

Maemo Open Source contributions

Eero Tamminen, 28.4.2009

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Introduction

Eero Tamminen:

- With Maemo from the beginning: involved with Scratchbox creation (2003-), GUI requirements, performance & reliability analysis.
- Currently looking after tools in System Performance team and active on Maemo devel list & bugzilla.
- Linux user and Linux Weekly News (lwn.net) reader since 1996, open source user few years before that, on/off Python user since Python v1.3.
- Involved with several (low profile) Open Source projects as a hobby.

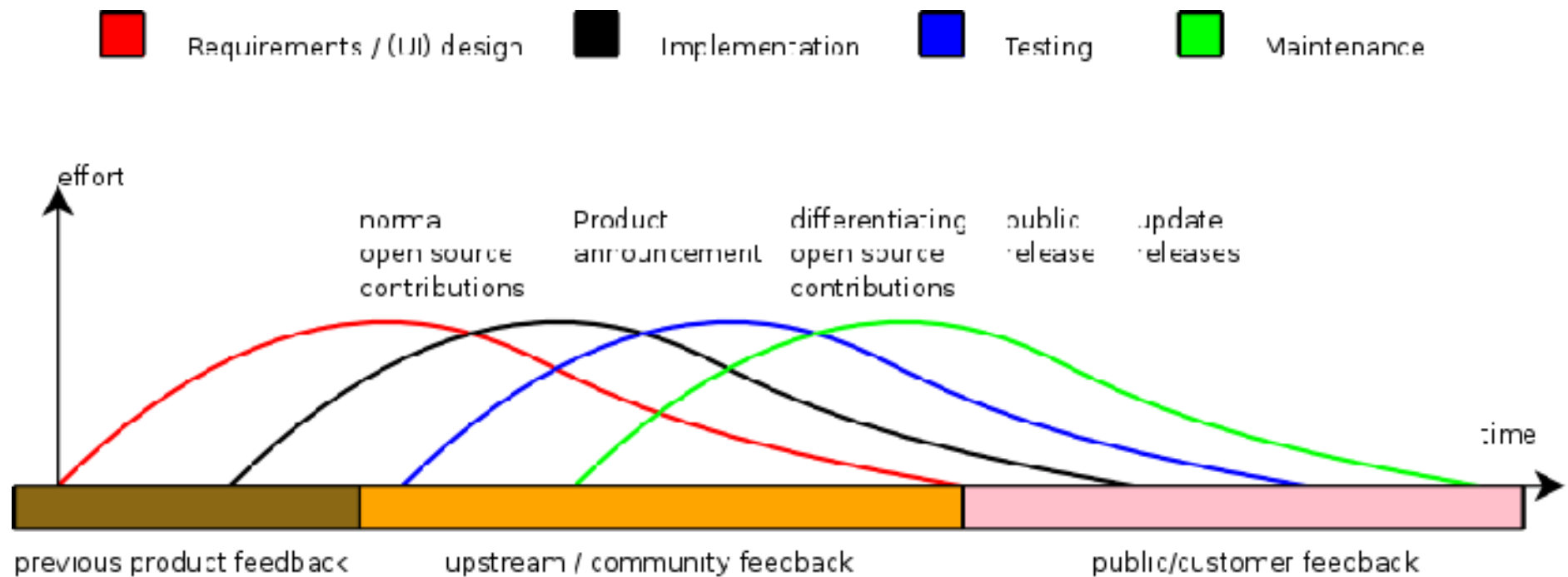
System Performance team:

- Looks after devices performance, resource usage and reliability. Some of the related tools are available from the Maemo SDK tools repository.

Challenges in product maturization

- Diverse testing and in real life conditions is important, especially when software is new. But Nokia's testing cannot cover all possible environments and setups where there can be issues.
- However, normal product end user feedback comes too late to affect much the product user is using -> user frustration.

Release cycle



Release cycle

Why open source is important

When Nokia open sources its own components or pushes changes to open source components to upstream:

- Outsiders can test the software on other platforms even before Nokia has published the product on which it runs (before SW is mature/ready enough for a product).
- Nokia gets feedback also on SW design; are changes acceptable to upstream i.e. maintainable in the long term.
- Providing prototype out early enough can result even in somebody else completing it or its features for you. This happens only if it's interesting enough for others though.

