Joint UNESCO and ITU
Global Symposium on Promoting the Multilingual Internet

Free Open Source Software for facilitating language flows

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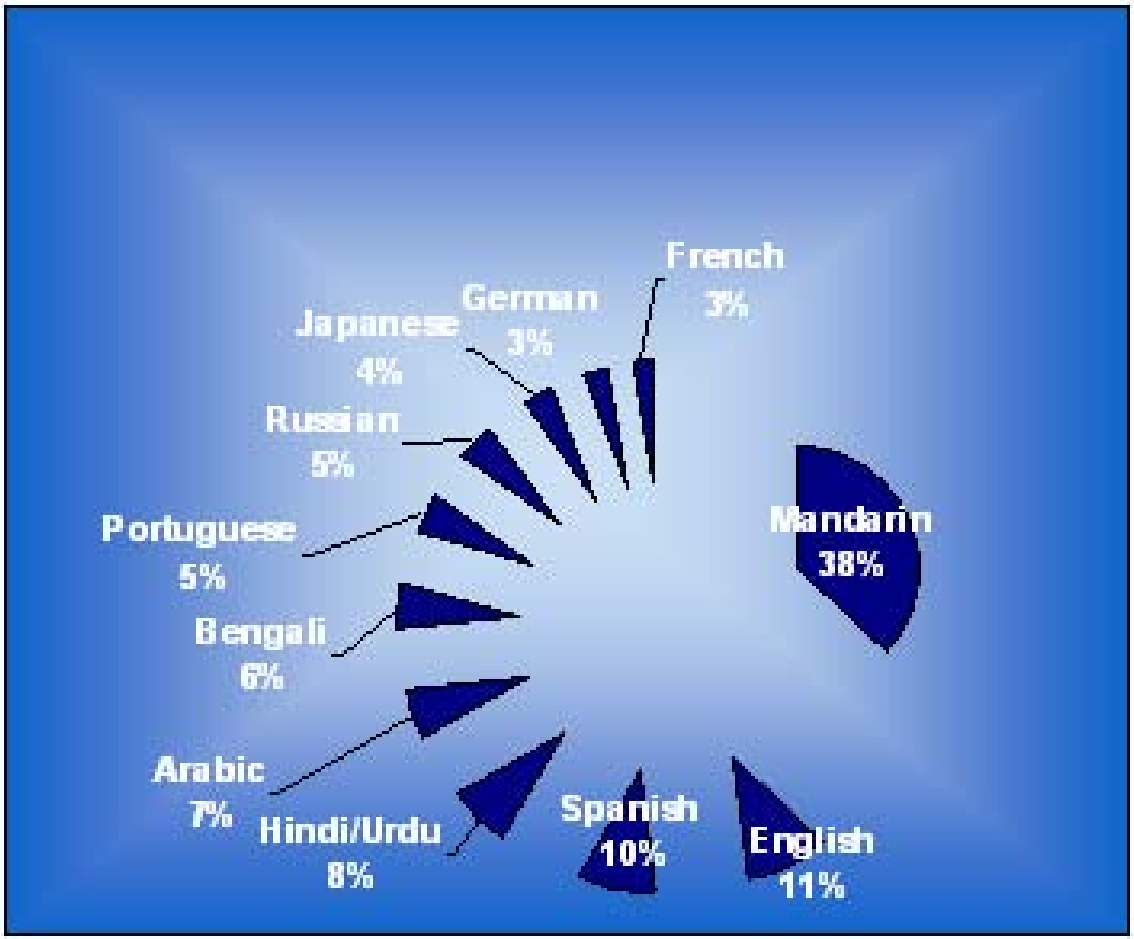
Geneva, 9-11 May 2006

Introduction

- Multilingualism is increasingly considered as very important for the stability, peace and development in the world
- It should be nurtured in the real world as well as in the cyberspace
- However, the cyberspace tend to be dominated by some “major” languages
- This presentation tries to
  - show the discrepancy that exists in terms of the languages in the world and the cyberspace
  - Identify hardware and software causes
  - Propose solutions

