Pharo: Live objects for complex projects

http://stephane.ducasse.free.fr
http://www.pharo.org

JPMorgan Chase & Co.

ENSTA Bretagne

Lam Research

Inria
INVENTEURS DU MONDE NUMÉRIQUE

feenk

SCHMIDT
Ingenieurbüro für Bauwesen

Lifeware

ZWEIDENKER

HR works

THALES

GemTalk Systems

Software Soops Group

projector software

BetaNine
software engineering

netstyle.ch

inspired!

SORABITO

knowroaming

TA MÈRE SCRL
BADASS MOBILE DEVELOPMENT

FINWORKS
INFORMATION TECHNOLOGY SOLUTIONS

Systems that make sense
Sensus

LABWARE
Results Count

OBJECT PROFILE

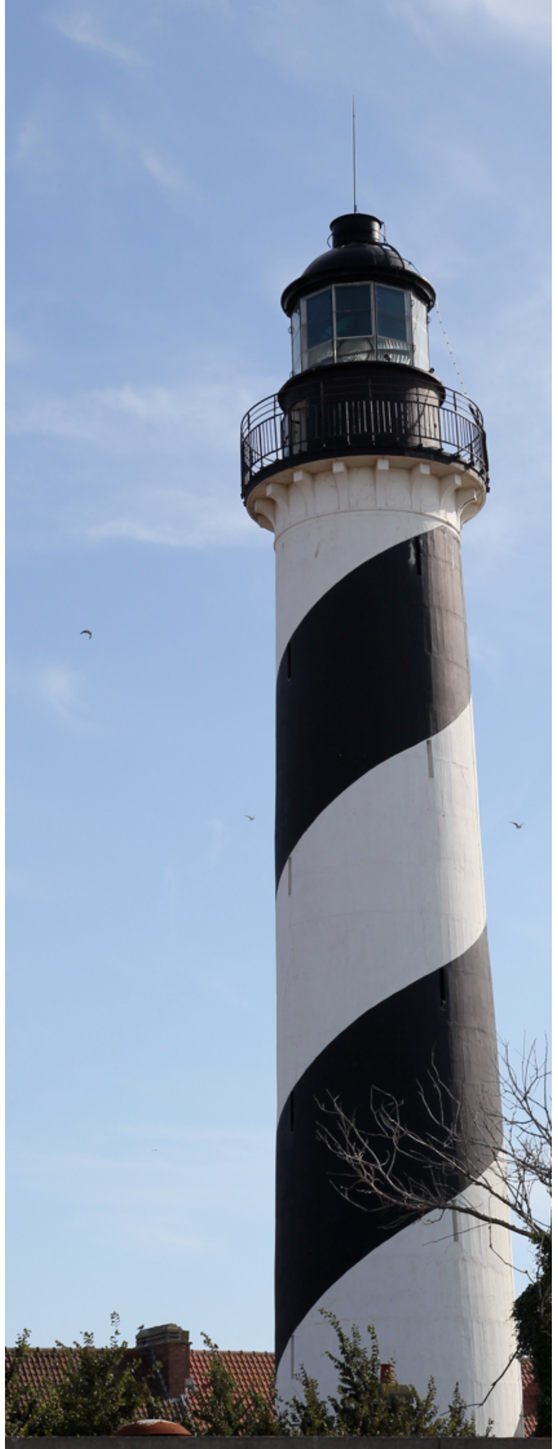
Palantir

SpesenFuchs

FAST
Fundación Argentina de Smalltalk

Yesplan
Let's make it happen

esug
EUROPEAN SMALLTALK USER GROUP



A word of presentation

Expert in language design

Traits in Php7.0, Perl6O
Influenced Traits in Scala

Expert in maintenance

Program analysis, Metamodels, visualization, testing, refactorings, metrics….

synectique

Inventive Analysis

Building ***specific*** analysis tools for important running business software (Ada, Cobol, 4D, C, C++, Java…)

Dedicated tools to support decision making process

THALES

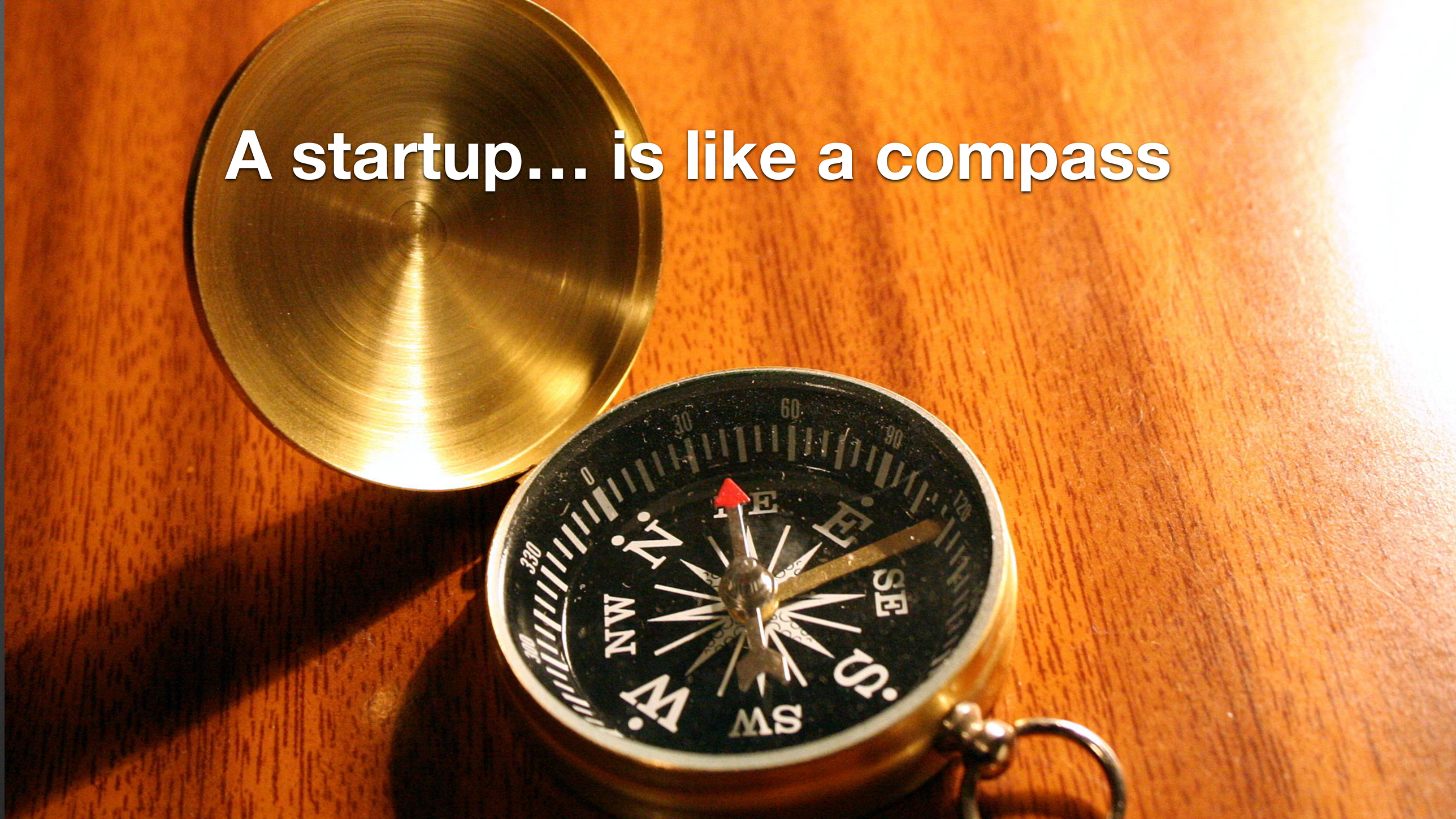
GROUPE GENERALI GENERALI Solutions d'assurances

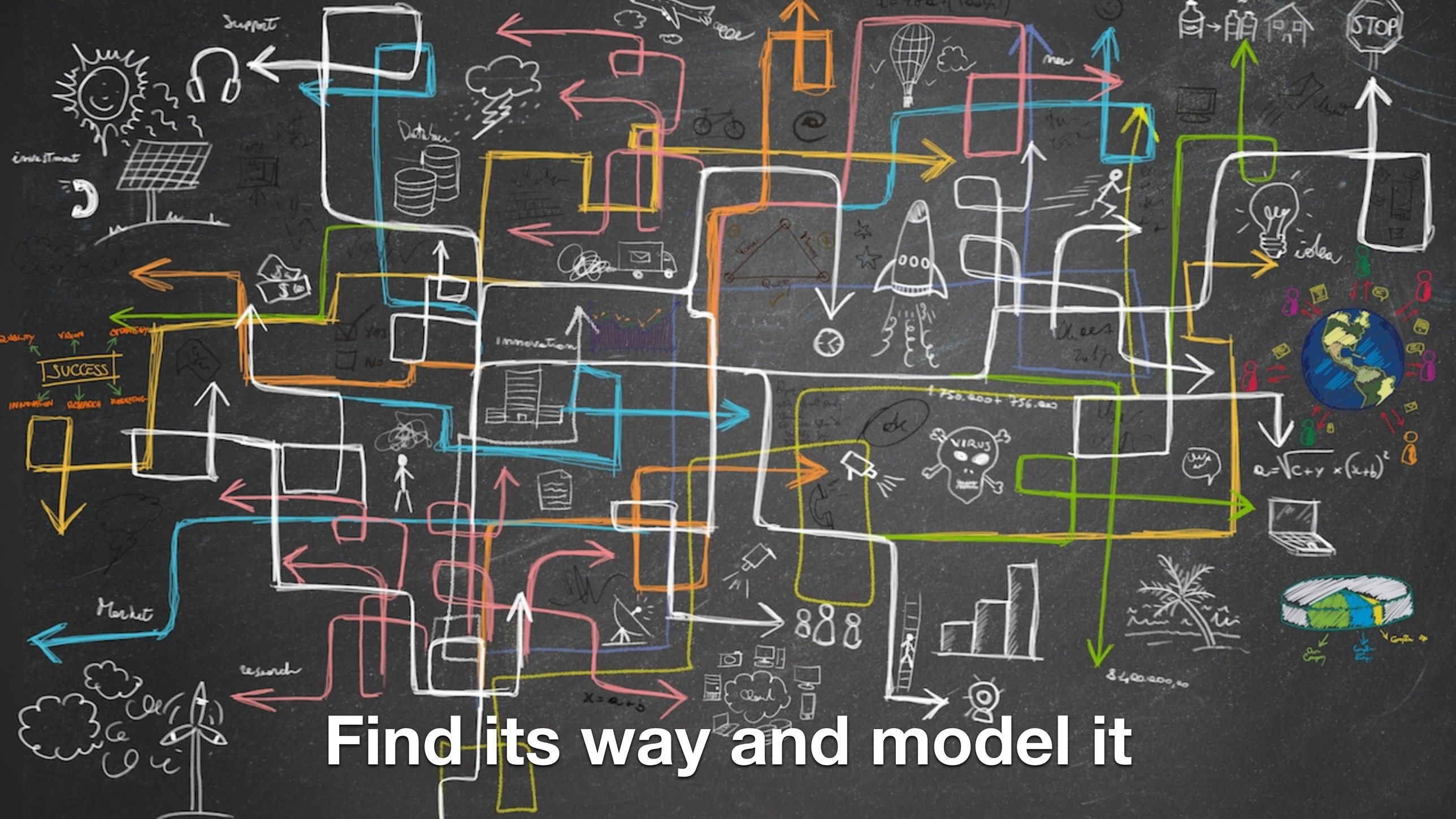
SIEMENS

GENERALI BELGIUM

moose

A startup… is like a compass





Find its way and model it

Iceberg repositories
New repository
Clone repository
Add local repository
Fetch all
Repositories
Name
Current branch
Loaded version
Status
iceberg
dev-0.4
f9c63ee (15 May 2017)
Up to date
libgit2-pharo-bindings
master
1f582be (18 April 2017)
Up to date
General
Packages
Branch browser
Commits
Date & time
Id
User
Parents
Left: working copy / Right: incoming updates
Commit info
Date & time
Commit Id
Parent(s)
Author
Comment
Esteban Lorenzano
remove not used method
Stack
Source
Variables
Evaluator
Pharo

Pharo?

Pharo!

- System: Pure object language + full IDE
- Powerful, elegant and fun to program
- Great community / industrial consortium
- Living system under your fingers
- Works on Mac OSX, Linux, iOS, Android, Windows, Pi - 100% MIT

Elegant!

- Full syntax on a postcard
- Simple and powerful objet model

Full Syntax!

```
exampleWithNumber: x
	“A method that illustrates every part of Smalltalk method syntax”
	<menu>
	| y |
	true & false not & (nil isNil) ifFalse: [self halt].
	y := self size + super size.
	#($a #a ‘a’ 1 1.0)
		do: [ :each | Transcript
				show: (each class name);
				show: (each printString);
				show: ‘ ‘].
	^ x < y
```

Yes the full Syntax!

Full Syntax!

```
exampleWithNumber: x
	“A method that illustrates every part of Smalltalk method syntax”
	<menu>
	| y |
	true & false not & (nil isNil) ifFalse: [self halt].
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		do: [ :each | Transcript
				show: (each class name);
				show: (each printString);
				show: ‘ ‘].
	^ x < y
```
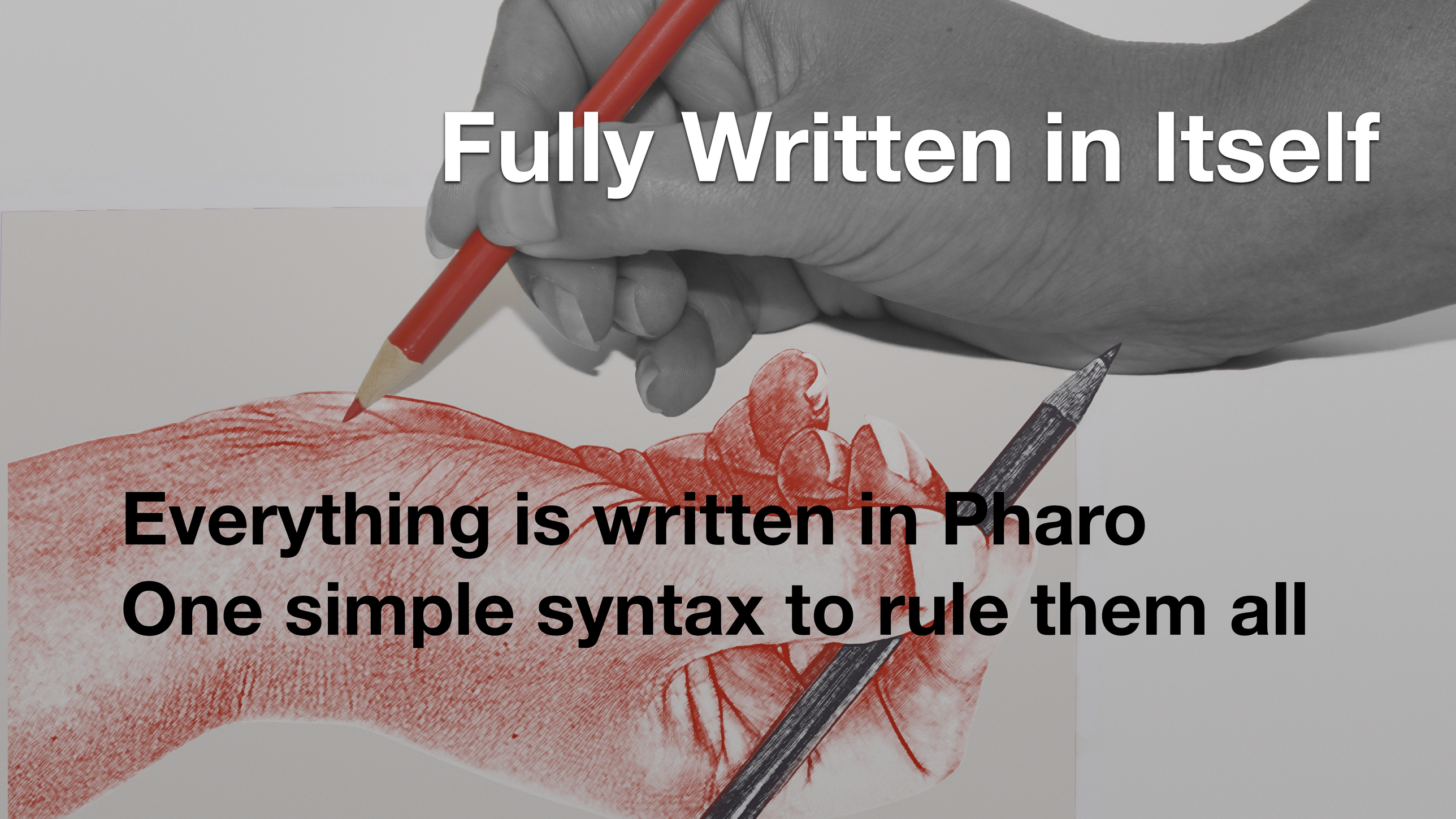

Full Model!

- Dynamically typed
- Everything is an object instance of a class
- All methods are public virtual
- All attributes are protected
- Single inheritance + Traits
- Closures everywhere

Focus on intrinsic complexity

Eliminate accidental complexity

Fully Written in Itself



Everything is written in Pharo
One simple syntax to rule them all

Learn
Adapt
Modify

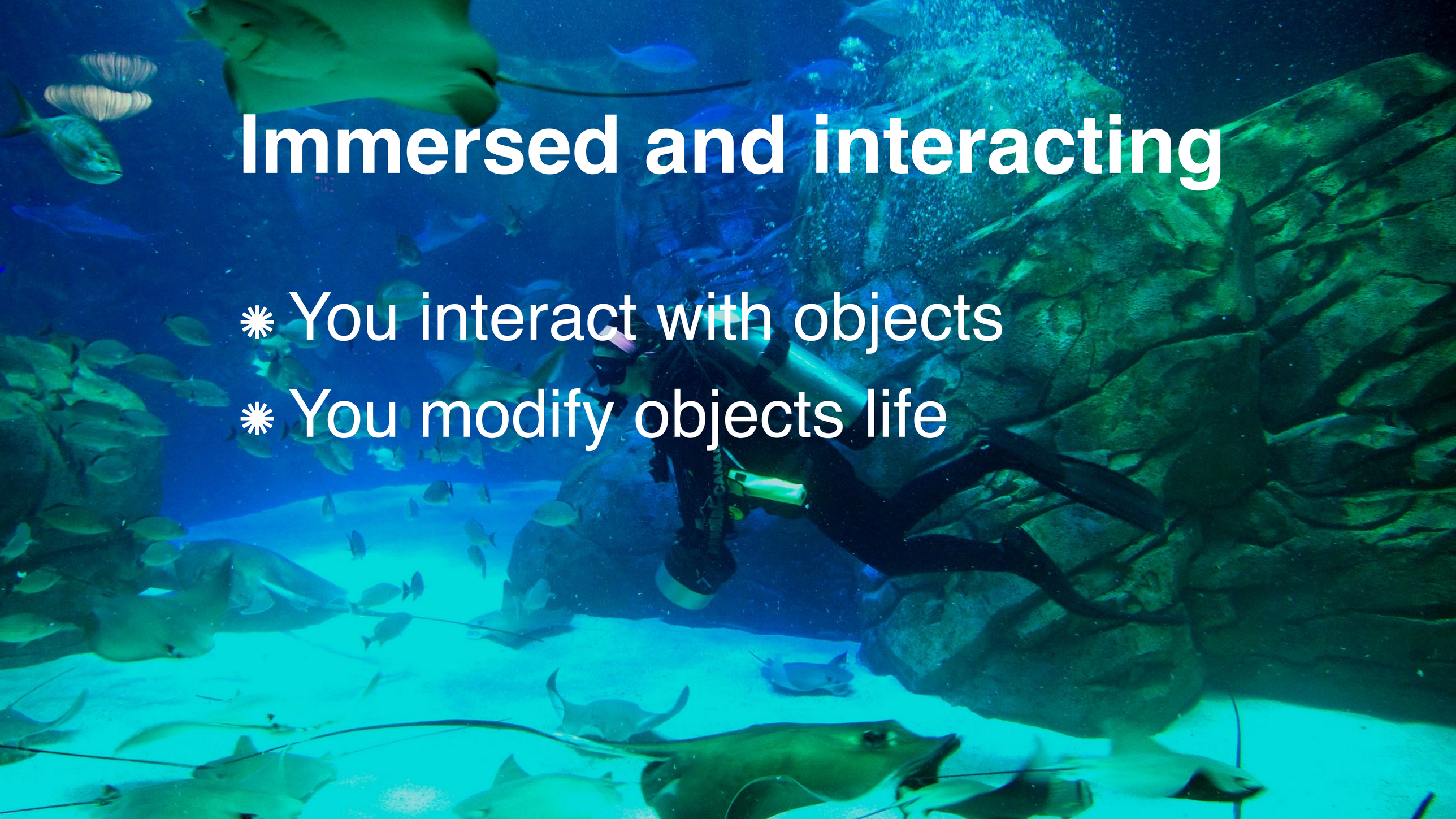
Pharo is highly immersive

Most languages do not expose much

Looking inside

- Pharo is not a blackbox
- Pharo is fully inspectable and reflective
- You can get immersed in

jonrawlinson.com



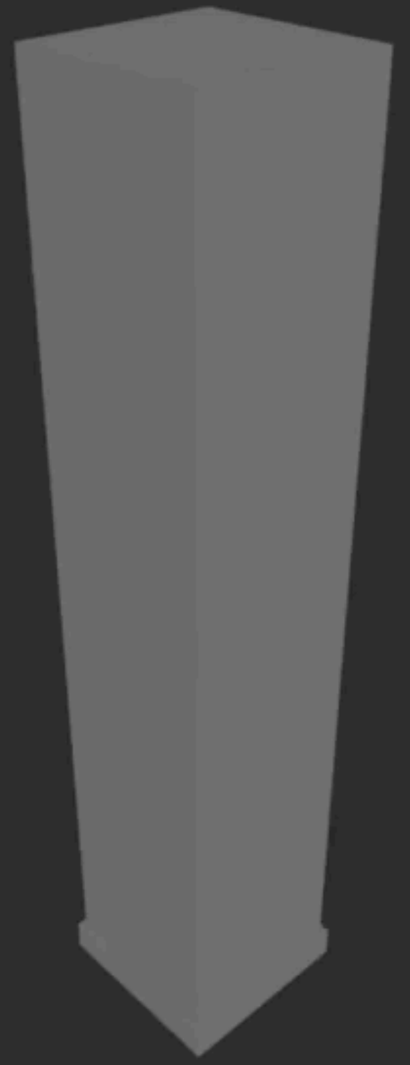
Immersed and interacting

- You interact with objects
- You modify objects life

Workspace

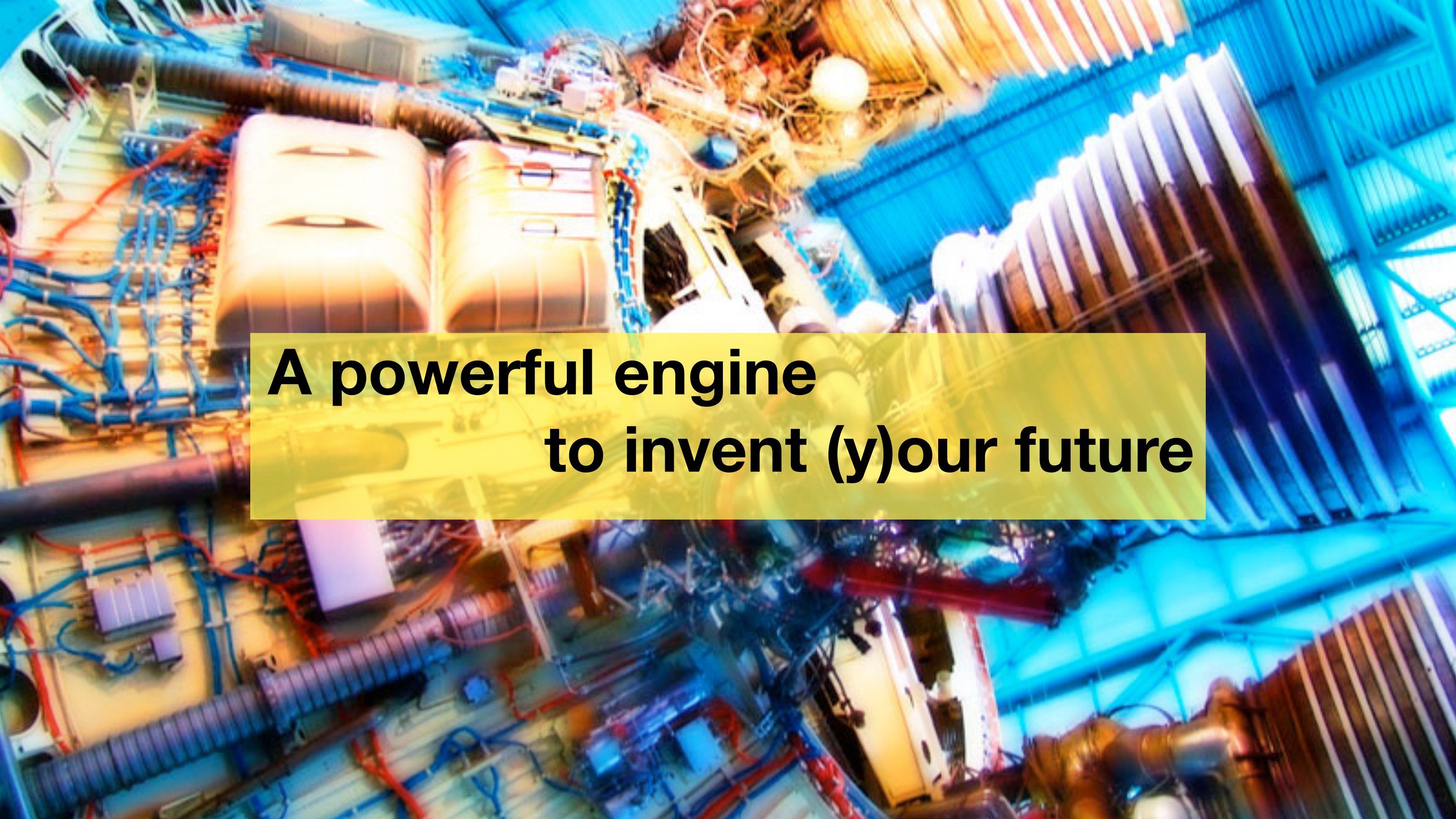
```
| elements lay |


elements := (1 to: 5) collect: [ :ob |
  (R3CubeShape new) elementOn: ob ].


lay := R3WallLayout new.
lay on: elements.

UberPresenter present: elements
```

Uber Presenter



We can do the same with web app, sockets, networks, sensors, living programing….

