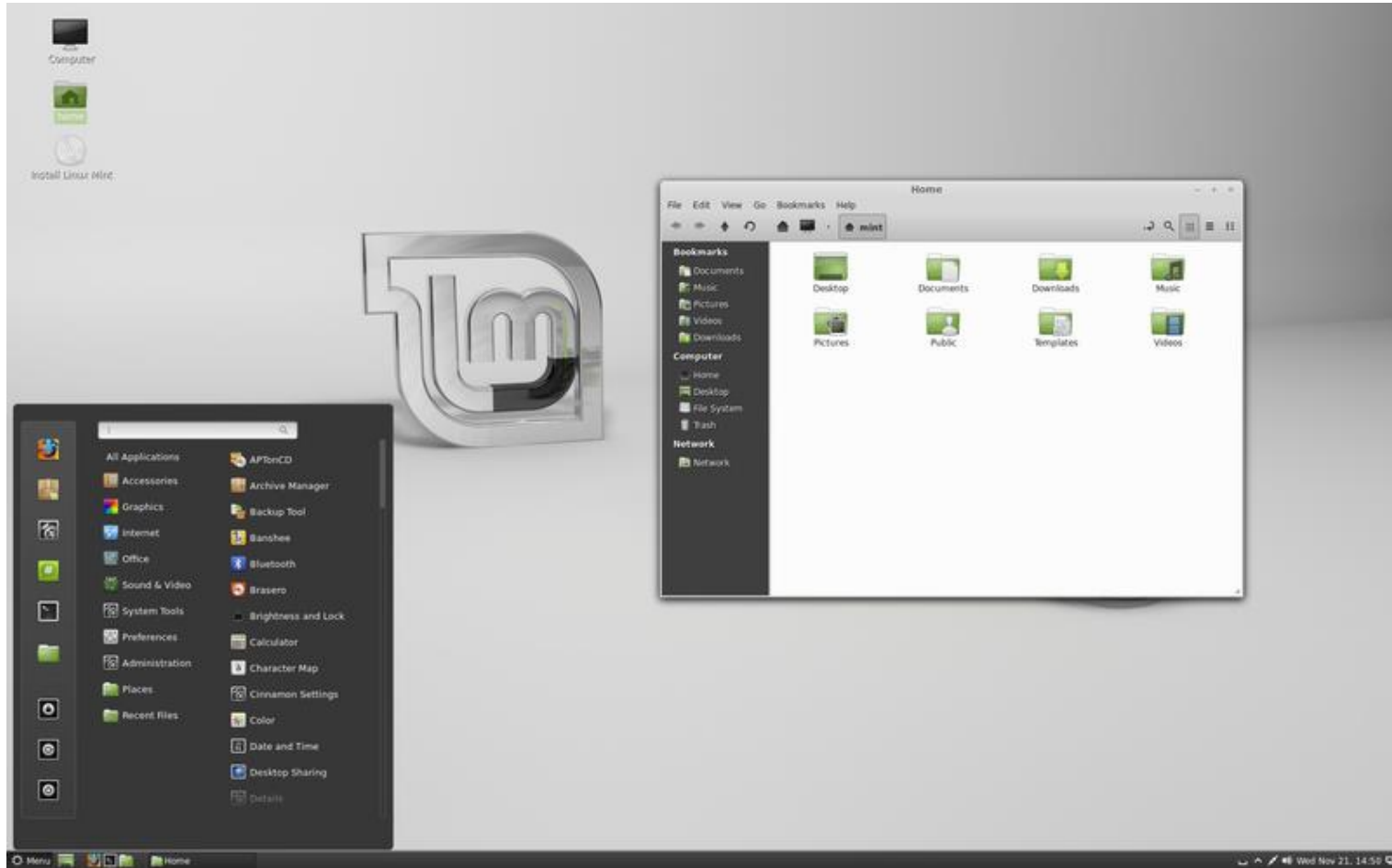
Linux Graphical Desktop Environments -MATE (GNOME 2)
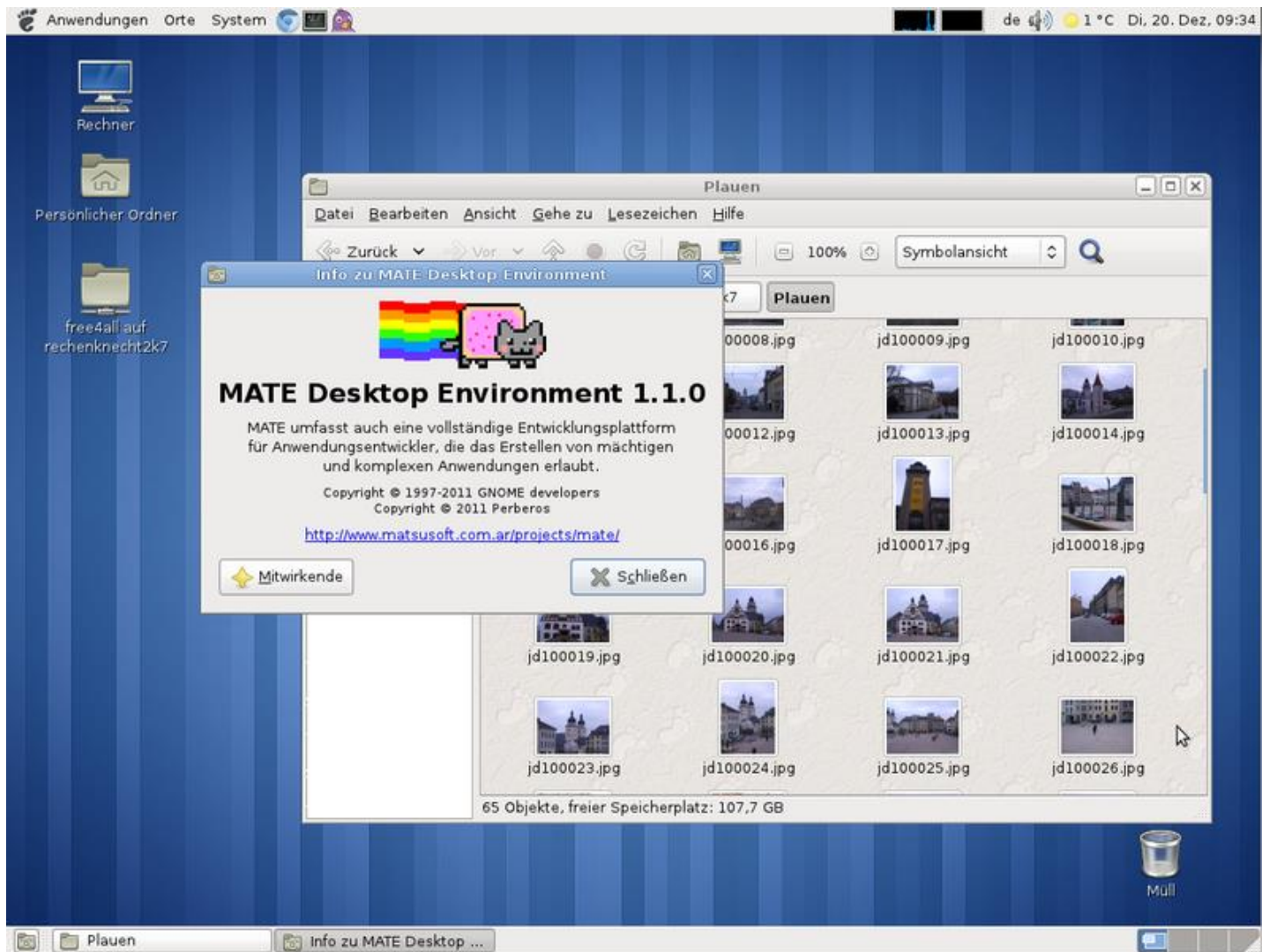
Linux Graphical Desktop Environments -Trinity (KDE 3)

