How we have Ubuntu kernels
How we have Linux kernel

- Preemptible
- Linux for PowerPC
- Netfilter
- IPv4/IPv6
- BTRFS Filesystem
- Mainline Kernel

- Suspend to RAM
- USB UHCI
- ACPI
- PCI
- SELINUX
Linux Development Cycle

- Official release every 3-4 months
  2010-02-24 10:52:17 -0800 Linux 2.6.33
  2009-12-02 19:51:21 -0800 Linux 2.6.32
  2009-09-09 15:13:59 -0700 Linux 2.6.31
  2009-06-09 20:05:27 -0700 Linux 2.6.30

- First two RC for new feature

- Other RC for fixing issues
  2010-02-24 10:52:17 -0800 Linux 2.6.33
  2010-02-12 11:07:45 -0800 Linux 2.6.33-rc8
  2010-02-06 14:17:12 -0800 Linux 2.6.33-rc7
  2010-01-29 13:57:50 -0800 Linux 2.6.33-rc6
  2010-01-21 15:31:35 -0800 Linux 2.6.33-rc5
  2010-01-12 21:15:00 -0800 Linux 2.6.33-rc4
  2010-01-05 16:02:46 -0800 Linux 2.6.33-rc3
  2009-12-24 13:09:41 -0800 Linux 2.6.33-rc2
  2009-12-17 17:14:40 -0800 Linux 2.6.33-rc1
Release Cycle - Ubuntu

- Release every 6 months
  - Maverick Meerkat 10.10 from Oct 2010 to April 2012
  - Lucid Lynx 10.04 LTS from April 2010 to April 2013/2015
  - Karmic Koala 9.10 from Oct 2009 to April 2011

- LTS (Long Term Support) released every 2 yrs
- Non-LTS release maintained 18 months
- LTS maintained 3y (Desktop) 5y (Server)
Before Each Cycle

- Maintainer of each release
  - He/She is the king/queen for release
  - Sort out action items
  - Make sure we reach the goal
- Select a target version
- List deltas, configs and issues for UDS
Ubuntu Developer Summit

- Back-to-back meetings
- Schedules at http://summit.ubuntu.com
- Audio broadcast
- Make agreements about what's in next release
  - Ex: Backport LTS+1 kernel to LTS
  - Ex: Budget time for kernel booting < 2secs
- Work items on whiteboard
Status:
Review of the kernel configuration for Maverick. This will concentrate on confirming the policy for various option type, as well as new options. For major new options, discussion and confirmation of the selection of each.

Work items for maverick-alpha-1:
[amitk] add omap-mainline flavour to master branch: DONE

Work items for maverick-alpha-2:
[chasedouglas] investigate if we should enable CONFIG_KSYM_TRACER: DONE

Work Items ubuntu-10.10-beta:
[leannogasawara] Fix up configs based on UDS review: DONE
[leannogasawara] Final kernel content and configuration report to ubuntu-devel: INPROGRESS
[leannogasawara] Check if studio is using preempt (see spec for more info): DONE
[apw] Investigate if we can enable perf for arm: DONE
[apw] Investigate whether we even can make a 64 bit kernel for 32bit: TODO
[apw] Investigate updating to debian 3.0: TODO
[manjo] investigate memory stick options and produce proposal: TODO

https://blueprints.launchpad.net/ubuntu/maverick
Burn down chart

- https://wiki.ubuntu.com/ReleaseTeam/FeatureStatus
Rebase

Linux 2.6.34

Linux 2.6.34 + Ubuntu deltas
(Before rebase)

Linux 2.6.35

Linux 2.6.35 + Ubuntu deltas
(After rebase)
Bugs

- How many bugs of Ubuntu kernel?
  - https://bugs.launchpad.net/ubuntu/+source/linux
Bugs

http://qa.ubuntu.com/reports/jfo/kernel-Top50.html

Ubuntu Kernel Top 50 Bug List - Aug 11 2010 5:06 UTC

Summary of Bugs

<table>
<thead>
<tr>
<th>Invalid</th>
<th>Won't Fix</th>
<th>Fix Released</th>
<th>Fix Committed</th>
<th>In Progress</th>
<th>Triaged</th>
<th>Confirmed</th>
<th>Incomplete</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>24</td>
<td>5</td>
<td>13</td>
<td>4</td>
</tr>
</tbody>
</table>

