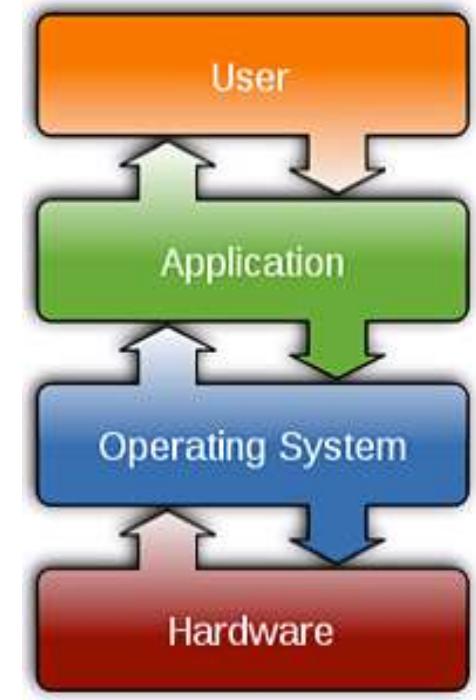




Bok, Jong Soon
javaexpert@nate.com
<https://github.com/swacademy/Ubuntu>

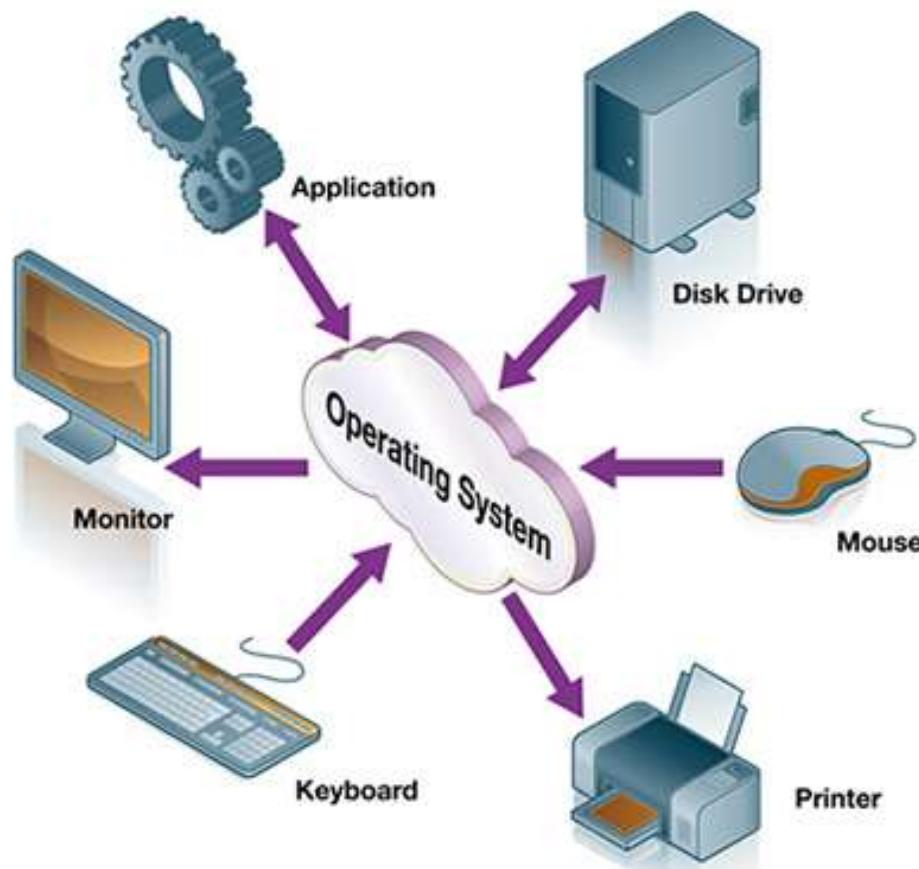
Operating System

- 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.

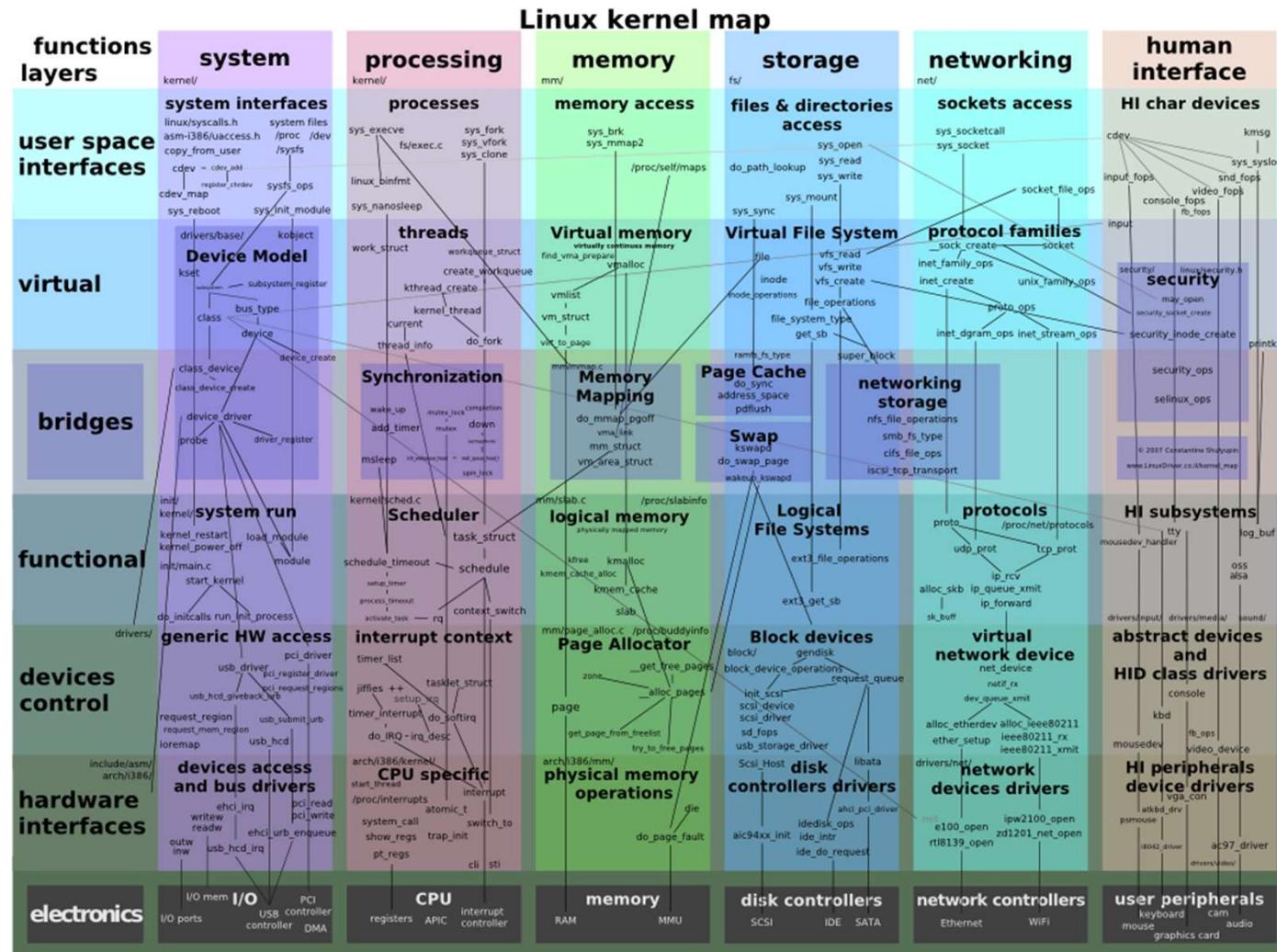


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Operating System (Cont.)



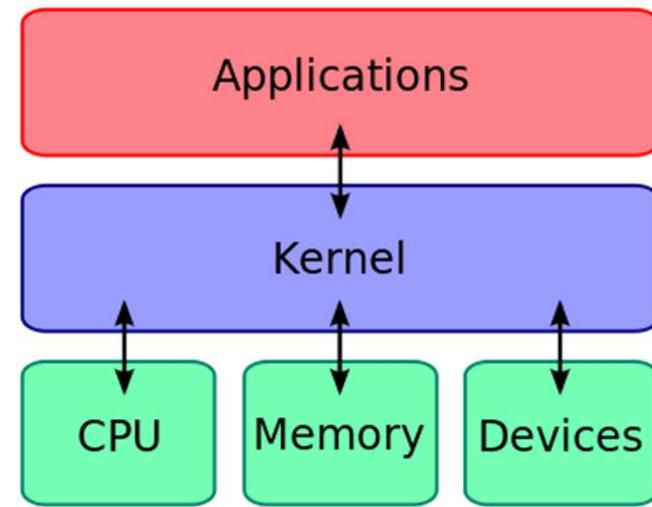
Kernel



ubuntu®

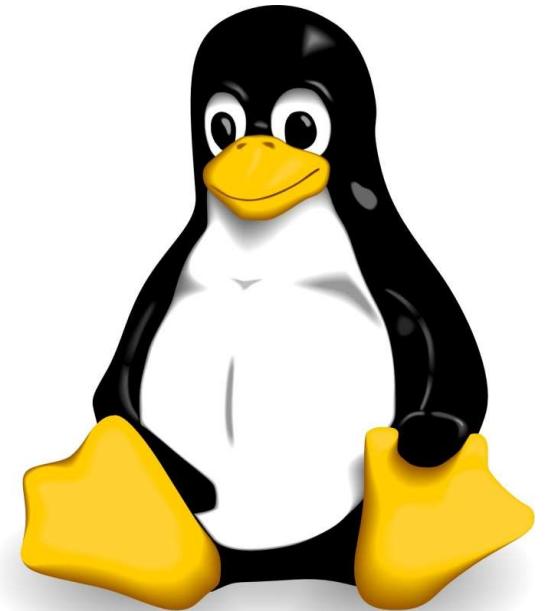
Kernel (Cont.)

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



Linux...

- Is an open source operating system based or Unix environment.
- Multi-user, Multitasking, Multiprocessor.
- Has the X Window GUI.
- Is very similar to other operating systems, such as Windows and macOS.
- But something sets Linux apart from these operating systems.



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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.



Linux... (Cont.)

■ <https://www.kernel.org/>

The screenshot shows a web browser displaying the homepage of The Linux Kernel Archives. The title bar reads "The Linux Kernel Archives". The main content area features the text "The Linux Kernel Archives" and a small Tux the Penguin icon. Below this are navigation links: "About", "Contact us", "FAQ", "Releases", "Signatures", and "Site news". To the right of the navigation links is a yellow button labeled "Latest Release 5.13.6" with a downward arrow icon. On the left, there's a table showing download protocols and locations: HTTP (https://www.kernel.org/pub/), GIT (https://git.kernel.org/), and RSYNC (rsync://rsync.kernel.org/pub/). The bottom section lists kernel releases: mainline: 5.14-rc3 (2021-07-25), stable: 5.13.6 (2021-07-28), stable: 5.12.19 [EOL] (2021-07-20), longterm: 5.10.54 (2021-07-28), longterm: 5.4.136 (2021-07-28), longterm: 4.19.199 (2021-07-28), and longterm: 4.14.241 (2021-07-28). Each release entry includes links for tarball, PGP, patch, and more.

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Linux... (Cont.)

- As per the latest report from Top 500, Linux now runs on all the fastest 500 supercomputers in the world¹.
- 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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1. <https://itsfoss.com/linux-runs-top-supercomputers/#:~:text=Linux%20is%20the%20supercomputer%20operating.Unix%20back%20in%20around%202017>.

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.



debian



ubuntu



fedora



archlinux

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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.

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.

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



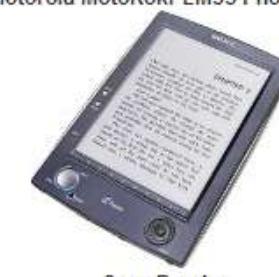
Volvo In-Car Navigation System



One Laptop Per Child XO2



Sony Bravia Television



Sony Reader



Yamaha Motif Keyboard

Linux... (Cont.)



NimbRo-OP Humanoid TeenSize Open Platform

<http://www.itworld.co.kr/slideshow/86037>

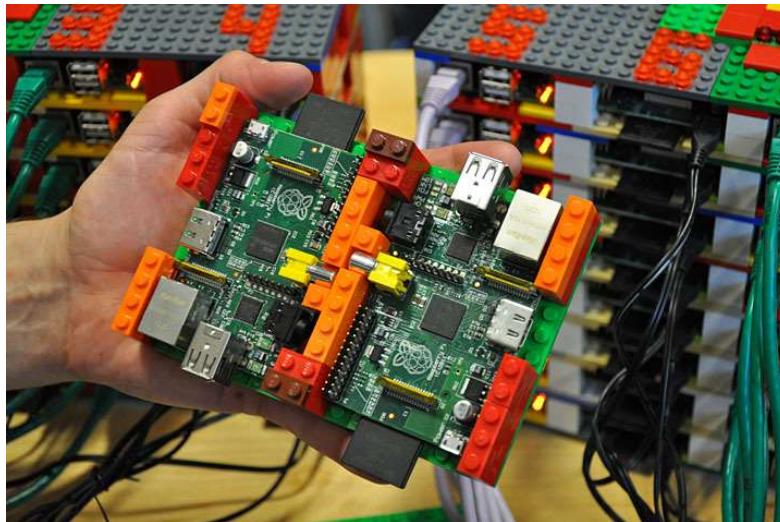
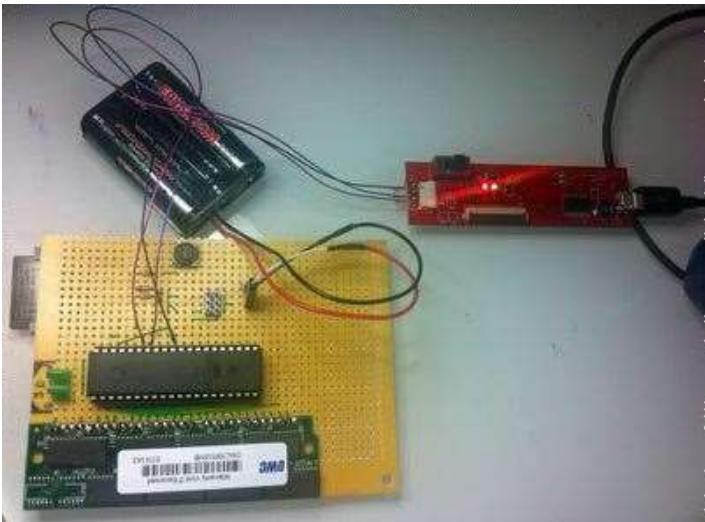
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Linux... (Cont.)



