



Present and Future

Pharo: Live objects for complex projects

SRA, inc.

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

<http://www.pharo.org>

JPMORGAN
CHASE & CO.



SCHMIDT
Ingenieurbüro für Bauwesen



feenk



ZWEI DENKER

THALES



projector
software

inspired!

BetaNine
software engineering



SORABITO

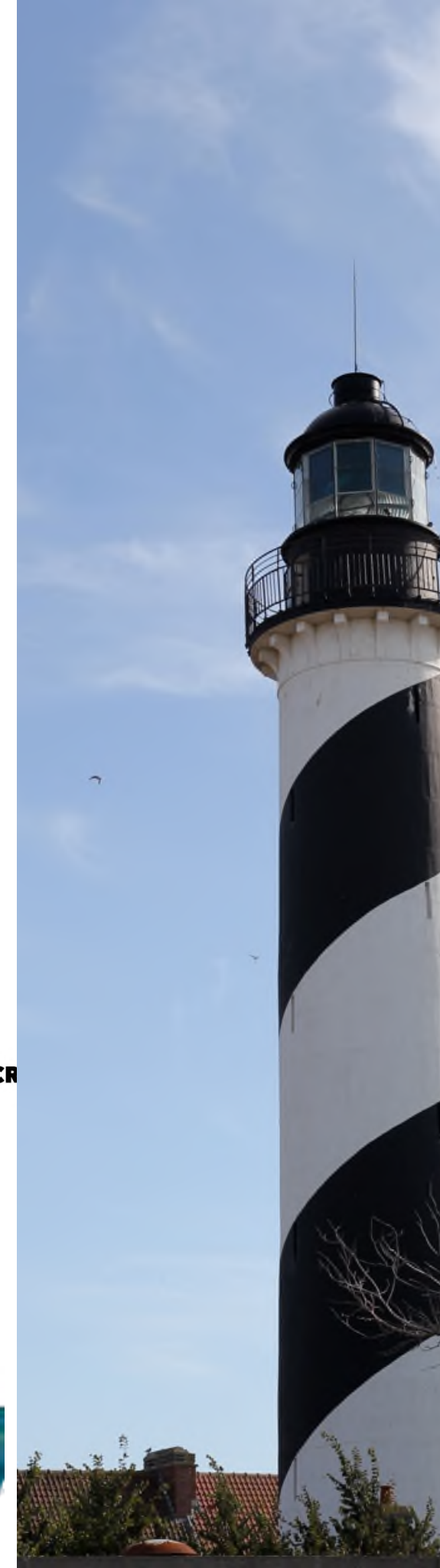
knowroaming

TA MÈRE^{SCR}
BADASS MOBILE DEVELOPMENT

Systems that make sense
Sensus



Yesplan
Let's make it happen



A word of presentation

Expert in language design

Traits in Php7.0, Perl60

Influenced Traits in Scala, Groovy

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



GENERALI
Solutions d'assurances

SIEMENS



moose



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)

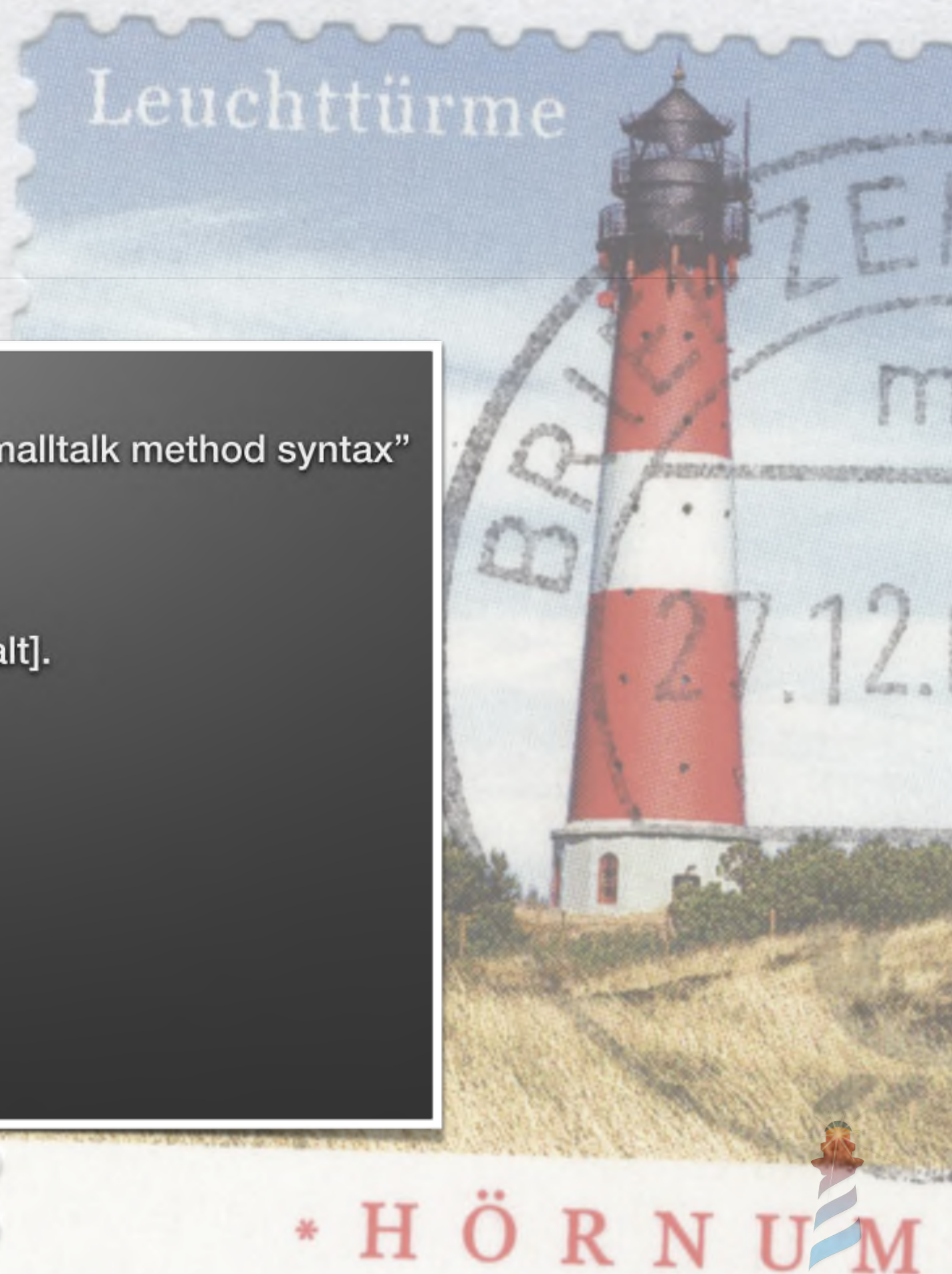
do: [:each | Transcript

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>

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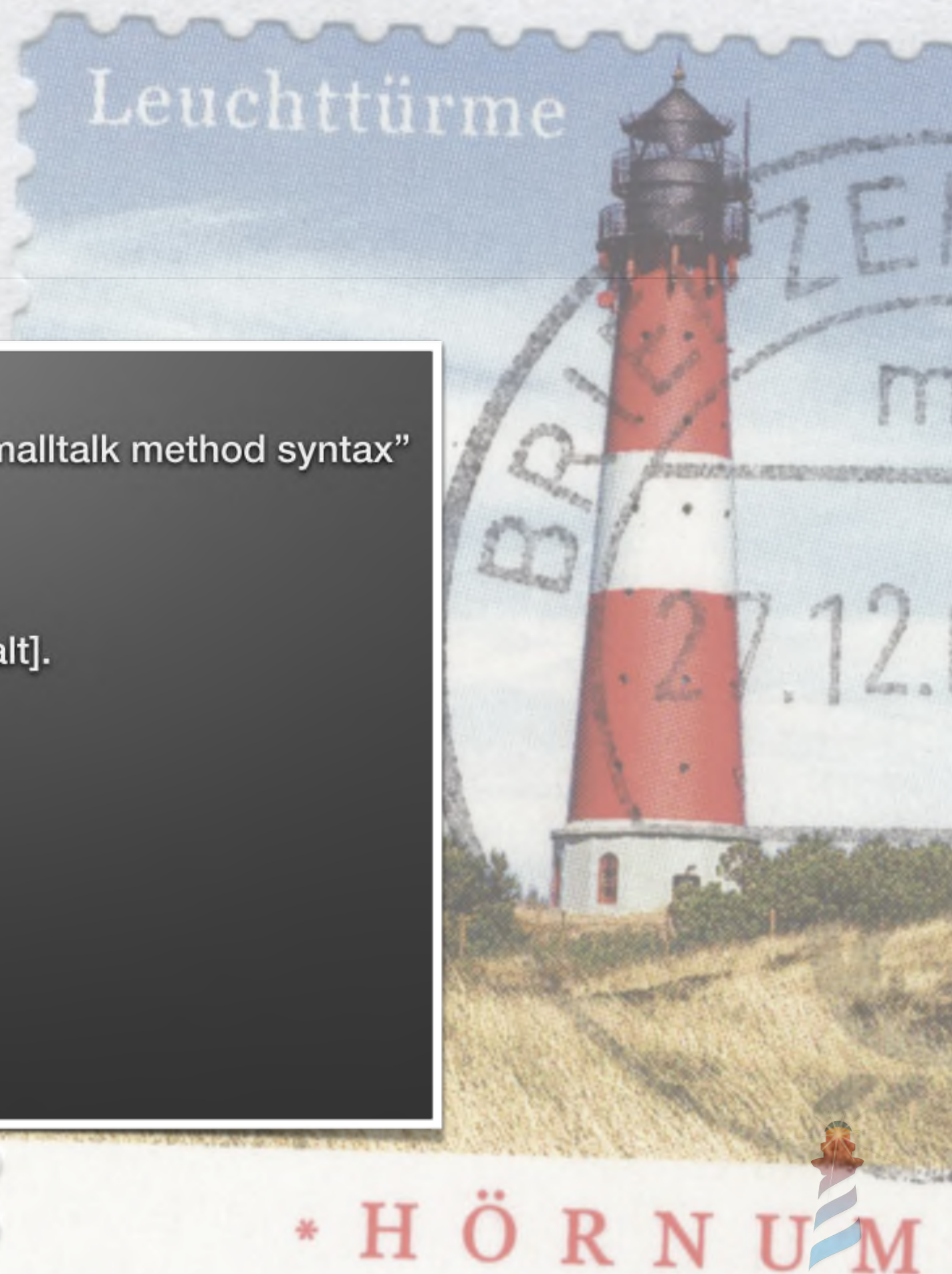
do: [:each | Transcript

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



More productive!

Focus on **intrinsic** complexity

Eliminate **accidental** complexity

The image features a grayscale background of a hand holding a red pencil, poised to write. Overlaid on this is a red-tinted sketch of a hand holding a pencil. The text 'Fully Written in Itself' is written in white, bold, sans-serif font across the upper part of the image.

Fully Written in Itself

- Everything is written in Pharo
- One simple syntax/model to access everything

**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 objects



Immersed and interacting

- ✱ You can interact with objects



Workspace

```
| elements lay |
```

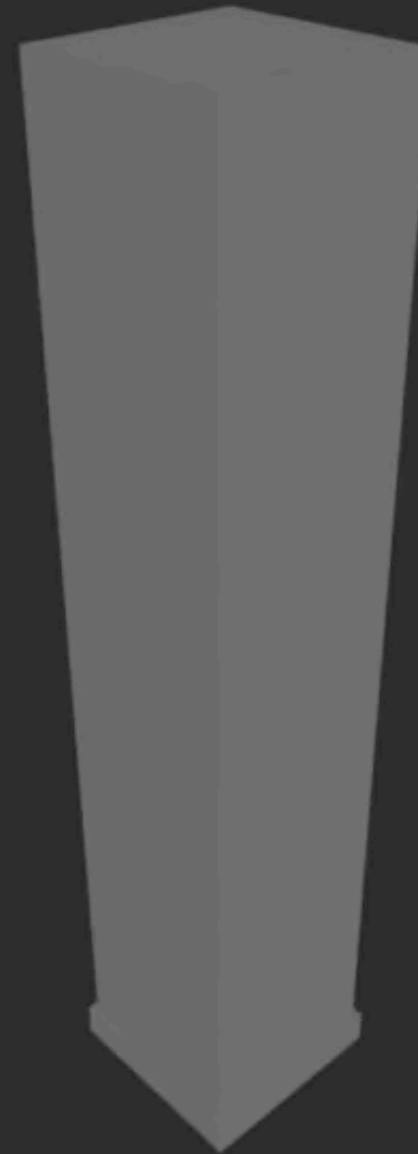
```
elements := (1 to: 5) collect: [ :ob |  
    (R3CubeShape new) elementOn: ob ].
```

I

```
lay := R3WallLayout new.  
lay on: elements.
```

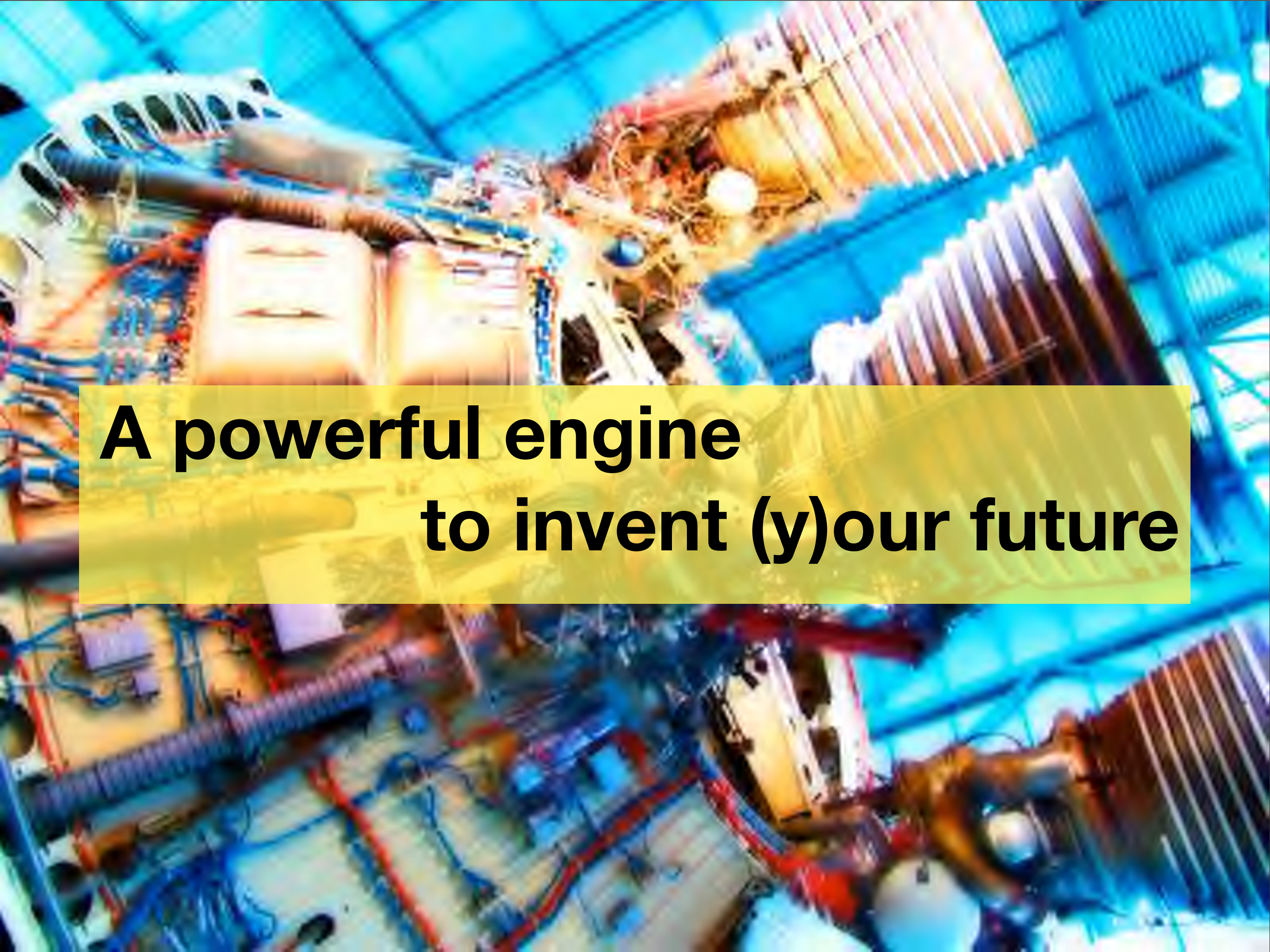
```
UberPresenter present: elements
```

Uber Presenter




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

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.

trentosur

Soluciones móviles para retail y trade marketing

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Pharo platform as a Service: put your Smalltalk web-application online at Pharocloud in just 3 clicks

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Watch how it works

Romax Technology

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.

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Wind Energy

Pioneering new ways of maximising sustainable wind energy yields.

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- Thousands of orders for seven Swiss printing companies

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Quuve is a powerful business intelligence tool that provides a comprehensive view of your company's performance. It features a wide range of charts, graphs, and tables, making it easy to analyze and understand your data.

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

A product by Smallworks

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Pinesoft MBagger

Pinesoft MBagger is a powerful tool for managing your software assets. It provides a comprehensive view of your software inventory, including details on licenses, versions, and usage. The interface is intuitive and easy to navigate, making it a valuable tool for IT professionals.