Pharo’s goal...

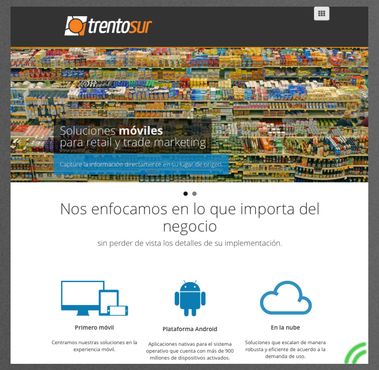

A powerful engine
to invent (y)our future

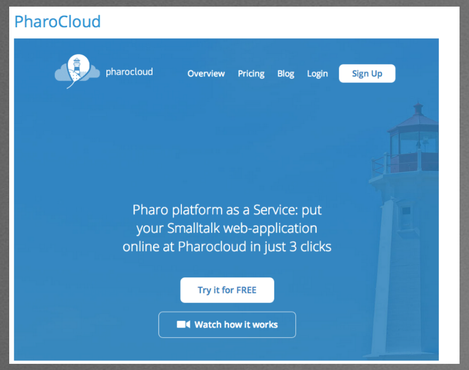
An ecosystem where
innovation/business bloom

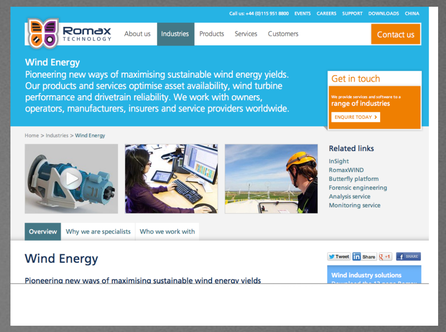
… that **you** can make money with Pharo.

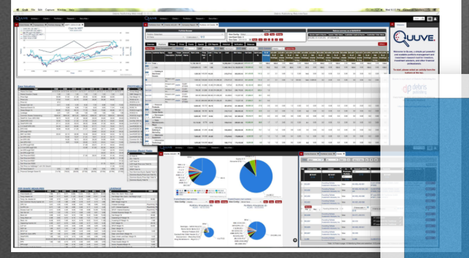
… to be able to invent solutions to existing problems.

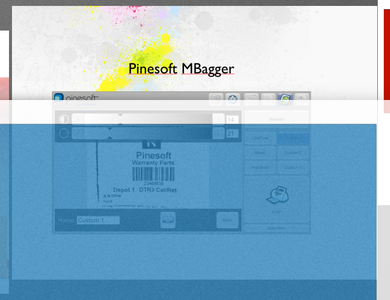
… a powerful innovative dynamic language where we can build (y)our future.

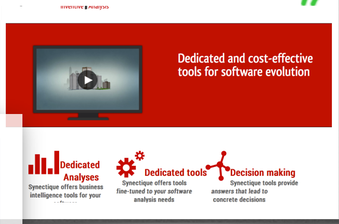




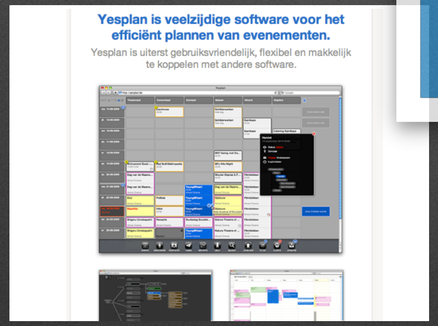


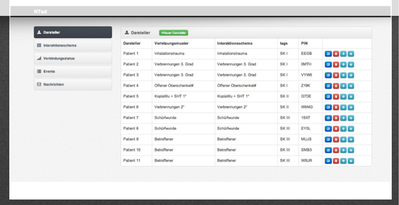


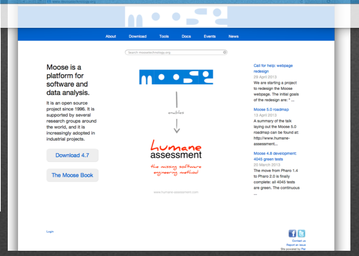


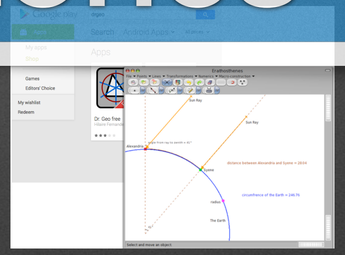


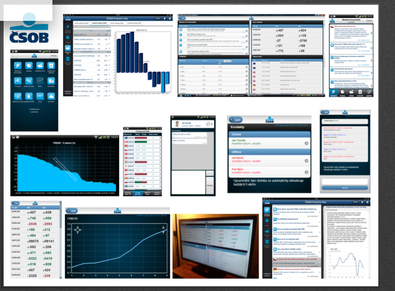
Some Success Stories

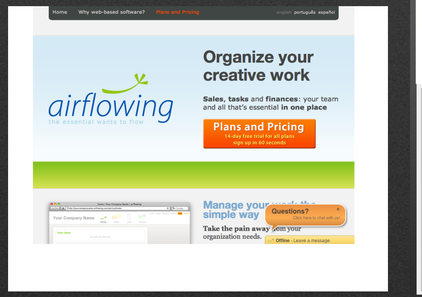


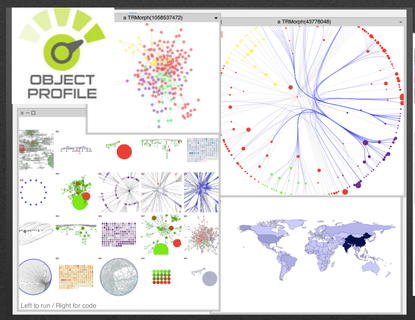


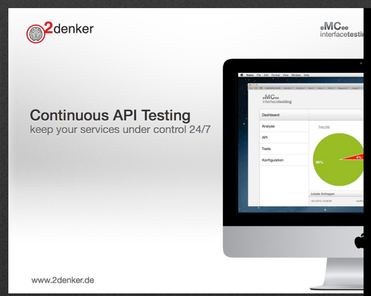


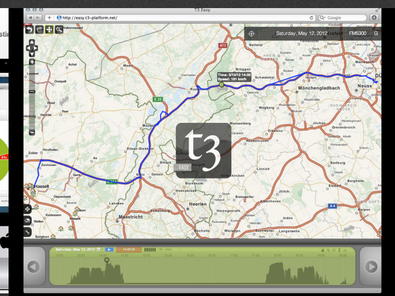










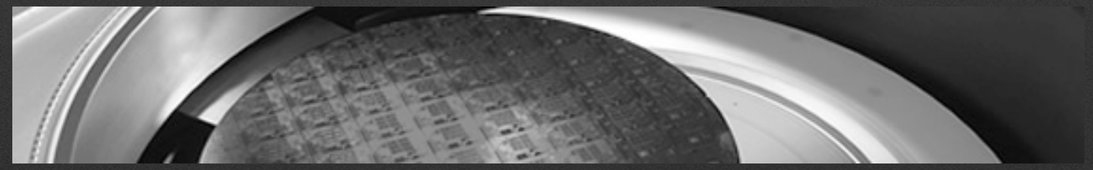


LAMRC

Back-End Wafer-Level Packaging

50% microprocessors
of your mobile/PC/tablet

Your mobile hardware as a high-chance to have been produced by a robot controlled via a smalltalk

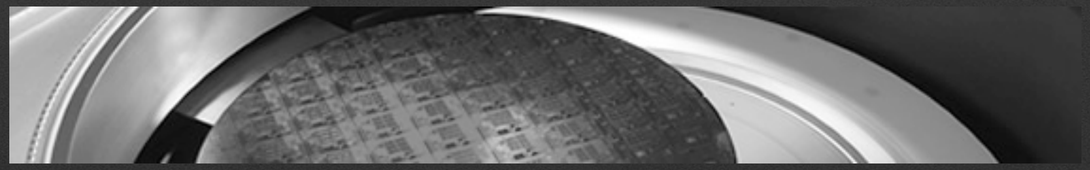


LAMRC

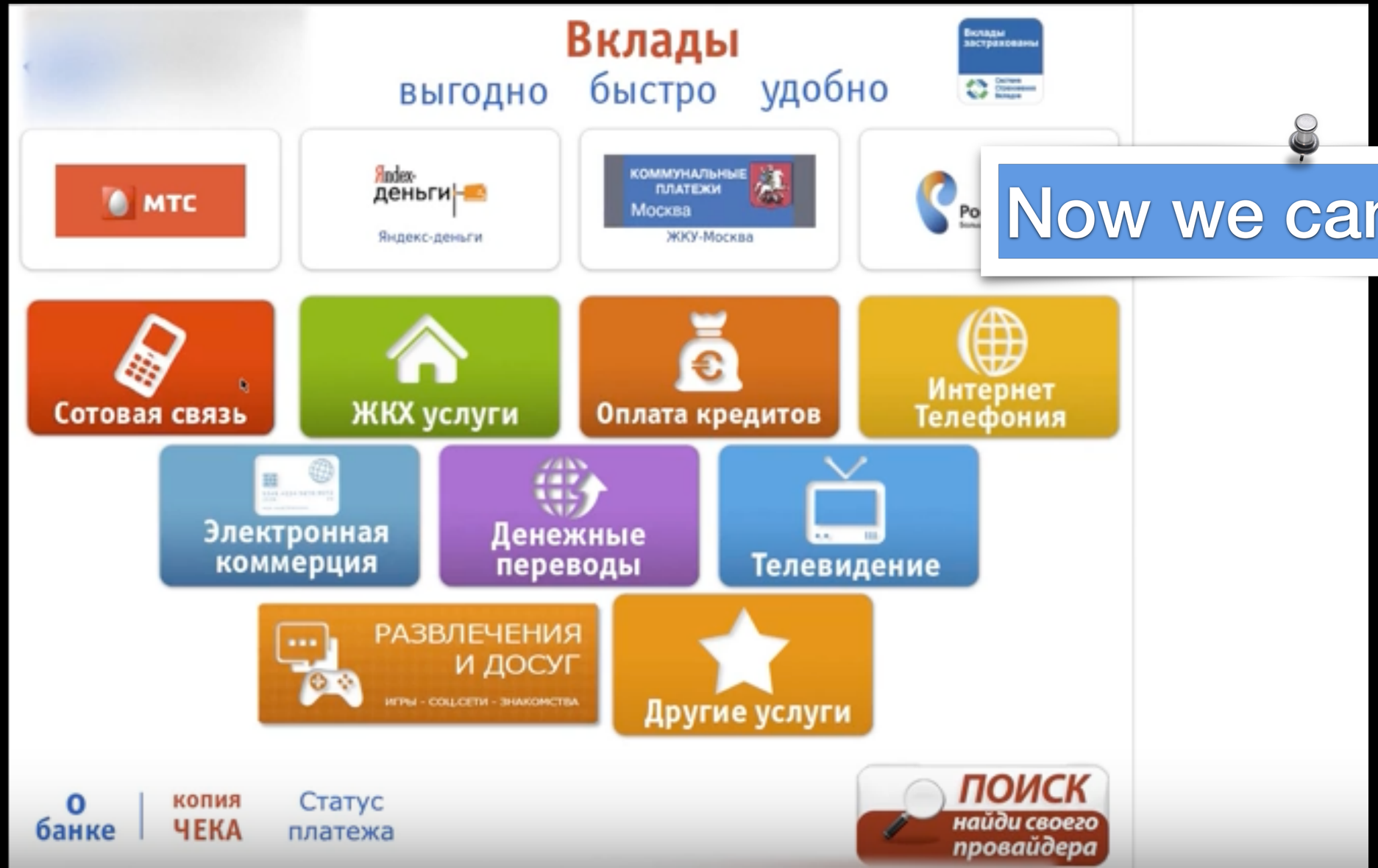
Back-End Wafer-Level Packaging

Your mobile hardware as a high-chance to have been by a robot controlled smalltalk

Started to experiment with Pharo



Pharo in ATM like Device in Moscow



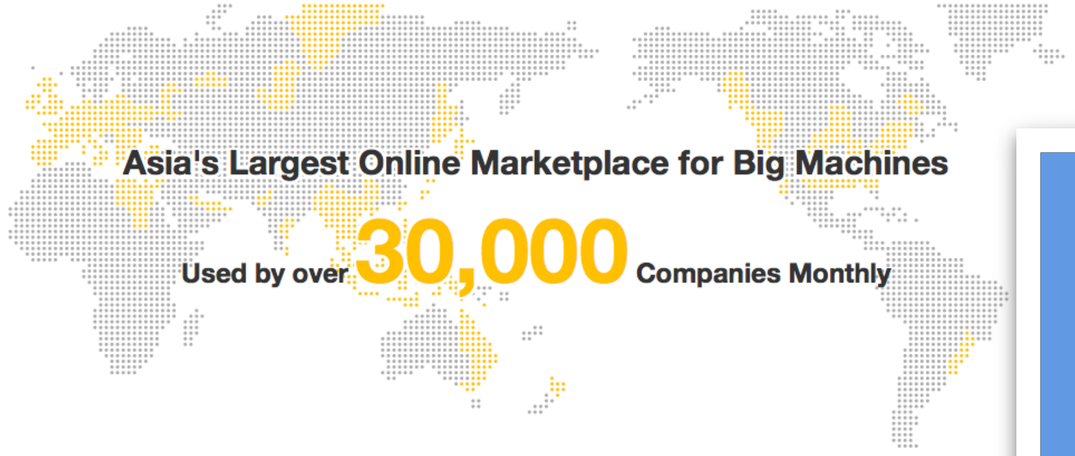
Now we can say it

Asia's largest online marketplace for used construction equipment and machinery

How to Buy Login English

ALLSTOCKER

We find machines for you
+81-3-5847-8994



Find Machines

Search by Category

Construction Machinery

- Mini Excavators
- Excavators
- Wheel Loaders
- Dozers
- Cranes
- Rollers
- Graders
- Finishers
- Generators
- Welders
- Compressors
- Small Items
- Other Construction Machineries

Material Handling

- Forklifts

Farm Machinery

- Tractors
- Other Farm Machinery

Vehicles

- Dumps
- Trucks
- Other Vehicles

Others

- Attachments
- Parts
- Others

Search by Keyword

Enter a keyword (e.g. KOMATSU PC200) Search

New Machines

Updated on: 2016/09/13 17:46:18 (JST)

See More ›

HOKUETSU
PDS175S
400,000 JPY

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U-55-6
3,500,000 JPY

OTHER
MGR2500
133,100 JPY

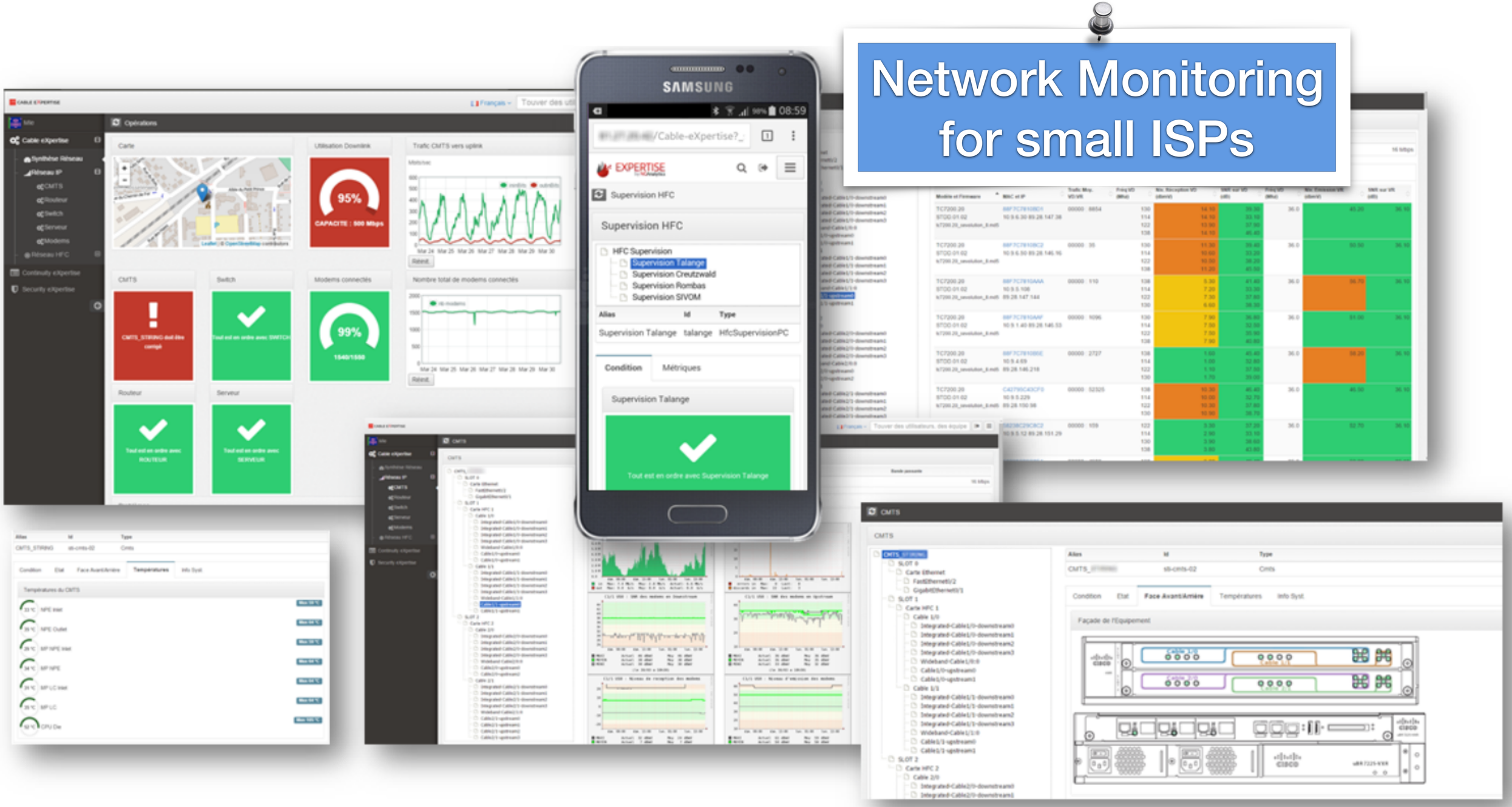
ISEKI
HL407G
198,000 JPY

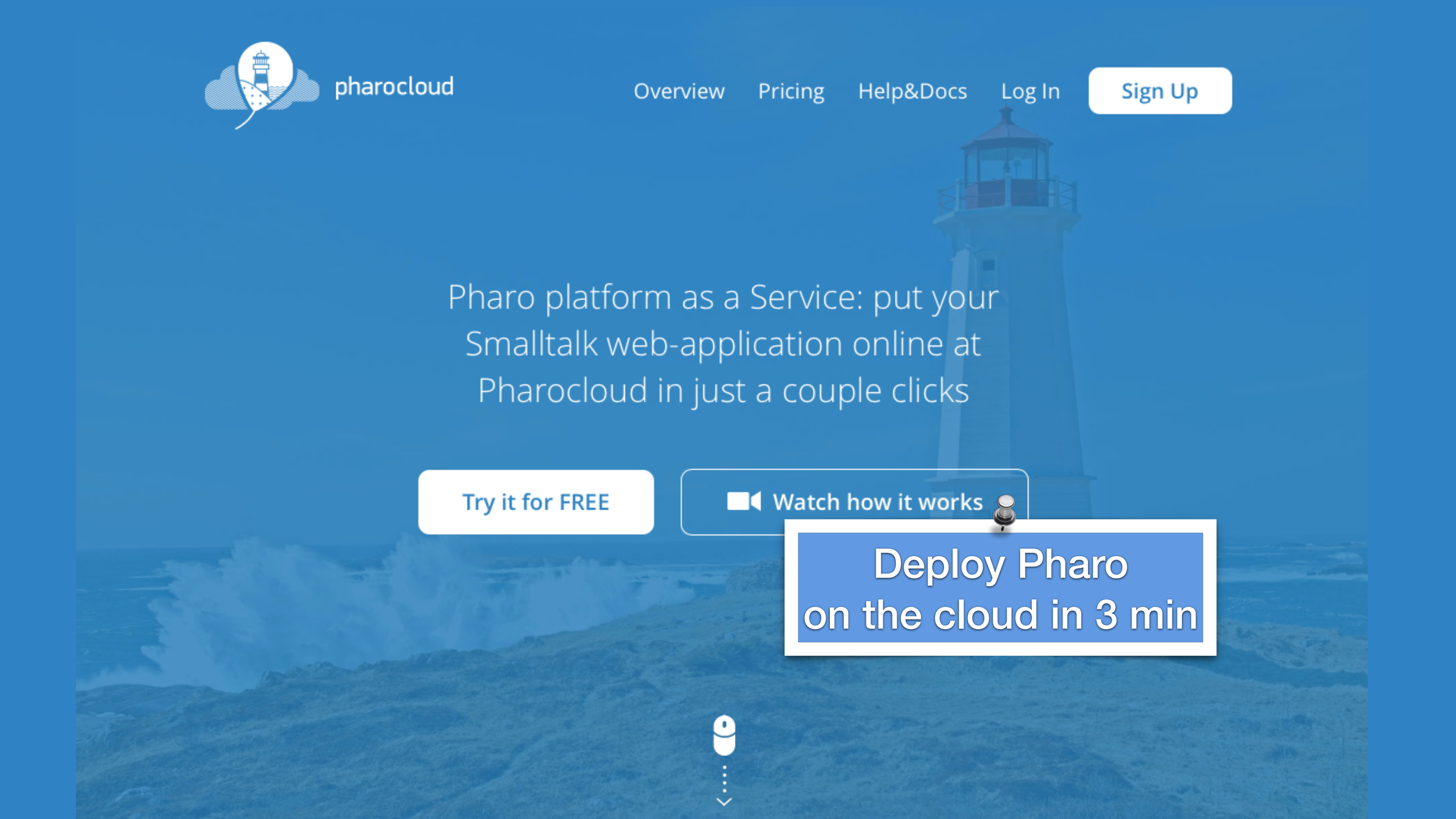
OTHER
MR6500
143,000 JPY

OTHER
GH250-GML
165,000 JPY

Full Stack in Pharo
Online marketplace
raised 4.7 M$

Network Monitoring for small ISPs

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Try it for FREE
Watch how it works
Deploy Pharo on the cloud in 3 min

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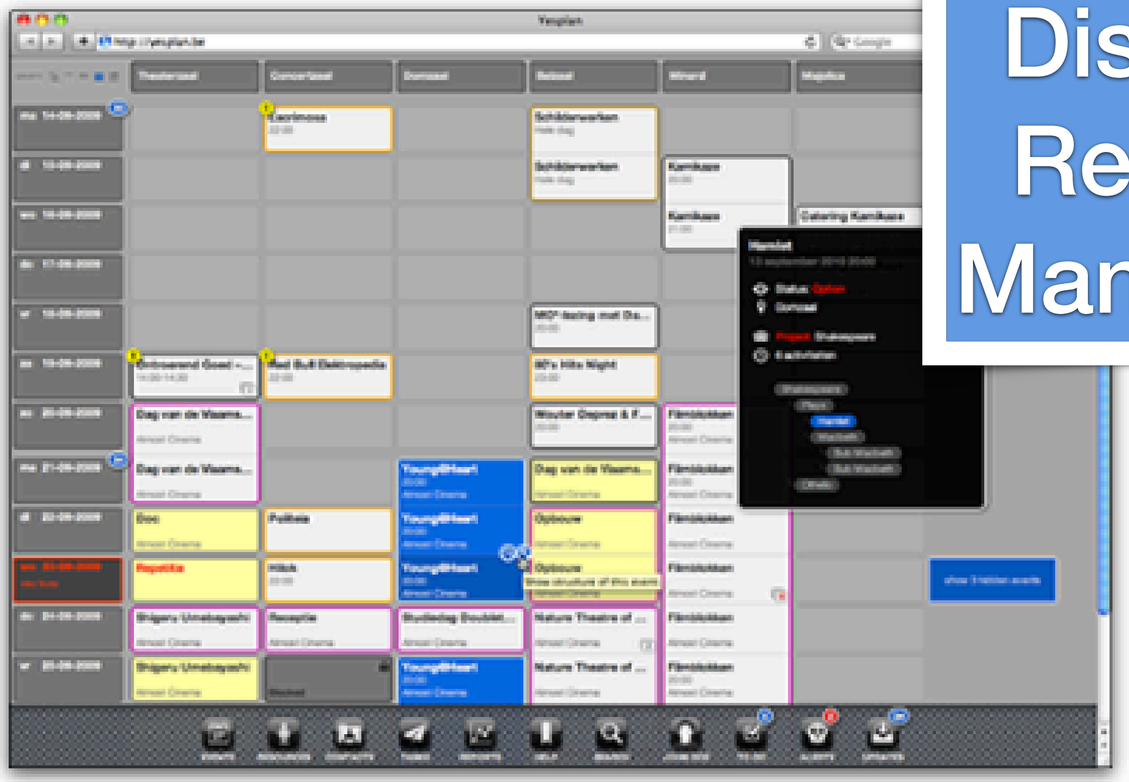
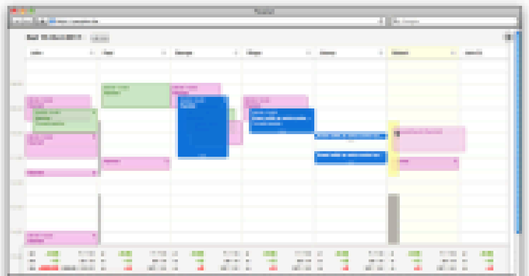
Suchen...

