

Pharo Status

(Fosdem15)

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<http://www.pharo.org>

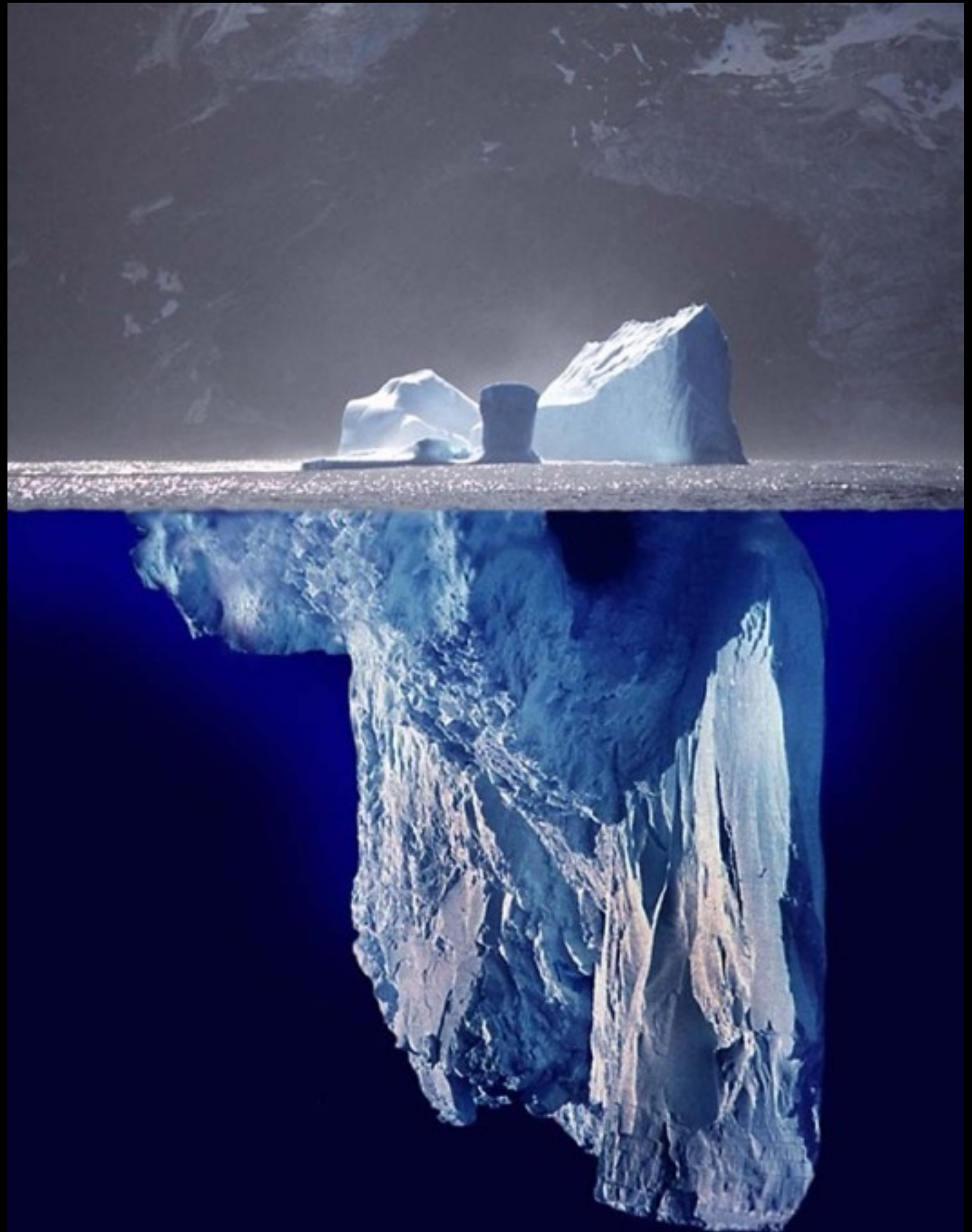


Pharo3: Release April `14

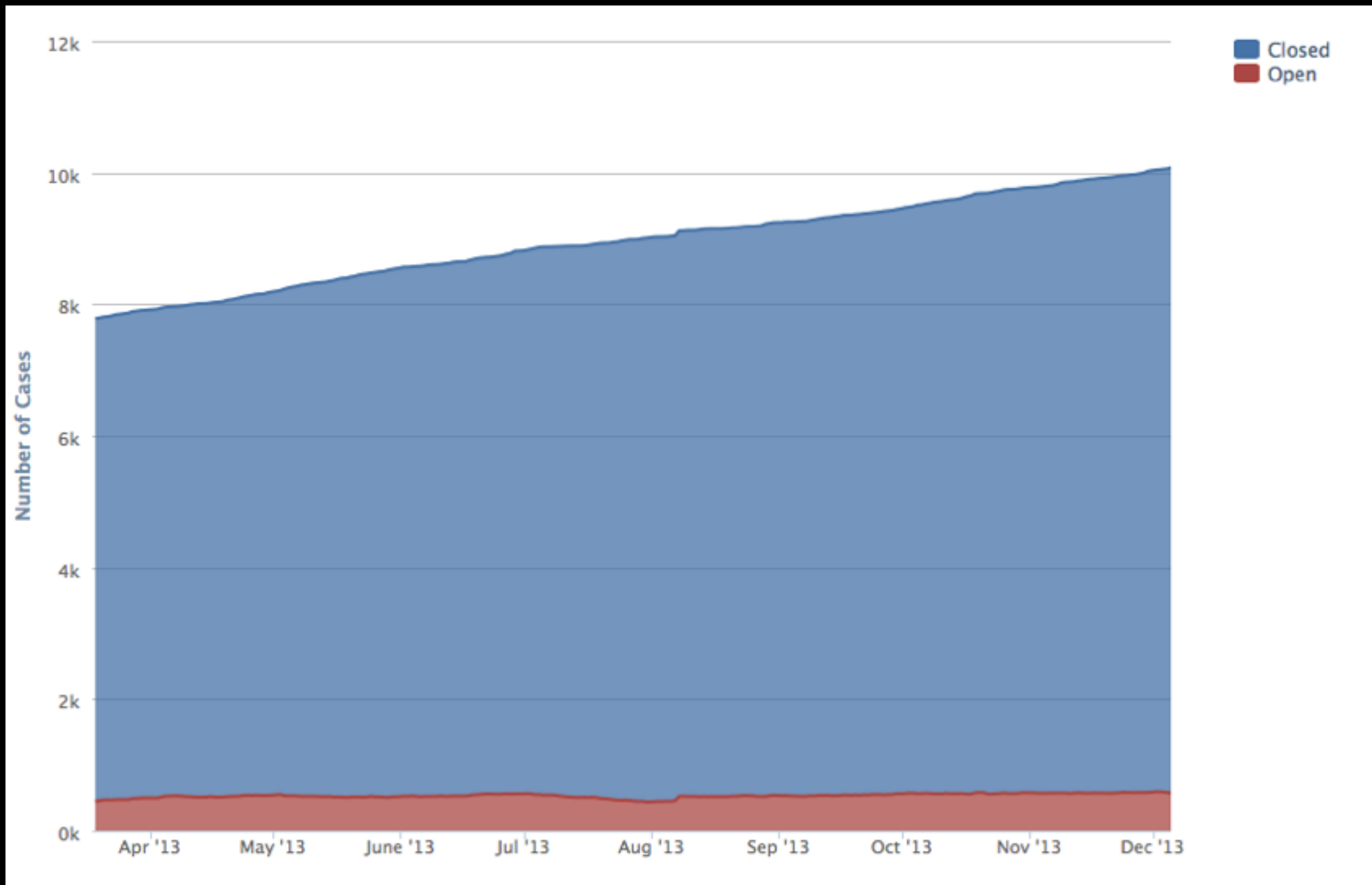
- ✦ Started March 2013
- ✦ 2390 Issue tracker entries with Pharo3 tag closed
- ✦ 854 Updates

