Promises and Perils of Porting Software Visualization Tools to the Web

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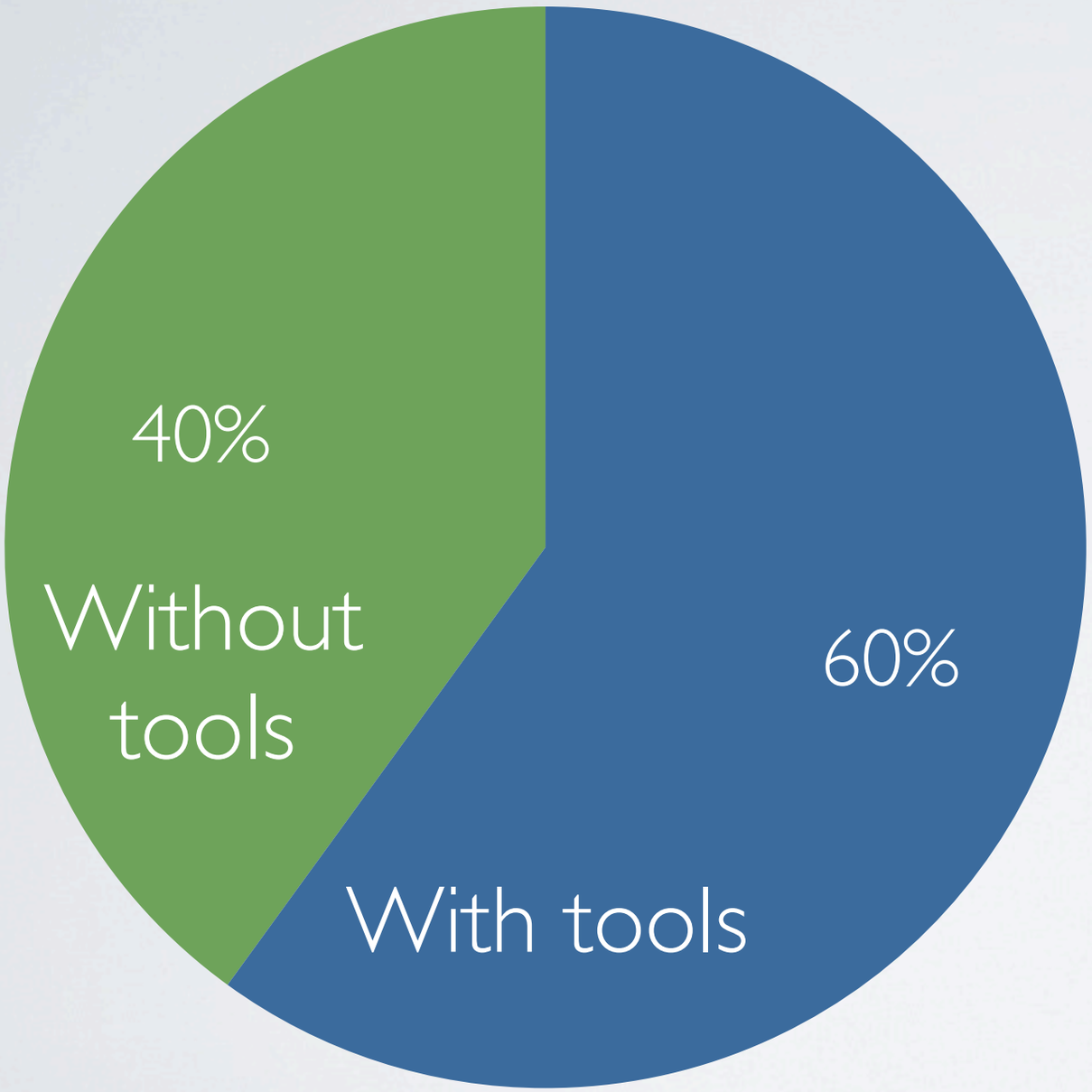
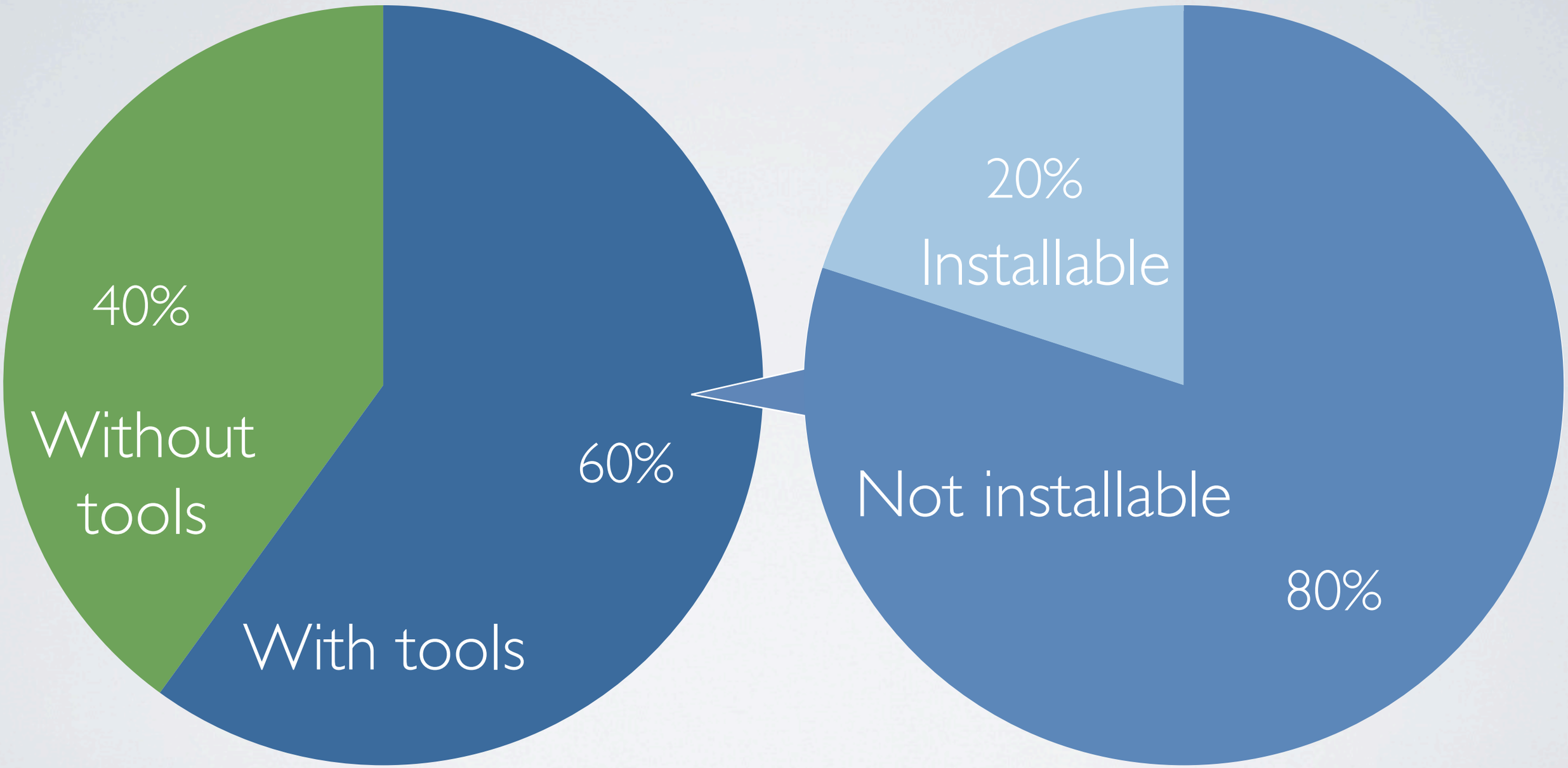
REVEAL @ University of Lugano