Yesplan is veelzijdige software voor het efficiënt plannen van evenementen.

Yesplan is uiterst gebruiksvriendelijk, flexibel en makkelijk te koppelen met andere software.



Distributed Resources Management



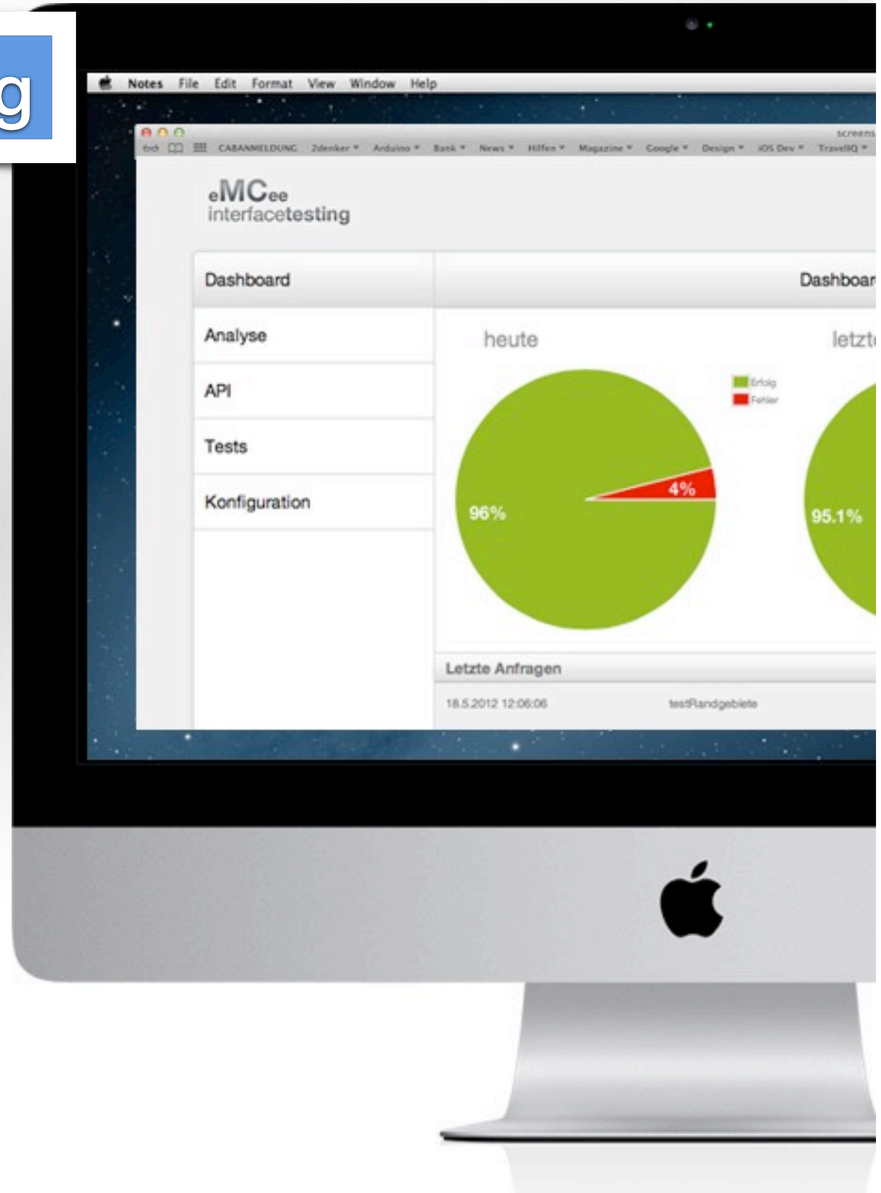
2denker

eMCee interfacetesting

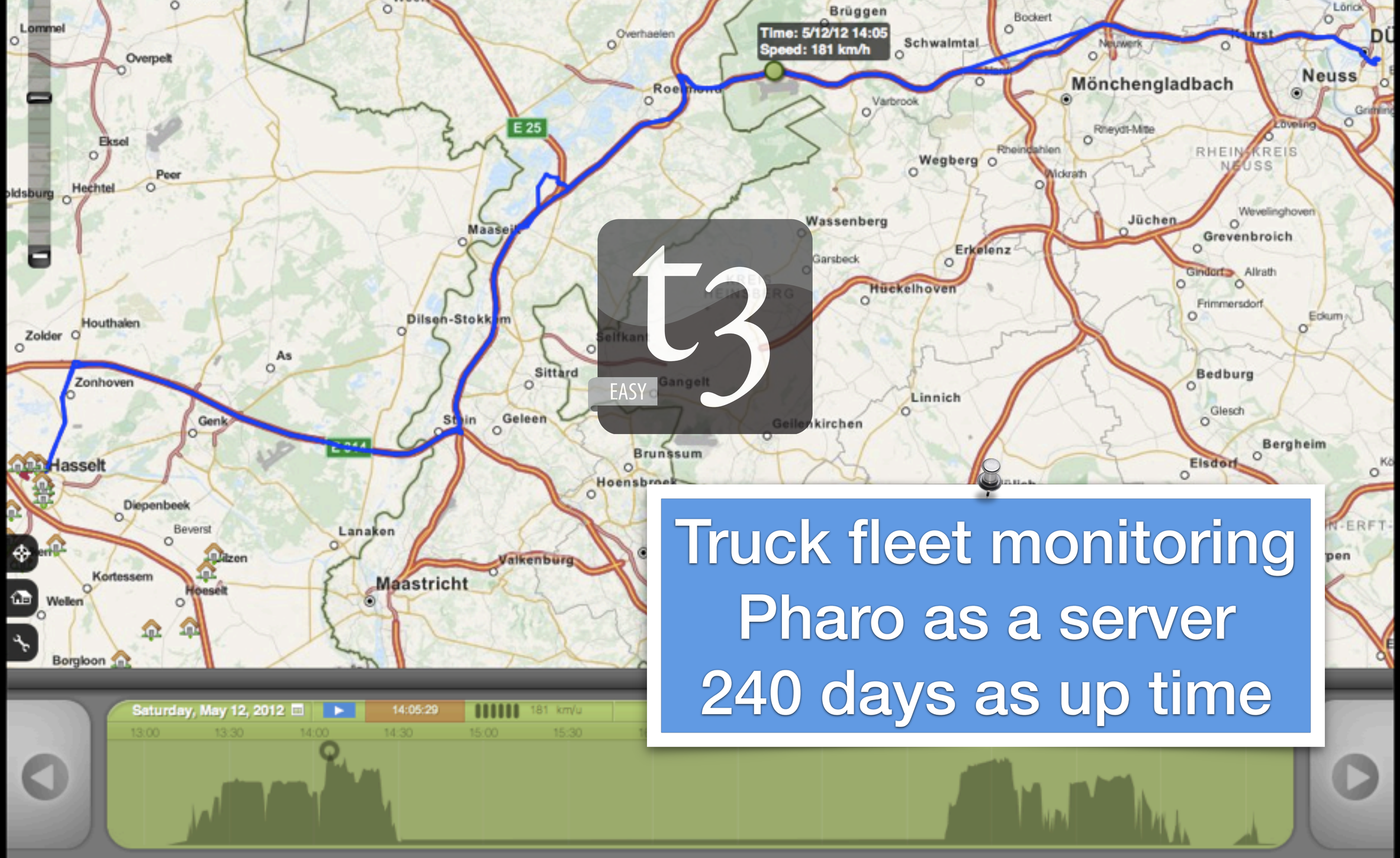
Server Testing

Continuous API Testing

keep your services under control 24/7



www.2denker.de


Time: 5/12/12 14:05
Speed: 181 km/h
t3
EASY
Truck fleet monitoring
Pharo as a server
240 days as up time
Saturday, May 12, 2012
14:05:29
181 km/u
13:00
13:30
14:00
14:30
15:00
15:30
Lommel
Overpelt
Eksel
Hechtel
Peer
Houthalen
Zolder
Zonhoven
Hasselt
Genk
Diepenbeek
Beverst
Kortessem
Wellen
Borgloon
Lanaken
Maastricht
Valkenburg
Hoeselt
As
Dilsen-Stokkem
Maaseik
Sittard
Geleen
Stein
Brunssum
Hoensbroek
Gangelt
Selfkant
Brüggen
Overhaelen
Roermond
Schwalmtal
Bockert
Neuwerk
Mönchengladbach
Neuss
Varbrook
Rheydt-Mitte
Wegberg
Rheindahlen
Wickrath
RHEIN-KREIS NEUSS
Wassenberg
Garsbeck
Erkelenz
Hückelhoven
Jüchen
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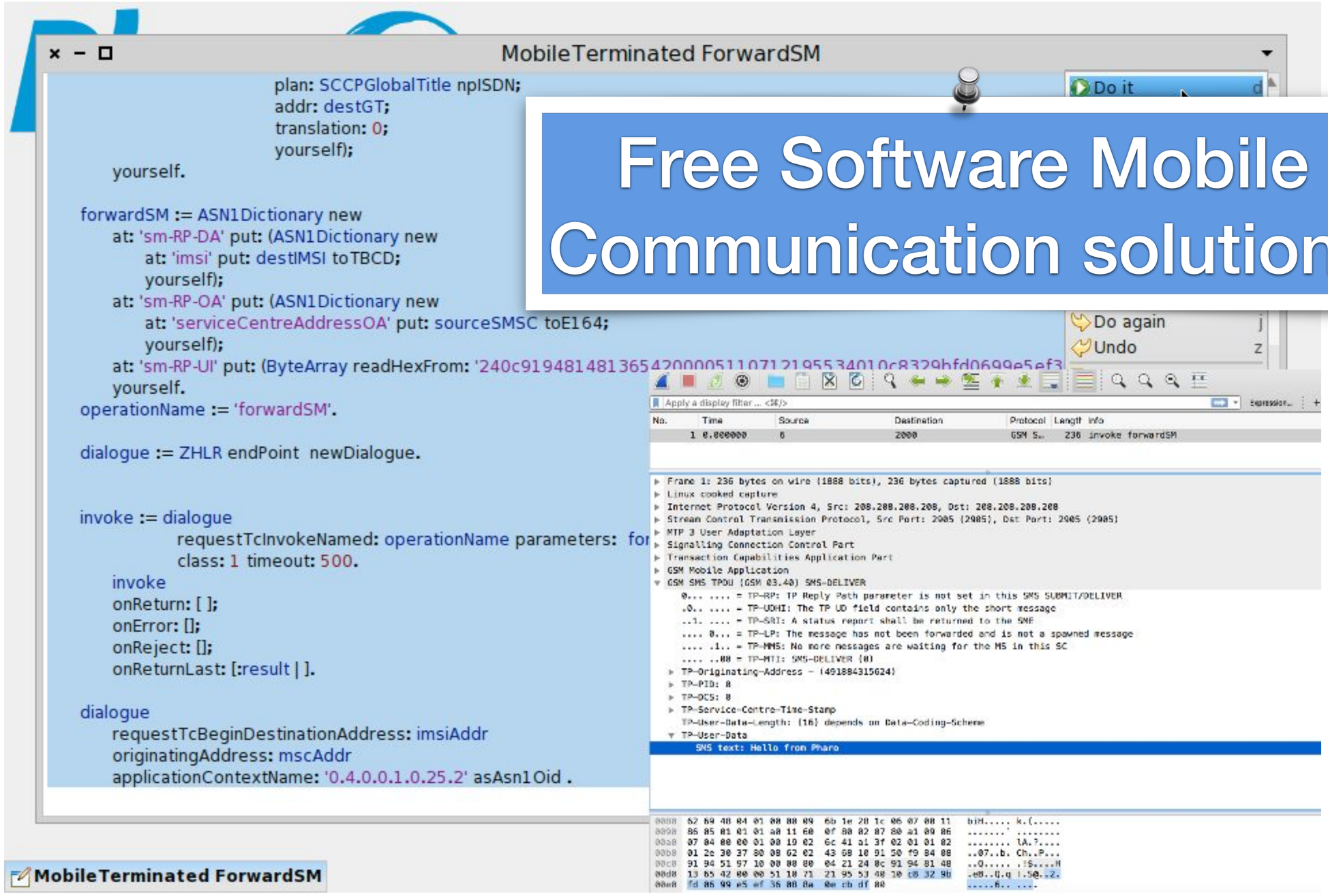
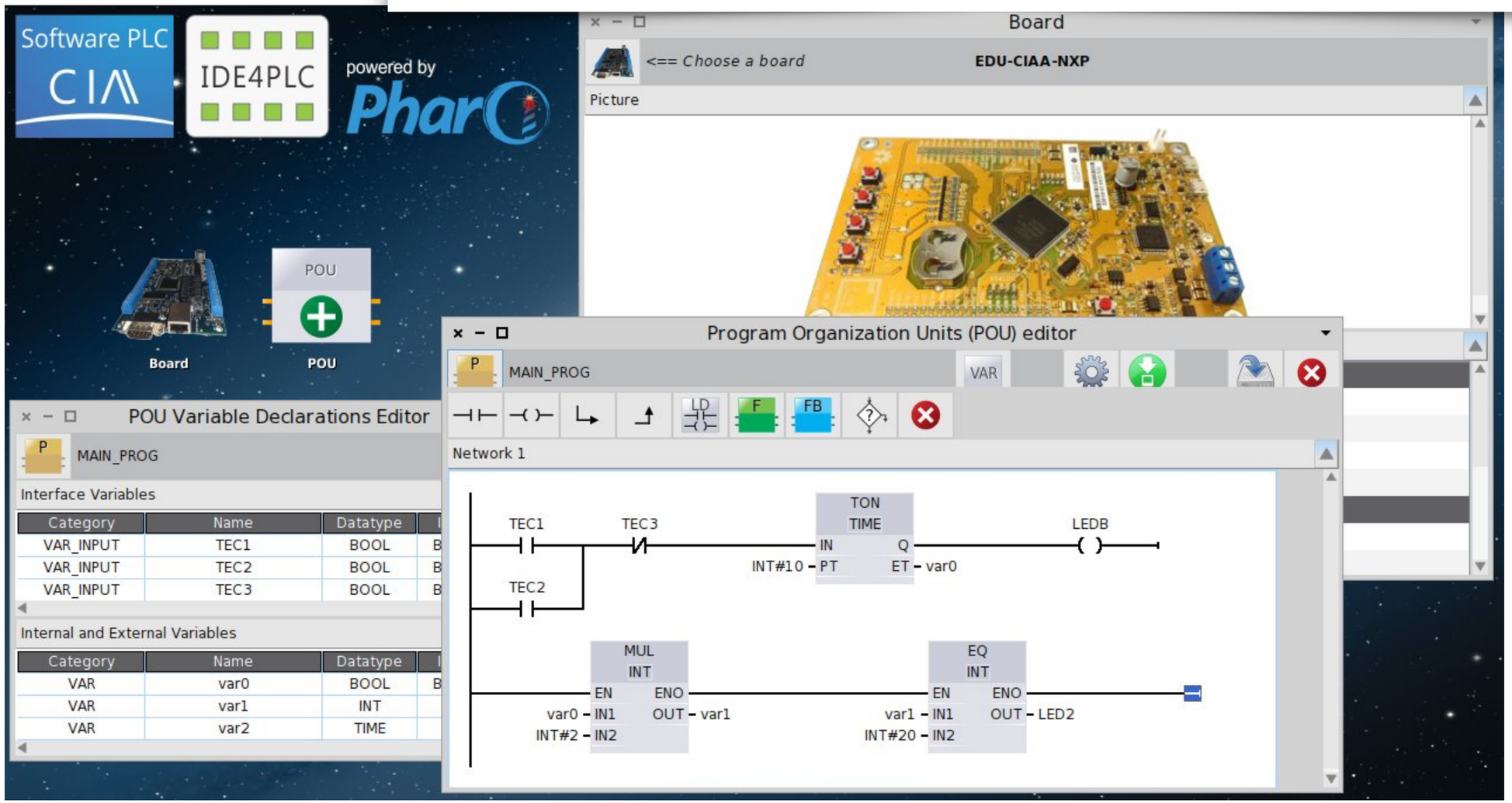
All reports are automatically generated
Quuve: Investment Portfolio
http://debrispublishing.com



Free Software Mobile Communication solutions

Programming environment for Programmable Logic Controllers



NTed: disaster scenario recovery

NTed

- Darsteller
- Interaktionsschema
- Verbindungsstatus
- Events
- Nachrichten

Darsteller +Neuer Darsteller

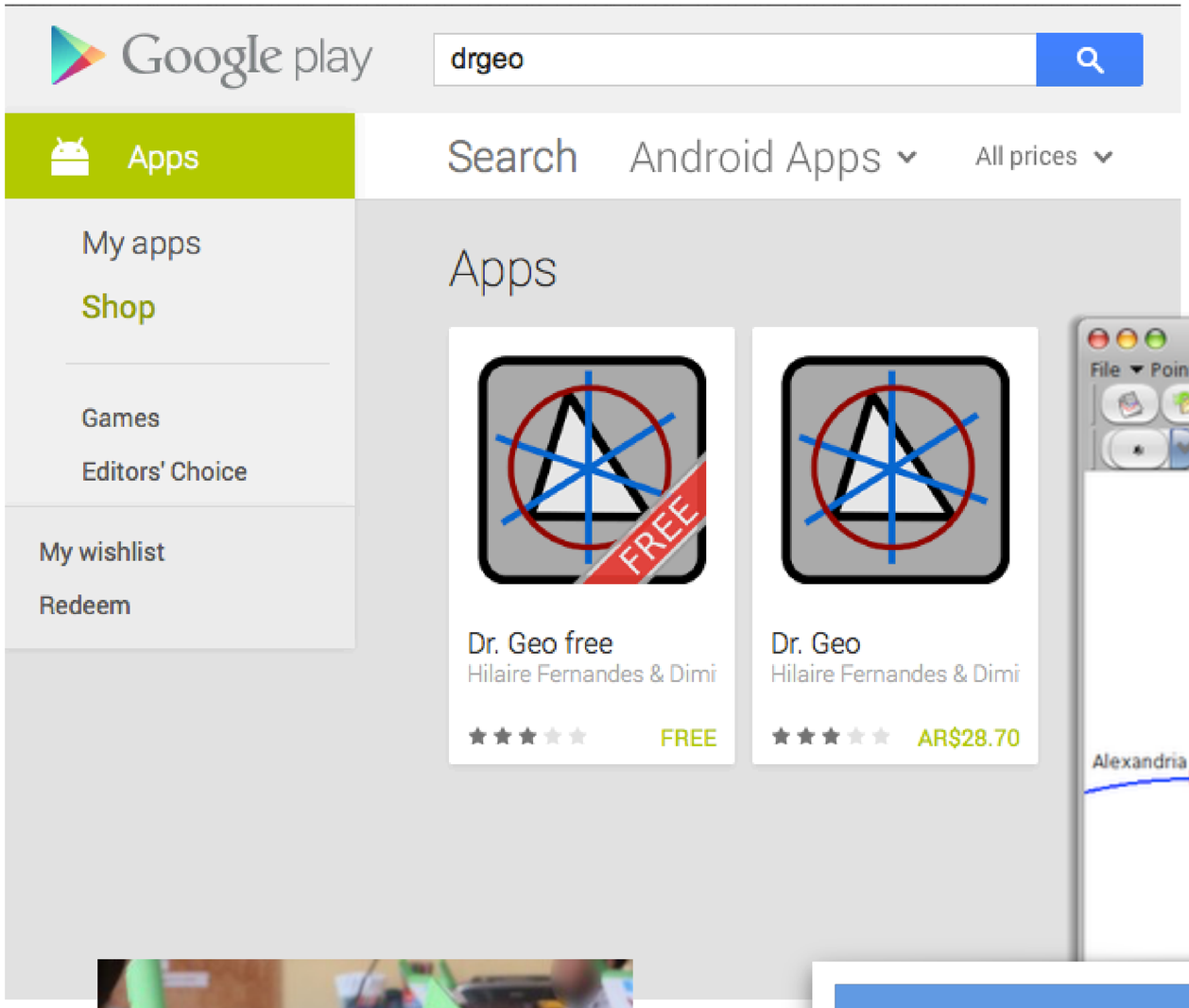
Darsteller	Verletzungsmuster	Interaktionsschema	tags	PIN
Patient 1	Inhalationstrauma	Inhalationstrauma	SK I	EEGB
Patient 2	Verbrennungen 3. Grad	Verbrennungen 3. Grad	SK I	0MTH
Patient 3	Verbrennungen 3. Grad	Verbrennungen 3. Grad	SK I	VYW6
Patient 4	Offener Oberschenkel#	Offener Oberschenkel#	SK I	Z19K
Patient 5	KoplaWu + SHT 1°	KoplaWu + SHT 1°	SK II	G7DE
Patient 6	Verbrennungen 2°	Verbrennungen 2°	SK II	WM4G
Patient 7	Schürfwunde	Schürfwunde	SK III	1S5T
Patient 11	Betroffener	Betroffener	SK III	W5UR