Linux Graphical Desktop Environments -Sugar

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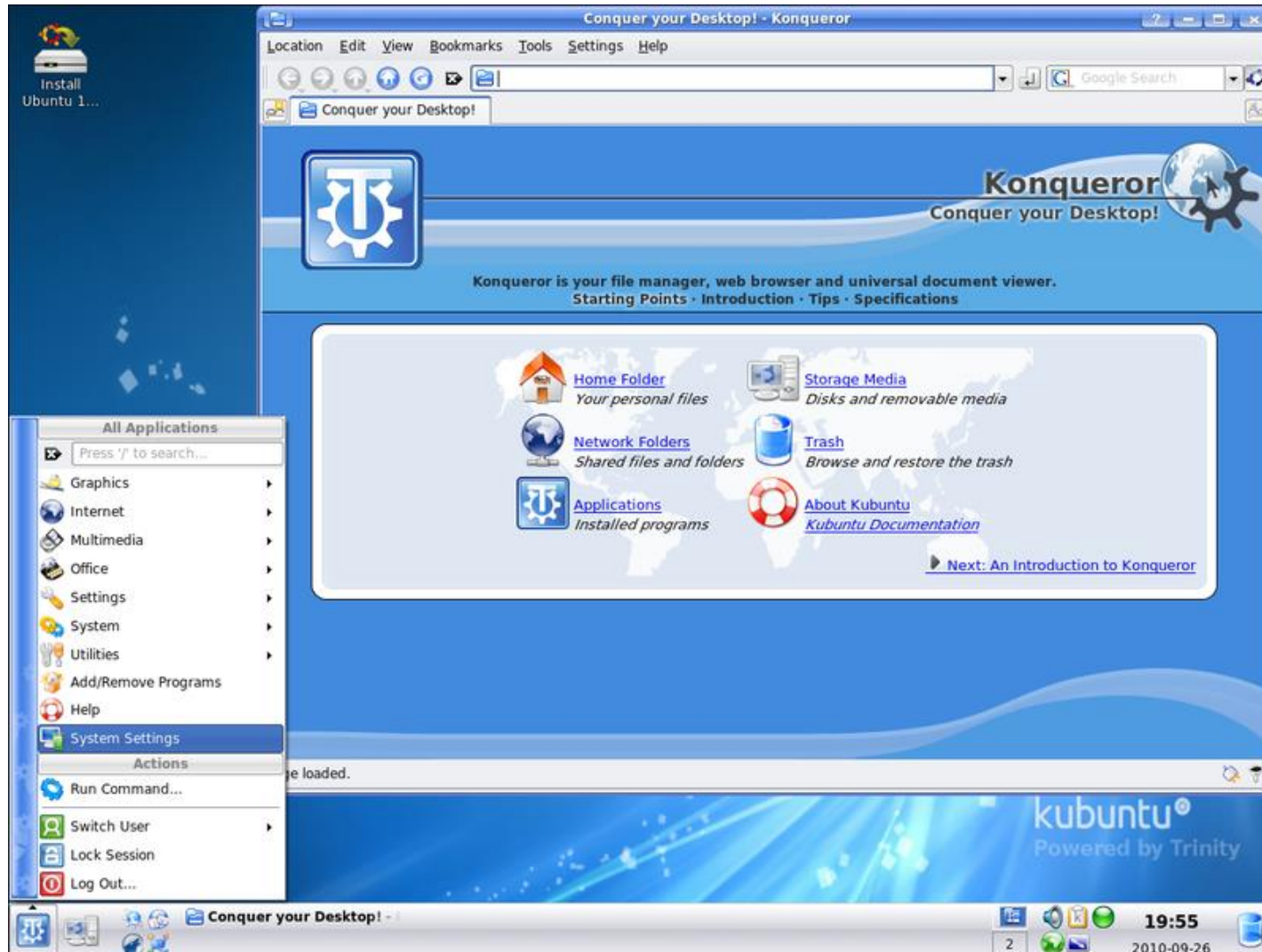
Linux Graphical Desktop Environments -Pantheon

