



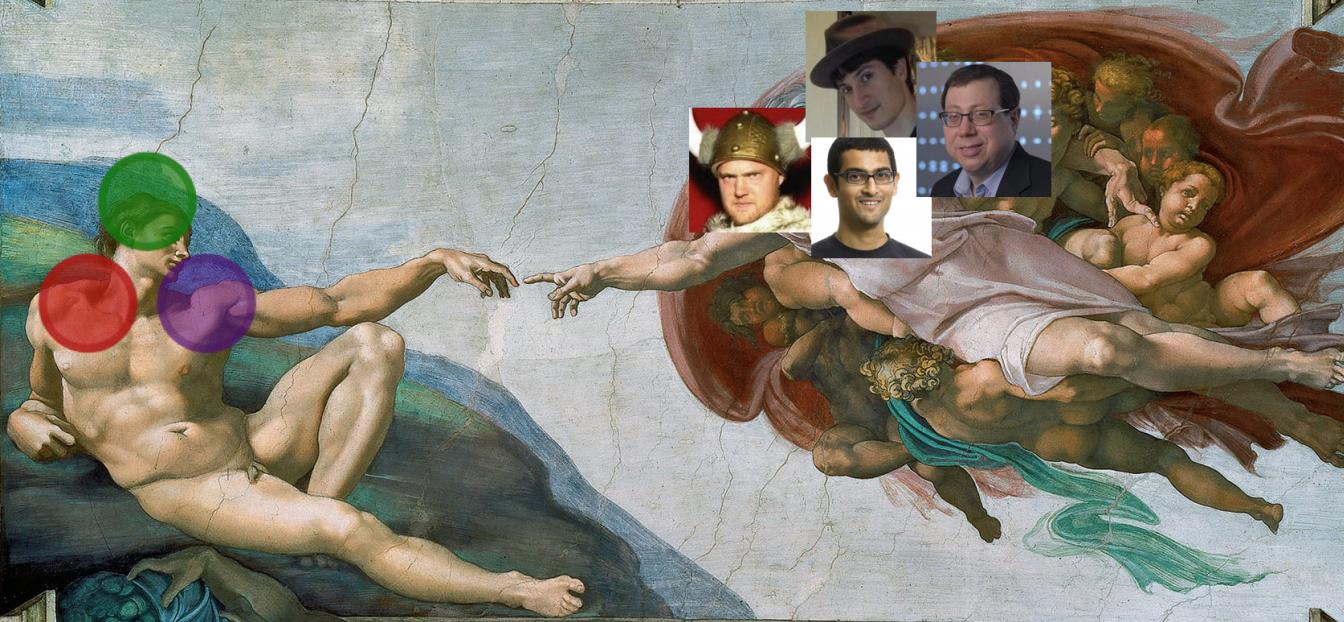
# Julia's Package Ecosystem

## Past, Present, & Future

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Day 1  
2009/08/22

- “Why we created Julia”: 2012/02/14
- METADATA first commit: 2012/11/4
  - Example.jl, followed by Options.jl, TextWrap.jl, ArgParse.jl on 2012/11/7. DataFrames.jl on 2012/11/13
- Julia version 0.1.0 released 2013/02/13
  - Approximately 80 packages registered

# 2013 to the Present



- “metadata-v2” switch around 2013/10
- Julia 0.2.0 released 2013/11/16
  - Approximately 220 packages available
- Problem: package developers like living on the edge, start working on master quickly.
  - Packages start breaking on 0.2, I start nagging...

# PackageEvaluator.jl

PkgEval.jl

Tests Pass v0.3

- Downloads all packages and (attempts to) run their tests using Julia release & nightly.
- Runs these tests nightly in a Vagrant/VirtualBox Ubuntu VM
- Collects results and uses them to build <http://pkg.julialang.org> & auto-file issues (kinda)