Iceberg

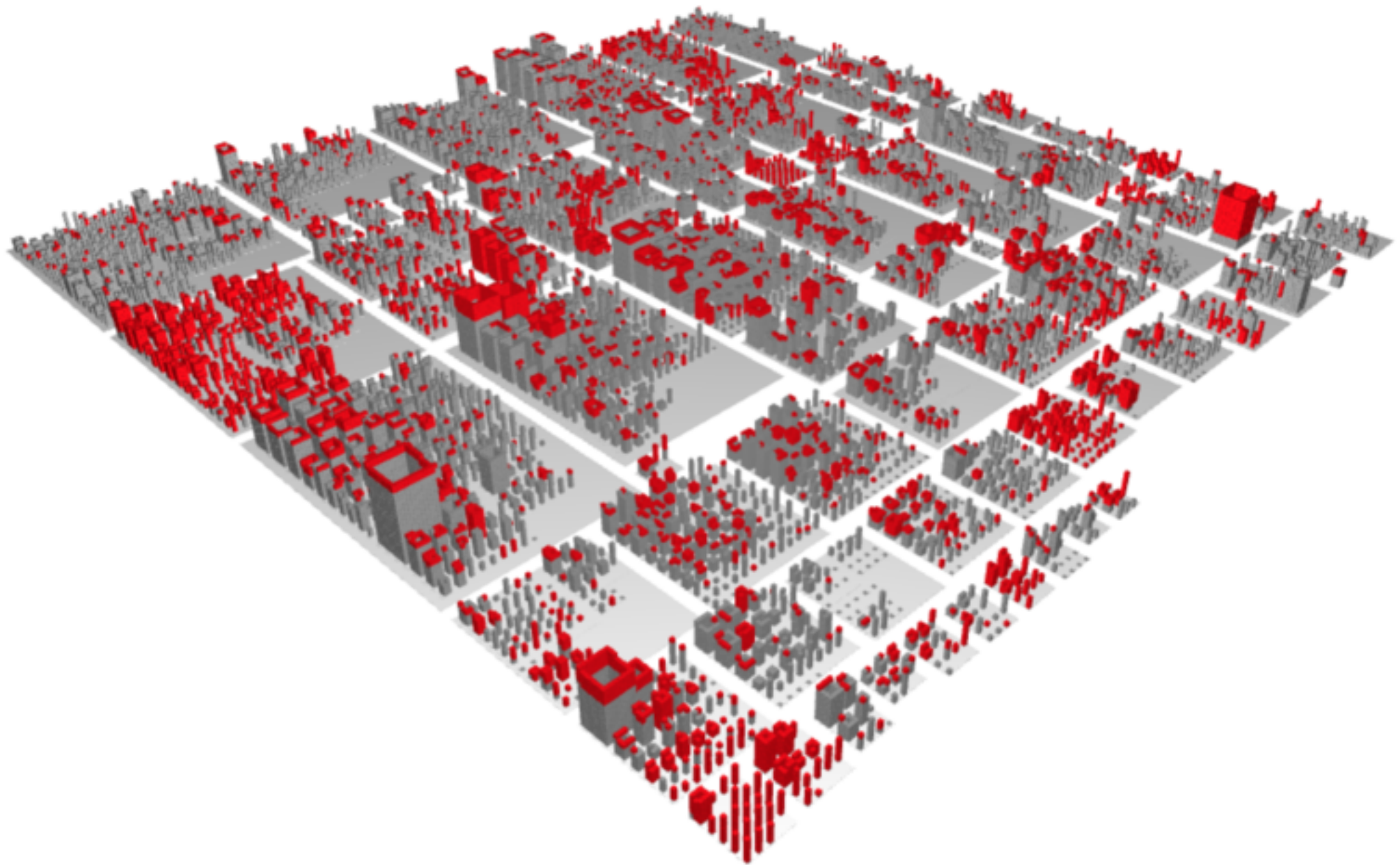
- ✦ A lot of Changes!
- ✦ Not everything visible



Lots of Activity



A lot of Change!