Dedicated and cost-effective tools for software evolution

Dedicated Analyses, Dedicated tools, Decision making

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BETTER, FASTER, CHEAPER

COMPONENTS

Yesplan is veelzijdige software voor het efficiënt plannen van evenementen.

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

Need: disaster scenario recovery

Need: disaster scenario recovery is a powerful tool for managing disaster recovery scenarios. It provides a comprehensive view of your disaster recovery plan, including details on recovery objectives, recovery strategies, and recovery procedures. The interface is intuitive and easy to navigate, making it a valuable tool for IT professionals.

Moose

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

The Moose Book

Dr. Geo

Dr. Geo is a powerful tool for managing your software assets. It provides a comprehensive view of your software inventory, including details on licenses, versions, and usage. The interface is intuitive and easy to navigate, making it a valuable tool for IT professionals.

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OBJECT PROFILE

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Das Content Management mit System

100% Inline-Editor

Drag & Drop

Copy / Paste

2denker

Continuous API Testing

Keep your services under control 24/7

t3

t3 is a powerful tool for managing your software assets. It provides a comprehensive view of your software inventory, including details on licenses, versions, and usage. The interface is intuitive and easy to navigate, making it a valuable tool for IT professionals.

LAMRC

Back-End Wafer-Level Packaging



50% microprocessors
of your mobile/PC/tablet



The top image shows a close-up of a microprocessor being assembled onto a wafer. The bottom image shows a wafer with a green protective layer being processed in a machine.

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



LAMRC

Back-End Wafer-Level Packaging

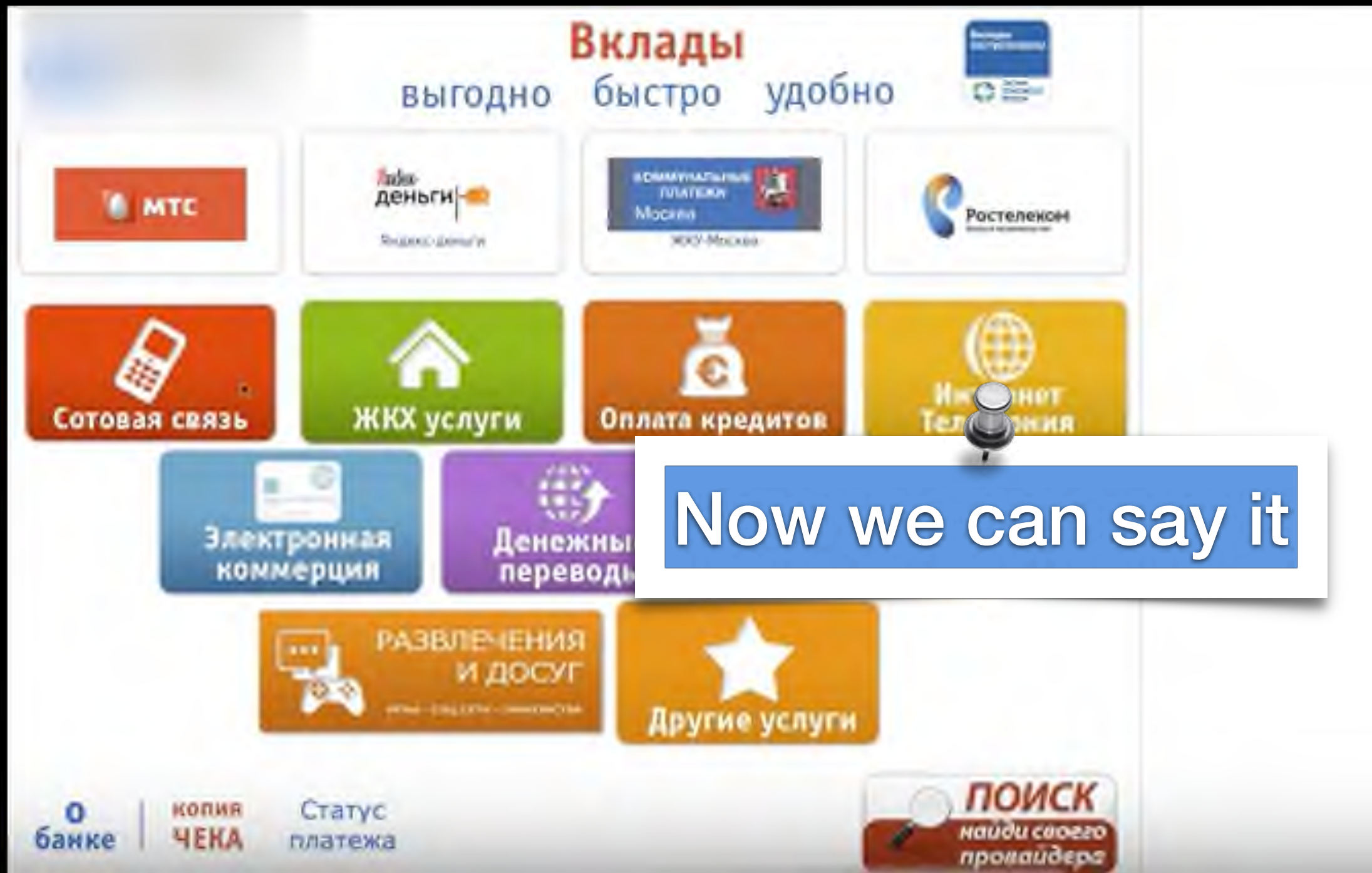


Your mobile hardware as
a high-chance to have
been produced by a
robot controlled via a
smalltalk

**Starting to experiment
with Pharo**



Pharo in ATM like Device in Moscow

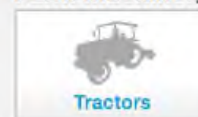


ALLSTOCKER

We find machines for you

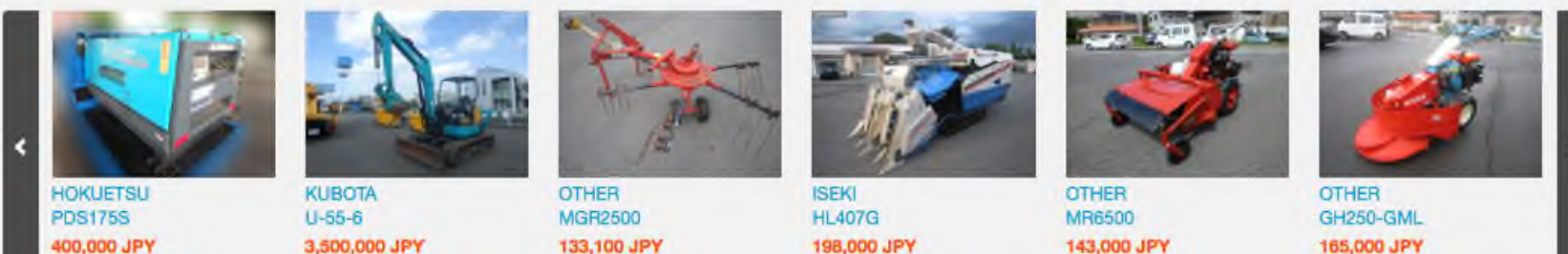
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Network Monitoring for small ISPs





pharocloud

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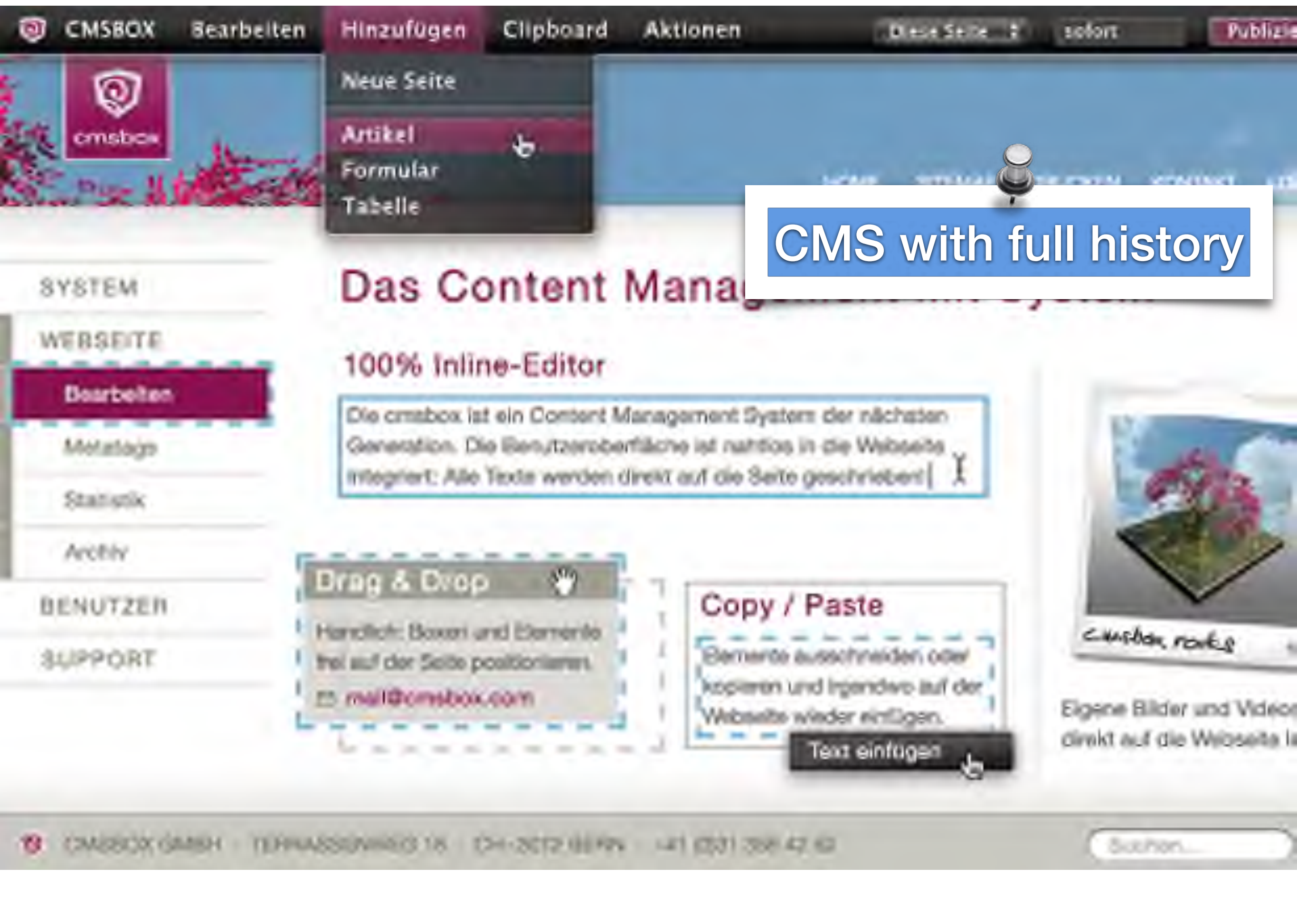
Pharo platform as a Service: put your
Smalltalk web-application online at
Pharocloud in just a couple clicks

[Try it for FREE](#)

[Watch how it works](#)

**Deploy Pharo
on the cloud in 3 min**





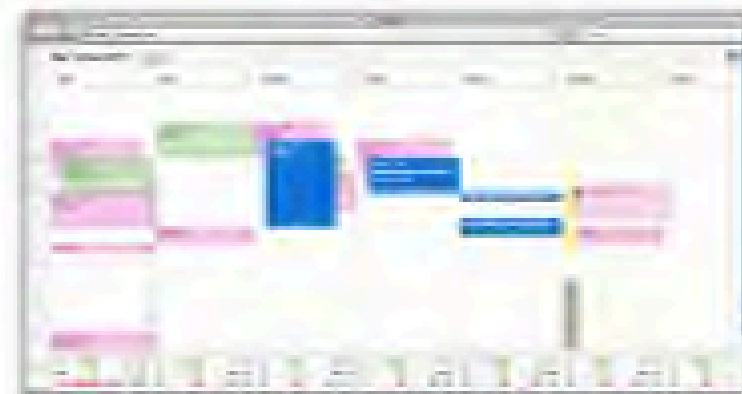
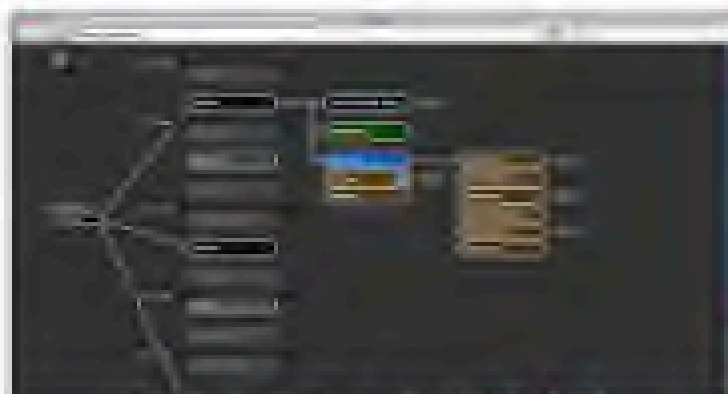
CMS with full history

