OPEN SOURCE FINANCE

GAME CHANGER FOR BANKS, TRADING FIRMS AND HEDGE FUNDS?

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Ketchum Trading; Debian and R Projects
Issues

- History: How did we get here?
- Status: What is happening now
- Onward: What may happen
Brief Background

- Twenty years in trading industry: Goldman, BMO, BofA, Citadel, Jump, ..., now Ketchum
- Twenty+ years of Open Source contributions: Debian developer, increasingly various R related other activities, ...
- Fifteen years of R package author/maintainer, now also R Foundation Board member, R Consortium ISC member, ...
To clarify

- This talk reflects views of a quantitative analyst
- *Software* to us is predominantly a collection of analysis and modeling tools including programming languages, libraries, OSs
- The focus is on *Open Source Finance* — and much less about Open Source and Software in general
- Insert your favourite disclaimer here
History
Terms and Players

- *Open Source* dominates commercial discussions
- *Free Software* predates it; academic roots / MIT
- past friction between sponsoring entities
- OSI and FSF are closer now
Free as in the Freedom to ...

- run the program as you wish, for any purpose
- study how the program works, and change it
- redistribute copies so you can help your neighbor
- distribute copies of your modified versions to others

Access to source code is a precondition
GPL: A key Free Software License

- ‘Copyleft’: right to freely distribute copies and modified versions
- Stipulates that the same rights be preserved in derivative works
- ‘Viral’: Combined works have same (aggregate) license
- Some claim that this is not ‘permissive’
BSD/MIT/Apache Licenses

- These license calls themselves ‘more permissive’ – ie not viral
- Allows re-use and re-licensing: “can be taken private”
- One way to think about this is
  - **user-focus** of GPL: nobody can ever take current (or future versions) away
  - **author-focus** of BSD/MIT as not limiting (?) deployment

Perceived “conflict” overblown – both are Open Source licenses
“It’s complicated”

- This gets into ‘need a lawyer’ territory real fast
- Good (neutral) website: http://tldrlegal.com
- Main thing: Just pick any good recognized license
Key Aspects

- Focus on Software: ‘Infinitely copyable’
- Consider recent ‘newsworthy’ software releases (e.g. TensorFlow) or technologies (Blockchain)
- ‘Open by Default’ a (related) winning concept:
  - Wikipedia
  - GitHub
For Software, Debate is Over

- From Ballmer’s Microsoft: *Linux is a Cancer*
- To Nadella’s Microsoft: *We love Linux*
- Today, few areas of the software industry remain unchanged
- Now frequently seen: ‘Open Core’ base with add-on services
Open Source Has Won

Microsoft embracing R

Openness
First off, Microsoft's embrace of open source is now a fact, rather than an issue. The company gets that open source platforms are de facto industry standards, and that customers like products that support them. Microsoft already has a version of HDInsight, its Big Data platform based on open source Hadoop and Spark technologies, that runs on Linux. It is also developing a version of SQL Server itself for Linux. Then there's Visual Studio Code, which runs on Windows, Mac or Linux. And a large portion of the virtual machines in the Microsoft Azure cloud are running Linux too.

TRADING AND TRADING FIRMS
So Where Does that leave us?

Status Quo Somewhat Obvious and Boring

- Open Source is simply how software is done / used
- Trading / Wall St have used Open Source since forever
- Niche applications with premiums remain closed
  - As do ‘aggregations’ and OSs
  - OS X, Windows, ... as well, but at lower prices
- Hence: ‘Default is Open’
- I.e. last relevant + closed source programming language?
AN UPDATE IS AVAILABLE FOR YOUR COMPUTER

COOL, MORE FREE STUFF!

NOT AGAIN!

OOH, ONLY $99!

linux

windows

mac

Source: http://www.stickycomics.com/computer-update/
So Yes, It is 80/20

Open Source Is

- what you use for your (scripting) languages
- what you use for your domain language
- what you use for your (No-)SQL backends
- and on and on and on
Leaves Focus on Value-Added

- Strategies
- Analysis
- Core (in-house) Technology
to differentiate
PARTICIPATE
Signalling!

- Better hiring
- Better staff morale
- Better code
A very incomplete list

- TwoSigma Beaker Notebook
- Bloomberg via
  - large C++ libraries
  - OpenBloomberg API libraries
- Goldman Sachs Java Collections Framework
Beaker is a notebook-style development environment for working interactively with large and complex datasets. Its plugin-based architecture allows you to switch between languages or add new ones with ease, ensuring that you always have the right tool for any of your analysis and visualization needs.
Main Issue:

- Finance / Trading **not** known as a supporter / contributor
  - I.e. Morgan Stanley employs Stroustrup
  - But e.g. why is van Rossum not employed in the industry?
  - Not aware of other key OS developers employed

- But could this be changing?
Small Steps

- **UseR! 2016** co-sponsored by RenTec and TwoSigma
- Ketchum has sponsored NIPS, R/Finance and R Consortium
- Funding opportunities:
  - R now has the **R Consortium**
  - Python (et al) have **NumFocus**
  - Linux has the **Linux Foundation**
- But also
  - **Software Freedom Conservancy**
  - **Software in the Public Interest**
Industry distribution

Based on the C/C++ job ads we analyzed, C++ is most used in industries like Finance and Banking.


With thanks to Michael Wong and his STAC Chicago presentation on May 17, 2016.
Summary
Trading

- Benefits hugely as a ‘shadow IT industry’
- By and large does not seem to contribute back
- Let’s try to change that
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