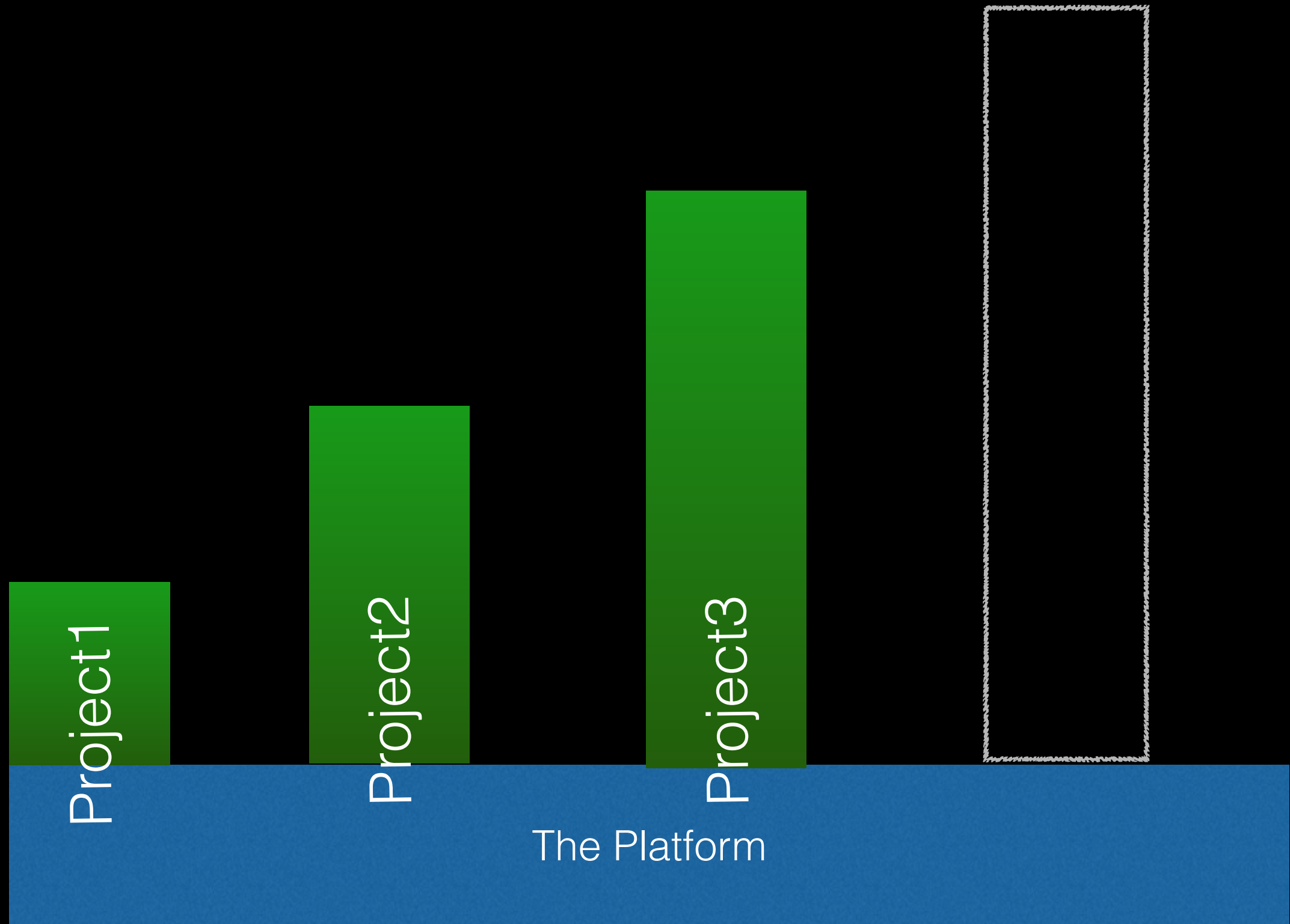
Yet easy to adopt

- ✦ Moose switched in two afternoons (two people)
- ✦ Others: “I just loaded my packages”

A lot of change...
(see FOSDEM14)