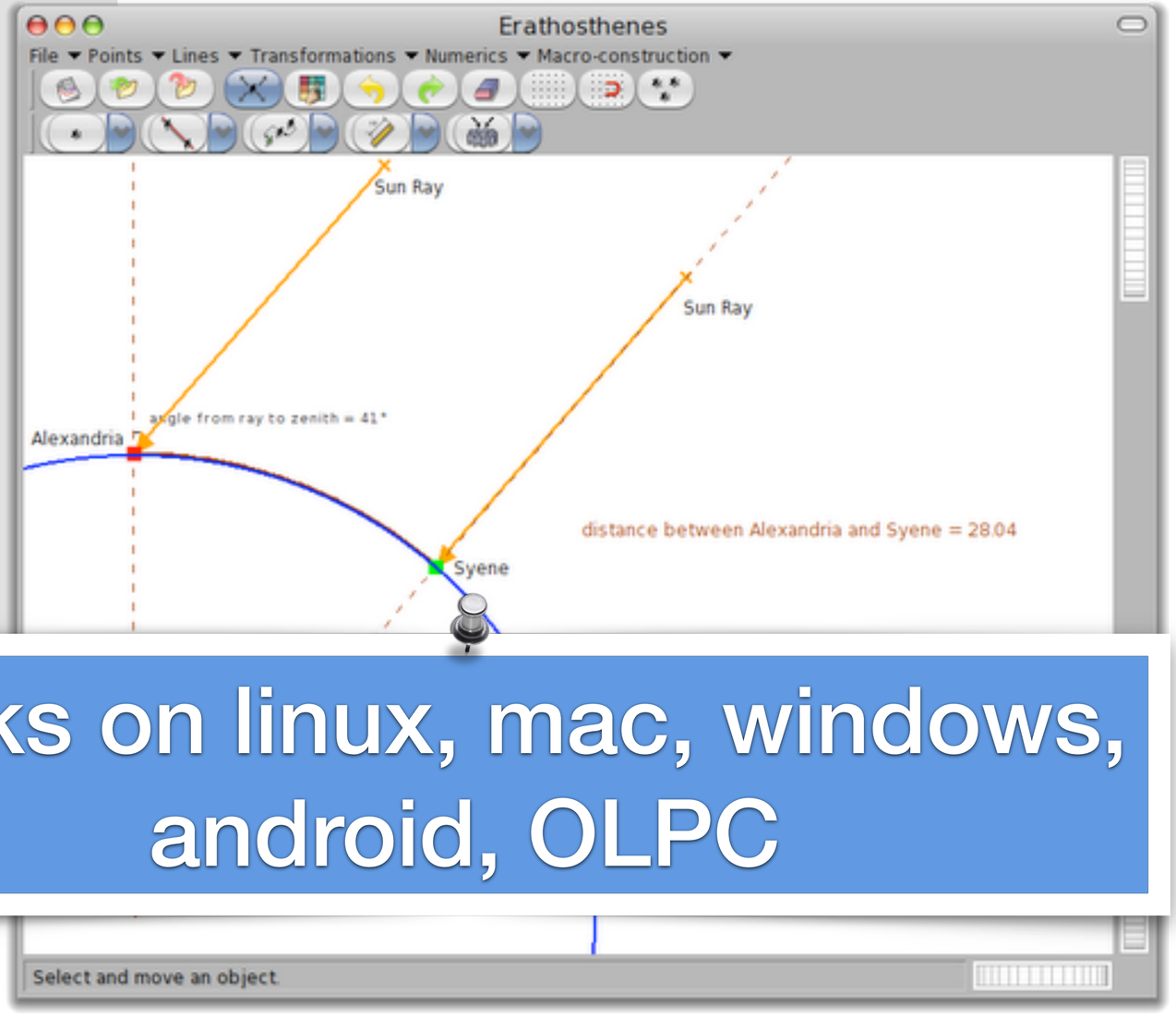
To simulate disaster response

iBizLog - http://www.ibizlog.com

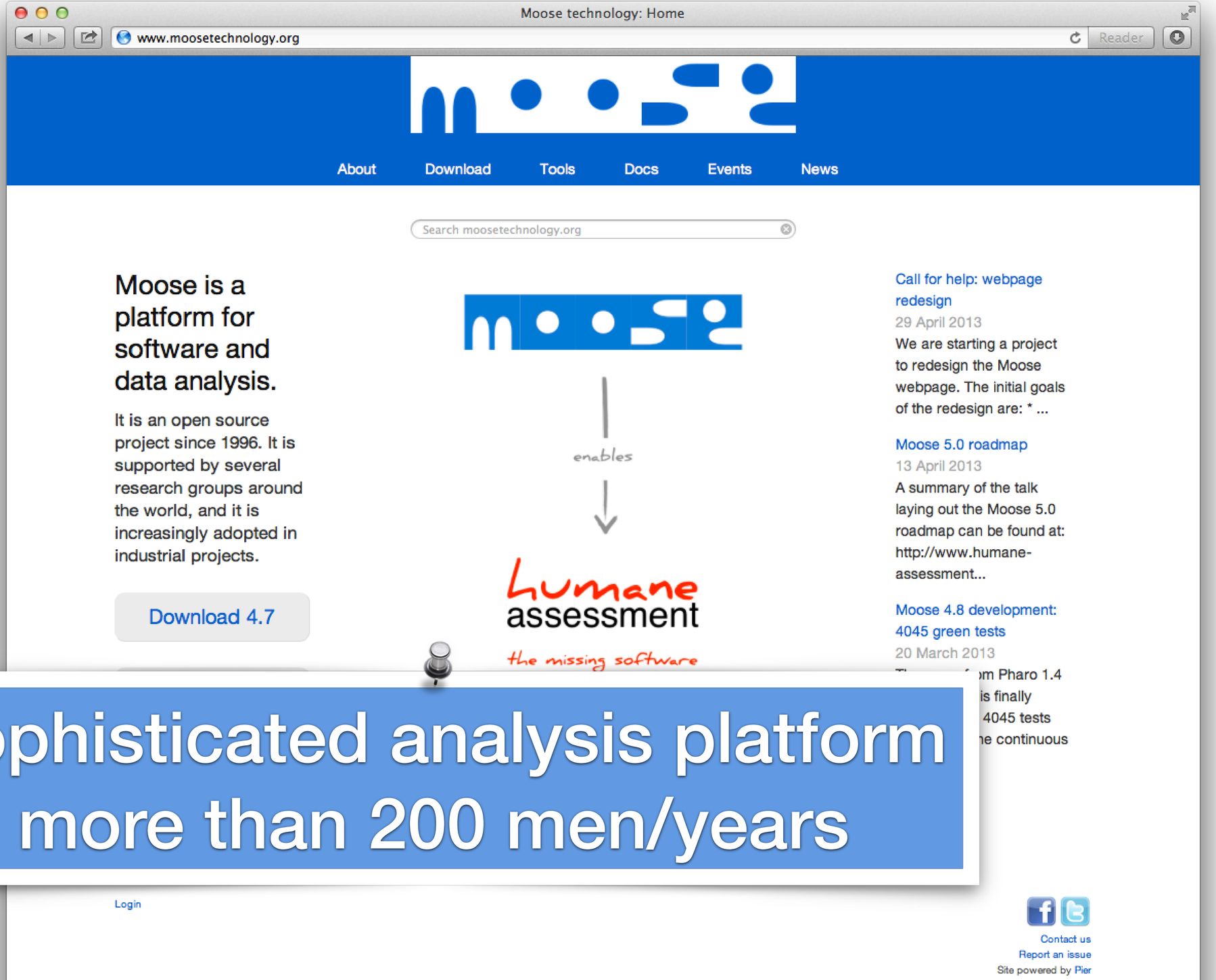
Full system developed in 5 months one dev (discontinued)

A product by Smallworks



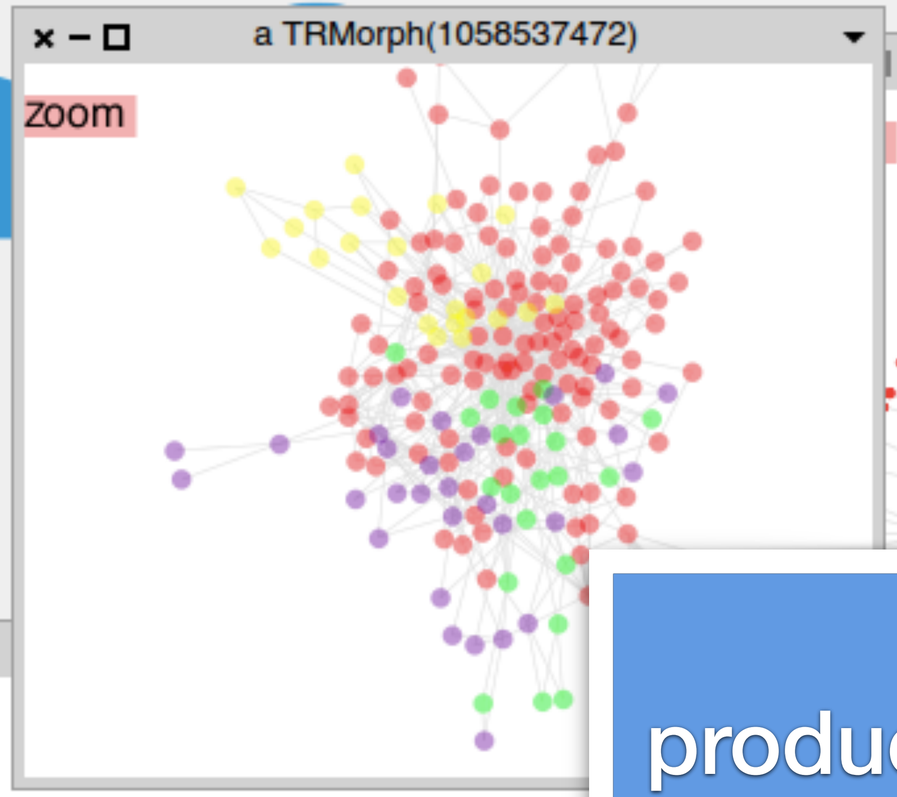


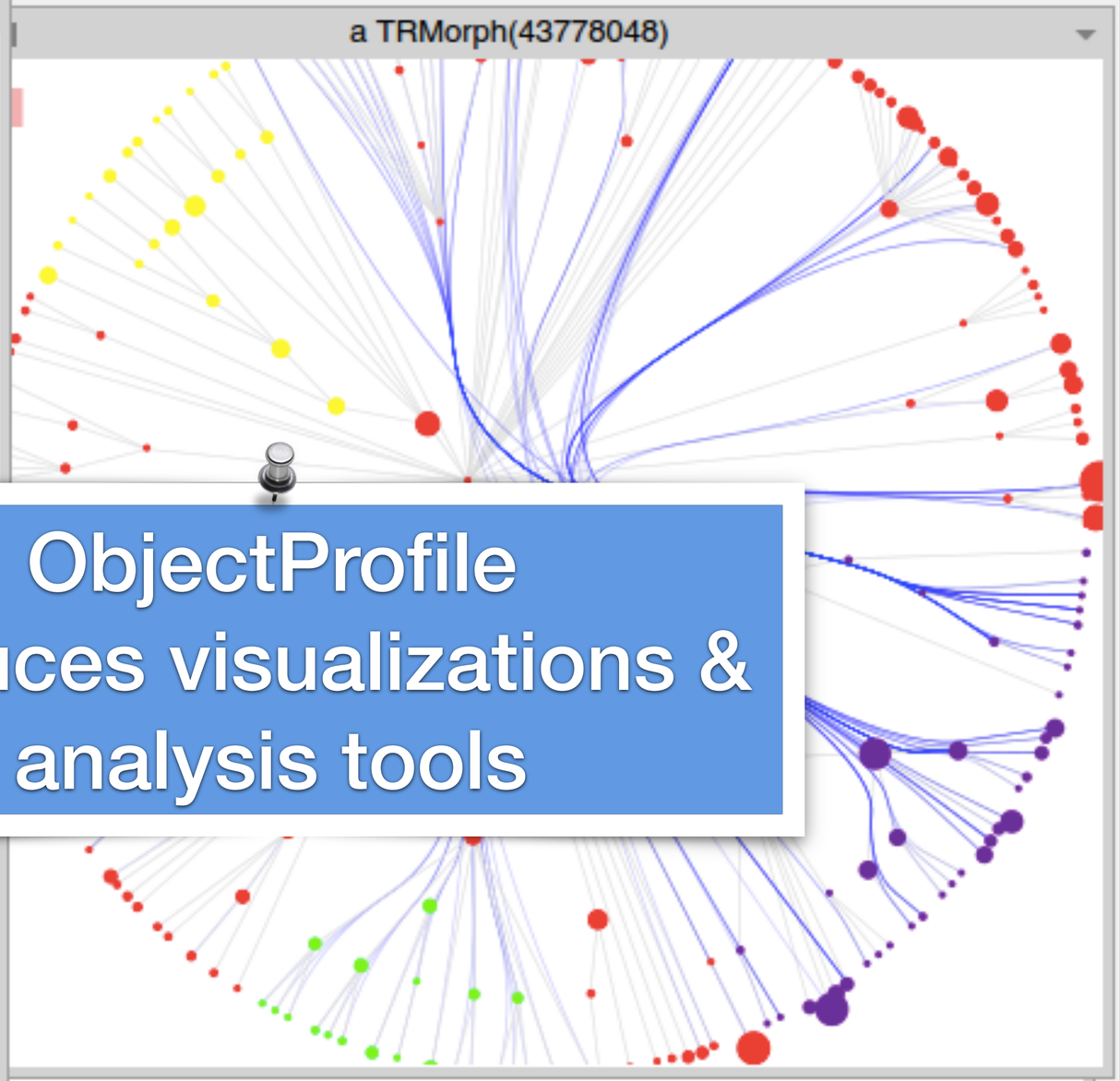
Works on linux, mac, windows, android, OLPC

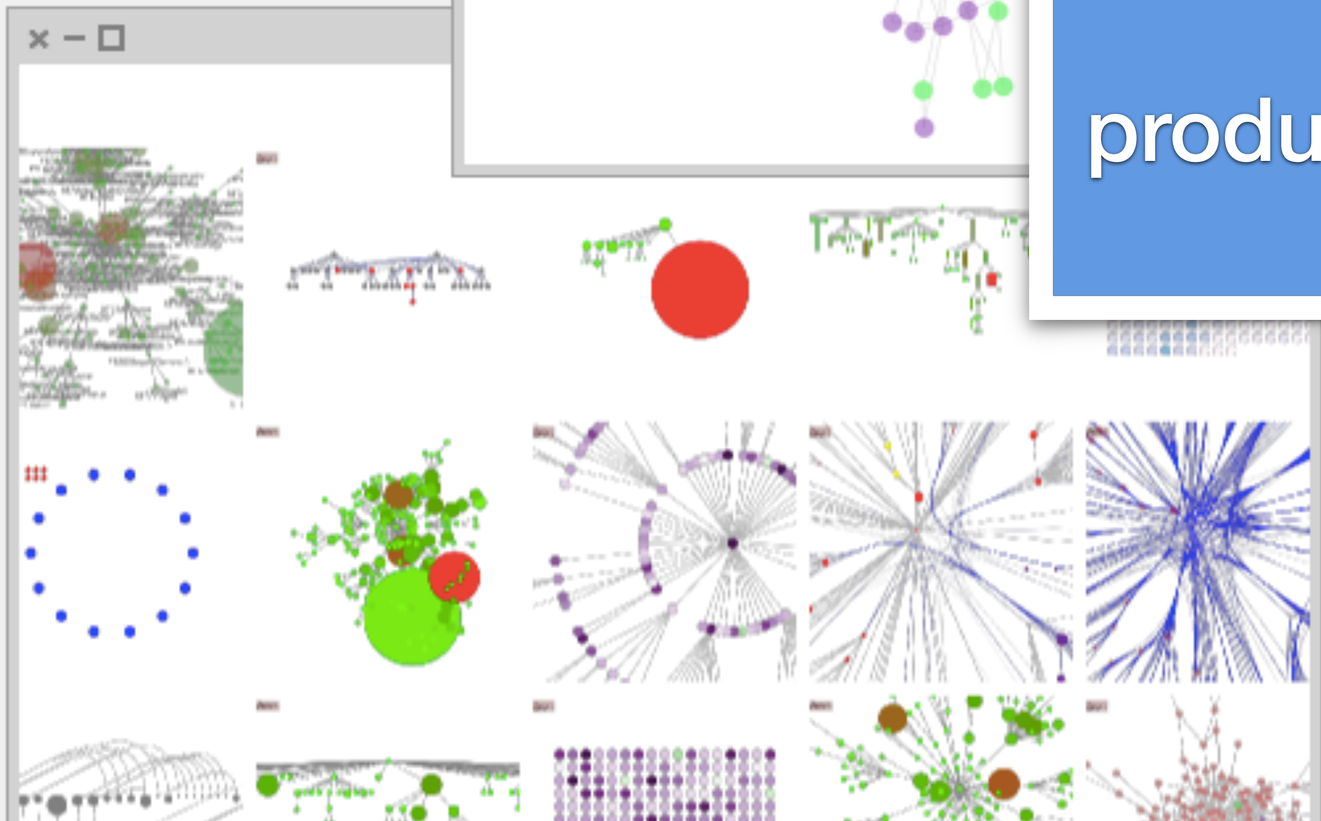


Sophisticated analysis platform more than 200 men/years

Pha



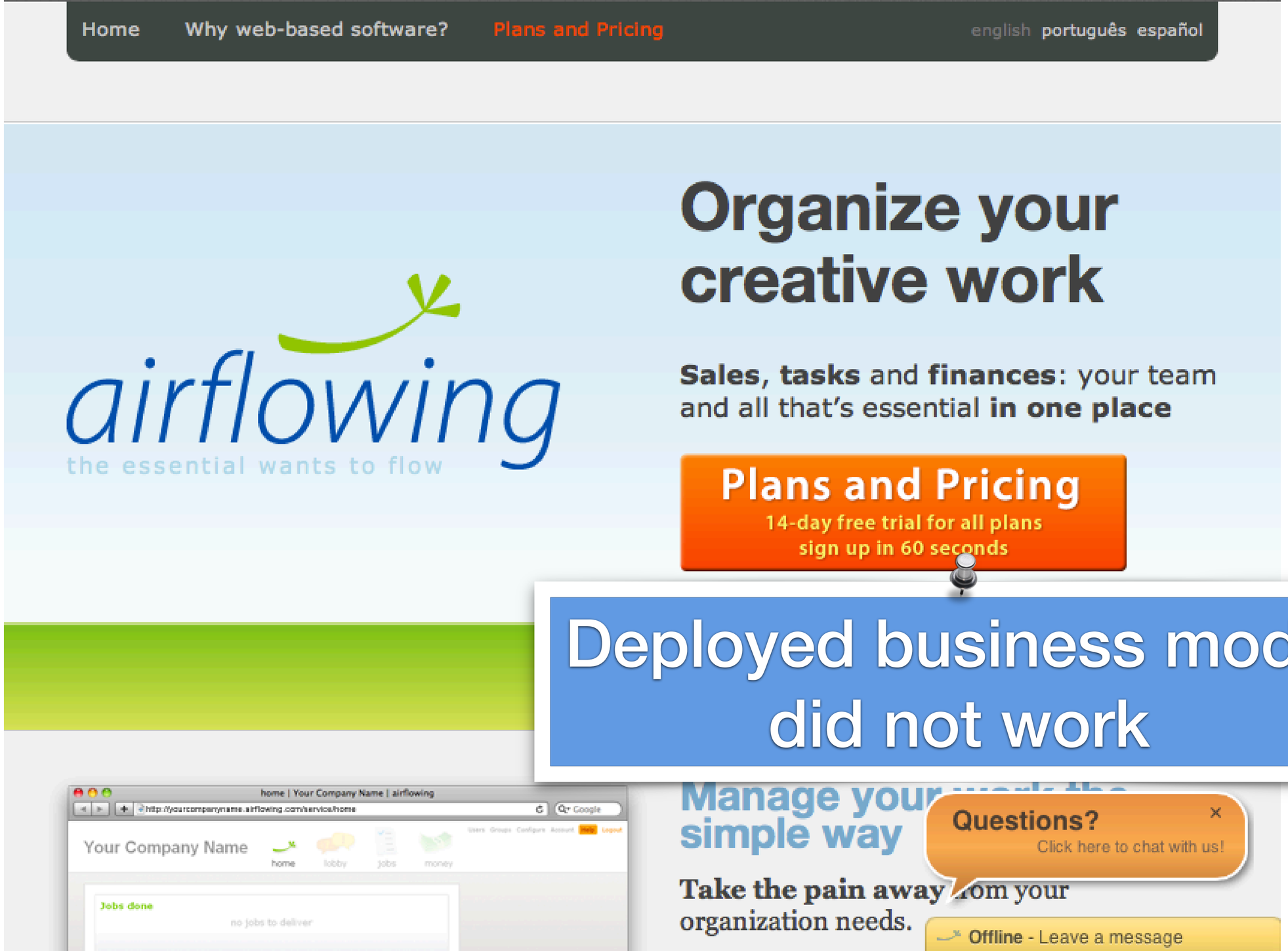




ObjectProfile
produces visualizations &
analysis tools

Digitalizing business

ČSOB
ČSOB Finanční trhy
Bleskové komentáře
Živý stream
PRIBOR
Hlavní trhy
Kontakty
Online
Jan Černák
Investiční výzkum - analytik
Offline
Jan Bareš
Petr Bláča
PRIBOR - 9 měsíců (%)
FX páry proti EUR
Developed in 3 months one dev
Sold to Belgium bank
Java team estimated 2 years


Home
Why web-based software?
Plans and Pricing
english português español
airflowing
the essential wants to flow
Organize your creative work
Sales, tasks and finances: your team and all that's essential in one place
Plans and Pricing
14-day free trial for all plans
sign up in 60 seconds
Deployed business model did not work
home | Your Company Name | airflowing
Your Company Name
home
lobby
jobs
money
Jobs done
no jobs to deliver
Manage your
simple way
Take the pain away from your organization needs.
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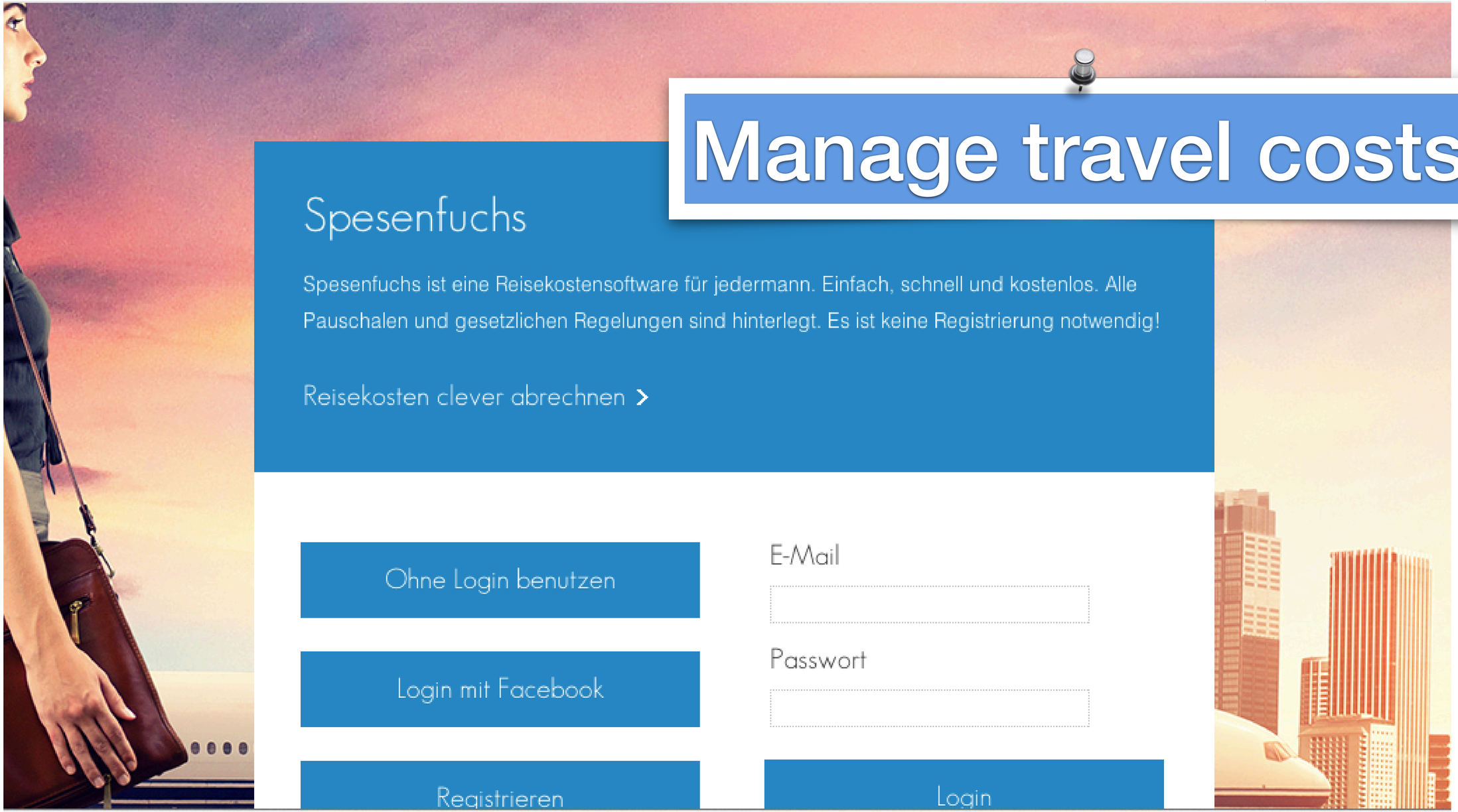
Decision making

Synectique tools provide *answers that lead to*

SpesenFuchs

Funktionen Aktuelles Forum FAQ Preise

Manage travel costs



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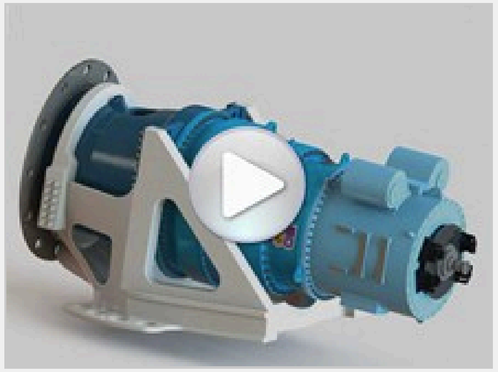
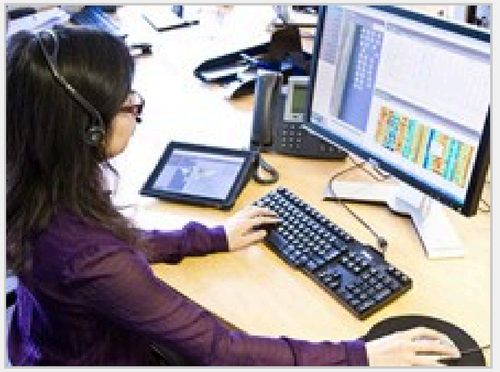




Related links

- InSight
- RomaxWIND
- Butterfly platform
- Forensic engineering
- Analysis service
- Monitoring service

