

# Pharo for Scientists

<http://stephane.ducasse.free.fr>

<http://www.pharo.org>



JPMORGAN  
CHASE & Co.



feenk



projector  
software

inspired!



Sensus



SpesenFuchs

SCHMIDT  
Ingenieurbüro für Bauwesen

ZWEIDENKER

THALES  
Software  
Soops Group

BetaNine  
software engineering

netstyle.ch



SORABITO

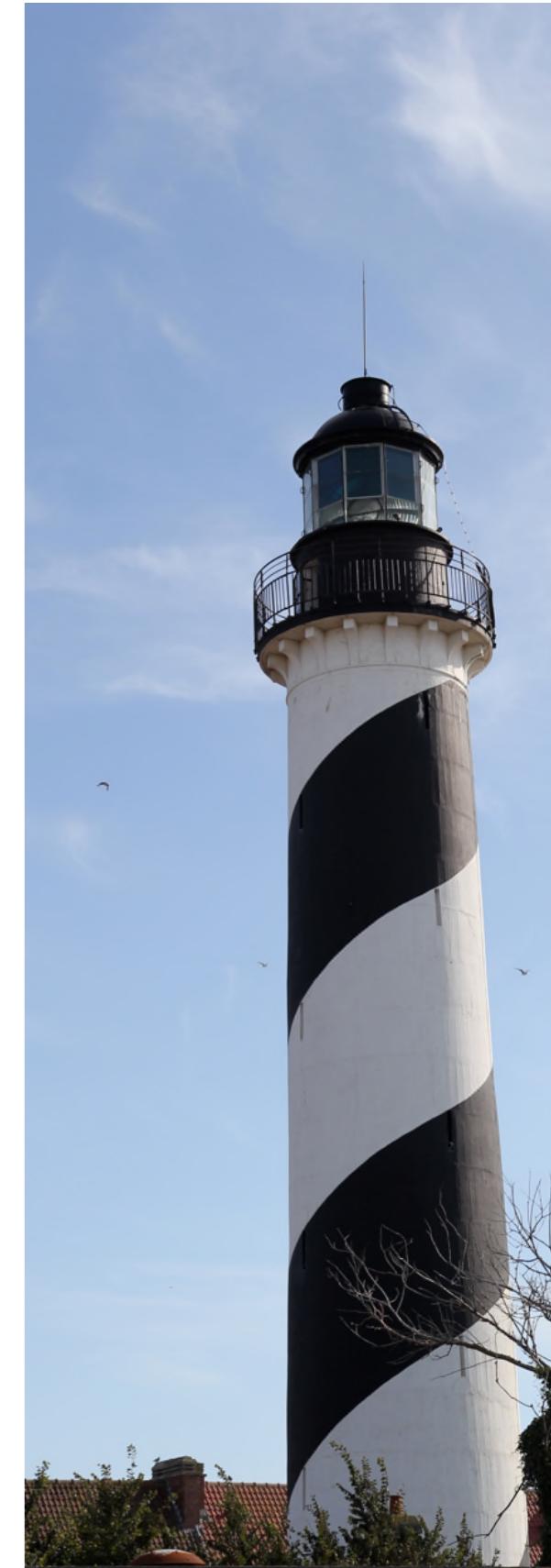


knowroaming  
TA MÈRE SCRL  
BADASS MOBILE DEVELOPMENT

Palantir

y  
Yesplan  
Let's make it happen

esug  
EUROPEAN SMALLTALK USER GROUP



# Pharo?



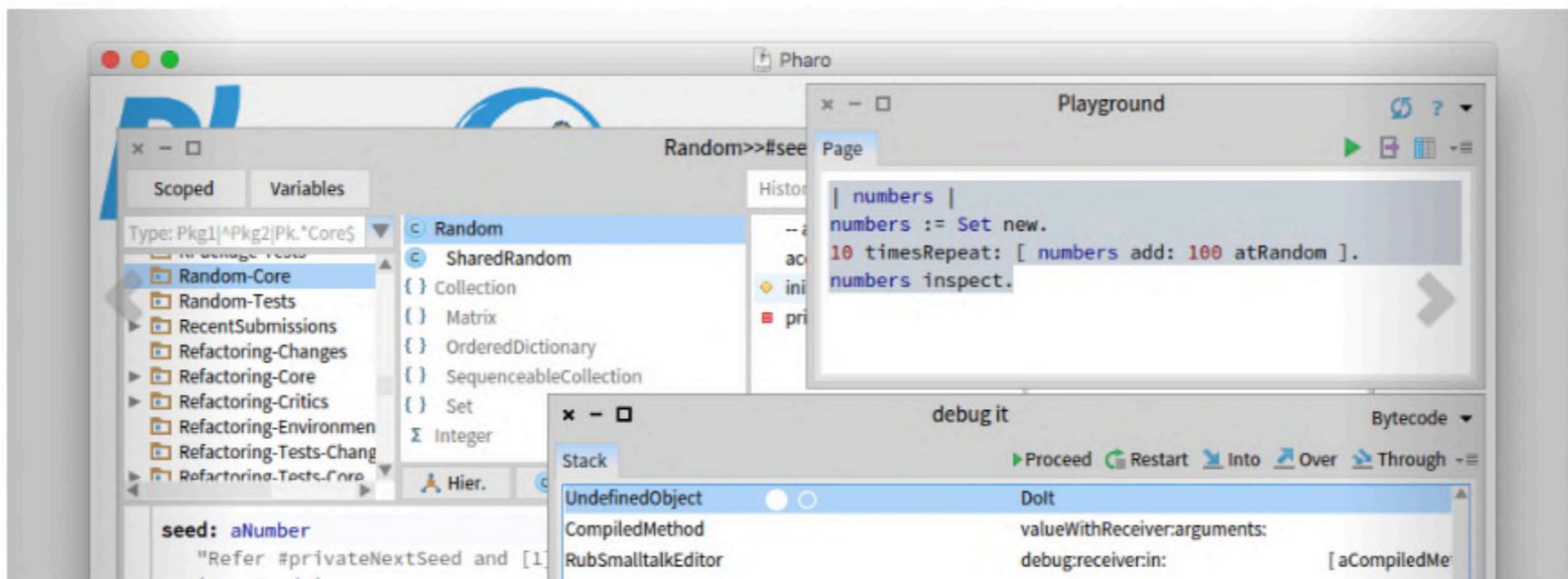
# Pharo!

- 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



## The immersive programming experience

Pharo is a pure object-oriented programming language *and* a powerful environment, focused on simplicity and immediate feedback (think IDE and OS rolled into one).



[Discover](#)

Learn more about Pharo's key [features](#) and elegant design.

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Download latest version (8.0)!  
Read more about [here](#)

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Access the Pharo Mooc!  
3000 people registered and follow the Pharo Mooc. You can find it [here](#).  
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**Pharo 90**  
**~740 packages**  
**- 9 000 classes**  
**- 120 000 methods**

**250 forks sur Github**  
**up to 100 contributors**  
**30 regulars**  
**- 8 sub projets**  
**- graphics**  
**- vcs**  
**- tools**

**Consortium**  
**~ 28 companies**  
**~ 25 academic**



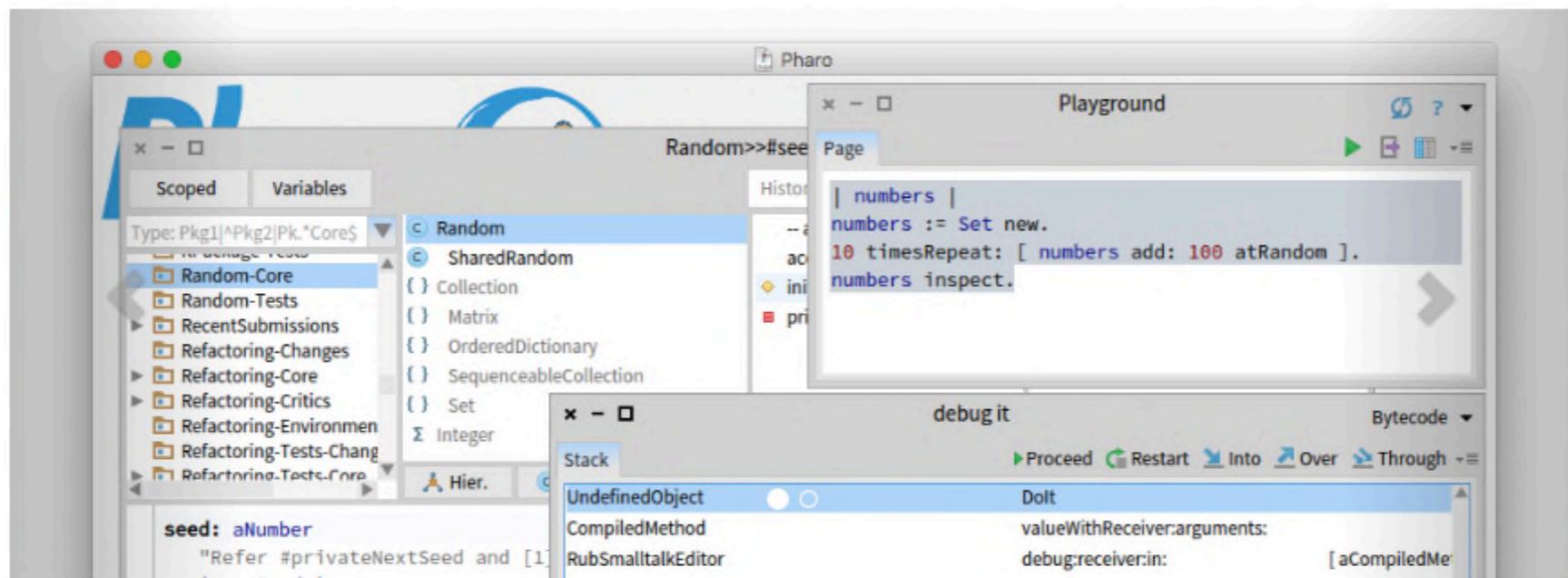
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# Elegant!

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



```
method name           parameter
exampleWithNumber: x

<syntaxOn: #postcard>      pragma
"A ""complete"" Pharo syntax" comment

| y | local variable
true & false not & (nil isNil) binary message
ifFalse: [ self perform: #add: with: x ]. unary message
nil literal
block
y := thisContext stack size + super size.

assignment
pseudo variables
instance variable integer literals
byteArray := #[2 2r100 8r20 16rFF]. byte array
array generated at runtime literal array

{ -42 . #($a #a #'I'm' 'a' 1.0 1.23e2 3.14s2 1) }
do: [ :each | symbols
               character
               string
               floating point
               scaled decimal
local block variable
               | var | global variable
var := Transcript
show: each class name; cascade
show: each printString ].

keyword message
^ x < y return instruction
```

<https://www.pharo.org>

PLACE  
STAMP  
HERE

Mainly objects,  
messages and lexical  
closures

# Temp declaration, assignment, separator and return

| a |

a := 40 + 2.

^ a

# Messages

Unary messages

Date today, 9 squared

“Operators” Binary

4 + 3

‘Black’, ‘Chocolate’, ‘is good’

Keywords messages

2 between: 0 and: 10

2.betweenAnd(0, 10)

# Lexical closures: Blocks

- closure definition

`[:x | x + 5]`

- closure execution

`[:x | x + 5]` value: 37

> 42

# Control flow ops are messages

Weather today isRaining

ifTrue: [ self takeUmbrella]

ifFalse: [ self takeSunglasses]

*Yes we send messages to Boolean objects*

# Iterators

```
#( 1 -2 -3 4 -5) collect: [:each | each abs]
```

```
> #( 1 2 3 4 5)
```

*Yes we send messages to collection to do loops*

# Class definition

```
Object << #Point  
slots: { #x . #y };  
package: 'Kernel'
```

# Class definition (old)

Object subclass: #Point

instanceVariableNames: 'x y '

classVariableNamed: ''

package: 'Kernel'

# Method definition

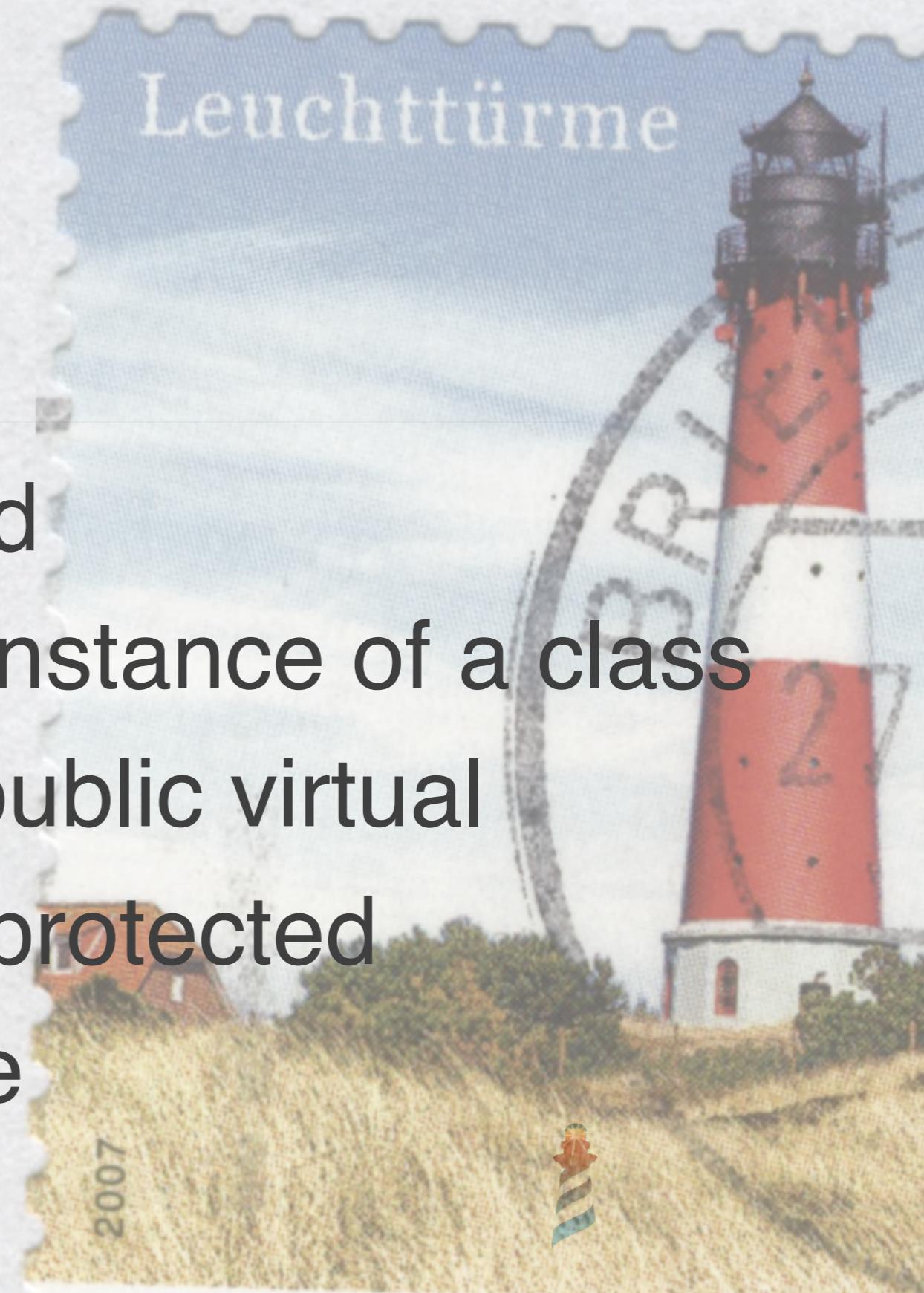
`<= aPoint`

"Answer whether the receiver is neither below nor to the right of aPoint."