But just one iteration

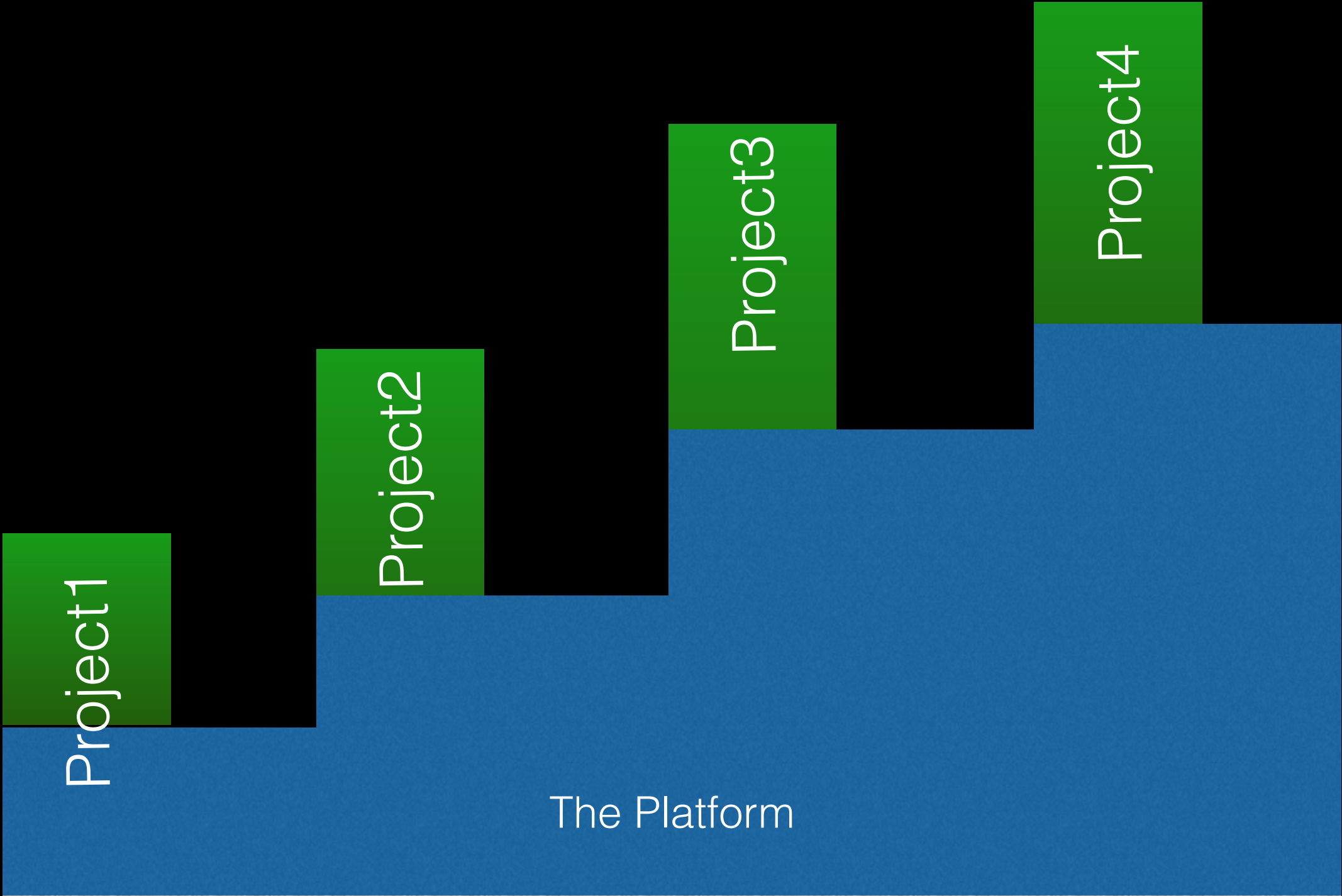
Jump too large



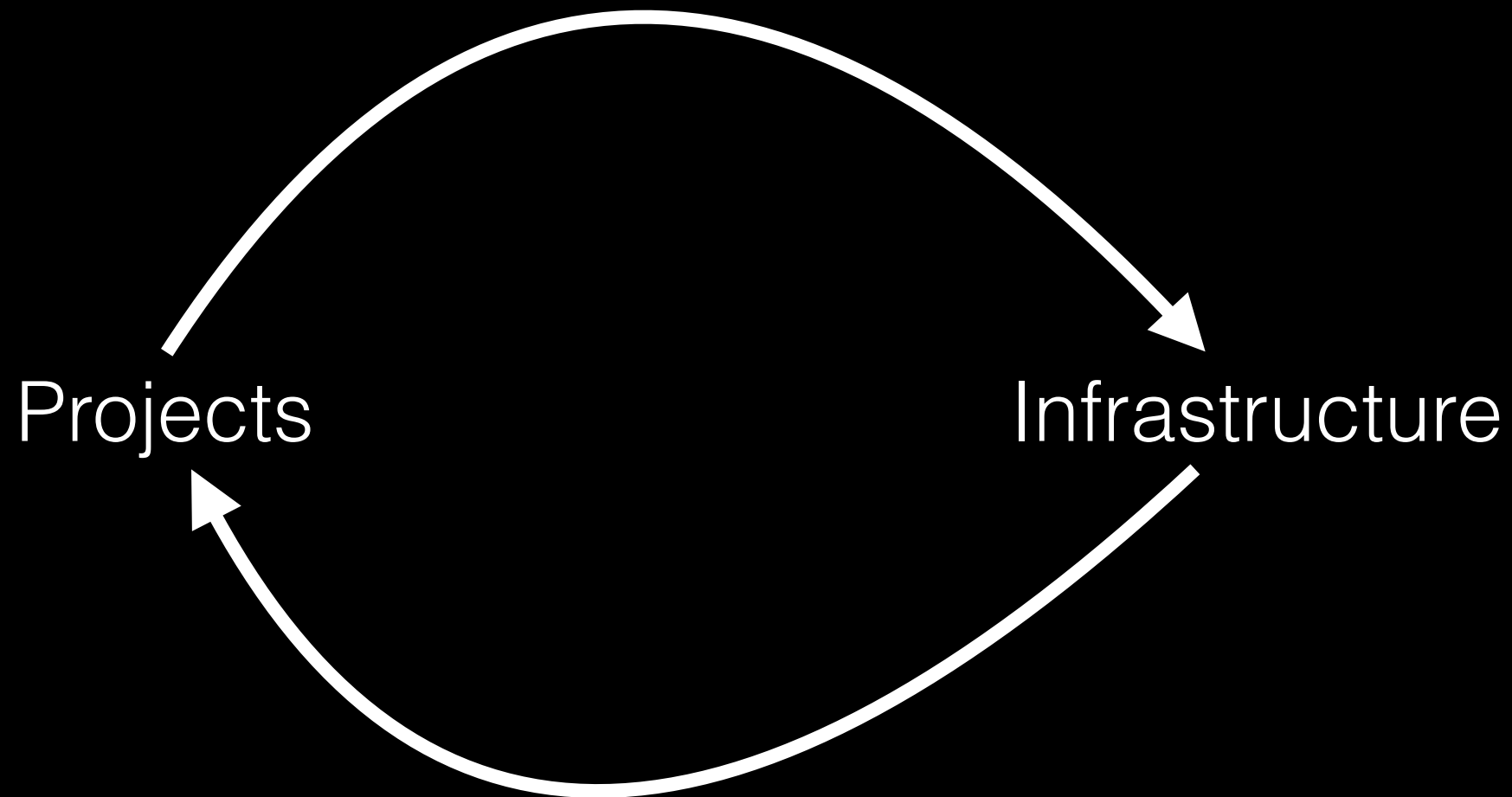
Nomadic Solution

- Do not build infrastructure
- Use resources until depleted
- Move on

Jump Possible



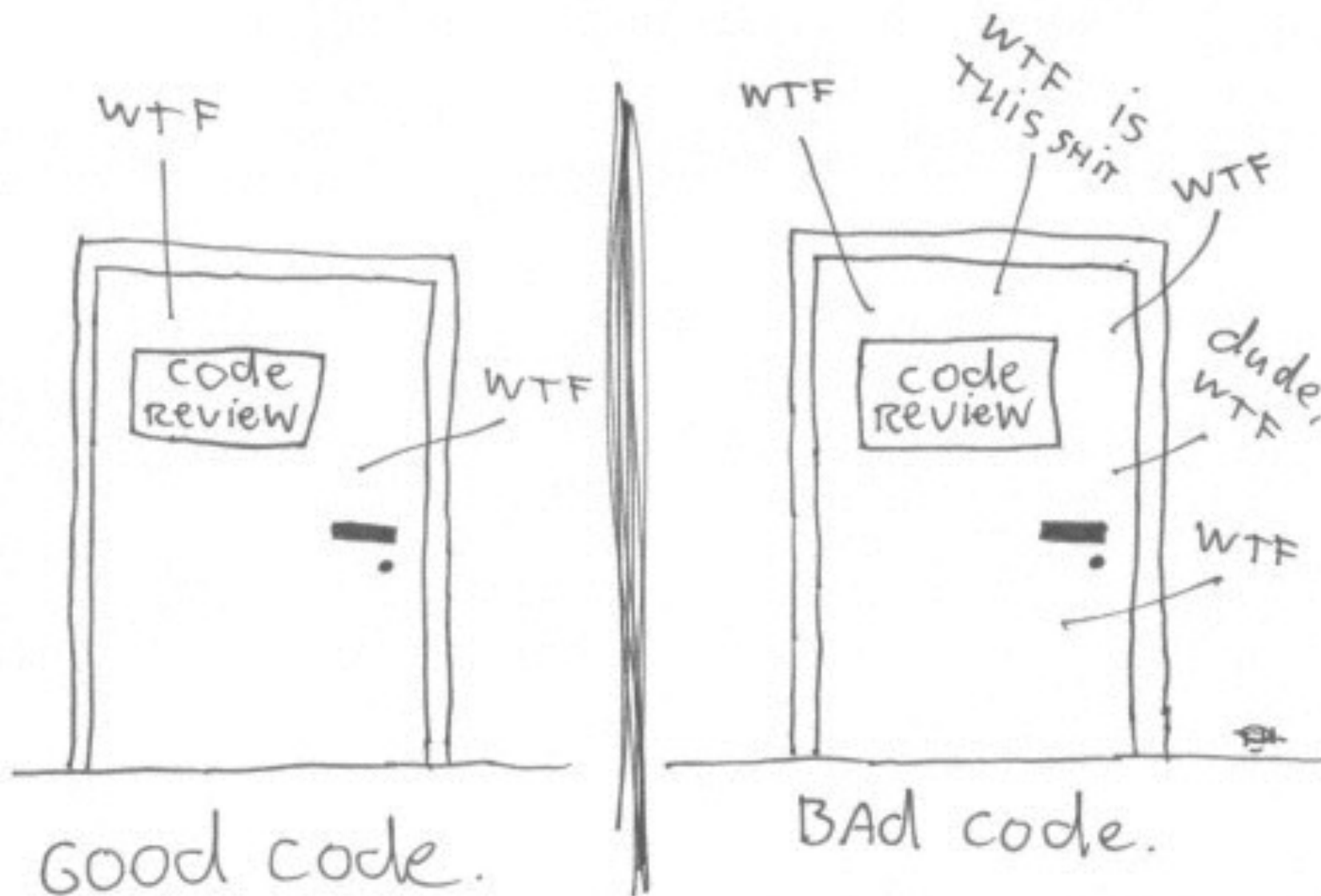
Feedback Loop



Every improvement has an
effect

Even Trivial Changes

The ONLY VALID MEASUREMENT
OF CODE QUALITY: WTFs/minute



Pharo4

Pharo4

- ✧ Again: To be released Spring 2015
- ✧ 470 updates
- ✧ >1200 Issues closed
- ✧ Very stable

Small stuff...

- ✦ Improved Refactorings
- ✦ 6MB Deployment Image
- ✦ ifTrue: on non-Booleans
- ✦ Browser and Tool cleanups
- ✦ Context Cleanup (MethodContext/ContextPart merge)

Dark Theme

The screenshot displays the Pharo IDE interface in a dark theme, showing a calculator application and its associated tests.

Workspace: HP35CalculatorUIModel open.
HP35CalculatorUIModel new inspect; openWithSpec.