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

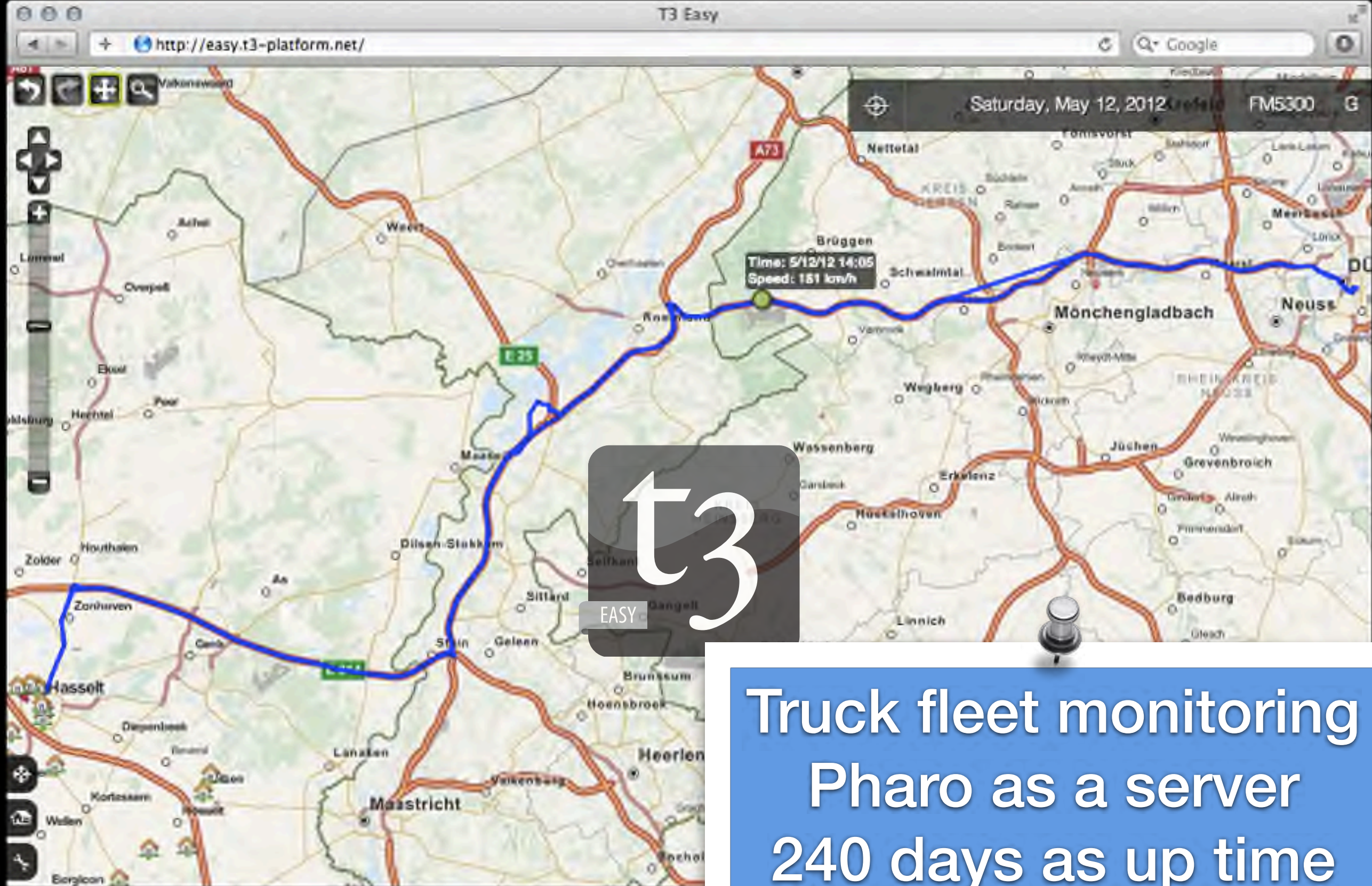


Server Testing

Continuous API Testing

keep your services under control 24/7

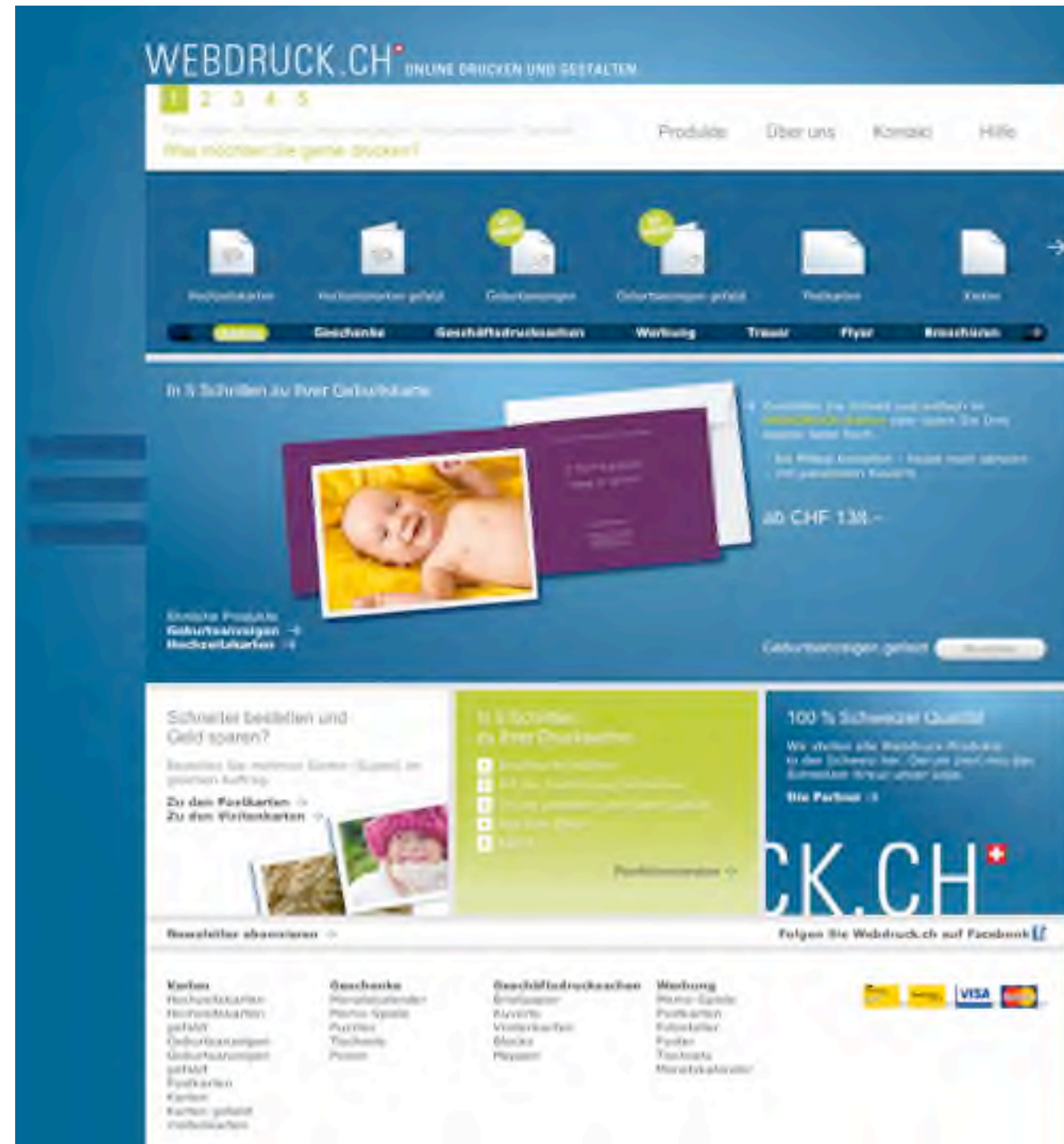


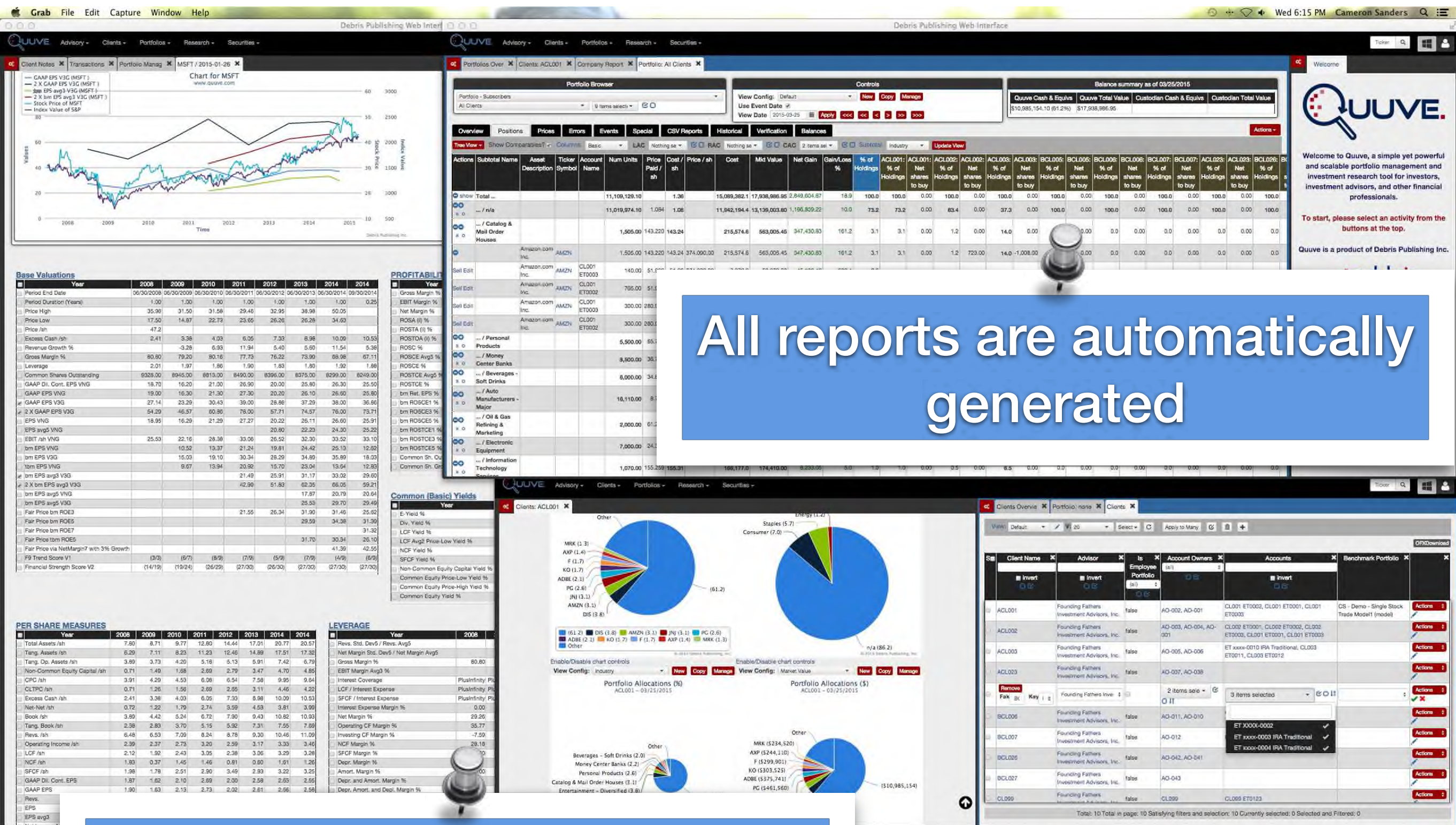


Truck fleet monitoring
Pharo as a server
240 days as up time

WEBDRUCK.CH Web-To-Print Solution

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





Quuve: Investment Portfolio
<http://debrispublishing.com>

MobileTerminated ForwardSM

```

plan: SCCPGlobalTitle npISDN;
addr: destGT;
translation: 0;
yourself);

yourself,

forwardSM := ASN1Dictionary new
  at: 'sm-RP-DA' put: (ASN1Dictionary new
    at: 'imsi' put: destIMSI toTBCD;
    yourself);
  at: 'sm-RP-OA' put: (ASN1Dictionary new
    at: 'serviceCentreAddressOA' put: sourceSMSC toE164;
    yourself);
  at: 'sm-RP-UI' put: (ByteArray readHexFrom: '240c91948148136542000005110712105534010c8320b6fd060005af3');
  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 .
  
```

Free Software Mobile Communication solutions

Extended search...

Do again
Undo

Apply a display filter... 200

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	0	2000	GSN 5...	130	Invoke forwardSM

Frame 1: 236 bytes on wire (1888 bits), 236 bytes captured (1888 bits) on Linux cooked capture

Internet Protocol Version 4, Src: 208.208.208.208, Dst: 208.208.208.208

Stream Control Transmission Protocol, Src Port: 3005 (3005), Dst Port: 3005 (3005)

MTP 3 User Adaptation Layer

Signalling Connection Control Part

Transaction Capabilities Application Part

QSM Mobile Application

QSM SMS TPDU (QSM 03.48) SMS-DELIVER

TP-REP: TP Reply Path parameter is not set in this SMS-SUBMIT/DELIVER

TP-UDHI: The TP UD field contains only the short message

TP-SRI: A status report shall be returned to the SM

TP-LP: The message has not been forwarded and is not a spawned message

TP-PM: No more messages are waiting for the MS in this SC

TP-MTI: SMS-DELIVER (0)

TP-Originating-Address - (491894315624)

TP-PI: 0

TP-OCI: 0

TP-Service-Centre-Time-Stamp

TP-User-Data-Length: (16) depends on Data-Coding-Scheme

TP-User-Data

SMS text: Hello from Piana

52 04 40 04 01 00 00 04 66 1e 20 1e 06 07 00 11 01000000 4-(.....

85 05 01 01 01 00 11 00 0f 00 02 07 00 01 00 06 00000000 00000000

07 04 00 00 01 00 19 02 6c 41 31 3f 02 01 01 02 00000000 1A,7.....

01 2e 30 37 00 00 02 02 43 09 10 91 50 09 04 00 00700000 00000000

31 94 51 97 10 00 00 00 04 21 24 0c 91 94 01 00 00000000 00000000

13 05 02 00 00 01 10 71 71 45 51 00 10 00 02 90 00000000 00000000

0d 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00000000 00000000

Programming environment for Programmable Logic Controllers

Software PLC IDE4PLC powered by Pharos

Board

POU

Board

EDU-CIAA-NXP

Program Organization Units (POU) editor

MAIN_PROG

VAR

Network 1

TEC1

TEC2

TEC3

TON TIME

INT#10 - PT

Q

ET - var0

LEDB

MUL INT

EN

ENO

OUT - var1

var0 - IN1

INT#2 - IN2

EQ INT

EN

ENO

OUT - LED2

var1 - IN1

INT#20 - IN2

POU Variable Declarations Editor

MAIN_PROG

Interface Variables

Category	Name	Datatype
VAR_INPUT	TEC1	BOOL
VAR_INPUT	TEC2	BOOL
VAR_INPUT	TEC3	BOOL

Internal and External Variables


Category	Name	Datatype
VAR	var0	BOOL
VAR	var1	INT
VAR	var2	TIME




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 8					
Patient 9					
Patient 10					
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**



Apps

My apps

Shop

Games

Editors' Choice

My wishlist

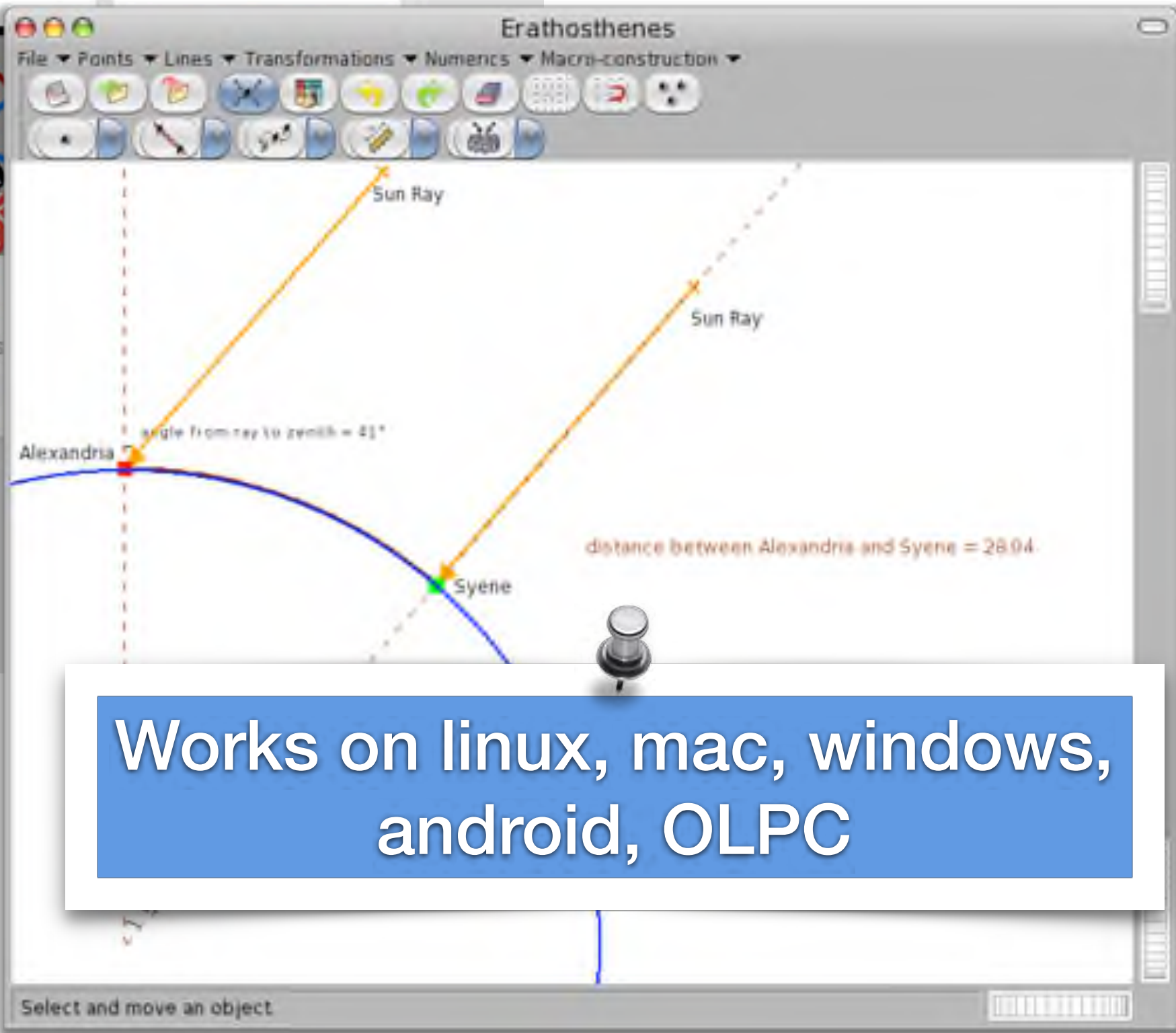
Redeem

Apps



Dr. Geo free

Hilaire Fernandes



Works on linux, mac, windows,
android, OLPC



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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](#)[The Moose Book](#)

enables

**Humane
assessment**

*the missing software
engineering method*

[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](#)

20 March 2013

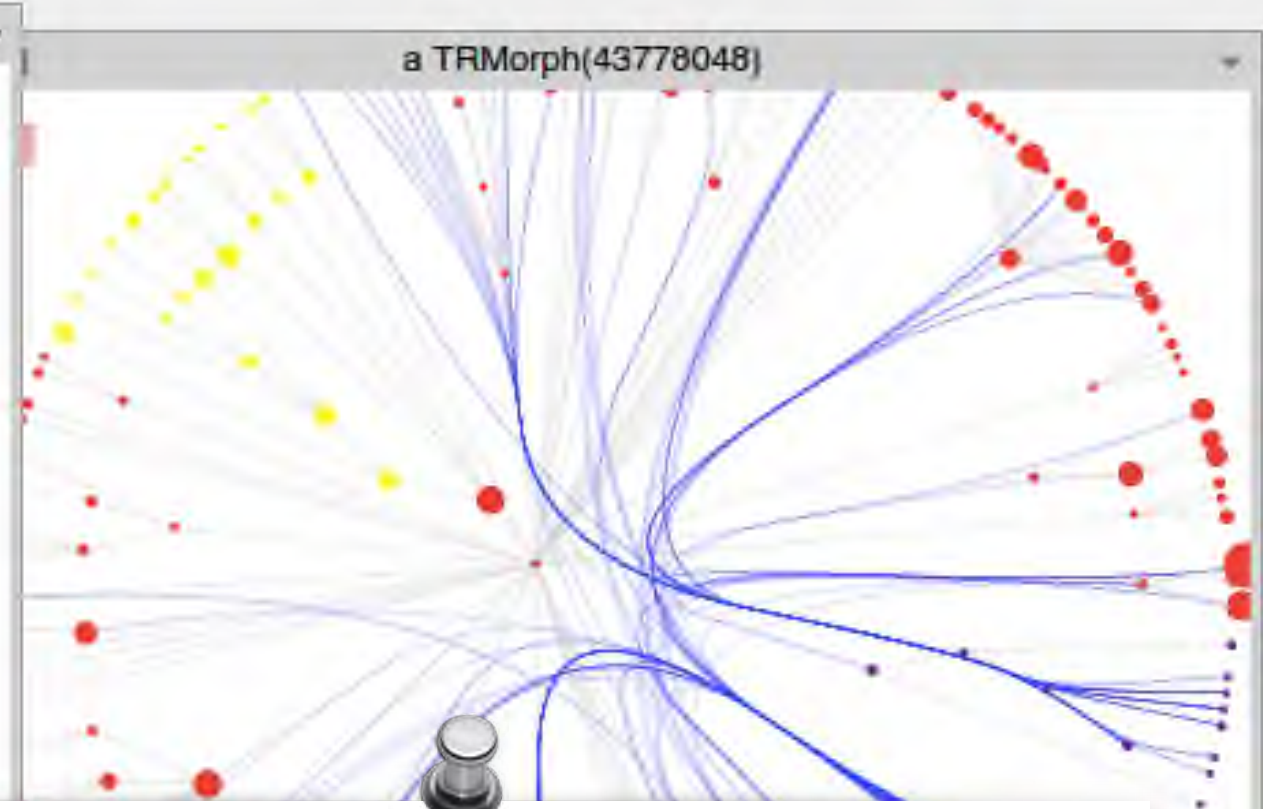
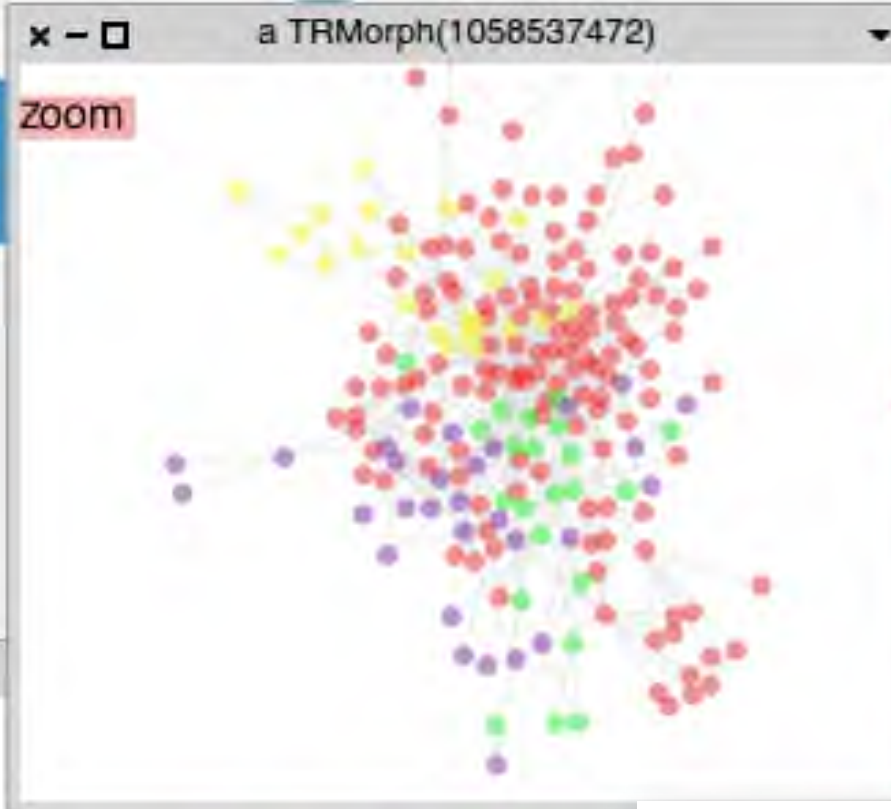
The move from Pharo 1.4 to Pharo 2.0 is finally complete: all 4045 tests are green. The continuous ...