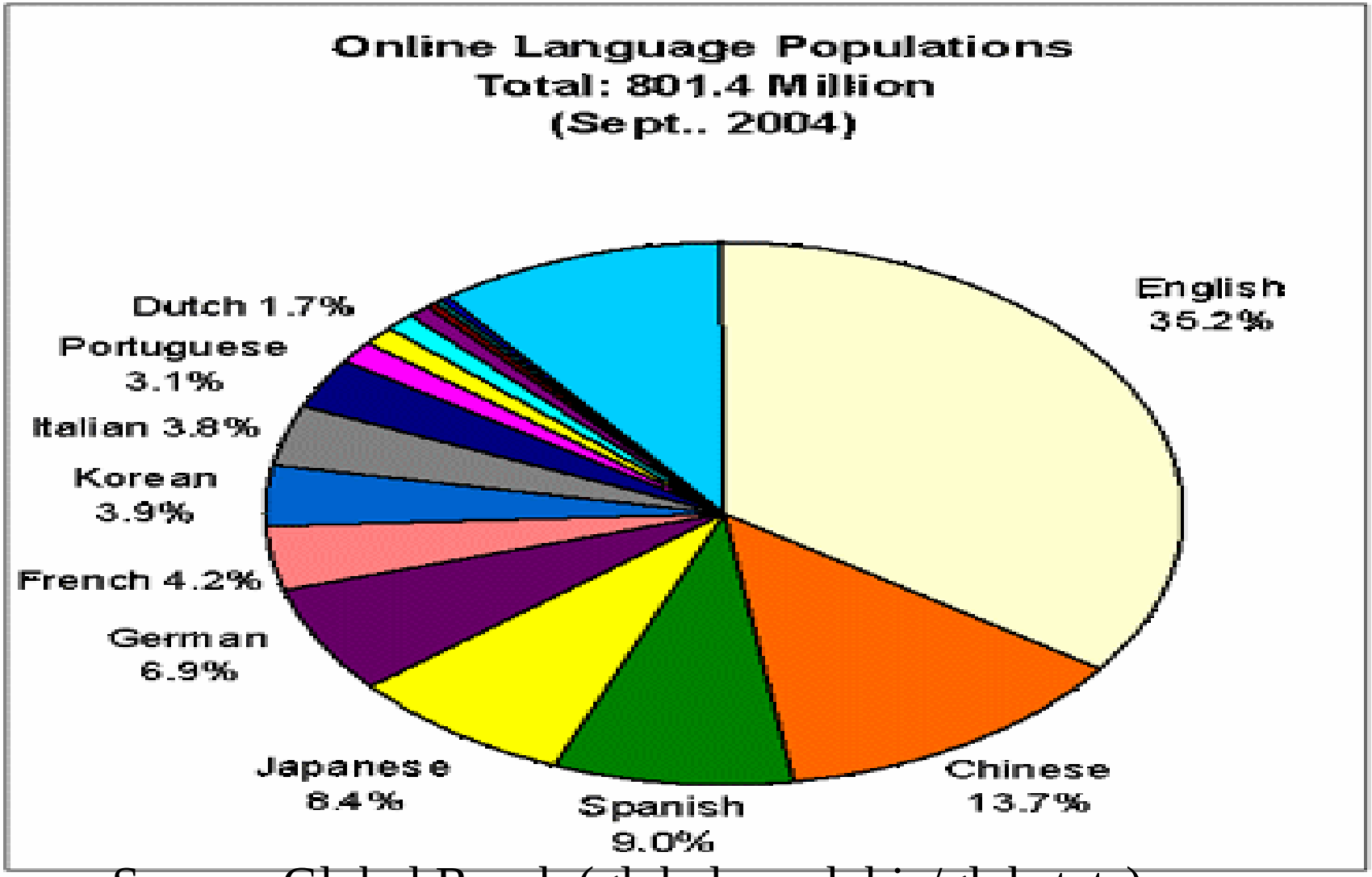
Languages of the world



Languages of the world

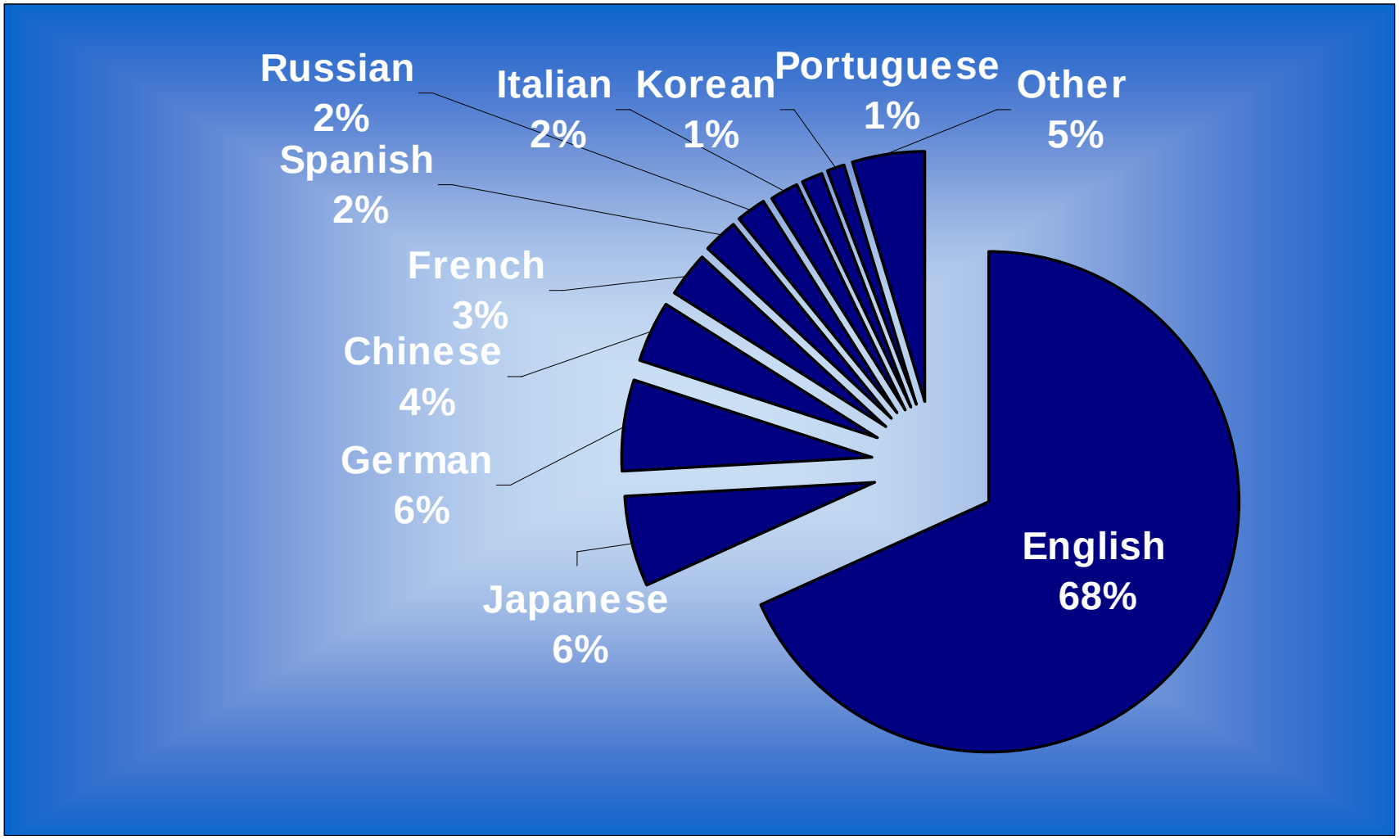
Language	Population
Mandarin	1,100,000,000
English	330,000,000
Spanish	300,000,000
Hindi/Urdu	250,000,000
Arabic	200,000,000
Bengali	185,000,000
Portuguese	160,000,000
Russian	160,000,000
Japanese	125,000,000
German	100,000,000
French	75,000,000