PkgEval.jl

Tests Pass v0.3

PkgEval.jl

Tests Fail v0.3

PkgEval.jl

No Tests v0.3

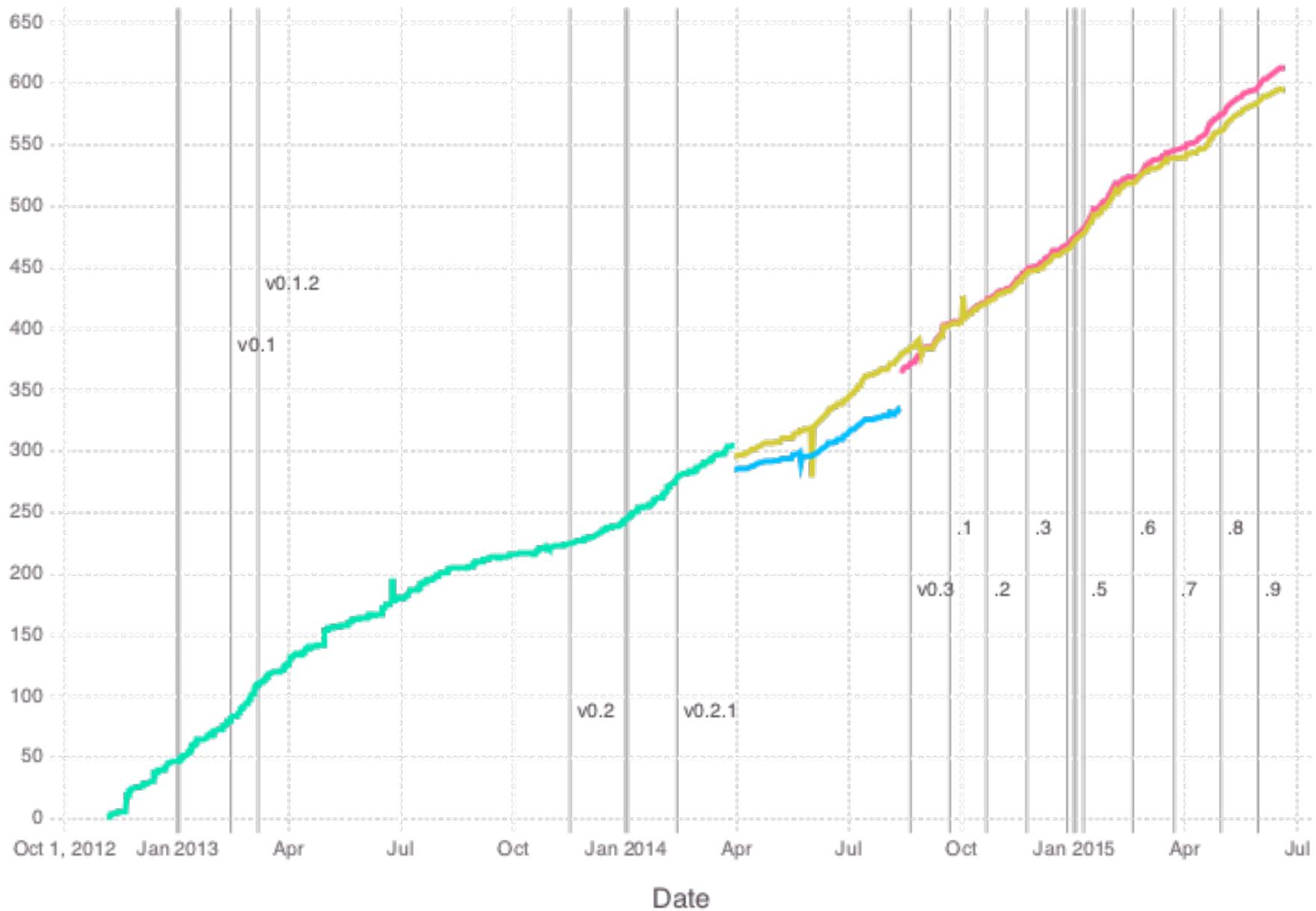
PkgEval.jl

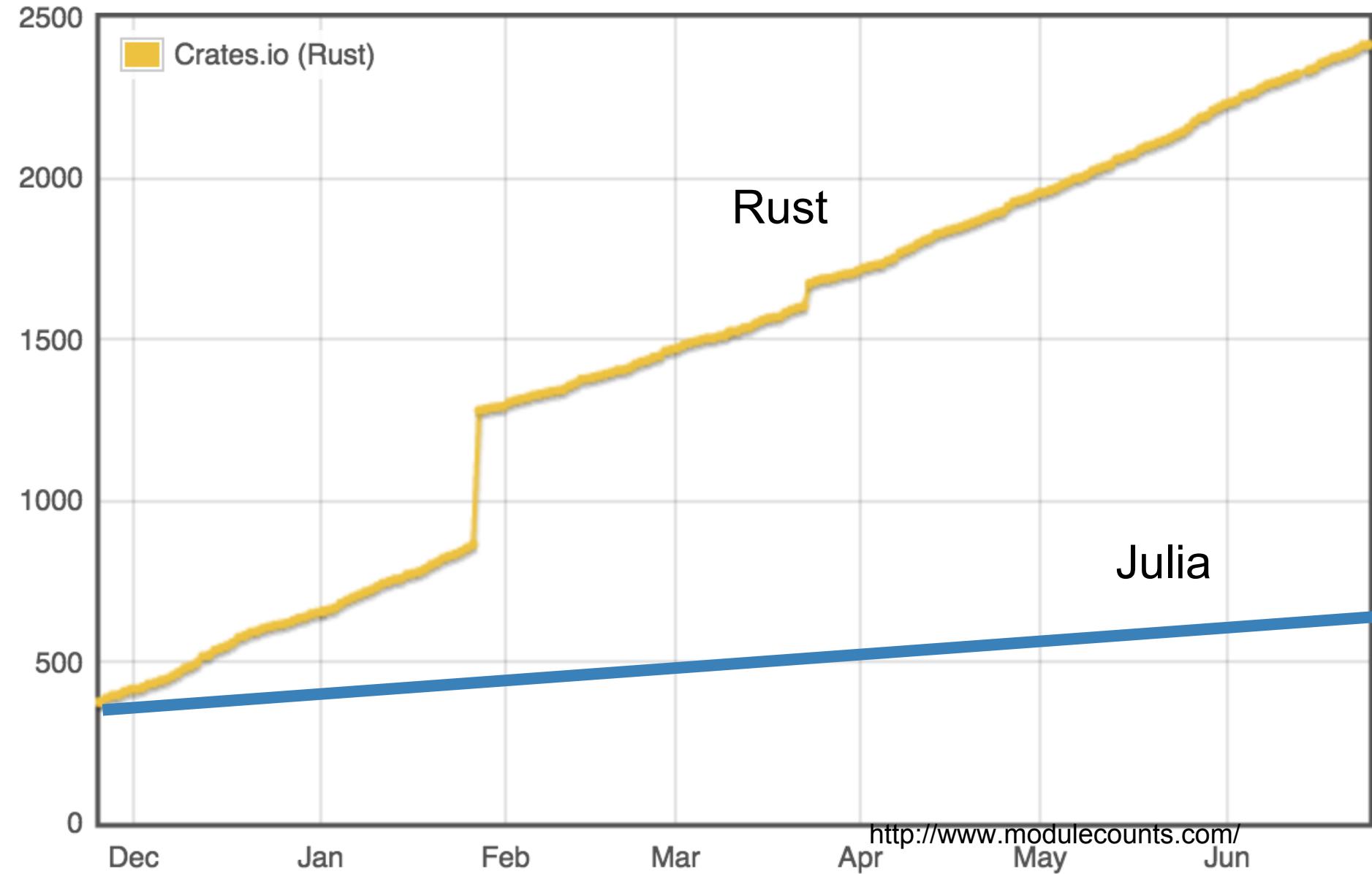
Not Possible

# Julia ver.

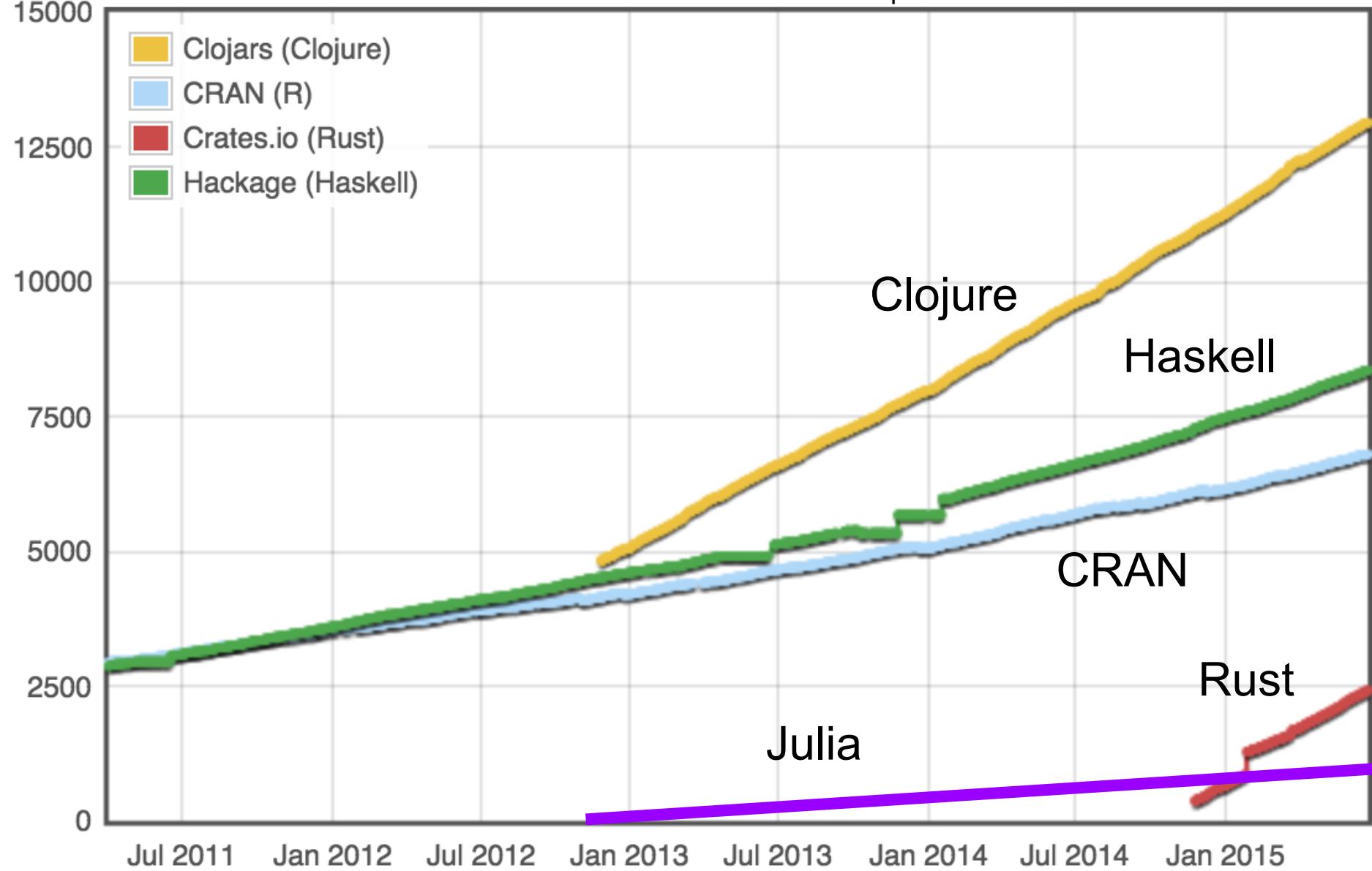
■ 0.2 ■ 0.3 ■ 0.4 ■ METADATA

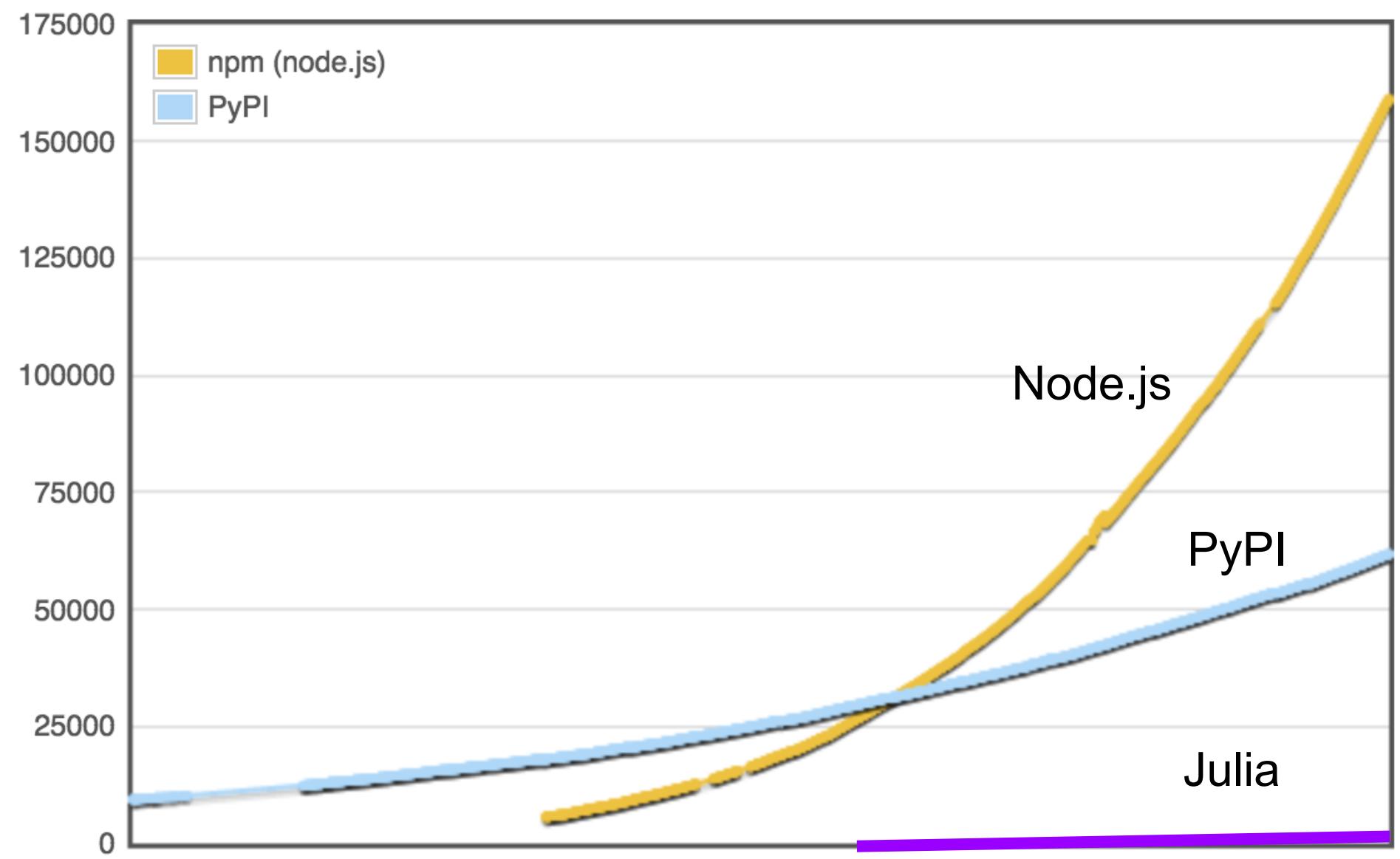
Number of Tagged Packages



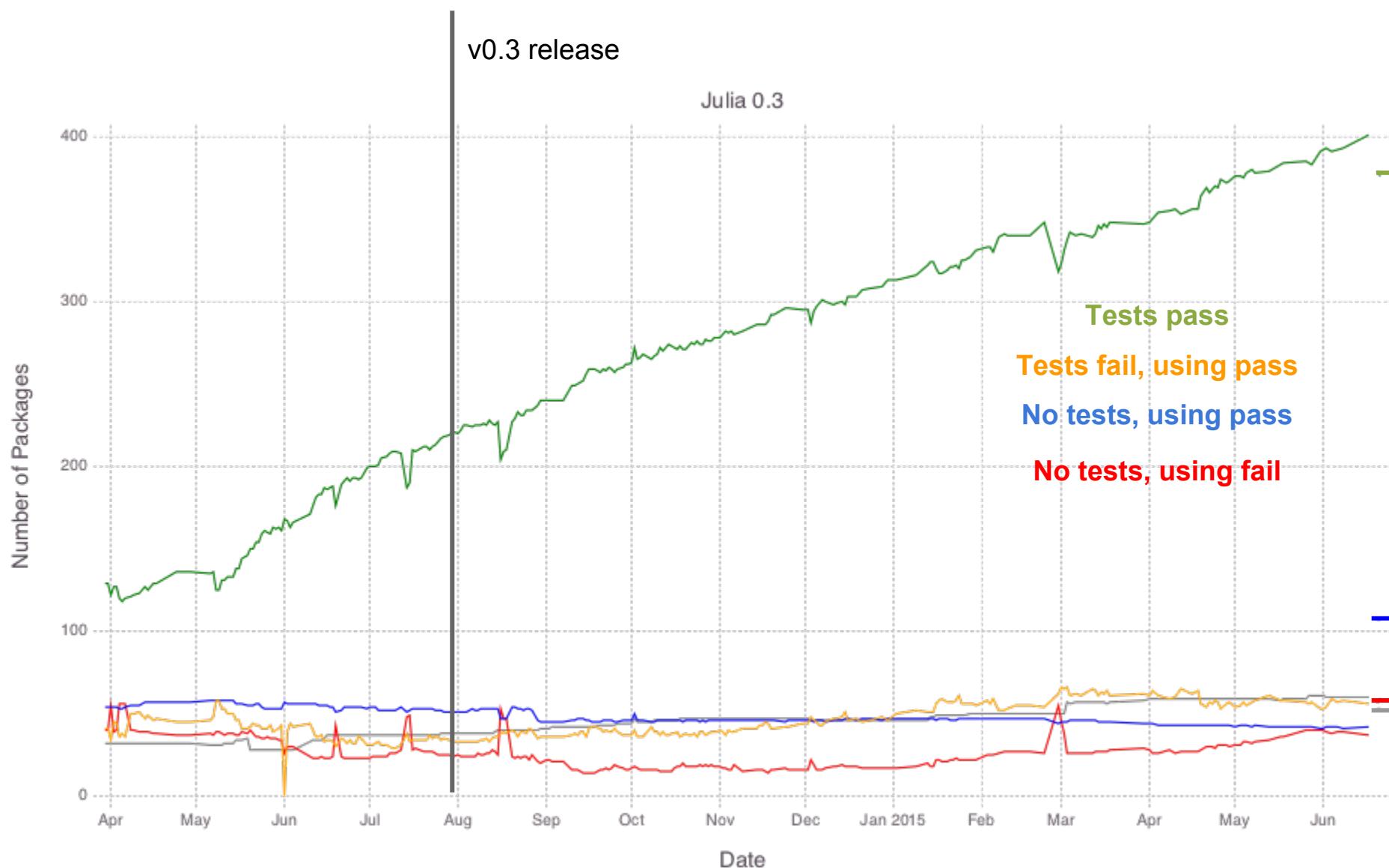