TOSEM: 2000-2008



Source: ICSE keynote 2009

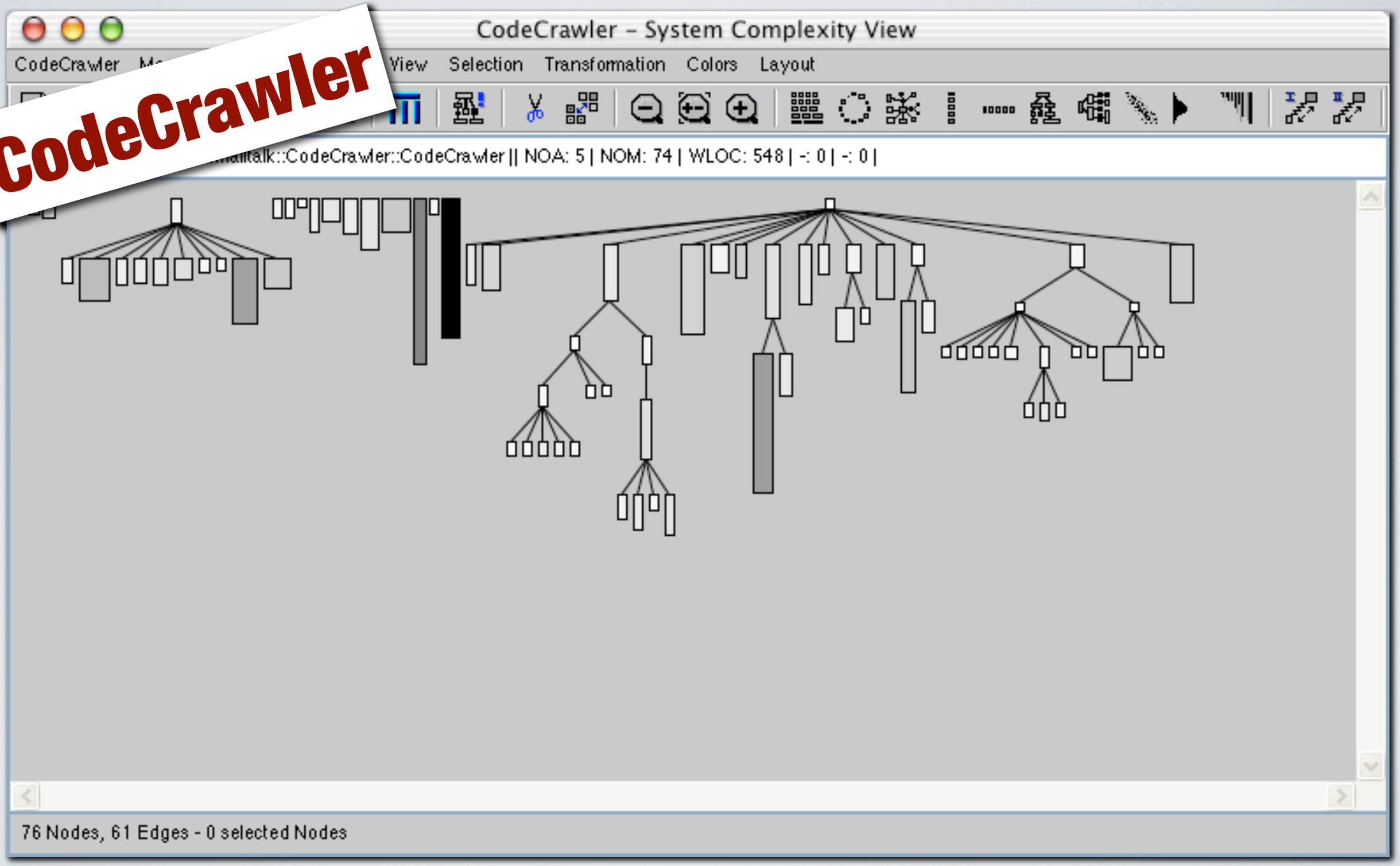
TOSEM: 2000-2008



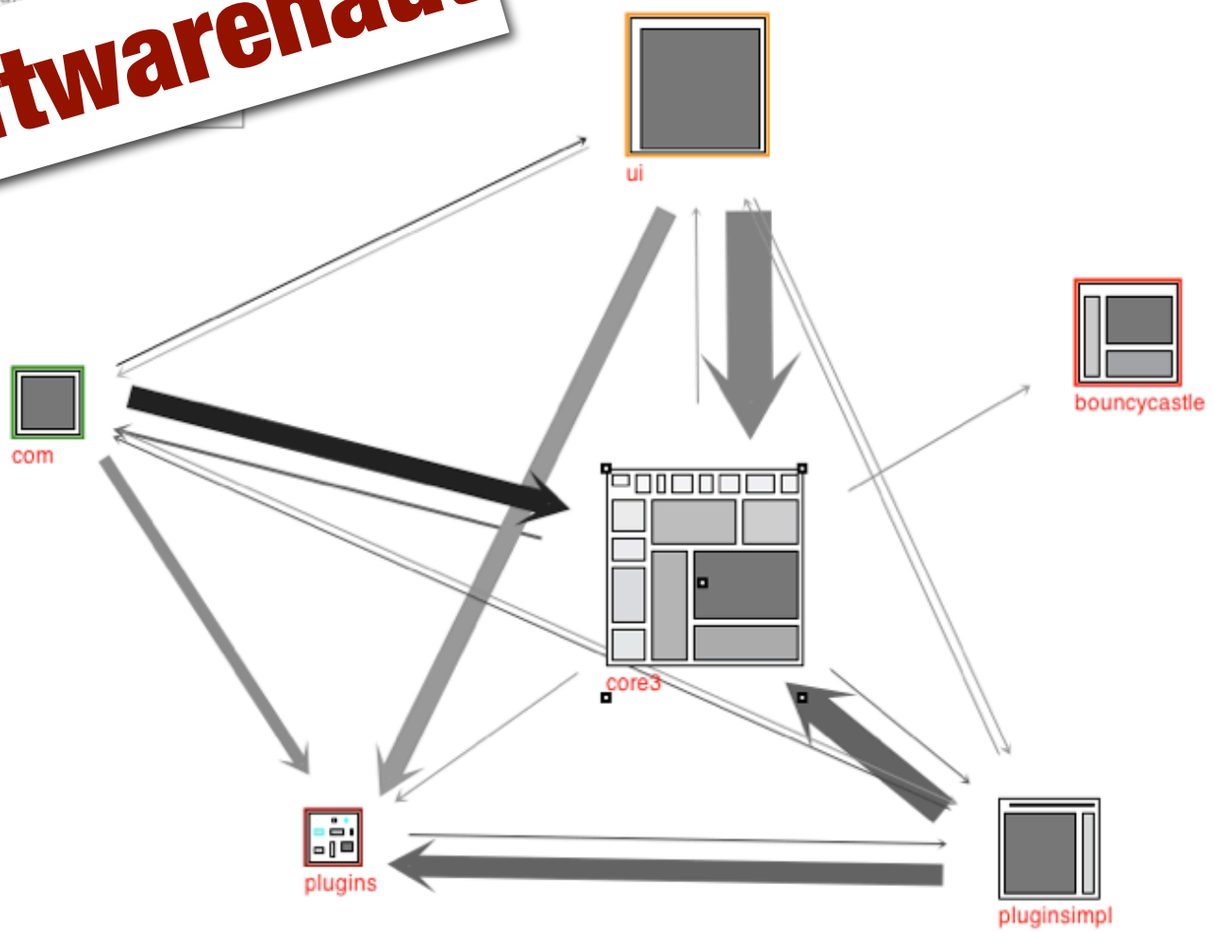
Source: ICSE keynote 2009

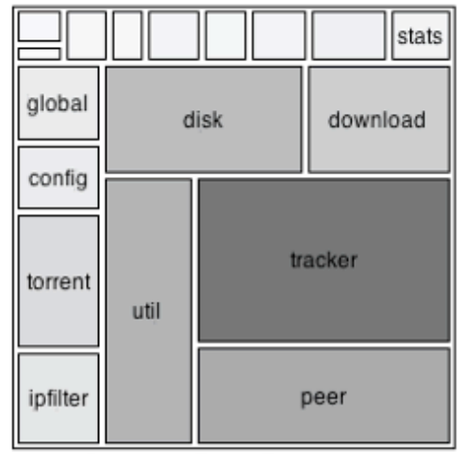

Mmmhh...
What about porting the tools to the web?