Linux Server Environment - LAMP
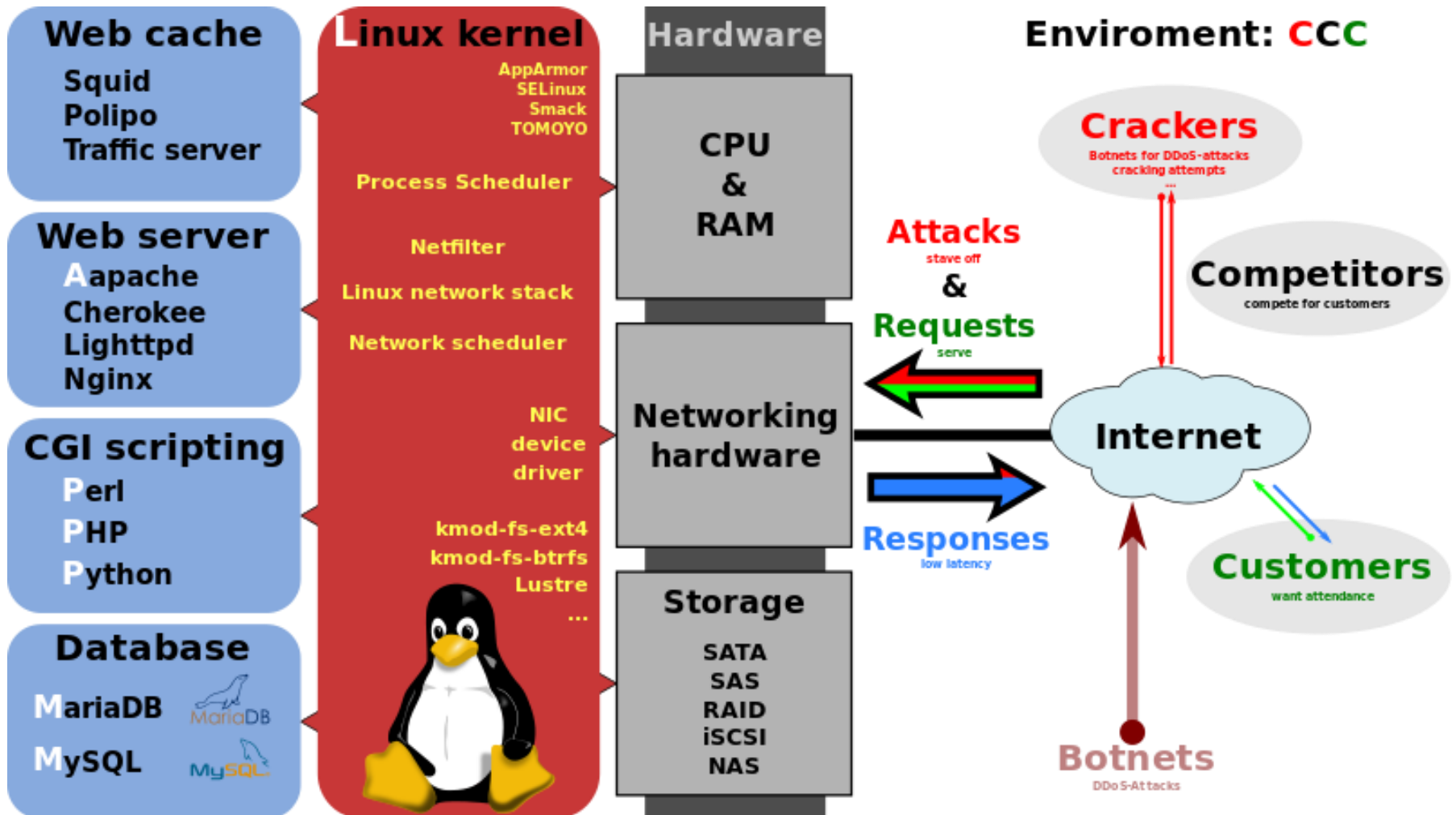
What is Ubuntu ?