Maemo component types

- Closed (binary) ones because of brand / differentiation / legacy / IPR reasons (see links at the end).
- Open ones, either open sourced by Nokia or upstream.
 - Changes to upstream components are done with the co-operation of the upstream maintainers when possible. In some cases Nokia either subcontracts or employs directly upstream developers.
 - If Nokia product specific / differentiating features are opened, that happens after those are publicly announced.

What has been opened

- What has been open sourced or what open source projects have been sponsored by Nokia and Maemo.
- Highlights only, many of the components are being updated in all releases.

During research phase (-2004)

- Affix, a Bluetooth stack for Linux kernel.
- Threading and C++ support to uClibc C-library.
- CSiBE, a benchmark (and www-site) for tracking GCC generated code size.
- Scratchbox, a distribution cross-compilation system.
- Porting of GPE (Gtk based palmtop environment) from Gtk1 to Gtk2.
- Several Matchbox window manager features / improvements and X utilities (Xephyr, XRestop...).
- Gtk+ WebCore: <http://gtk-webcore.sourceforge.net/>
- Additional D-BUS features.

Effects

- The existing kernel Bluetooth stack adopted features from Affix.
- GCC generated code size is now tracked.
- Applications X resource usage starts to be tracked also on Linux Desktop, Xephyr helps in X development.
- Scratchbox gives some help in bootstrapping other ARM ports.
- Early help for later Gnome Webkit port.

770 releases (2005-2006)

- ARM EABI related bugfixes to different sources.
- Gstreamer improvements.
- BlueZ improvements.
- D-BUS ports of GnomeVFS and Gconf, OBEX support for GnomeVFS.
- Gtk bugfixes & improvements.
- Sponsoring Minimo (Mini Mozilla).
- Hildon UI libraries and base applications, Sapwood themeing engine.

Effects

- Nokia MID device strengthens the lagging belief on web tablets.
- With the HW advances Gtk2 (and Mozilla) becoming more feasible on embedded/mobile devices.
- OLPC and OpenMoko select Matchbox + Gtk2 and use Xephyr in their SDKs. OLPC is a precursor to the current netbooks.
- Acceleration of D-BUS adoption on Gnome Desktop (D-BUS starting to replace ORBIT).

N8x0 releases (2007-2008)

- Kernel improvements to general OMAP support, OMAP/DSP gateway, Bluetooth, jffs2, mmc handling, power management, omapfb, USB.
- Much improved user-space Qemu threading support + bugfixes.
- Porting/improving of several architecture specific tools to ARM (oprofile, ltrace, strace etc).
- Bugfixes and Omap support for X.
- Large number of Gtk features/improvements:
<http://live.gnome.org/Maemo/GtkContributions>
- Modest, mobile mail client + tinymail library and improvements to underlying (already existing) open source mail libraries.
- More Hildon applications (Application manager, Hildon input method).
- Contributions to Telepathy.

Effects

- Gnome Mobile (April 2007)
- Qemu, kernel work and general Linux maturization work on ARM help other embedded distributions ARM ports.
- Connectivity improvements to Linux Desktop (Telepathy).
- Linux Desktop Gtk widget set got the improved feature set from Maemo (and finally passed it).
- There have appeared also some "me-too" devices which don't contribute to open source (like e.g. OLPC and OpenMoko do). This is unavoidable and to be expected as open source lowers barriers for entry.