**Sophisticated analysis platform
more than 200 men/years**

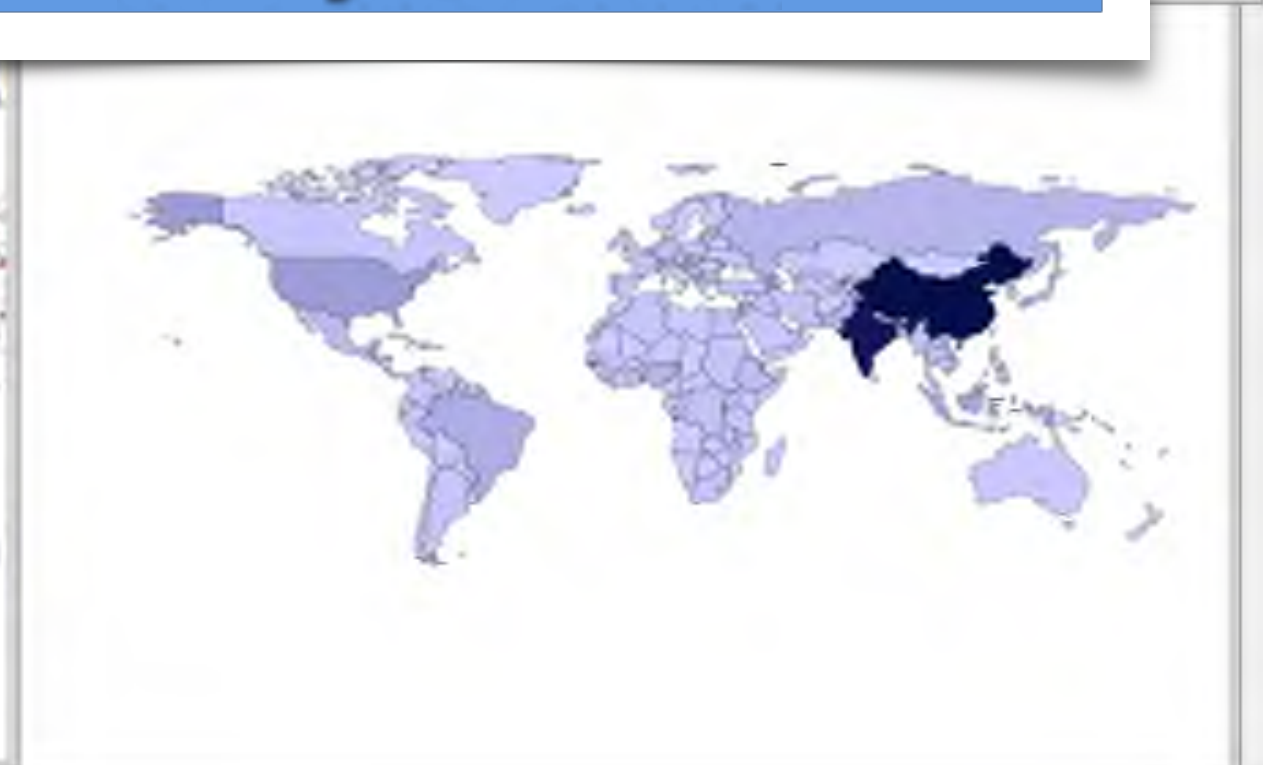
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Pha



ObjectProfile
produces visualizations &
analysis tools



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?
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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.

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COMPONENTS



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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.

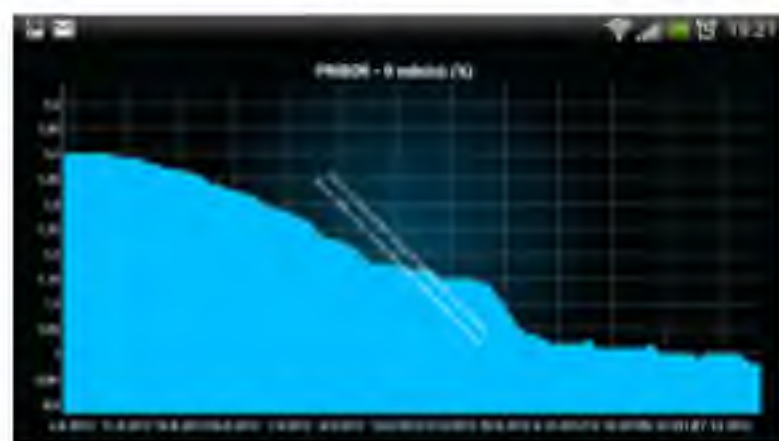


Business Intelligence

Discover intelligence in your testing

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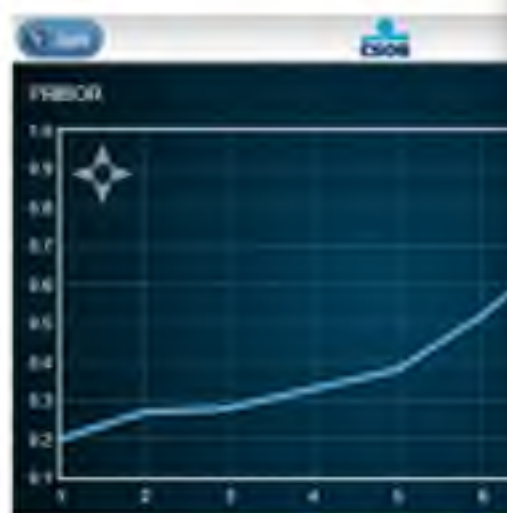
Digitalizing business



Bank	Value 1	Value 2
Bank of America	1.1	1.1
Bank of China	1.1	1.1
Bank of India	1.1	1.1
Bank of Japan	1.1	1.1
Bank of Korea	1.1	1.1
Bank of Russia	1.1	1.1
Bank of Spain	1.1	1.1
Bank of Sweden	1.1	1.1
Bank of Switzerland	1.1	1.1
Bank of Taiwan	1.1	1.1
Bank of Thailand	1.1	1.1
Bank of Turkey	1.1	1.1
Bank of Ukraine	1.1	1.1
Bank of Vietnam	1.1	1.1
Bank of Poland	1.1	1.1
Bank of Czech Republic	1.1	1.1
Bank of Slovakia	1.1	1.1
Bank of Hungary	1.1	1.1
Bank of Romania	1.1	1.1
Bank of Bulgaria	1.1	1.1
Bank of Greece	1.1	1.1
Bank of Italy	1.1	1.1
Bank of France	1.1	1.1
Bank of Germany	1.1	1.1
Bank of Netherlands	1.1	1.1
Bank of Belgium	1.1	1.1
Bank of Luxembourg	1.1	1.1
Bank of Austria	1.1	1.1
Bank of Switzerland	1.1	1.1
Bank of Liechtenstein	1.1	1.1
Bank of Monaco	1.1	1.1
Bank of San Marino	1.1	1.1
Bank of Vatican City	1.1	1.1



Bank	Value 1	Value 2
Bank of America	1.1	1.1
Bank of China	1.1	1.1
Bank of India	1.1	1.1
Bank of Japan	1.1	1.1
Bank of Korea	1.1	1.1
Bank of Russia	1.1	1.1
Bank of Spain	1.1	1.1
Bank of Sweden	1.1	1.1
Bank of Switzerland	1.1	1.1
Bank of Taiwan	1.1	1.1
Bank of Thailand	1.1	1.1
Bank of Turkey	1.1	1.1
Bank of Ukraine	1.1	1.1
Bank of Vietnam	1.1	1.1
Bank of Poland	1.1	1.1
Bank of Czech Republic	1.1	1.1
Bank of Slovakia	1.1	1.1
Bank of Hungary	1.1	1.1
Bank of Romania	1.1	1.1
Bank of Bulgaria	1.1	1.1
Bank of Greece	1.1	1.1
Bank of Italy	1.1	1.1
Bank of France	1.1	1.1
Bank of Germany	1.1	1.1
Bank of Netherlands	1.1	1.1
Bank of Belgium	1.1	1.1
Bank of Luxembourg	1.1	1.1
Bank of Austria	1.1	1.1
Bank of Switzerland	1.1	1.1
Bank of Liechtenstein	1.1	1.1
Bank of Monaco	1.1	1.1
Bank of San Marino	1.1	1.1
Bank of Vatican City	1.1	1.1



Developed in 3 months one dev
Sold to Belgium bank
Java team estimated 2 years



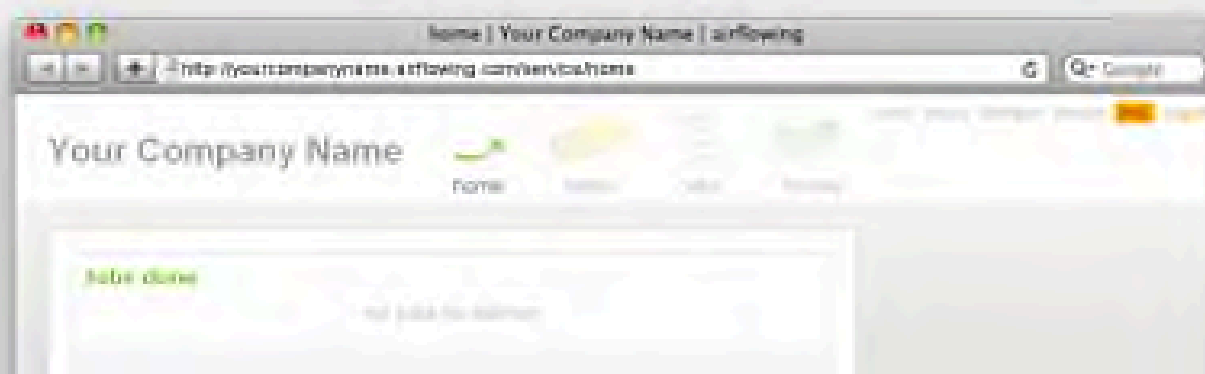
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Deployed business model
did not work



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Offline - Leave a message

Can develop a complex analysis in 3 months



Dedicated and cost-effective 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*



Manage travel costs

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 >

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TECHNOLOGY

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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.

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We provide services and software to a
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Pioneering new ways of maximising sustainable wind energy yields

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handle return mails
in Switzerland



Built a dataflow plug and play
on top of Pharo

ROAM SMARTER

UNLIMITED DATA IN 100+ COUNTRIES

Specific home relocation
registration

\$7.99
PER DAY

[VIEW PACKAGES](#)

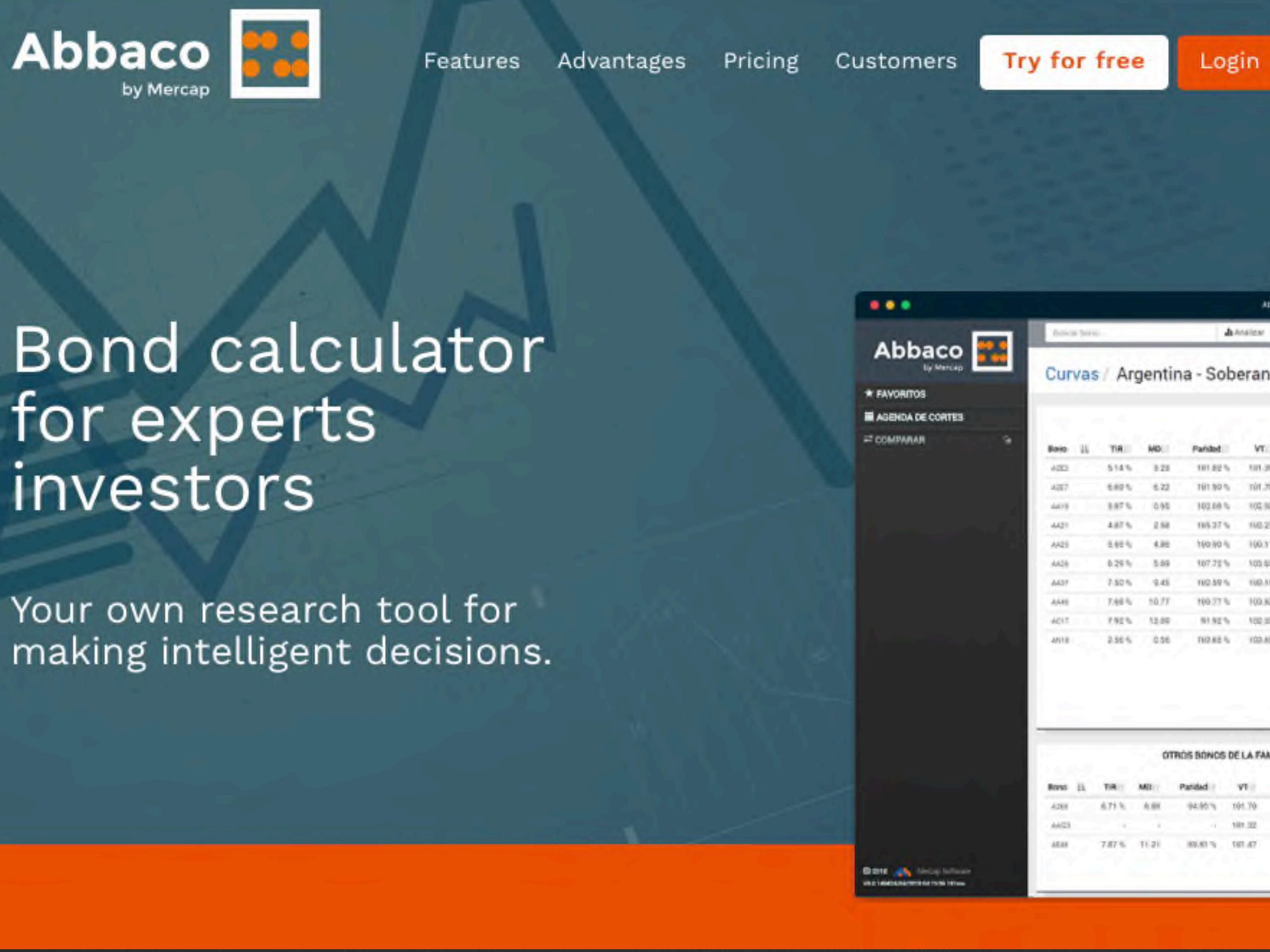
LIMITED TIME: 50% off Global SIM Card or Sticker + Russia data package! 

Our Roaming Solutions

Affordable calls + data in 200+ countries

Bonus WhatsApp data usage

4G LTE coverage



Bond calculator for experts investors

Your own research tool for
making intelligent decisions.

Abbaco

by Mercap

★ FAVORITOS

📅 AGENDA DE CORTES

🔍 COMPARAR

Buscar Bono...

