Julia: The Future of Numerical Computing and Data Science

December 2015

6th Emerging Markets Finance Conference

Why Julia for me?

Wall Street CTO	• Stuck with legacy systems, languages, databases • Next generation platform for trading, portfolio management, risk	**Replacement solution**
Engineering CTO	• Stuck with legacy languages that are cumbersome, and expensive • Don't want to re-develop for deployment in C++	**Replacement solution**
Retail, Telco CIO	• Lots of data generated, with big data stack in place • Want real-time analytics, inline with the transaction flow	**Supplement solution**
IoT CTO	• Language barriers: sensors, gateway, and cloud. Skill shortage. • Easy to use programming tools to build solutions for billions of devices	**Greenfield solution**

Julia in finance

- Customers of Julia Computing include 3 of the top 10 banks
- Use cases include:
  1. Asset allocation
  2. Asset pricing
  3. Portfolio optimization
  4. Risk computations
  5. Trading systems
- Unlike many other high productivity platforms, solutions developed in Julia are deployed in Julia

This website presents a series of lectures on quantitative economic modelling, designed and written by Thomas J. Sargent and John Stachurski. The primary programming languages are Python and Julia. You can send feedback to the authors via our web forum quantecon or webmaster@quant-econ.net.

About this site

Learn more about this project.

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Choose Python

Go to the Python version of the lectures.

Read more ›

Choose Julia

Go to the Julia version of the lectures.

Read more ›

Which to choose?

Get help on choosing one of the two versions.

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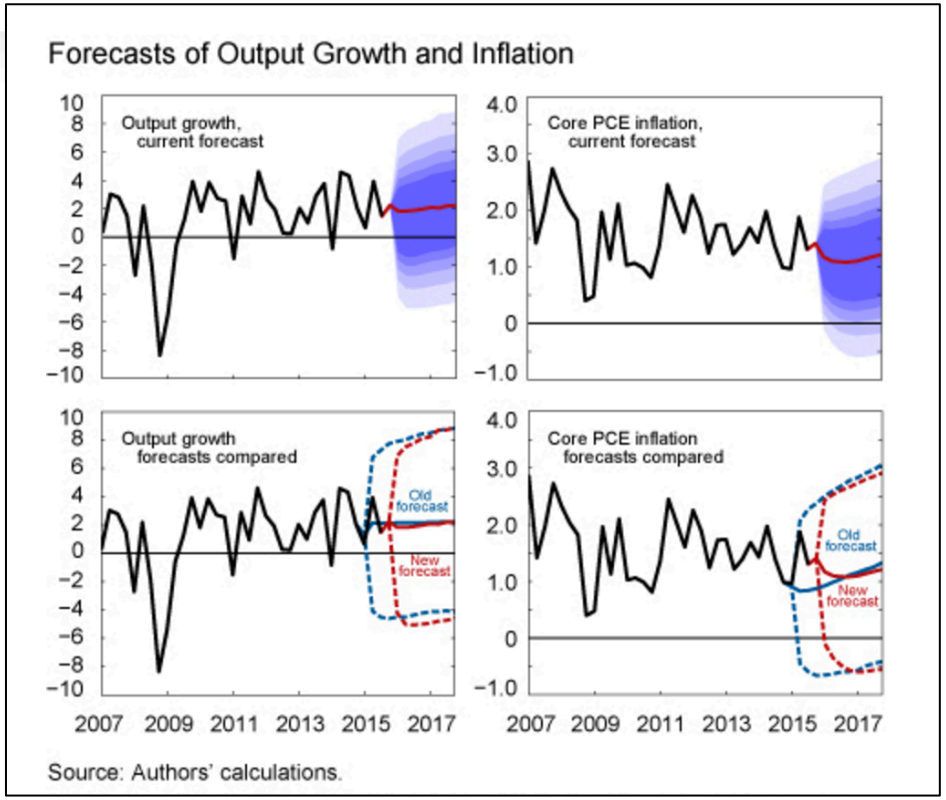
Liberty Street Economics

