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Master Thesis

Simón Pena Placer

Free Software Master, 2009-2010. A Coruña edition
Igalia - Rey Juan Carlos University

November 12, 2010

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License

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Background

About me

- Engineer degree in Computer Science from the University of A Coruña
- *Free and Open Source Software* user since 2001
- Working as a Software Engineer using C# .NET on Windows
- Passionate about technologies

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Motivations

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Motivations

Motivations

- Formalize raw knowledge
- Learn desktop & mobile development
- Learn about licenses
- Change from a passive role to an active one

Contents

Modules

- Introduction to Libre Software
- Integration and Administration of Libre Software
- Libre Software development on Web environments
- Libre Software development on Destkop & Mobile environments
- Studies of Libre Software communities

Introduction to Libre Software

- Most important *Libre Software* actors (Richard Stallman, Eric Raymond, Linus Torvalds, Miguel de Icaza. . .)
- FLOSS-based business models (dual licensing, open core, product specialists. . .)
- Licenses: permissive vs. copyleft, most well-known ones, compatibility. . .
- Practices: Business model and WebKit report

Integration and Administration of Libre Software

- Networking
- Servers configuration and management
- Version control with git
- Security
- Bash Scripting and Perl programming

Modules

Libre Software development on Destkop & Mobile environments

- Languages: C + GObject, Python
- Tools: git, gdb, valgrind. . .
- Technologies: GStreamer, libsoup, libxml, GTK+, D-Bus. . .
- Quality: Unit testing, i18n, l10n, accessibility. . .
- Workshop-based: JaMp

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Modules

Libre Software development on Web environments

- Languages and frameworks: PHP –with templates using Smarty–, CSS, Typo3, Java, Ruby On Rails, Django, JavaScript
- Workshop-based: RiaGTD, for Java and ZK
- Practices: Blog tutorial for Ruby on Rails, *Receitas Galegas* for Django

Studies of Libre Software communities

- Sessions for Android, GNOME, KDE, Debian, OpenSolaris, Maemo, the Morfeo community. . .
- Some practical Workshops: brief introduction to Qt on KDE, Android application development, Debian packaging. . .

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FOSDEM

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FOSDEM

FOSDEM 2010

- The Free and Open source Software Developers' European Meeting
- A weekend in Brussels
- Lightning talks, stands, devrooms, Beer event, key-signing party...
- Meet some of the most important *FOSS* developers

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FOSDEM

I took the picture :)

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GUADEC-ES

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GUADEC-ES

GUADEC-ES 2010

- Hispanic version of the GNOME Users' And Developers' European Conference
- Two days in A Coruña
- Meet some of the most important *FOSS Hispanic* developers

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And that's me :)

Picture from Berto's GUADEC-ES 2010 gallery

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Objectives

- Work on the Grilo project at Igalia
- Use the tools and methods employed in Free Software projects
  - Mailing lists
  - Bugzilla
  - Wiki
  - Git
  - . . .

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Introduction

Description of the project

- Framework focused on making media discovery and browsing easy for application developers
- Provides a high-level API that abstracts the differences between different providers
- Providers are managed as plugins, such as Youtube, Jamendo, Shoutcast, Vimeo. . .
- Already a GNOME project

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Introduction

Description of the work

- Improve Grilo's binding support
    - Studying and applying the mechanisms for the automatic binding generation using GObject Introspection
    - Testing generated bindings
- Make general improvements in the framework and plugins system
    - Analyzing and fixing defects
    - Designing and developing new features

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Work done

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Work done

Work done

Getting started

- Reading Grilo's documentation
- Reading about bindings support

GObject Introspection

- What is? A tool which solves the problem of writing bindings by hand by using metadata on the library
- How does it work? Converting the metadata into something readable by languages consuming those bindings

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Work done

Bringing automatic bindings to Grilo

- Requires annotating all methods: `http://live.gnome.org/GObjectIntrospection/Annotations`
- *Non-introspectable* parts of Grilo's API must be reworked `http://live.gnome.org/GObjectIntrospection/WritingBindingableAPIs`

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Work done

Testing automatic bindings

- Cloning an existing C application using Grilo *grilo-test-ui*
- Using Unit tests written in Python
  - Provide a better code coverage
  - Can test functionality as well as bindings status

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Work done

Other contributions

- Improved Grilo's documentation
- Refactored some code
- Identified and fixed bugs Also in other projects, such as PyGObject, GObject Introspection and GTK-Doc

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Current status and future work

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Current status and future work

Current status

- Most of the API is now accessible via automatic bindings
- Gjs does not support GObject.ParamSpec. PyGObject does
- JavaScript alternate branch in the process of being pushed upstream

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Current status and future work

Future work

- Keep the GObject Introspection support updated
- Provide new plugins, such as TMDb or TVDb
- Improving the existing Python unit tests
- Create JavaScript unit tests
- Check http://live.gnome.org/Grilo/PlannedFeatures for more

Teaching

Teaching

- Wide range of topics covered
- Specially enjoyed
  - Software Engineering applied to Libre Software
  - Desktop & Mobile development
  - Conferences

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Practicum

Practicum

- Put into practice all the acquired knowledge
- Contributed to a GNOME project
- Learn new technologies
- Experienced the feeling of being in the *cutting-edge*

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Thanks for listening!

Questions?

References

References

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php/?root=freeswmaster

JaMp http://gitorious.org/mswl2010/jamp

RiaGTD http://git.igalia.com/cgi-bin/gitweb.cgi?p=riagtd.git;a=
summary

Grilo http://live.gnome.org/Grilo