

Ubuntu Linux Server

Structure and Config



intERLab at AIT

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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

Debian

Release Name	Version	Release Name	Version
Warty Warthog	4.1	buzz	1.1
Hoary Hedgehog	5.04	rex	1.2
Breezy Badger	5.10	bo	1.3
Dapper Drake*	6.06	hamm	2.0
Edgy Eft	6.10	slink	2.1
Feisty Fawn	7.04	potato	2.2
Gutsy Gibbon	7.10	woody	3.0
Hardy Heron**	8.04	sarge	3.1
		etch	4.0
		lenny	tba

*6.06 is "LTS"

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

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

1. main
2. restricted
3. universe
4. multiverse

Debian

1. stable
2. testing
3. unstable

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_\(Linux_distribution\)](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...