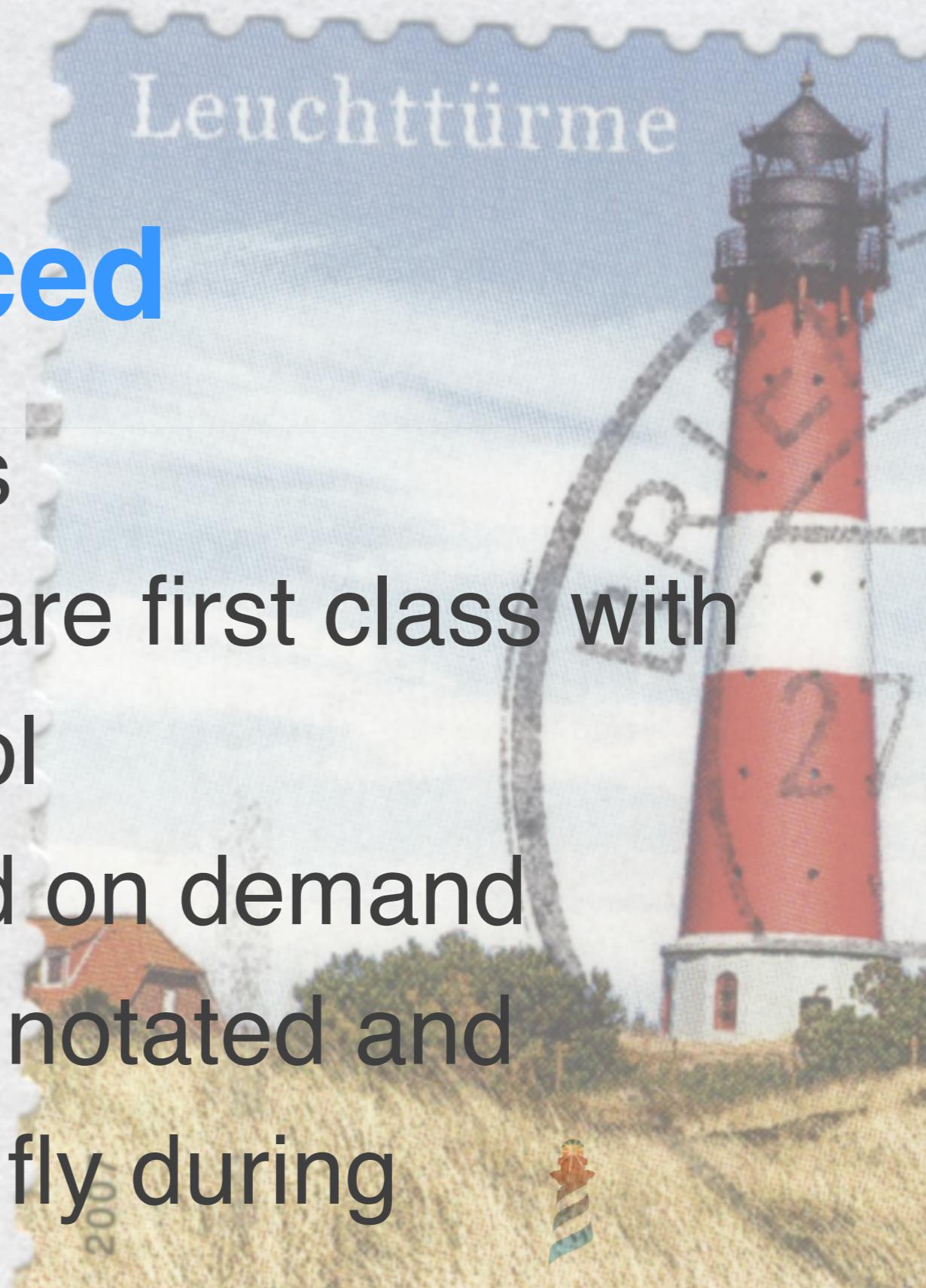
`^ x <= aPoint x and: [y <= aPoint y]`

# Full Model!

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



\* H Ö R N U



Leuchttürme

# For the advanced

- \* Classes are objects
- \* Instance variables are first class with meta object protocol
- \* Stack can be reified on demand
- \* AST can be fully annotated and transformed on the fly during execution

\* H Ö R N U

**Focus on intrinsic complexity**

**Eliminate accidental  
complexity**

A grayscale photograph of a person's hand holding a red pencil, writing on a piece of paper. Another hand is visible below, holding a black pencil and drawing over the red lines.

# 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 of their  
internals**

# Looking inside

- \* Introspection is a first step
- \* Pharo is fully inspectable and reflective

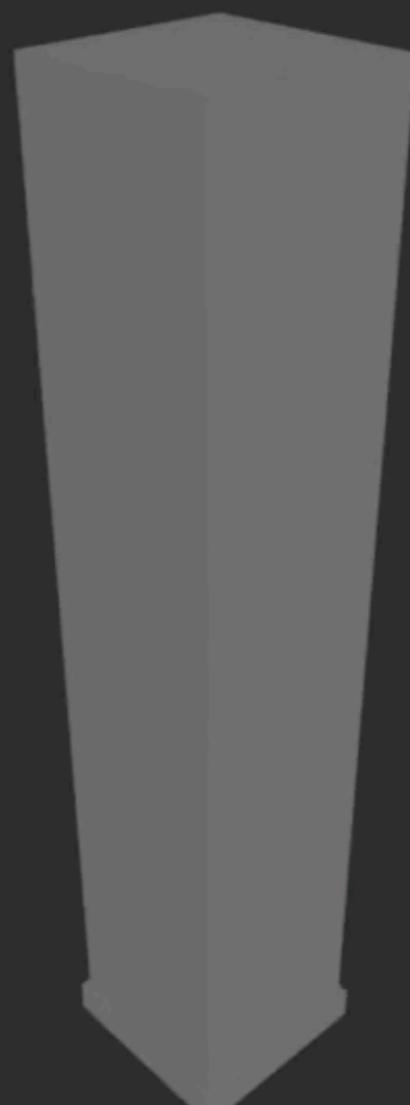
# Immersed and interacting

- \* You interact with objects
- \* You modify objects life

Workspace

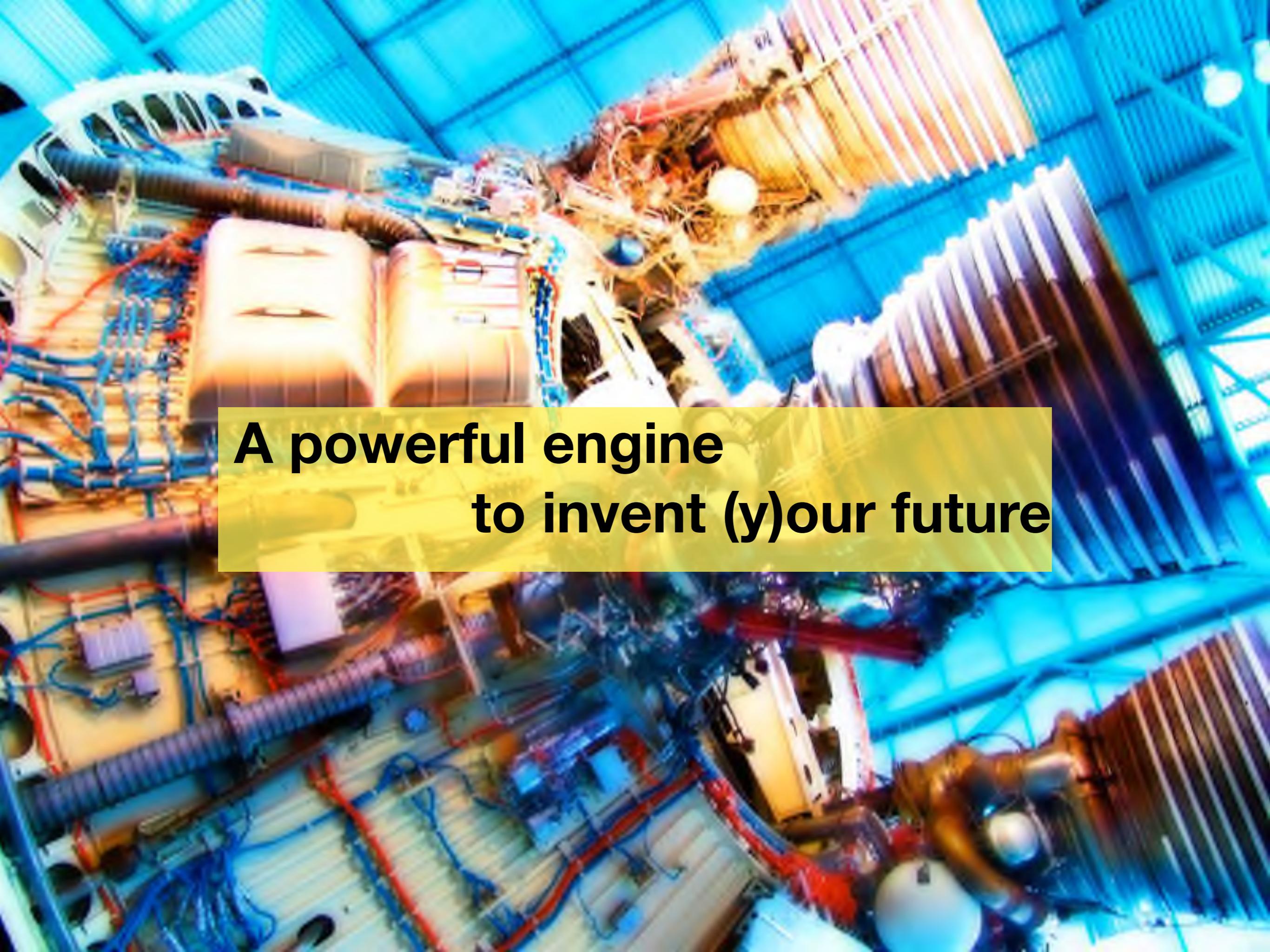
```
| elements lay |  
  
elements := (1 to: 5) collect: [ :ob |  
  (R3CubeShape new) elementOn: ob ].  
  
lay := R3WallLayout new.  
lay on: elements.  
  
UberPresenter present: elements
```

Uber Presenter



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

Pharo's goal...

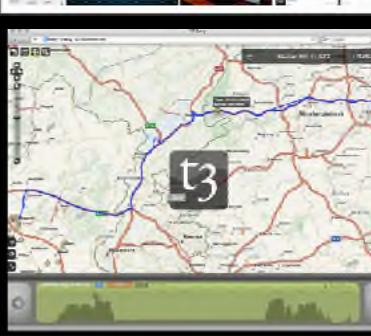
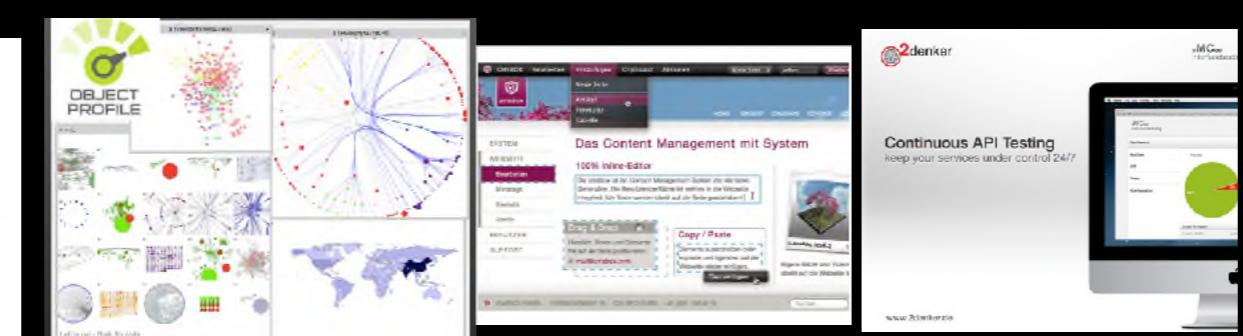
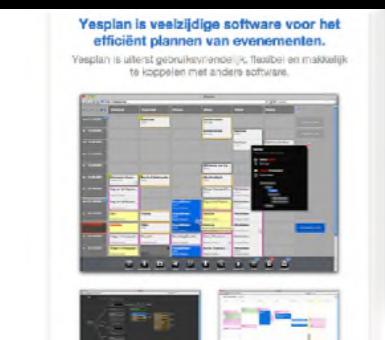
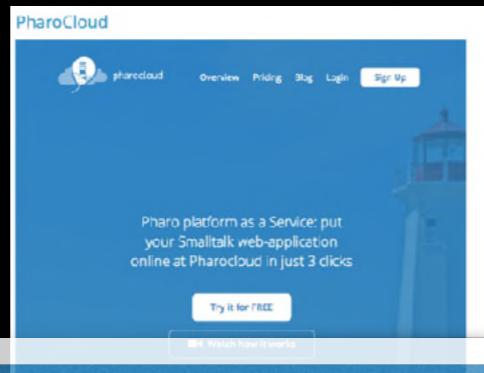
A photograph of a massive industrial steam engine, likely from the late 19th or early 20th century. The engine is painted white and features intricate mechanical components, including a flywheel, connecting rods, and a large cylinder. It is situated in a workshop or factory setting with other machinery visible in the background. A bright yellow rectangular overlay covers the center of the image, containing the following text:

**A powerful engine  
to invent (y)our future**

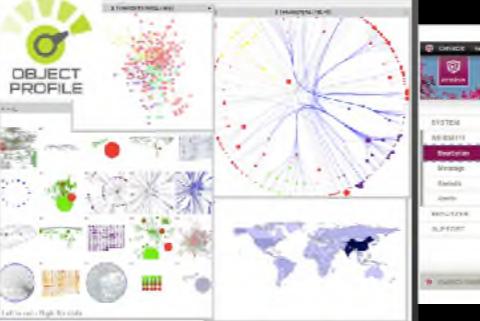
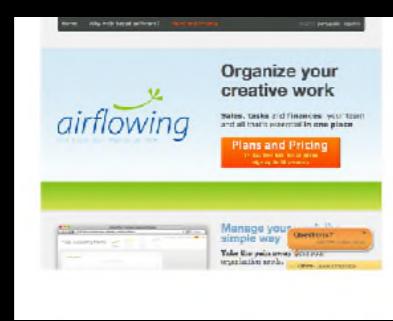
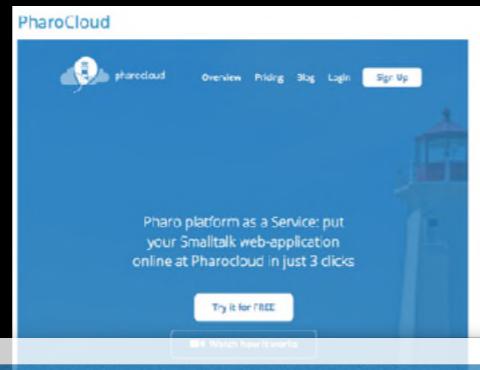


**An ecosystem where  
innovation/business bloom**

# Some Success Stories



# Check <http://pharo.org/> success



# LAMRC

## Back-End Wafer-Level Packaging



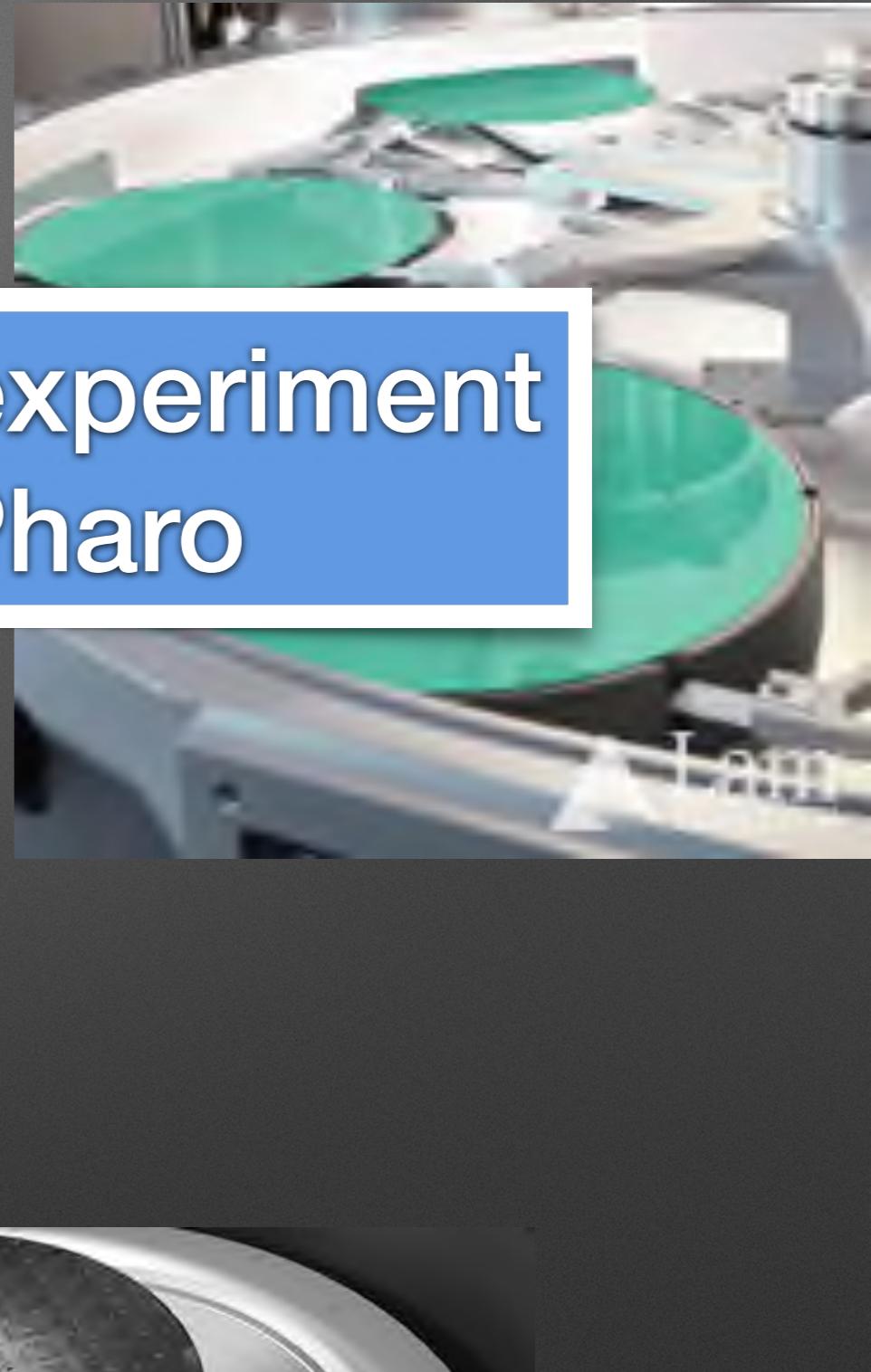
50% microprocessors  
of your mobile/PC/tablet