<http://www.modulecounts.com/>

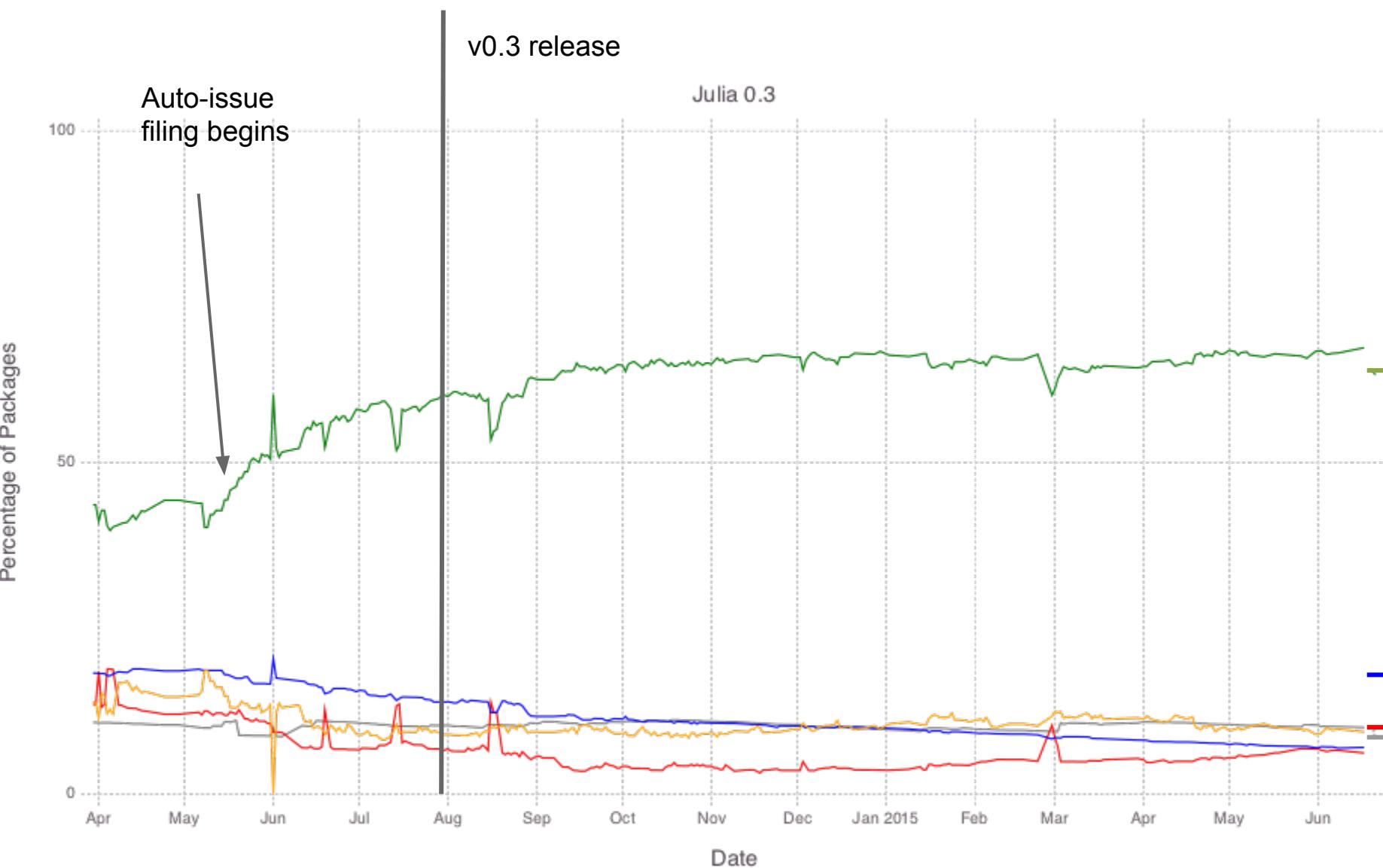




# Julia 0.3 Total Packages by Status



# Julia 0.3 Status by Percentage of Packages



# Julia 0.4 Relative Status

#8420: checked  
integer conversions

#8521: regularize  
Dict syntax

#8816: Char no longer  
Integer subtype

Julia 0.4

#10328: create Libc  
and Libdl modules