« Just Released: Job Market Remains Tight as Regional Economy Slows | Main | At the New York Fed: Conference on the Evolving Structure of the U.S. Treasury Market »

DECEMBER 03, 2015

The FRBNY DSGE Model Meets Julia

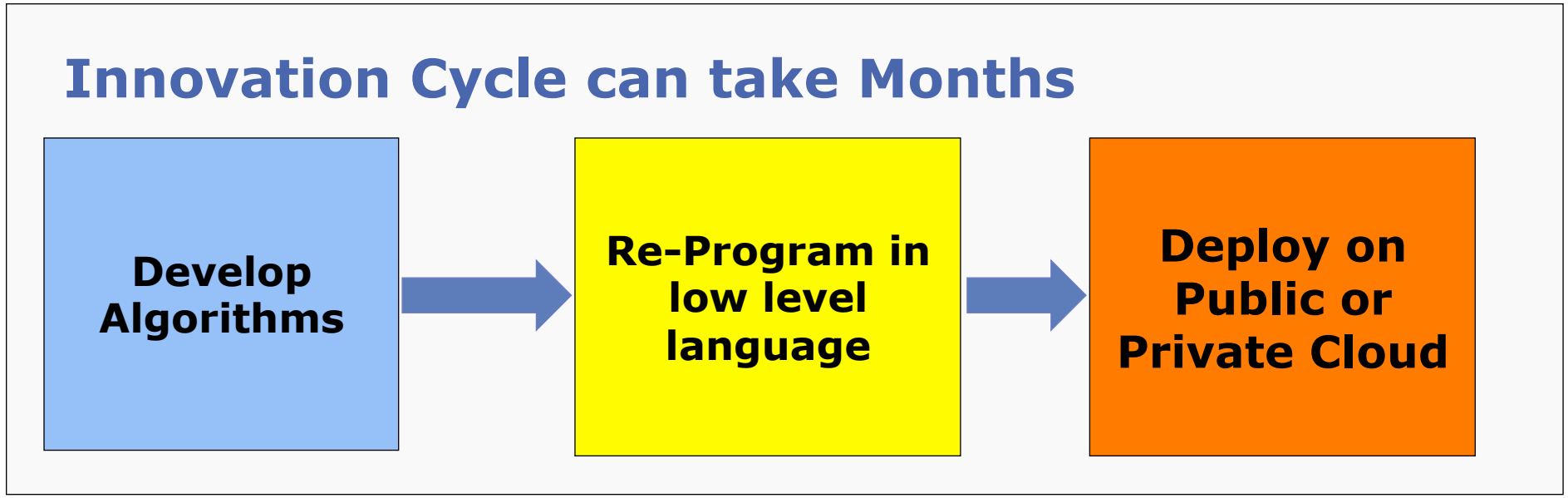
Marco Del Negro, Marc Giannoni, Pearl Li, Erica Moszkowski, and Micah Smith



We tested our code and found that the model estimation is about ten times faster with Julia than before, a very large improvement. Our ports of certain algorithms, such as Chris Sims's gensys (which computes the model solution), also ran about six times faster in Julia.

Source: http://libertystreeteconomics.newyorkfed.org/2015/12/the-frbny-dsge-model-meets-julia.html