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



# LAMRC

## Back-End Wafer-Level Packaging



Started to experiment  
with Pharo

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

# LifeWare



800

thousand

policies currently managed by our solution

25

€ billion

assets under management

15

satisfied customers

90

thousand

page per views per day

130

thousand

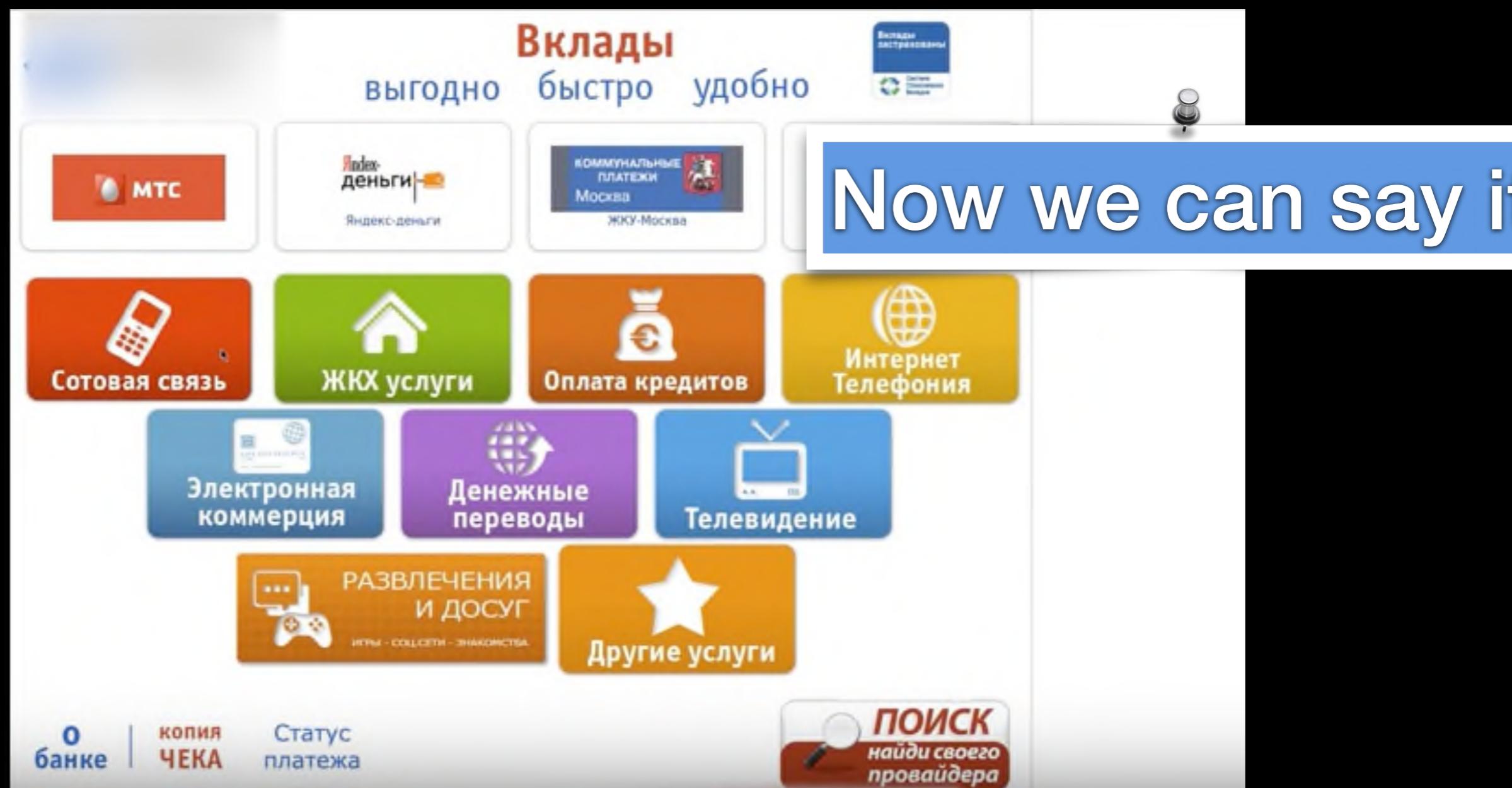
authorized users

Migrating to  
Pharo

30 Millions lines of code...

Kent Beck is one of the  
founders

# Pharo in ATM like Device in Moscow



# Full Stack in Pharo Online marketplace raised 4.7 M\$

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

**ALLSTOCKER**

We find machines for you  
+81-3-5

Asia's Largest Online Marketplace for Big Machines  
Used by over 30,000 Companies Monthly

**Find Machines**

**Q 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

**Vehicles**

Dumps Trucks Other Vehicles

**Others**

Attachments Parts Others

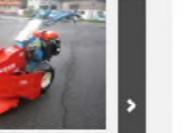
**Q Search by Keyword**

Enter a keyword (e.g. KOMATSU PC200)

Search

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

See More >

 HOKUETSU PCS175S 400,000 JPY Y 4573	 KUBOTA U-55-6 3,500,000 JPY Y 2015 C 330	 CT-HFR MGR2500 133,100 JPY Y	 ISEKI HL407G 198,000 JPY Y	 OTHER MR5500 143,000 JPY Y	 OTHER GH250-GML 165,000 JPY Y
---	--	---	--	--	---

# Network Monitoring for small ISPs

The collage illustrates various network monitoring tools and interfaces:

- Top Left:** A screenshot of a web-based monitoring dashboard for a small ISP. It shows a map of a location with a red warning icon, a large red circular gauge indicating 95% capacity at 500 Mbps, and several green status boxes for CMTS, Switch, Modems connected, Router, and Server.
- Top Center:** A smartphone displaying a mobile version of the same monitoring interface, showing a green checkmark for "Tout est en ordre avec Supervision Talange".
- Top Right:** A screenshot of a web-based HFC supervision interface titled "Supervision HFC". It lists various HFC components and their status, with a large green heatmap showing performance metrics across multiple locations.
- Middle Left:** A detailed view of a CMTS equipment page showing hardware components like SLOT 0, SLOT 1, and SLOT 2, along with temperature and system status graphs.
- Middle Right:** A screenshot of a CMTS equipment page for another unit, showing similar hardware details and monitoring graphs.
- Bottom Left:** A screenshot of a CMTS equipment page with a focus on the "Faisade de l'Équipement" (Equipment Front Panel) diagram, showing physical ports and connections.
- Bottom Right:** A screenshot of a CMTS equipment page with another "Faisade de l'Équipement" diagram, showing a different perspective of the front panel.



pharocloud

Overview

Pricing

Help&Docs

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Sign Up

Pharo platform as a Service: put your  
Smalltalk web-application online at  
Pharocloud in just a couple clicks

Try it for FREE

Watch how it works

Deploy Pharo  
on the cloud in 3 min



CMSBOX Bearbeiten Hinzufügen Clipboard Aktionen Diese Seite sofort Publizie

Neue Seite Artikel Formular Tabelle

SYSTEM

WEBSEITE Bearbeiten Metatags Statistik Archiv

BENUTZER

SUPPORT

**CMS with full history**

**Das Content Management System**

**100% Inline-Editor**

Die cmsbox ist ein Content Management System der nächsten Generation. Die Benutzeroberfläche ist nahtlos in die Webseite integriert: Alle Texte werden direkt auf die Seite geschrieben! 

**Drag & Drop** 

Handlich: Boxen und Elemente frei auf der Seite positionieren.

 mail@cmsbox.com

**Copy / Paste**

Elemente ausschneiden oder kopieren und irgendwo auf der Webseite wieder einfügen.

**Text einfügen** 

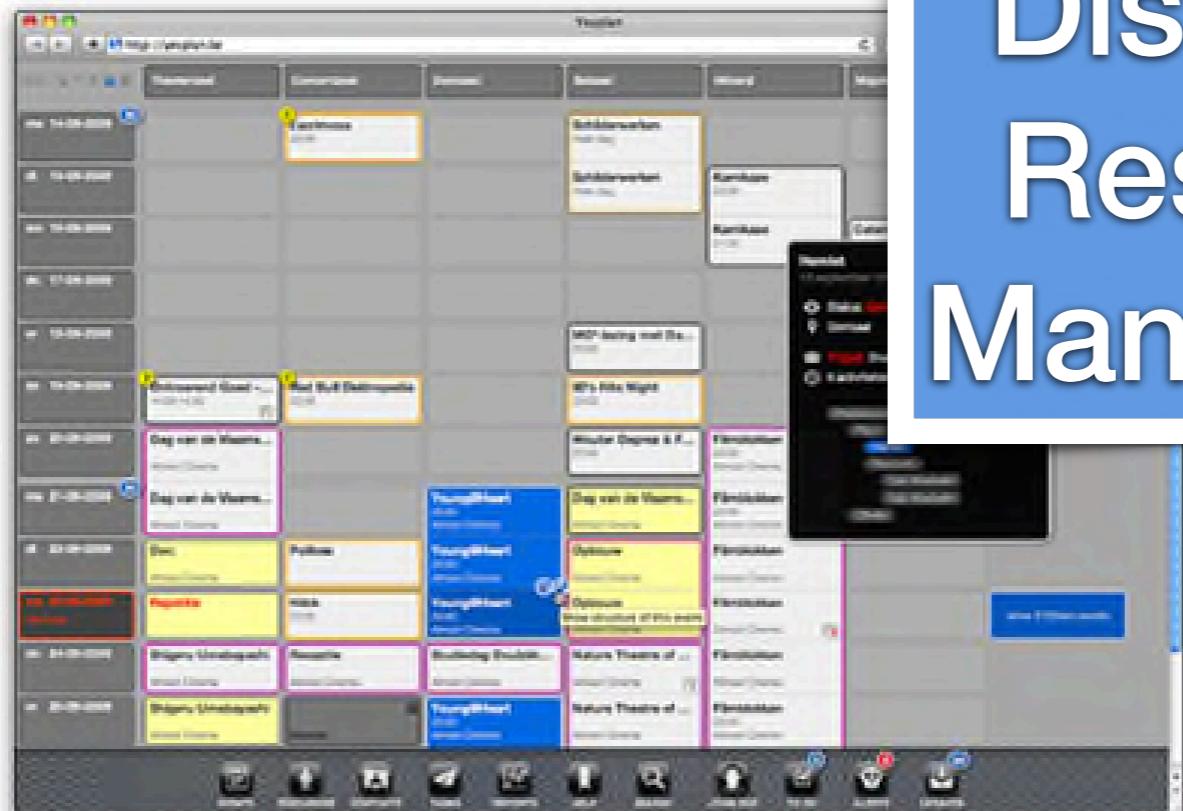
  
cmsbox rocks

Eigene Bilder und Videos direkt auf die Webseite laden

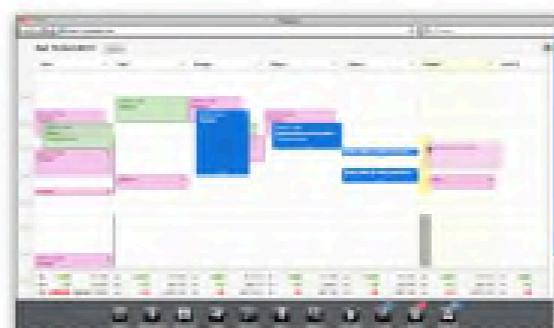
CMSBOX GMBH · TERRASSENWEG 18 · CH-3012 BERN · +41 (0)31 356 42 82 Suchen...

## **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





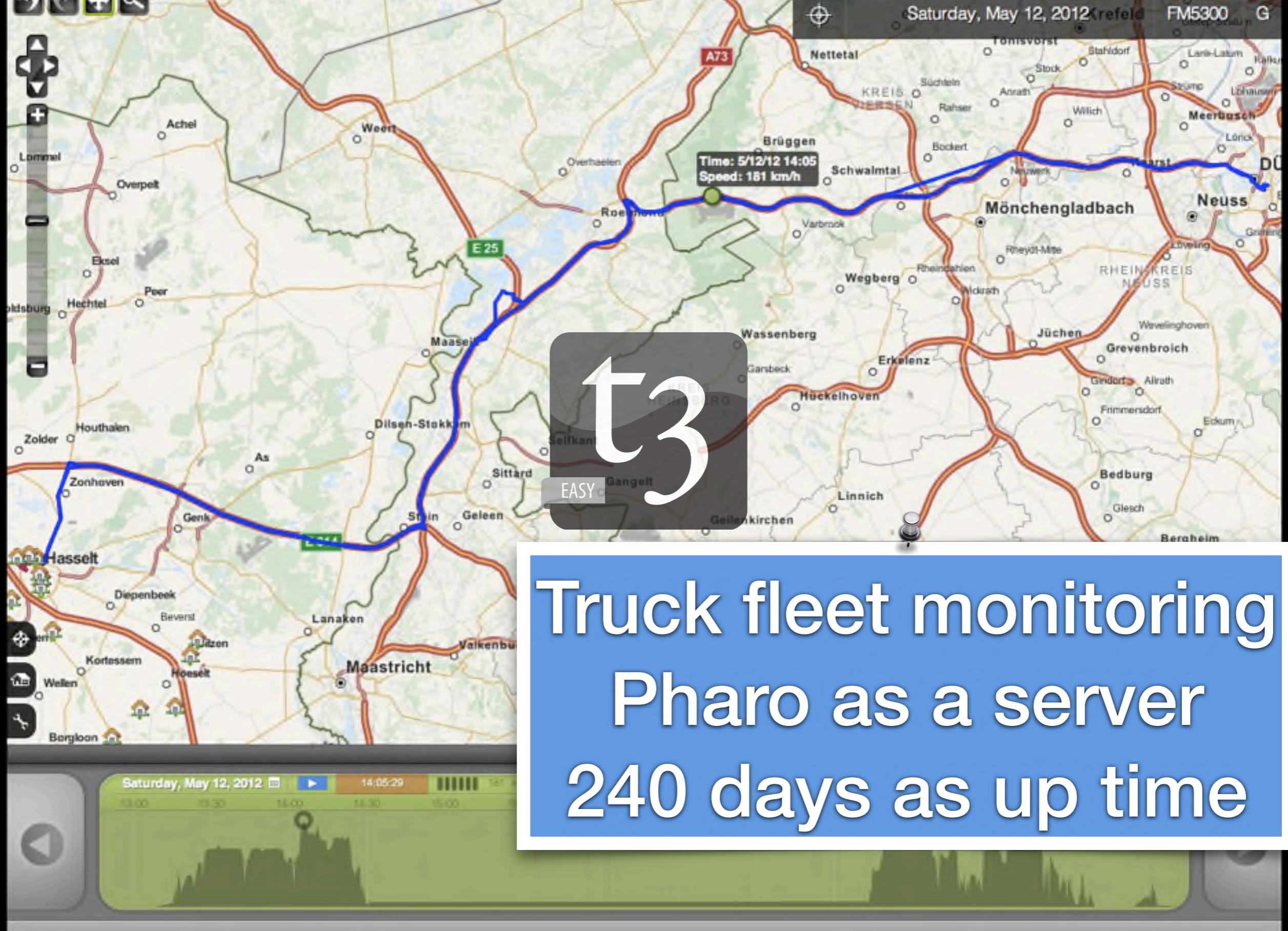
eMCee  
Interfacetesting

# Server Testing

**Continuous API Testing**  
keep your services under control 24/7



[www.2denker.de](http://www.2denker.de)



# Truck fleet monitoring Pharo as a server 240 days as up time

# WEBDRUCK.CH

## Web-To-Print Solution

- Design and create individual printed matter
- eShop with credit card payment
- High quality PDF output with Printing Process integration
- Thousands of orders for seven Swiss printing companies



**All reports are automatically generated**

**Quuve: Investment Portfolio**

<http://debrispublishing.com>

**Free Software Mobile Communication solutions**

The screenshot shows a software application window titled "MobileTerminated ForwardSM". The left pane contains a code editor with the following Groovy-like script:

```

plan: SCCPGlo
addr: destGT;
translation: 0;
yourself);

forwardSM := ASN1Dictionary new
at: 'sm-RP-DA' put: (ASN1Dictionary)
at: 'imsi' put: destIMSI toTBCD
yourself);
at: 'sm-RP-OA' put: (ASN1Dictionary)
at: 'serviceCentreAddressOA'
yourself);
at: 'sm-RP-UI' put: (ByteArray readHexFrom: '240c9194814813654200005110712195534010c8329hfd0699e5ef3'
yourself.
operationName := 'forwardSM'.

dialogue := ZHLR endPoint newDialogue.

invoke := dialogue
requestTcInvokeNamed: operationName parameters: for
class: 1 timeout: 500.
invoke
onReturn: [];
onError: [];
onReject: [];
onReturnLast: [:result | ].

dialogue
requestTcBeginDestinationAddress: imsiAddr
originatingAddress: mscAddr
applicationContextName: '0.4.0.0.1.0.25.2' asAsn1Oid .