Languages on the cyberspace – On-line population



Source: Global Reach (global-reach.biz/globstats)

Languages on the cyberspace - Content



Source: Global Reach (global-reach.biz/globstats)

Problems

- Many languages do not exist in the cyberspace
  - **90%** of languages are not found on the Internet [Source: http://alumni.indiana.edu/lostlanguages/stats.html]
  - Thousands of languages worldwide are absent from Internet content [Source: UNESCO]

Problems …

- The proportion of language of the content on the cyberspace is very different from that of the population
  - English
    - 11% of the population of the world speaks English
    - 35% of on-line population has English as a native language
    - 68% of the cyberspace content is in English
  - Mandarin
    - 38% of the population of the world speaks Mandarin
    - 13.7% of on-line population has Mandarin as a native language
    - 4% of the cyberspace content is in Mandarin
  - There are many languages of the world where the situation is much worse than Mandarin

Why this discrepancy?

- Economic
  - Digital divide
- Technological
  - The focus of this presentation
- Two main technological problems
  - Problem to develop the digital content in the languages using computer hardware and software
  - Problem of representation of content

Problem to develop the digital content

- Difficulty to find hardware that supports some languages' scripts (ex. Keyboard)
- Difficulty to find the software to develop content in the language of the content
  - Example: Ethiopic content has been developed for decades with software with English interface
- Limits the number of people who can develop content in that language

Problem to develop the digital content …

- What is the solution?
  - Localization – change the interface of the software to local languages, culture and tradition
  - For decades, proprietary software developers didn't want to localize for languages that do not have economic power
    - Example: Microsoft just started to be interested in African languages
  - Recently, many localizations are being done using Free and Open Source Software

Problem to develop the digital content …

- What is the solution …
  - Free and open source software (FOSS) gives the freedom to
    - Copy
    - Distribute
    - …
  - FOSS provides the source code that anybody can modify
  - FOSS is gaining a lot of popularity around the world
  - A lot of software have been localized thanks to FOSS

FOSS gives the freedom to localize

- No need of authorization to localize a FOSS software
- Economic reasons not to localize are much less important than with proprietary software
  - The developers are not necessarily the localizers
  - Localizers have other reasons (pride, political will, technical interest, etc.)
- Since the source code is available all sorts of localization are possible
  - Time and date localization
  - Customization

Problem of representation of content

- There are hundred of alphabets and scripts used to represent the content in the languages of the world
  - Latin for Western European
  - Cyrilic for Eastern European
  - Ethiopic for Ethiopia and Eritrea
  - ...
- Until the 1990s ASCII, was the standard of Internet and was adequate only for Latin based languages
- It was necessary to use complex methods just to represent the content of other scripts and alphabets
  - Ex: Amharic: Image, Specific downloadable font, etc.
- UNICODE is solving the problem of encoding since it is the CODE of the world scripts and alphabets
- But there are other standards that need to consider multilingualism (ex. XML) in order to be able to develop a content in any language with the same ease as in English

Conclusion

- The first step towards multilingualism in the cyberspace is to have, in the cyberspace,
  - content in all languages of the world
  - in a proportion that respects the population of the world
- The use of FOSS can help achieve this objective since
  - it facilitates localization,
  - which in turn facilitates development of content in local languages