CodeCrawler

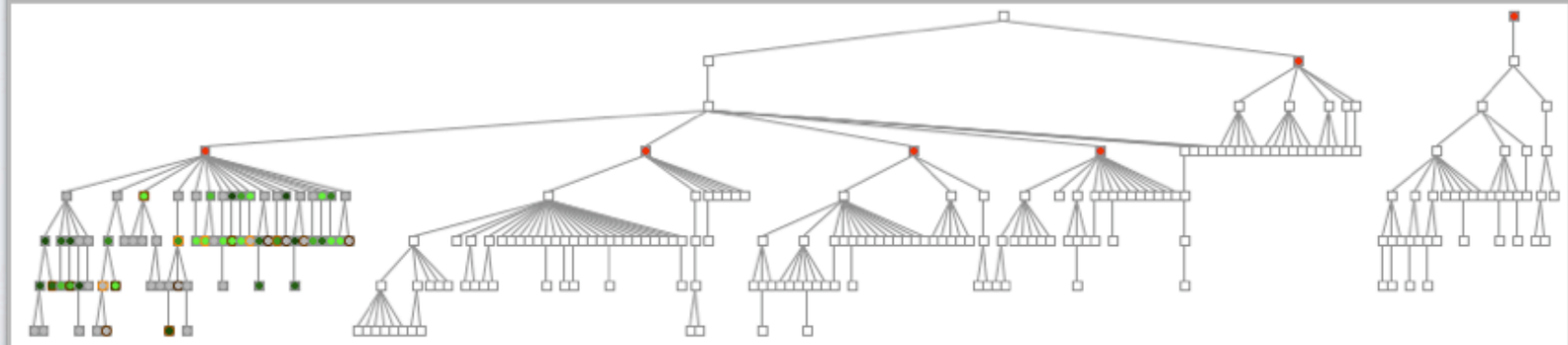


Softwarenaut



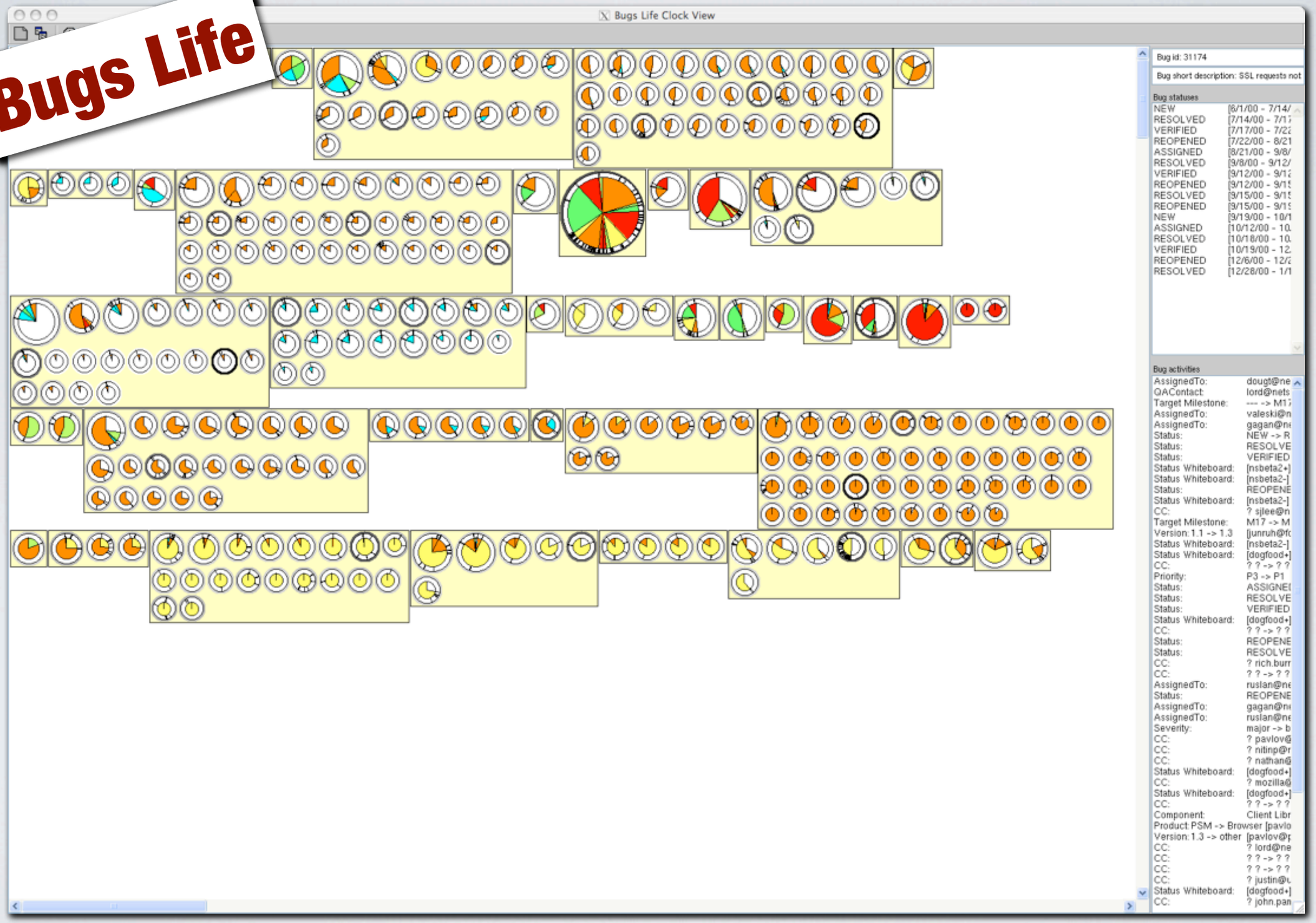


org::gudy::azureus2::core3

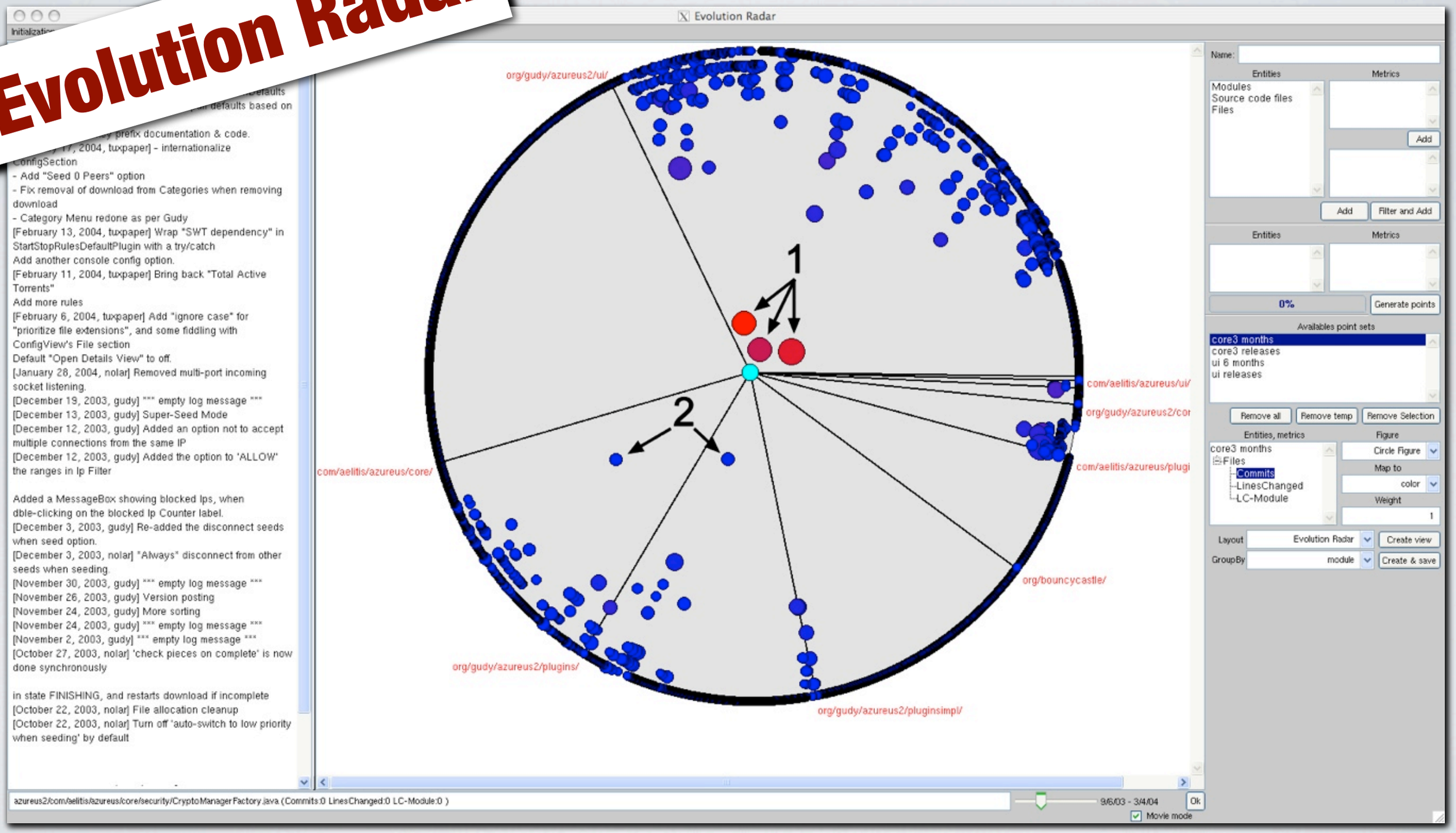


Property	Value
-	0
ConsumerClasses	0
ConsumingProviderCla	0
IncomingInvocations	0
InvocationsFON	3524
InvocationsTON	0
InvokedFONMethodCo	570
InvokedMethodsFONP	0.151113
Name	#core3
NamespaceStability	100
NOA	0
NOCIs	0
NOM	0
OutgoingInvocations	0
ProviderClasses	0
RMC	3772
UniqueName	#'org::gudy::azureus2::c
WNOS	0

Bugs Life


Bugs Life Clock View
Bug id: 31174
Bug short description: SSL requests not
Bug statuses
NEW
RESOLVED
VERIFIED
REOPENED
ASSIGNED
RESOLVED
VERIFIED
REOPENED
RESOLVED
REOPENED
NEW
ASSIGNED
RESOLVED
VERIFIED
REOPENED
RESOLVED
Bug activities
AssignedTo:
QAContact:
Target Milestone:
AssignedTo:
AssignedTo:
Status:
Status:
Status:
Status Whiteboard:
Status Whiteboard:
Status:
Status Whiteboard:
CC:
Target Milestone:
Version: 1.1 -> 1.3
Status Whiteboard:
Status Whiteboard:
CC:
Priority:
Status:
Status:
Status:
Status Whiteboard:
CC:
Status:
Status:
CC:
CC:
AssignedTo:
Status:
AssignedTo:
AssignedTo:
Severity:
CC:
CC:
CC:
Status Whiteboard:
CC:
Status Whiteboard:
CC:
Component:
Product: PSM -> Browser
Version: 1.3 -> other
CC:
CC:
CC:
CC:
Status Whiteboard:
CC:

Evolution Radar



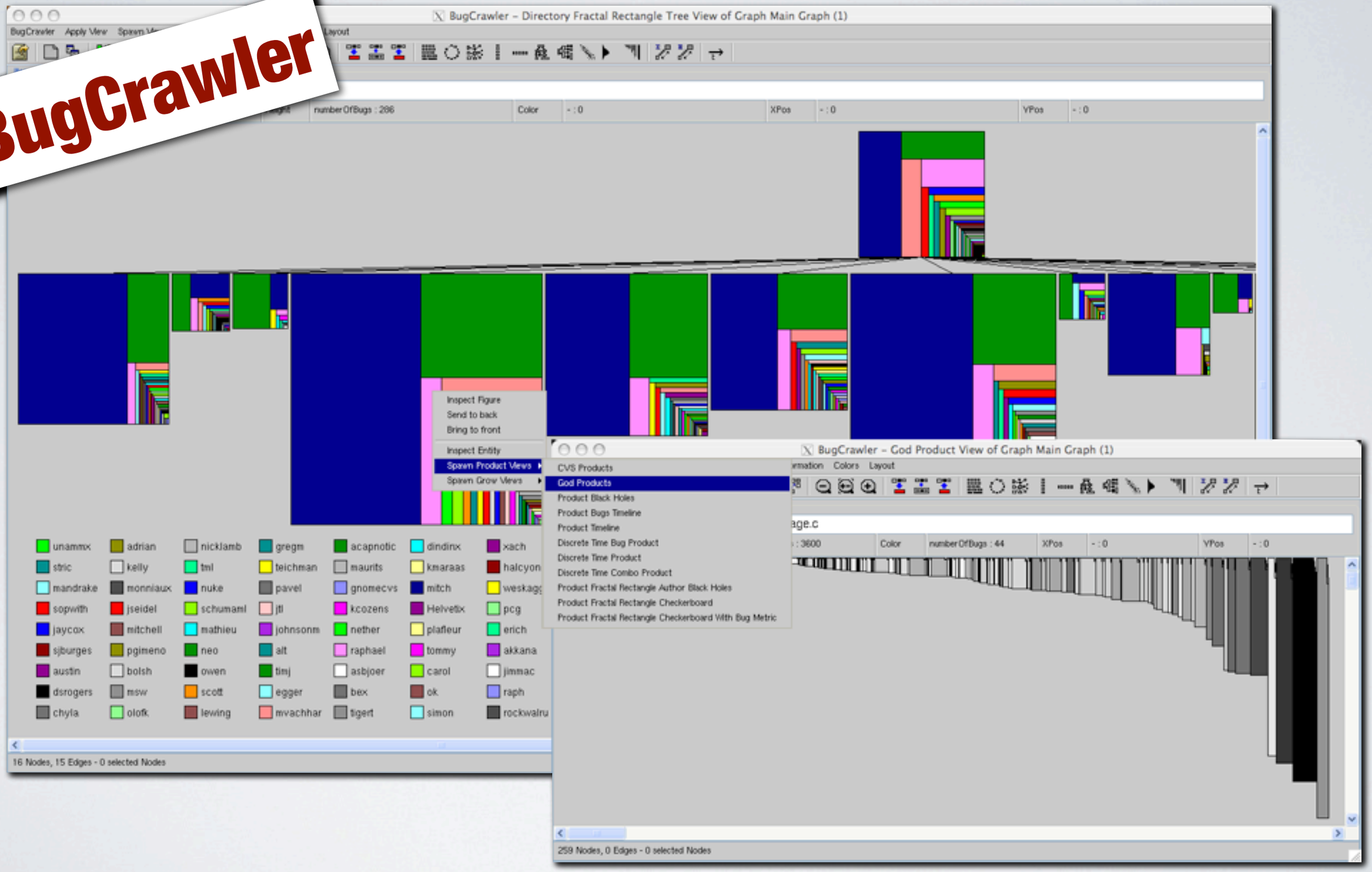
- Add "Seed 0 Peers" option
- Fix removal of download from Categories when removing download
- Category Menu redone as per Gudy

[February 13, 2004, tuxpaper] Wrap "SWT dependency" in StartStopRulesDefaultPlugin with a try/catch
Add another console config option.
[February 11, 2004, tuxpaper] Bring back "Total Active Torrents"
Add more rules
[February 6, 2004, tuxpaper] Add "ignore case" for "prioritize file extensions", and some fiddling with ConfigView's File section
Default "Open Details View" to off.
[January 28, 2004, nolar] Removed multi-port incoming socket listening.
[December 19, 2003, gudy] "" empty log message ""
[December 13, 2003, gudy] Super-Seed Mode
[December 12, 2003, gudy] Added an option not to accept multiple connections from the same IP
[December 12, 2003, gudy] Added the option to 'ALLOW' the ranges in Ip Filter