```

The right pane displays a network traffic capture and analysis interface. It includes a toolbar, a list of captured frames, a detailed frame information panel, and a hex/dump/ASCII viewer.

**Frame Details:**

- No. 1 Time 0.000000 Source 2000 Destination GSM S... Protocol GSM Length 236 Info invoke forwardSM

**Frame Data:**

```

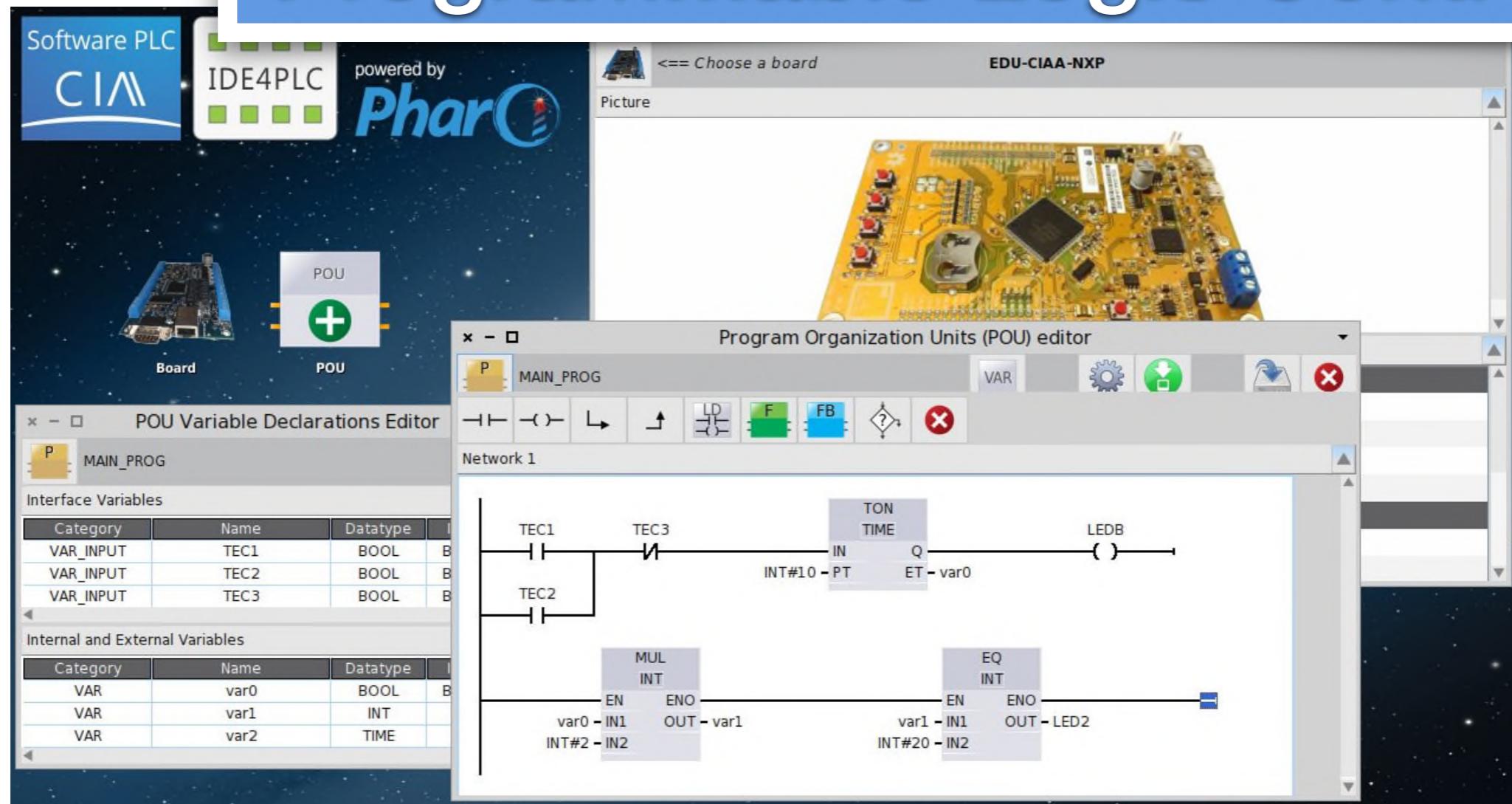
> Frame 1: 236 bytes on wire (1888 bits), 236 bytes captured (1888 bits)
> Linux cooked capture
> Internet Protocol Version 4, Src: 208.208.208.208, Dst: 208.208.208.208
> Stream Control Transmission Protocol, Src Port: 2905 (2905), Dst Port: 2905 (2905)
> RTP/RTSP User Adaptation Layer
> Signalling Connection Control Part
> Transaction Capabilities Application Part
> GSM Mobile Application
> GSM SMS TPDU (GSM 03.48) SMS-DELIVER
  .... = TP-REP: IP Reply Path parameter is not set in this SMS-SUMMIT/DELIVER
  .... = TP-UDHI: The TP UD field contains only the short message
  .... = TP-SRI: A status report shall be returned to the SME
  .... = TP-LP: The message has not been forwarded and is not a spawned message
  .... = TP-MHS: No more messages are waiting for the MS in this SC
  .... = TP-MT: SMS-DELIVER (R)
> TP-Originating-Address - (491884315624)
> TP-PIDB: 8
> TP-DCS: 8
> TP-Service-Centre-Time-Stamp
  TP-User-Data-Length: [16] depends on Beta-Coding-Scheme
  TP-User-Data
    SMS text: Hello from Pharo

```

**Hex/Dump/ASCII View:**

No.	Hex	Dump	ASCII
0000	52 49 48 84 81 88 88 89 65 1e 20 1c 86 87 88 11	bH.... k. ....	....
0001	86 85 81 81 81 a8 11 60 0f 88 82 87 88 a1 89 86	.....	.....
0002	37 84 88 88 01 00 10 02 6c 41 a1 3f 02 01 01 02	..... IA. ....	.....
0003	01 2e 38 37 80 08 02 02 43 08 18 91 50 f9 84 88	..07..b. Ch. ....	.....
0004	91 94 51 97 10 00 08 08 04 21 24 8c 91 94 81 48	..0..... IS....!!	.....
0005	13 65 42 88 09 51 18 71 21 95 53 48 38 c8 32 98	e8..0.q I.58.2.	.....
0006	f0 86 99 e5 a5 36 80 0e 0e cb d1 88	.....	.....

# Programming environment for Programmable Logic Controllers





# NTed: disaster scenario recovery

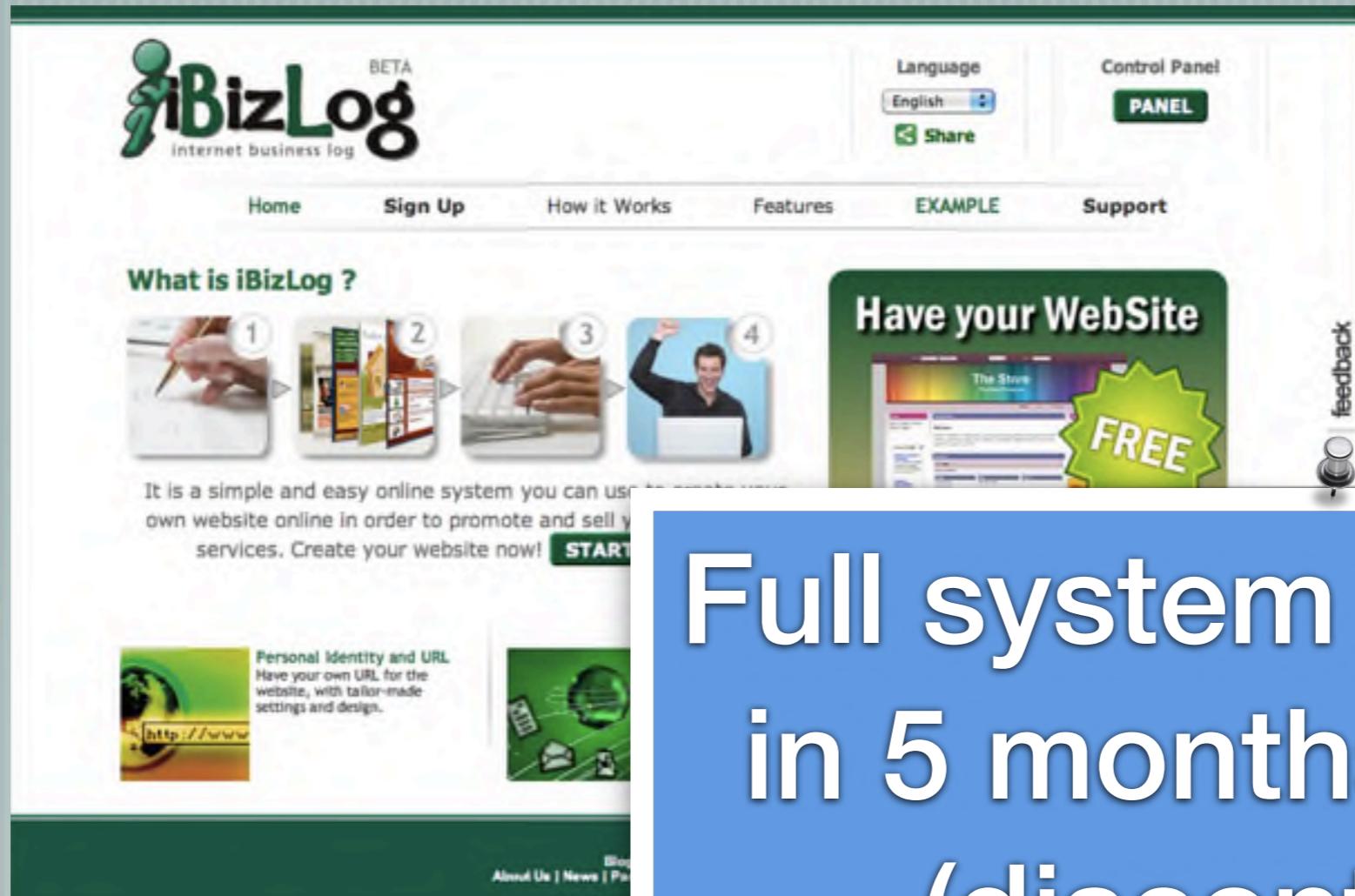
NTed

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	

To simulate disaster response

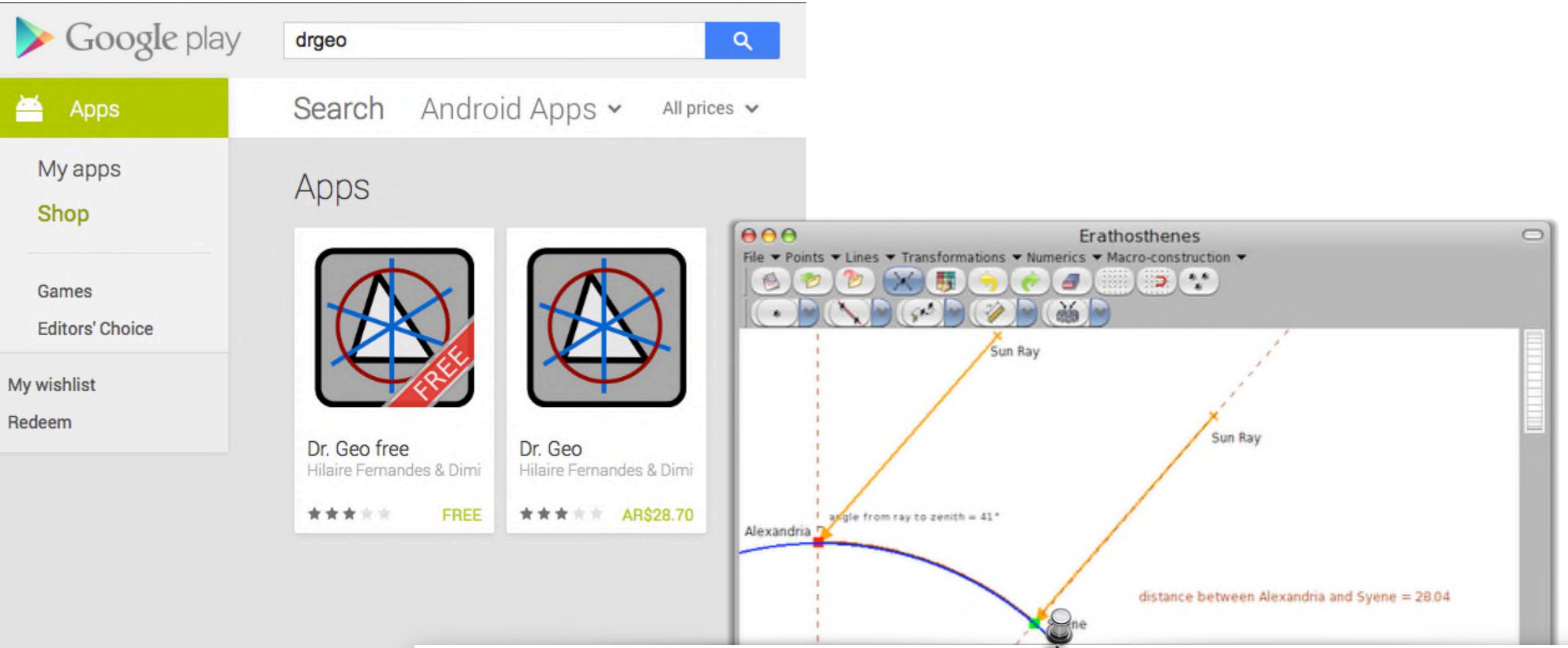
Patient 11	Betroffener	Betroffener	SK III	W5UR	
------------	-------------	-------------	--------	------	--

# iBizLog - <http://www.ibizlog.com>



Full system developed  
in 5 months one developer  
(discontinued)

A product by [Smartworks](#)



Works on linux, mac, windows,  
android, OLPC

Moose technology: Home

www.moosetechnology.org Reader

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Moose is a platform for software and data analysis.

It is an open source project since 1996. It is supported by several research groups around the world, and it is increasingly adopted in industrial projects.

Download 4.7

Call for help: webpage redesign  
29 April 2013  
We are starting a project to redesign the Moose webpage. The initial goals of the redesign are: \* ...