Analizar

Curvas / Argentina - Soberano

Bono	EL	TIR	MD	Paridad	VT
A202		5.14 %	3.28	101.82 %	101.31
A207		6.80 %	6.22	101.90 %	101.21
A219		9.87 %	0.95	102.88 %	102.30
A231		4.87 %	2.68	105.37 %	105.21
A235		5.65 %	4.86	100.90 %	100.11
A236		6.25 %	5.89	107.75 %	105.81
A237		7.50 %	9.45	100.59 %	100.11
A246		7.68 %	10.77	100.37 %	100.30
A217		7.92 %	13.89	91.92 %	102.35
A218		2.55 %	0.56	102.82 %	102.81

OTROS BONOS DE LA FA...

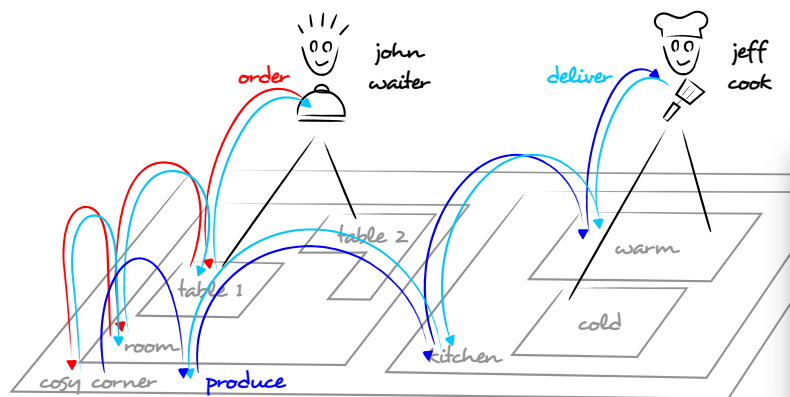
Bono	EL	TIR	MD	Paridad	VT
A208		6.71 %	6.88	94.95 %	101.70
A203		-	-	-	101.32
A248		7.87 %	11.21	89.81 %	101.87

© 2018

Mercap Software

USO E IMPLEMENTACIÓN DE MERCAP SOFTWARE

feenk



Help growing startups Get back control on software

```
ofdemo2
an OFOrderProductMessage (Order Steak)

"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: {OFWarm}.
sandwich := OFProduct new name: 'Sandwich'; characteristics: {OFCold}.
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
```



A screenshot of a Java IDE (IntelliJ IDEA) showing a project named 'falcon' with a sub-project 'business-core'. The code editor displays a test class 'CosyCornerPlaceOrderTest' with a method 'testPlaceOrderFromWaiterToCookWithProduct()'. The debugger is open, showing the execution of the test method. The 'Variables' pane on the right shows the state of the objects involved in the test, including 'placeOrderMessage', 'relationProxyRegistry', and 'order'.

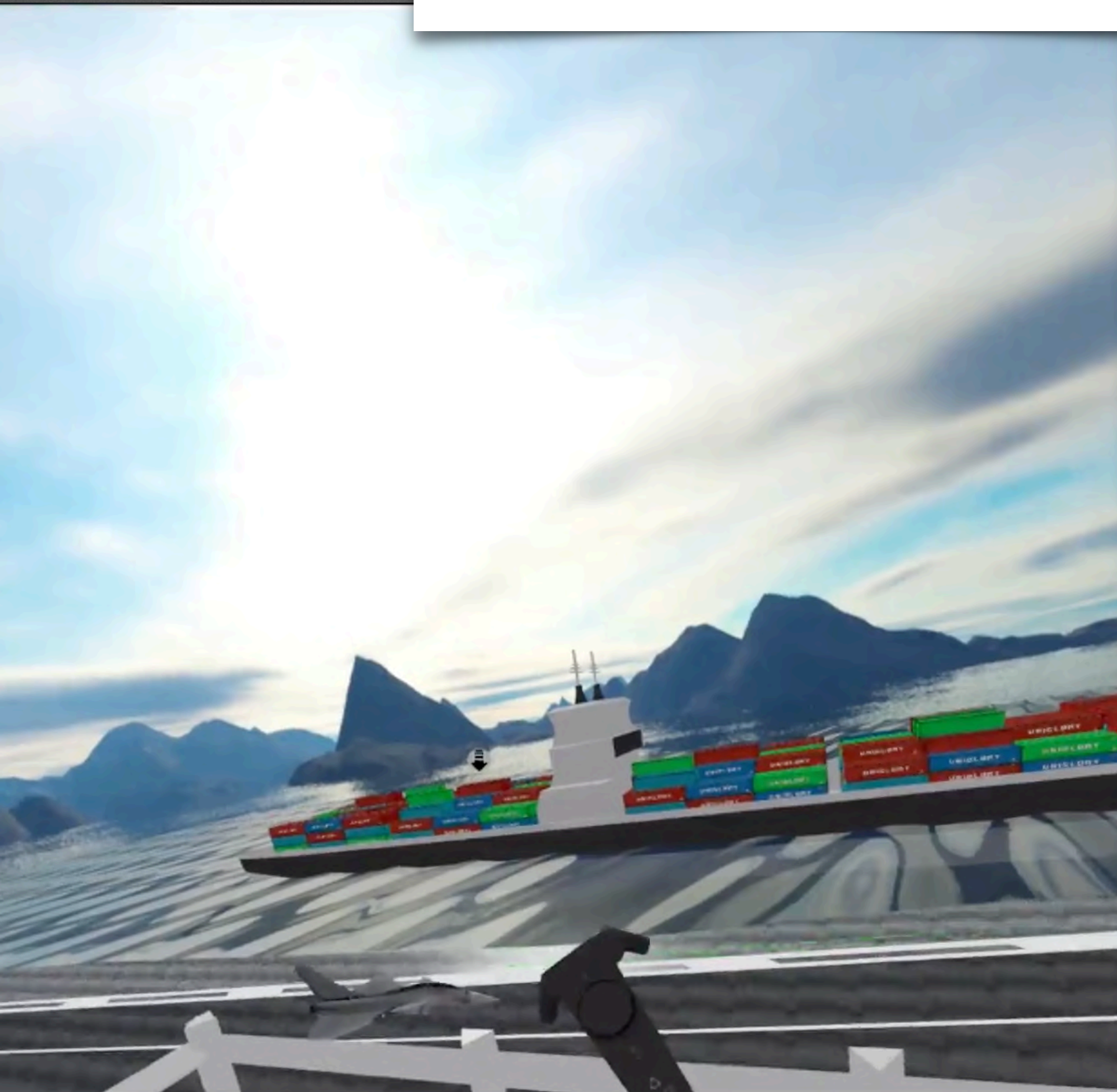
feenk

glamorous**toolkit**

feenk.co
m/gt

Build advanced tools for business experts
and CEO of large companies

Thales prototyping VR



Pharo

Playground

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

OVRWDemoAircraftCarrier

Scoped Variables

Type: Pkg1/*Pkg2/Pk

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

ProtoObject

- Object
- WDAApplication
- WDFPSEExample
- OVRWEmptyExample
- OVRWExample
- OVRWDemoAircra
- OVRWDemoPickir
- OVRWExampleCol

Hier. Class Com.

History Navigator

- all --
- event handling
- initialize
- menu
- scene content
- updating
- addAbeilleBourbon
- addBarrel
- addBoxes
- addCargo
- addCharlesDeGaulle
- addHawkeye
- addHelicopter
- addObjectAt:orientation:
- addPlayableAreaToScene
- addRadar

Controls:

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

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 1/3 [1]

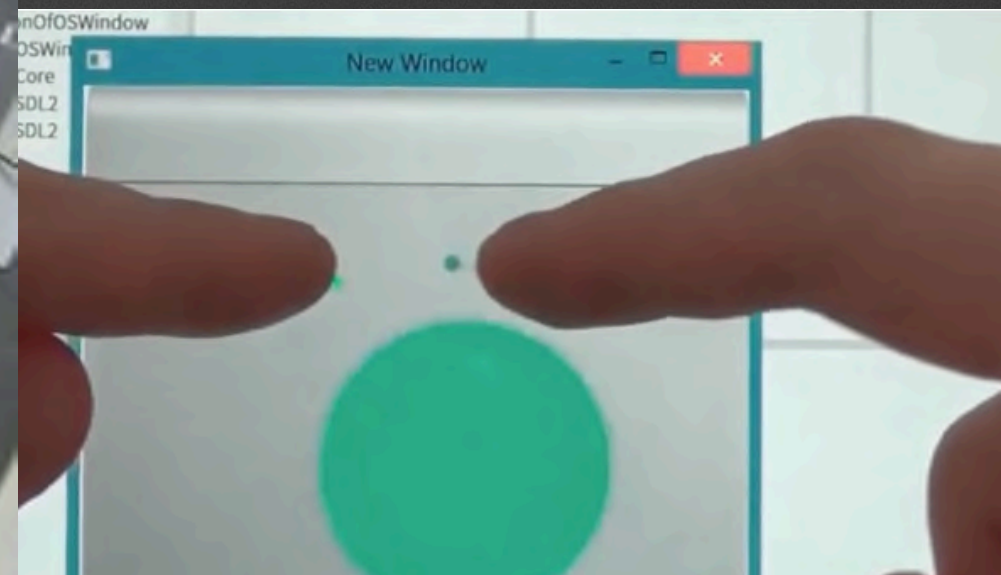
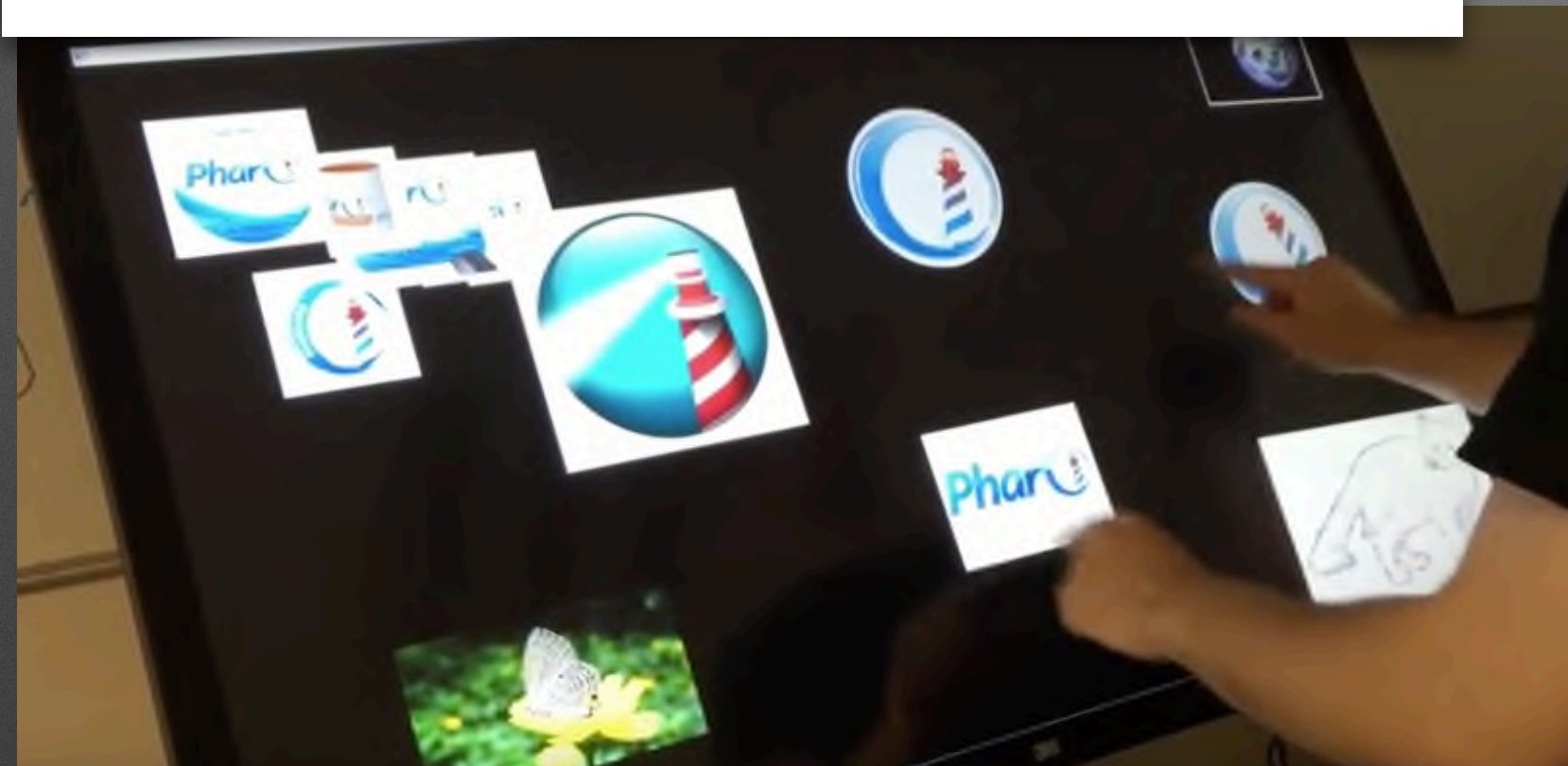
Class not referenced ? X

[dynamicsWorld] Instance variables not read AND written ? X

[dynamicsWorld] Variables not referenced ? X

OVRWDemoAircraftCarrier Playground


Thales prototypes advanced interaction design




Mobility Map: a broker for mobility services


multi-modal routing search

docker running dozens of pharos


 My Bookings


AIRBUS


smart forfour
29. Sep 2018 15:00 until 29. Sep 2...



AIRBUS


smart forfour
29. Sep 2018 15:00 until 29. Sep 2...



AIRBUS

Opel Astra Kombi
28. Sep 2018 08:45 until 28. Sep 2...

 Search
Plan Trip

 My Bookings
Add and send tickets

 My Account
Manage linked accounts

 Help and Information
FAQ, Service and Contact

en de

Outbound
From: Kreetzlag 10 21129 Hamburg
To: Bremen
Departure: 29. Sep until 17:10

13:30
Shuttle bus
1004
Bus Finkenwe...

15:10
Ridesharing
H. 9

15:15

16:23
CarPool
A (Kleinwagen)
H. 214

16:32
CarPool
A (Kleinwagen)
H. 14 W [OWN]

