Ubuntu Linux Server

Structure and Config

intERLab at AIT
Network Management Workshop
March 11 – Bangkok, Thailand
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 :-)
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>
<tr>
<td>Hardy Heron**</td>
<td>8.04</td>
</tr>
</tbody>
</table>

*6.06 is “LTS”  
**8.04 is “LTS”, Planned for April 2008

## 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>

nsrc@intERLab 2008
Bangkok, Thailand
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:

<table>
<thead>
<tr>
<th>Ubuntu</th>
<th>Debian</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. main</td>
<td>1. stable</td>
</tr>
<tr>
<td>2. restricted</td>
<td>2. testing</td>
</tr>
<tr>
<td>3. universe</td>
<td>3. unstable</td>
</tr>
<tr>
<td>4. multiverse</td>
<td></td>
</tr>
</tbody>
</table>
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

GIYF (Google Is Your Friend)
Packages & Exercises

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