Moose 5.0 roadmap  
13 April 2013  
A summary of the talk laying out the Moose 5.0 roadmap can be found at: <http://www.humane-assessment...>

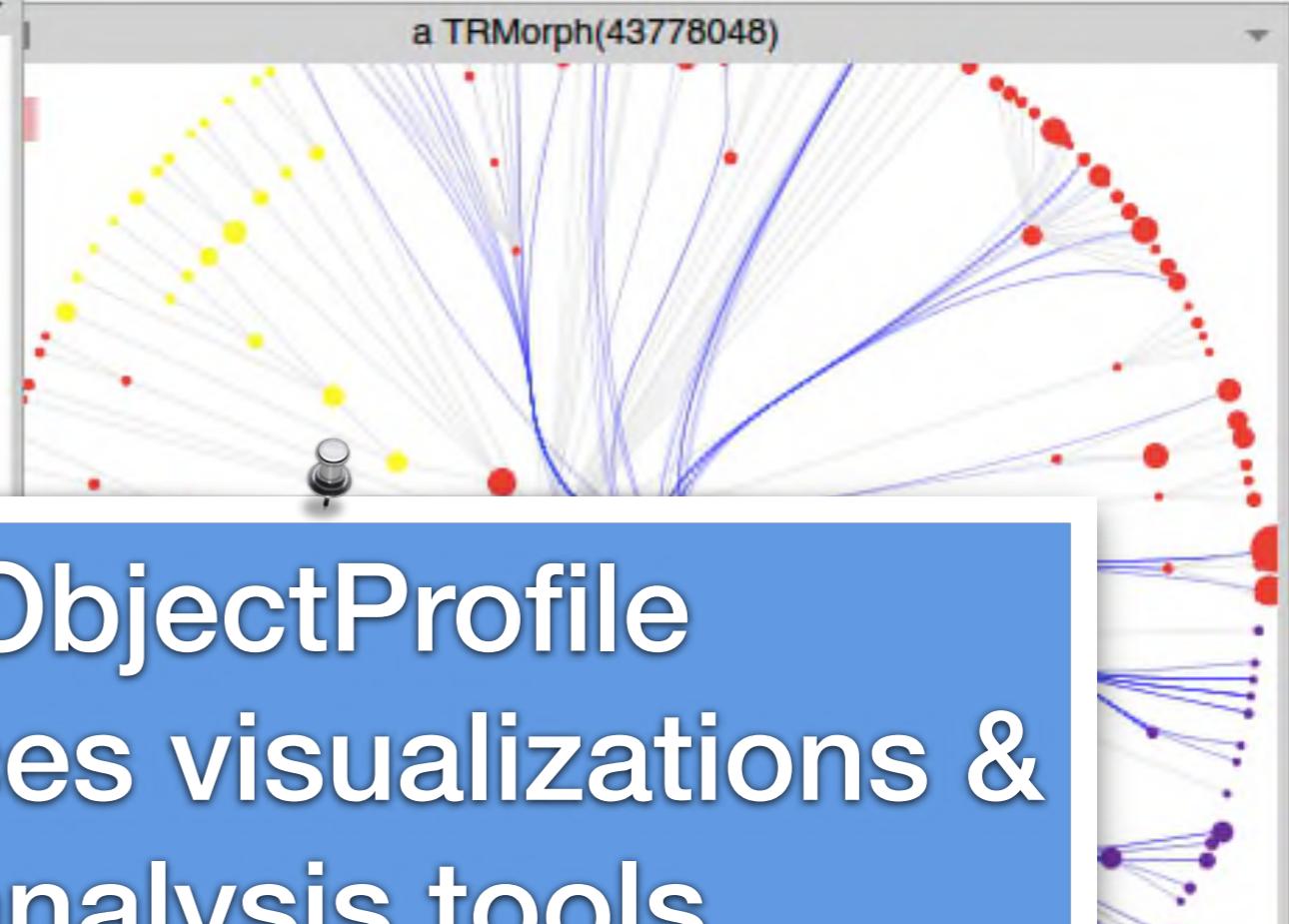
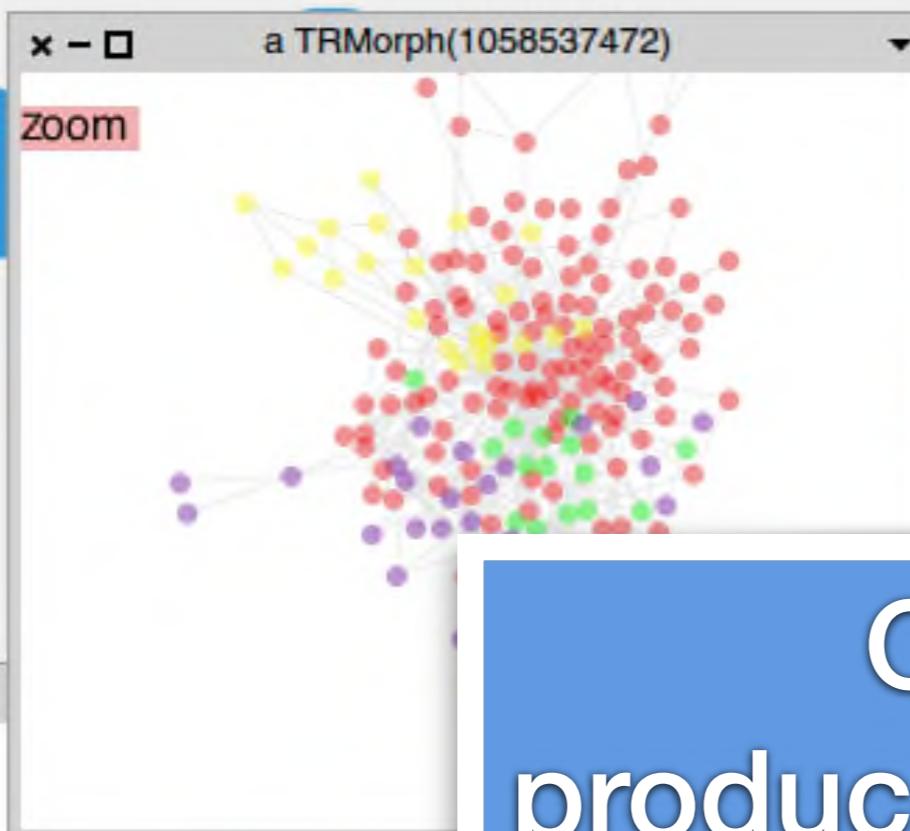
Moose 4.8 development: 4045 green tests

  
enables  

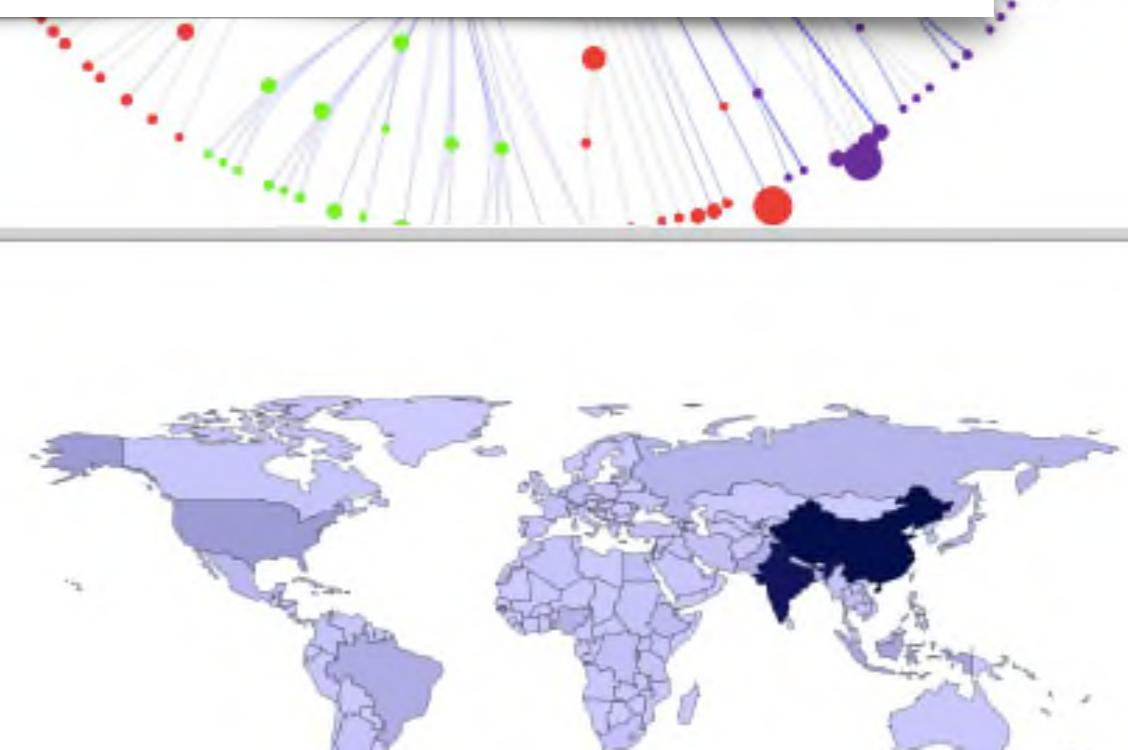

# Sophisticated analysis platform more than 200 men/years

Contact us Report an issue Site powered by Pier

# Pha



ObjectProfile  
produces visualizations &  
analysis tools



**NORIZZK.COM**  
Better Faster Cheaper Test Management

SIGN IN | SIGN UP | LOCAL RESSELLERS

HOME FEATURES TRAINING & SUPPORT PRICING

The world's first online platform fully supporting risk-based test management.

• Your IT is critical to your company.  
• Would you dare not to control your risks and neglect the possible impact for your company and customers?  
• Start controlling your risks in a standardized and easy way !!!

**FREE TRIAL**

**1 BETTER**

**NORIZZK.COM** guides you in composing the most effective and efficient end-to-end test strategy, starting from identified product risks. It helps you focus on the critical aspects of your projects and products.

**NORIZZK.COM** is the only platform for risk based test management showing you a comprehensive and visual overview on the risk status of your project.

**► YOUR ADDED VALUE**

**2 FASTER**

**NORIZZK.COM** is the fastest way to compose your master and detailed test plan. It comes with a predefined knowledge base containing best practices for building your test plan, thus giving you a head start.

**NORIZZK.COM** allows sharing and reusing knowledge and experiences from previous projects. Over time, **NORIZZK.COM** becomes smarter in guiding you since it is self-learning and continuously improves its best practices.

**► YOUR ADDED VALUE**

**3 CHEAPER**

As from now, wasting time and money by re-inventing the wheel is history. **NORIZZK.COM** gives you significant savings in creating your test plans.

It provides an intelligent and complete approach for all sustainable maintenance.

**► YOUR ADDED VALUE**

## COMPONENTS

 Risk Assessment Identify, categorize, prioritize and mitigate your risks with one single tool.	 Test strategy Write your master and detailed test plan in a faster way.	 Test Estimations Estimate all the required testing effort on one single page.	 Test Results Capture all the test results to monitor the progress.
 Reporting Monitor the progress using the Risk	 Export Export your test plan to a docx file	 Business Intelligence Discover intelligence in your testing	<b>► LEARN MORE</b>

# Digitalizing business



The collage includes the following screenshots:

- Top Left:** Home screen of the mobile app showing a grid of icons for News, Analysis, Portfolio, etc.
- Top Center:** A bar chart titled "Analýza HDP (%)".
- Top Right:** Two windows: "Běžná komunikace" (with a list of messages) and "Zprávy" (a table of news items).
- Middle Left:** A line chart titled "PE indexy prok. EUR - 9 měsíců (%)".
- Middle Center:** A table titled "PE indexy prok. EUR" showing values for various currencies.
- Middle Right:** A contact list titled "Kontakty" showing entries for Jan Černák, Jan Bareš, and Petr Běta.
- Bottom Left:** A table titled "Výkaz" showing currency exchange rates.
- Bottom Right:** A screenshot of the messaging interface within the app.

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



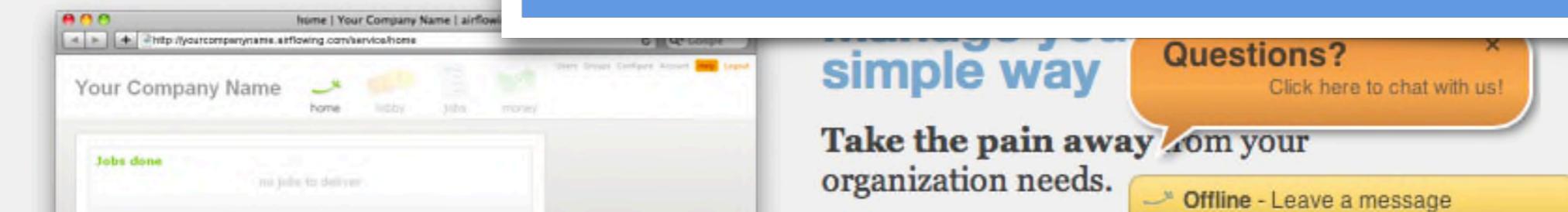
## Organize your creative work

**Sales, tasks and finances:** your team and all that's essential in one place

**Plans and Pricing**

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sign up in 60 seconds

Deployed business model  
did not work





## Can develop a complex analysis in 3 months

tools for software evolution



### Dedicated Analyses

Synectique offers business intelligence tools for your

### Dedicated tools

Synectique offers tools fine-tuned to your software analysis needs

### Decision making

Synectique tools provide answers that lead to concrete decisions

## Spesenfuchs



Spesenfuchs ist eine Reisekostensoftware für jedermann. Einfach, schnell und kostenlos. Alle Pauschalen und gesetzlichen Regelungen sind hinterlegt. Es ist keine Registrierung notwendig!

Reisekosten clever abrechnen >



Ohne Login benutzen



Login mit Facebook



Registrieren



E-Mail



Passwort



Login





## Wind Energy

Pioneering new ways of maximising sustainable wind energy yields. Our products and services optimise asset availability, wind turbine performance and drivetrain reliability. We work with owners, operators, manufacturers, insurers and service providers worldwide.

### Get in touch

We provide services and software to a range of industries

[ENQUIRE TODAY >](#)

Home > Industries > Wind Energy



### Related links

[InSight](#)  
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[Butterfly platform](#)  
[Forensic engineering](#)  
[Analysis service](#)  
[Monitoring service](#)

[Overview](#) [Why we are specialists](#) [Who we work with](#)

## Wind Energy

Pioneering new ways of maximising sustainable wind energy yields

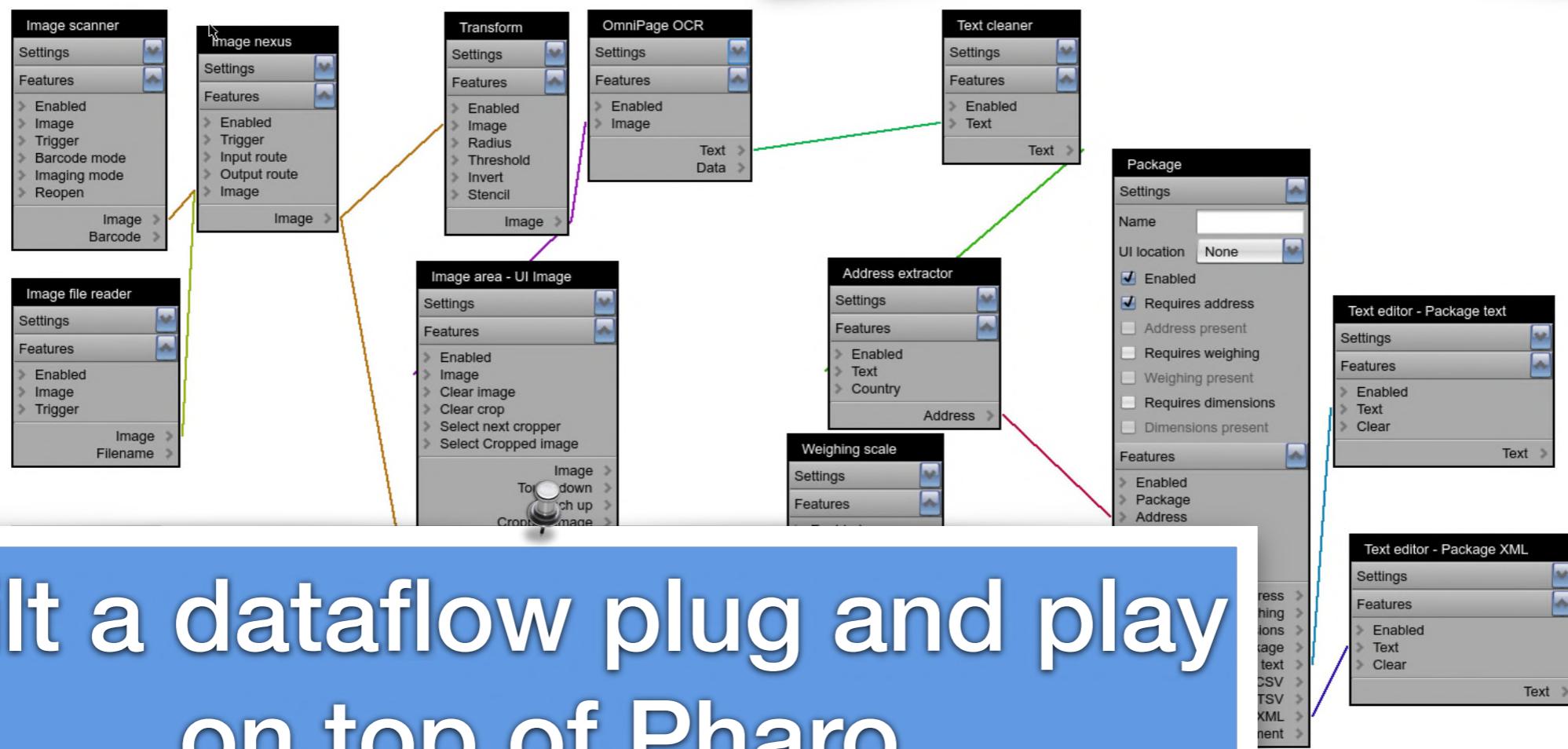
[Tweet](#) [Share](#) [+1](#) [SHARE](#)