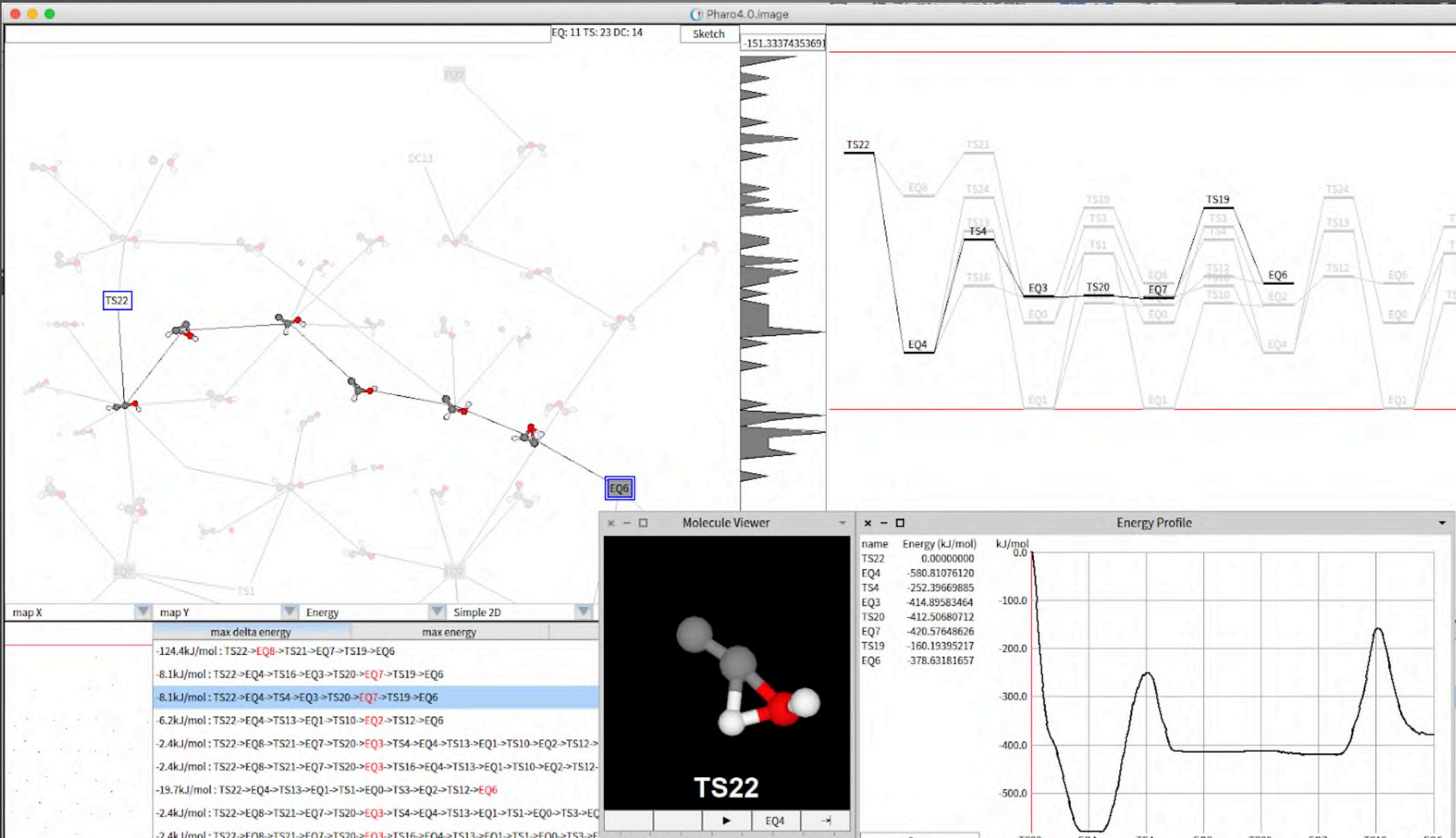
16:34
CarPool
A (Kleinwagen)
H. 9

16:39
CarPool
A (Kleinwagen)
H. 62

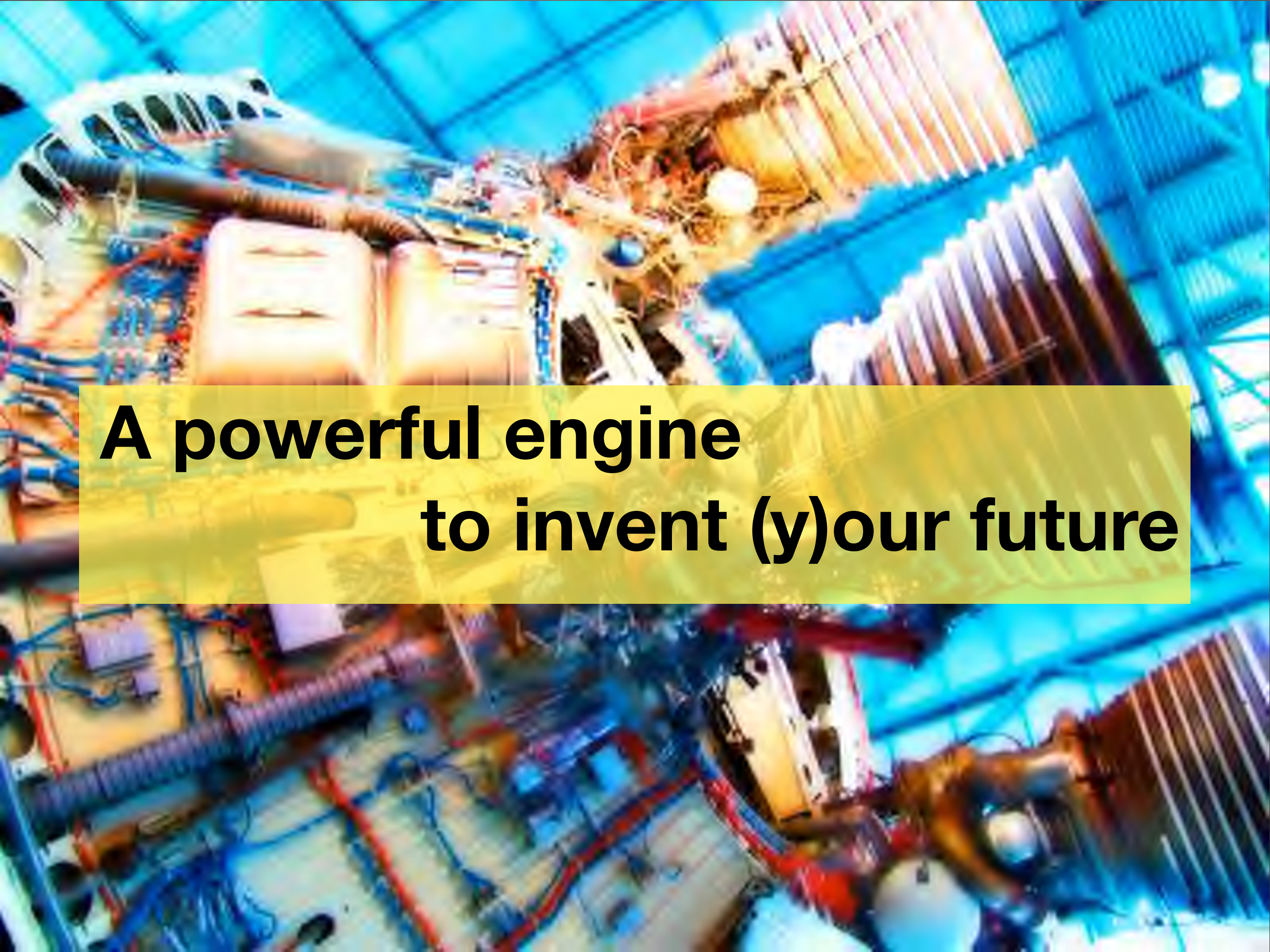
17:06
CarPool
A (Kleinwagen)
H. 50/51

16:45
Shuttle bus
1006
Bus Finkenwe...


RMap Chemical viewer



Remember? Our goal...



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



**An ecosystem where
innovation/business bloom**

You are not alone...

Industrial consortium

<http://consortium.pharo.org>

JPMORGAN
CHASE & CO.



SCHMIDT
Ingenieurbüro für Bauwesen



feenk



ZWEI DENKER

THALES



projector
software

inspired!

BetaNine
software engineering



SORABITO

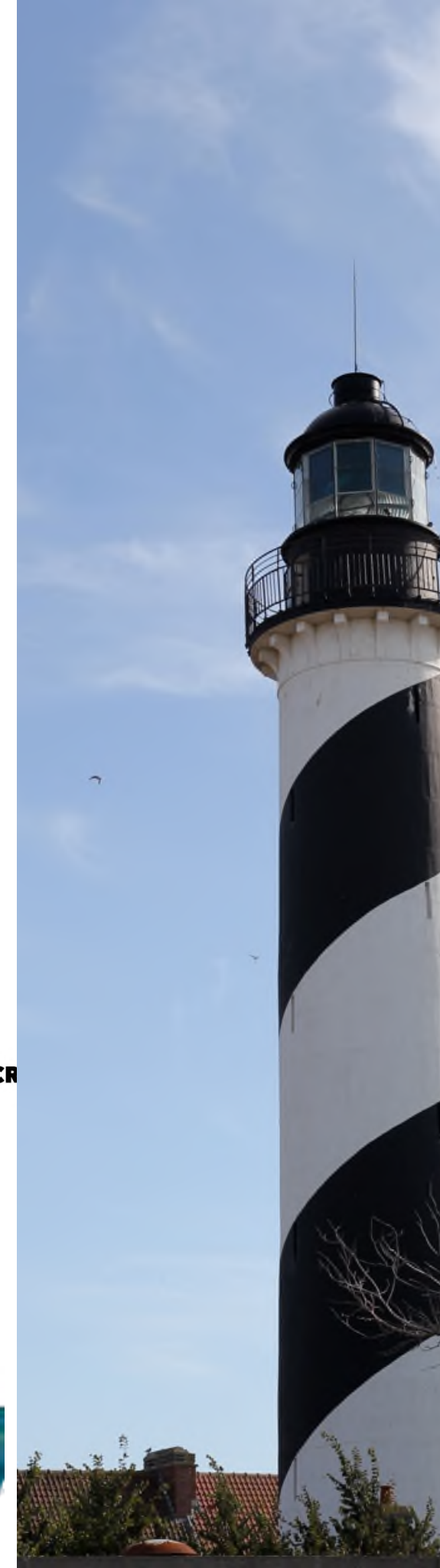
knowroaming

TA MÈRE^{SCR}
BADASS MOBILE DEVELOPMENT

Systems that make sense
Sensus



Yesplan
Let's make it happen



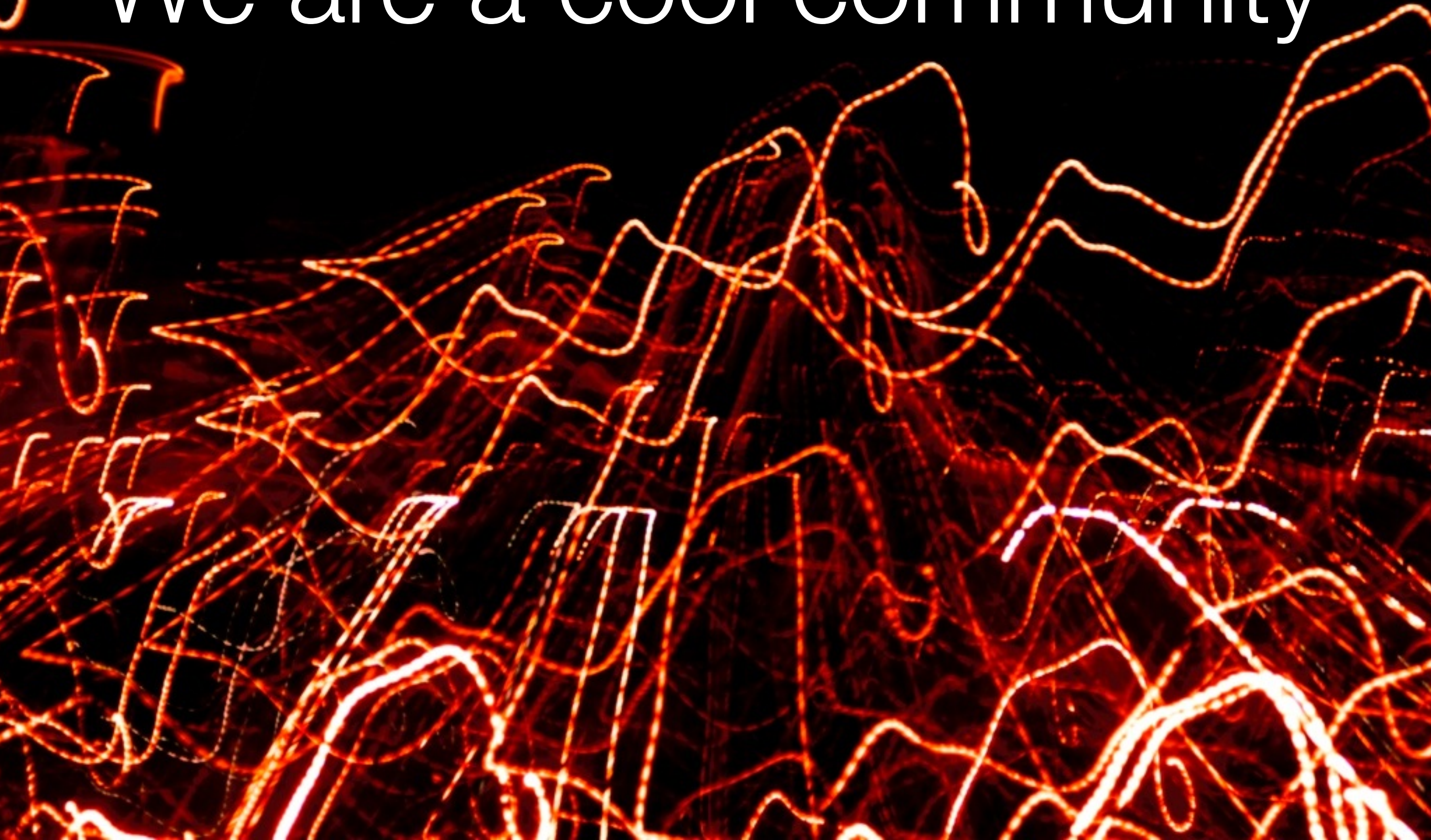
No marketing

No hype

Adults deciding to use

**Understanding strengths and
weaknesses**

0 We are a cool community



More Pharo's Teachers

- Univ. of NoviSad • 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. • CULS Prague
- 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. of Yaounde • Uni. of Saint-Louis • INFTI • Uni. of Lyon • Univ. Montpellier • Uni. of Cordoba • Uni. of Yamanashi Gakuin

Research Groups

Lafhis (AR)

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)

SRA (Jap)

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 Modeling =
Focus on your domain**

**Amazing moldable
tools**

**Customize object
interaction/presentation
to focus on YOUR
domain**

×

−

□

Playground

Page

▶

↔

📄

☰

a RWView

✎

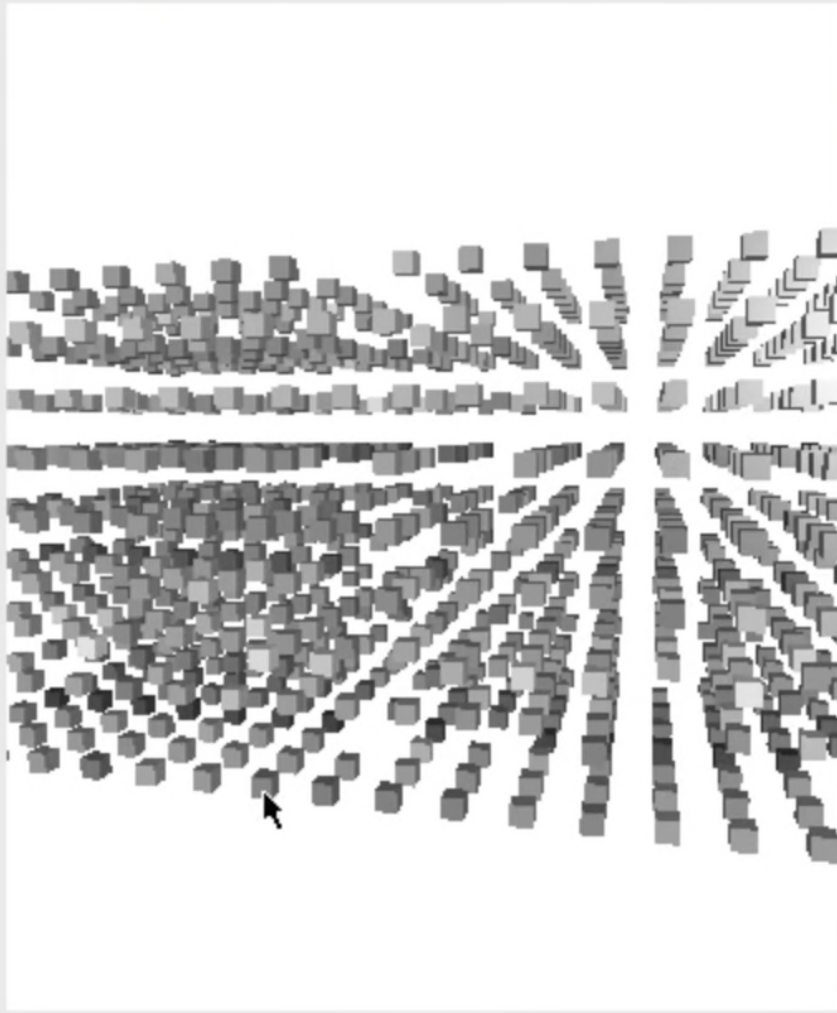
🔍

data := TestData new data.

cube := MatrixCube new initWithData: data.

cube view

RawLiveMeta



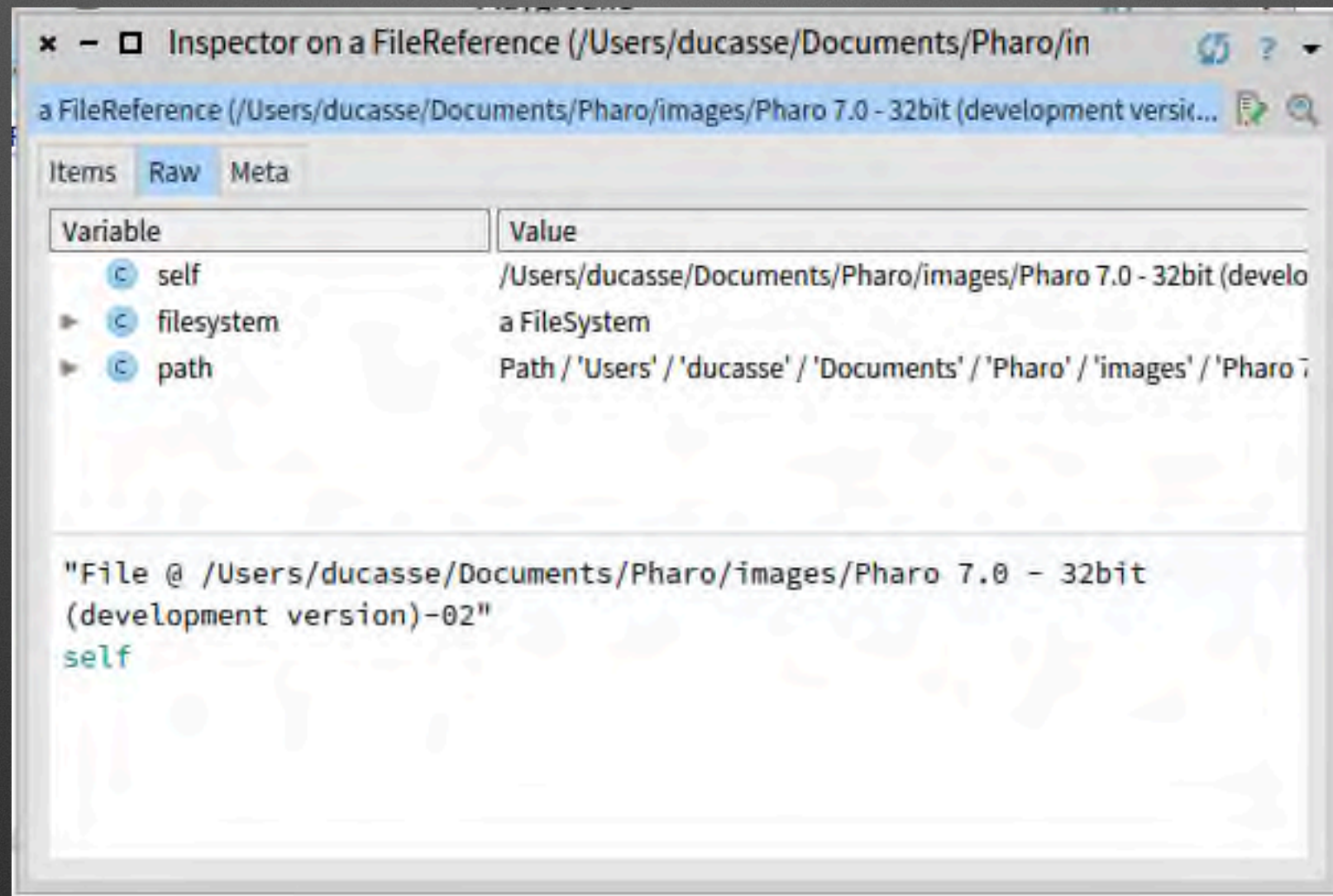
an Array [4 items] ('2000-01-01' 'Malawi' 'France'... ×

ItemsRawMeta

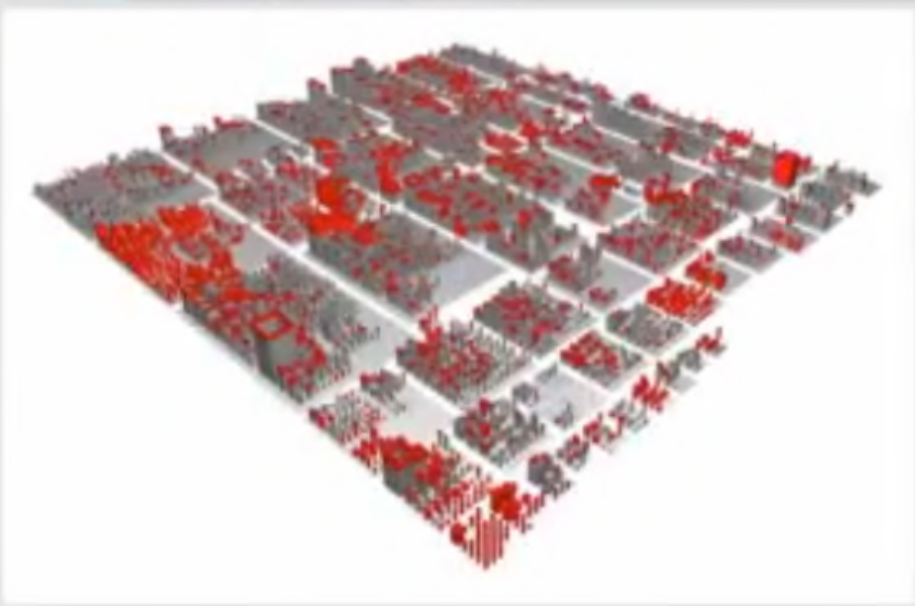
Index	Item
1	'2000-01-01'
2	'Malawi'
3	'France'
4	'400.0'

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

Traditionally a file reference...