Wind Energy

Tweet Share +1 SHARE

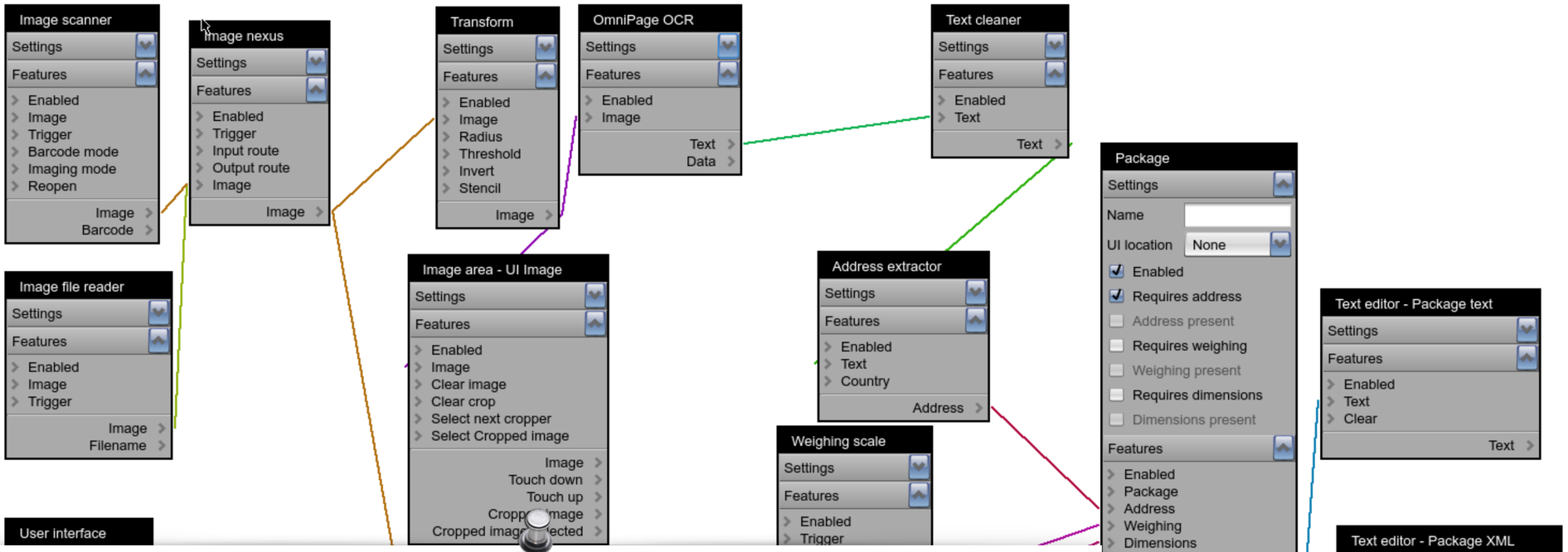
Pioneering new ways of maximising sustainable wind energy yields

Wind industry solutions

postid

scan share send

Handle return mails in Switzerland



Built a dataflow plug and play on top of Pharo

Specific home relocation registration

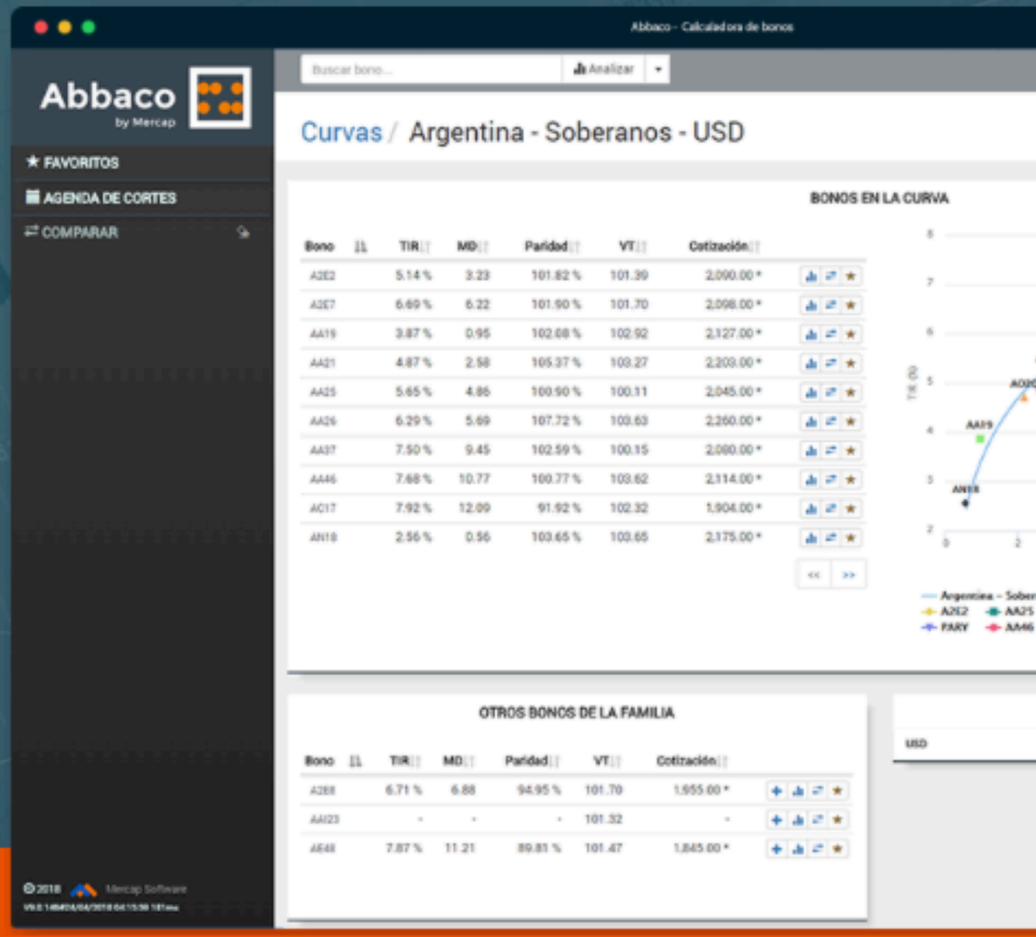
Abbaco by Mercap

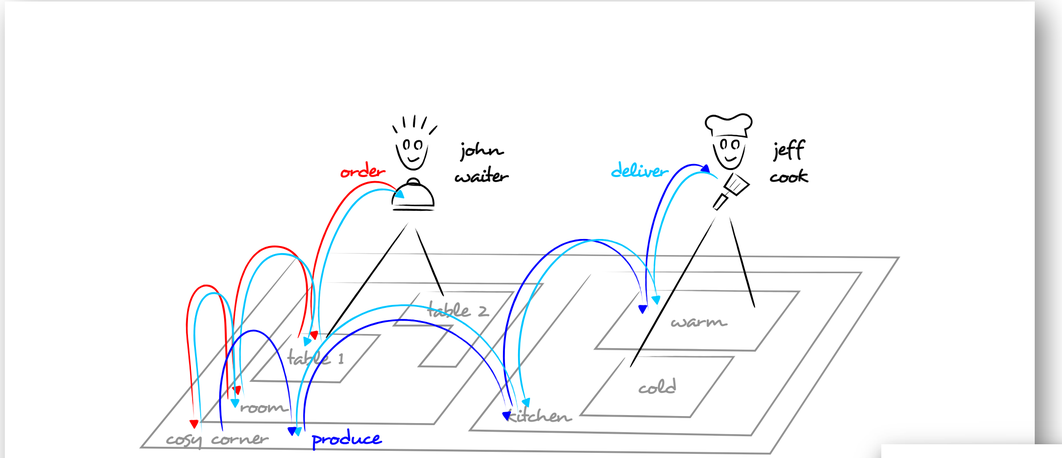
Features Advantages Pricing Customers Try for free Login ES

Bond calculator for experts investors

Your own research tool for making intelligent decisions.

from Argentina





feenk

Help growing startups
Get back control on software

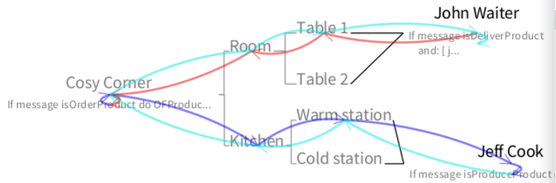
Playground

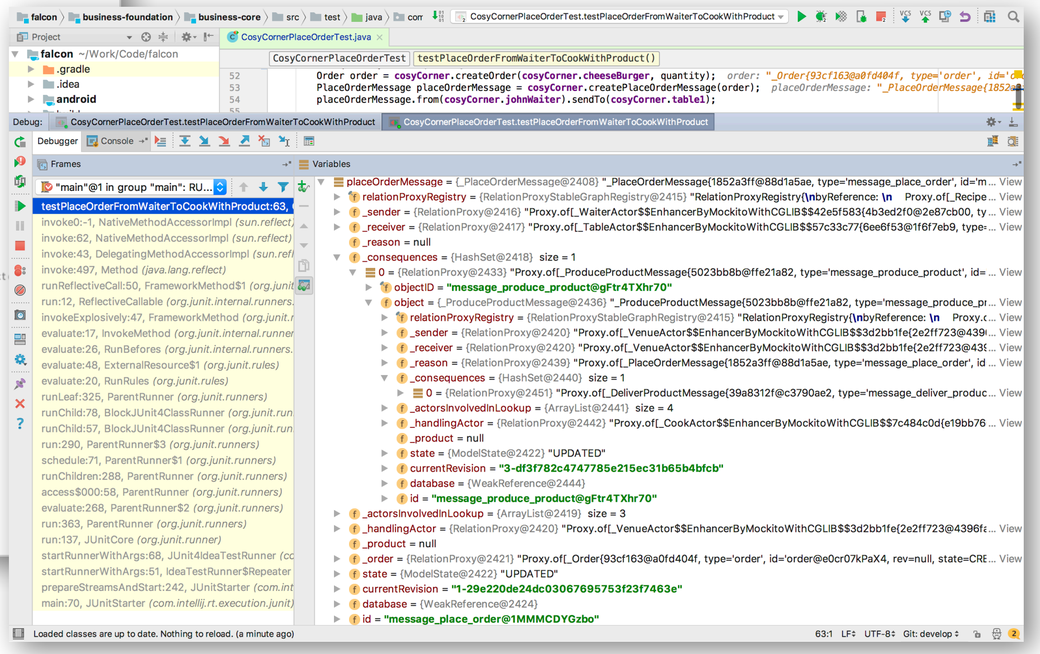
ofdemo2

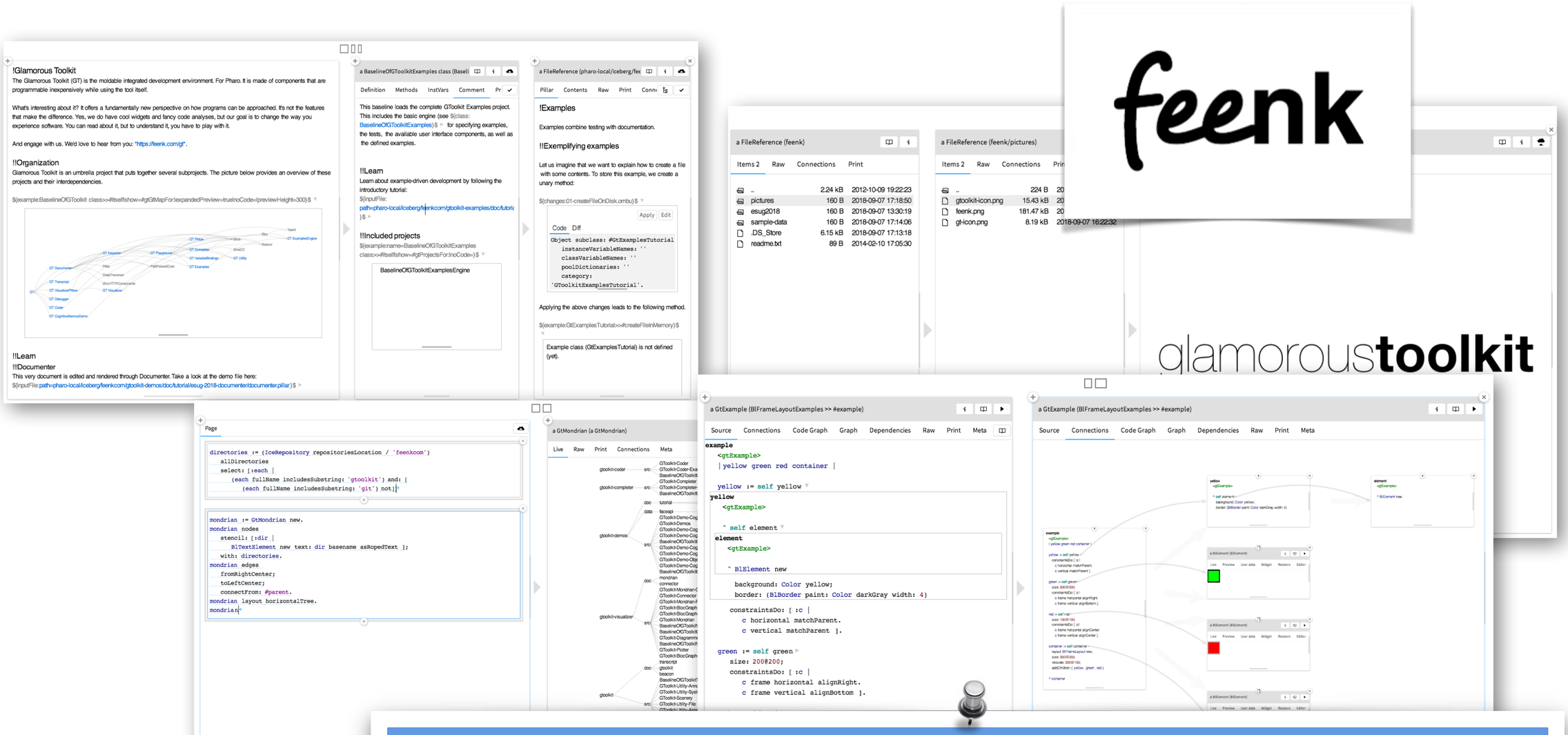
an OFOrderProductMessage (Order Steak)

Propagation Raw Lookup Consequence C... Consequences

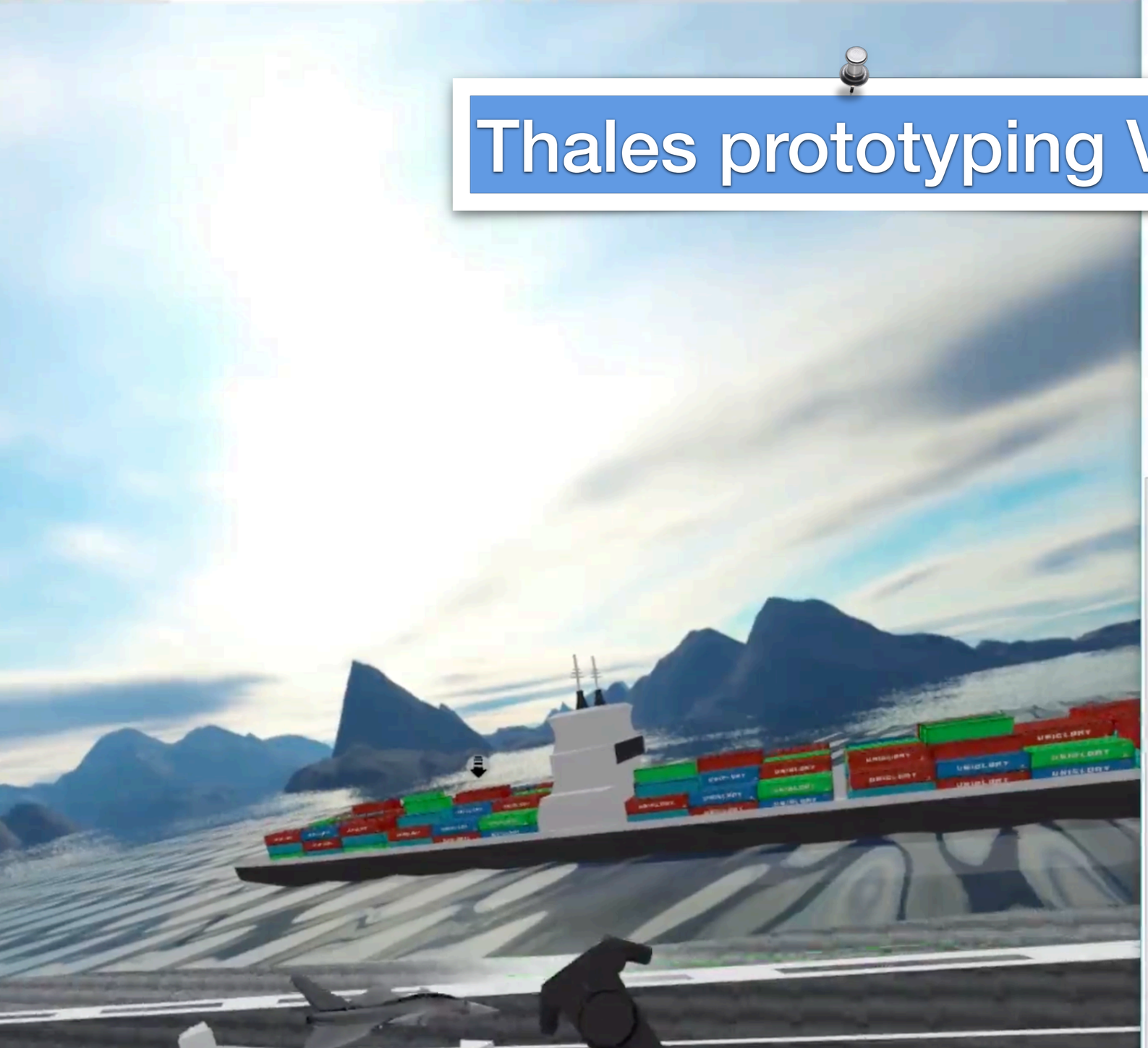
```
"CONTRIBUTORS"
jeffCook := OFCookActor new name: 'Jeff Cook'.
johnWaiter := OFWaiterActor new name: 'John Waiter'.
"AREAS"
cosyCorner := OFVenueActor new name: 'Cosy Corner'.
kitchen := OFRoomActor new name: 'Kitchen'; parentArea: cosyCorner.
warmStation := OFKitchenActor new name: 'Warm station'; parentArea: kitchen; addContributor:
jeffCook.
coldStation := OFKitchenActor new name: 'Cold station'; parentArea: kitchen; addContributor:
jeffCook.
room := OFRoomActor new name: 'Room'; parentArea: cosyCorner.
table1 := OFTableActor new name: 'Table 1'; parentArea: room; addContributor: johnWaiter.
table2 := OFTableActor new name: 'Table 2'; parentArea: room; addContributor: johnWaiter.
"PRODUCTS"
steak := OFProduct new name: 'Steak'; characteristics: {OFPWarm}.
sandwich := OFProduct new name: 'Sandwich' ; characteristics: {OFPCold}.
cosyCorner products: { steak . sandwich }.
"MESSAGE HANDLERS"
cosyCorner addScriptedMessageHandler
   when: [ :message | message isOrderProduct ];
   execute: [:message :handler | OFProduceProductMessage new ].
jeffCook addScriptedMessageHandler
   when: [ :message | message isProduceProduct ];
   execute: [ :message :handler |
      handler
         queue: message
         to: [OFDeliverProductMessage new to: handler actor areas anyOne] ].
johnWaiter addScriptedMessageHandler
   when: [ :message |
      message isDeliverProduct and: [
         johnWaiter areas includes: message initialReason receiver ] ];
   execute: [:message :handler |
      handler
         queue: message
         to: [ self inform: message product gtDisplayString, ' delivered!' ] ].
cosyCorner.
"ORDERS"
orderSteak := OFOrderProductMessage new product: steak; sendBy: johnWaiter to: table1.
orderSandwich := OFOrderProductMessage new product: sandwich; sendBy: johnWaiter to: table1.
cosyCorner
```






feenk
glamoroustoolkit
!Glamorous Toolkit
The Glamorous Toolkit (GT) is the moldable integrated development environment. For Pharo. It is made of components that are programmable inexpensively while using the tool itself.
What's interesting about it? It offers a fundamentally new perspective on how programs can be approached. It's not the features that make the difference. Yes, we do have cool widgets and fancy code analyses, but our goal is to change the way you experience software. You can read about it, but to understand it, you have to play with it.
And engage with us. We'd love to hear from you: "https://feenk.com/gt".
!!Organization
Glamorous Toolkit is an umbrella project that puts together several subprojects. The picture below provides an overview of these projects and their interdependencies.
!!Learn
!!!Documenter
This very document is edited and rendered through Documenter. Take a look at the demo file here:
a BaselineOfGToolkitExamples class (Baseli
Definition Methods InstVars Comment Pr
This baseline loads the complete GToolkit Examples project. This includes the basic engine (see BaselineOfGToolkitExamples) for specifying examples, the tests, the available user interface components, as well as the defined examples.
!!Learn
Learn about example-driven development by following the introductory tutorial:
!!Included projects
BaselineOfGToolkitExamplesEngine
a FileReference (pharo-local/iceberg/fe
Pillar Contents Raw Print Conne
!Examples
Examples combine testing with documentation.
!!Exemplifying examples
Let us imagine that we want to explain how to create a file with some contents. To store this example, we create a unary method:
Code Diff
Apply Edit
Object subclass: #GtExamplesTutorial
instanceVariableNames: ''
classVariableNames: ''
poolDictionaries: ''
category: 'GToolkitExamplesTutorial'.
Applying the above changes leads to the following method.
Example class (GtExamplesTutorial) is not defined (yet).
a FileReference (feenk)
Items 2 Raw Connections Print
.. 2.24 kB 2012-10-09 19:22:23
pictures 160 B 2018-09-07 17:18:50
esug2018 160 B 2018-09-07 13:30:19
sample-data 160 B 2018-09-07 17:14:06
.DS_Store 6.15 kB 2018-09-07 17:13:18
readme.txt 89 B 2014-02-10 17:05:30
a FileReference (feenk/pictures)
Items 2 Raw Connections
.. 224 B
gtoolkit-icon.png 15.43 kB
feenk.png 181.47 kB
gt-icon.png 8.19 kB 2018-09-07 16:22:32
Page
directories := (IceRepository repositoriesLocation / 'feenkcom')
allDirectories
select: [:each |
(each fullName includesSubstring: 'gtoolkit') and: [
(each fullName includesSubstring: 'git') not]]
mondrian := GtMondrian new.
mondrian nodes
stencil: [:dir |
BlTextElement new text: dir basename asRopedText];
with: directories.
mondrian edges
fromRightCenter;
toLeftCenter;
connectFrom: #parent.
mondrian layout horizontalTree.
mondrian
a GtMondrian (a GtMondrian)
Live Raw Print Connections Meta
a GtExample (BlFrameLayoutExamples >> #example)
Source Connections Code Graph Graph Dependencies Raw Print Meta
example
<gtExample>
| yellow green red container |
yellow := self yellow
yellow
<gtExample>
^ self element
element
<gtExample>
^ BlElement new
background: Color yellow;
border: (BlBorder paint: Color darkGray width: 4)
constraintsDo: [:c |
c horizontal matchParent.
c vertical matchParent].
green := self green
size: 200@200;
constraintsDo: [:c |
c frame horizontal alignRight.
c frame vertical alignBottom].
a GtExample (BlFrameLayoutExamples >> #example)
Source Connections Code Graph Graph Dependencies Raw Print Meta
Build advanced tools for business experts and CEOs of large companies
feenk.com/gt

Thales prototyping VR



Pharo

Playground

```
tmp := OVRWDemoAircraftCarrier open.
tmp
```

OVRWDemoAircraftCarrier

Scoped | Variables | History Navigator

Type: Pkg1|*Pkg2|Pk.

- OpenVR
- OpenVR-Woden
- OpenVR-Woden-
- Pharo-Help
- Polymorph-Task
- Polymorph-Widg
- PragmaCollector
- ProfStef-Core
- ProfStef-Help
- ProfStef-Tests

- ProtoObject
- Object
- WDApplication
- WDFPSExample
- OVRWEmptyExample
- OVRWExample
- OVRWDemoAircra
- OVRWDemoPickir
- OVRWExampleCol

Hier. | Class | Com.