### Wind industry solutions

[Download the white paper](#)



# Handle return mails in Switzerland



Built a dataflow plug and play  
on top of Pharo

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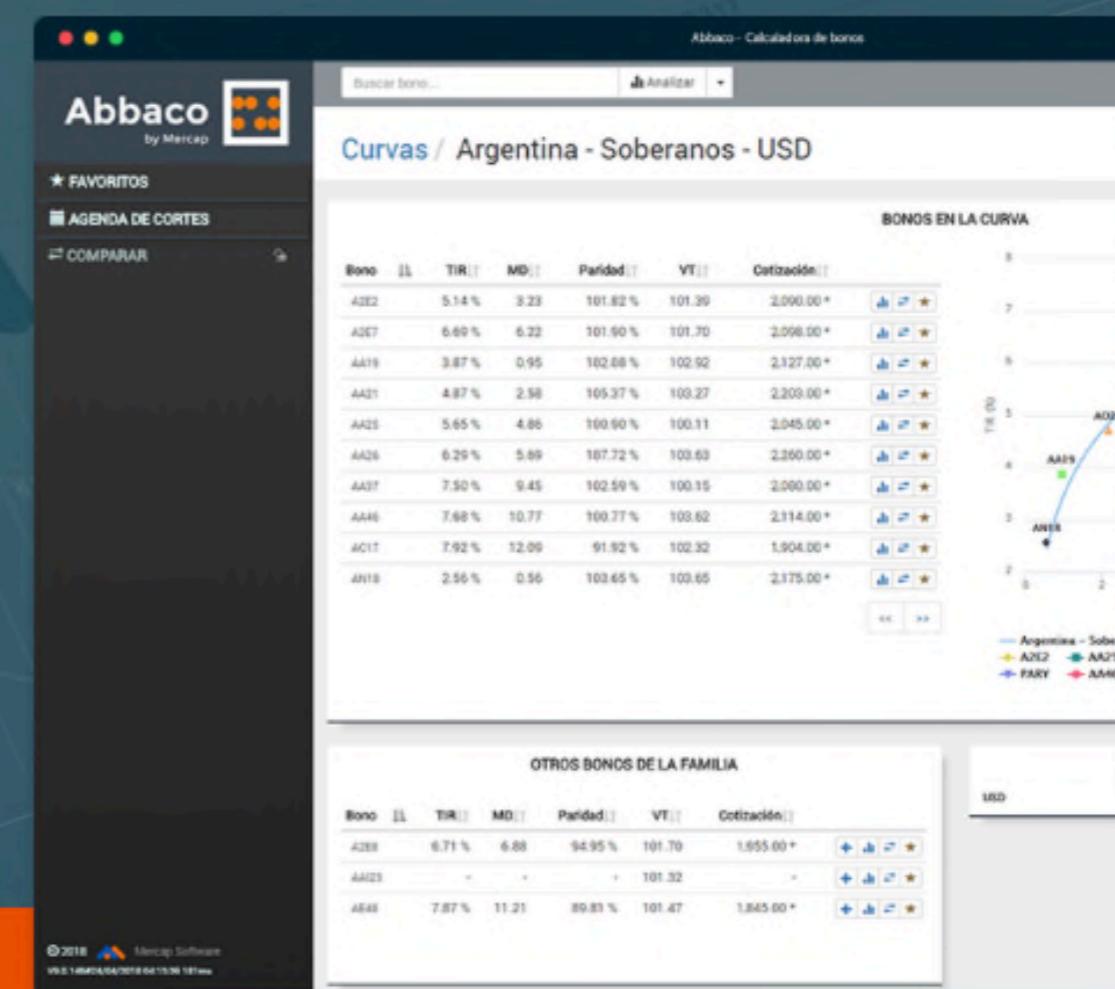
4G LTE coverage

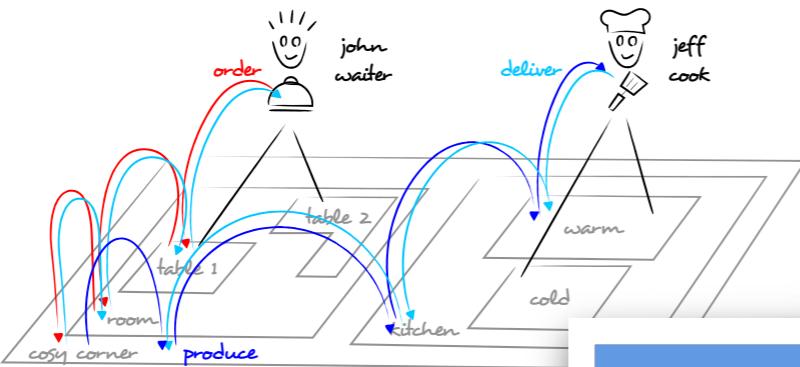


# Bond calculator for experts investors

Your own research tool for  
making intelligent decisions.

from Argentina





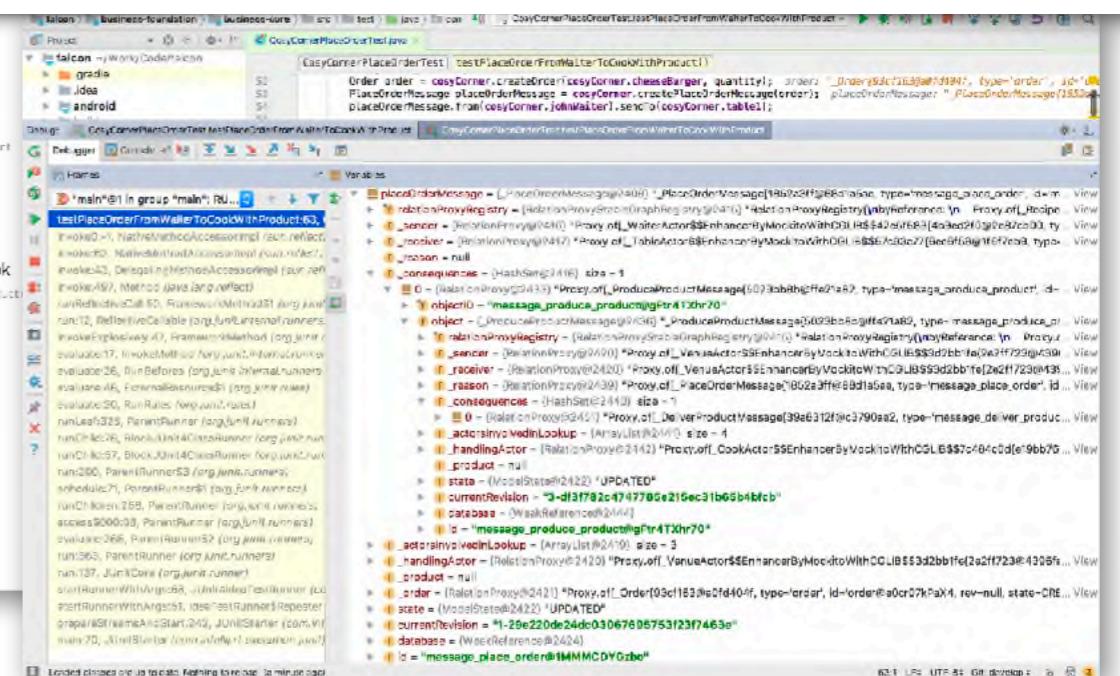
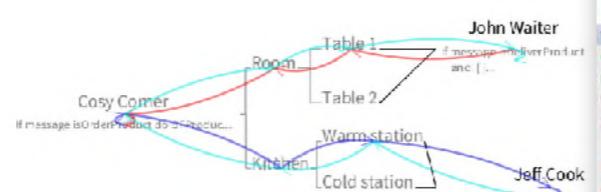
feenk

# Help growing startups Get back control on software

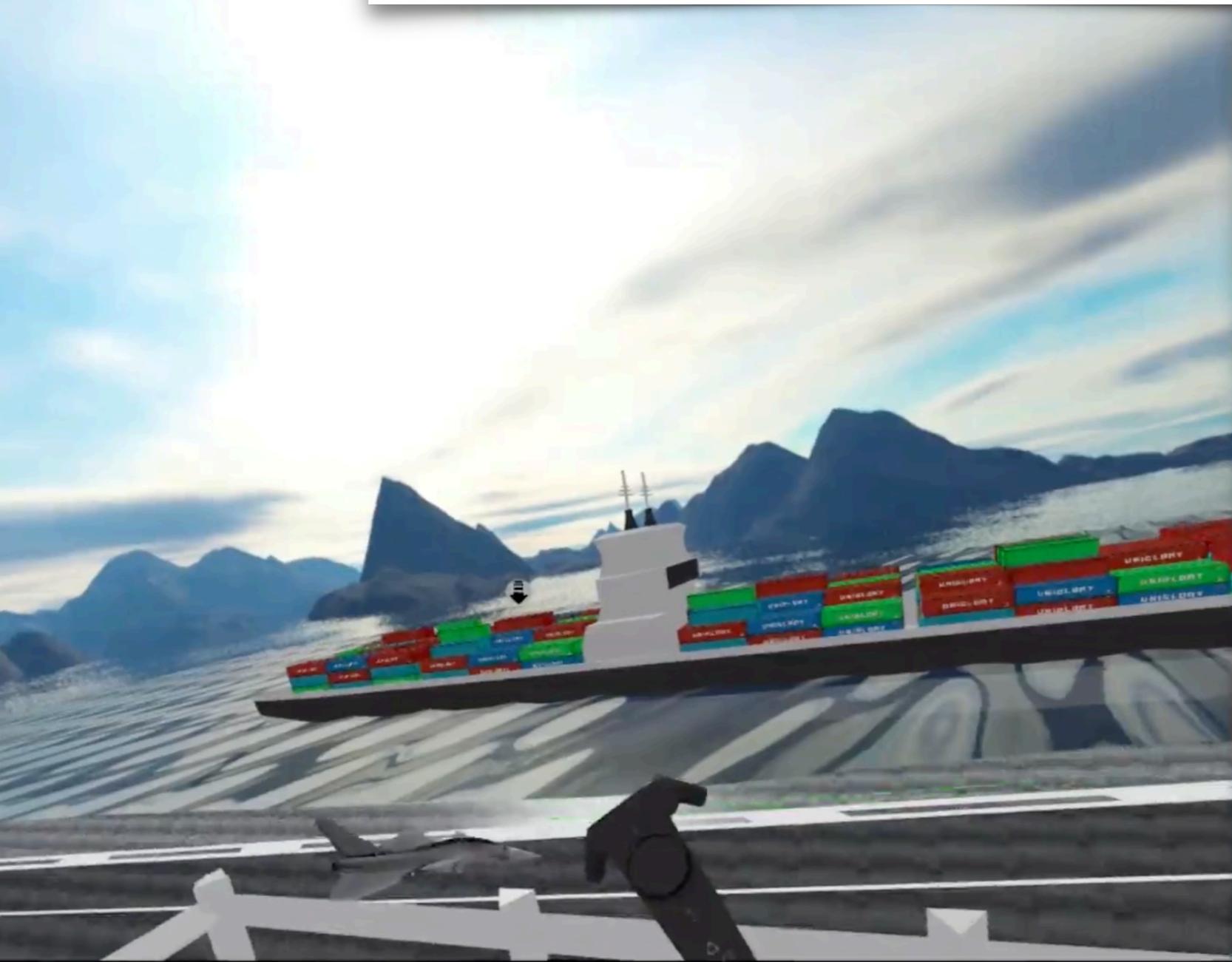
```

x - o
cdemo2
CONTINUOUS
jeffCook := OFCookActor new name: 'Jeff Cook'.
johnWaiter := OFWaiterActor new name: 'John Waiter'.
"AFAS"
cosyCorner := OFVenueActor new name: 'Cosy Corner'.
kitchen := OFRoomActor new name: 'Kitchen'; parentArea: cosyCorner.
warmStation := OKitchenActor new name: 'Warm station'; parentArea: kitchen; addContributor: jeffCook.
coldStation := OKitchenActor new name: 'Cold station'; parentArea: kitchen; addContributors: jeffCook.
room := OFRoomActor new name: 'Room'; parentArea: cosyCorner.
table1 := OTableActor new name: 'Table 1'; parentArea: room; addContributor: johnWaiter.
table2 := OTableActor new name: 'Table 2'; parentArea: room; addContributor: johnWaiter.
"PRODUCTS"
steak := OFProduct new name: 'Steak'; characteristics: {OPFWarm}.
sandwich := OFProduct new name: 'Sandwich'; characteristics: {OPFCold}.
cosyCorner products: { steak . sandwich }.
"MESSAGE HANDLERS"
cosyCorner addScriptedMessageHandler
when: L message | message isOrderProduct [
  execute: [message handler: OFProduceProductMessage new].
]
jeffCook addScriptedMessageHandler
when: L message | message isProduceProduct [
  execute: [message handler].
]
johnWaiter addScriptedMessageHandler
when: L message [
  message isDeliverProduct and: [
    johnWaiter areas includes: message initialReason receiver ]];
  execute: [message handler].
]
cosyCorner
"ORDERS"
orderSteak := OFOrderProductMessage new product: steak; sendBy: johnWaiter to: table1.
orderSandwich := OFOrderProductMessage new product: sandwich; sendBy: johnWaiter to: table2.
cosyCorner

```



# Thales prototyping VR



Dharni

Playground

raftCarrier open.]

tmp

OVRWDemoAircraftCarrier

Scoped Variables History Navigator

Type. Pkg1/\*Pkg2/Pk.

- ProtoObject
- Object
- WDApplication
- WDFPSEExample
- OVRWEmptyExample
- OVRWExample
- OVRWDemoAircra
- OVRWDemoPickir
- OVRWExampleCo!

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

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

Hier. Class Com.