57 Open Bugs

<table>
<thead>
<tr>
<th>Bug</th>
<th>Importance</th>
<th>Status</th>
<th>Milestone</th>
<th>Nomination</th>
<th>Summary</th>
<th>Assignee</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>578673</td>
<td>Critical</td>
<td>Fix Committed</td>
<td></td>
<td></td>
<td>[arrandale] Resume doesn't work on a Latitude E6410</td>
<td>manjo</td>
<td></td>
</tr>
<tr>
<td>545096</td>
<td>High</td>
<td>Triaged</td>
<td>Lucid</td>
<td></td>
<td>[lucid][R500 X1400] intermittent screen corruption (pink world ) - regression from 20 to -21 kernel</td>
<td>apw</td>
<td>regression-potential</td>
</tr>
<tr>
<td>555943</td>
<td>High</td>
<td>Triaged</td>
<td></td>
<td></td>
<td>[lucid] [M92 LP] blank screen on Mobility Radeon HD 4300 with KMS enabled</td>
<td>manjo</td>
<td></td>
</tr>
<tr>
<td>556253</td>
<td>High</td>
<td>Triaged</td>
<td></td>
<td></td>
<td>[2.6.32-19 regression] Does not check lid status any more, external screen powered off</td>
<td>canonical-kernel-team</td>
<td>regression-potential</td>
</tr>
<tr>
<td>556856</td>
<td>High</td>
<td>Triaged</td>
<td>Lucid</td>
<td></td>
<td>[lucid] [nouveau] blank screen on Dell Precision M4500 [10de:0cbb]</td>
<td>raof</td>
<td></td>
</tr>
<tr>
<td>558857</td>
<td>High</td>
<td>Triaged</td>
<td>lucid-updates</td>
<td>Lucid</td>
<td>mouse usage causes Xorg CPU usage to spike, and mouse pointer becomes less responsive</td>
<td>canonical-kernel-team</td>
<td></td>
</tr>
<tr>
<td>563156</td>
<td>High</td>
<td>Triaged</td>
<td></td>
<td></td>
<td>[ATI Graphics][Lucid] laptop runs hot, shorter battery life, fan always on</td>
<td>canonical-kernel-team</td>
<td>regression-potential</td>
</tr>
<tr>
<td>566379</td>
<td>High</td>
<td>Triaged</td>
<td>Lucid</td>
<td></td>
<td>[i855] X doesn't start with kernel 2.6.32-21 unless passing :915 modeset=1</td>
<td>manjo</td>
<td></td>
</tr>
<tr>
<td>578909</td>
<td>High</td>
<td>Triaged</td>
<td></td>
<td></td>
<td>acer_wmi blocks wlan rdkill status to disabled on Acer Aspire 4620TG</td>
<td>manjo</td>
<td></td>
</tr>
<tr>
<td>579585</td>
<td>High</td>
<td>Triaged</td>
<td></td>
<td></td>
<td>btrfs security issues (information disclosure, insufficient permission checking)</td>
<td>stefan-bader-canonical</td>
<td></td>
</tr>
<tr>
<td>245779</td>
<td>High</td>
<td>Triaged</td>
<td>Hardy</td>
<td></td>
<td>Server 8.04 LTS: soft lockup - CPU#1 stuck for 11s! [bond1:3795] - bond - bond0</td>
<td>stefan-bader-canonical</td>
<td></td>
</tr>
</tbody>
</table>
**Bugs**

- **Kernel Oops**

<table>
<thead>
<tr>
<th>#</th>
<th>Summary</th>
<th>Importance</th>
<th>Status</th>
<th>Heat</th>
</tr>
</thead>
<tbody>
<tr>
<td>228746</td>
<td>USB stops working after a while</td>
<td>High</td>
<td>Incomplete</td>
<td></td>
</tr>
<tr>
<td>302522</td>
<td>ubuntu 8.10 crashes after about 5 minutes</td>
<td>High</td>
<td>Incomplete</td>
<td></td>
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<tr>
<td>383124</td>
<td>WARNING: at /build/buildid/linux-2.6.30/drivers/net/wireless/iwlwifi/iwl-tx.c:1127 iwltx_cmd_complete 0x133/0x140 iwlcore</td>
<td>High</td>
<td>Triaged</td>
<td></td>
</tr>
<tr>
<td>495322</td>
<td>Kernel Oops - unable to handle kernel paging request at ff0e0300 ; EIP is at __ticket_spin_lock+0x8/0x20</td>
<td>High</td>
<td>Triaged</td>
<td></td>
</tr>
<tr>
<td>535315</td>
<td>WARNING: at /build/buildid/linux-2.6.32/net/sched/sch_generic.c:261 dev_watchdog+0x262/0x270()</td>
<td>High</td>
<td>Confirmed</td>
<td></td>
</tr>
</tbody>
</table>

- **Regressions - It worked before...**

Lucid beta 1 fails to boot on my Apple iMac 27" (Core i5 model).

I am happily running Karmic (had to download backport Alsa to get sound working), but Lucid beta 1 fails to boot. You initially see the new purple Ubuntu loader, then it goes black - CD continues to whirl and after it sounds like it is loading in the background it resets and restarts.

Suspect problem with video - I can get it to boot if I select option F6 and "selectnomodes" (I think thats what it was called) - it boots fine (I am running it now).