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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 minix¹, as my OS resembles it somewhat (same physical layout of the file-system (due to practical reasons) (among other things).

1. The, Minix, Torvalds referred to is a variant of the UNIX operating system, <http://www.minix3.org/>
Source from : <https://groups.google.com/forum/#!msg/comp.os.minix/dINtH7RRrGA/SwRavCzVE7gJ>



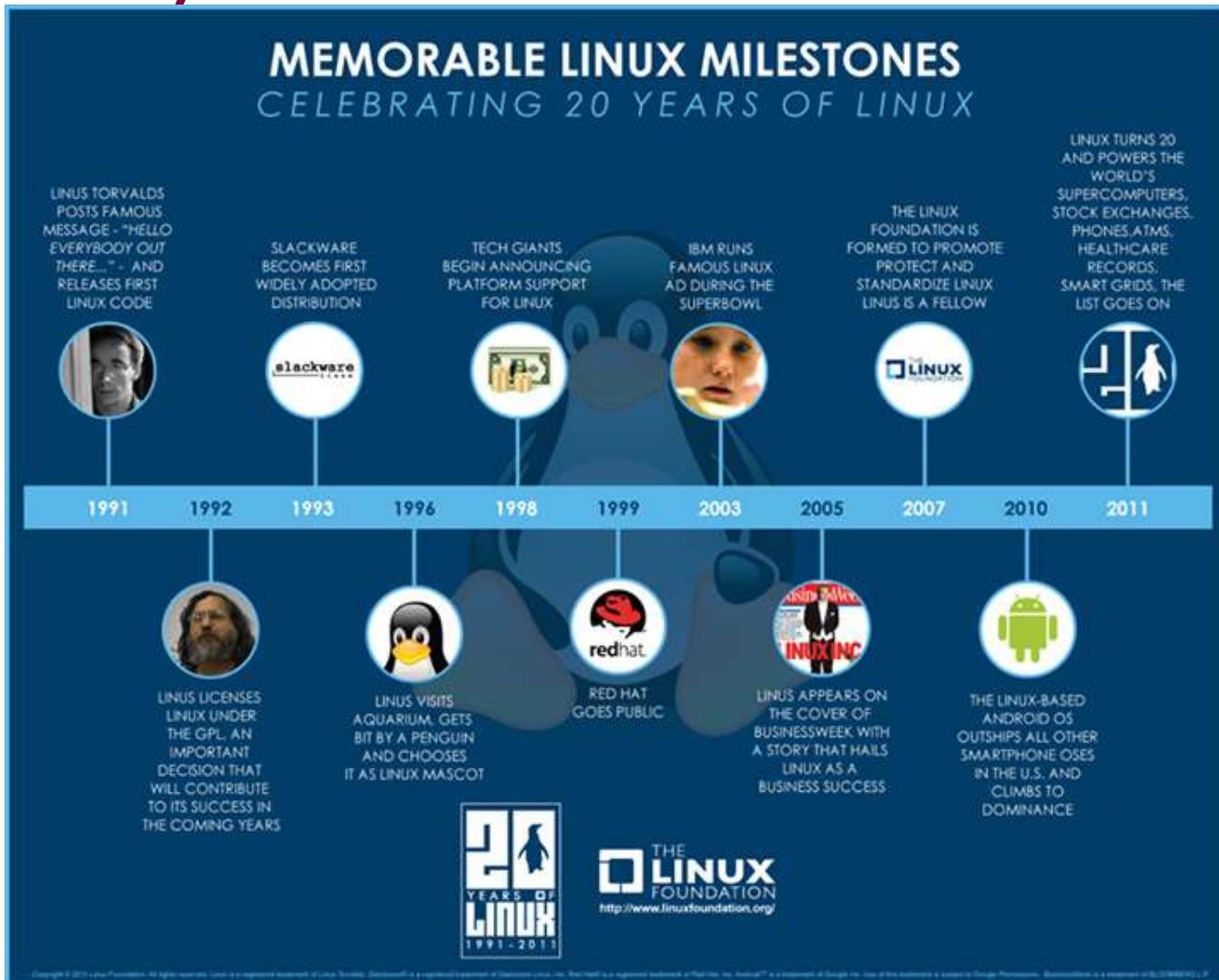
History (Cont.)

- Torvalds wanted to run on the x86-based consumer PCs of the day.
- *GNU(GNU Is Not Unix)*¹ tools first put together by Richard Stallman in 1983.
- Stallman's GNU tools were from a project to create an operating system as well.
- Was founded “The Linux Foundation”² in 2007.

¹ <http://www.gnu.org/gnu/manifesto.html>

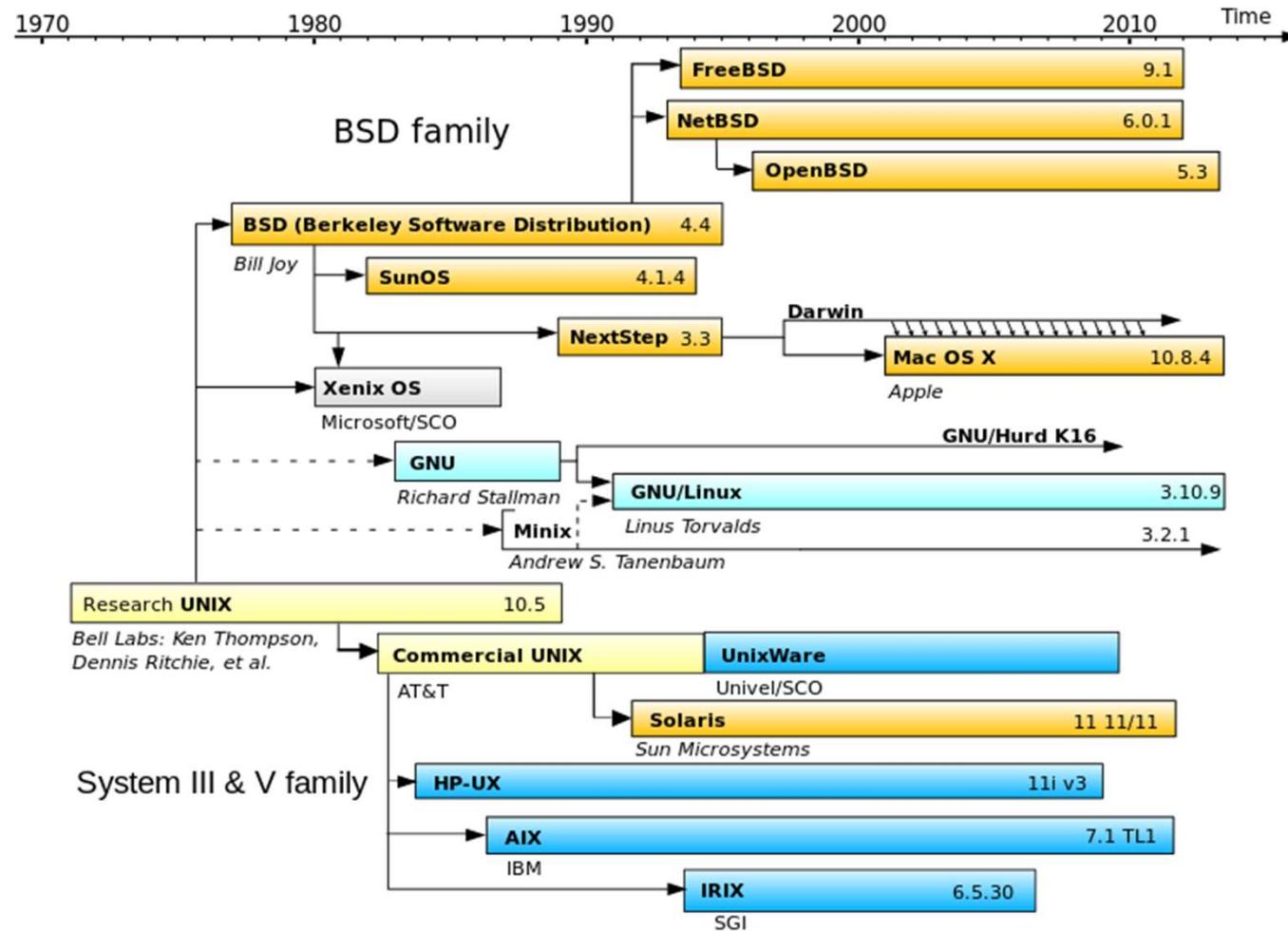
² <http://www.linuxfoundation.org/>

History (Cont.)



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History (Cont.)



Philosophy of Linux

Openness

Efficiency

Stability

Linux Distributions

■ <http://distrowatch.com/>

The screenshot shows the homepage of DistroWatch.com. At the top, there's a search bar with placeholder text "Put the fun back into computing. Use Linux, BSD." Below the search bar are several input fields: "배포판 이름 입력" (Distribution name input), "이동" (Move), "배포판 선택" (Distribution selection), "이동" (Move), "DuckDuckGo Site Search" (Search), and "이동" (Move). To the right of these are links for "English", "Español", "Français", "Deutsch", "Português", "Bosanski", "日本語", and "한국어". A sidebar on the right lists links such as "홈페이지", "주요 소식", "DW 주간지", "댓글", "파키지", "파키지 관리자", "용어 사전", "FAQ", "Mobile Site", "검색 사이트맵", "주요 배포판", "배포판 제출", "글 쓰시", "DistroWatch 소개", "페이지 방문 순위", "광고 문의", and "Torrent 다운로드". Below the header, a banner for "Linux Tablet JingPad A1" is displayed. The main content area features news items from various distributions:

- 3CX VoIP PBX**: "Still running just a phone system?" featuring a man holding a red telephone receiver.
- MX Linux**: "Development Release: MX Linux 21 Beta 1" dated 2021-07-29. Description: A major new update to MX Linux, a Debian-based desktop distribution is now available for testing. Version 21 is based on the soon-to-be-stable Debian 11 "Bullseye" and features the Xfce 4.16 desktop. "MX 21 beta 1 is now available for testing. MX 21 is built from Debian 'Bullseye' and MX repositories. Things that are new in the beta 1: new and updated applications; new installer partition selection area, including some LVM support if LVM volume exists already; new UEFI live system boot menus, now you can select your live boot options (persistence) from the boot menu and submenus rather than using the previous console menus; Xfce 4.16; user password (sudo) for administration tasks by default, you can switch this in mx-tweak/Other tab; many small configuration changes, particularly on the panel with new default panel plugins. With this beta 1 release, we are particularly interested in testing the new UEFI live system boot menus as well as testing the installer. VirtualBox testing is welcome, but we are looking for edge cases on real hardware for the most part." See the full [release announcement](#) for more details and known issues. [Download \(pklist\)](#): MX-21beta-1_x64.iso (1,713MB, SHA256, signature), MX-21beta-1_386.iso (1,713MB, SHA256, signature).
- 3CX**: "YOUR PBX STILL COSTING YOU \$20 PER EXTENSION?" featuring a man holding a red telephone receiver.

At the bottom right, there's a large orange "ubuntu" logo.

Linux Distributions (Cont.)

■ <http://lwn.net/>

The screenshot shows the LWN.net website interface. At the top, there's a header with a logo of Tux (the Linux mascot) and the text "Welcome to LWN.net [LWN.net]". Below the header is a navigation bar with links for "User:", "Password:", "Log in", "Subscribe", and "Register". On the left side, there's a sidebar with a "LWN.net" logo and the text "News from the source". The sidebar also contains a "Content" section with links to "Weekly Edition", "Archives", "Search", "Kernel", "Security", "Distributions", "Events calendar", and "Unread comments". Below that are links for "LWN FAQ" and "Write for us". The main content area features several news items in cards:

- [\$] LWN.net Weekly Edition for July 29, 2021**
[Kernel] Posted Jul 28, 2021 14:59 UTC (Wed) by ris
Stable kernels 5.13.6, 5.10.54, 5.4.136, 4.19.199, 4.14.241, 4.9.277, and 4.4.277 have been released. They all contain important fixes and users should upgrade.
[Comments \(none posted\)](#)
- Inside this week's LWN.net Weekly Edition**
 - [Front](#): Python Developer-in-Residence; Stable kernel updates; Proactive reclaim; process_mrelease(); Linux Plumbers Conference 2021.
 - [Briefs](#): K-9 5.800; Quotes; ...
 - [Announcements](#): Newsletters; conferences; security updates; kernel patches; ...[Read more](#)
- Security updates for Wednesday**
[Security] Posted Jul 28, 2021 14:47 UTC (Wed) by ris
Security updates have been issued by [Fedora](#) (golang), [Mageia](#) (curl, filezilla, jdom/jdom2, netty, pdfbox, perl-Mojolicious, perl-Net-CIDR-Lite, perl-Net-Netmask, python-urllib3, python3, quassel, transfig, and virtualbox), [openSUSE](#) (umoci), [Red Hat](#) (rh-nodejs12-nodejs and rh-nodejs12-nodejs-nodemon and rh-nodejs14-nodejs and rh-nodejs14-nodejs-nodemon), and [SUSE](#) (firefox, glibc, libsndfile, linuxptp, qemu, and umoci).
[Full Story \(comments: none\)](#)
- Security updates for Tuesday**
[Security] Posted Jul 27, 2021 15:14 UTC (Tue) by ris

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Linux Distributions (Cont.)

■ <https://www.linux.org>

The screenshot shows the homepage of Linux.org. At the top, there's a navigation bar with links to 'Forums', 'What's new', 'Linux Tutorials', 'Members', 'Download Linux', 'Newsletter', 'Credits', 'Log in', 'Register', and a search bar. Below the navigation, there are several news articles listed in a grid:

- Linux Cluster – Basics** (JUL 28): Jarret B posted yesterday at 5:40 PM. Content: "I hope to cover a basic understanding of clustering as well as give you a way to demonstrate making a small virtual cluster. When most people hear the word 'cluster' they may think that this...".
- LFCS – Login Scripts** (JUL 12): Jarret B posted Jul 12, 2021. Content: "When a user logs into a system there are scripts that are executed. These scripts can be manipulated to allow specific programs to be run, services to be started or stopped, environment variables...".
- Portable Raspberry Pi 400** (APR 23): Jarret B posted Apr 23, 2021. Content: "The Raspberry Pi Foundation (raspberrypi.org) has released a new Pi, the Raspberry Pi 400. The 400 is encased inside a keyboard. The Raspberry Pi 400 reminds me of my first computer, a Texas...".
- LFCS – Managing Software – Ubuntu** (MAY 03): Jarret B posted May 3, 2021. Content: "With any Linux system, managing the system software is a major part of keeping the system working properly. Ubuntu is no exception. In my previous article, I covered this information for CentOS...".
- Flatpak and WhatIP** (APR 05): Jarret B posted Apr 5, 2021. Content: "Anyone using Linux has an understanding,...

