Using Python and XMPP to build a decentralized social network

Jérôme Poisson (Goffi)

FOSDEM

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Some words about the project
    a lot of features
    other interfaces

about the technologies
    global architecture

Python!
    about the choice of Python
    some advantages

Twisted

Urwid

Pyjamas
    A New Hope

Things we have learned
    Salut à Vous
Libervia/Salut à Toi is a Multipurpose, multi frontend communication tool
Some words about the project

- project started in 2008/2009
- Social Contract
  http://salut-a-toi.org/social_contract.html
- non profit association
Outline

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Some words about the project

- instant messaging (of course)
- end 2 end encryption
- P2P file sharing
- blog engine (decentralized !)
- lot of experimentations
Libervia et Movim

Je suis connecté sur libervia.org avec mon compte de chez movim.eu. C'est ça la puissance de la standardisation. Bac + 2 les enfants...

souliane@libervia.org (gone)

15:54 [Dave] Salut c'est Dave à l'appareil. J'ai à te parler.
15:54 [souliane] Si tu veux me parler, envoie-moi un fax.
15:54 [souliane] Ou bien tu peux aussi utiliser OTR. Unverified conversation with souliane@libervia.org/primitivus started. Your client is not logging this conversation.
15:54 [Dave] J'ai un problème avec mon mot de passe.
15:56 [souliane] Pas de problème, cette conversation est chiffrée. The current conversation is now verified.
15:57 [souliane] Et maintenant, elle est même authentifiée.
15:57 [Dave] C'est la classe.
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- don’t reinvent the wheel
- we use standards (XMPP)
- factorization
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we use Python everywhere we can

- **Twisted** (backend, web frontend)
- **curses Urwid** (console frontend)
- **Pyjamas** (web frontend)
- **WxWidgets Kivy** to be done
- **Jinja** (web frontend)

...and sometime we don’t

- **Qt/C++** (Desktop frontend)
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about the choice of Python

- speed (execution)
about the choice of Python

- speed (execution)
  - pypy
  - cython
  - C/C++ inclusion
about the choice of Python

- speed (execution)
  - pypy
  - cython
  - C/C++ inclusion
- speed (development)
- popular (libraries)
- popular (similar projects)
- popular (tools)
tools

- Mercurial
- BuildBot
- D-Feet
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- debugging (pudb & ipdb)
- stability (Python & Twisted)
- workaround/monkey patching
- standard library (re, argparse, dom, urlparse/urllib)
- Python is fun!
Twisted

- asynchronous
- huge framework
- well thought abstractions
- test driven development
Twisted

- Deferred

```python
def fosdemTalkCb(self, result):
    print u"OK! {}".format(result)

def fosdemTalkEb(self, failure):
    print u"Disaster! {}".format(failure)

d = getFosdemTalkOpinion()
d.addCallbacks(self.fosdemTalkCb, fosdemTalkEb)
```

- inline callbacks

```python
@defer.inlineCallbacks
def fosdemTalkPoll(self):
    try:
        opinion = yield getFosdemTalkOpinion()
    except BadTalkException as failure:
        print u"Disaster! {}".format(failure)
    else:
        print u"OK! {}".format(opinion)
```
Urwid

- D-Bus integration
- good widgets set
- customization
- lot of nice stuff (resizing, keys, etc)
- it just works!
Pyjamas

- Python $\rightarrow$ JavaScript transpiler
- very active at the time
- a GWT port
- handle browsers incompatibilities
- main advantages for us:
  - factorization
  - no context switch
but...  
- it’s nearly Python, but it’s not Python  
- heavy and ugly pages (code)  
- difficult to debug  
- no luck to move to Python 3  
- project hijacked  
- and now dead
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Brython
A New Hope

Brython

- not a compiler, an interpreter
- Python 3
- Python test suite
- active
- debugger
- stay close to HTML
Things we have learned

- stay focused
- new technologies can wait
- look for the community
- and the stability
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Thanks for your attention

▶ http://salut-a-toi.org (official website)
▶ https://www.libervia.org (démo)
▶ goffi@goffi.org (courriel)
▶ goffi@jabber.fr (jid)

or meet me in Prague!