-- all --
event handling
initialize
menu
scene content
updating

addAbeilleBourbon
addBarrel
addBoxes
addCargo
addCharlesDeGaulle
addHawkeye
addHelicopter
addObjectAt:orientation:s
addPlayableAreaToScene
addRadar

```
OVRWExample subclass:
#OVRWDemoAircraftCarrier
   instanceVariableNames:
'flyingRafaleNode teleportLocations
scrollGestureListener menu
operationQueue waterMaterial
dynamicsWorld'
   classVariableNames: ''
   package:
```

1/11 [2] -- 1/11 [25] Format as you read W +L

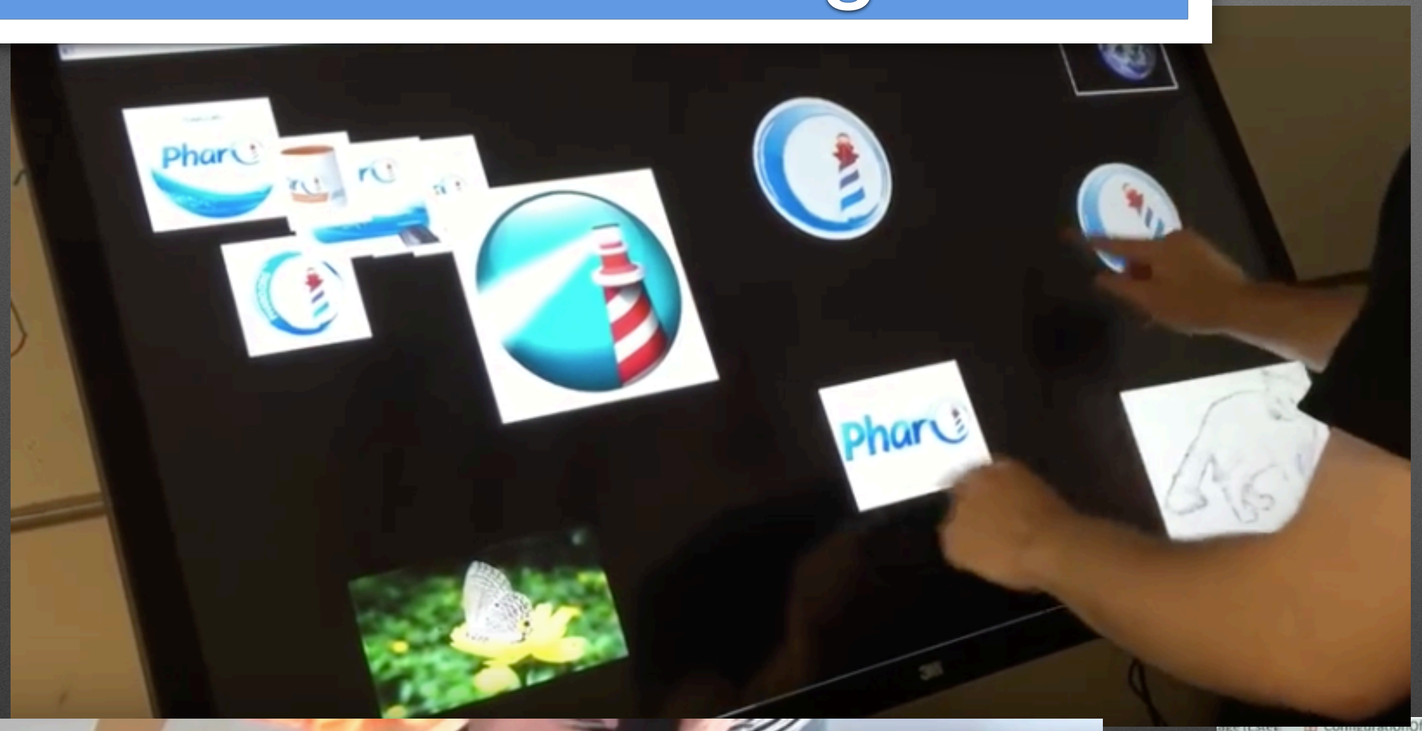
Controls:
- Big front button for teleportation
- Menu button to change the color of the sea

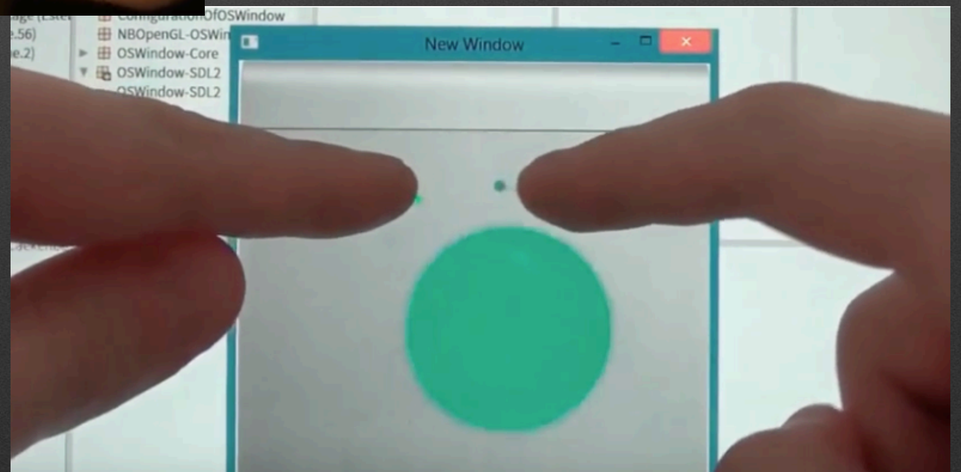
1/3 [1] W +L

Class not referenced ? ✕ Helpful?

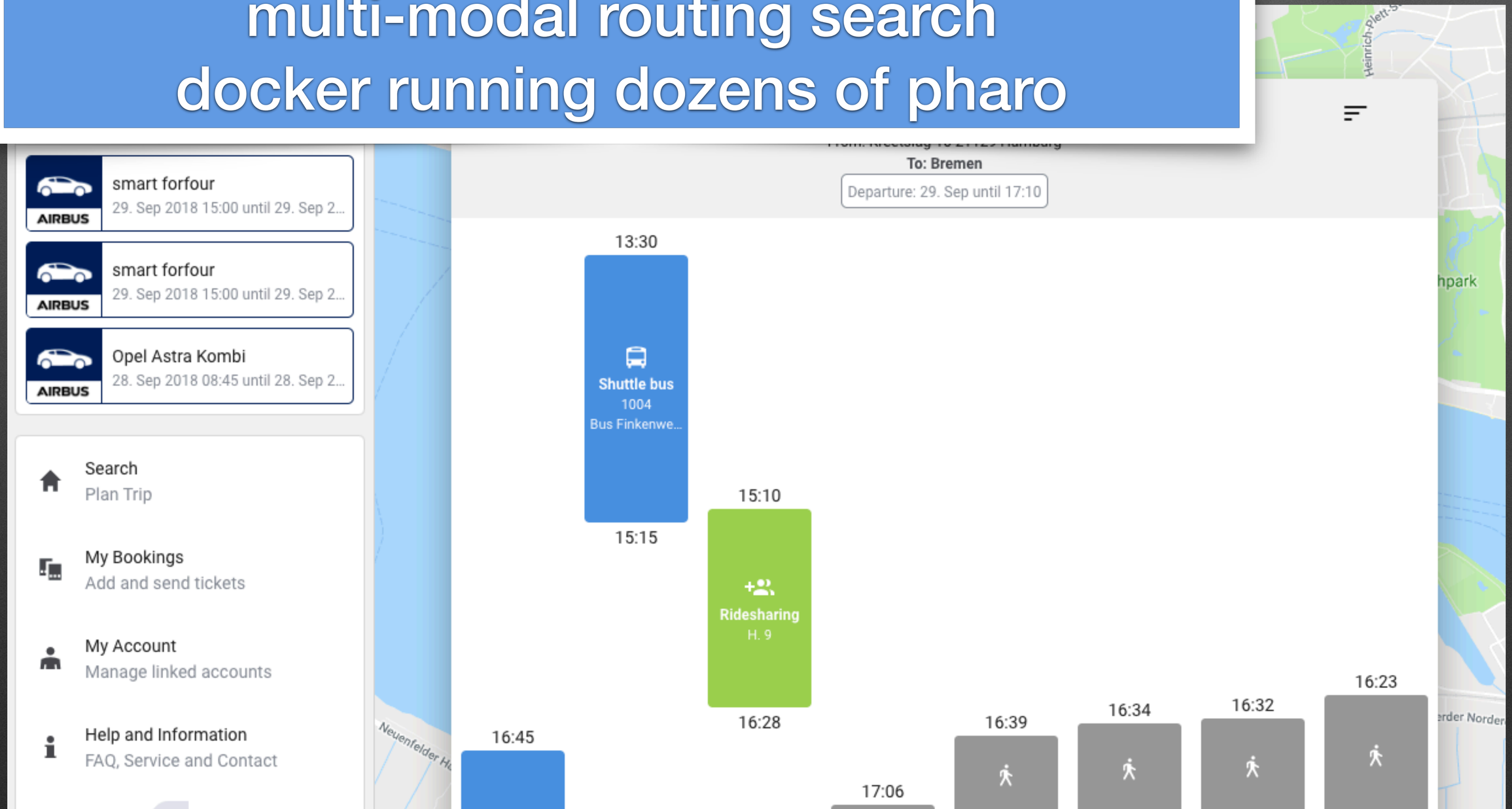
[dynamicsWorld] Instance variables not read AND written ? ✕ Helpful?

Thales prototypes advanced interaction design

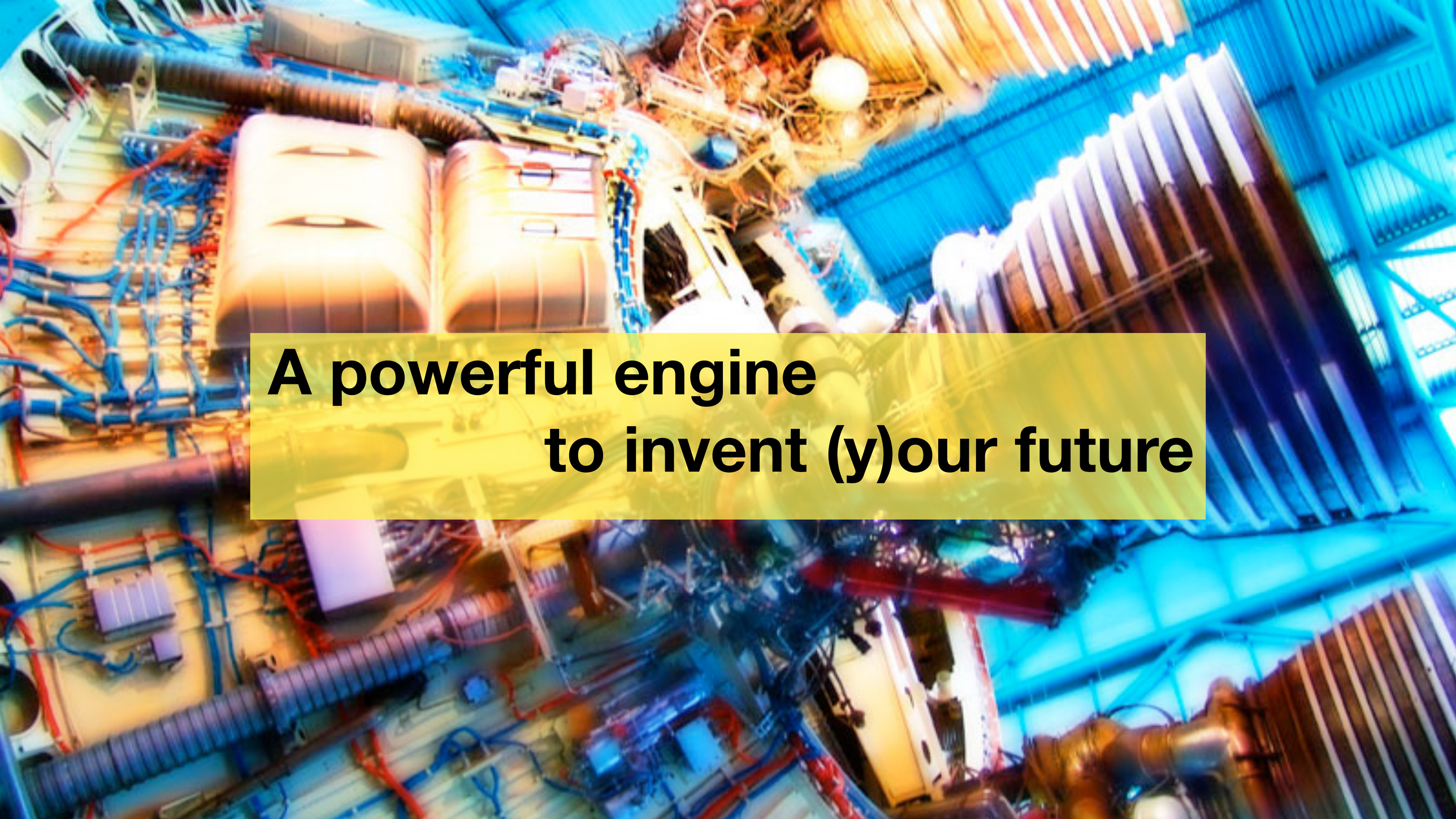




Mobility Map: a broker for mobility services
multi-modal routing search
docker running dozens of pharo



Remember?
Our goal...


A powerful engine
to invent (y)our future

An ecosystem where
innovation/business bloom

You are not alone…

Industrial consortium

consortium.pharo.org

No marketing
No hype
Adults deciding to use
Understanding strengths and weaknesses

We are a cool community

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• Uni. of Quilmes • Uni. of La Plata • Northern Michigan Uni. • Uni. Technologica Nacional (UTN) • Uni. Catholic of Argentina • Uni. of Santiago • Uni. Policnica de Catalunya • Uni. de Bretagne Occidentale • Uni. of Tomsk • Uni. of Fernhagen • IT University of Copenhagen • Uni. Cat del Sacro Cuore of Brescia • Uni. of Yaounde • Uni. of Saint-Louis • INFTI • Uni. of Lyon • Univ. Montpellier • Uni. of Cordoba

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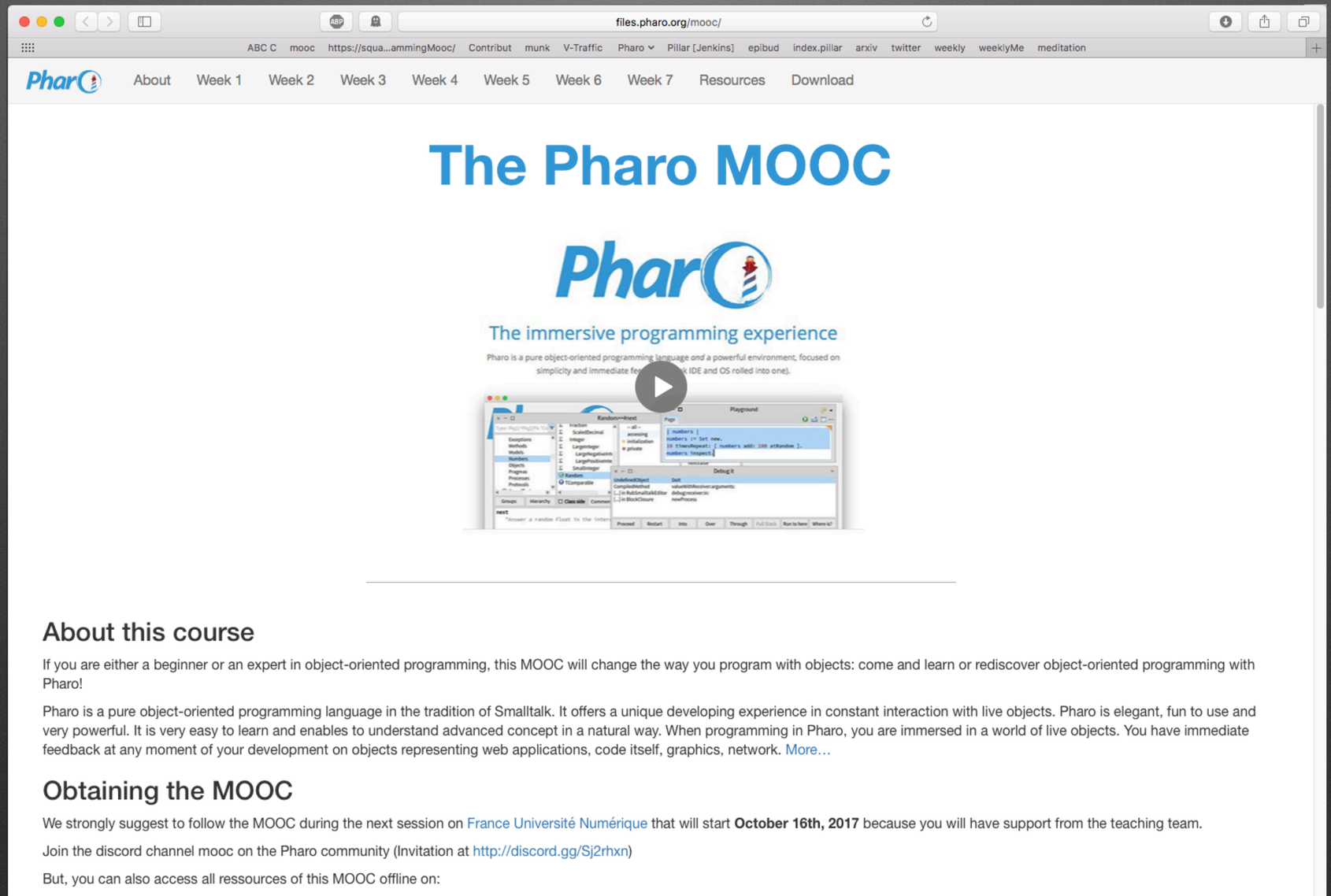
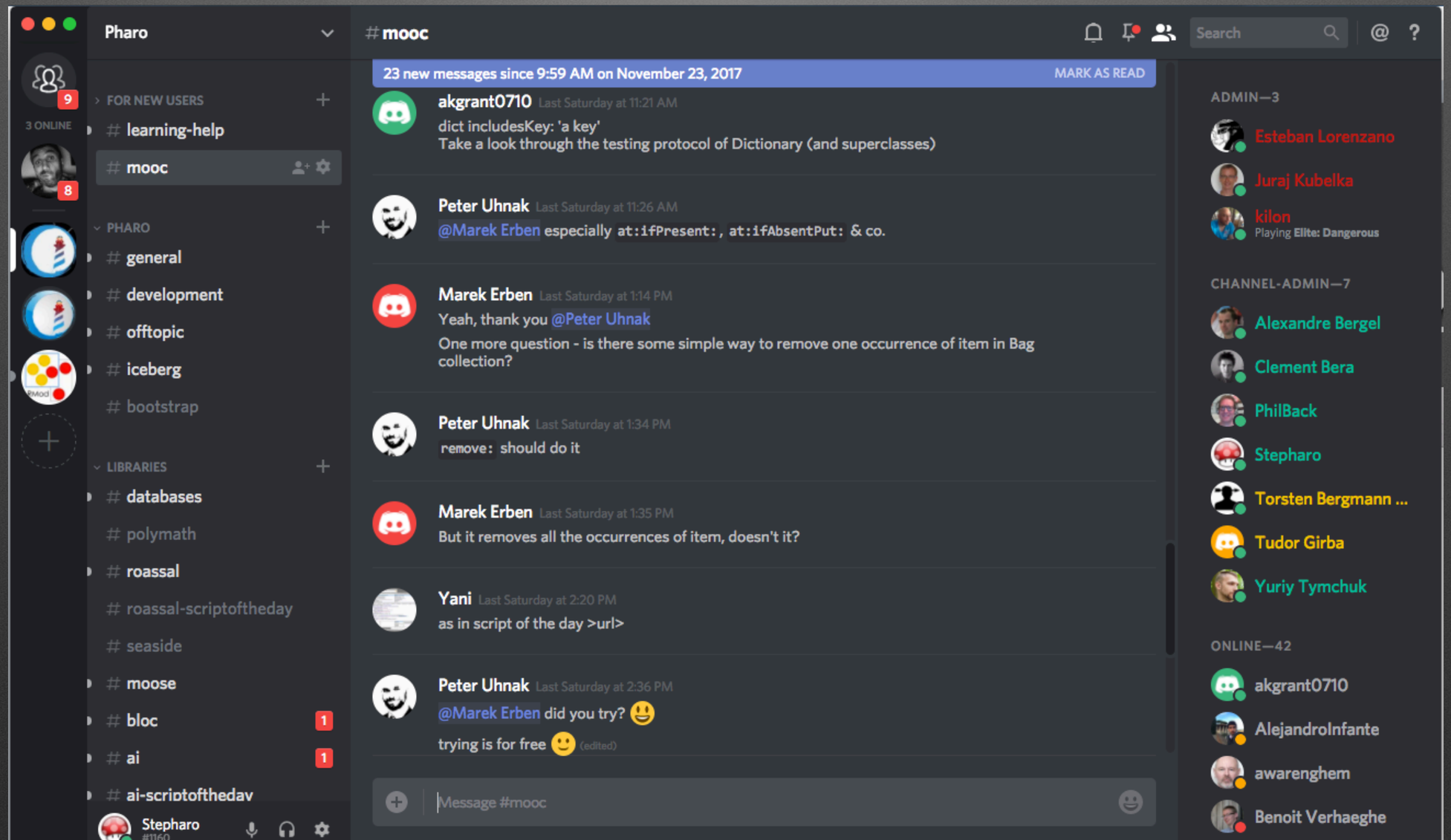
SCG (CH)
CAR (FR)
RMOD (FR)
Ummisco (IRD)
Reveal (CH)
Lysic (FR)

CEA-List (FR)
Uqbar (AR)
OC (FR)
CCMI-FIT (CZ)
ASERG (BR)
Pleiad (CL)
SoftQual(Serb)

http://mooc.pharo.org



http://discord.gg/Sj2rhxn



A Pure OO World

Only objects +
messages +
closures!

mouse, booleans, arrays, numbers, strings, windows, scrollbars, canvas, files, trees, compilers, sound, url, socket, fonts, text, collections, stack, shortcut, streams, …

Domain Driven Modeling =
Focus on your domain

Amazing moldable tools

Customize object interaction/presentation to focus on YOUR domain

Playground

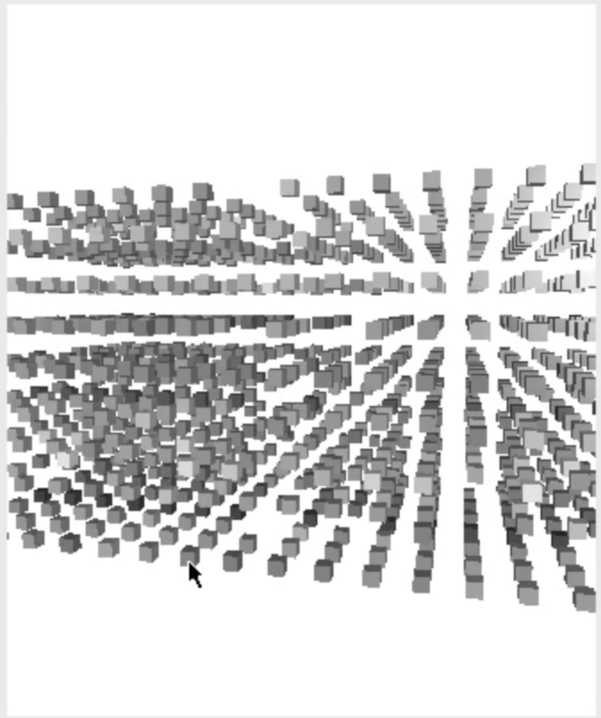
Page

```
data := TestData new data.


cube := MatrixCube new initWithData: data.
cube view
```

a RWView

Raw | Live | Meta



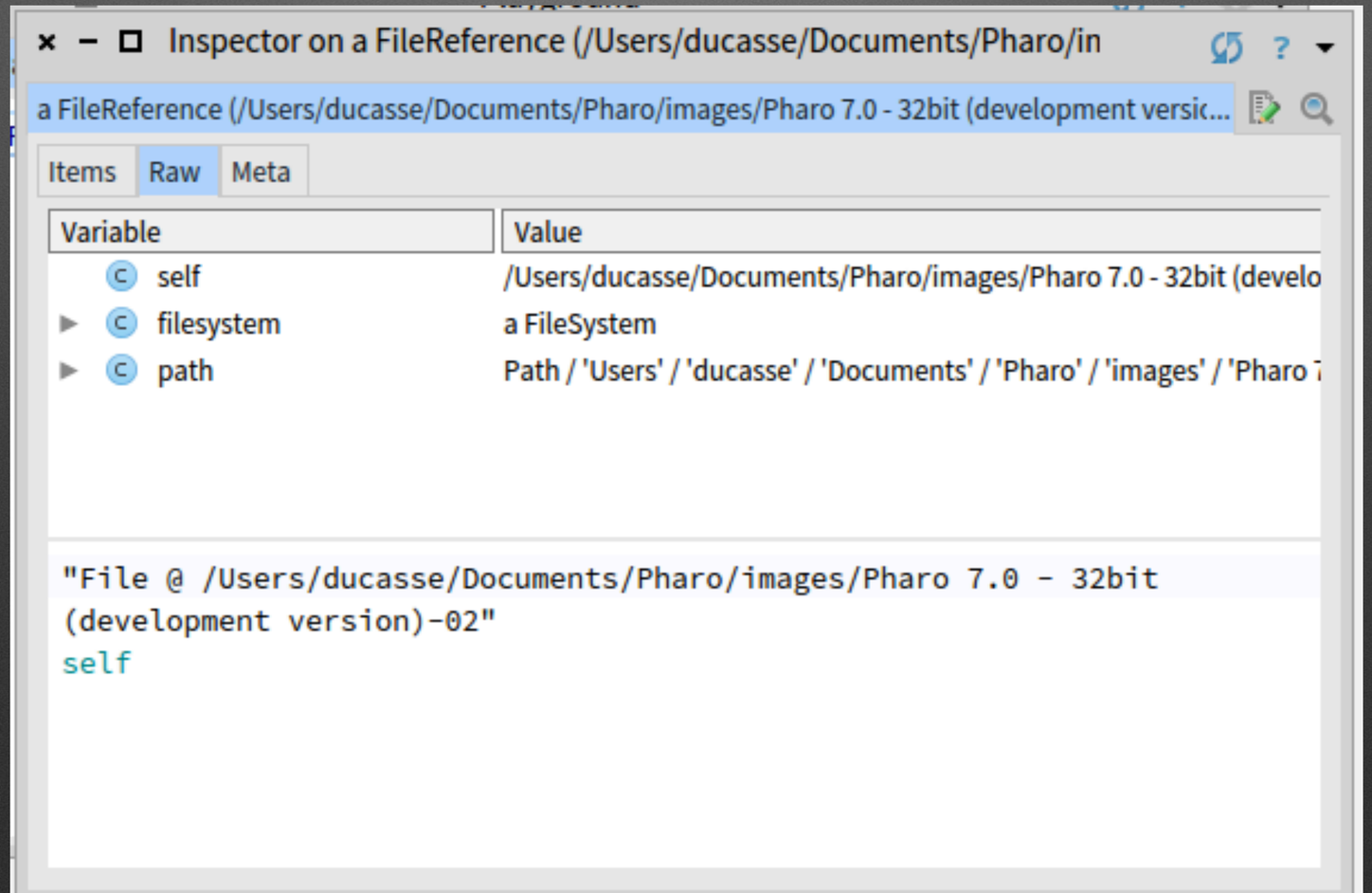
an Array [4 items] ('2000-01-01' 'Malawi' 'France'...