HP35CalculatorModel>>#pi

Type: Pkg1 | ^Pkg2 | Pk.*Cor

- HP35-Calculator
- HP35-Seaside-Calculator
- HelpSystem-Core
- HelpSystem-Tests
- History
- HudsonBuildTools20
- jQuery-Core
- jQuery-UI
- JavaScript-Core
- JavaScript-Pharo20-Core

HP35CalculatorModelTests

- HP35CalculatorModelTests
- HP35CalculatorUIModelTests
- HP35CalculatorUIModelTests
- RPNCalculatorCore
- RPNCalculatorCoreTests

HP35CalculatorModel

- all --
- accessing
- copying
- initialize
- keys
- printing
- private
- testing

one

- pi
- power
- rcl
- reciprocal
- rollDown
- seven
- sin
- six
- sqrt

HP35CalculatorModel

3.141592653589793

x^y LOG LN e^x CLEAR

SQRT ARC SIN COS TAN

1/x SWAP ROLL STO RCL

ENTER +/- EE CLx

- 7 8 9

+ 4 5 6

* 1 2 3

/ 0 . π

HP35CalculatorModel

EyeTreeInspector

root: a HP35CalculatorModel('3.141592653589793' a RPNCalculatorCore(3.141592653589793 0 0 0))

core: a RPNCalculatorCore(3.141592653589793 0 0 0)

memory: 0

Input: "