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



Inspector on a DiceHandle class (DiceHandle)

a MethodDictionary [5 items...]

It... Ke... Raw Meta

Key	Value
#add:	DiceHandle>
#initialize	DiceHandle>
#dices	DiceHandle>
#+	DiceHandle>
#roll	DiceHandle>

Quick selection field. Given your

a CompiledMethod (DiceHan...]

... E... S... Ir A... Hε... Me...

- ▼ RBMethodNode(+ anHandle |
RBArgumentNode(anHandle)
- ▼ RBSequenceNode(| hn | hn :=
RBTemporaryNode(hn)
- ▼ RBAssignmentNode(hn := D
 ▶ RBMessageNode(DiceHar
 RBTemporaryNode(hn)
- ▶ RBMessageNode(self dices
- ▶ RBMessageNode(anHandle
- ▶ RBReturnNode(^ hn)

a RBAssignmentNode (RBAs...]

F... S... Tr... Scc... Meta

+ anHandle

```
| hn |  
hn := DiceHandle new.  
self dices do: [ :aDice | hn  
add: aDice ].  
anHandle dices do: [ :aDice |  
hn add: aDice ].  
^ hn
```


Osoco example

- Designed Data Structures (Bloom filter sets)
- And tools to understand them too
- <https://osoco.es/thoughts/2019/05/understanding-bloom-filters-with-pharo-smalltalk/>

Add elements

a PDSBloomFilter

Write the text you want to add to the filter.

e.g. Madrid

Add

Membership test

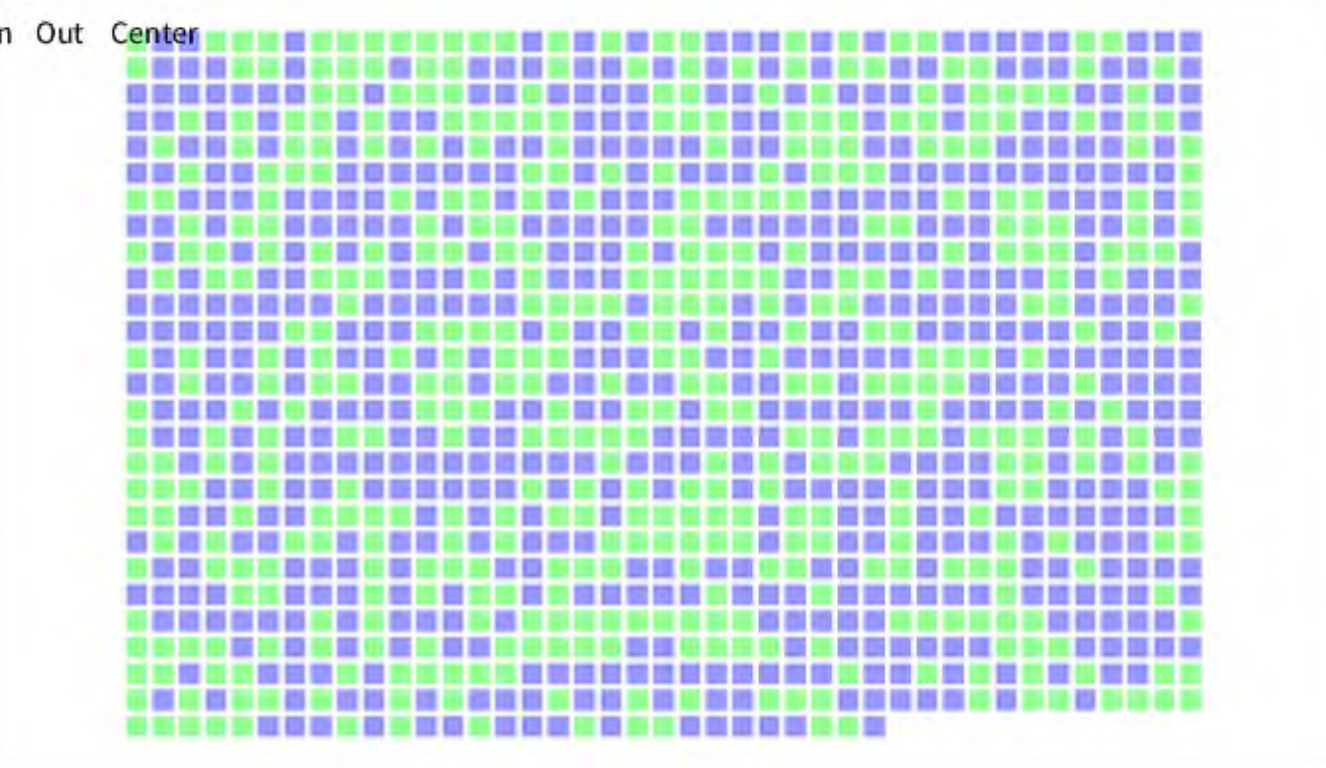
Check if a given text is a member of the filter.

E.g. London

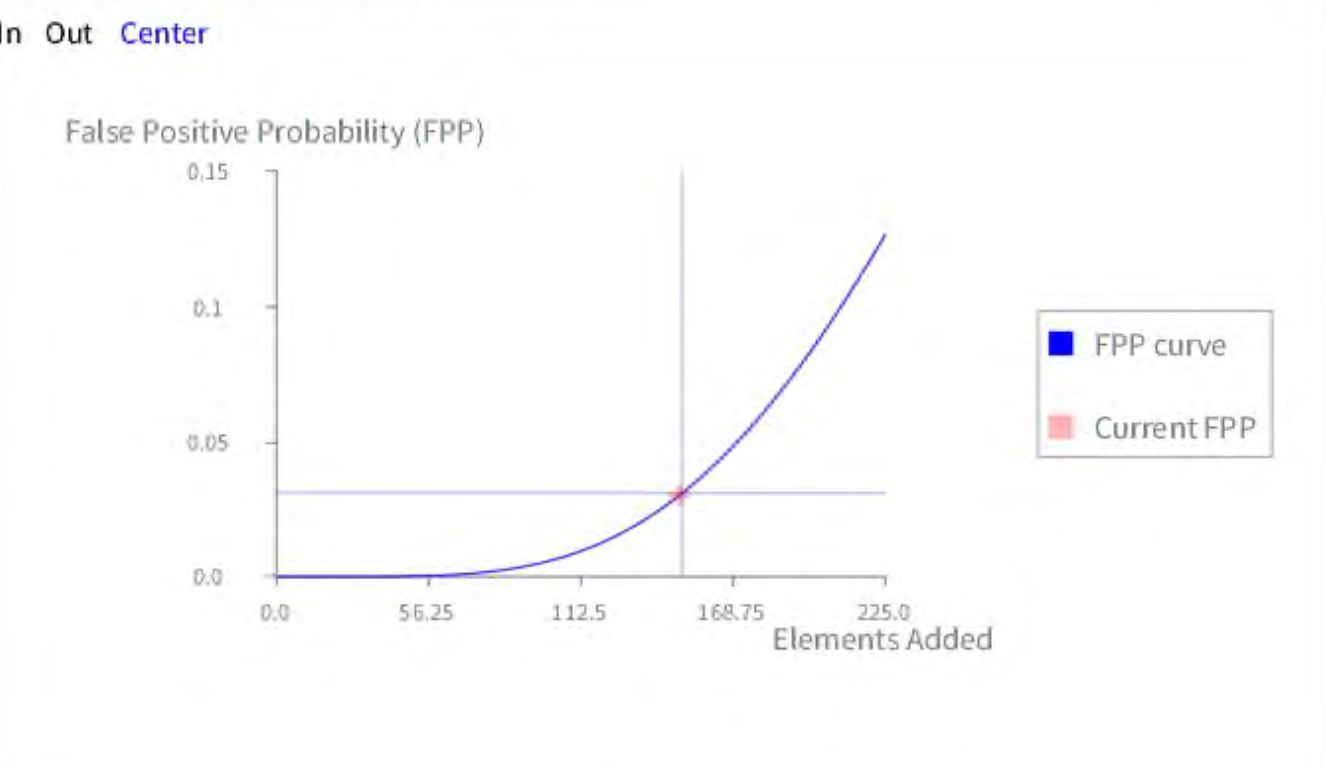
Test

Parame...	FPP Cui...	Storage...	Storage...	Raw	_GT	Meta
Name		Value				
'Target Elements (n)'		150				
'Target FPP'		0.03				
'Number of hashes (k)'		6				
'Current Elements'		149				
'Current FPP'		0.03018496391312043				

Bloom Filter BitSet



False-Positive Probability Curve



**Hot update on the spot
customizable debugger**

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 ActionInto ReduceNext TokenPossible Actions

GLR

Symbol	Value	Symbol	Action
Expression	a JSUnaryExpressionNode	<identifier>	Shift
"{"	{(238498,238498,#(23))}	IdentifierName	Shift
StatementList	an OrderedCollection(a JSExpressionStatementNode a JS		
"{"	{((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))}		

Input

Step to CursorScannerStep Next Character

```
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){
```