Items | Raw | Meta

Index	Item
1	'2000-01-01'
2	'Malawi'
3	'France'
4	'400.0'

enter search query (example: "each = 5")

Traditionally a file reference...



Inspector on a FileReference (/Users/ducasse/Library/Application Support/Pharo/images/SpurForShooting6)

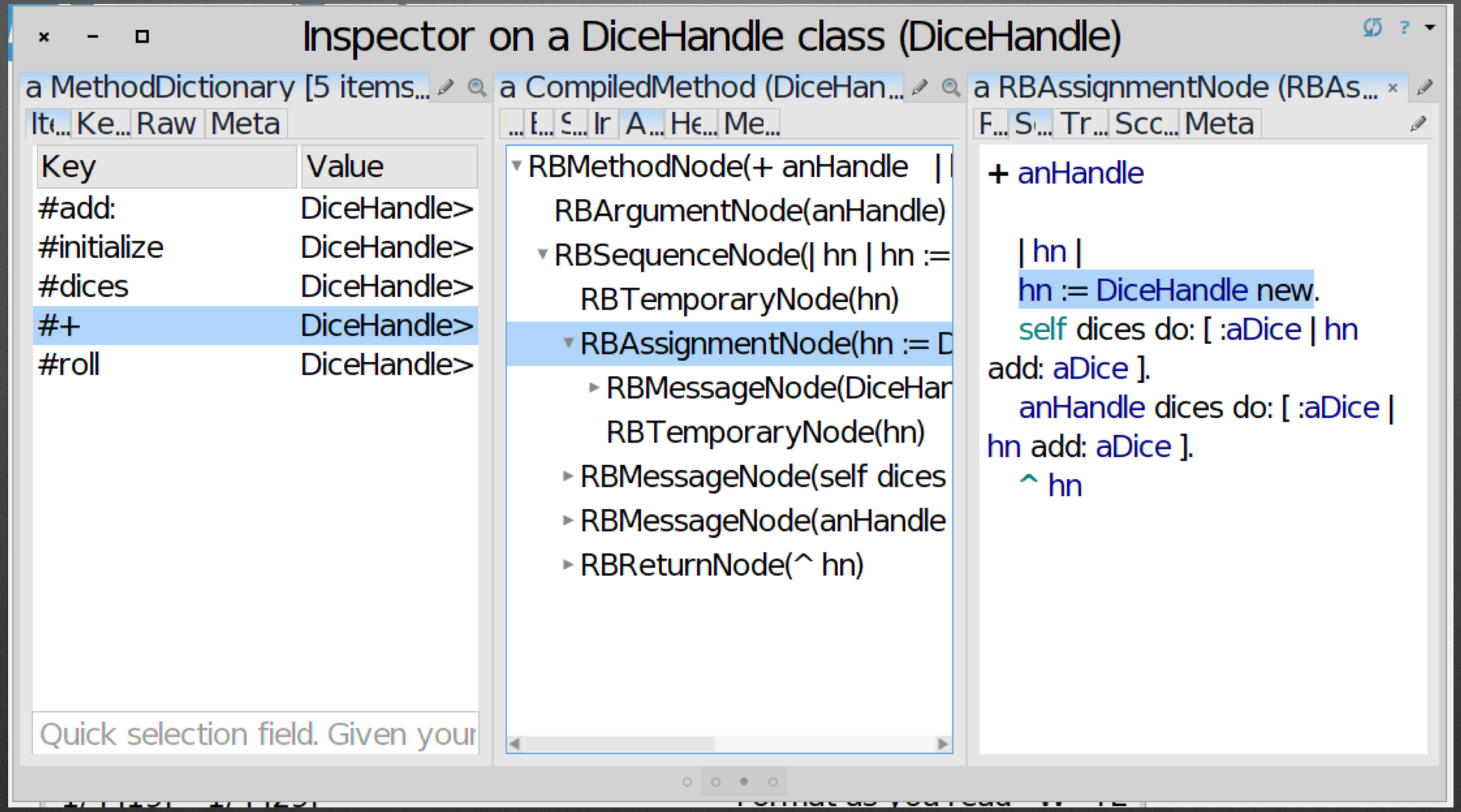
a FileReference (/Users/ducasse/Library/Application Support/Pharo/images/SpurForSh...

Items | Raw | Meta

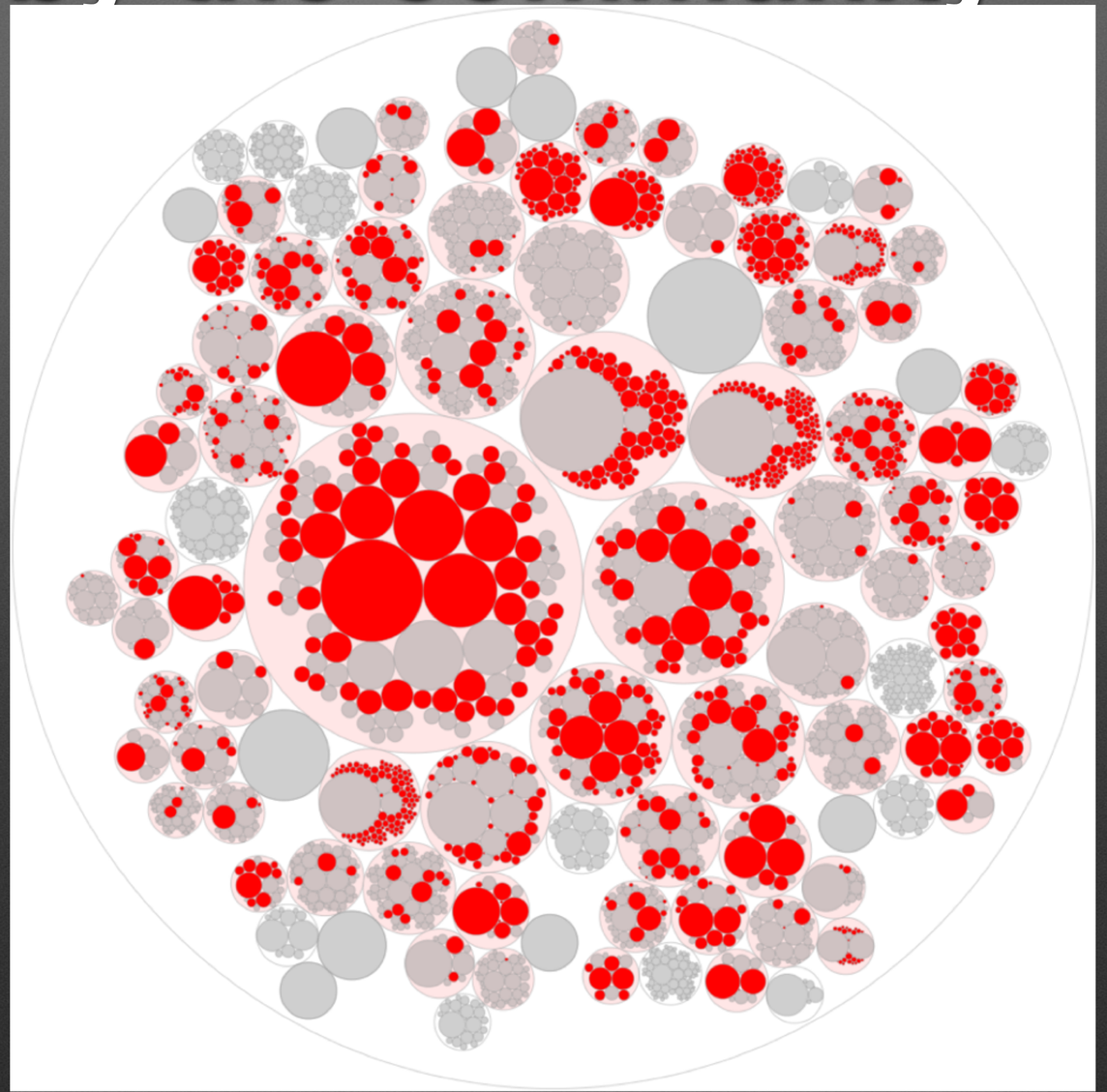
Name	Size	Creation
..	408 B	2016-03-04 20:23:03
current	238 B	2016-02-25 10:34:24
.DS_Store	6.15 kB	2016-02-25 10:34:44
pharo-city.png	136.55 kB	2015-06-25 17:31:20
pharo.log	155.14 kB	2015-06-30 14:51:30
photos.zip	157.78 kB	2015-06-30 16:59:24
script.st	291 B	2015-09-17 15:21:14
scripts.zip	1.53 kB	2015-07-15 01:48:50

a FileReference (/Users/ducasse/Library/Application Support/Pha

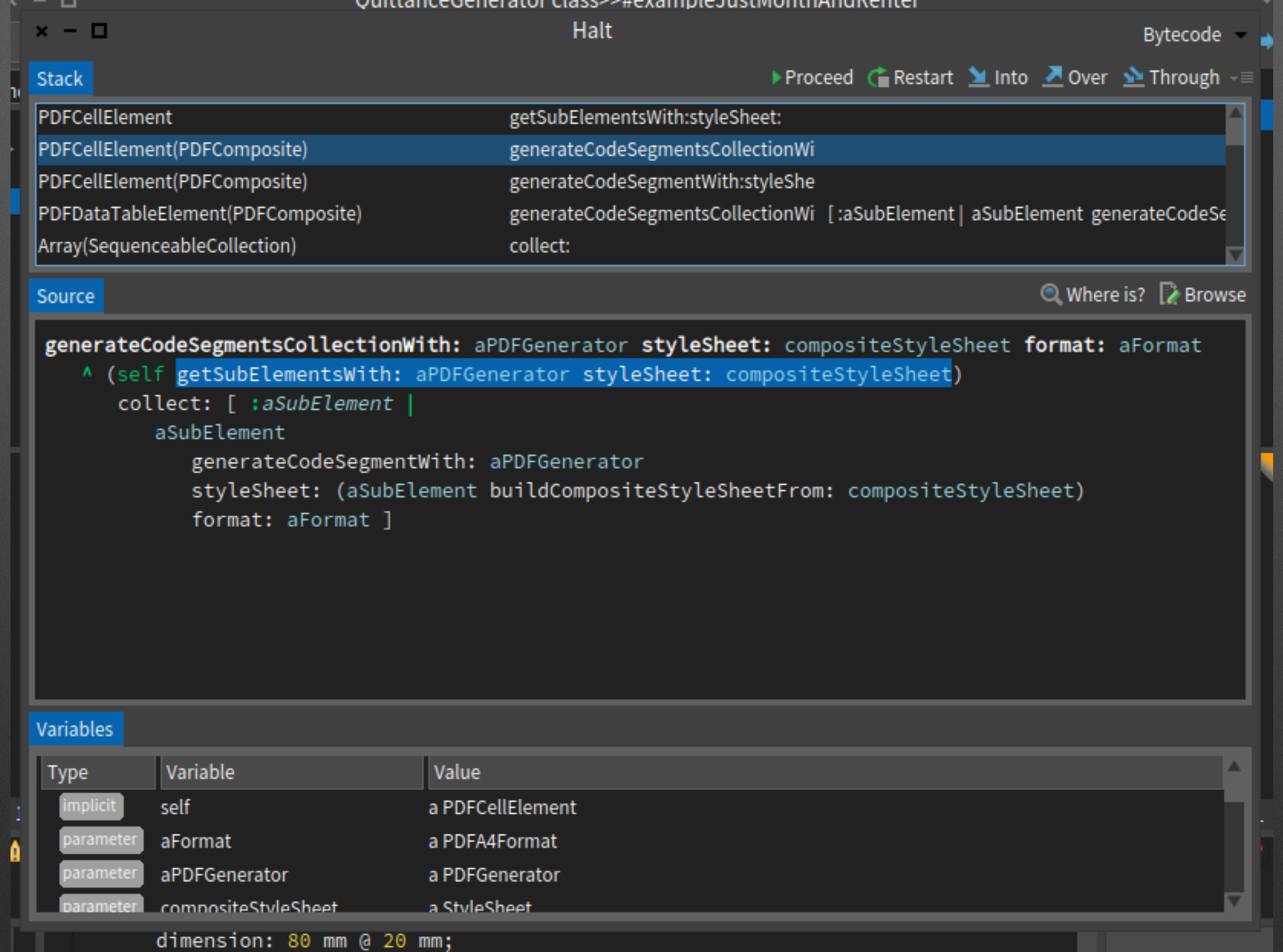
Picture | Contents | Raw | Meta

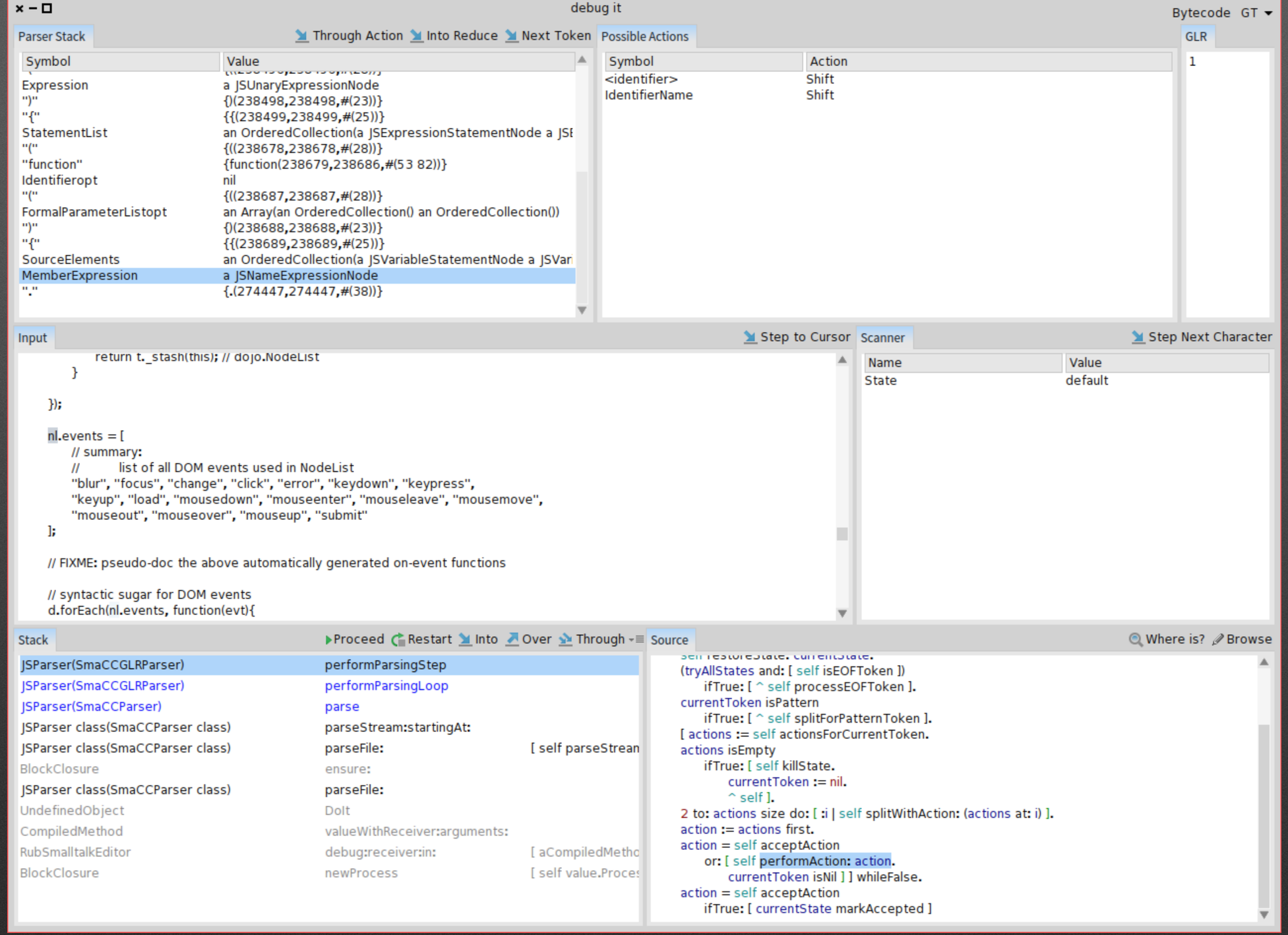

Inspector on a DiceHandle class (DiceHandle)
a MethodDictionary [5 items...
a CompiledMethod (DiceHan...
a RBAssignmentNode (RBAs...
Key
Value
#add:
DiceHandle>
#initialize
DiceHandle>
#dices
DiceHandle>
#+
DiceHandle>
#roll
DiceHandle>
Quick selection field. Given your
RBMethodNode(+ anHandle
RBArgumentNode(anHandle)
RBSequenceNode(| hn | hn :=
RBTemporaryNode(hn)
RBAssignmentNode(hn := D
RBMessageNode(DiceHar
RBTemporaryNode(hn)
RBMessageNode(self dices
RBMessageNode(anHandle
RBReturnNode(^ hn)
+ anHandle
| hn |
hn := DiceHandle new.
self dices do: [:aDice | hn
add: aDice].
anHandle dices do: [:aDice |
hn add: aDice].
^ hn

of specific views developed by the community



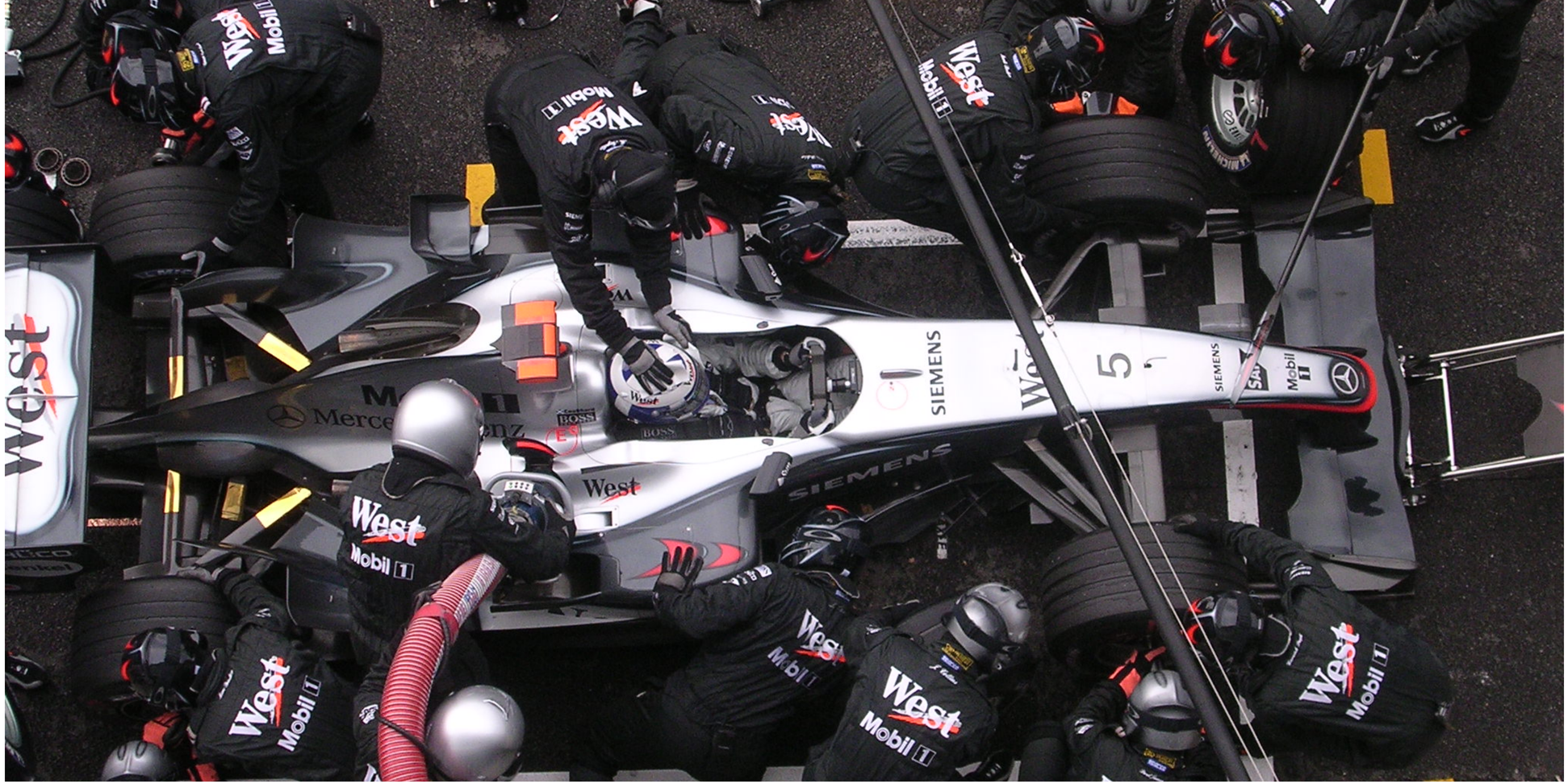
Hot update on the spot customizable debugger


QuittanceGenerator class>>#exampleJustMonthAndRenter
Halt
Bytecode
Stack
Proceed
Restart
Into
Over
Through
PDFCellElement
getSubElementsWith:styleSheet:
PDFCellElement(PDFComposite)
generateCodeSegmentsCollectionWi
PDFCellElement(PDFComposite)
generateCodeSegmentWith:styleShe
PDFDataTableElement(PDFComposite)
generateCodeSegmentsCollectionWi [:aSubElement | aSubElement generateCodeSe
Array(SequenceableCollection)
collect:
Source
Where is?
Browse
generateCodeSegmentsCollectionWith: aPDFGenerator styleSheet: compositeStyleSheet format: aFormat
^ (self getSubElementsWith: aPDFGenerator styleSheet: compositeStyleSheet)
collect: [:aSubElement |
aSubElement
generateCodeSegmentWith: aPDFGenerator
styleSheet: (aSubElement buildCompositeStyleSheetFrom: compositeStyleSheet)
format: aFormat]
Variables
Type
Variable
Value
implicit
self
a PDFCellElement
parameter
aFormat
a PDFA4Format
parameter
aPDFGenerator
a PDFGenerator
parameter
compositeStyleSheet
a StyleSheet
dimension: 80 mm @ 20 mm;


debug it
Bytecode GT
Parser Stack
Through Action
Into Reduce
Next Token
Symbol
Value
Expression
a JSUnaryExpressionNode
")"
{}(238498,238498,#(23))}
"{"
{{(238499,238499,#(25))}
StatementList
an OrderedCollection(a JSExpressionStatementNode a JSI
"("
{((238678,238678,#(28))}
"function"
{function(238679,238686,#(53 82))}
Identifieropt
nil
"("
{((238687,238687,#(28))}
FormalParameterListopt
an Array(an OrderedCollection() an OrderedCollection())
")"
{}(238688,238688,#(23))}
"{"
{{(238689,238689,#(25))}
SourceElements
an OrderedCollection(a JSVariableStatementNode a JSVar
MemberExpression
a JSNameExpressionNode
"."
{.(274447,274447,#(38))}
Possible Actions
Symbol
Action
<identifier>
Shift
IdentifierName
Shift
GLR
1
Input
Step to Cursor
return t._stash(this); // dojo.NodeList
}
});
nl.events = [
// summary:
// list of all DOM events used in NodeList
"blur", "focus", "change", "click", "error", "keydown", "keypress",
"keyup", "load", "mousedown", "mouseenter", "mouseleave", "mousemove",
"mouseout", "mouseover", "mouseup", "submit"
];
// FIXME: pseudo-doc the above automatically generated on-event functions
// syntactic sugar for DOM events
d.forEach(nl.events, function(evt){
Scanner
Step Next Character
Name
Value
State
default
Stack
Proceed
Restart
Into
Over
Through
JSParser(SmaCCGLRParser)
performParsingStep
JSParser(SmaCCGLRParser)
performParsingLoop
JSParser(SmaCCParser)
parse
JSParser class(SmaCCParser class)
parseStream:startingAt:
JSParser class(SmaCCParser class)
parseFile:
[self parseStrean
BlockClosure
ensure:
JSParser class(SmaCCParser class)
parseFile:
UndefinedObject
DoIt
CompiledMethod
valueWithReceiver:arguments:
RubSmalltalkEditor
debug:receiver:in:
[aCompiledMetho
BlockClosure
newProcess
[self value.Proces
Source
Where is?
Browse
(tryAllStates and: [self isEOFToken])
ifTrue: [^ self processEOFToken].
currentToken isPattern
ifTrue: [^ self splitForPatternToken].
[actions := self actionsForCurrentToken.
actions isEmpty
ifTrue: [self killState.
currentToken := nil.
^ self].
2 to: actions size do: [:i | self splitWithAction: (actions at: i)].
action := actions first.
action = self acceptAction
or: [self performAction: action.
currentToken isNil]] whileFalse.
action = self acceptAction
ifTrue: [currentState markAccepted]

