Ubuntu and GNOME 3 – from unity to divergence

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GNU/Linux is very different from most Operating Systems out there. This difference starts at the conceptual level where most common systems are a whole (a unique combination of drivers, kernel and graphical interface), GNU/Linux is modular by design and therefore often compared to Lego building blocks. Because of this, there is no "Linux Desktop", as the graphical interface (or Desktop) is just an optional and replaceable component.

Over the years, two major desktop systems have clearly taken the lead and are now used by the majority of GNU/Linux users: KDE and GNOME.

When *Mark Shuttleworth* started the Ubuntu distribution in 2004, it standardized on the GNOME desktop as its interface and that choice is now defining the experience users have with Ubuntu.

In this article, we're going to look a bit more into the GNOME desktop, the recent release of the long awaited GNOME 3 and how this affects Ubuntu (and the other way around). Ubuntu 11.10 will be the first version based on the new GNOME 3 technology that will form the basis for the next LTS (Long Term Support) release.

A bit of history

During the early years, when GNU/Linux was just unleashed on the world, its graphical interface was quite rudimentary compared to Windows or Mac OS. In fact, it consisted of some Window managers with an assortment of loosely knit tools that made up the first GUIs (Graphical User Interface) like Xfwm, gnustep or early versions of Enlightenment.

In the late 90's, the KDE desktop appeared and the first distributions to adopt it (like SUSE Linux) took a great leap in making Linux a viable option for common desktop usage. KDE did more than just draw Windows and launch applications, it provided an integrated set of tools to interact with your PC, ranging from a launcher and filemanager to a built-in browser and E-mail client. All these tools looked and behaved alike, which was a break with the past.

Figure 1. *KDE 1.0 from wikipedia*

KDE had one big problem though, the graphical toolkit used to build it in, QT, was not Free Software (something that was only corrected many years later).

In a reaction, the GNOME (GNU Object Model Environment) was started to provide a Free (as in software freedom) alternative to KDE. In 1999 GNOME 1.0 launched but it was hindered by many technical problems and known for its instability.

In 2002, GNOME matured into the GNOME 2 desktop that started to look and feel like the desktop we know today (featuring the two-panel layout). GNOME 2 was a break with the past and focused on providing consistency and usability, adopting strict Human Interface Guidelines (HIG) that were inspired by those from Apple.

GNOME 2 became the dominant desktop, overtaking KDE in user base. It followed an evolutionary development path where the basic interaction with the user was unchanged in over a decade.

But as new research into use interfaces came out, combined with the possibilities new hardware offers, the time came for the GNOME project to redesign the way that users interact with their computers. This redesign is more a revolution than the evolution that we had in the decade before. So after years of development, GNOME 3 became a reality.

What's new in GNOME 3

GNOME 3 is a combination of many changes. First there's the shift to a new version of the graphical library that forms the bases for GNOME applications, GTK. This new version brings a new look and feel to applications built on it and takes better advantage of the features of modern graphic cards.

GNOME 3 is also shifting towards a concept called the "semantic desktop". This means that your desktop is built around your data instead of your applications and that data is shared between applications (for example your address book could be linked to your

mail client, but also to your chat client).

But the most visible change of them all is the concept that the user interacts with the computer using a desktop shell. In GNOME 3, the default is GNOME Shell. GNOME Shell encompasses much functionality that used to be distributed over many small subsystems like launching applications, managing virtual desktops and a wide variety of applets. It even integrates an instant messenger (Empathy) right into the shell.

The workflow in GNOME Shell is therefore very different from earlier versions and other desktop environments. So it requires some adjustments for both Linux users as those converting from MS Windows for example.

Ubuntu's relationship with GNOME

Ubuntu started out as one of the flagship GNOME distributions out there. But over the years, the relationship between both projects has been very mixed and controversial to say the least.

Ubuntu maintains a very distinct vision on how the Linux desktop should look and behave and over the years, that vision has led it to diverge slowly from the standard

GNOME desktop to something that is still founded on GNOME but looks and feels very different from the project's default. There are many signs that this gap will continue to widen over time as Ubuntu is pushing more of its vision onto its very large user base (Ubuntu has biggest share of desktop Linux users).

Despite the growing gap between the projects, major changes in the GNOME desktop have a big impact on the look and feel of Ubuntu and that will be very visible in the recently released Ubuntu 11.10 as well as the upcoming LTS release in April.

Project Ayatana, Ubuntu's focus on usability

Ubuntu and Mr *Shuttleworth* personally have set out with a very clear goal in mind. To make the Linux Desktop look and work better than the competition and they are mainly competing with GUI pioneer Apple and its Mac OS X.

Initially, Ubuntu just added some polish and packet selections to the default GNOME project. But after a couple of years, it started implementing alternatives or changes to default GNOME components.

