



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



Image by NicoBZH from Saint Etienne, Loire, France - Richard Stallman - "Le logiciel libre et ta liberté"
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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: 'Ininitely 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

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.

Source: <http://www.zdnet.com/article/microsofts-r-strategy/> (retrieved on 2016-May-14)

TRADING AND TRADING FIRMS

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

stickycomics.com

COOL, MORE
FREE STUFF!



linux

NOT AGAIN!



windows

OOH, ONLY
\$99!



mac

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 an 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 Notebook - Google Chrome

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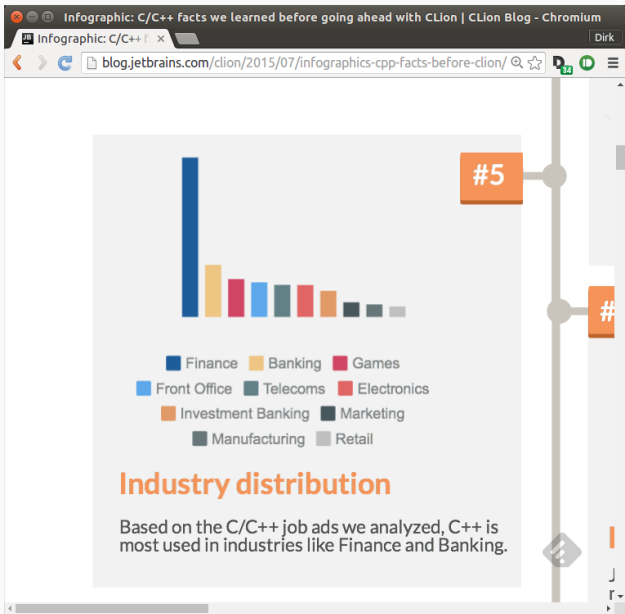
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Main Issue:

- 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](#)



SUMMARY

Trading

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

Questions?

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