Switch to running in VMs

Percentage of Packages

100

50

0

Sep

Oct

Nov

Dec

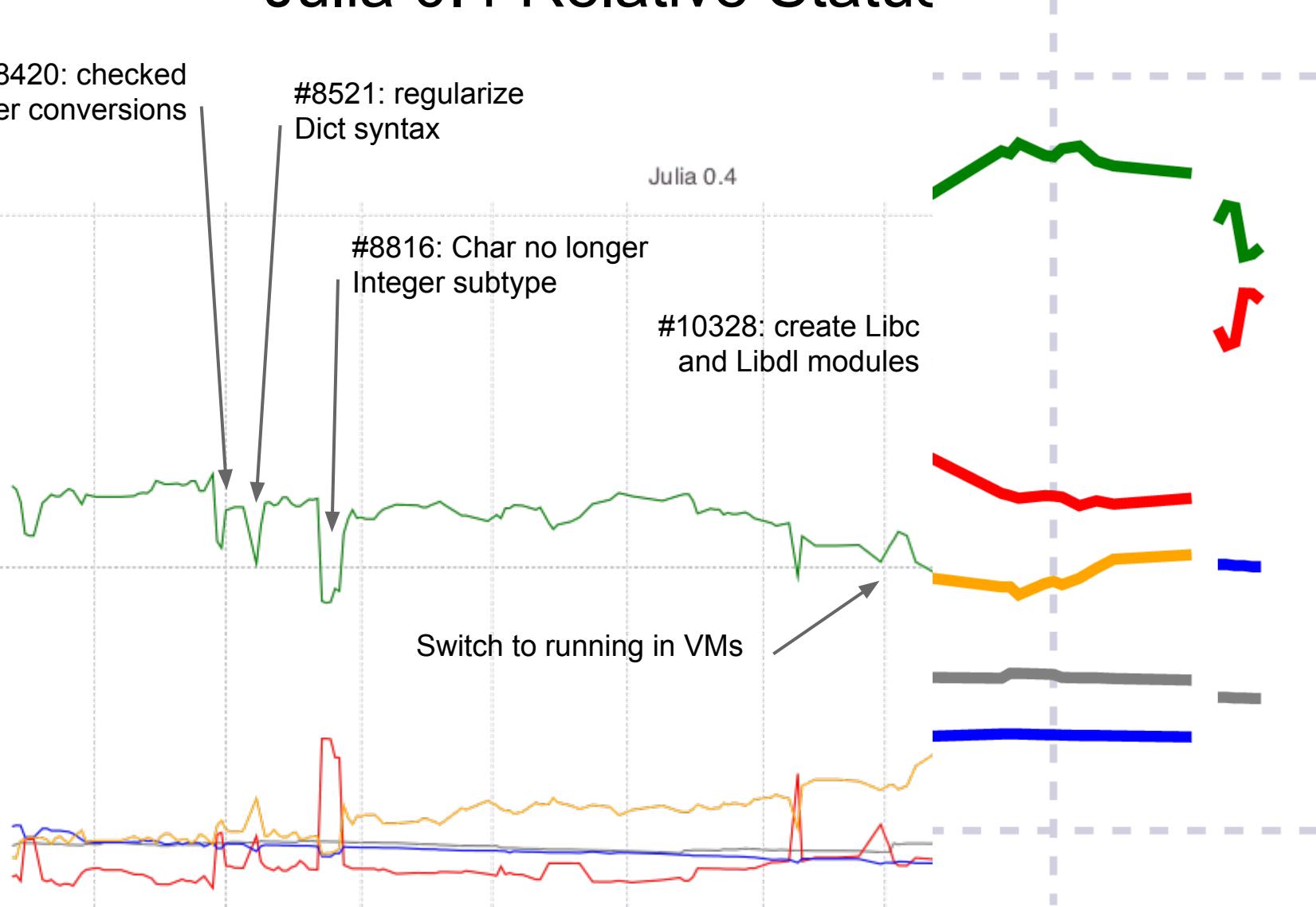
Jan 2015

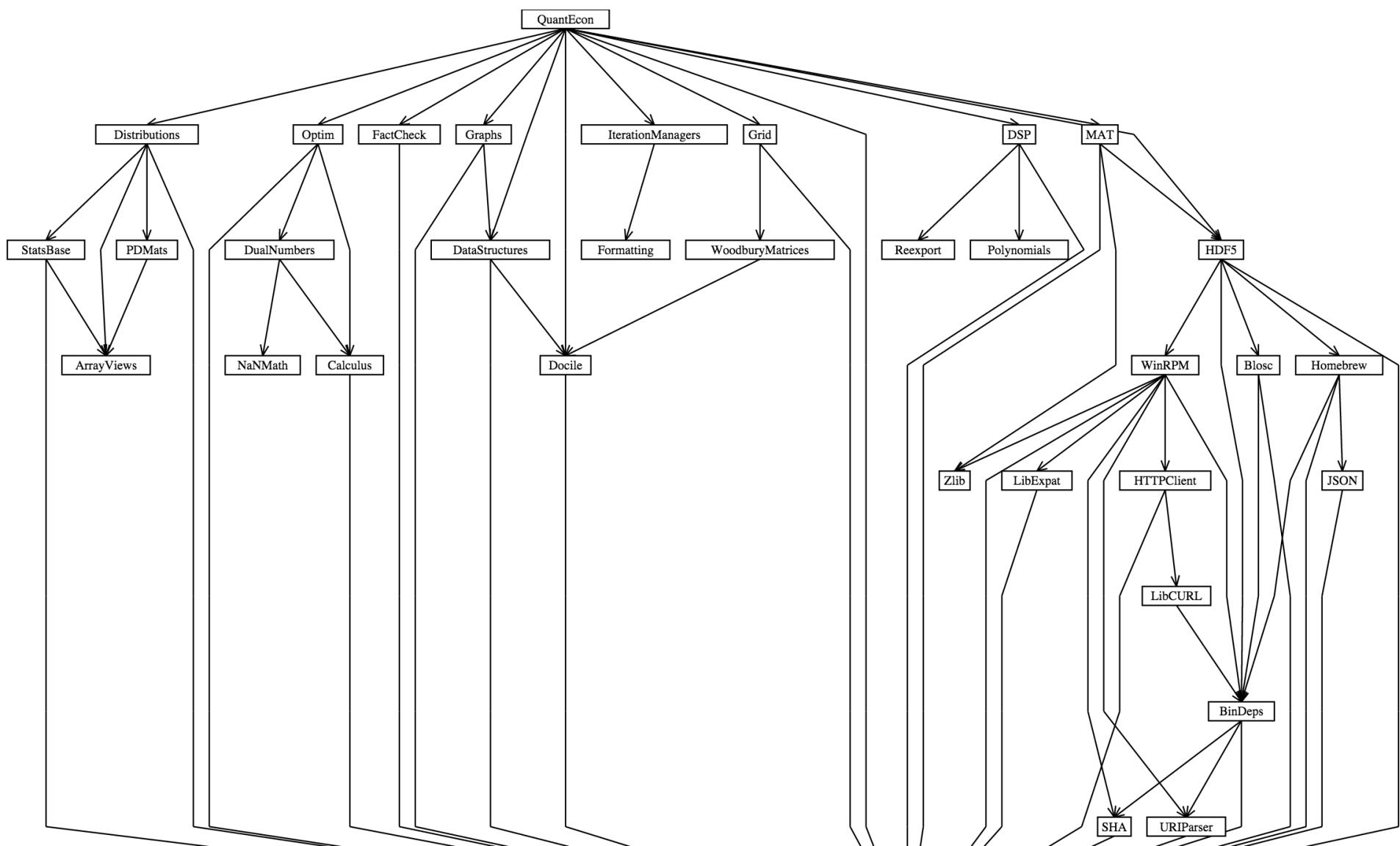
Feb

Mar

Date

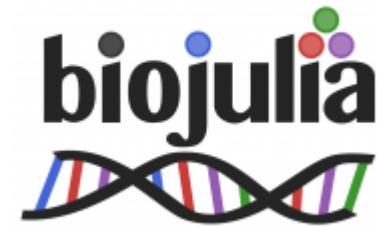
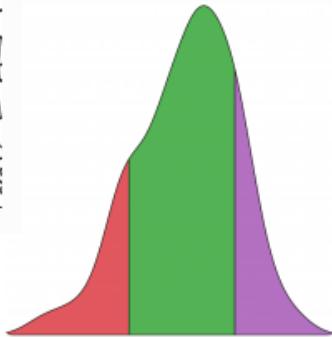
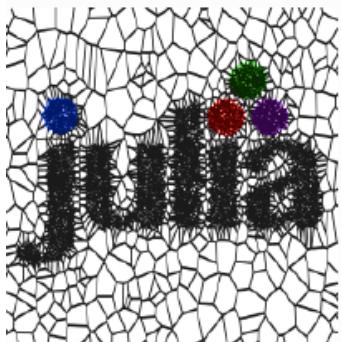
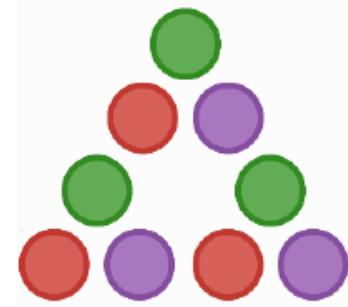
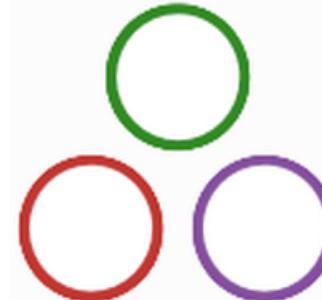