Question: Would this stop me upgrading from Karmic?
Maintain

- Stable release update
  - https://wiki.ubuntu.com/StableReleaseUpdates
  - Almost no new feature
    - It is RELEASED!!!
  - Changes as small as possible
    - Prevent risk of regressions
  - High impact bugs
    - CVE, loss of user data.. etc.
<table>
<thead>
<tr>
<th>CVE</th>
<th>Dapper</th>
<th>Hardy</th>
<th>Jaunty</th>
<th>Karmic</th>
<th>Lucid</th>
<th>Maverick</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVE-2008-7256</td>
<td>pending</td>
<td>pending</td>
<td>not-affected</td>
<td>not-affected</td>
<td>not-affected</td>
<td>not-affected</td>
</tr>
<tr>
<td>CVE-2010-0419</td>
<td>not-affected</td>
<td>not-affected</td>
<td>released</td>
<td>released</td>
<td>needs-triage</td>
<td>needs-triage</td>
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<tr>
<td>CVE-2010-1173</td>
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<td>pending</td>
<td>pending</td>
<td>pending</td>
<td>pending</td>
<td>not-affected</td>
</tr>
<tr>
<td>CVE-2010-1436</td>
<td>not-affected</td>
<td>pending</td>
<td>pending</td>
<td>pending</td>
<td>pending</td>
<td>released</td>
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<tr>
<td>CVE-2010-1437</td>
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<td>pending</td>
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<td>not-affected</td>
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<tr>
<td>CVE-2010-1451</td>
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<td>pending</td>
<td>released</td>
<td>not-affected</td>
</tr>
<tr>
<td>CVE-2010-1636</td>
<td>not-affected</td>
<td>not-affected</td>
<td>not-affected</td>
<td>pending</td>
<td>released</td>
<td>released</td>
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<tr>
<td>CVE-2010-1641</td>
<td>not-affected</td>
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<tr>
<td>CVE-2010-1643</td>
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<td>not-affected</td>
<td>not-affected</td>
<td>not-affected</td>
<td>not-affected</td>
</tr>
<tr>
<td>CVE-2010-2071</td>
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<td>not-affected</td>
<td>not-affected</td>
<td>pending</td>
<td>pending</td>
<td>not-affected</td>
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<tr>
<td>CVE-2010-2492</td>
<td>not-affected</td>
<td>pending</td>
<td>pending</td>
<td>pending</td>
<td>pending</td>
<td>needed</td>
</tr>
</tbody>
</table>

Stable trees

[Karmic] Update to 2.6.31.8 Stable Kernel

This bug affects 1 person. Does this bug affect you?

<table>
<thead>
<tr>
<th>Affects</th>
<th>Status</th>
<th>Importance</th>
<th>Assigned to</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>linux (Ubuntu)</td>
<td>Invalid</td>
<td>Undecided</td>
<td>Unassigned</td>
<td>Target to milestone</td>
</tr>
<tr>
<td>Karmic</td>
<td>Fix Released</td>
<td>Medium</td>
<td>Leann Ogasawara</td>
<td>Target to milestone</td>
</tr>
</tbody>
</table>

Also affects project Also affects distribution Nominate for release

Bug Description

SRU Justification/Impact: The upstream process for stable tree updates is quite similar in scope to the Ubuntu SRU process, e.g., each patch has to demonstrably fix a bug, and each patch is vetted by upstream by originating either directly from Linus' tree or in a minimally backported form of that patch. The 2.6.31.8 upstream stable patch set is now available. It should be included in the Ubuntu kernel as well.

TEST CASE: TBD

http://kernel.org/pub/linux/kernel/v2.6/ChangeLog-2.6.31.8

http://kernel.org/pub/linux/kernel/v2.6/patch-2.6.31.8.bz2

The 2.6.31.8 Upstream Stable Kernel brings in the following 91 patches:

* ext4: Fix memory leak fix when mounting an ext4 filesystem
* ext4: Avoid null pointer dereference when decoding EROFS w/o a journal
* jbd2: Fail to load a journal if it is too short
* jbd2: round commit timer up to avoid uncommitted transaction
* ext4: fix journal ref count in move_extent_free_page
* ext4: Fix bugs in mballo's stream allocation mode
* ext4: Avoid group preallocation for closed files
* jbd2: Annotate transaction start also for jbd2_journal_restart()
* ext4: Fix possible deadlock between ext4_truncate() and ext4_get_blocks()
What is upstream?
  - Linus's Linux

Why upstream?
  - Benefit every Linux user
  - Reduce the effort of maintaining

When upstream?
  - Everyday – especially after delta review

What happened after upstream?
  - Remove from Ubuntu delta
Where to find us

- Wiki
  - https://wiki.ubuntu.com/Kernel
- IRC
  - #ubuntu-kernel @ irc.freenode.net
- Mailing list
  - kernel-team@lists.ubuntu.com
  - https://lists.ubuntu.com/mailman/listinfo/kernel-team
Ubuntu Hardware Summit

What is UHS?
- Topics include how Canonical works with ODMs, Cloud proposition, boot time, hardware enablement, debugging, multitouch, networking...

Who will attend
- Various members of Canonical, and You.
- Sep-24th from 9am at Victoria Grand Hotel
- http://www.ubuntu.com/uhs2010
Q and A