- Ubuntu, pronounced oŏ'boŏntoō, is actually three different things:
  - A philosophy
  - A worldwide collaborative software project, and
  - A computer operating system

Ubuntu Philosophy

- Is a traditional African concept originating from the *Bantu* languages of southern Africa.
- Roughly translates to *human kindness*.

Ubuntu is an ancient African word meaning 'humanity to others'. It also means 'I am what I am because of who we all are'.

Refer to http://www.ubuntu.com/about/about-ubuntu

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Proprietary Software vs Free / Libre Open-Source Software

- Examples of proprietary operating systems include Microsoft Windows and Mac OS X.

- Ubuntu, on the other hand, is **NOT** proprietary software because it is actively maintained by the *FLOSS* community.

  - *FREE* to use

  - *FREE* to share, and

  - *FREE* to develop

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Ubuntu…

- Is a Debian-based Linux operating system.
- Has *Unity* as its default desktop environment
- Is based on free software.
- Development is led by <u>Canonical Ltd</u>.
- UTF-8 is a default character encoding.
- First release was on October 2004.
- Releases every six month.
- Every fourth release is a so-called LTS(Long Term Support).

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Ubuntu… (Cont.)
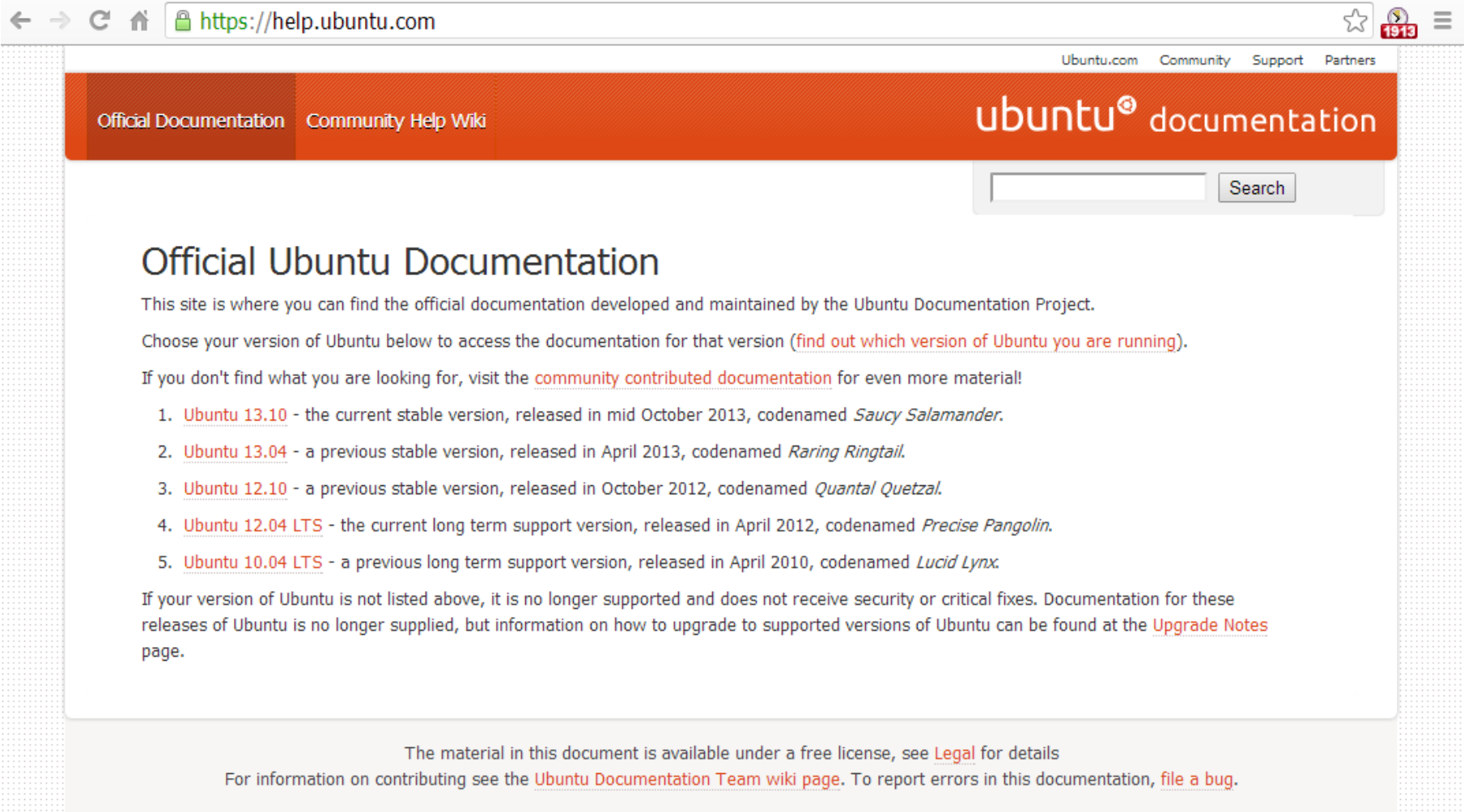
- Each Ubuntu release has a version number that consists of the year and month number of the release.
  - i.e. 14.04, 14.10
- Each release has an alliterative code name using an adjective and an animal.
- Code names are in consecutive alphabetic order.
  - i.e. Ubuntu 14.04 (Trusty Tahr)

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Ubuntu… (Cont.)