On the right side of the page, there are two prominent ads:

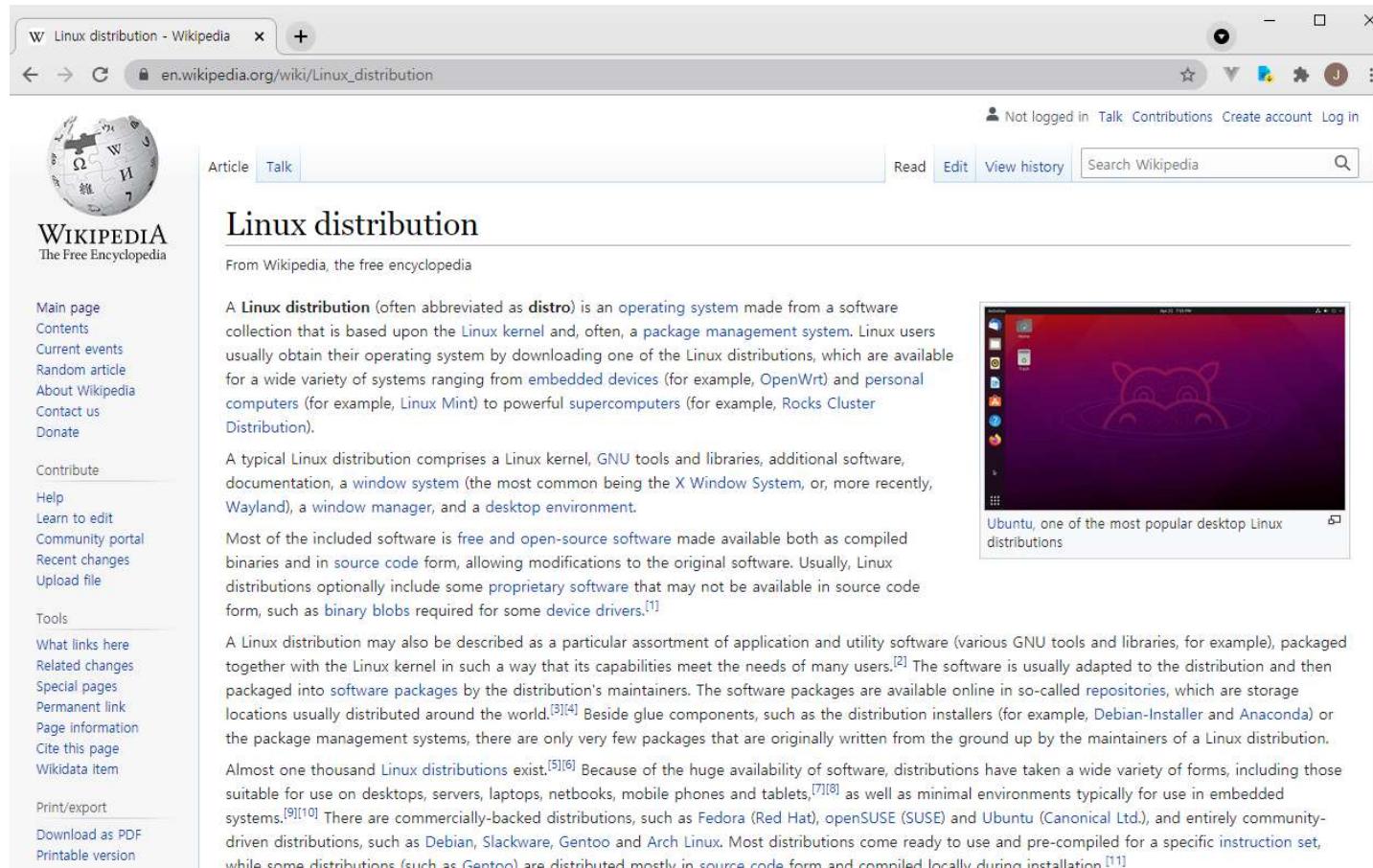
- \$100 Digital Ocean Credit**: Get a free VM to test out Linux!
- SHOCKBYTE**: WORRY-FREE GAME HOSTING

Below the ads, there's a section for "Latest posts" with entries like "Wayland + NVIDIA + Fedora experience so far" and "cursor is gone".

In the bottom right corner, there's a large orange "ubuntu" logo.

Linux Distributions (Cont.)

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



The screenshot shows a web browser displaying the English Wikipedia page for "Linux distribution". The page title is "Linux distribution". The content starts with a definition: "A **Linux distribution** (often abbreviated as *distro*) is an operating system made from a software collection that 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 from embedded devices (for example, OpenWrt) and personal computers (for example, Linux Mint) to powerful supercomputers (for example, Rocks Cluster Distribution).". Below this is a paragraph about the components of a typical Linux distribution. Further down, there is a section about the history and evolution of Linux distributions, mentioning the availability of software packages and the variety of forms they take. On the right side of the page, there is a sidebar with a "Did you know" section featuring a link to the Ubuntu page. At the bottom right of the page, there is a small image of the Ubuntu desktop environment with the text "Ubuntu, one of the most popular desktop Linux distributions". The left sidebar of the Wikipedia page includes links to the main page, contents, current events, random article, about Wikipedia, contact us, donate, contribute, help, learn to edit, community portal, recent changes, upload file, tools, what links here, related changes, special pages, permanent link, page information, cite this page, wikidata item, print/export, download as PDF, and printable version.



Linux Distributions (Cont.)

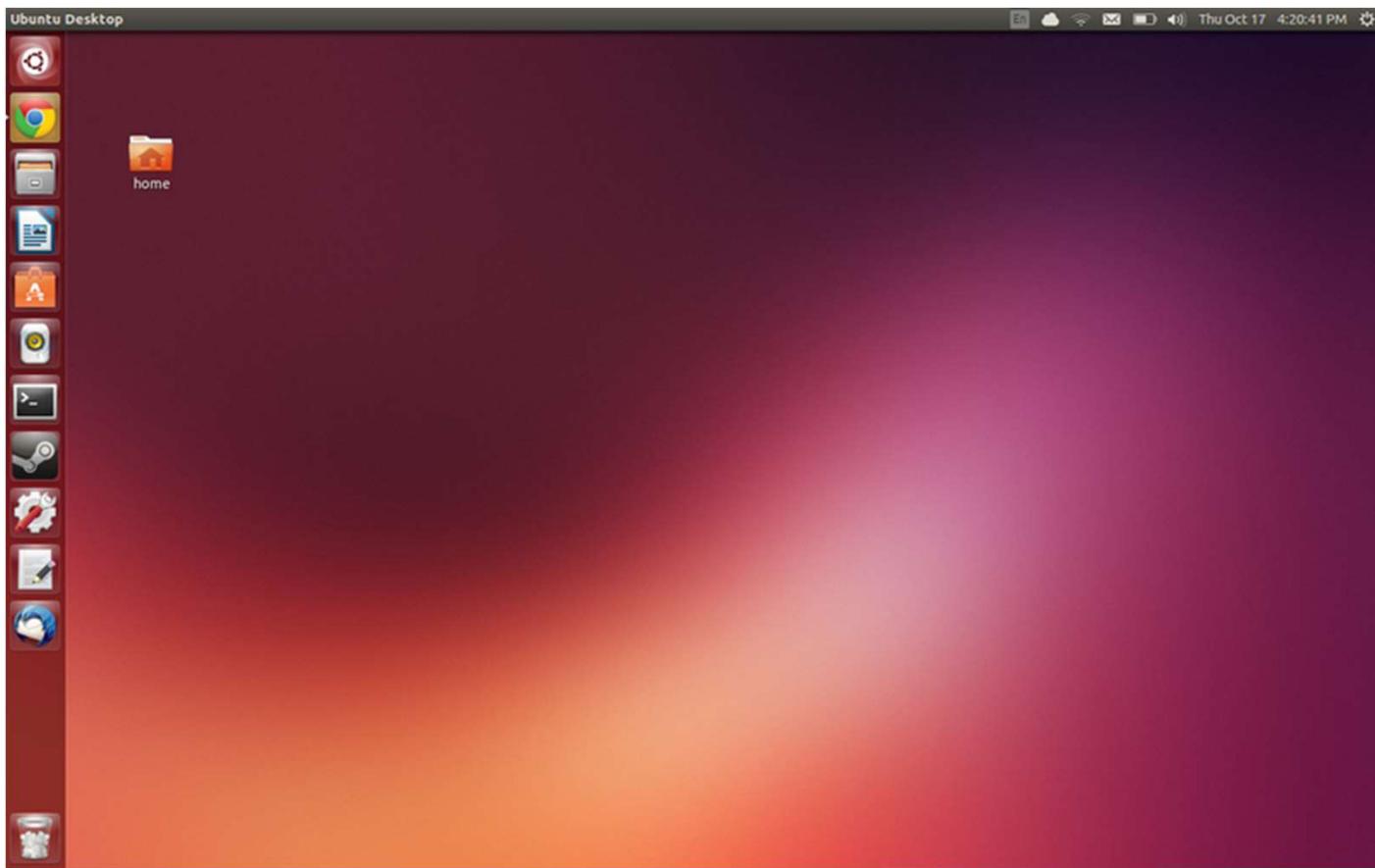
■ Debian



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Linux Distributions (Cont.)

■ Ubuntu



Linux Distributions (Cont.)

■ Linux Mint



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Linux Distributions (Cont.)

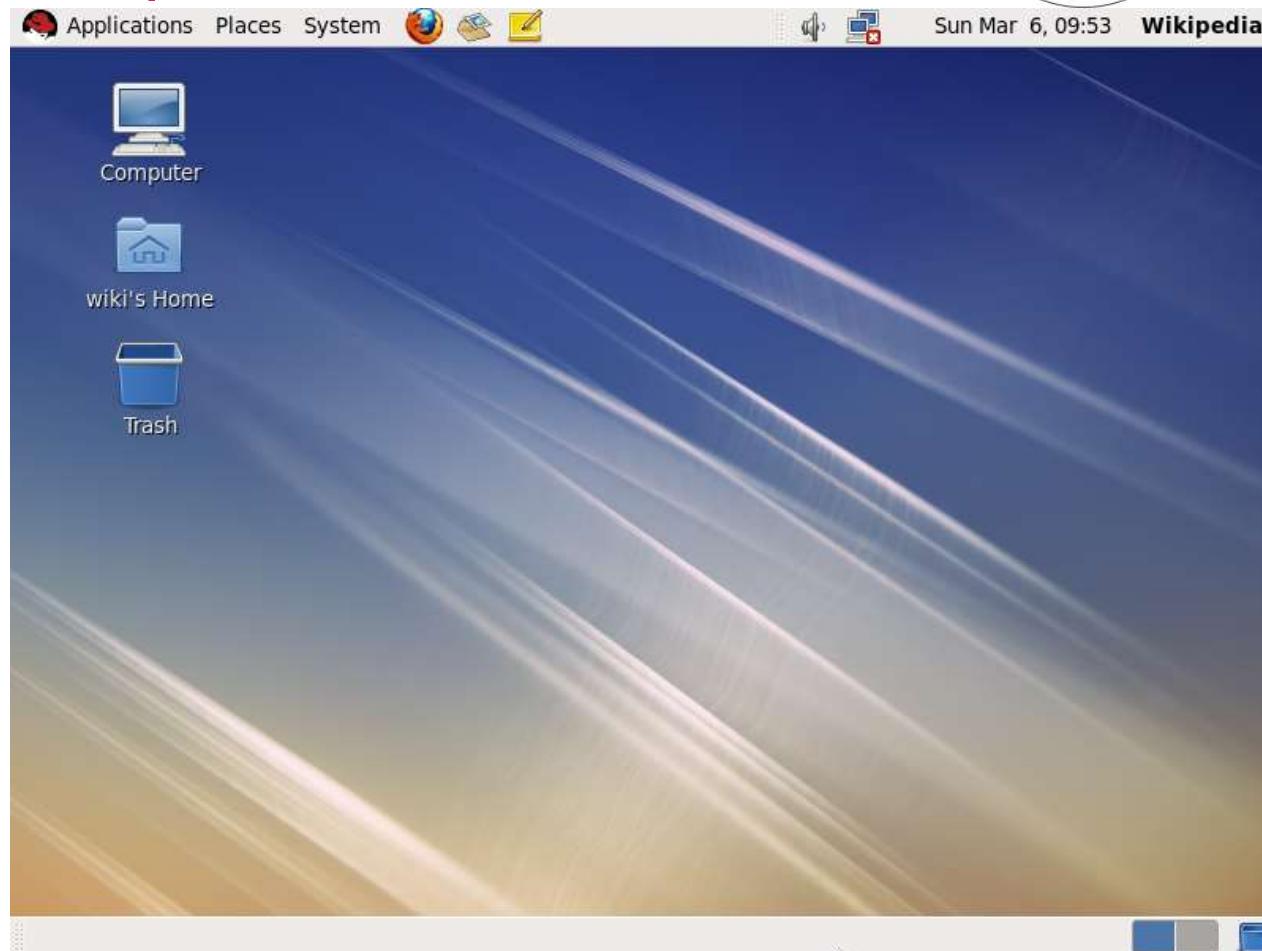
■ Fedora



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Linux Distributions (Cont.)