Name	Value
State	default

Stack

ProceedRestartIntoOverThroughSourceWhere is?Browse

JSParser(SmaCCGLRParser)	performParsingStep
JSParser(SmaCCGLRParser)	performParsingLoop
JSParser(SmaCCParser)	parse
JSParser class(SmaCCParser class)	parseStream:startingAt:
JSParser class(SmaCCParser class)	parseFile: [self parseStream
BlockClosure	ensure:
JSParser class(SmaCCParser class)	parseFile:
UndefinedObject	DoIt
CompiledMethod	valueWithReceiver:arguments:
RubSmalltalkEditor	debug:receiver:in: [aCompiledMetho
BlockClosure	newProcess [self value.Proce

```
self restoreState: currentState.
(trialAllStates 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 8.0 - ...114 committers (already more...)

Pharo 7.0 - Feb 2019 75 committers (2142 closed)

Pharo 6.0 - Apr 2017 100 committers (1700 issues closed)

Pharo 5.0 - Apr 2016 90 committers (1600 issues closed)

Pharo 4.0 - Apr 2015 70 committers (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)

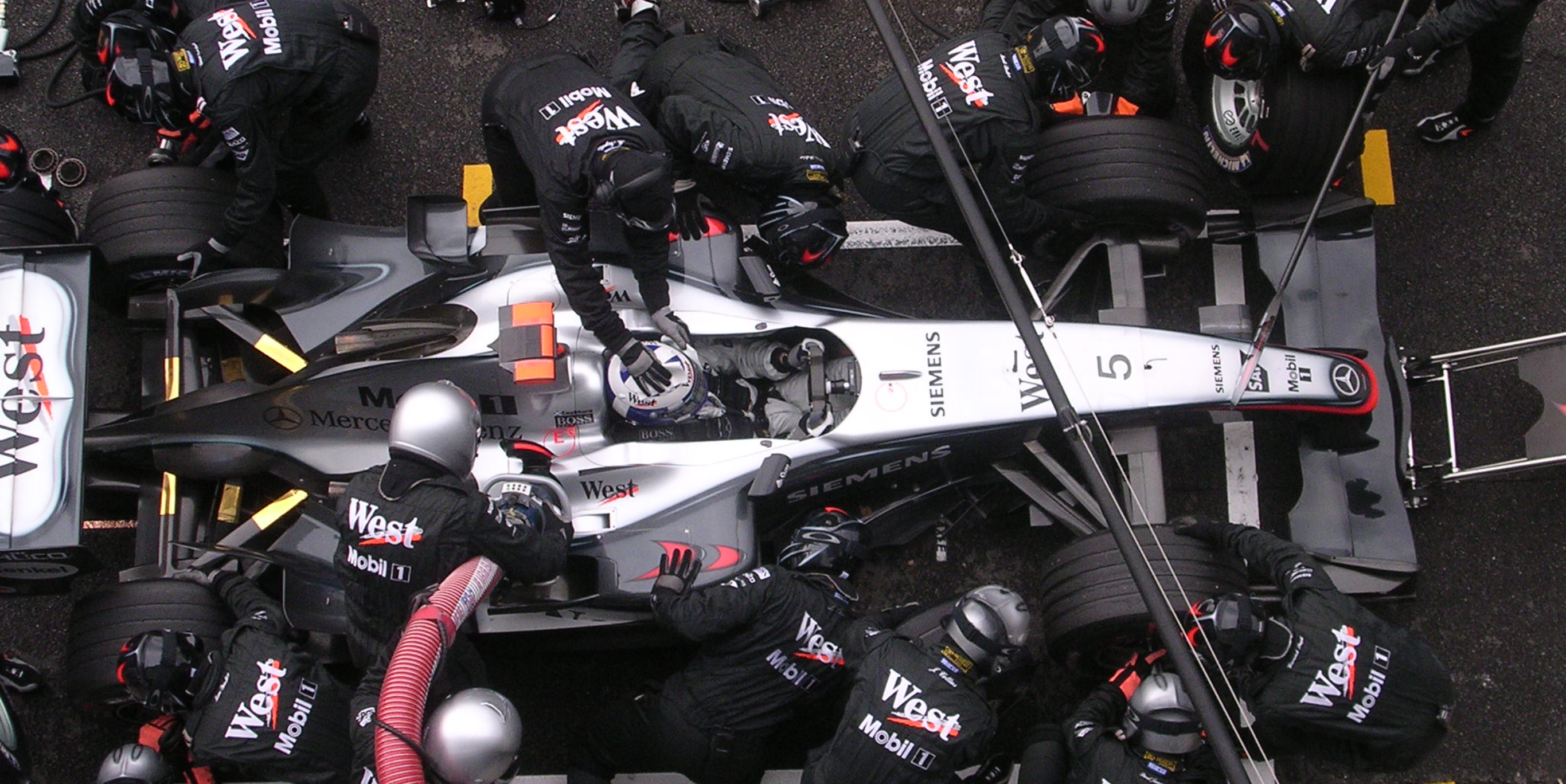
Pharo 1.3 (700 updates)

Pharo 1.2 - mar 2011 (500 updates)

Pharo 1.1 - jul 2010 (410 updates)

Pharo 1.0 - oct 2009 (470 updates)





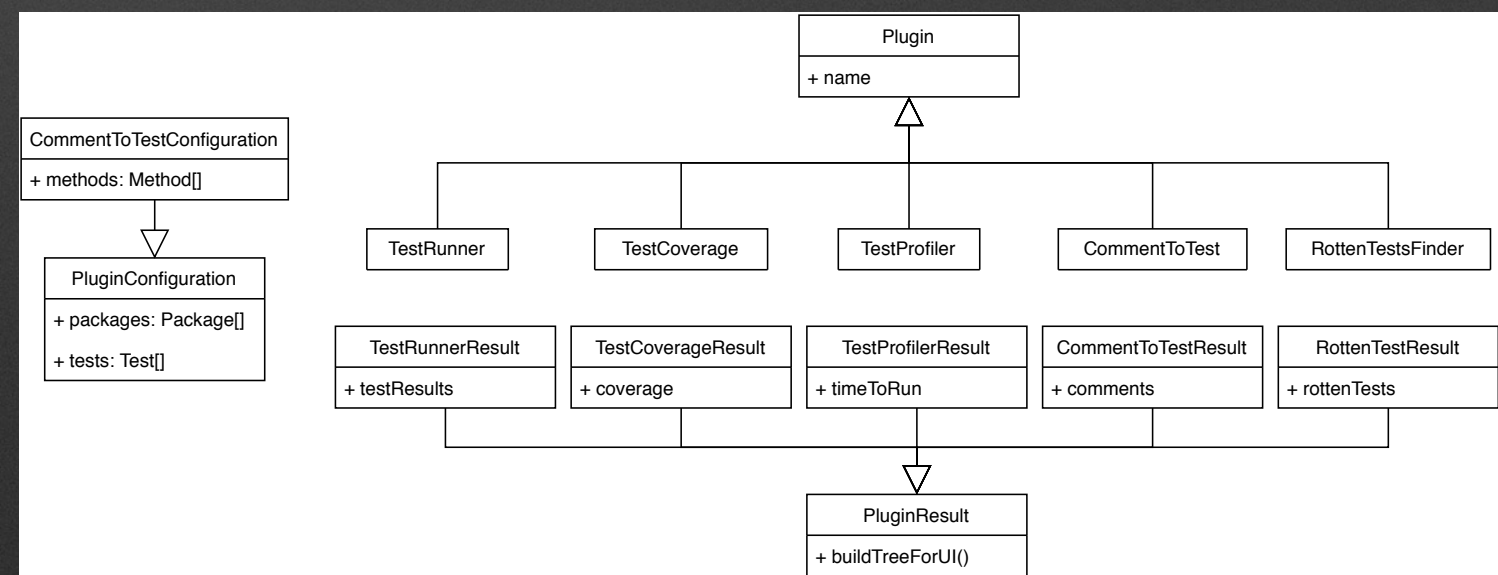
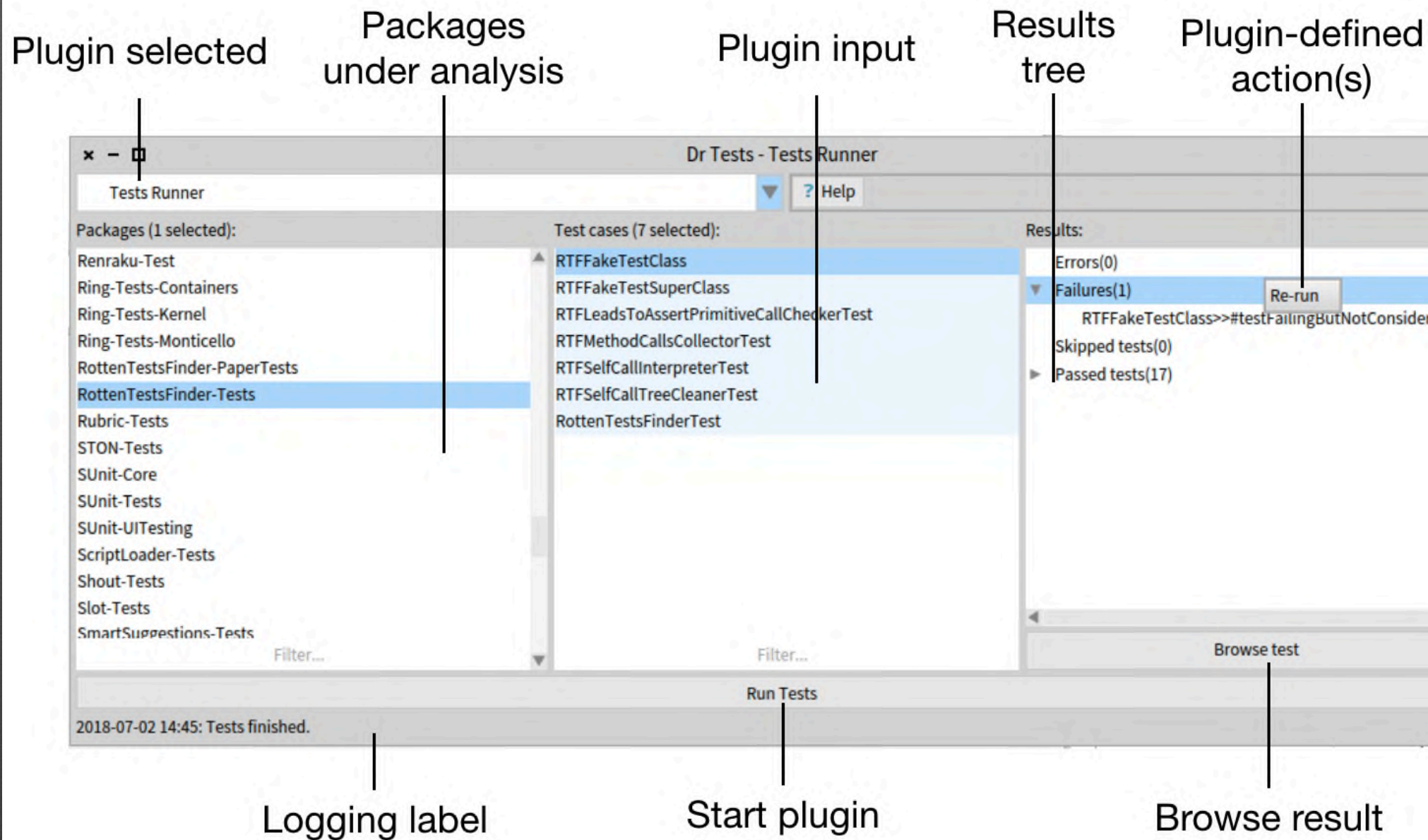
Pharo is our vehicle
We improve it everyday

Pharo 8.0 & 9.0

**If it has no tests....
it does not exist.**

Dr. Test (1987 - ...)





Spec20: UIBuilder

- Large cleanup
- New widgets
- Layouts
- Multiple back ends (Morphic, GTK30)

Testing Spec

- Many tests
- Parameterized (same for Morphic and GTK30)



Presenters

Layouts


Widgets

Adapters

Headless: true server version

- For real, no UI when no need it
- SDL back-end
- Embeddable

Consortium agenda

 Spec v2.0  8

 Better FFI Infrastructure  8



 Better windows
integration  8

 Basic encryption  8



 Zip  8



Consortium agenda



 File primitives performance on Windows  8

 cmd+dot not working in all cases  9

 Parallel processing (not just parallel testing, which can be resolved at image side)

 Memory management and general command line usability/ documentation  8

 GC stops 2-3min for fullGC (in large images)  9

 Parallel testing  9

 Refactorings  8

 Degradation in performance  8

 Latency (on spotter and completion), remarkable in large images.  8

 Quality rules on big classes/ images  8

 Headless Multiple windows  8

New debugger (Preview)

- Object-centric
- Replay subexpr
- Sindarin: Scriptable DIY
- Chest (to store your little objects)

Object-centric debugging

- Debugging operations at the level of objects
 - Only target objects are affected
- Examples:
 - A breakpoint active for one object only
 - A method available for one object only

Object-centric breakpoints

- Break when a message is received
 - **haltOnCall** => on every method call
 - **haltOnCall: #selector** => for given selector only
 - **haltOnNextCall** => on next method call
 - **haltOnceOnCall: #selector** => only once for given selector
 - **haltOnCallWhen: condition** => if condition is met

Object-centric breakpoints

- Break on state access
 - **haltOnWriteTo: #instVarName** => when instVarName is written
 - **haltOnRead: #instVarName** => when instVarName is read
 - **haltOnWrite** => when any instance variable is written
 - **haltOnRead** => when any instance variable is read

Reverse object-centric debugger

Who's working on it?

- **AST interpreter** - Carolina Hernandez Phillips
- **Reverse-execution** - Vincent Aranega, Steven Costiou
- **Object-centric debugger** - Steven Costiou
- **Scriptable debugger** - Thomas Dupriez

Vision for Pharo

Smaller/Cleaner

- Removing more duplicated functionality
- Cleaner architecture
- More modular
- Tested



Better tools

- Next generation debuggers
- Customisable

VM

- More tests / better build system
- Learning VM project
- P10: getting rid of the polling event loop

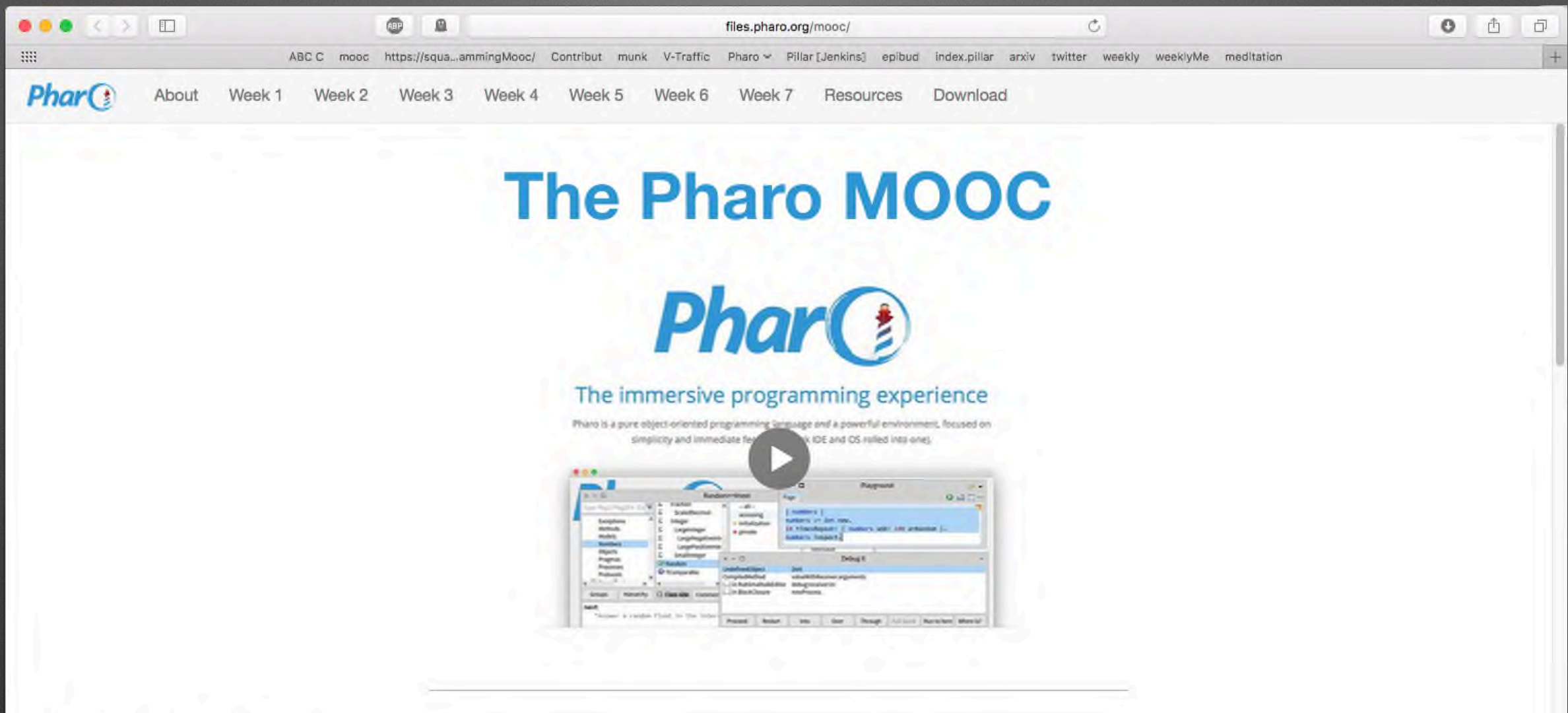
Graphics for real

- Bloc as a new bottom layer
- New widget sets

Pharo

is yours

<http://mooc.pharo.org>



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:

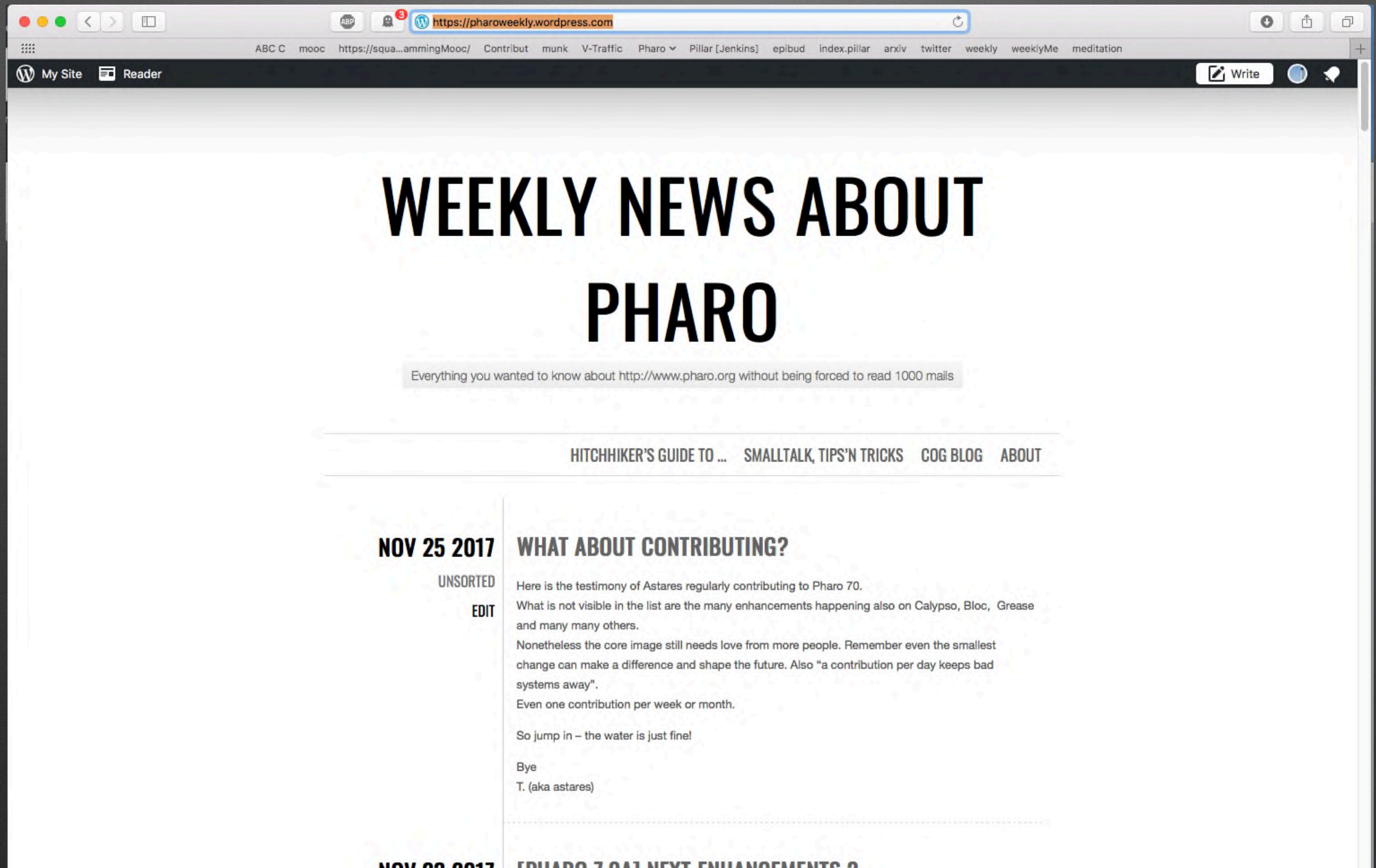
http://discord.gg/Sj2rhxn

The screenshot shows a Discord server named 'Pharo'. The left sidebar contains a list of channels: 'FOR NEW USERS' (with a sub-channel 'learning-help'), 'mooc' (selected), and a 'PHARO' section with channels 'general', 'development', 'offtopic', 'iceberg', and 'bootstrap'. Below these are 'LIBRARIES' with channels 'databases', 'polymath', 'roassal', 'roassal-scriptoftheday', 'seaside', 'moose', 'bloc', 'ai', and 'ai-scriptoftheday'. The main chat area is for the '#mooc' channel, showing a message history starting from 9:59 AM on November 23, 2017. The messages are as follows:

- akgrant0710** (Last Saturday at 11:21 AM): dict includesKey: 'a key'
Take a look through the testing protocol of Dictionary (and superclasses)
- Peter Uhnak** (Last Saturday at 11:26 AM): @Marek Erben especially at::ifPresent:, at::ifAbsentPut: & co.
- Marek Erben** (Last Saturday at 1:14 PM): Yeah, thank you @Peter Uhnak
One more question - is there some simple way to remove one occurrence of item in Bag collection?
- Peter Uhnak** (Last Saturday at 1:34 PM): remove: should do it
- Marek Erben** (Last Saturday at 1:35 PM): But it removes all the occurrences of item, doesn't it?
- Yani** (Last Saturday at 2:20 PM): as in script of the day >url>
- Peter Uhnak** (Last Saturday at 2:36 PM): @Marek Erben did you try? 😊
trying is for free 😊 (edited)

The right sidebar shows the server's member list, categorized into 'ADMIN—3' (Esteban Lorenzano, Juraj Kubelka, kilon), 'CHANNEL-ADMIN—7' (Alexandre Bergel, Clement Bera, PhilBack, Stepharo, Torsten Bergmann ..., Tudor Girba, Yuriy Tymchuk), and 'ONLINE—42' (akgrant0710, AlejandroInfante, awarenghem, Benoit Verhaeghe, and others). The bottom of the interface shows the user 'Stephano' and a message input field for '#mooc'.

https:// pharowebly.wordpress.com



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