Of Penguins and Wildebeest

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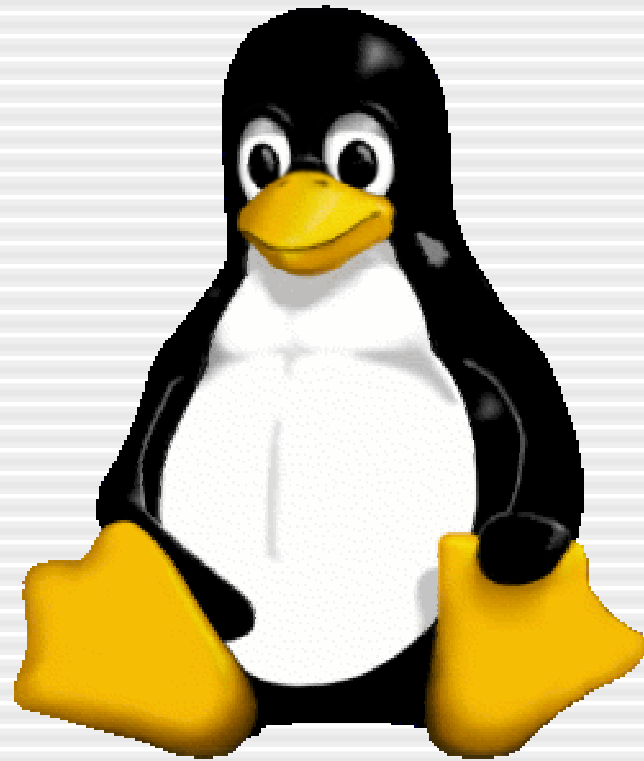
VA7IRL

The Penguin

What is Linux?

- Linux was created by a Swedish-speaking Finn called Linus Torvalds
- Version 0.01 was released in September 1991
- We are now on version 2.6
- It is a type of UNIX operating system
- UNIX powers the Internet

The Wildebeest

GNU General Public License

- GNU stands for "GNU's Not Unix"
- It is one of two main types of Open Source Software license
- It the release of Linux under the GPL that makes it "open-source"
- Not all free or OSS is GNU GPL
  - FreeBSD, Apple Darwin, etc.

Meaning of GNU GPL

- Free as in speech, not free as in beer
- You may distribute software freely, either for nothing, or for a fee
- You may re-use the source code in your own programs
- You may change the source code, provided you clearly identify your changes

Duties under GNU GPL

- You must transfer all the rights you have to everyone else
    - If you use GPL code in your program, your program must also be GPL
    - If you want to release your program under the GPL, all included code must be GPL
    - So-called 'copyleft'
- You must include a copy of the GPL with your program
- You must provide the source code

Open Source Projects

- The OSS community is more than unrestricted software licenses

- Most software that runs on Linux is created and maintained by large, collaborative group projects

- This is not just 'hobby' software, but mission-critical enterprise applications
  - Apache, MySQL, pHp (LAMP)
  - SugarCRM, Asterisk, Mambo

OSS Advantages

- Cost
- Peer review
- Rapid bug fixes
- Custom enhancements
- Resource pooling
- Specialization
- Portability

Linux Anatomy

- Everything is a file
  - Programs
    - /bin - built in programs (ls, cp, mv)
    - /usr/bin - installed programs (vi, ifconfig)
    - /sbin, /usr/sbin - server programs or daemons (httpd)
  - Other stuff
    - /dev - devices (e.g. mouse is /dev/input/mouse0)
    - /etc - configuration files
    - /mnt - volume mountpoint
    - /var - application data
  - Home folders
    - /home/<username> - where you keep your stuff (My Documents)

Linux Distributions

- Linux is the basic operating system (called the kernel) and some core utilities and commands
- You can build a Linux system by
  - Downloading and compiling a kernel
  - Downloading and compiling all the programs and tools that you want
  - Configuring everything by hand
- Or, you can download and install a distribution
  - A full working system with many commonly used tools and configuration options based on a Linux kernel
- Chosen based on need or religious conviction

Distros are like opinions

- Everyone has one!
- RedHat, CentOS, SuSE, Fedora, Ubuntu, Mandrake, Debian, YellowDog, Slackware, Knoppix…
- Recommendations
  - Business Server
    - Red Hat Enterprise (USD$350 per server per year), CentOS
    - Enhanced patch management, server provisioning
  - Home Server/Workstation
    - Debian, Ubuntu (LiveCD)
  - To be avoided
    - SuSE, Gentoo, Mandrake

After installation

- Keep it up to date
  - A poorly maintained Linux box is no better than a Windows system
- Most distributions have an easy to use updater
  - RedHat: up2date (uses RedHat .rpm files)
  - Debian: apt-get
  - Ubuntu: Synaptic (uses Debian .deb files)
- Includes important security updates as well as application enhancements
  - Most are configured to skip kernel updates unless specifically requested

Miscellanea

- For Windows users
  - Linux is case-sensitive
  - There is no "Are you sure?"
    - Linux assumes you know what you are doing and obeys your commands faithfully and instantly, no matter how stupid they are
  - / instead of \
    - Oh, and there's no C: drive either :-)
- man is your friend
- Google is your friend
- Tons of information and help
  - Mailing lists, web forums, IRC channels, wikis

sudo

- You will never log in as root (Administrator)
  - One of the most insecure "features" of Windows
- Occasionally you need to act as root
  - Install updates, software, etc.
- sudo <command [options]>
- When asked for a password, enter your own password
  - Grants access for a defined period before timing out
- BE CAREFUL - UNIX neither knows nor cares if you are an idiot

Linux Applications for Hams

- Universe repository in Ubuntu
- Debian packages (.deb) install natively on Ubuntu
  - http://packages.debian.org/stable/hamradio/
  - Download in your browser
  - dpkg -i <path-to-downloaded.deb>
- Xastir
  - Probably the best APRS software on any platform - and it's free!
- EchoLinux
- LinPSK
- Many, many more

Download, compile, install

- Sometimes the application you want isn't in your package manager
  - Different version, obscure packages like……
  - Ham software :-)
- Two methods of installing anything
  - Binary
    - Easy - like setup.exe in Windows
  - Source
    - Not as scary as it sounds
    - Allows software to be portable
    - Allows installation to be customizable

Download

- cd ~ (shorthand for go to home folder)
- mkdir <program>/<program>-<version>
  - e.g. /home/va7irl/pileup/pileup-1.2
- curl -C - -O '<URL to program>'
  - e.g. curl -C - -O 'http://www.babbage.demon.co.uk/linux/pileup-1.2/pileup-1.2.tar.gz'
  - Or use your browser :-)
- tar -zxvf pileup-1.2.tar.gz
  - Source is nearly always tarred and/or gzipped
- cd pileup-1.2

Compile and Install

- README!!!!!!!!
  - more README
  - more INSTALL (sometimes)
- Make any necessary/desired changes to the installation configuration
- sudo ./configure (sometimes)
- sudo make clean
- sudo make
- sudo make install
- Enjoy!

That's all folks

- www.linux.org
- www.gnu.org
- www.redhat.com
- www.ubuntu.com
- www.sourceforge.net
- www.debian.org
- www.osdir.com
- http://radio.linux.org.au/
- hamshack-hack.sourceforge.net/
- ………