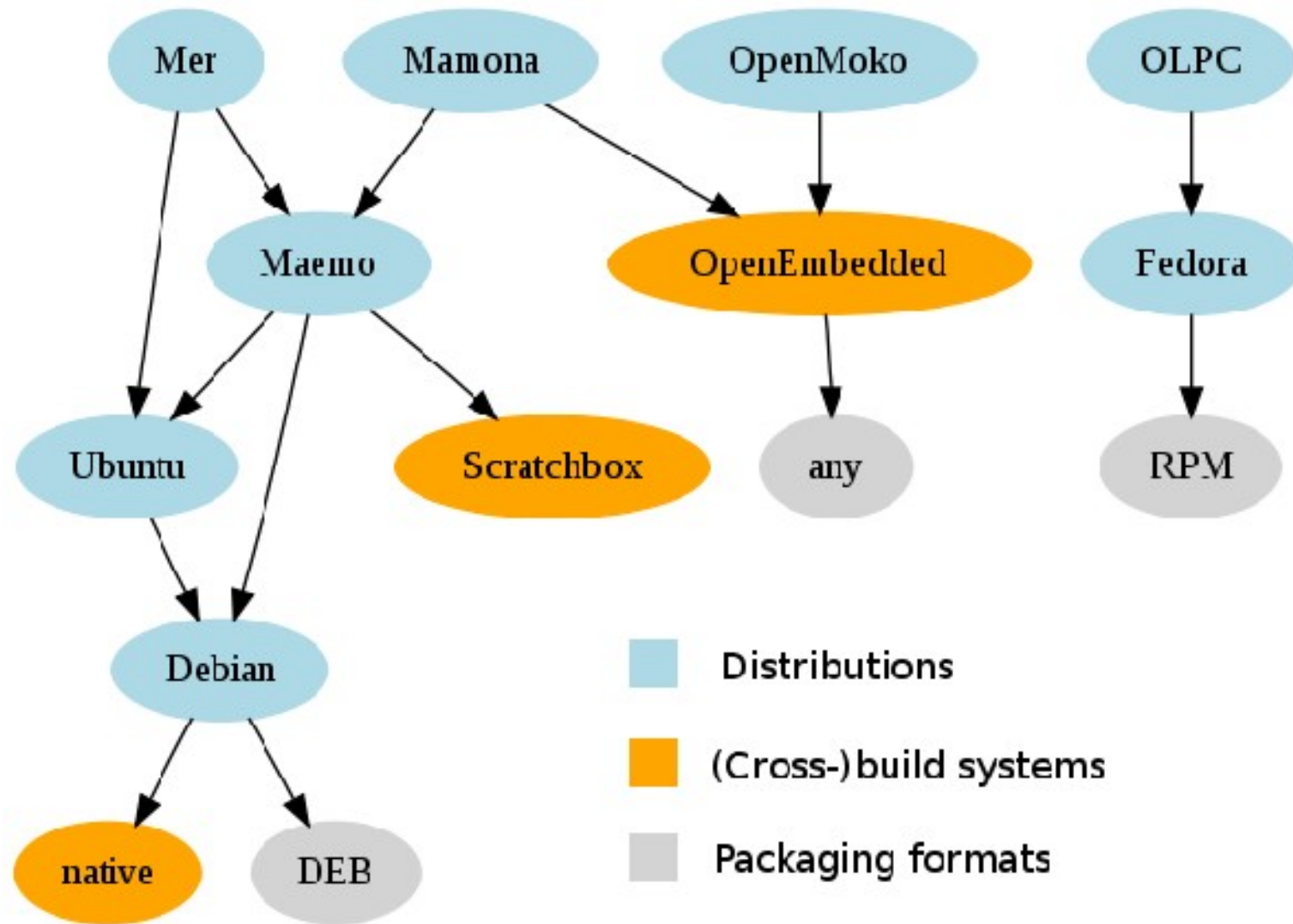
Future releases (2009-)

- Omap3 and HSPA/3G modem support to kernel.
- UBIFS, a flash file system with many improvements over JFFS2.
- Pulseaudio improvements (Bluetooth support etc).
- Major contributions to tracker, a file indexing framework.
- MAFW, media application framework, contributions to GUPnP.
- Xorg work (we use newer version than e.g. Ubuntu currently).
- Improvements to Clutter, canvas and animation library.
- Qt available as LGPL.

Effects so far

- UBIFS makes it feasible to use larger (raw) flash file systems (OLPC fixed JFFS2 to barely work up to 1GB).
- Clutter is the strongest contender for the Gnome desktop Canvas.
- License change makes Qt stronger alternative compared to Gtk for software that may later turn commercial.

Related distributions



Links

- Why (and why not) Open Source, engineer perspective:
<http://browser.garage.maemo.org/news/3/>
- Why some Maemo packages are closed:
http://wiki.maemo.org/Why_the_closed_packages
- Nokia Open Source contributions (old, but more detailed):
<http://opensource.nokia.com/contributions.html>
- Open source projects related to Maemo:
http://wiki.maemo.org/Task:Maemo_contributions
- Mer, a Maemo community distribution (= Ubuntu + latest Maemo components): <http://wiki.maemo.org/Mer>

Thank you!

Have fun!
Join the open source ride!

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