Version	Code name	Release date	Supported until
12.04 LTS	Precise Pangolin	2012-04-26	2017-04-26
12.10	Quantal Quetzal	2012-10-18	2014-05-16
13.04	Raring Ringtail	2013-04-25	2014-01-27[23]
13.10	Saucy Salamander	2013-10-17	2014-07-17
14.04 LTS[66]	Trusty Tahr	2014-04-17	2019-04
14.10	Utopic Unicorn[67]	2014-10-23[68]	2015-07-23
15.04	Vivid Vervet[69]	2015-04-23	2016-02-04
15.10	Wily Werewolf[70]	2015-10-22[71]	2016-07
16.04 LTS	Xenial Xerus[72]	2016-04-21[2]	**2021-04**
16.10	Yakkety Yak[73]	2016-10-20[74]	N/A

| Old version | Older version, still supported | **Latest version** | Future release |

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Official Documentation

https://help.ubuntu.com

Ubuntu.com   Community   Support   Partners

Official Documentation   Community Help Wiki

ubuntu® documentation

Search

Official Ubuntu Documentation

This site is where you can find the official documentation developed and maintained by the Ubuntu Documentation Project.

Choose your version of Ubuntu below to access the documentation for that version (find out which version of Ubuntu you are running).

If you don't find what you are looking for, visit the community contributed documentation for even more material!

1. Ubuntu 13.10 - the current stable version, released in mid October 2013, codenamed *Saucy Salamander*.

2. Ubuntu 13.04 - a previous stable version, released in April 2013, codenamed *Raring Ringtail*.

3. Ubuntu 12.10 - a previous stable version, released in October 2012, codenamed *Quantal Quetzal*.

4. Ubuntu 12.04 LTS - the current long term support version, released in April 2012, codenamed *Precise Pangolin*.

5. Ubuntu 10.04 LTS - a previous long term support version, released in April 2010, codenamed *Lucid Lynx*.

If your version of Ubuntu is not listed above, it is no longer supported and does not receive security or critical fixes. Documentation for these releases of Ubuntu is no longer supplied, but information on how to upgrade to supported versions of Ubuntu can be found at the Upgrade Notes page.

The material in this document is available under a free license, see Legal for details
For information on contributing see the Ubuntu Documentation Team wiki page. To report errors in this documentation, file a bug.

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Community Documentation

Ten Reasons to Try Ubuntu Linux

1. Want your computer to boot really fast and to be fully functional after that.

2. Want to use a sleek and modern operating system (OS) but are reluctant to buy a Mac.

3. Are an idealist who thinks that software should be free.

4. Are a materialist who would rather have software for free.

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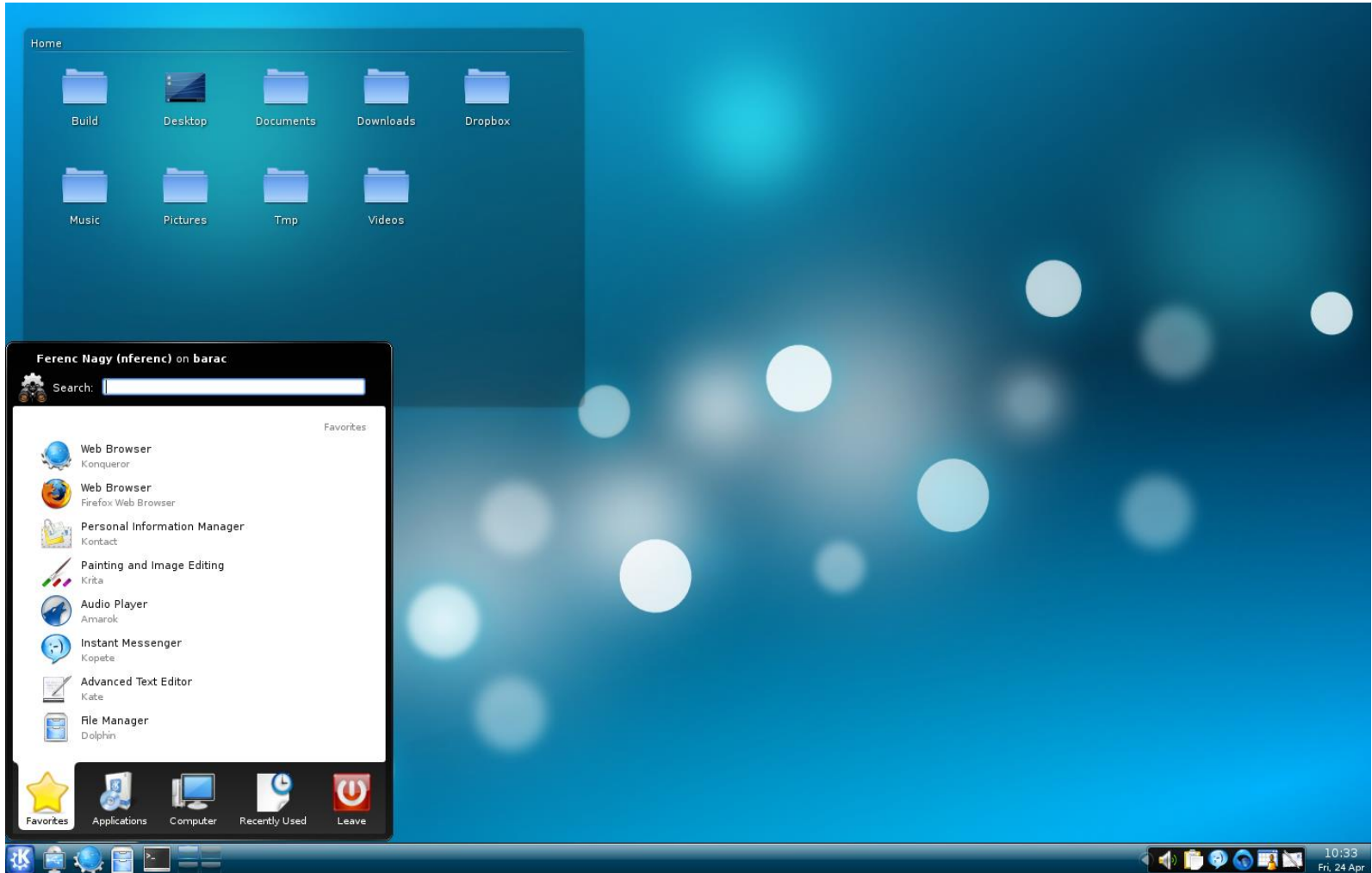# Ten Reasons to Try Ubuntu Linux (Cont.)