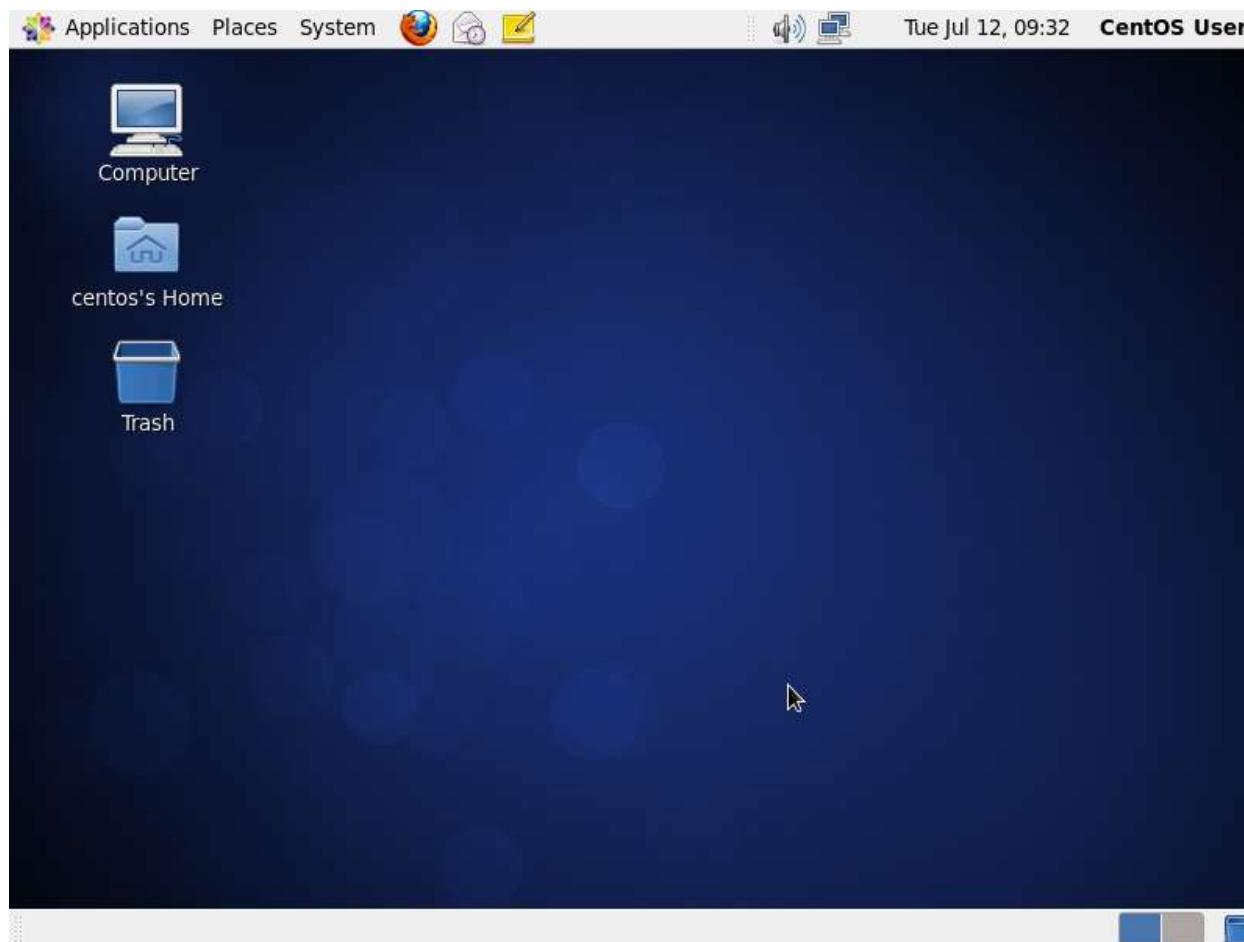
■ Red Hat Enterprise Linux



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Linux Distributions (Cont.)

■ CentOS



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Linux Distributions (Cont.)



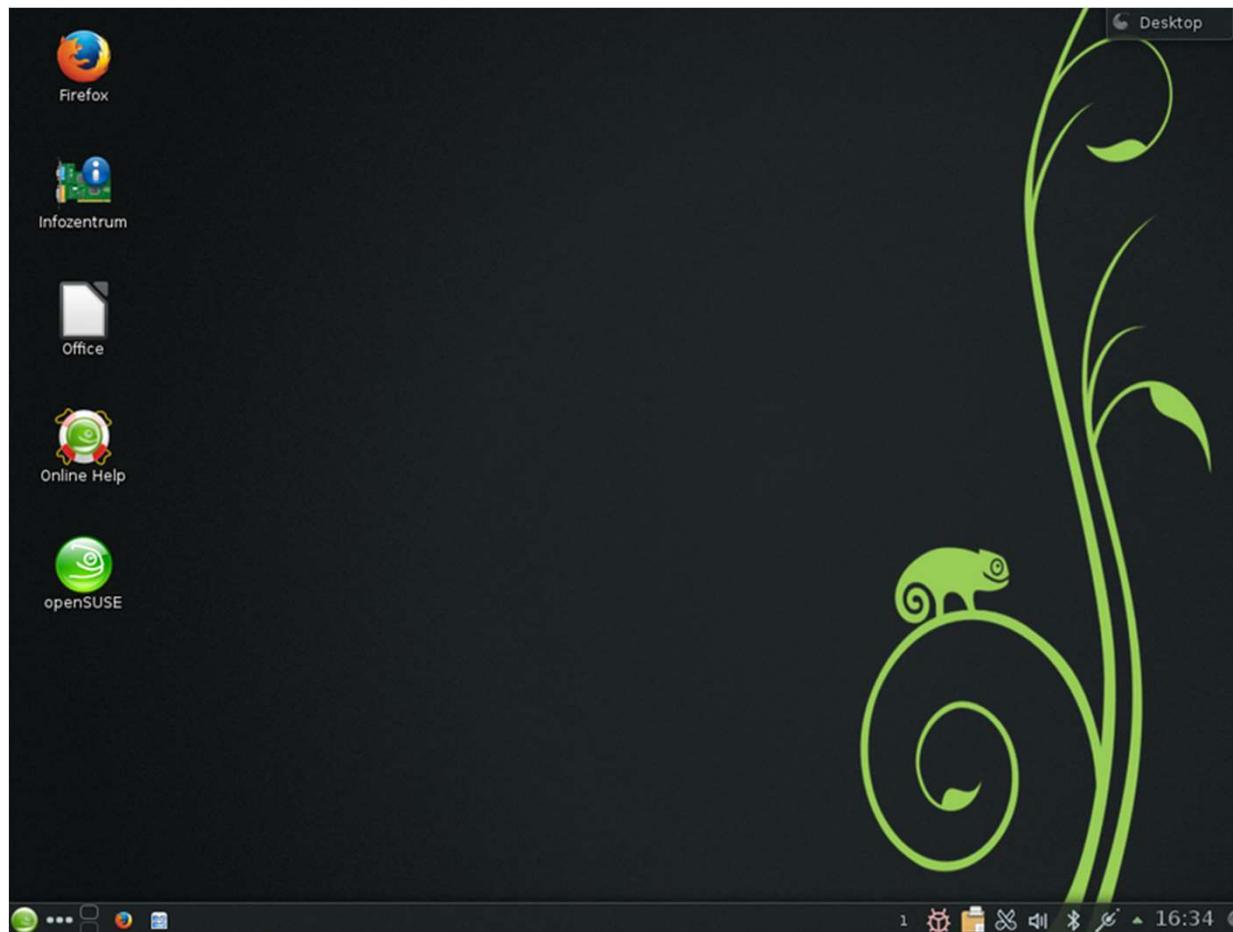
■ Mandriva Linux



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Linux Distributions (Cont.)

■ openSUSE



Linux Distributions (Cont.)

■ Asianux



About Asianux | www.asianux.co × +

asianux.com

↑ Slide Up

Asianux™

About Asianux

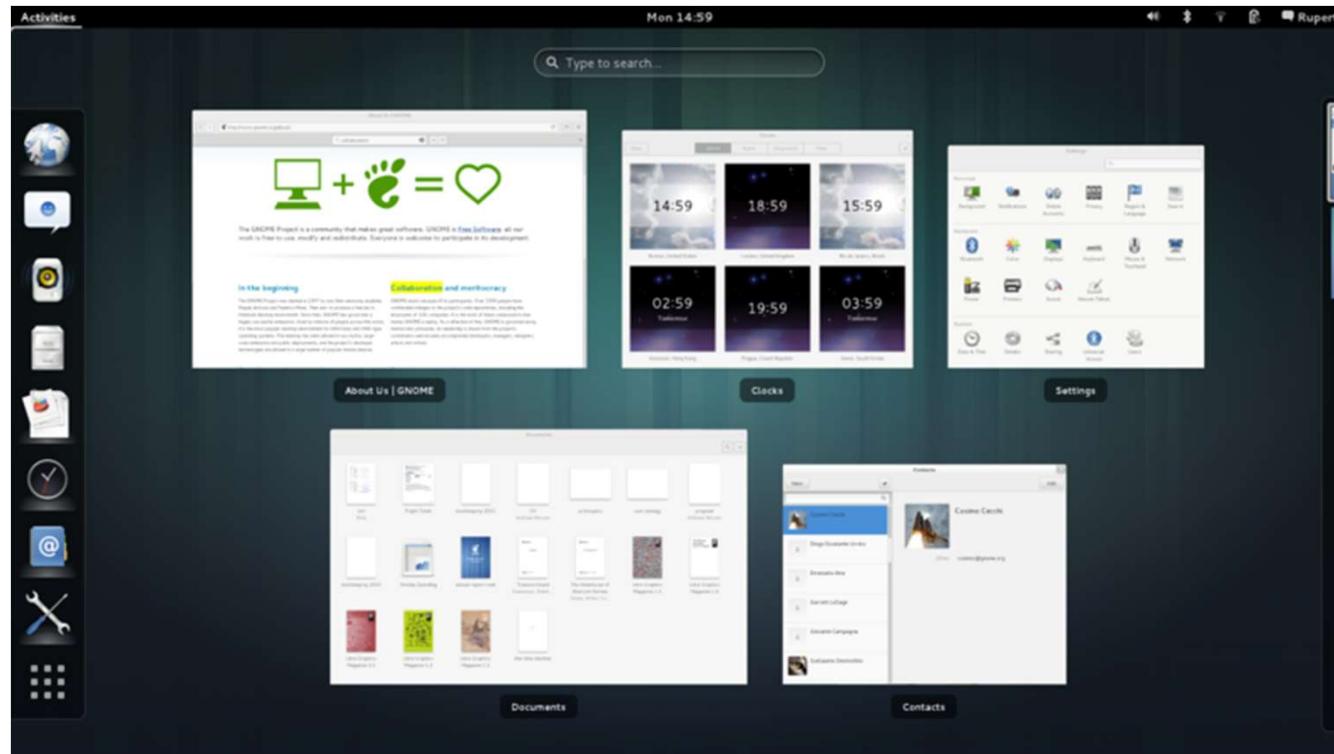
In September 2015, the Asianux Project has been dissolved.
Thank you for your support for our project.
Cybertrust Japan Co., Ltd.(formerly MIRACLE LINUX CORPORATION) has still
distributed Linux OS in Japan as "MIRACLE LINUX".
<https://www.cybertrust.co.jp/miracle-linux/>

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Linux Graphical Desktop Environments

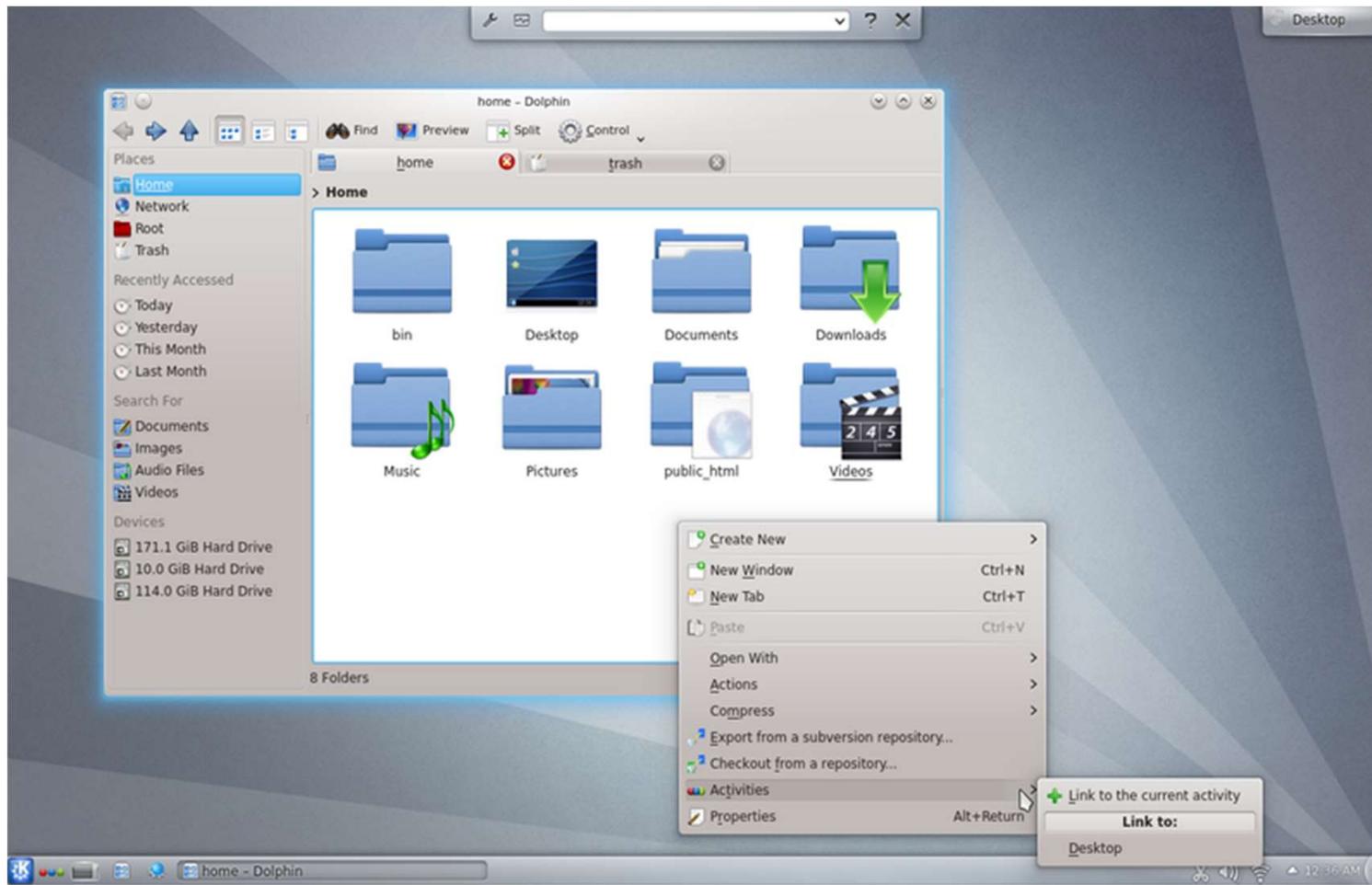
-GNOME Shell



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Linux Graphical Desktop Environments

-KDE Plasma



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Linux Graphical Desktop Environments