InputState: #new

arcMode: false

autoEnter: true

error: nil

self reciprocal

RPNCalculatorCoreTests>>#testDivision

Type: Pkg1 | ^Pkg2 | Pk.*Cor

- HP35-Calculator
- HP35-Seaside-Calculator
- HelpSystem-Core
- HelpSystem-Tests
- History
- HudsonBuildTools20
- jQuery-Core
- jQuery-UI
- JavaScript-Core
- JavaScript-Pharo20-Core

HP35CalculatorModelTests

- HP35CalculatorModelTests
- HP35CalculatorUIModelTests
- HP35CalculatorUIModelTests
- RPNCalculatorCore
- RPNCalculatorCoreTests

HP35CalculatorModel

- all --
- running
- testing

RPNCalculatorCoreTests

- setUp
- testAddition
- testArcSinCosOutOfRange
- testClear
- testRun the testArcCos
- testDivision
- testDivisionByZero
- testEmpty
- testExpLn
- testLog

RPNCalculatorCoreTests >>#testDivision

testDivision

core x: 100; enter; x: 4; divide.

self assert: core x equals: 25

Test Finished

Method:

RPNCalculatorCoreTests>>#testDivision

Test Runner

Hit return to accept

Seaside-Tests-RenderLoop

Seaside-Tests-Environment

Seaside-Tests-Pharo-Function

Seaside-Tests-Pharo-Controller

Seaside-Tests-Welcome

Bootstrap-Tests-Core-Canvas

Bootstrap-Tests-Core-Library

Bootstrap-Tests-Widgets-Canvas

MemcachedTests

Beacon-Tests

SystemLogger-Tests

SystemLogger-Tests-Extensions

Zinc-WebSocket-Tests

Zinc-SSO-OAuth1-Tests

Zinc-SSO-OpenID-Tests

FuelBeacon-Tests

HP35-Calculator

HP35-Seaside-Calculator

118 run, 118 passes, 0 skipped, 0 expected failures, 0 failures, 0 errors, 0 unexpected passes

Run Selected Run Profiled Run Coverage Run Failures Run Errors File out results

GT Tools

- ✦ Start to replace all tools
- ✦ For now: Inspector + Spotter

<http://gt.moosetechnology.org>

Video: GTInspector

iMOVIE AND THE GLAMOROUS TEAM PRESENT
A THE GLAMOROUS TEAM PRODUCTION IN ASSOCIATION WITH iMOVIE
A THE GLAMOROUS TEAM FILM
GT INSPECTOR
EDITED BY THE COMMUNITY PRODUCTION DESIGNER GLAMOUR DIRECTOR OF PHOTOGRAPHY ROASSAL, CODECITY
CASTING BY PHARO.ORG MUSIC BY iTUNES COSTUME DESIGNER MORPHIC EXECUTIVE PRODUCER MOOSETECHNOLOGY.ORG
WRITTEN BY THE GLAMOROUS TEAM DIRECTED BY THE GLAMOROUS TEAM

<https://www.youtube.com/watch?v=wdYhM9byyPw>

Demo: Inspect Methods

Demo: GTSpotter

First Class Variables

- First class Instance Variables (Slots)
- First class globals + class variables

For what?

- Allows programmers to define behavior
- Easy reflection on variable access
 - Break on variable read, for example

In Progress...

Advanced Reflection

- Partial Behavioral Reflection
- Associate MetaObject with structural object
 - Slots, Globals
 - AST nodes

Why?

- Change behaviour for selected AST Nodes or Variables
- “All variable reads”
- “this message send”

But without changing the program code!

Epicea

- Replace .changes
- High level model:
 - aggregate changes (refactoring)
 - serialized to disk independent of source model

Epicea Log Browser

Prior+Trigger viewExpand all

Event

more

Undo 24/1/2014 10:34

✖ ExampleClass >> #fortyTwo 24/1/2014 10:34

Undo 24/1/2014 11:06

✔ ExampleClass >> #fortyTwo 24/1/2014 11:06

#fortyTwo --> #forty2 24/1/2014 11:07

✔ ExampleClass >> #forty2 24/1/2014 11:07 This is a comment

➡ ExampleClass >> #fortyThree 24/1/2014 11:07

✖ ExampleClass >> #fortyTwo 24/1/2014 11:07

≡ 'I didn't like the name' 24/1/2014 11:08

≡ " 24/1/2014 11:09

✎ "'comment " trim' 24/1/2014 12:52

➡ EpEntryItem >> #displayWidget 24/1/2014 12:53

📁 MC save: Epicea-MartinDias.470 on: http://smalltalkhub.com/mc/MartinDias/Epicea/main/ 24/1/2014 12:55

📁 Snapshot: /Users/tinchodias/Downloads/Epicea/Epicea-1.image 24/1/2014 12:55

≡ '312312321' 24/1/2014 13:41

ContentFilters

"protocol: #example"

fortyThree ^ self fortyTwo + 1

"protocol: #example"

fortyThree ^ self forty2 + 1

A new GC: Spur

- New Object Layout
 - e.g. faster instantiation, larger hash
- Ephemerons, Fast Become:, Pinned Objects
- Double Performance

The Future

64 bit COG VM

- ✧ New Spur GC+Object layout has 64bit version
- ✧ 64bit in development
 - ✧ prototype starts to works in interpreter VM
 - ✧ 32bit images can be converted to 64bit