Technology Challenges in Finance

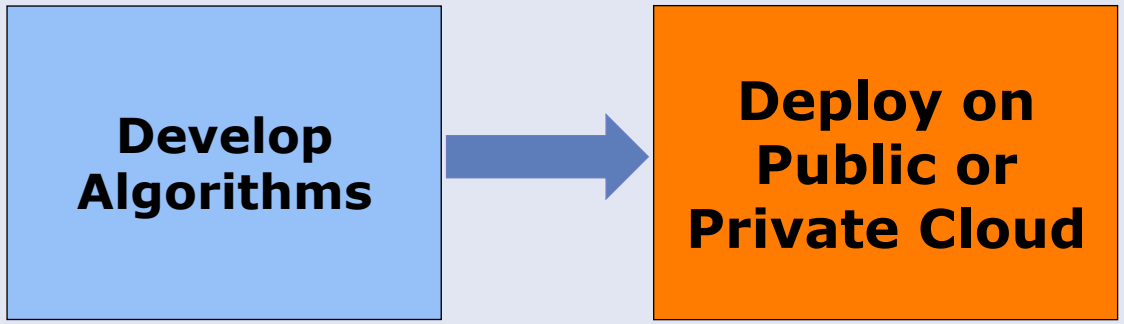


- **Algorithm development for trading**
- **High speed trading**
- **Pricing complex instruments and VaR computations**
- **Regulatory compliance**

Julia Compresses Innovation Cycles

Today – Innovation Cycle in Months

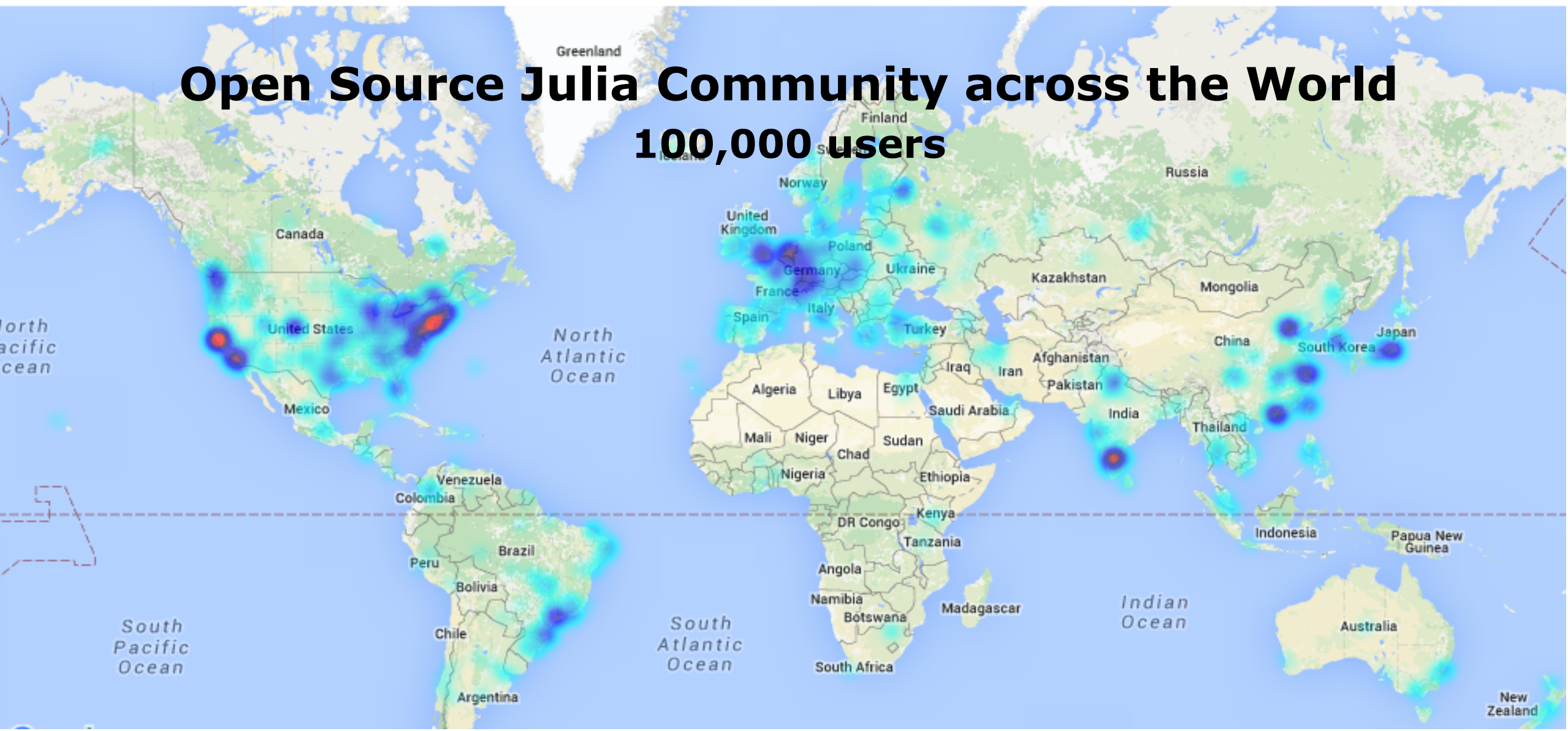
Julia – Innovation Cycle in Days or Weeks