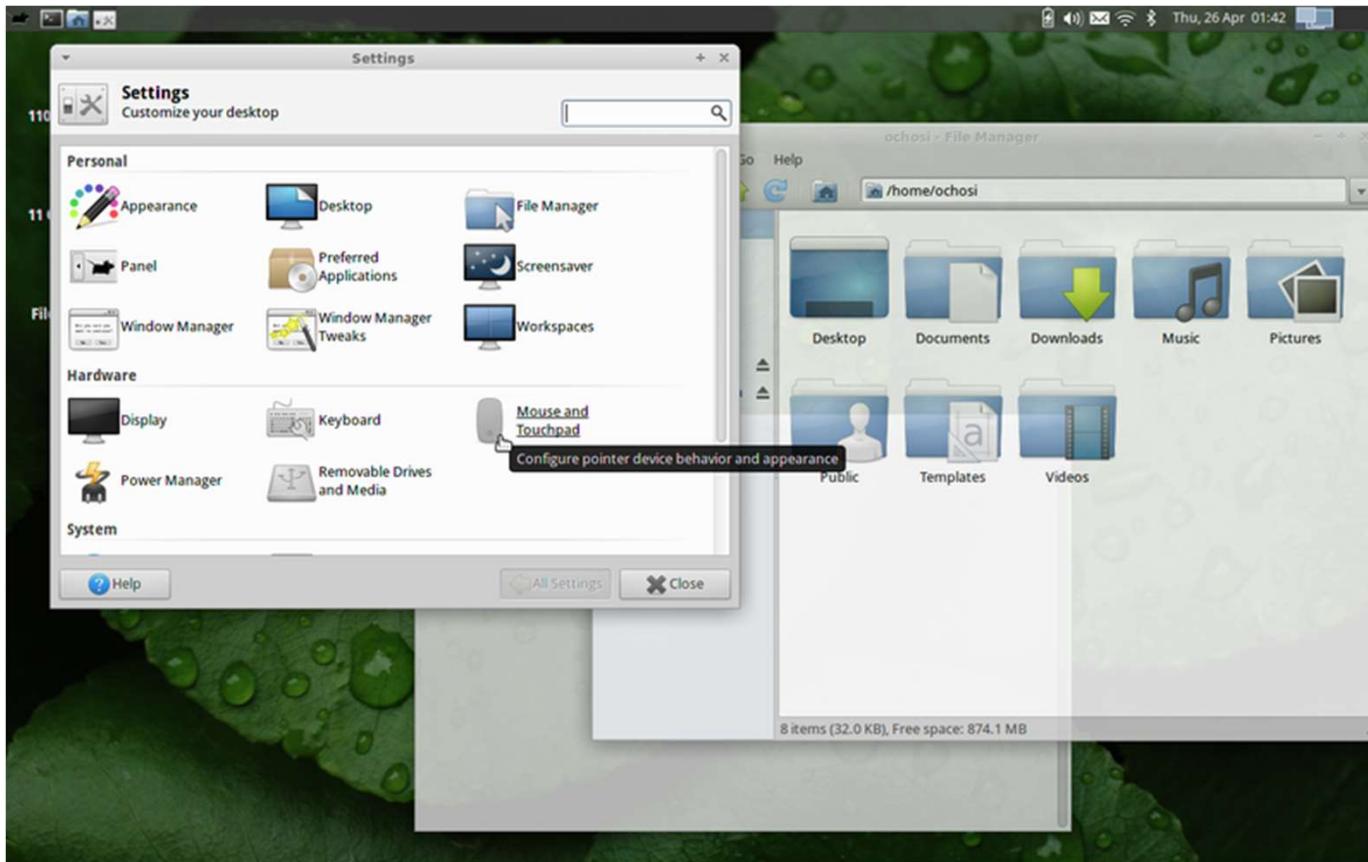
-Unity



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Linux Graphical Desktop Environments

-Xfce



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Linux Graphical Desktop Environments

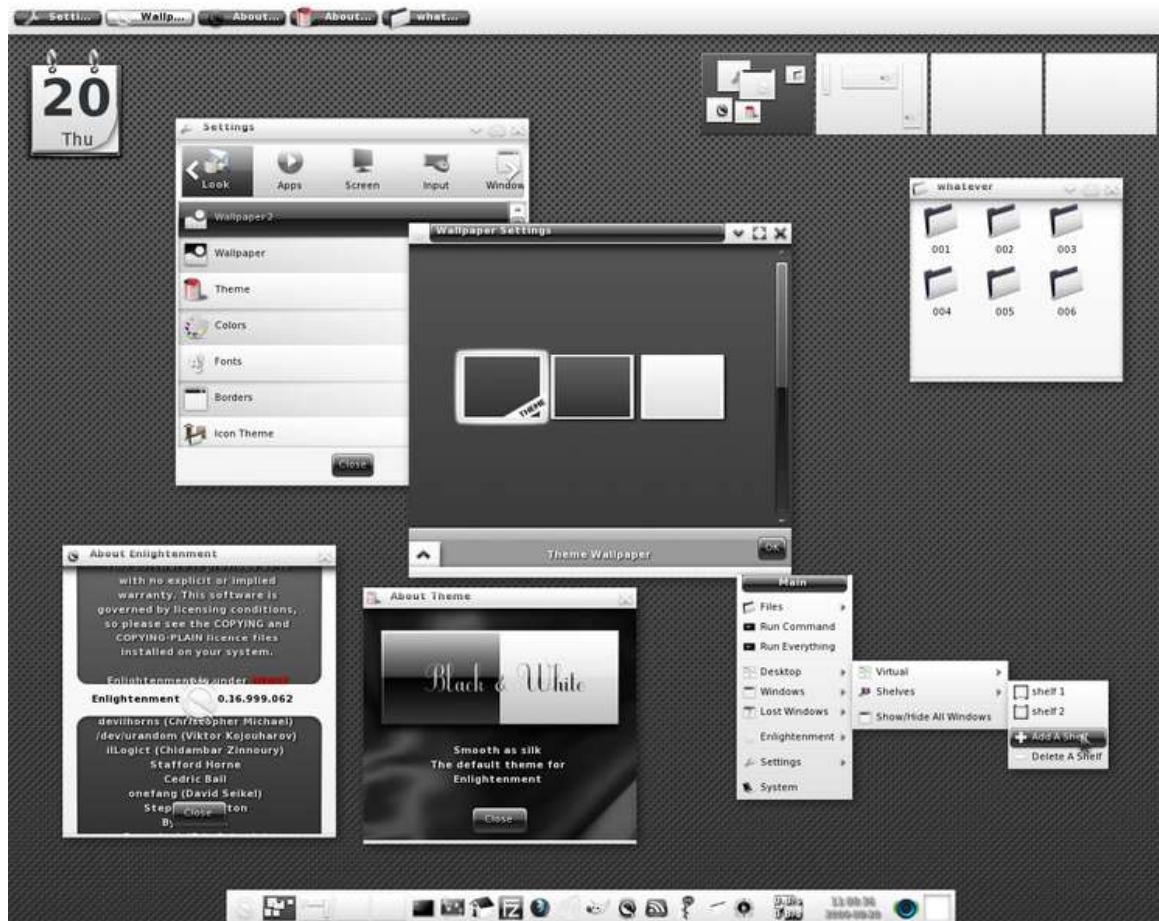
-LXDE



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Linux Graphical Desktop Environments

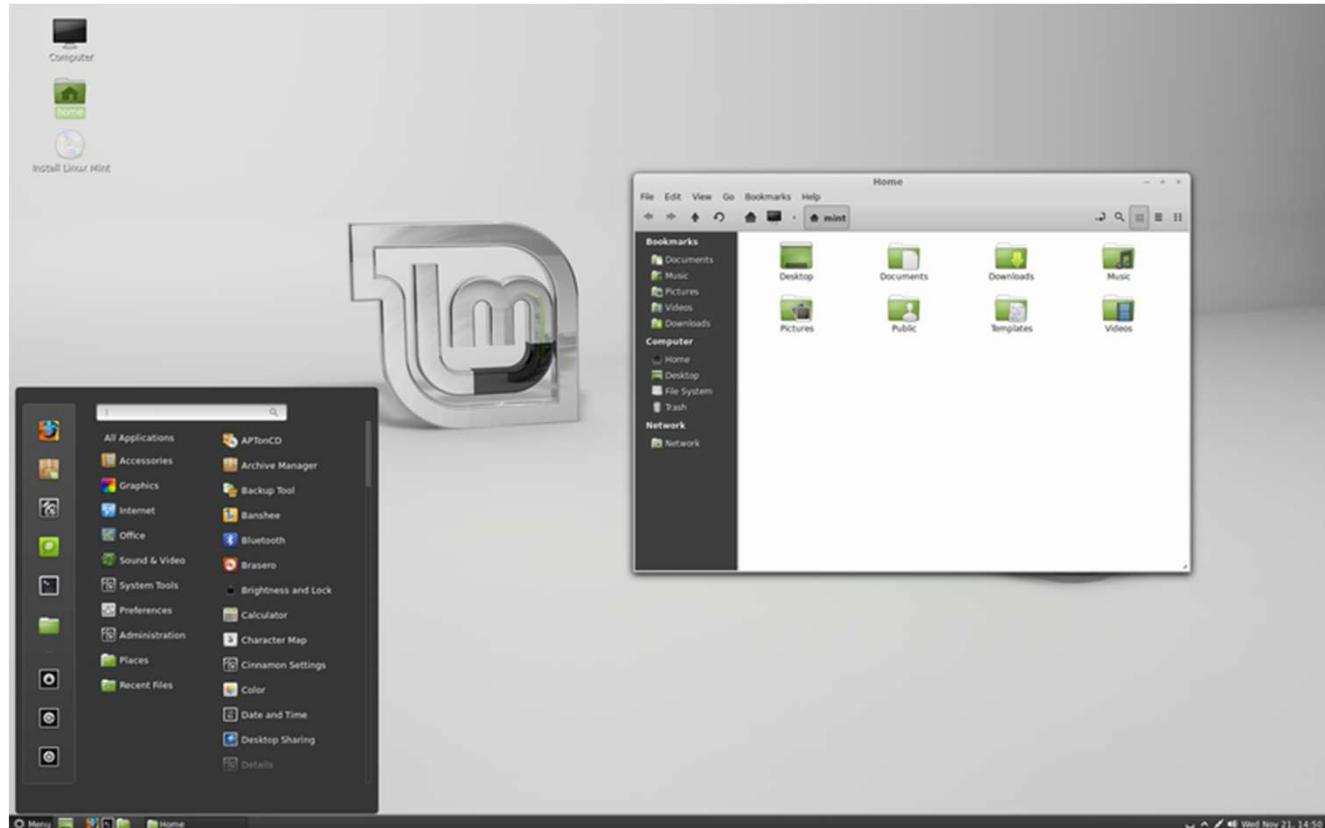
-Enlightenment



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Linux Graphical Desktop Environments

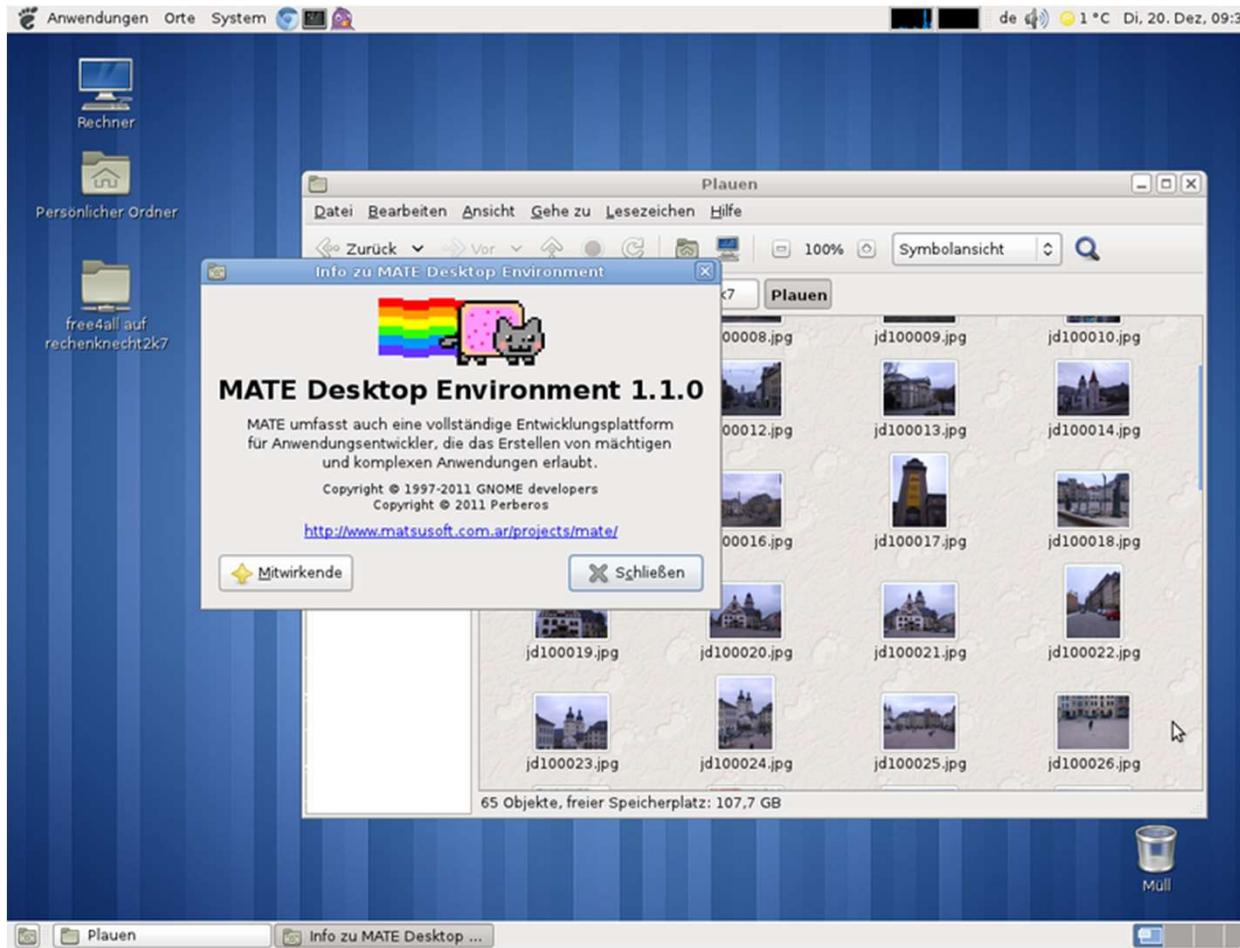
-Cinnamon



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Linux Graphical Desktop Environments

