Ubuntu Linux Server
Structure and Config

SANOG 10 Workshop
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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 instance 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

<table>
<thead>
<tr>
<th>Release Name</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warty Warthog</td>
<td>4.1</td>
</tr>
<tr>
<td>Hoary Hedgehog</td>
<td>5.04</td>
</tr>
<tr>
<td>Breezy Badger</td>
<td>5.10</td>
</tr>
<tr>
<td>Dapper Drake</td>
<td>6.06</td>
</tr>
<tr>
<td>Edgy Eft</td>
<td>6.10</td>
</tr>
<tr>
<td>Feisty Fawn</td>
<td>7.04</td>
</tr>
<tr>
<td>Gutsy Gibbon</td>
<td>7.10</td>
</tr>
</tbody>
</table>

6.06 is "LTS"  
7.10 is planned (7/10)

## Debian

<table>
<thead>
<tr>
<th>Release Name</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>buzz</td>
<td>1.1</td>
</tr>
<tr>
<td>rex</td>
<td>1.2</td>
</tr>
<tr>
<td>bo</td>
<td>1.3</td>
</tr>
<tr>
<td>hamm</td>
<td>2.0</td>
</tr>
<tr>
<td>slink</td>
<td>2.1</td>
</tr>
<tr>
<td>potato</td>
<td>2.2</td>
</tr>
<tr>
<td>woody</td>
<td>3.0</td>
</tr>
<tr>
<td>sarge</td>
<td>3.1</td>
</tr>
<tr>
<td>etch</td>
<td>4.0</td>
</tr>
<tr>
<td>lenny</td>
<td>tba</td>
</tr>
</tbody>
</table>
The World of Ubuntu

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

Server
- “Feisty Fawn” 7.04 (18 month support)
- “Dapper Drake“ 6.06 LTS (5 years support)
- “Edgy Eft” 6.10 (18 month support)

Desktop
- Current are 6.10 and 7.04.

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?
  – 32,000+ packages
  – To get “apt-get install build-essential”

• Upstart (coming)
  – replaces /sbin/init
  – no inittab
  – see upstart.ubuntu.com for details
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.

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), 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

*GIYF (Google Is Your Friend)*
Packages & Exercises

We'll reinforce some of these concepts using exercises...