An interview with the Ubuntu Kernel Manager

JUGGLING JACKALOPES

One day before the official release of Ubuntu's "Jaunty Jackalope," Ubuntu User magazine interviewed Ubuntu's Kernel Manager, Pete Graner. Pete explains how a kernel grows into a Jaunty Jackalope and looks toward the next release of Ubuntu. **BY JOE CASAD**

Figure 1: Pete Graner (Ubuntu Kernel Manager), Mark Shuttleworth (Ubuntu Founder), and Jono Bacon (Ubuntu Community Manager) celebrating at the April 23rd Jaunty Release Party in London.

What does a busy, globe-trotting Ubuntu Kernel Manager do one day before Jaunty Jackalope hops out onto the world stage as the latest Ubuntu release? He tells *Ubuntu User* how the kernel team works, how the community contributes, and what the future looks like for the user-friendly Ubuntu.

Q How long have you been with the Ubuntu team, and how did you get involved with Ubuntu? What is your background?

A I've been with Ubuntu just about a year. This was my second Ubuntu release. Prior to that, I worked at Red Hat in various capacities, which include on-site SELinux Engineer at the National Security Agency (NSA) – I managed the Level 3 Support team – and my last position was the Base Operating System Engineering Manger for Red Hat Enterprise Linux, and by extension, Fedora. I started using and developing in Linux while I was in the US Army as part of a Rapid Prototyping Project in about 1994. At the time, everything was Sun OS-based and we needed a lightweight, portable computer that could be used in flight, then jumped via parachute into the target area. The contractor selected Linux (Slackware) and i386 notebooks.

Q I get email from Ubuntu developers all over the world. How does development work? And I know a lot of volunteers are excited about Ubuntu. When it comes to kernel development, do you work directly with beta testers in the community?

A For the most part, we are one virtual team. The team is made up of two halves: Canonical engineers and community volunteers.

About 95 percent of the Canonical engineers are remote employees – that is, we all work from home. Canonical has a few offices – London, Boston, and Taipei – but for the most part, we don't work in the offices. We work via Public IRC channels and mailing lists, and of course phone calls when needed.

The kernel team is broken down into 14 members, including myself. We are broken down into three focus areas. Stable Maintenance is responsible for our fielded supported releases, which include doing security updates and bug fixes. New Distro Development is stabilizing the kernel for the next development release, identifying and patching regressions from the previous releases, and distribution feature integration. Hardware Enablement is where we work with our partners, like Dell and HP, to make sure Ubuntu works with selected hardware models.

Ubuntu has a large community and during a development cycle we have public releases, so we don't really "Beta" test in the traditional sense. We begin testing at our very first development release – called Alpha 1 – through our Beta release and into the Release Candidate (RC).

We are always testing. The time between the releases is two weeks, so our users/testers are always getting new software through a rolling stream of fixes.

Q So Ubuntu is Linux. People are generally aware that you get your code from the venerable Linux community project known as Debian. Does the kernel come from Debian? Or do you work directly with the Linux kernel project?

A The kernel does not come from Debian due to the need to select a kernel version that will provide Ubuntu with the features it needs.

We have many cases where we will need a newer kernel due to our hardware enablement goals or particular fea-

tures that can't easily be back-ported to an older kernel.

At the Ubuntu Developer Summit (UDS), we make the decision on what kernel version we will use based on the feedback we receive from the other development teams. So, for example, at the Jaunty UDS we decided on 2.6.28. At that point, we import the kernel from the upstream Linux kernel and we begin to track the development there. This allows us to provide the current upstream development testing and, in the best case, bug fixes.

Q Do you start with specific goals for each release? If so, where do the goals come from? Do you all sit down together and talk about a vision?

A Before each release we hold a meeting where we get all the Canonical engineers, community developers, and interested parties together and discuss what the needs are. This is called UDS (Ubuntu Developers Summit). The sessions at UDS are normally at the individual development team level, except when you have things that cross subsystems in Ubuntu. The goals and features with working plans come out of this meeting. This year's UDS is being held in Barcelona, Spain, during the week of May 25-29.

Q How does the process work? Can you walk us through the time line of an average release cycle?

A We develop to a 6-month-time-based release, with a release every April and October. Once we start active development, we have Alpha, Beta, and RC releases every two weeks. So it would look like: (Alpha) Release Candidate 1 (RC1), UDS, then RC2, RC3, RC4, RC5, RC6, Beta, RC, Final Release.

This of course means we have numerous milestones we have to meet in the cycle. You can view the 9.10 Karmic Koala schedule online (*https://wiki. ubuntu.com/KarmicReleaseSchedule*).

Q Ubuntu has a reputation for focusing on the end user – making Linux seamless and accessible to the beginner. How do you solicit feedback from users? And how to you integrate that feedback into the kernel?

A Most end users should never even know the kernel is there. We try to pick the right kernel configs and driver defaults so that the user's experience is a good one.

We receive feedback all the time about what hardware does or does not work and where we can find drivers if they exist for new hardware, so I would say feedback isn't an issue. We try to provide the best hardware support possible. The feedback is discussed on our public mailing list and, depending on what it is, we may implement it in the next kernel update or it might get deferred to UDS, where we need a broader discussion.

Q I know there is a vision to bring Ubuntu into the server and corporate environment. Can you talk a little about recent work on that path?

A I would have to say Ubuntu Server has moved out of the vision phase. Also, I'd like to caveat this by saying I'm not tied deeply into the server team plans. With that said, Ubuntu Server is a very solid product, deployed in numerous environments today.

As far as recent work, much of the focus has been on making the default server applications come out of the box with sane defaults for the average use case.

Q What's up ahead? Are you already working on the next release? Can you give us a hint about what the emphasis will be?

A We've been working hard on reducing the amount of non-upstream code that we ship and have been investing time and energy into making upstream vanilla kernel builds available for interested users. We have opened the 2.6.30 kernel tree and are doing the usual patch scrub and trying to eliminate as many out-of-tree patches as possible. And smoke testing. We won't really start development in earnest until after the kernel version is selected at UDS. Until then, it's all prep work and things that are kernel-version independent.

For 9.10, we have a large number of items on the plate. We will be looking at the 2.6.30 or .31 kernel. Some of the items for discussion at UDS will be moving off of grub to grub2 for boot loading, improving power management, improving Suspend/Resume/Hibernate, encrypted swapfiles, improving WiFi and 3G support, and much, much more. ∎

INFO
[1] Ubuntu development: *https://wiki. ubuntu.com/UbuntuDevelopment*
[2] Ubuntu testing: *https://wiki.ubuntu.com/Testing*