Adoption of academic tools in open source communities:

the Debian case study

Pietro Abate, Roberto Di Cosmo

Irill - Inria - University Paris Diderot
pietro.abate@inria.fr
roberto@dicosmo.org

May 22th, 2017

Component repositories: ubiquitous, nowadays!

Just a few examples

Debian
packages

Eclipse
plugins

Maven
components

Opam
packages

CRAN
packages

Drupal
modules

Software components relationships expressed as Rich Metadata

Our contribution to improve these repositories

- Distcheck : check the installability of a binary package w.r.t. a software repository.
- Buildcheck : check the build dependency of a source package
- Botch : a suite of tools built on top of the dose3 library aimed to help developers bootstrap a distribution on a new architecture

All built on top of **Dose3**: an OSS library that consolidates 10 years of research in the are of component management.

Three advanced, useful, efficient tools, and yet their adoption required significant efforts.

The Debian Community

- One of the largest OSS communities (since 1993)
- Bound by the Social Contract
- One of the largest software distributions (over 45K binary packages)
- 10 officially supported architectures, plus 20 unsupported ports.
- 3 evolving distribution suites (stable, testing, unstable)

Debian History
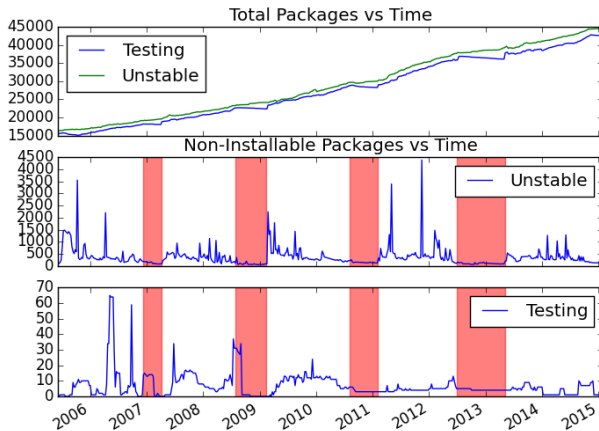
Debian Case Study: Infrastructure

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The success story: buildcheck and distcheck now integrated in different components of the build daemon.

- initial development in 2006
- early adoption started in 2009

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The success story: Botch swiftily adopted since 2014

- Botch is a set of tools to help developers find the correct compilation planning.
- Botch is built on top of dose3 and developed by Johannes Schauer in collaboration with us.

Technology Transfer Issues

Researchers often focus on just the "correct" solution, and overlook the cost in terms of integration and learning curve.

- Developing software to solve real problems is not easy.
- OSS communities are driven by the so called *do-ocracry*
- Writing documentation (a paper does not count) takes time.
- Engaging the community on their ground requires personal investment.

Having an impact in the real world takes time and energy

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- Hiring: Interns, PhD Students, post-doc connected to the target communities