Contributing to FOSS: A Case Study

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What is considered a contribution?

- Doing QA and providing feedback
- Helping newbies
- Packaging program X for Distro Y
- Providing patches for bugs
- Creating and developing a new project
Why contribute?

•Scratching an itch
  – You may be using a FOSS application that has a bug you need fixed

•Making a living
  – You may be employed by a company producing FOSS

•Altruistic
  – You may feel you need to give something back to FOSS (a different type of itch?)
FOSS reality

- Standards
- Project maintainers
- Forked projects
- Tools
- Patch process
- Distribution
Observing standards

• The FOSS community are ardent followers of standards

• Without standards, there would be anarchy in the FOSS world
  – Many projects and project maintainers

• Research the standards to support your patch
Amending standards

- If there's an error in a standard, get it amended
- Don't even bother trying to convince the project maintainer otherwise
  - The project maintainer's job is to follow the standards
- Example: ISO639
Project Maintainers

• A good project maintainer will look for advice
  − Can't always know the latest standards
  − If you have shown knowledge in a particular area, chances are the project maintainer will find you to be a useful resource

• Once a relationship is developed
  − Easier for you and the maintainer to understand each other
  − Patches get committed sooner with less questions

Examples
Project Maintainers (cont.)

• Project maintainers do talk to each other
  – This is very true when the projects are related or similar

• There are many ways to annoy project maintainers
  – Ask questions that have been answered in the FAQ
  – Requesting features but not testing the feature when it is completed
  – Criticising constantly without contributing
Contributing to forked projects

• Don't try to guess which project is going to 'win'
  – Submit patches to all relevant projects
• Also keep an eye on any sub-projects
  – Particularly if they appear to have the official blessing for redesigning or modularising the code.
• Examples
Tools

- Source Control (CVS)
- Bug Tracker (Bugzilla)
- Editor (vim)
- Patch Creator (diff)
- Graphical Diffing Program (xxdiff)
Patch Process

• Understand the issue/bug
• Create a patch
  - Test the patch extensively
  - Request a peer to review/test the patch
• Submit the patch and test files to the project's bug reporting system and/or maintainer
  - May have to justify the patch
• Test CVS checkout
Getting a patch into distros

- Submit upstream to project maintainers
- Encourage vendors to apply backported patches
- Create packages for the short term
Case study: Unicode Sinhala / SLS1134

• Phonetic encoding system
  – Unicode Sinhala codepage
    • http://www.unicode.org/charts/PDF/U0D80.pdf
  – South and Southeast Asian scripts (Unicode Chapter 9)
Unicode Sinhala (cont.)

• Independent vowels
  - We first have all the independent vowel sounds: ස (a), ල (aa), ලෙ (ae), සෙ (aee), ට (i), ඩ (ii), ලු (u), ලුෂ (uu), ලෙි (e), ලෙෂ (ee), වෝ (o), සෝ (oo), ලො (ai), ලොළ (au), etc.
'Consonants'

Then we have all the consonant plus 'a' sounds: ය (ka), ව (kha), ම (ga), ය (gha), etc.
Unicode Sinhala (cont.)

- Dependent vowels (vowel modifiers)
  - Then we have all the dependent vowel sounds (in this example combined with ක (ka)): කී, කෑ, කැ, කා, කෙ, කෑ, කු, කෝ, කෘ, කෙ, කු, කෝ, කෘ
Unicode Sinhala (cont.)

• Codepoints
  - Each of these sounds, all the independent vowels, 'consonants' and dependent vowels are given a unique codepoint.

• Example
  - The යේ (ko) sound ((kombuva)(kayanna)(aelapilla)) is represented in Unicode Sinhala as two codepoints, the 'consonant' යේ (ka) and the dependent vowel යේ (o).
Example of an itch

• Adding Unicode Sinhala to the GNU/Linux renderers
  – Pango (GTK), ICU (Open Office), QT
  – 3 separate maintainers

• What is a renderer
  – Required for Complex Text Layout (South Asian scripts)
Example of a scratch

• 3 patches for Pango
  – Enable Sinhala
    • To allow essential rendering, including reordering vowel modifiers
    • http://bugzilla.gnome.org/show_bug.cgi?id=153517
  – Fix bug
    • Don't implicitly create conjuncts
    • http://bugzilla.gnome.org/show_bug.cgi?id=161981
  – Add feature
    • Enable touching letters in Sinhala rendering
    • http://bugzilla.gnome.org/show_bug.cgi?id=302577
Example of a scratch (cont.)

• Additional requirements
  – Provide a Unicode font to the project maintainer for testing
  – Provide test cases and images of the rendering before and after the patch
  – Provide supporting material
Conclusion

• Contributions to FOSS are often users satisfying their own needs

• First learn about the project and the related standards

• Depending on the project, there may be well defined procedures for those wanting to contribute

• Happy Contributing ...