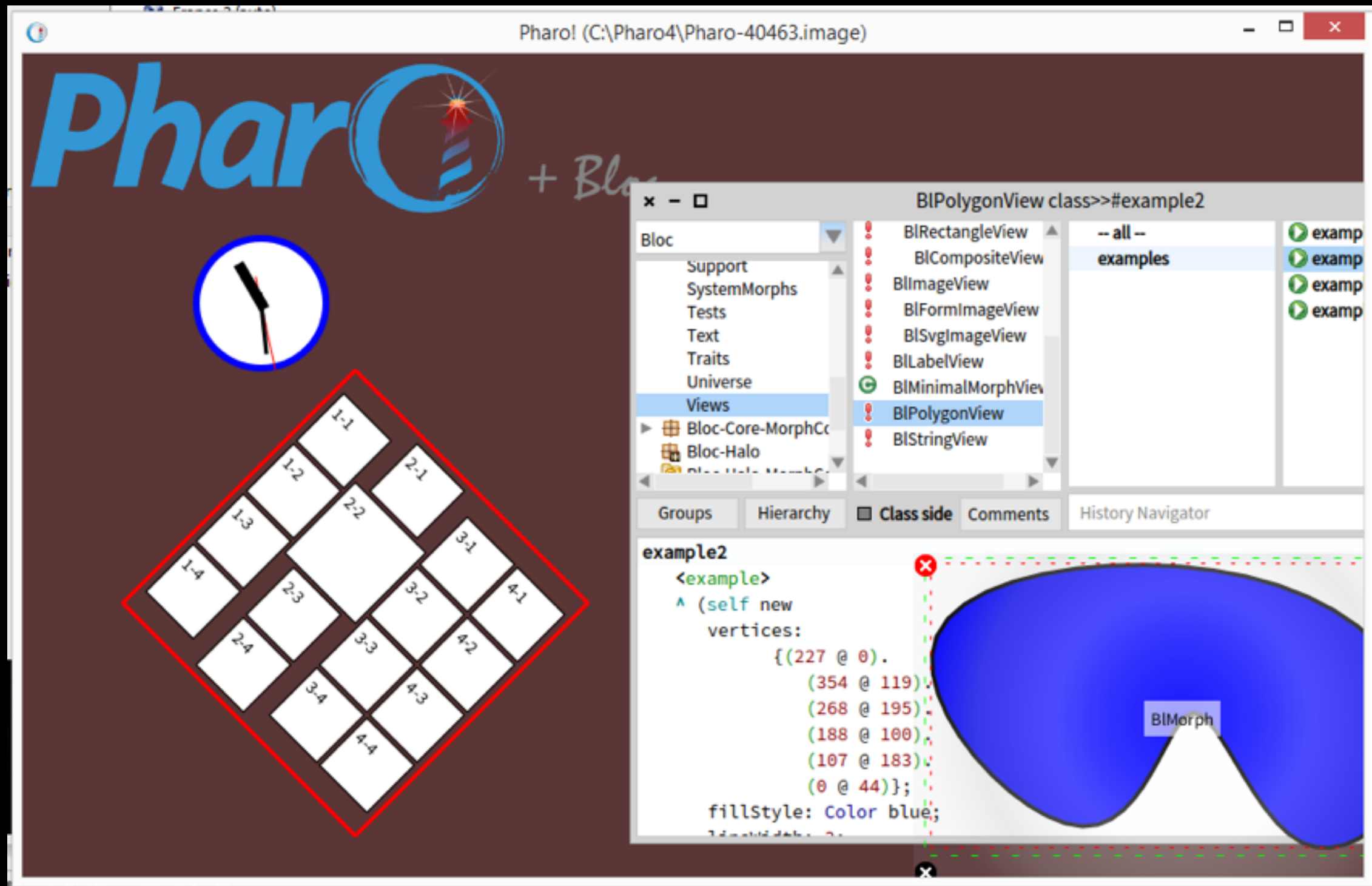
Sista: Runtime Optimizer

- ✦ Current JIT work per method
- ✦ Sista: detect hotspots, collect type info ==> Optimize
- ✦ Bytecode-2-Bytecode
- ✦ Optimizer implemented in Pharo Image