5. Have seen Ubuntu Linux installed in a friend's PC and want the same "wow" computer experience for yourself.

6. Are tired of being exposed to hackers and malicious users every time you open MSIE.

7. Just bought a netbook and it either

   • Comes loaded with an old OS, or

   • Has a brand new OS that limits you on what you can do.

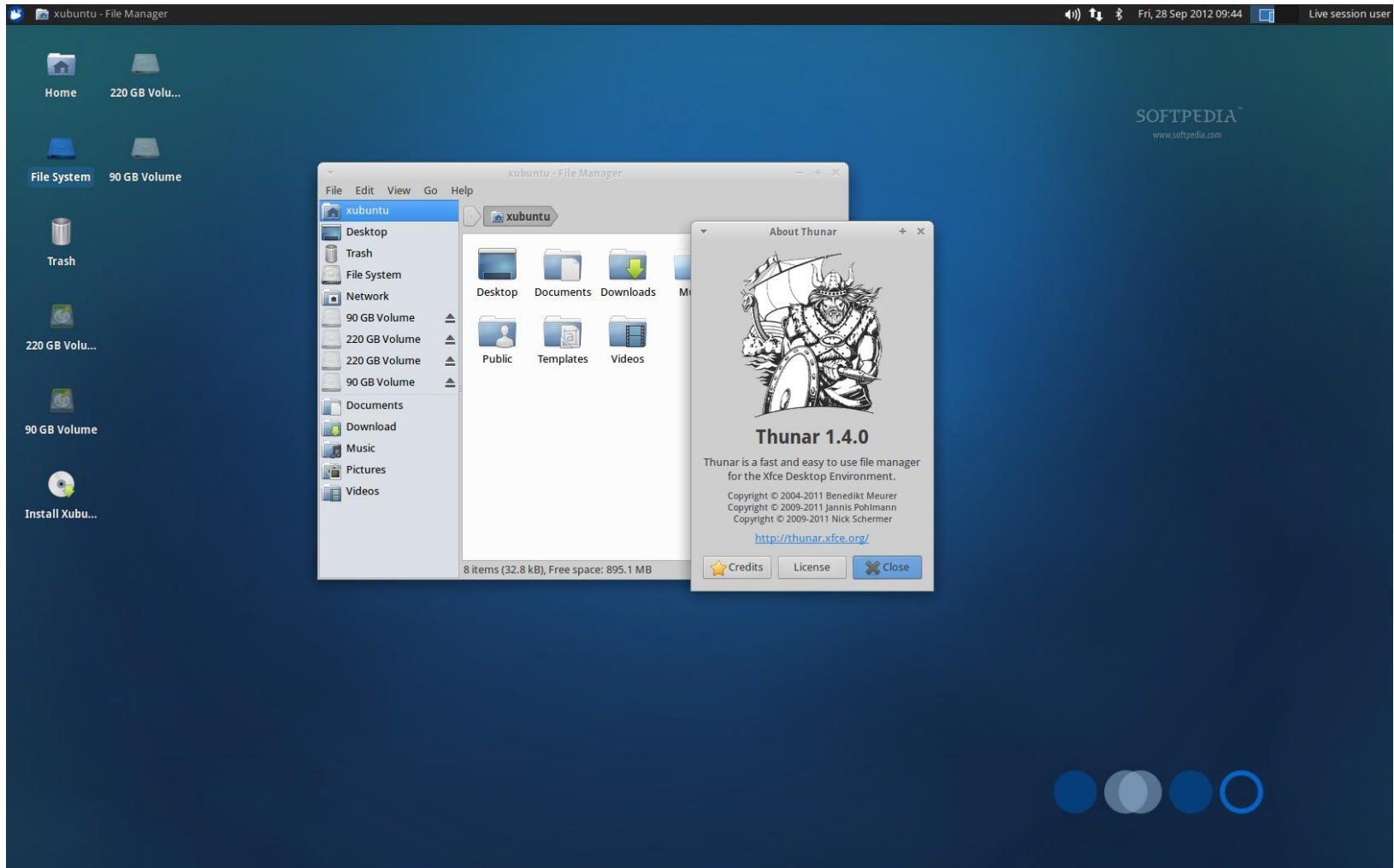14.04.3 LTS

Ten Reasons to Try Ubuntu Linux (Cont.)

8. Have an old PC that you don't want to throw away just yet, but which is nearly useless under the latest versions of Windows.

9. Are a hardcore Linux user who wants to figure out why Ubuntu has been chosen the best Linux desktop distribution so many times.