OVRWEExample subclass:  
`#OVRWDemoAircraftCarrier`  
instanceVariableNames:  
`'flyingRafaleNode teleportLocations`  
`scrollGestureListener menu`  
`operationQueue waterMaterial`  
`dynamicsWorld'`  
classVariableNames: ''  
package:  
1/11 [2] – 1/11 [25] Format as you read W +L 1/3 [1]

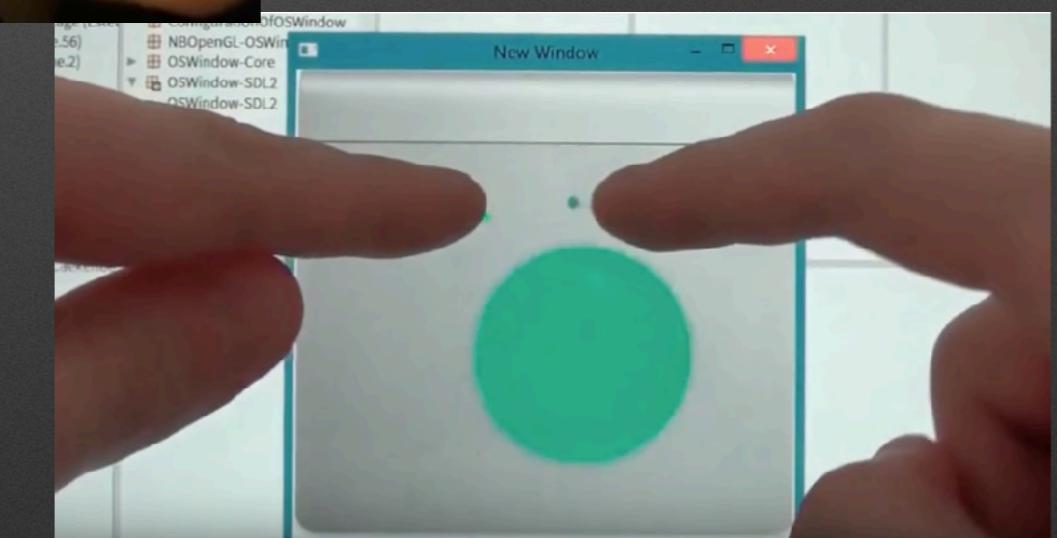
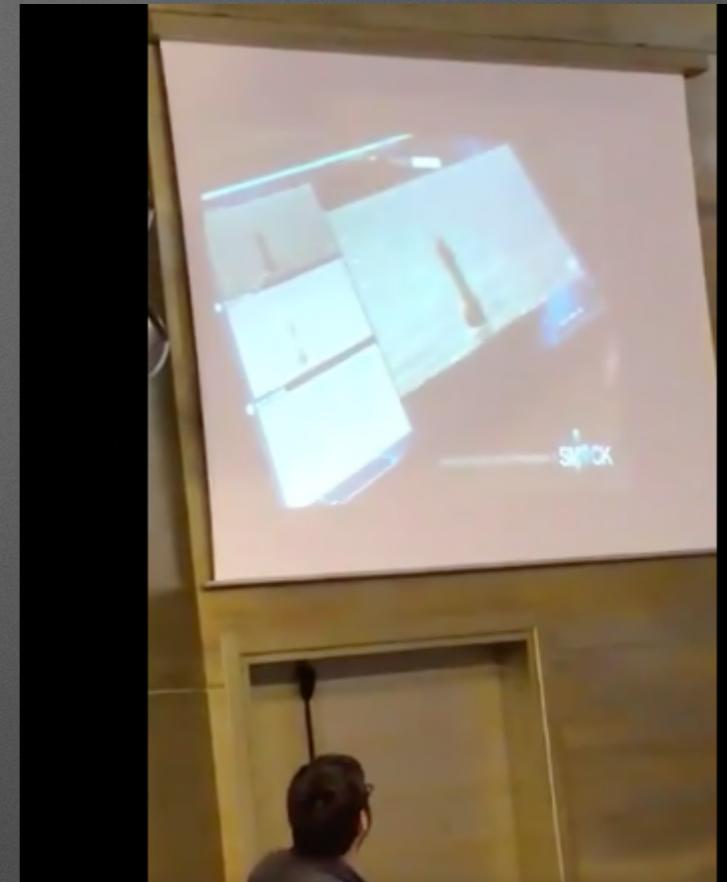
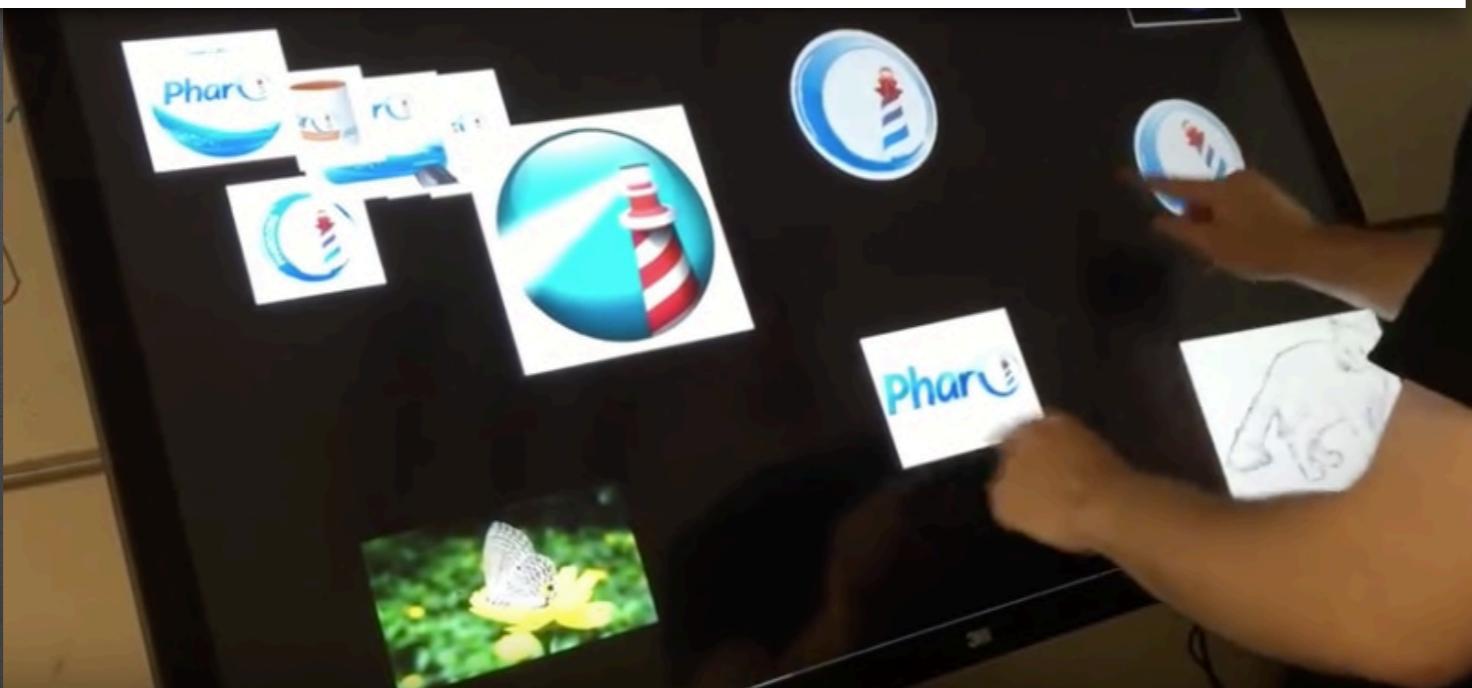
Controls:  
- Big front button for teleportation  
- Menu button to change the color of the sea

Class not referenced ? X  
[dynamicsWorld] Instance variables not read AND written ? X  
[dynamicsWorld] Variables not referenced ? X

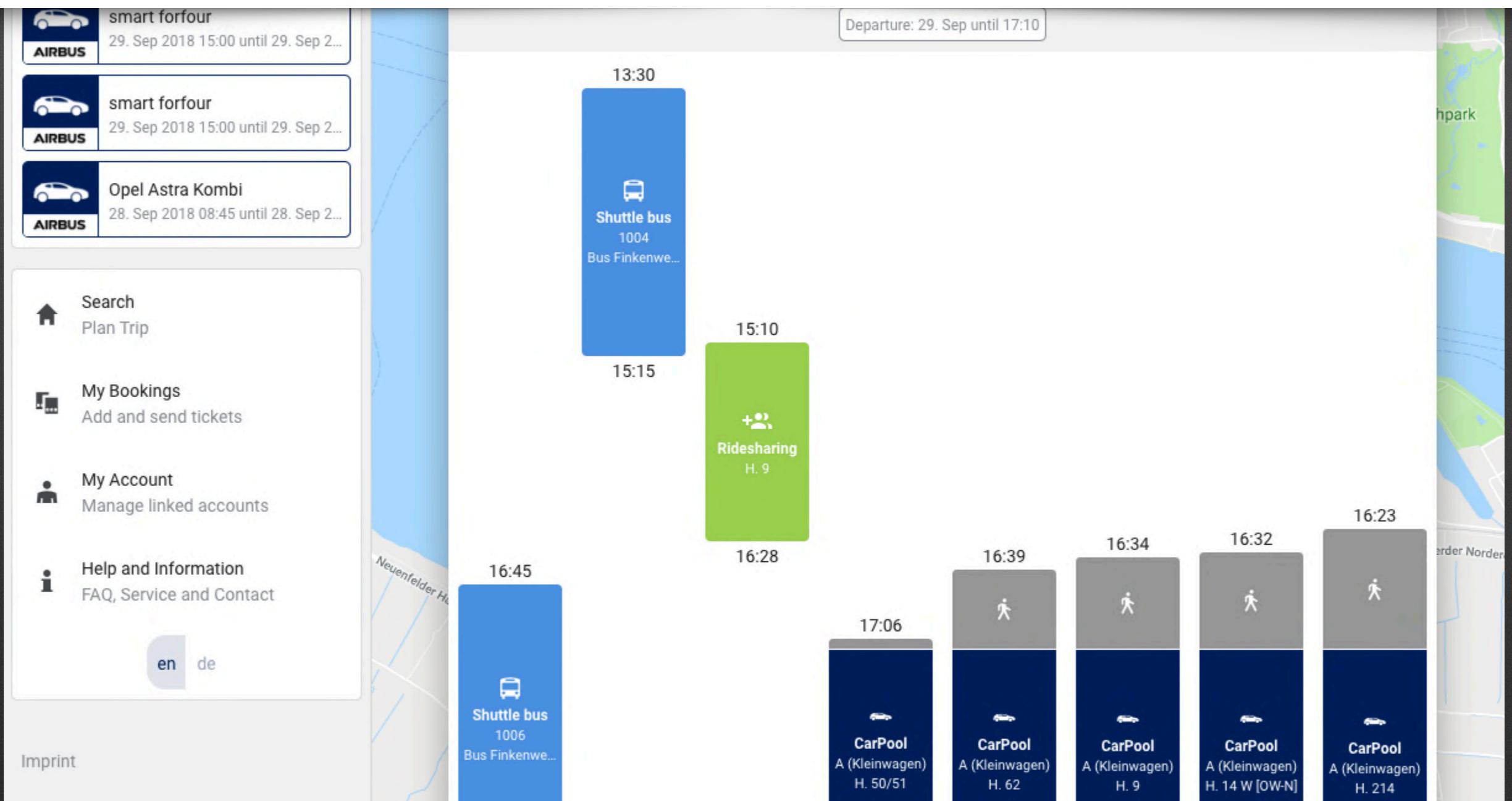
Helpful? Helpful? Helpful? Helpful?

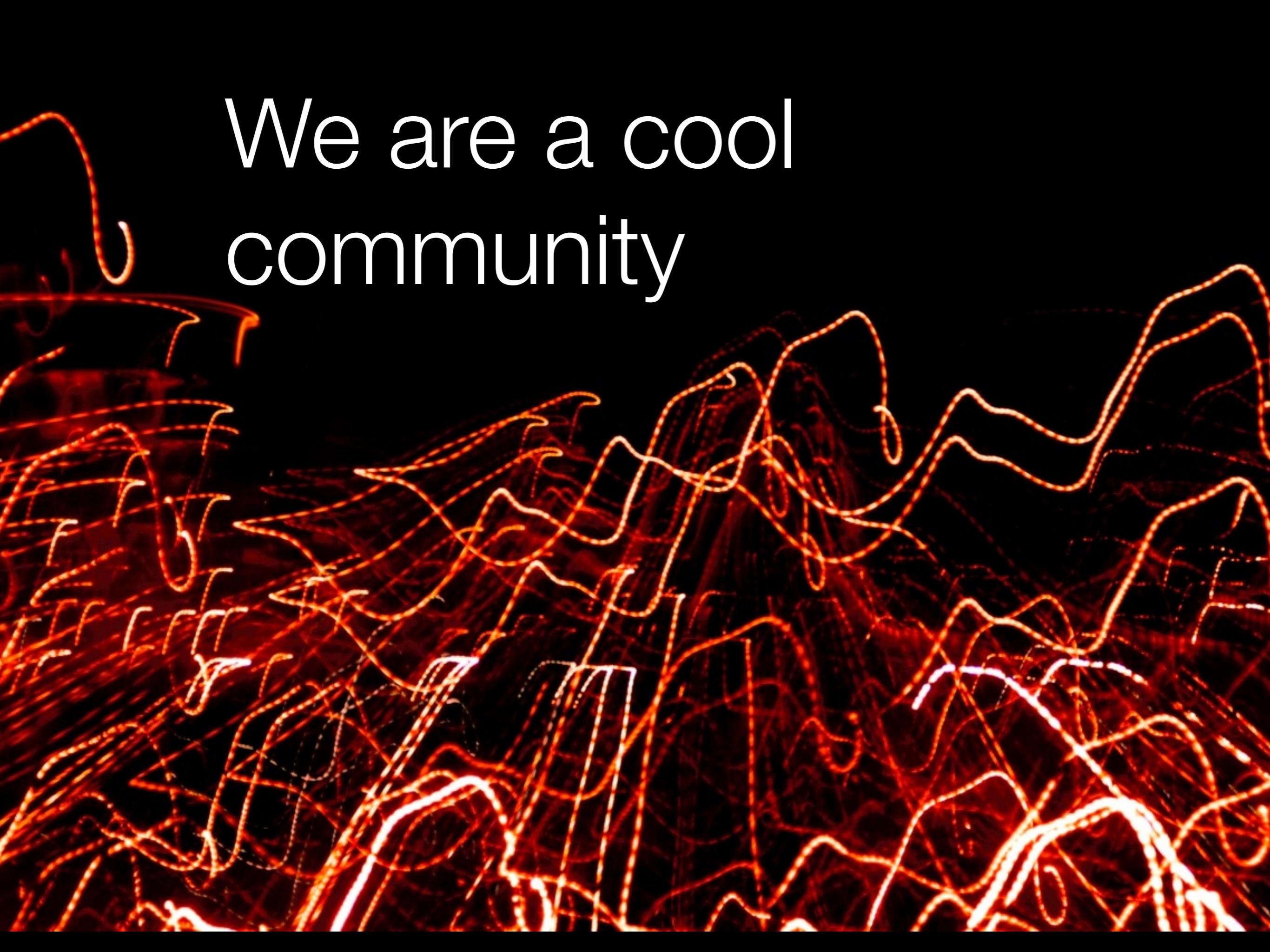
OVRWDemoAircraftCarrier Playground

# Thales prototypes advanced interaction design



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





We are a cool  
community

# Some Pharo's Teachers

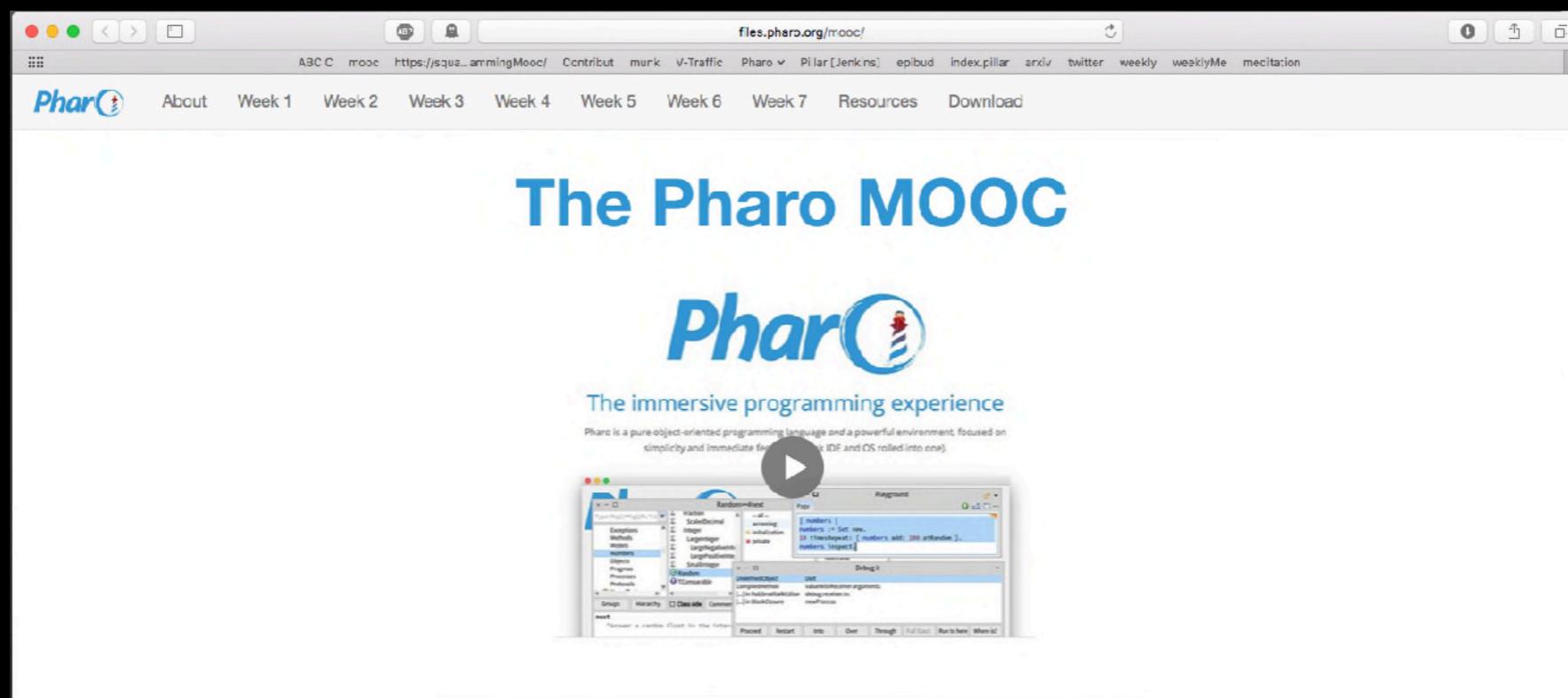
- Univ. of Novi Sad • Uni. of Buenos Aires • Uni. of Bern • Uni. of Maroua • Uni. of Brussels • Ecole des Mines de Douai • Uni. de Savoie • Ivan Franko Nat. Uni. • Czech Technical Uni. Prague • Northern Michigan Uni. • Uni. Technologica Nacional (UTN) • Uni. Catholic of Argentina • Uni. of Santiago • Uni. Policnica de Catalunya • Uni. de Bretagne Occidentale • Uni. of Tomsk • Uni. of Fernhagen • IT University of Copenhagen • Uni. of Yaounde • Uni. Lille • INFTI • Uni. of Lyon • Univ. of Montpellier • Uni. of Cordoba • Uni. of

# Some Research Groups

Lafhis (AR)  
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)  
SRA (Jap)  
GL (Bol)  
UFMG (Br)  
ETS (Can)  
U.Chi (Can)  
Soft (Be)  
...