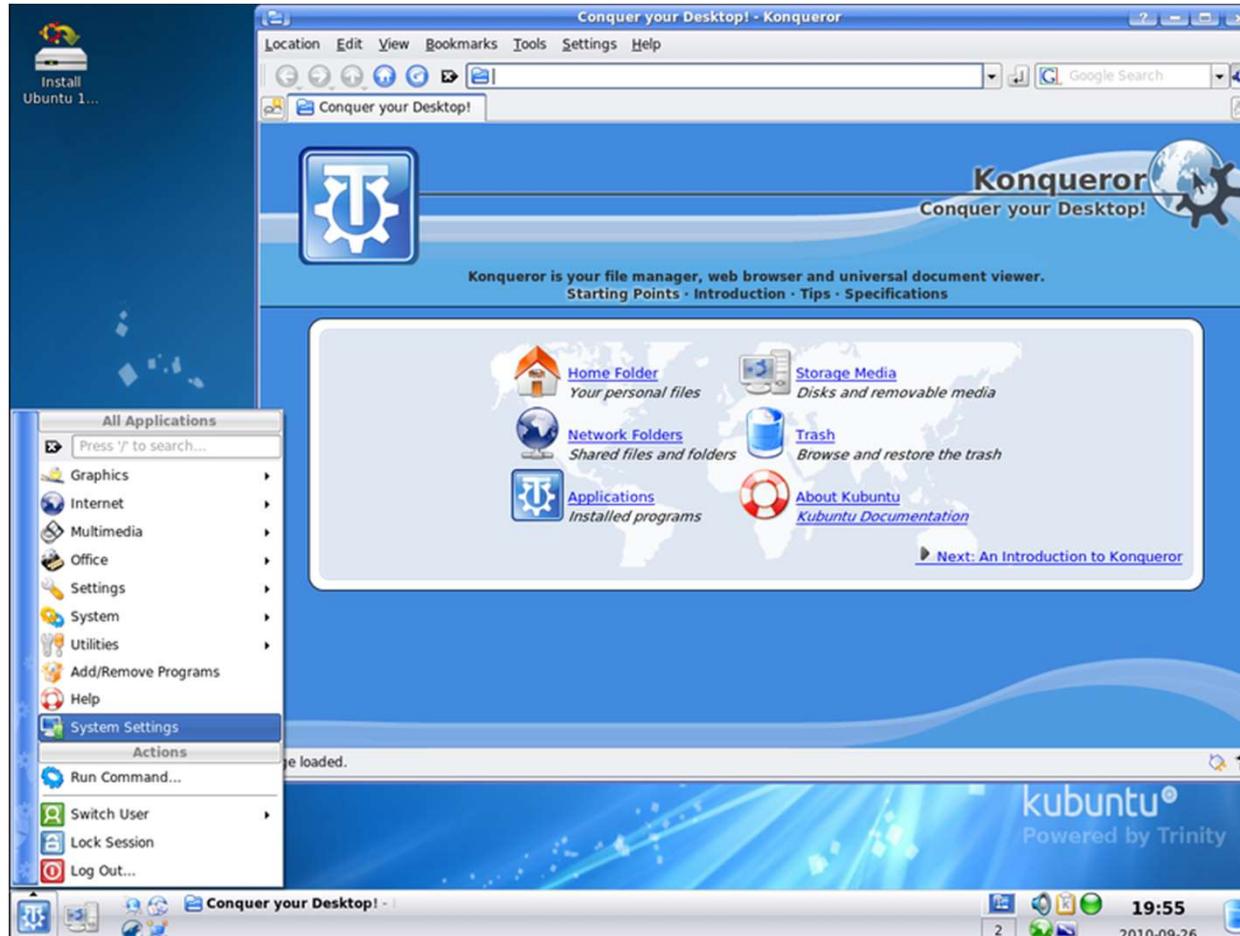
-MATE (GNOME 2)



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Linux Graphical Desktop Environments

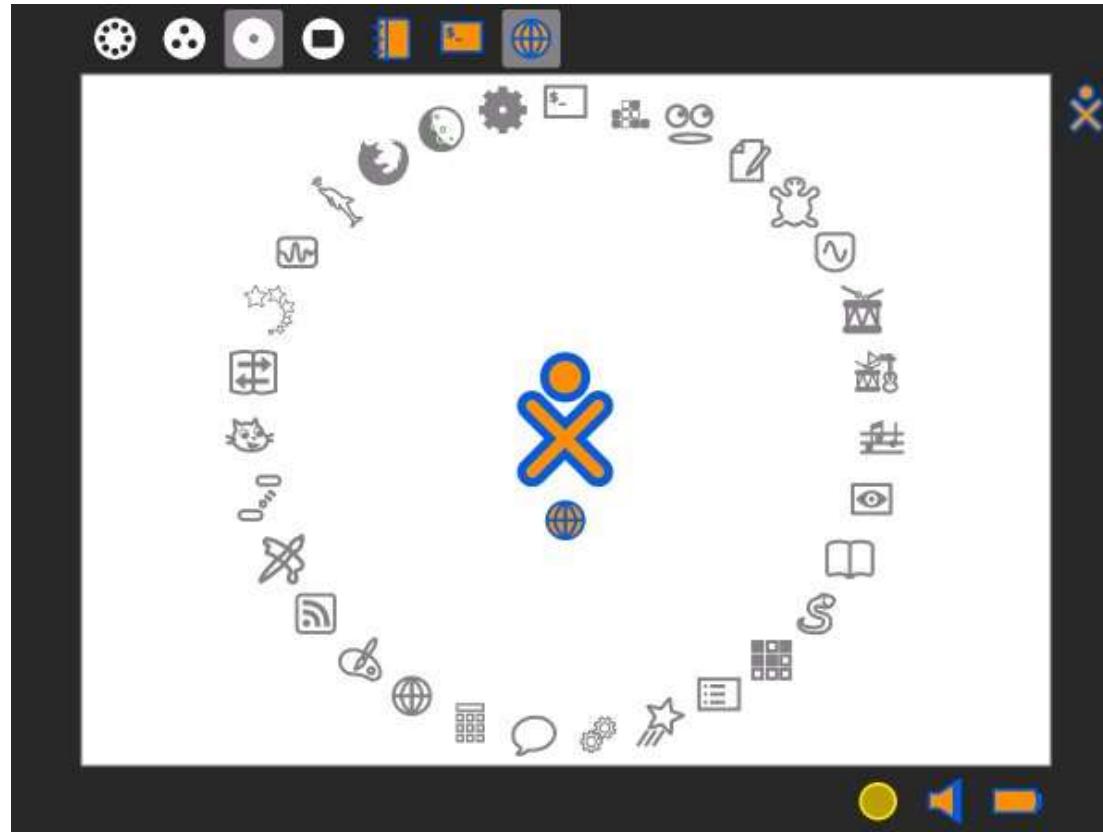
-Trinity (KDE 3)



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Linux Graphical Desktop Environments

-Sugar



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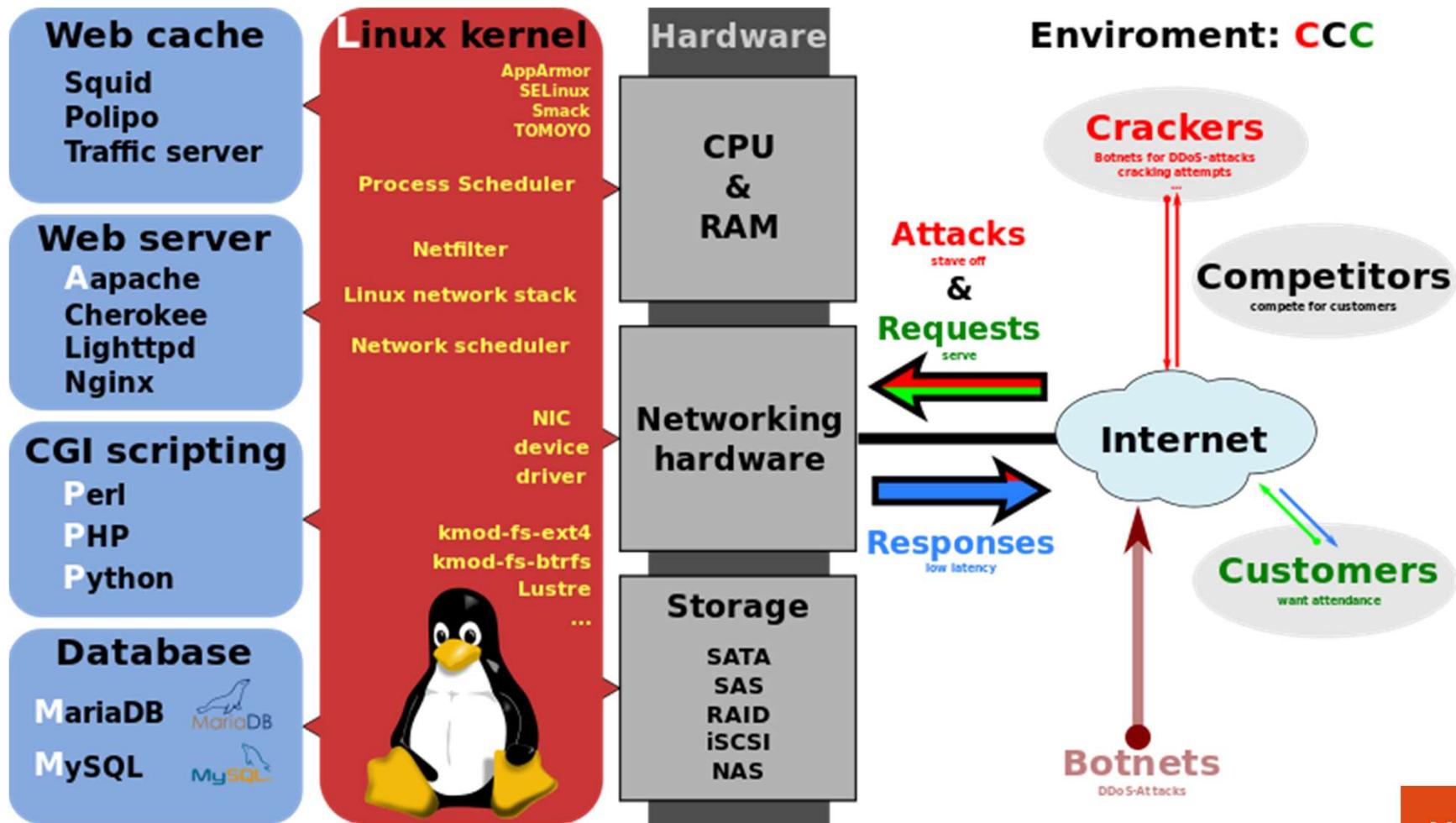
Linux Graphical Desktop Environments

-Pantheon



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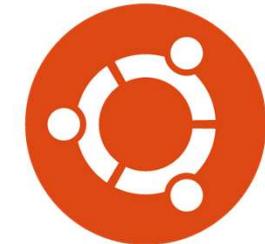
Linux Server Environment - LAMP



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What is Ubuntu ?

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



ubuntu

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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'.

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

Ubuntu...

- Is a Debian-based Linux operating system.
- Has *gnome* as its default desktop environment
- Is based on free software.
- Development is led by Canonical Ltd.
- 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).

Ubuntu... (Cont.)

- Each Ubuntu release has a version number that consists of the year and month number of the release.
 - i.e. 20.04, 20.10
- Each release has an alliterative code name using an adjective and an animal.
- Code names are in consecutive alphabetic order.
 - i.e. Ubuntu 20.04 (Focal Fossa)

Ubuntu... (Cont.)

Version	Code name	Release date	General support until	Security support (ESM) until
14.04 LTS	Trusty Tahr	2014-04-17 ^[85]	2019-04 ^[85]	2022-04
16.04 LTS	Xenial Xerus ^[86]	2016-04-21 ^[87]	2021-04 ^[85]	2024-04
18.04 LTS	Bionic Beaver	2018-04-26 ^[88]	2023-04 ^[85]	2028-04
20.04 LTS	Focal Fossa	2020-04-23 ^[89]	2025-04 ^[90]	2030-04
20.10	Groovy Gorilla ^[91]	2020-10-22 ^[92]	2021-07	N/A
21.04	Hirsute Hippo ^[93]	2021-04-22 ^[94]	2022-01	N/A
21.10	Impish Indri ^[95]	2021-10-14	2022-07	N/A
22.04 LTS	TBA	2022-04-21 ^[96]	2027-04	N/A

Legend: Old version Older version, still maintained Latest version Latest preview version Future release

Official Documentation

The screenshot shows a web browser displaying the official Ubuntu documentation at help.ubuntu.com. The page has a red header bar with the text "ubuntu documentation". The main content area features a table showing documentation availability for different Ubuntu releases. Below the table, a "Notes:" section lists several important points about the documentation structure. A "Cloud Tools" sidebar on the left lists MAAS, Juju, and Cloud-init. The bottom right corner of the page features a large orange "ubuntu" logo.

Ubuntu Documentation

Community Help Wiki Contribute

ubuntu documentation

Search

Official Ubuntu Documentation

Documentation developed and maintained by the Ubuntu Documentation Project.

Release	Desktop	Server	Installation Guide
Ubuntu 21.04 (Hirsute Hippo)	HTML	<i>unpublished</i>	<i>unpublished</i>
Ubuntu 20.04 LTS (Focal Fossa)	HTML	HTML and PDF	per architecture
Ubuntu 18.04 LTS (Bionic Beaver)	HTML	HTML and PDF	per architecture

Notes:

