Ubuntu Linux Server

Structure and Config

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Hervey Allen

What's Our Goal?

- A bit of Debian & Ubuntu philosophy
- Differences from the Red Hat world
  - Package system
  - Debian's *root* philosophy
  - Tools you may need
  - Installing your environment
  - How the OS and services start/stop

Some Practical Matters

- *Please do not change the root or inst passwords.*
- Questions are encouraged :-)
- Questions?

Who We Think We Are Teaching

A class that has already experienced or used Linux or UNIX in the real world.

We're assuming an intermediate to advanced level of knowledge.

Are we right?

Some Philosophy

- Debian's conservative model
  - *Very* different from Fedora Core
- Releases and Repositories
- Ubuntu's benefactor: Mark Shuttleworth
- Desktop vs. Server vs. LTS versions
- The connection with Debian
- Restricted software and Ubuntu

Ubuntu

Release Name	Version
Warty Warthog	4.1
Hoary Hedgehog	5.04
Breezy Badger	5.10
Dapper Drake*	6.06
Edgy Eft	6.10
Feisty Fawn	7.04
Gutsy Gibbon	7.10
Hardy Heron**	8.04

*6.06 is "LTS"
**8.04 is "LTS", Planned for April 2008

Debian

Release Name	Version
buzz	1.1
rex	1.2
bo	1.3
hamm	2.0
slink	2.1
potato	2.2
woody	3.0
sarge	3.1
etch	4.0
lenny	tba

The World of Ubuntu

Start here: http://www.ubuntu.com/

Server

- "Gutsy Gibbon" 7.10 (18 month support)
- "Dapper Drake" 6.06 LTS (5 years support)

Desktop

- Current are 6.06 LTS and 7.10.

Kubuntu (KDE), Edubuntu (Educational)

What's Different

- Software management
  - dpkg
  - apt (this is what we'll use)
  - apt-cache
  - aptitude
  - synaptic
  - meta-packages
  - repositories

What's Different cont.

- Startup scripts
  - In /etc/init.d/ (System V)
  - Upon install services run!
- Controlling services
  - update-rc.d
  - sysvconfig
  - rcconf
  - rc-config

What's Different cont.

- Make and GCC
  - Not installed by default. Why?
  - 18,500+ packages
  - To get "apt-get install build-essential"
- Installation
  - Installer *really* wants to be on the net
  - Your language/location choices determine which Ubuntu mirror will be used at install.

What's Different cont.

- The use of *root* is discouraged by default and *sudo* is used instead.
- You can do *apt-get dist-upgrade* to move between major and minor releases.
- Sources in /etc/apt/sources.list (how you install from cd/dvd).

Software Repositories

Defines what is available to you – i.e. where apt will look. There are four major categories:

Ubuntu	Debian
1. main	1. stable
2. restricted	2. testing
3. universe	3. unstable
4. multiverse	

Software Repositories Ubuntu

main

- Core install of Ubuntu
- Fully supported by Ubuntu
- Freely redistributable and unencumbered, but may contain binaries.

Software Repositories cont.

restricted

- Commonly used software, but is not licensed as completely free.
- Supported by Ubuntu as best as possible.
- Includes binary drivers for specific hardware.
- Open source versions used first.

Software Repositories cont.

universe

- Contains remaining open source software that may be available under "less open licenses."
- Built against libraries and tools in "main", thus it should install and be stable.
- No guarantee of regular updates, but they are provided as made available.

Software Repositories cont.

multiverse

- Contains software that is "not free."
- You must determine if you meet licensing requirements.
- Unsupported and updates/upgrades are not provided.
- Use "at your own risk."

What's the Reality?

For "simple" servers "main" and "restricted" are enough.

For servers with more complex configurations (like in this class), then "universe" is a must and "multiverse" may be needed as well.

Stability: you must pay attention to multiverse installed software.

Additional Repositories

On some occasions you may need to add third-party repositories for specific software. These may move to multiverse at some point.

Examples Include:

- **Skype**
- **PPTP**
- **IE emulators** (your author uses for testing)

Additional Repositories

Backports

- See http://www.backports.org/
- Be careful with these. Newer software that is "backported" to run on older versions of Ubuntu (or Debian...).
- Can cause problems if you wish to do a distribution upgrade.

Repository Philosophy

Ubuntu 7x vs. Debian

- Fundamental change in philosophy:
  - Firefox, Thunderbird, OpenOffice, kernel, proprietary binary drivers, etc...
  - Ubuntu repository vs. Debian for Firefox
    - main vs. "iceweasel" now in stable
      `http://web.glandium.org/blog/?p=97`
  - Ubuntu licensing issues

Specifying Repositories

/etc/apt/sources.list

- We'll hand edit this file. If you use a GUI, then Synaptic can do this for you.
- This file contains a number of additional items...
- Understanding the configuration is critical to understanding your config.

/etc/apt/sources.list

Includes

- Repositories
- Location: i.e. local mirrors, cd/dvd-rom, local server (noc in classroom or country-specific server), ftp, etc.
- Security update repositories
- third-party repositories
- backports

Critical Reads

man apt-get

man sources.list

Some people like aptitude. That's fine, but watch out for dependency issues!

Meta Packages

- **Annoying to new users**
- **Provide all packages for subsystems**
- **Initial documentation**
  `https://help.ubuntu.com/community/MetaPackages`

Examples include:

- build-essential (`libc, g++, gcc, make`)
- ubuntu-desktop (xorg, gnome)
- xserver-xorg-video-intel

There's more...

But, hopefully enough to get us started...

Some Resources

- www.ubuntu.com
- ubuntuforums.org
- www.debian.org
- ubuntuguide.org
- http://en.wikipedia.org/wiki/Debian
- http://en.wikipedia.org/wiki/Ubuntu_(Linux_distribution)

GIYF (Google Is Your Friend)

Packages & Exercises

We'll reinforce some of these concepts using exercises and by installing Ubuntu...