# <http://mooc.pharo.org>



The screenshot shows the homepage of the Pharo MOOC website. At the top, there's a navigation bar with links for ABC C, mooc, https://squaremoooc/, Contribut, murk, V-Traffic, Pharo, Pilar [Jenkins], epibud, index.pilar, arxiv, twitter, weekly, weeklyMe, and meditation. Below the navigation is a main header with the Pharo logo and a menu with links for About, Week 1, Week 2, Week 3, Week 4, Week 5, Week 6, Week 7, Resources, and Download. The main content area features a large blue title "The Pharo MOOC". Below the title is a large Pharo logo with the tagline "The immersive programming experience". A video player is embedded in the page, showing a screenshot of the Pharo IDE interface with code and a play button.

## About this course

If you are either a beginner or an expert in object-oriented programming, this MOOC will change the way you program with objects: come and learn or rediscover object-oriented programming with Pharo!

Pharo is a pure object-oriented programming language in the tradition of Smalltalk. It offers a unique developing experience in constant interaction with live objects. Pharo is elegant, fun to use and very powerful. It is very easy to learn and enables to understand advanced concept in a natural way. When programming in Pharo, you are immersed in a world of live objects. You have immediate feedback at any moment of your development: on objects representing web applications, code itself, graphics, network. [More...](#)

## Obtaining the MOOC

We strongly suggest to follow the MOOC during the next session on France Université Numérique that will start **October 16th, 2017** because you will have support from the teaching team.

Join the discord channel mooc on the Pharo community (Invitation at <http://discord.gg/Sj2rhxn>)

But, you can also access all ressources of this MOOC offline on:

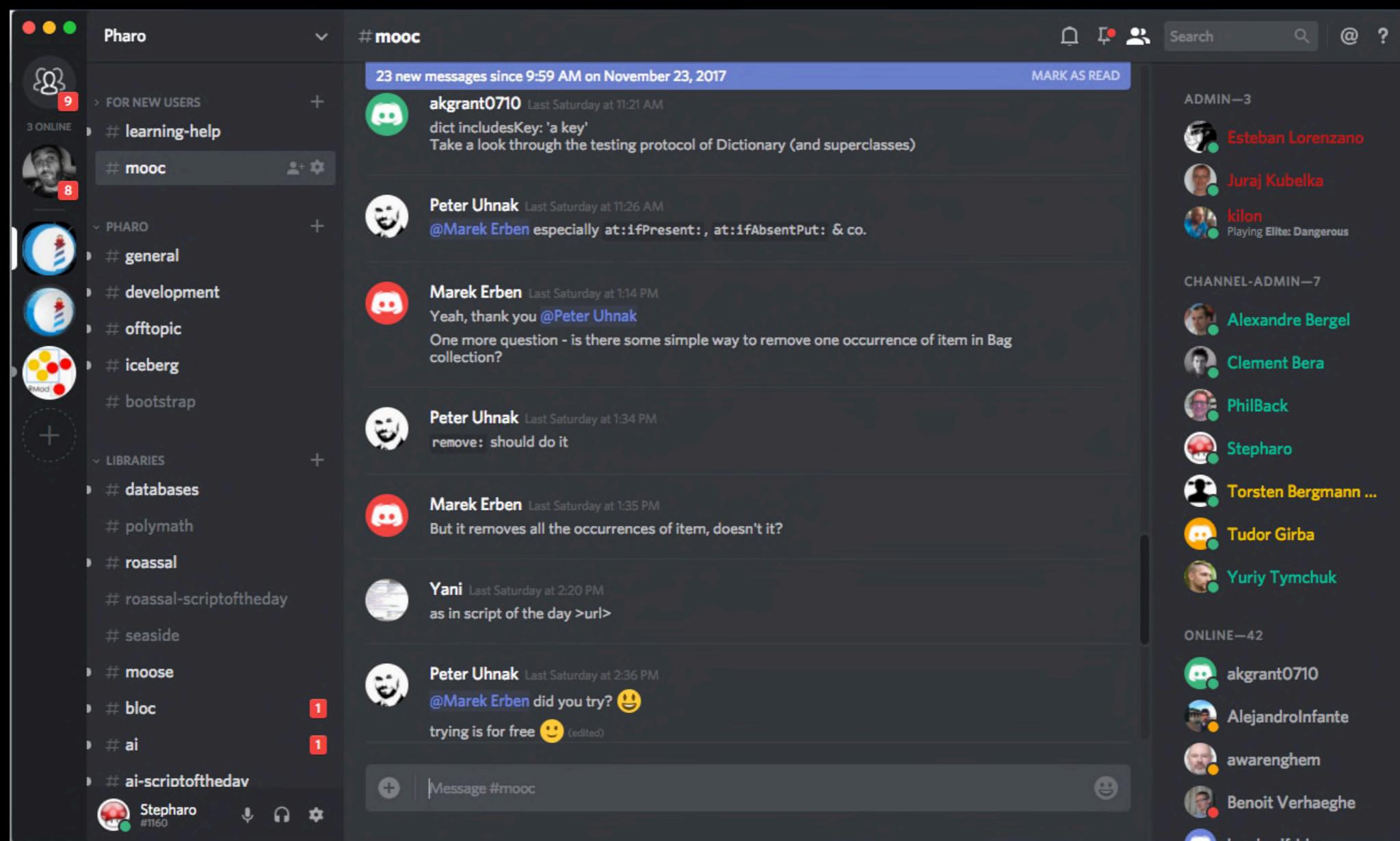
- [WebPortal](#): full online lecture with all videos and exercises,
- [CanalU](#): one of the key website that delivers ressources for teaching and research.

## How to follow this MOOC?

We propose five profiles to follow this MOOC at different speed and levels. The Mooc sequences will be tagged according to these profiles. The profiles are not exclusive: to become a pharo expert you need to start as a newbie and grow up. Of course, you can also follow the full MOOC.

- **Total newbies [Newbies]** Focus on the beginning of the lectures, you can skip the Seaside/Mongo and tinyBlog exercises. Follow the end of the Mooc but without trying to understand everything. Take it easy and spend time understanding that the system is written in itself. Focus on the navigation tools (senders and implementors).
- **Looking for Web [Web]** For those that focus on web development, we suggest to get started with the syntax (since we really love this lecture you should really watch the not implementation

# <http://discord.gg/Sj2rhxn>



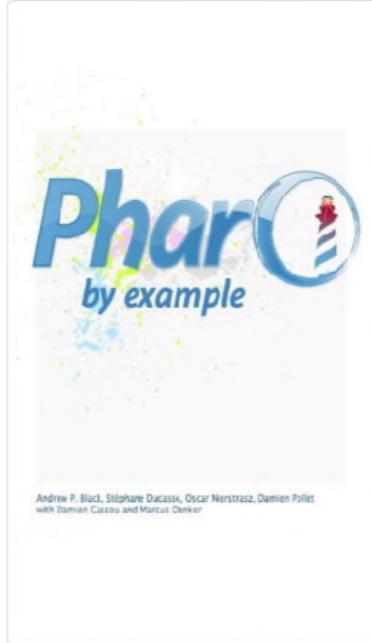
<http://books.pharo.org>

## Pharo Books

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

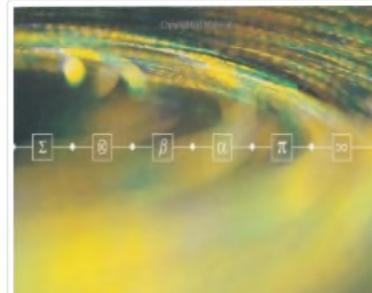
Contribute to the SquareBracketsAssociates community free books  
<https://github.com/SquareBracketAssociates/>

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**

The screenshot shows a web browser window displaying the homepage of [pharoweekly.wordpress.com](https://pharoweekly.wordpress.com). The title of the page is "WEEKLY NEWS ABOUT PHARO". Below the title is a subtitle: "Everything you wanted to know about <http://www.pharo.org> without being forced to read 1000 mails". A navigation bar at the top includes links for "HITCHHIKER'S GUIDE TO ...", "SMALLTALK, TIPS'N TRICKS", "COG BLOG", and "ABOUT". The main content area features two posts:

**NOV 25 2017** [WHAT ABOUT CONTRIBUTING?](#)  
UNSORTED EDIT

Here is the testimony of Astares regularly contributing to Pharo 70.  
What is not visible in the list are the many enhancements happening also on Calypso, Bloc, Grease and many many others.  
Nonetheless the core image still needs love from more people. Remember even the smallest change can make a difference and shape the future. Also "a contribution per day keeps bad systems away".  
Even one contribution per week or month.  
So jump in – the water is just fine!  
Bye  
T. (aka astares)

**NOV 23 2017** [\[PHARO 7.0A\] NEXT ENHANCEMENTS 2](#)  
UNSORTED EDIT

Report period: 5 November 2017 to 23 November 2017 Report period: 5 November 2017 to 23 November 2017  
\* 20739-Ramova-dead-stream-primitives -> <https://pharo.fogbugz.com/f/cases/20739/Remove-dead-stream-primitives>  
Issue URL: <https://pharo.fogbugz.com/f/cases/20739> PR URL: <https://github.com/pharo-project/pharo/pull/624> Diff URL: <https://github.com/pharo-project/pharo/pull/624/files>  
Thanks to clementbera  
\* 20645-Windows-rebuildFieldAccessors-problem -> Fixing the creation of anonymous classes  
\* 20739-Ramova-dead-stream-primitives -> Remove dead stream primitives



**Pharo is our vehicle  
We improve it  
everyday**

**For us Pharo is the  
beginning of the journey and  
we are building the road**

**Pharo is  
research friendly**

We are ready  
to help you  
validate  
your ideas

We can be  
guinea pigs

# Actively supporting research

The screenshot shows the Pharo Smalltalk IDE interface. On the left, the 'Spotter' pane is open, displaying a search history with items like '#Menu 15/62', 'System Browser', 'Playground', 'Test Runner', 'Spotter', 'Iceberg', and 'Monticello Browser'. A message at the bottom encourages sending diagnostic and usage data. On the right, the 'NumberParser' browser pane is active, showing a list of packages and a detailed view of the 'NumberParser' class. The 'NumberParser' class is selected, and its definition is displayed:

```
Object subclass: #NumberParser
  instanceVariableNames: 'sourceStream base neg integerPart fraction'
  nDigits lastNonZero requestor failBlock'
  classVariableNames: ''
  package: 'AST-Core-Parser'
```

The 'NumberParser' class is highlighted in blue. To the right of the browser, a 'History Navigator' pane lists various search terms and their counts.

**SCG (Uni. Bern)**

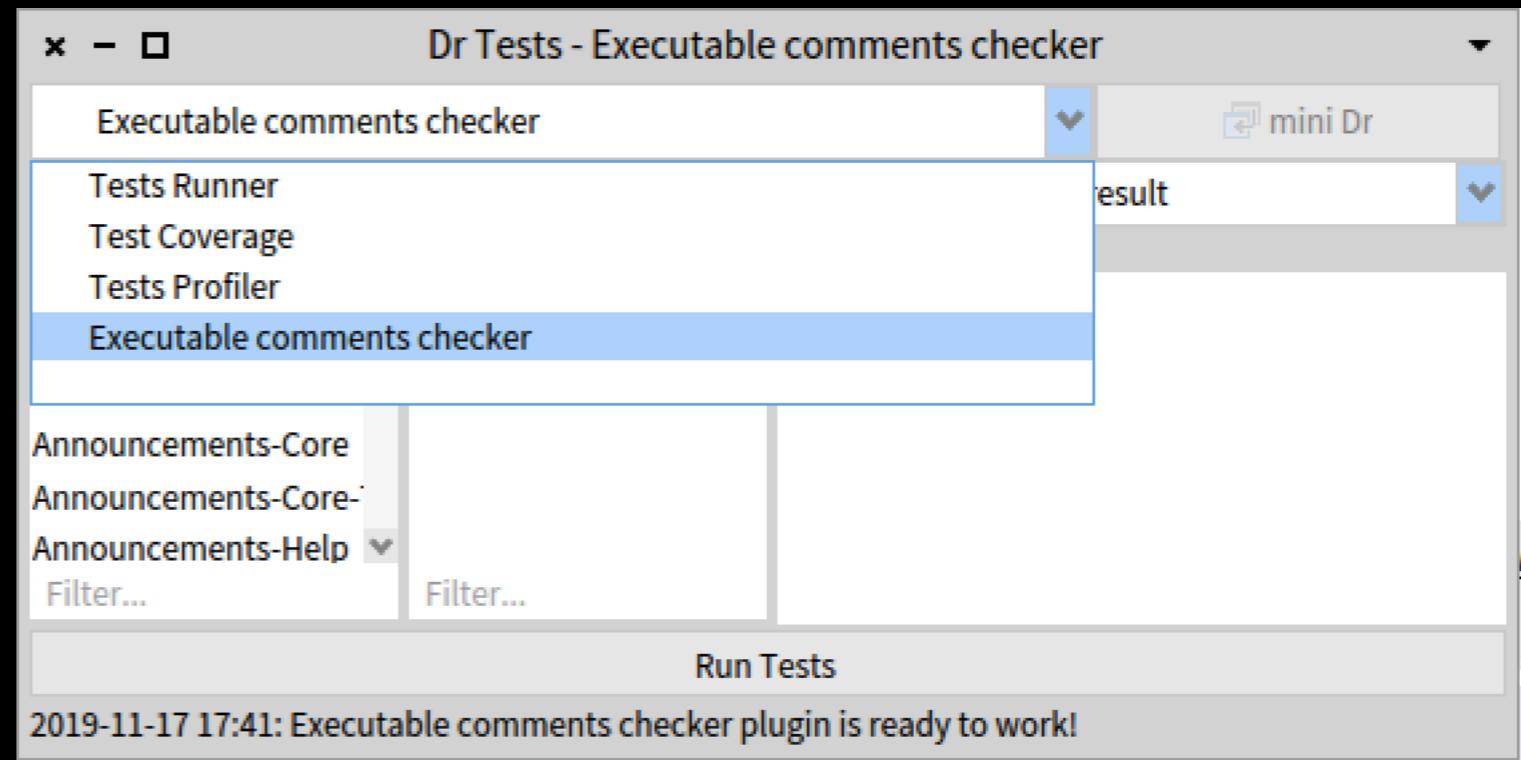
1/9 [1]      Format as you read      W      +L

Utility methods ? ×      Helpful?

# **Best Paper Award @ ICPC'19**

**Kubelka, Bergel, Robbes,  
“Live Programming and Software Evolution:  
Questions during a Programming Change Task”**

# DrTests: a plugin-based architecture to plug test analyses...



We validated our 25000  
tests for Rotten Green  
Tests (ICSE'19)

# **Test Amplification**

**by S. Demeyer, H. Rocha, M. Abdi**

# Code Review

by A. Bachelli, ObjectProfile

# Join us

- Have fun with us.
- There are plenty of opportunities