10. Have been asked by your boss to evaluate Ubuntu Linux as a replacement for Windows on your organization's desktop computers. Or maybe you are the boss and want to motivate your crew with a great project.

Apress, Beginning Ubuntu Linux 5th Ed., 2010, p.3.

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Ubuntu Brothers - Kubuntu

Downloads from : http://www.kubuntu.org/getkubuntu

Ubuntu Brothers - Xubuntu

Ubuntu Brothers – Edubuntu

Downloads from : http://www.edubuntu.org/download

Ubuntu Brothers – Lubuntu

Downloads from : https://help.ubuntu.com/community/Lubuntu/GetLubuntu
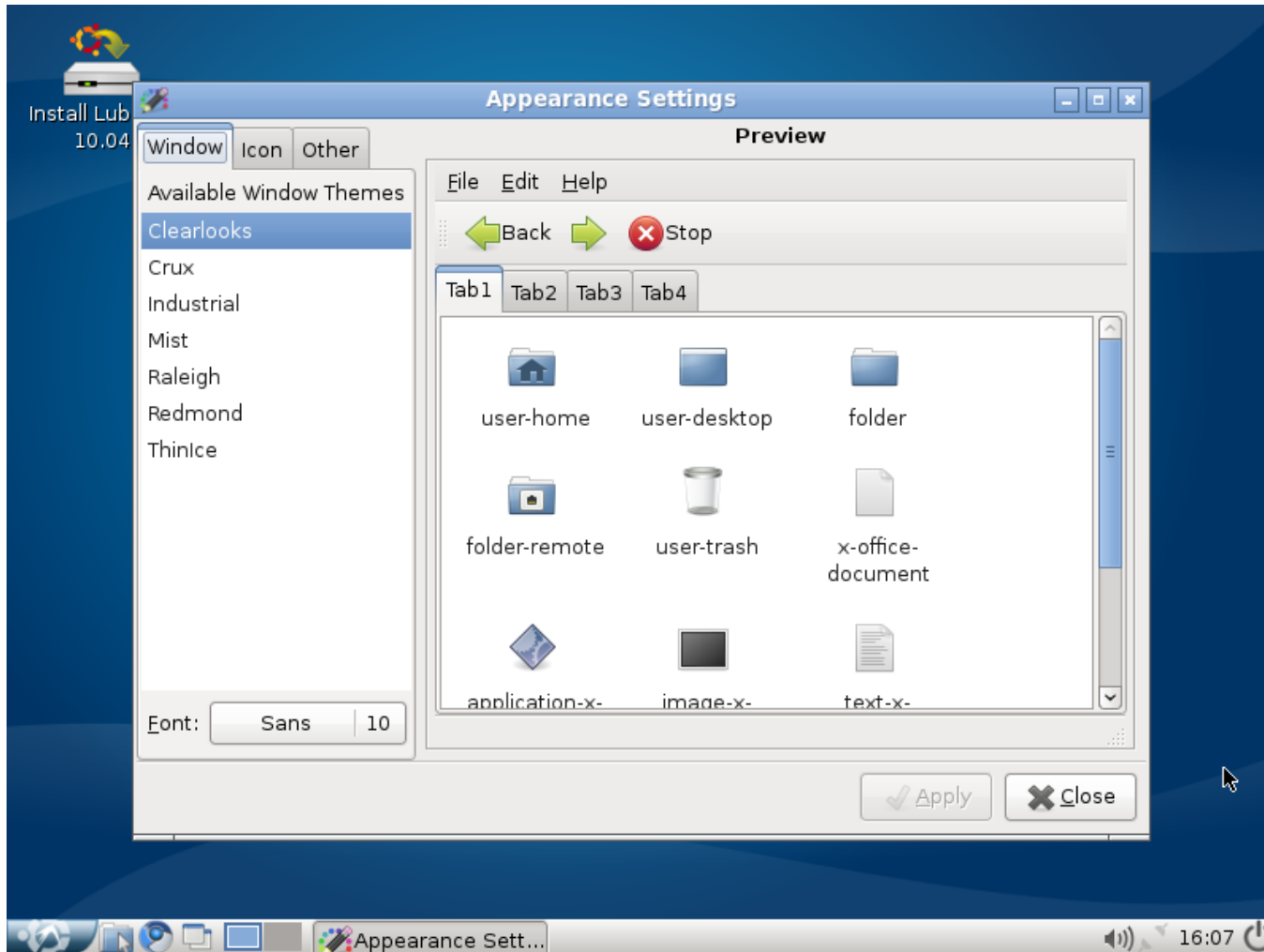
Ubuntu Brothers – Mythbuntu