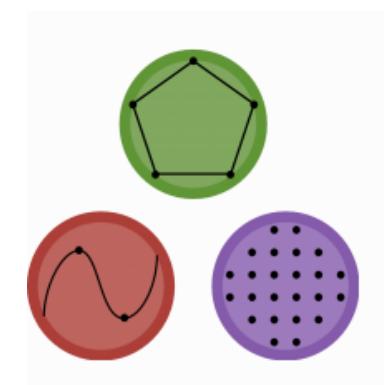
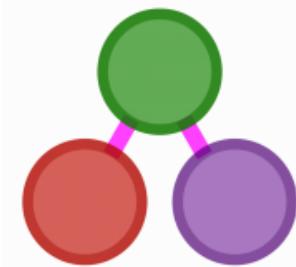
Jun





Gadfly.jl and QuantEcon.jl dependency graphs, data extracted from MetadataTools.jl, layout from GraphLayout.jl

# Julia Organizations



# Rise of Julia Organizations

JuliaLang: 32

JuliaGL: 6

JuliaQuant: 4

JuliaStats: 25

JuliaGeo: 5

JuliaSparse: 4

JuliaOpt: 18

JuliaParallel: 5

JuliaGeometry: 3

JuliaWeb: 16

JuliaAstro: 4

JuliaFinMetriX: 2

JuliaGPU: 8

JuliaDiff: 4

JuliaGraphs: 2

**Total = ~20%**

# Future - Technical

- More package metadata
  - Discoverability (e.g keywords)
  - pkg.julialang.org options (no issues, exceptions)
  - Coverage.jl options (ignore files)
- Analyze packages for e.g. exported names
  - Package search at REPL?
  - Search all package's docs at REPL?

# Future - Technical

- Package website
  - Dependency graphs/counts (incl. reverse)
  - Sorting? Ratings?
  - Make organizations more prominent
  - Coverage?
  - Automate more/cleaner code

# Future - Social/Policy

- Standards for METADATA?
  - An alternative METADATA with a more anything-goes view? Or vice-versa?
- Namespacing of packages?
- Processes around abandoned packages / deprecation? Versioned METADATA?

# See you next time @ 1000 packages!

- Register your packages in METADATA!
- Submit yours PRs to:
  - <https://github.com/lainNZ/PackageEvaluator.jl>
  - <https://github.com/lainNZ/packages.julialang.org>
- Live versions of some of these plots at <http://pkg.julialang.org/pulse.html>
- Thanks for listening!