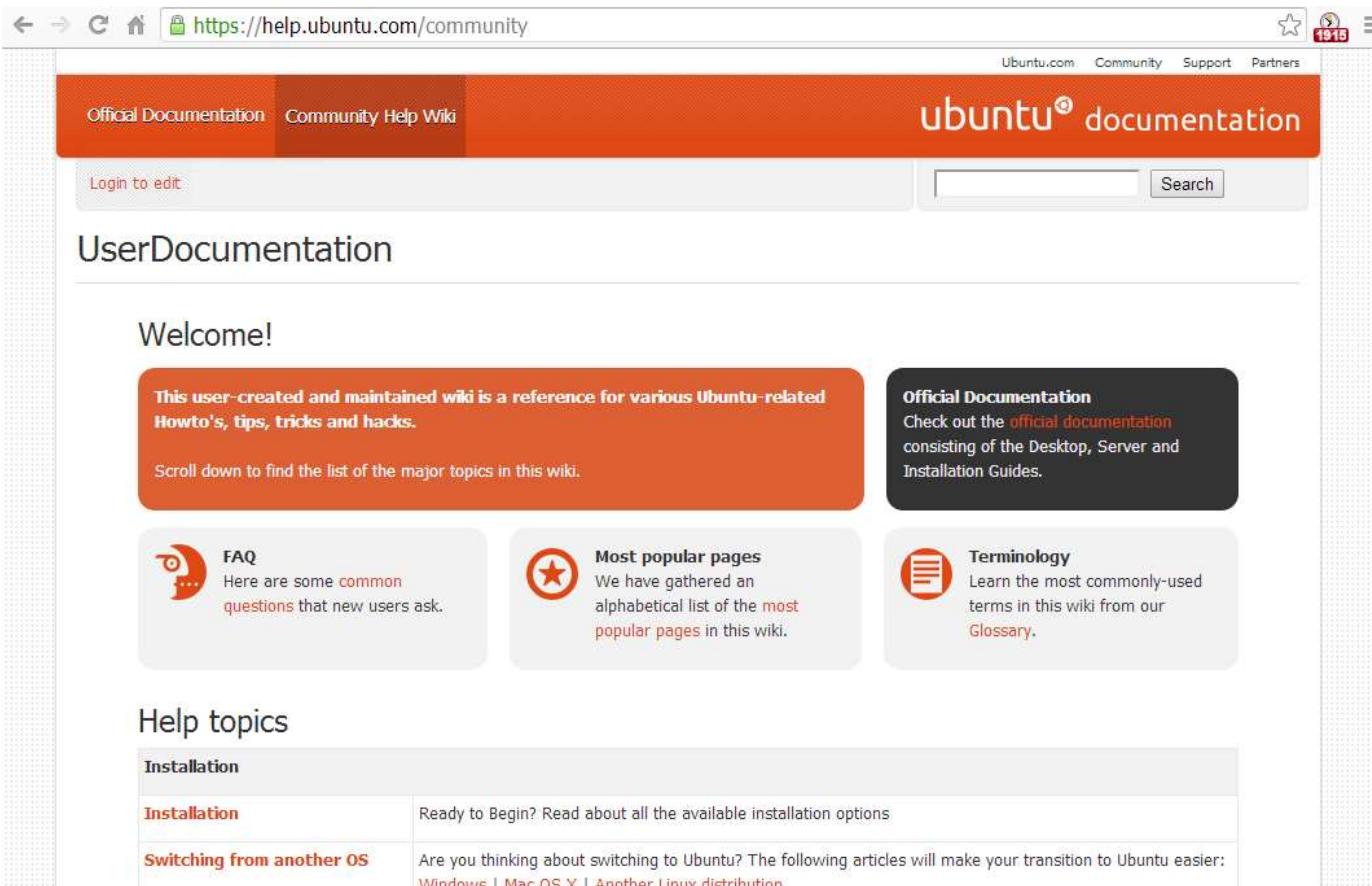
- As of the Ubuntu LTS release in 2020, the server documentation has moved to [a different site](#), and will automatically update when changes are made to the [discourse source code pages](#).
- The Desktop links above are available in many different languages. They will be displayed in the preferred language specified by your browser. If the preferred language is not available they will be displayed in English. The Serverguide and the Installation Guide are available solely in English.
- Unsupported releases are not shown here. See [instructions for upgrading to a supported version](#).
- The Server Guide and the Installation Guide are published only for Long Term Support (LTS) releases.
- Useful information: [LTS details](#) and [release & end-of-life dates](#) (for all versions).

Cloud Tools

- [MAAS](#)
- [Juju](#)
- [Cloud-init](#)

ubuntu

Community Documentation



The screenshot shows a web browser displaying the Ubuntu Community Documentation at <https://help.ubuntu.com/community>. The page has a red header with the text "ubuntu® documentation". The main content area is titled "UserDocumentation" and features a "Welcome!" message. It includes sections for "FAQ", "Most popular pages", and "Terminology". Below this is a "Help topics" section under "Installation" with links to "Installation" and "Switching from another OS".

Ubuntu.com Community Support Partners

ubuntu® documentation

Login to edit

UserDocumentation

Welcome!

This user-created and maintained wiki is a reference for various Ubuntu-related Howto's, tips, tricks and hacks.

Scroll down to find the list of the major topics in this wiki.

Official Documentation

Check out the official documentation consisting of the Desktop, Server and Installation Guides.

FAQ

Here are some common questions that new users ask.

Most popular pages

We have gathered an alphabetical list of the most popular pages in this wiki.

Terminology

Learn the most commonly-used terms in this wiki from our Glossary.

Help topics

Installation

Installation	Ready to Begin? Read about all the available installation options
Switching from another OS	Are you thinking about switching to Ubuntu? The following articles will make your transition to Ubuntu easier: Windows Mac OS X Another Linux distribution

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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.

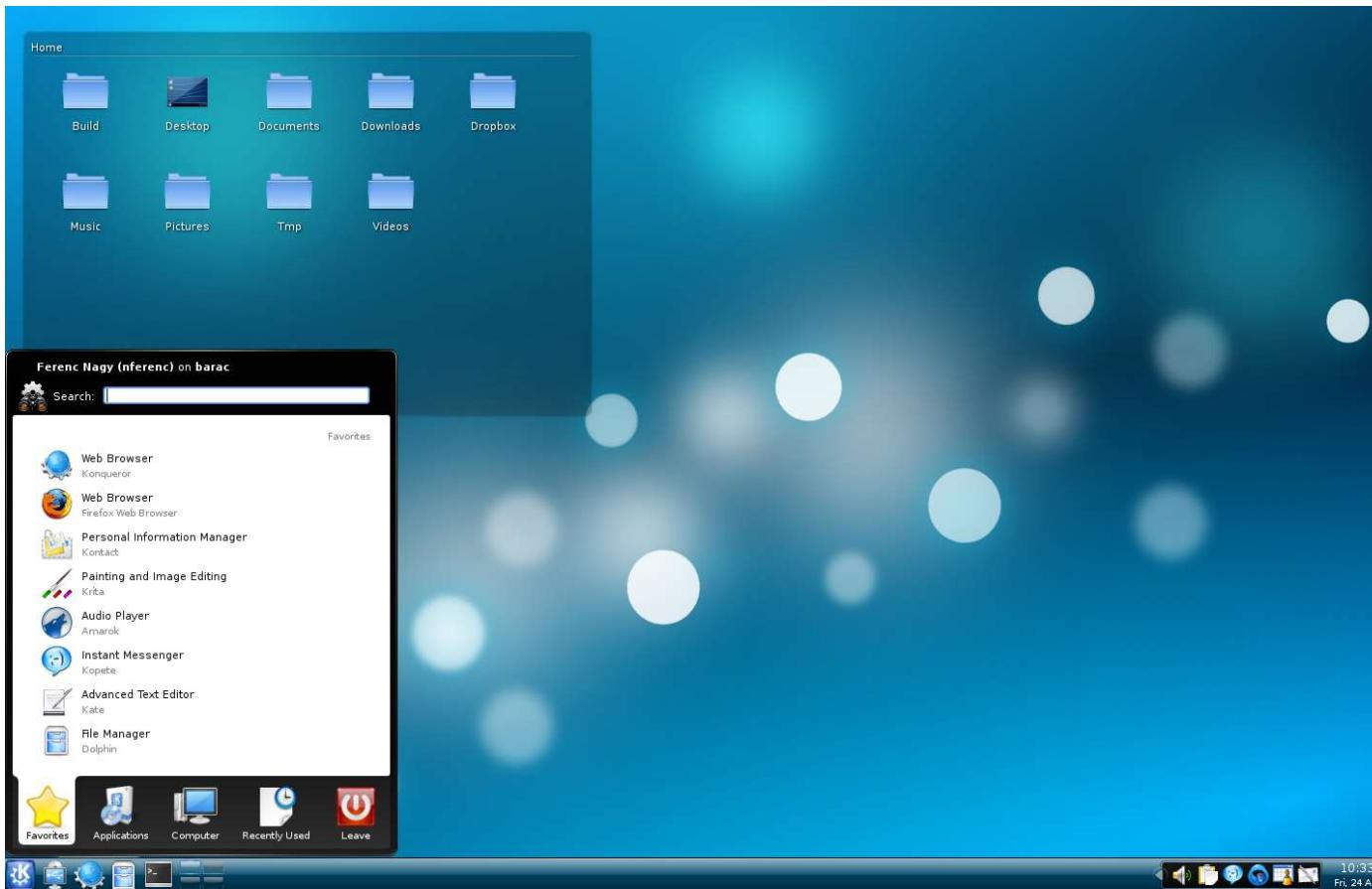
Ten Reasons to Try Ubuntu Linux (Cont.)

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.

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.

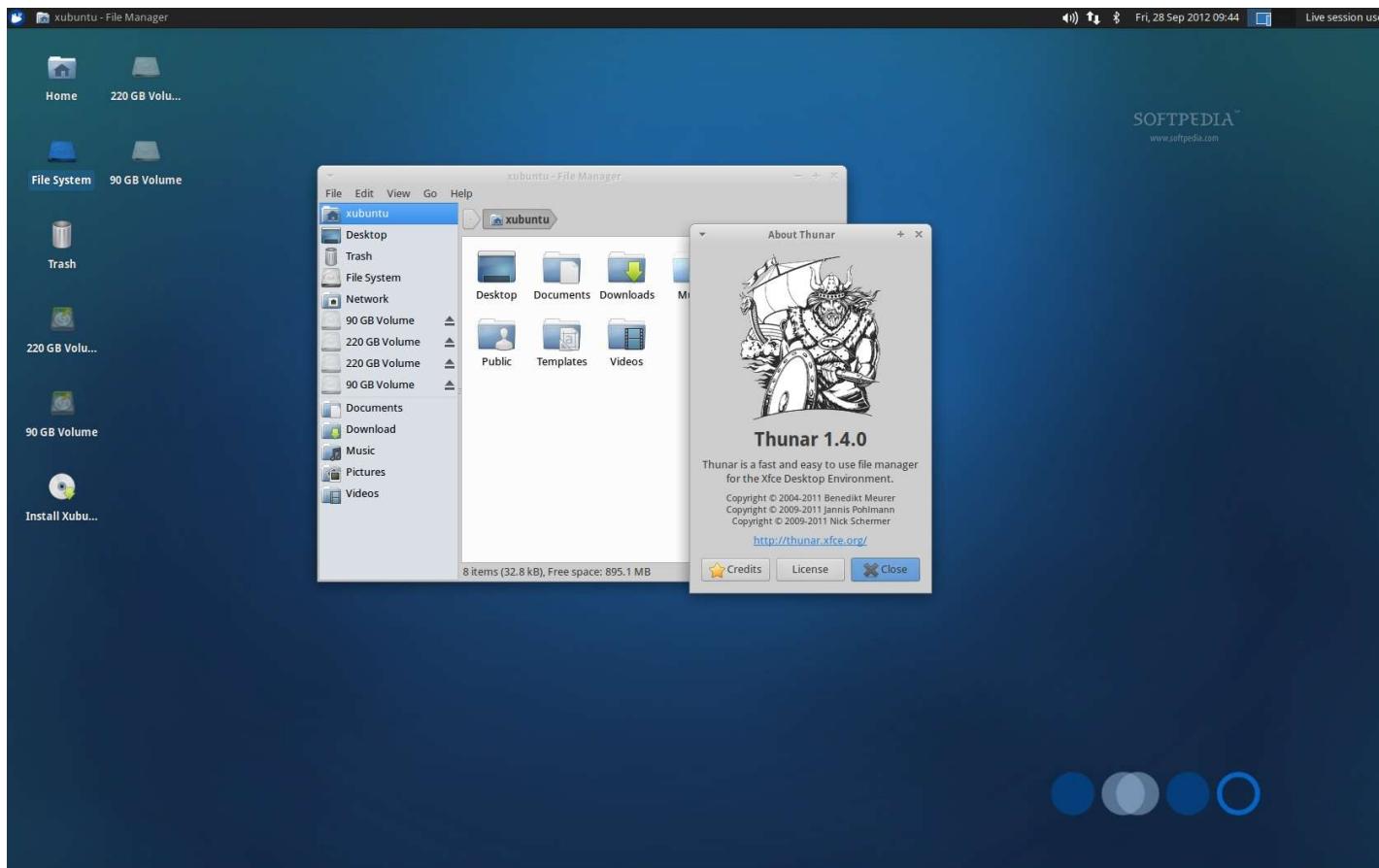
Ubuntu Brothers - Kubuntu



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

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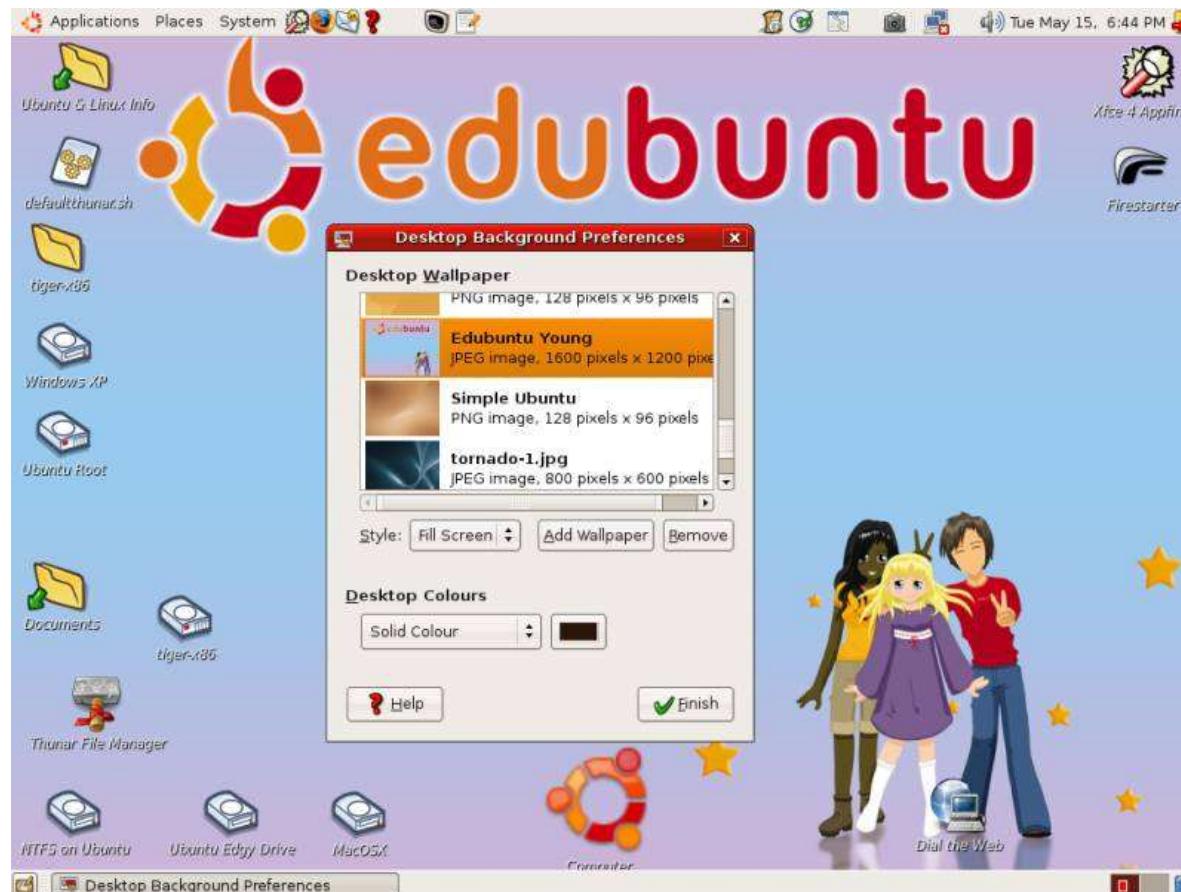
Ubuntu Brothers - Xubuntu



