Localization

Jim Gettys, V.P. of Software

Overview

- Scope of Problem
- Current Status of Free Software
- Tools
- Localization Strategies
- Logistics & Issues

Problem Statement

- Technology for representing and composing the languages spoken, taught or used in your countries.
- Fonts, script layout, input methods, speech synthesis, musical instrumentation, collating order, dictionaries, spelling checkers.
- Linux is already more widely localized than Microsoft Windows since no cooperation required.

Size of the Problem

Population Range	Living Languages			Number of Speakers		
	count	*%*	*cum.*	*count*	*%*	*cum.*
100,000,000 to 999,999,999	8	0.1	0.10%	2301423372	40.21	40.21%
10,000,000 to 99,999,999	75	1.1	1.20%	2246597929	39.25	79.46%
1,000,000 to 9,999,999	264	3.8	5.00%	825681046	14.43	93.88%
100,000 to 999,999	892	12.9	17.90%	283651418	4.96	98.84%
10,000 to 99,999	1779	25.7	43.70%	58442338	1.02	99.86%
1,000 to 9,999	1967	28.5	72.10%	7594224	0.13	99.99%
100 to 999	1071	15.5	87.60%	457022	0.01	100.00%
10 to 99	344	5	92.60%	13163	0	100.00%
1 to 9	204	3	95.50%	698	0	100.00%
Unknown	308	4.5	100.00%			

Source: Ethnologue, 15th Edition, Raymond G. Gordon, Jr., Editor. Copyright © 2005, SIL International.

Localization of OLPC Applications

- Sugar environment is new
  - therefore needs localization work
  - but deliberately designed to minimize text.
- Other Linux applications have already been localized for many languages.
- Languages cross borders: share the work

Character Sets

- Unicode – fully supported in “modern” applications and toolkits.
- Legacy character set support also present, but modern applications are use Unicode.
- Collation order is generally well supported.

Script Layout

- Pango library – able to layout most “hard” languages, including: Arabic, Indic family, Hebrew, Persian, Amharic, Thai, etc.
- Modular layout engine and vertical text;
- BIDI Layout supported;
- Some issues remain – but overall in pretty good shape.

Fonts

- To share content and preserve cultural heritage OLPC's goal is full coverage of **all** the world's languages – Linux has a better concept of language coverage of fonts than other systems.
- Formats: OpenType, TrueType and others...
- Quality screen fonts a problem for lo-res screens.
- XO-1's high screen resolution helps us: less “hinting” required for good results == more usable fonts: **but**...

Fonts (continued)

- the OLPC software environment may be used on existing systems at low resolution... therefore, we should work together on creating more “free” high-quality fonts.

Many Free Fonts Exist for Most Languages

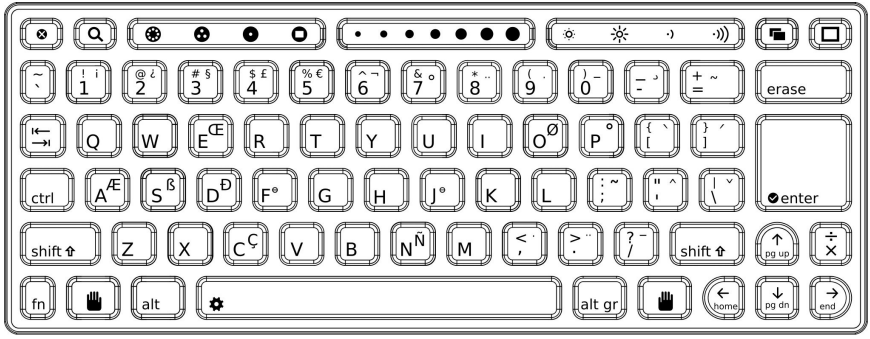
- SIL International is another source of free fonts.
- But few free “high quality” screen fonts exist:
  - Hinting is boring and labor intensive – $10/glyph at U.S. rates; special tools used.
- Pooling of effort and/or expense makes great sense; donations?
- Coordinated buyout of fonts? If fonts are not MS metric compatible, cost is “reasonable”.