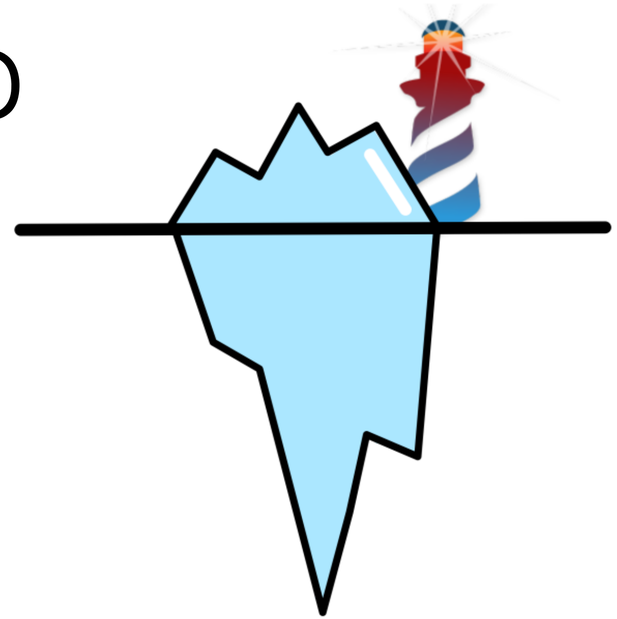
Since may 2008

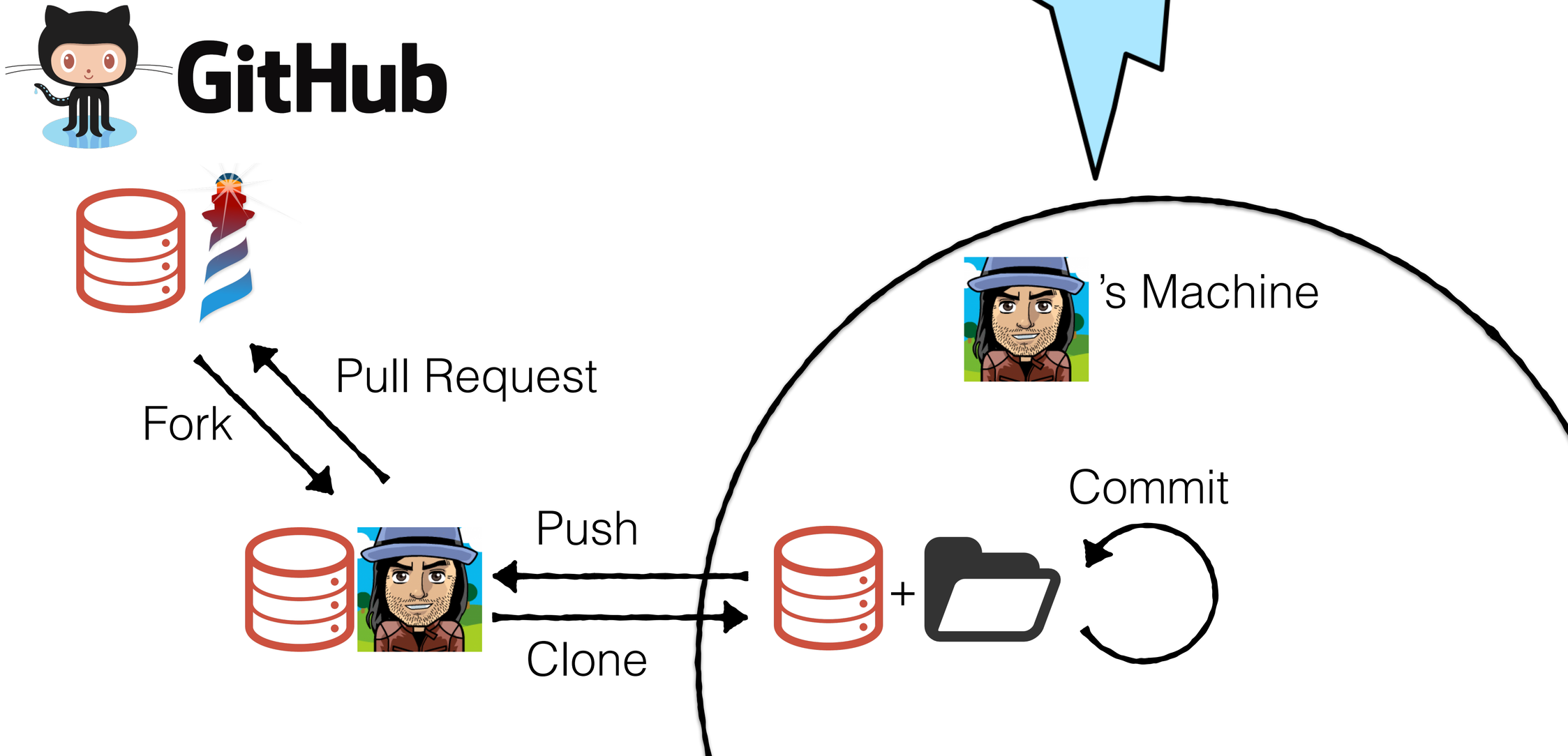
Pharo 7.0 - Nov 2018 … 63 contributors - 111 Forks.
Pharo 6.0 - Apr 2017 100 commiters (1700 issues closed)
Pharo 5.0 - Apr 2016 90 commiters (1600 issues closed)
Pharo 4.0 - Apr 2015 70 commiters (1271 issues closed…)
Pharo 3.0 - Apr 2013 (2364 issues closed)
Pharo 2.0 - Apr 2013 (1727 issues closed)
Pharo 1.4 - Apr 2012 (860 updates)
Pharo 1.3 (700 updates)
Pharo 1.2 - mar 2011 (500 updates)
Pharo 1.1 - jul 2010 (410 updates)



Pharo is our vehicle
We improve it everyday

Starting to get GitHub exposure





Of course not
everything
is perfect :)
But it feels like

Pharo

is yours

http://books.pharo.org

Pharo Books

Pharo is a clean, innovative, open-source, live-programming environment.

Contribute to the SquareBracketsAssociates community free books
https://github.com/SquareBracketAssociates/

Access the book compilation farm!

Pharo by Example, intended for both students and developers, will guide you gently through the Pharo language and environment by means of a series of examples and exercises.

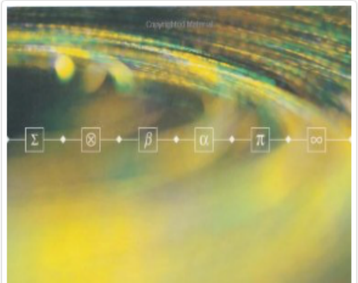
View details »

Deep into Pharo is the second volume of a series of books covering Pharo. Whereas the first volume is intended for newcomers, this second volume covers deeper topics.

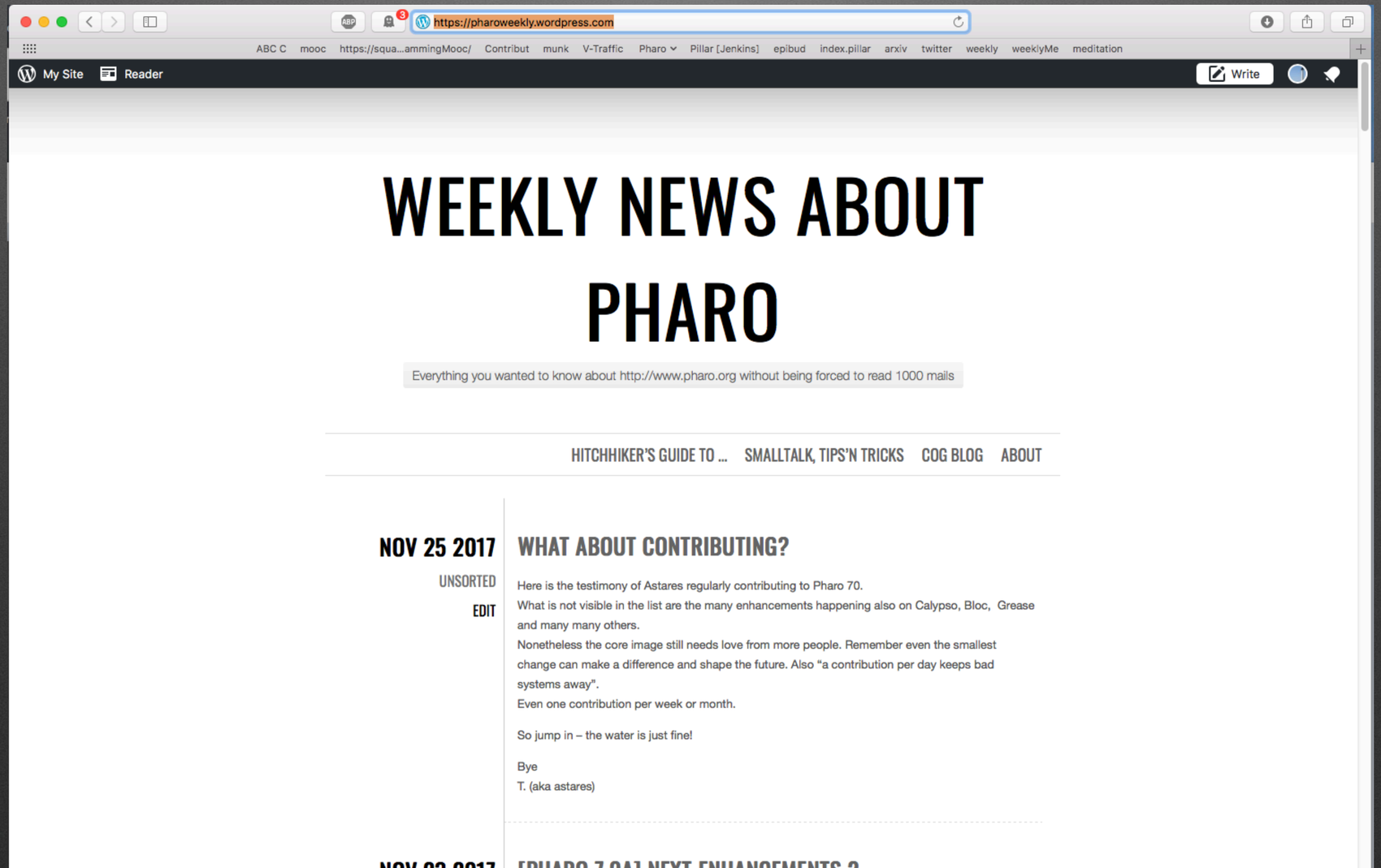
View details »

Enterprise Pharo is the third volume of the series. This book covers libraries and frameworks for enterprises, and in particular those doing web development.

View details »

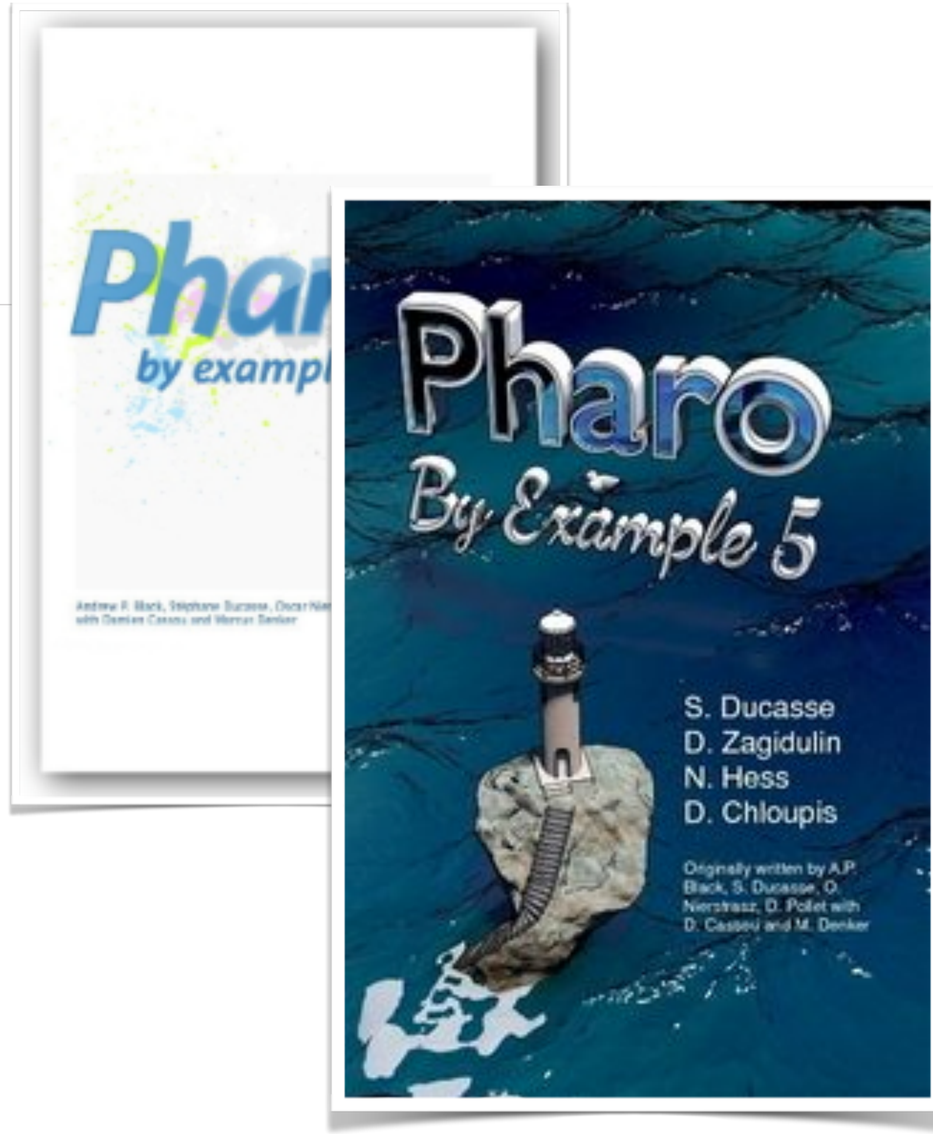


https://
pharoweekly.wordpress.com



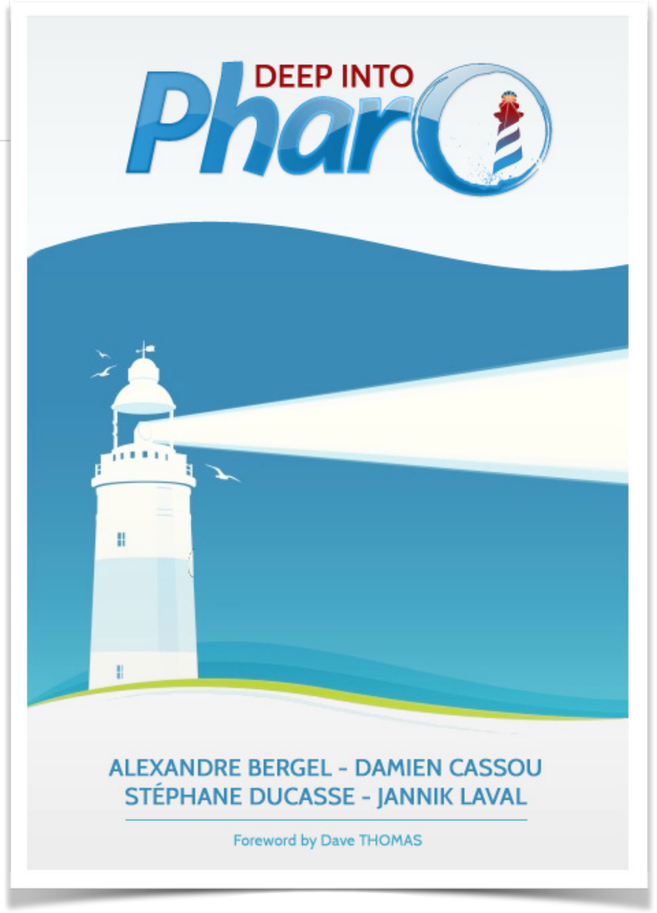
Pharo by Example

- http://books.pharo.org
  - translated to french, merci!
  - translated to spanish, gracias!
  - translated to japanese, ありがとう!
- Currently updated to Pharo 50



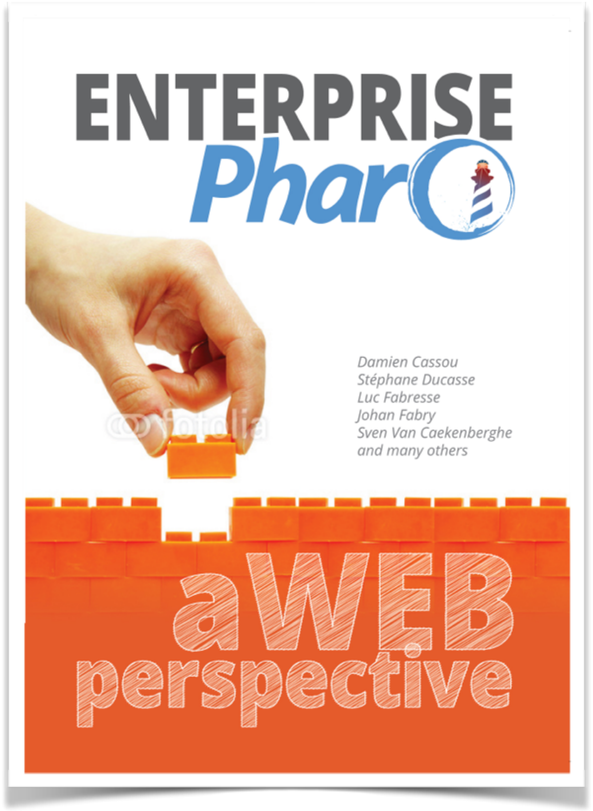
Deep into Pharo

- http://books.pharo.org
- Some advanced topics
  - Libraries
  - Core language
  - Tools



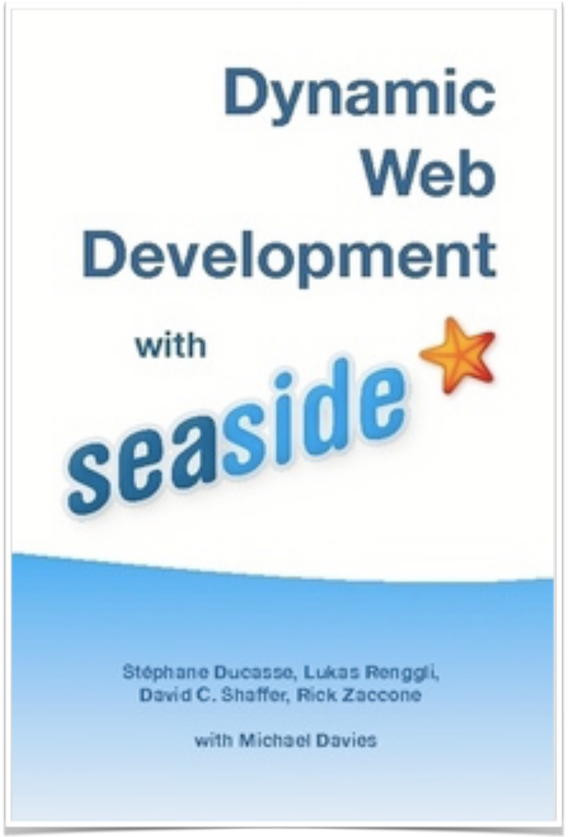
Entreprise Pharo

- http://books.pharo.org
- Web related
  - Encodings,
  - Mustache
  - JSON
  - WebSockets
  - HTTP/HTTPS



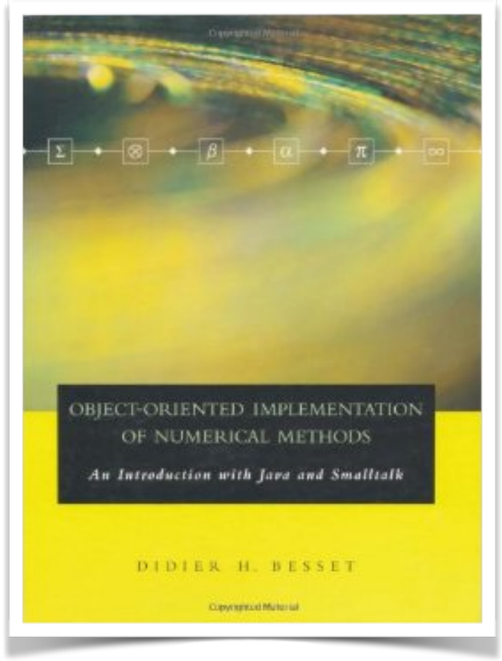
Dynamic Web with Seaside

- http://book.seaside.st
- Full framework explained
- DSL + Call:/answer:
- Automatic form generation
- Deployment

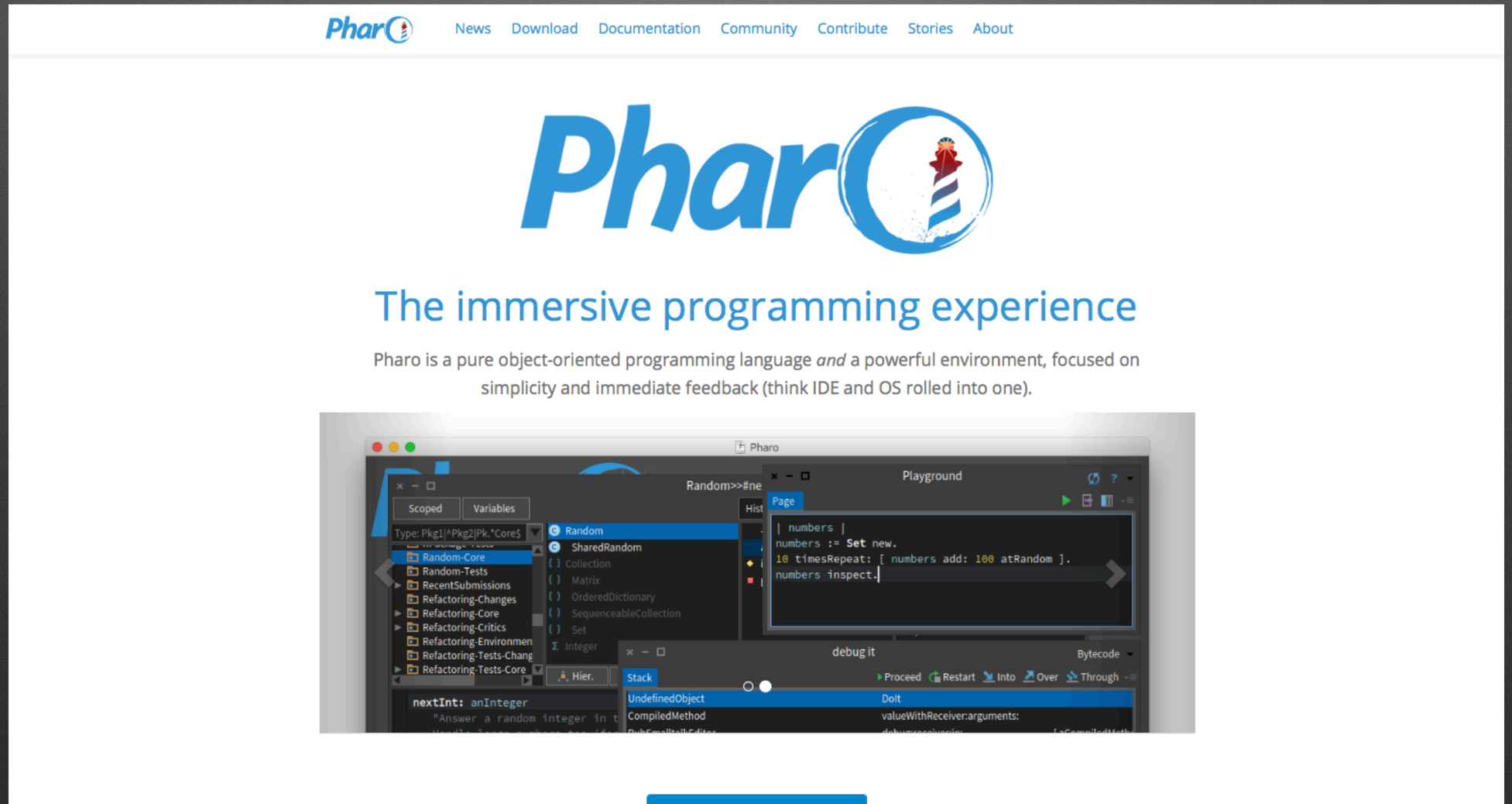


Numerical Methods

- https://github.com/SquareBracketAssociates/NumericalMethods
- Data mining
- Clustering
- Iterative algorithms
- Series
- Statistical analysis



Fun, simple
Pure & elegant
Productive
Empowering
Addictive
Full access

Try Pharo now!

http://pharo.org/download