One of the first very visible changes was the redesigned notification system that completely

Figure 2. *GNOME Shell in action (picture from gnome.org)*

replaced GNOME's default. As the list of customizations grew bigger, Ubuntu grouped all these initiatives under the Ayatana umbrella. Recently, the Ayatana project has been renamed to Unity, the name of Ubuntu's own desktop shell.

Notifications

It all started when Ubuntu made the controversial decision to implement it's own notification system that worked quite different from the stock GNOME notifications.

The Ubuntu user interface-team came up with a concept of how all notifications should look and work on Ubuntu. This did not fit with the stock system where some notification bubbles are transient (disappear automatically), and some have actions on it requiring user intervention. Ubuntu made the bold decision that all notifications would be transient and that actions required a popup or other indication to draw the users attention. There system was inspired by the very popular growl addon for OS X.

Application & system indicators

The next component to get attention from the Ubuntu developers where the indicator icons in the notification area (or system tray), located in the right hand corner, next to the clock.

Again, the design team took issue with the plethora of icons in the tray as well as the inconsistent use of left and right click to access cer-

tain features. And so the concept of application and system indicators came into existence.

System indicators give access to features, regardless of the application or applications behind them like sound and messaging. The most prominent example is the message indicator that will light up when you receive an E-mail, IM, Dent, Tweet or any other notification that plugs in to it.

Application indicators relate to a single application, but have consistent behavior. The little CD icon that the Brasero disc burner uses is one such example.

The main thing that all of these have in common is that they show the same context menu when clicked, regardless of the right or left button.

Unity

Even before GNOME 3 was completed, Ubuntu already announced and released versions of its distribution that where based on Unity (and GNOME 2 initially).

Unity is a desktop shell that replaces GNOME Shell. Unity is the biggest move away from "stock" GNOME and it gives Ubuntu it's unique look and feel.

The Unity desktop is composed of a panel on top that holds both the traditional indicators and doubles as a global menu bar.

The global menu is a concept that is more familiar to Mac users where the menus of an application are not displayed in the application

window, but rather in a fixed location (the top bar).

Unity has a combination launcher and taskbar called the dash that uses icons to the left of the screen, citing the common use of widescreen monitors as a reason to preserve vertical screen real-estate.

Unity uses the GPU (Graphical Processing Unit) on modern-day graphics cards to speed up the interface and to provide advanced features like transparency without affecting system performance. In fact, Unity was designed as a plugin to the 3D accelerated Compiz window manager that introduced smooth graphic effects on Linux. GNOME itself decided not to use Compiz, instead it wrote it's own compositing window manager (called mutter).

The future

Looking into the future is always difficult. But if you take a look at history in technology, changes have always been opposed for periods of time, but happened none the less.
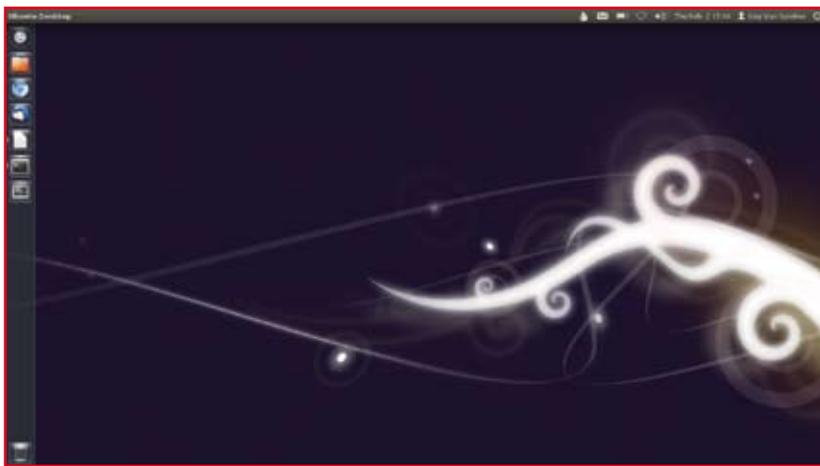
The question is not if the new desktop paradigms will stay, the question is rather which will become the dominant system. Ubuntu is taking very ambitious steps with these radical changes, but their success will only be measured by the number of users that stick with them after they had time to adapt.

Only time will tell if people get used to Unity or force Ubuntu into adopting GNOME Shell or move to KDE instead.

It's certain however that these new concepts are still young and they will evolve significantly, pushing each other in new directions and I think that is what Free Software is all about: choice and progress. ■

Figure 3. *Ubuntu Unity with the dash on the left and indicators on the top right*

References

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- Wikipedia on GNOME: *http://en.wikipedia.org/wiki/GNOME*
- Project Ayatana: *https://wiki.ubuntu.com/Ayatana*
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