julia

Open Source Julia Community across the World

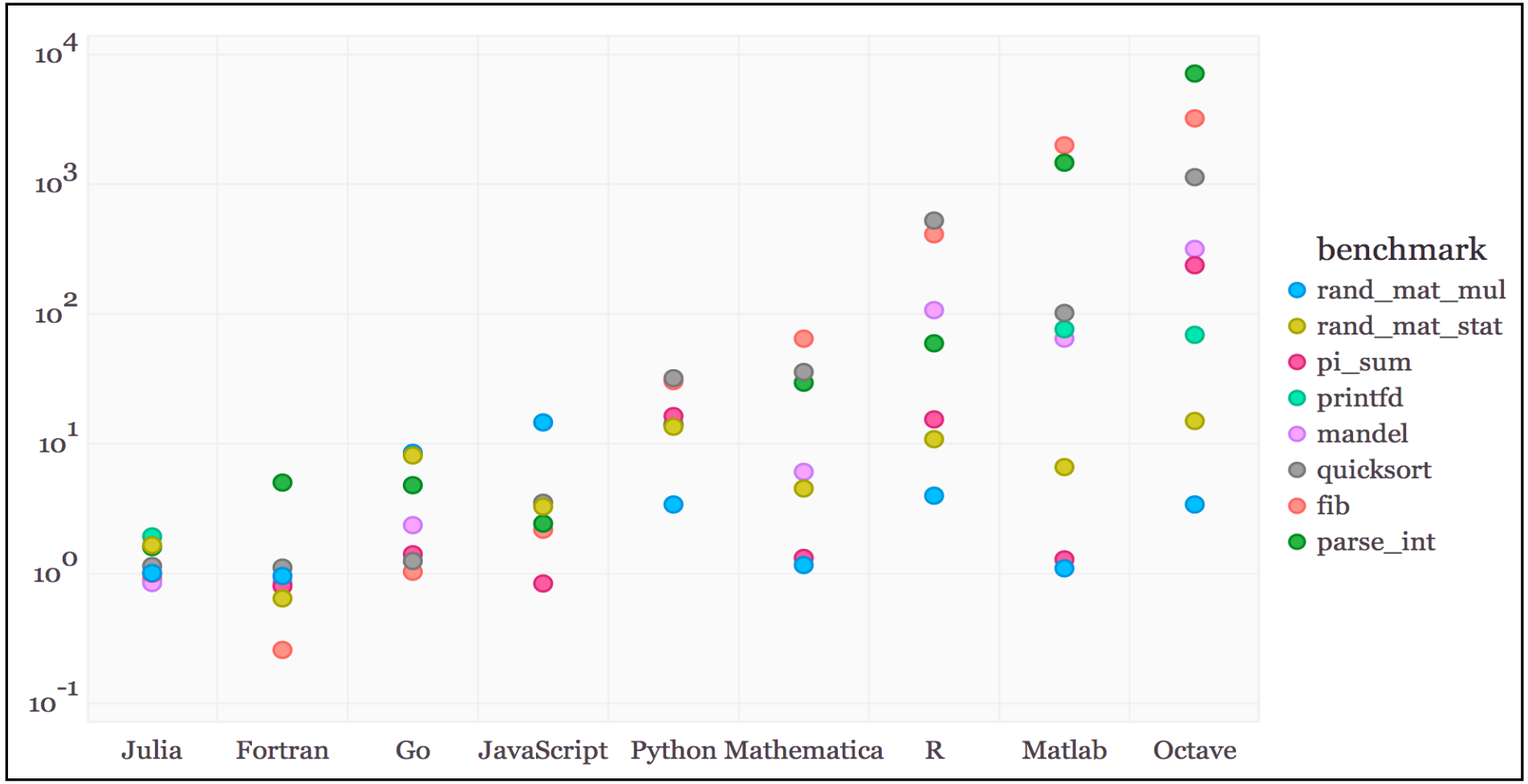
100,000 users



Nerve Centres in Bangalore, Boston, and New York

Research anchored at MIT

Julia Performs as well as C and Fortran

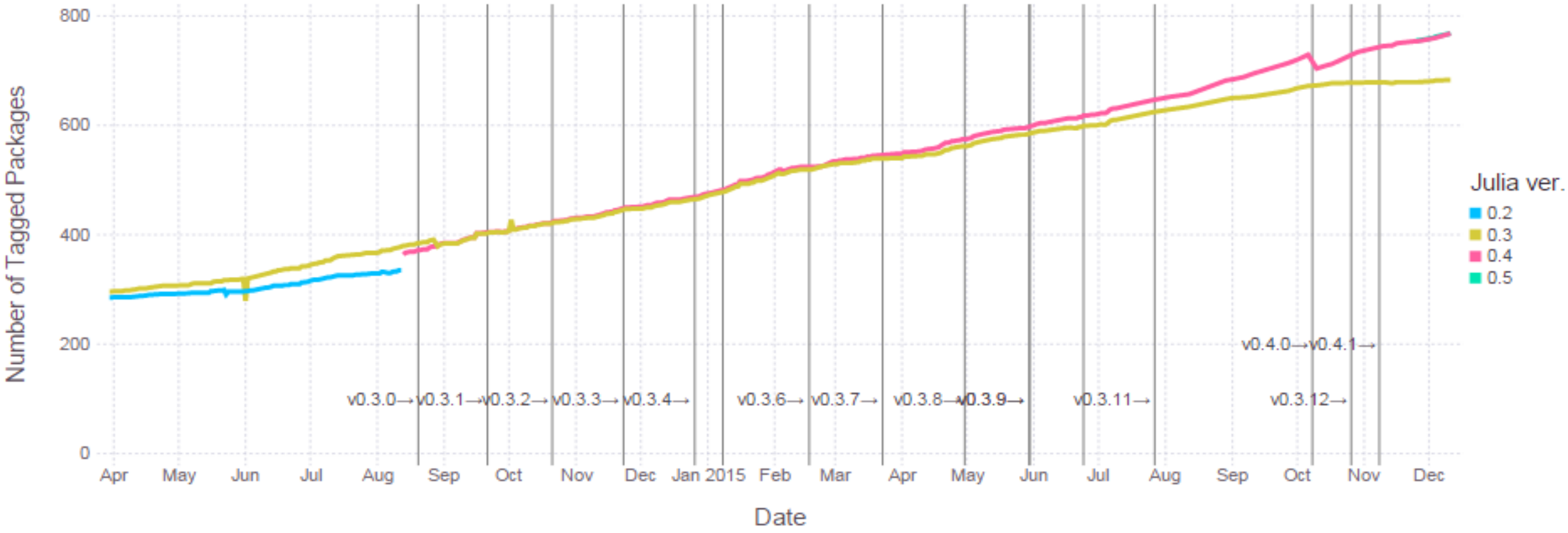


Performance benchmark relative to C. A value of 1 means as fast as C. Lower values are better.

Julia Package Ecosystem Pulse

Last updated 2015-12-11

Total number of packages by Julia version



http://pkg.julialang.org/pulse.html

How can we help you?

info@juliacomputing.com