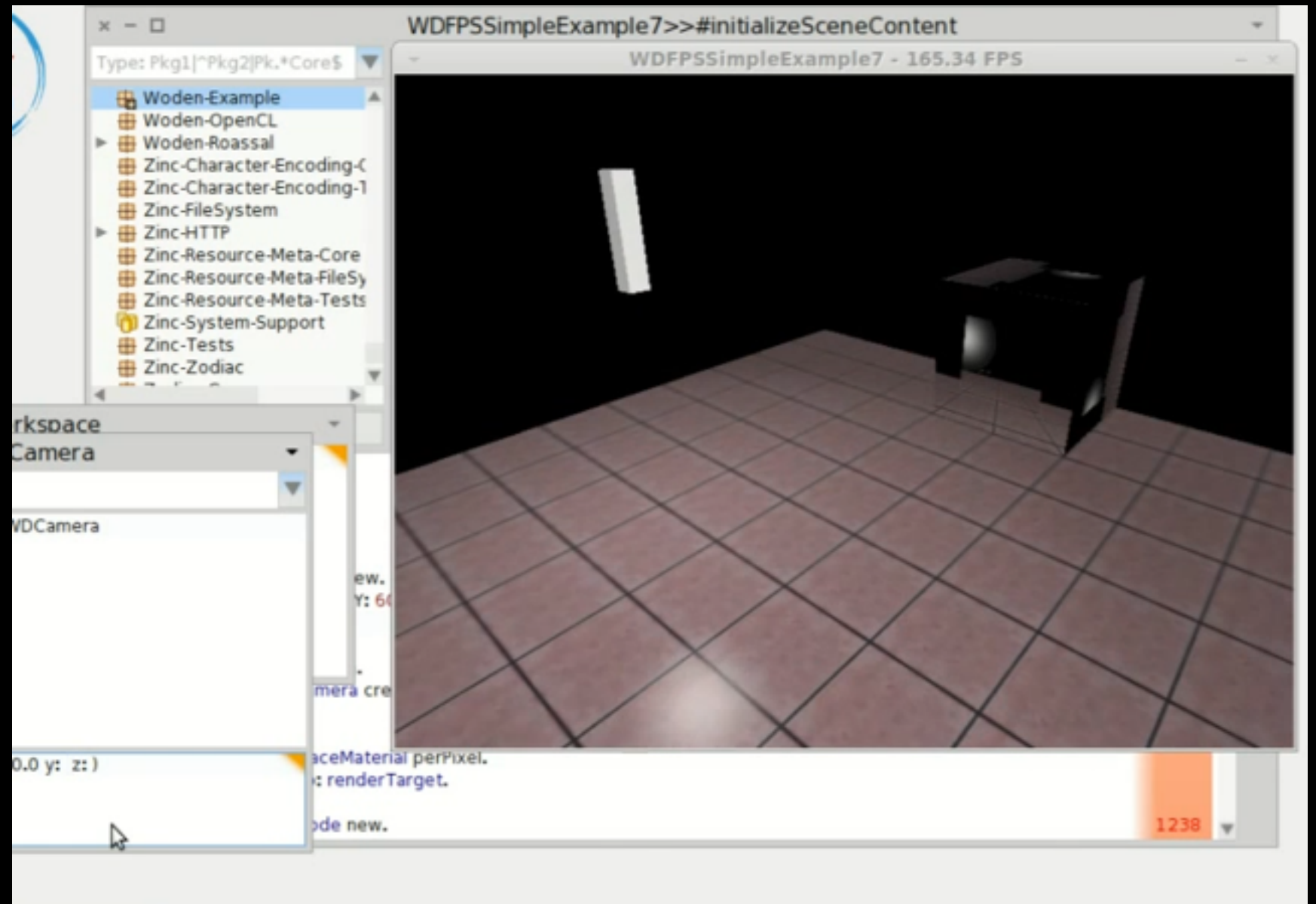
OSWindow+SDL2

- ✧ Move window logic to Smalltalk
- ✧ Backend uses libSDL2 via FFI
- ✧ Multiple OS Windows, OpenGL...

Block: Morphic, redone



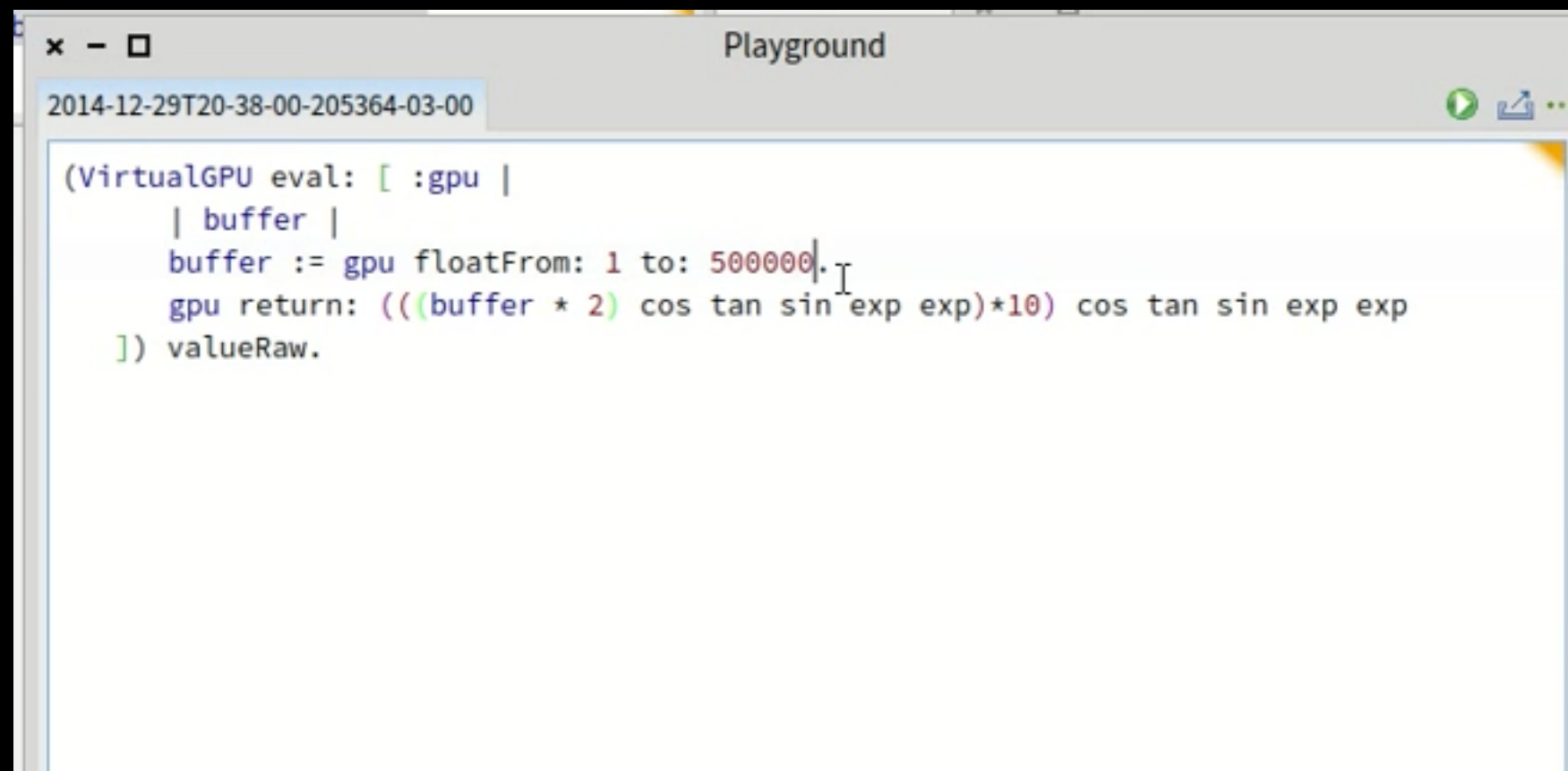
Woden 3D



<https://www.youtube.com/watch?v=1Nze9tnwYxY>

Virtual GPU

- ✦ The VirtualGPU is a simple DSL/framework for parallel algorithms.



```
(VirtualGPU eval: [ :gpu |  
  | buffer |  
  buffer := gpu floatFrom: 1 to: 500000.  
  gpu return: (((buffer * 2) cos tan sin exp exp)*10) cos tan sin exp exp  
) valueRaw.
```

<https://www.youtube.com/watch?v=6xrq4OkvSi4>

Too much to show...

- ✧ Twitter: @pharoproject
- ✧ reddit Smalltalk sub-reddit
- ✧ Google+

Questions ?