Speech Synthesis

- Size vs. fidelity vs. localization effort trade-offs: *festival*, *flite*, *espeak* are available.
- *Espeak* is small enough for us to bundle: ~10 languages currently supported tuned by native speakers – 10 more languages underway.
- Useful for accessibility, literacy training, GUI.
- Not a good guide for pronunciation – but may be better than a poor teacher.

Keyboards

- Currently: English (US international); Spanish (Latin America); Portuguese (Brazilian); Amharic (Ethiopic); Arabic; Nigerian (Igbo, Hausa, Yoruba); French (Rwanda); Thai; Urdu; Cyrillic (Russian); Turkish; Nepali; Mongolian; Kazakh; Devanagari; Uzbek; Pashto; Dari; Armenian; Khmer; Pulaar; Italian; Kreyòl; others are possible, but the lead time is 4-6 months for new layouts.



Input Methods

- Input method – how to type complex characters - Chinese, Japanese, Korean... some issues remain (example: Arabic ligatures; we avoid them).
- SCIM - Smart Common Input Method Platform - http://www.scim-im.org/projects/imengines
- SCIM is replacing older input method systems.
- Stroke/character recognizer localization is of some interest with the pen/tablet: in the future when we have a touch screen they will become essential.
- We need to know what languages are taught as “foreign” languages, as well as are native.

Current Shortcomings

- Non-Gregorian calendars
- Non-Latin digits (Roozbeh Pournader has patches, but these are not yet integrated).
- Sheer scale of the localization problem will eventually require changes in free software projects.

Sound Fonts (Music)

- We want much more than dead white male western instruments for dead white male composers!
- Clean samples of your musical instruments and music needed!
- Samples need appropriate licensing terms.

Dictionaries and Spelling Checkers

- Support exists for most major languages.
- Spelling, Hyphenation, Thesaurus dictionaries may be needed, check:
  - http://aspell.net/man-html/Supported.html
  - http://dictionaries.mozdev.org/installation.html
  - http://www.abiword.org/languages.phtml
  - http://wiki.services.openoffice.org/wiki/Dictionaries

Techniques

- It only takes a small team to localize for a language: e.g. Welsh, Icelandic:
  - Do it yourself, hire it out, find volunteers.
- Work **in** the projects whenever possible:
  - This makes your work available worldwide,
  - Lessens the ongoing work.
- Add to existing projects whenever possible.

Tools

- Examples: *pootle*, *kbabel* (offline), *rosetta* (on line)
  - tools to convert between systems,
  - most software uses “gettext” and standard .po files; Firefox and OpenOffice have their own systems for historical reasons.
- The cldr project - http://www.unicode.org/cldr
- Remember, contribute your translations to the “upstream” projects to minimize long term effort: share your work with the world.

Sugar Localization

- Most sugar applications are localized using Pootle which has been integrated with our source code repository. See: https://dev.laptop.org/translate/
- http://wiki.laptop.org/go/Localization
- More languages always welcome!
  Language coordinators greatly appreciated!
  We can't do it for you!
- OLPC'S Localization lead: Sayamindu Dasgupta
  - IRC: irc.freenode.net #olpc-pootle

Licensing

- Strings
  - Translated strings will often be useful among many projects, not just the the project you are working on translating,
  - Therefore, since the MIT/BSD (3 clause) licenses are usable by all projects, these are the safest licenses to use for translation to enable widest sharing.
- Fonts: SIL OFL license recommended.

Next Steps

- Localization is by nature local: but language often crosses borders.
- Please come see me to identify issues.
- We need identified people/organizations responsible for:
  - Language, translation, keyboards, speech synthesis, effective free software community leaders.

Summary

- Do it yourself, hire it done, find volunteers
- Fonts – screen fonts for non-OLPC screens
- Speech Synthesis
- Musical Instrumentation Samples
- Dictionaries
- Work “Upstream”

Summary

- Supporting new languages varies from usually very easy (just translating strings), to a large amount of work and engineering taking many months.
- The sooner we know your needs, the sooner we can determine the amount of effort.