PyPy

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Who am I?

- Maciej Fijalkowski
- PyPy core developer
- owner of baroquesoftware.com
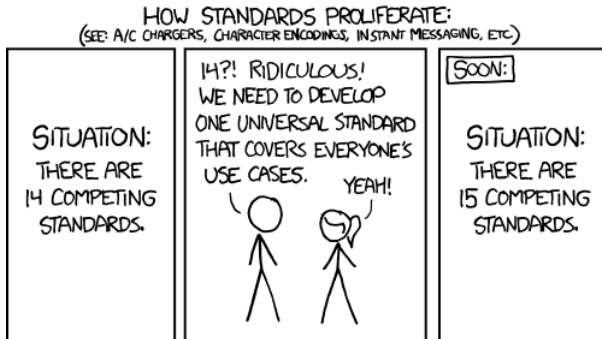
What is PyPy?

- a fast, compliant Python interpreter
- comes with a just-in-time compiler
- covers Python 2.7 and beta 3.2/3.3

Compatibility status

- pure-python code should just run
- C-extensions sometimes work sometimes don't
- library support is large and growing
- numeric is more complicated

Compatibility - C extensions

- CPython C API - compatibility layer (slow, potentially problematic)
- Cython uses that, does not work
- ctypes sort of works, but don't use ctypes
- our solutions is cffi

- demo

numpy and numerics

- big subset of numpy reimplemented
- same speed as numpy, much faster with python code
- aim at compatibility
- pymetabiosis (scipy, matplotlib)

Speed status

- speed.pypy.org
- basic demo

Speed status (2)

- more mudded picture :-)
- a lot of programs are faster (20% to 100x)
- some programs are slower
- warmup time is a key factor

Memory consumption

- objects are smaller than CPython
- interpreter size is large (~60M)
- additional assembler consumes memory
- plus bookkeeping info
- measure!

Can I run PyPy?

- mostly, yes!
- look at C extensions
- try, measure, benchmark

Case study - magnetic.com

- magnetic.com - online search retargetting
- 2 weeks of work, including benchmarking and analysis
- swapped ujson for json
- rewrote bindings for protobuf
- ~2x speedup after warmup, no additional noticable memory

Future

- work on warmup
- STM work
- more numpy compatibility
- tools for performance analysis

Crowdfunding

- moderate success in crowdfunding
- numpy, STM, py3k
- donate

Commercial consulting

- baroquesoftware.com
- measure, analyze, port to pypy

Q&A

- http://pypy.org
- http://baroquesoftware.com