Downloads from : http://www.mythbuntu.org/downloads

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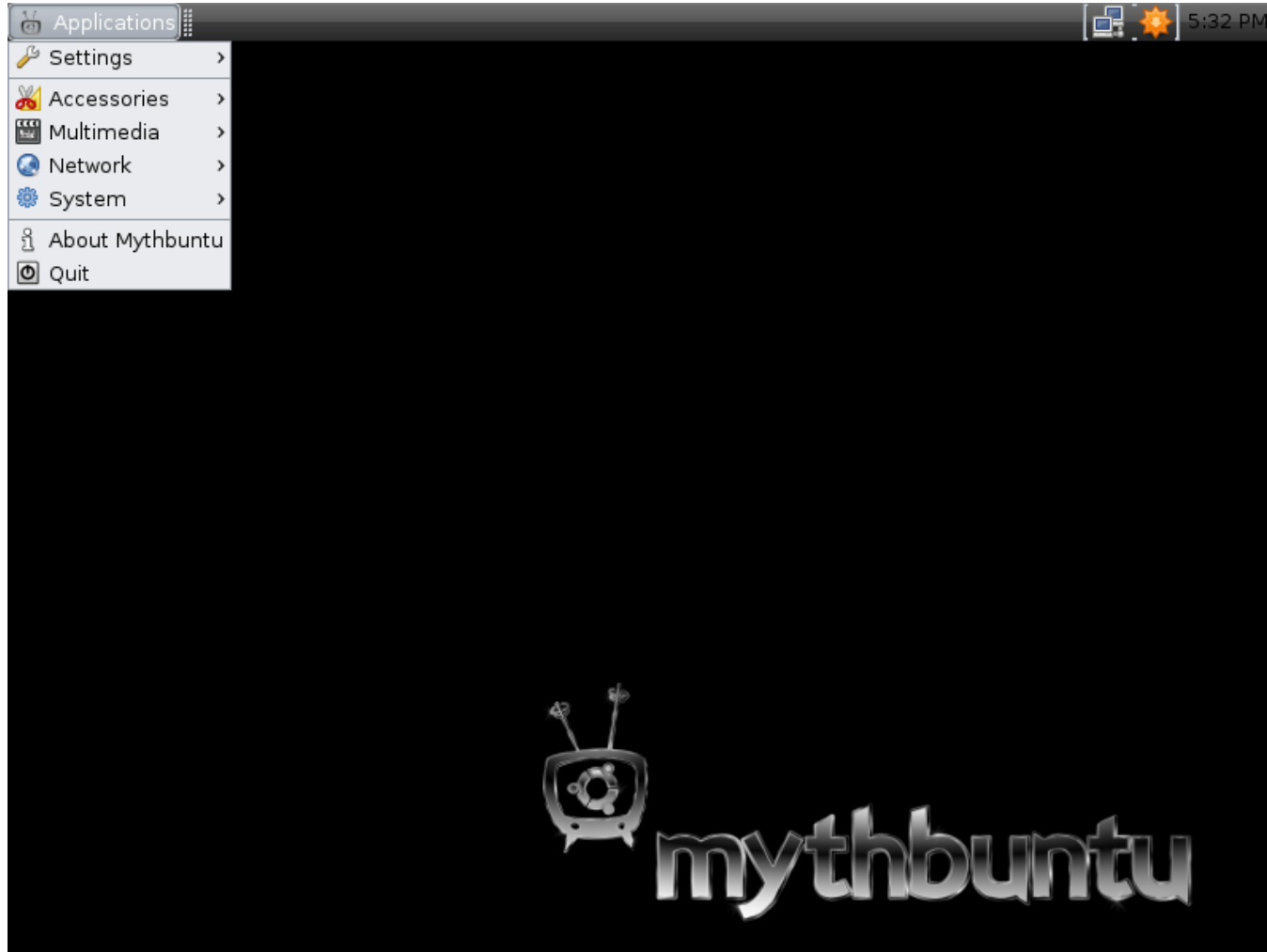
Ubuntu Brothers – UbuntuStudio

Downloads from :

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Ubuntu Brothers - Mint

Downloads from : https://www.linuxmint.com/download.php

Ubuntu Brothers – Ubuntu Touch

The others – Google Chrome OS

The others – Steam OS

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The others

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Resources

- http://www.linux.com
- http://video.linuxfoundation.org
- http://ldn.linuxfoundation.org
- http://linuxfoundation.org
- https://help.ubuntu.com
- http://ubuntuforums.org
- http://askubuntu.com
- http://www.ubuntu-manual.org

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