Downloads from : <http://xubuntu.org/getxubuntu/>

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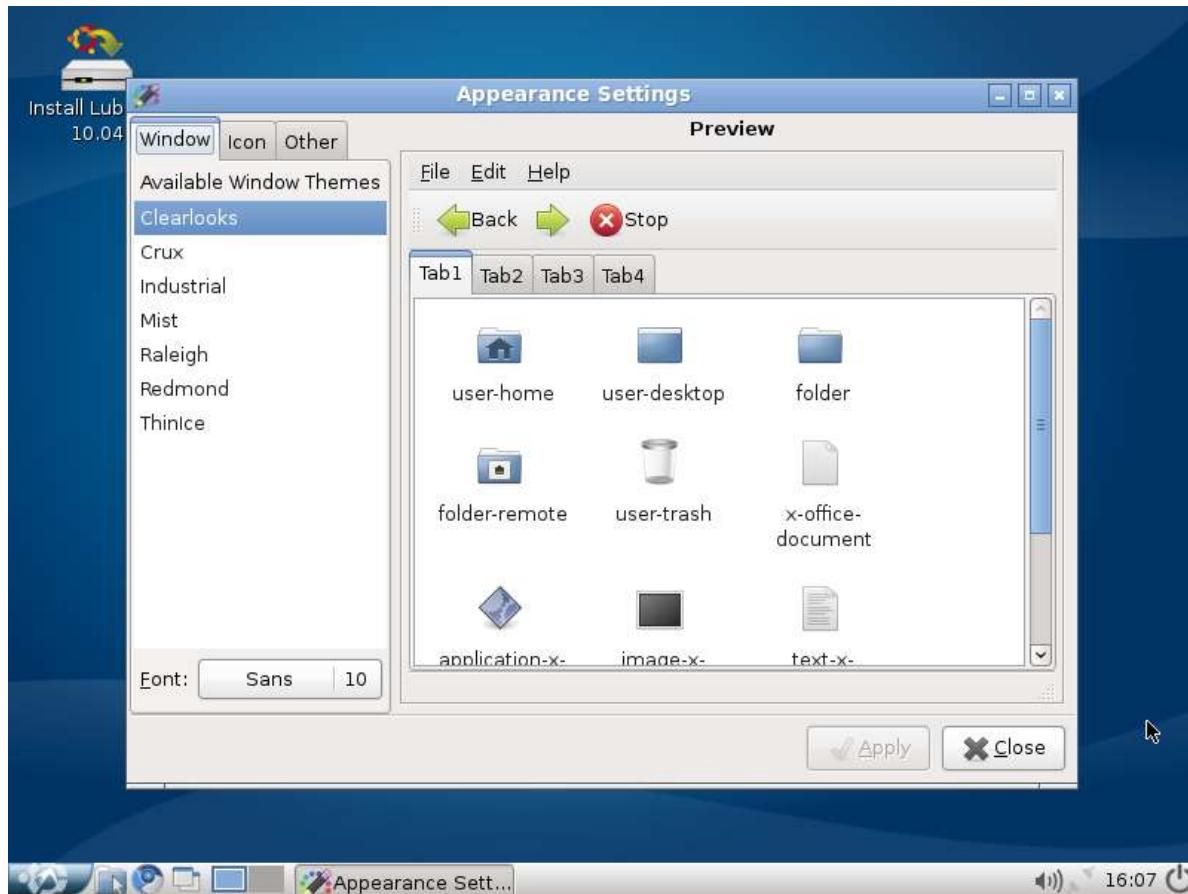
Ubuntu Brothers – Edubuntu



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

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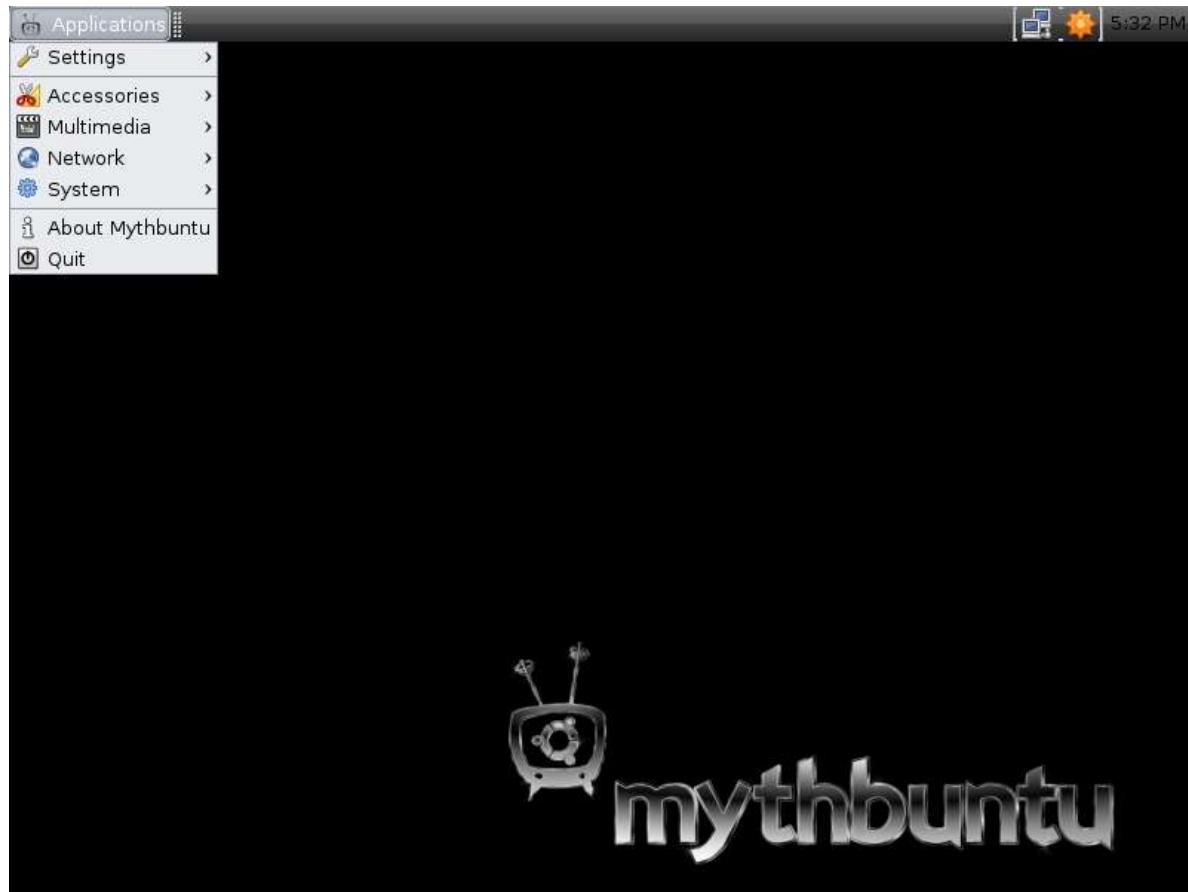
Ubuntu Brothers – Lubuntu



Downloads from : <https://help.ubuntu.com/community/Lubuntu/GetLubuntu>

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Ubuntu Brothers – Mythbuntu



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

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Ubuntu Brothers – UbuntuStudio



Downloads from : <https://ubuntustudio.org/download/>

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Ubuntu Brothers - Mint



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

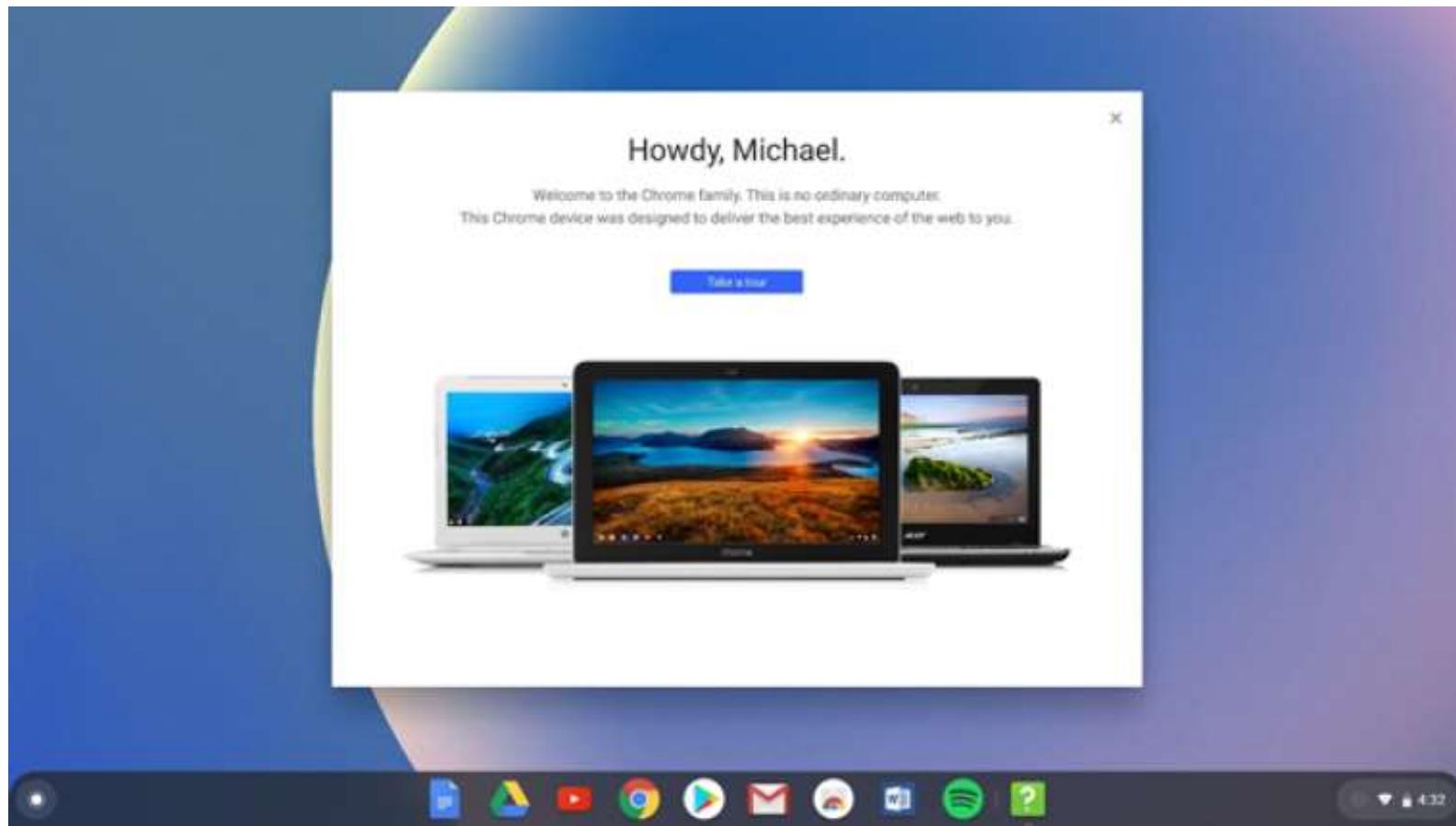
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Ubuntu Brothers – Ubuntu Touch



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The others – Google Chrome OS



<https://www.chromium.org/chromium-os>

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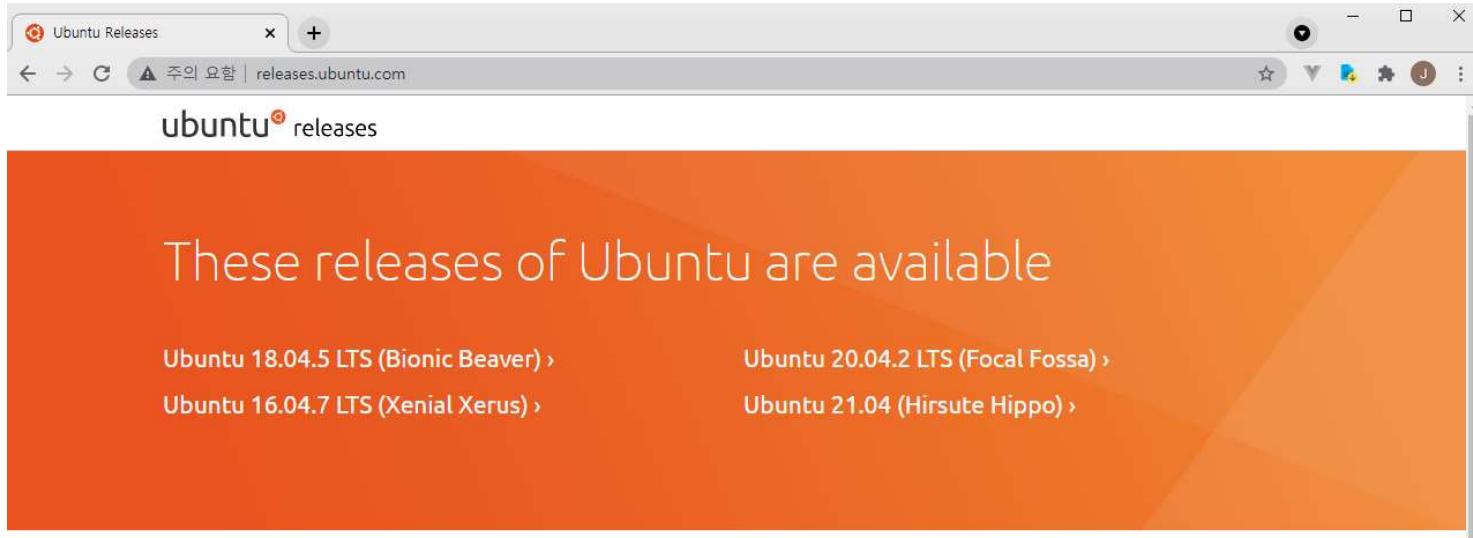
The others – Steam OS



<http://store.steampowered.com/steamos/?l=english>

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The others



These older Ubuntu releases are now in Extended Maintenance (ESM):

- [Ubuntu 14.04.6 LTS \(Trusty Tahr\) >](#)

We are happy to provide hosting for the following projects via the cdimage server. While they are not commercially supported by Canonical, they receive full support from their communities.

[Edubuntu](#) · [Kubuntu](#) · [Lubuntu](#) · [Mythbuntu](#) · [Ubuntu Budgie](#) · [Ubuntu GNOME](#) ·
[UbuntuKylin](#) · [Ubuntu MATE](#) · [UbuntuStudio](#) · [Xubuntu](#)

The cdimage server also hosts releases of other Ubuntu images not found on this server, such as builds for less popular architectures and other non-standard and unsupported images. For Ubuntu Desktop and Server on popular architectures,

<http://releases.ubuntu.com/>

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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>