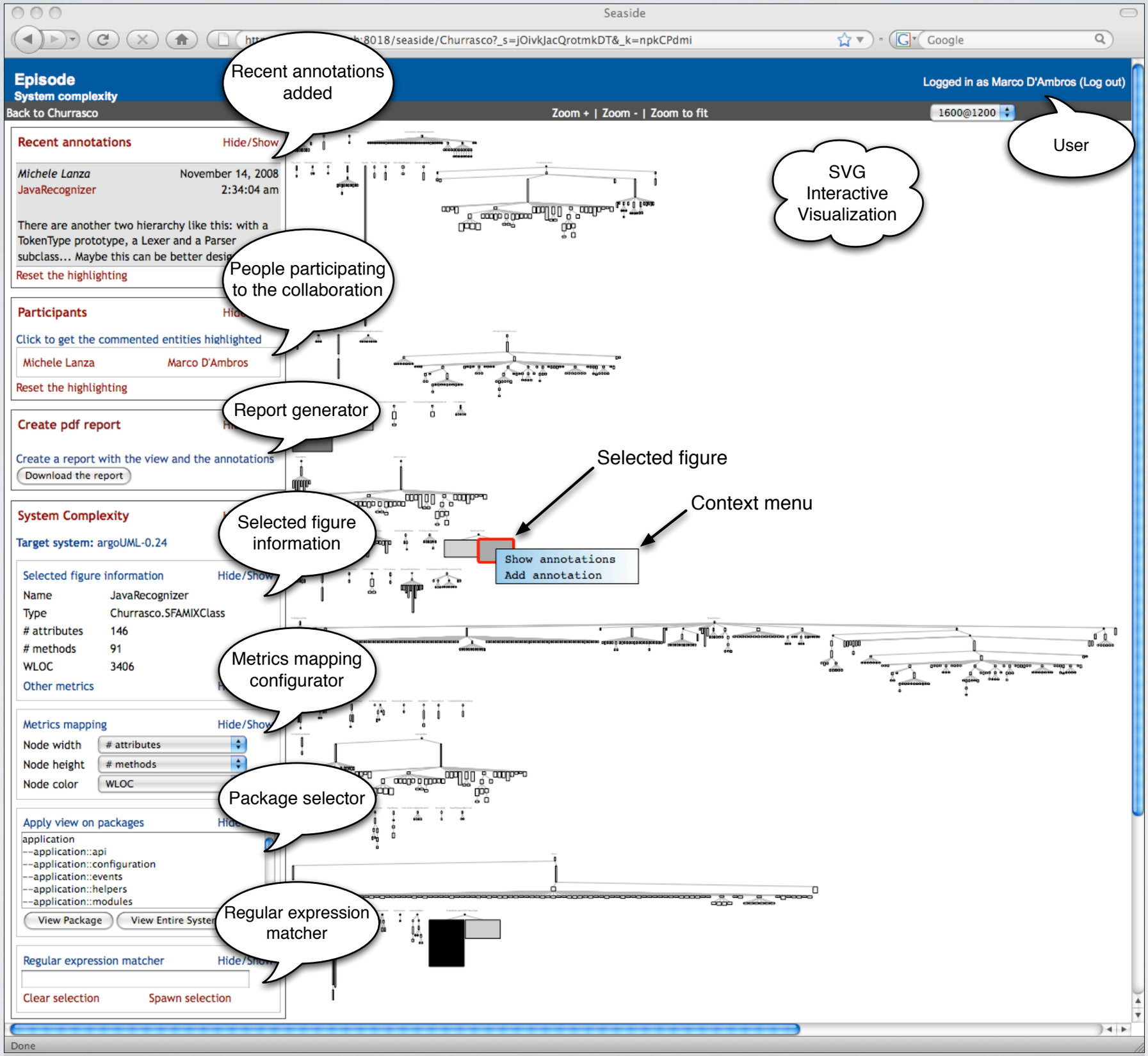
Added a MessageBox showing blocked Ips, when dble-clicking on the blocked Ip Counter label.
[December 3, 2003, gudy] Re-added the disconnect seeds when seed option.
[December 3, 2003, nolar] "Always" disconnect from other seeds when seeding.
[November 30, 2003, gudy] "" empty log message ""
[November 26, 2003, gudy] Version posting
[November 24, 2003, gudy] More sorting
[November 24, 2003, gudy] "" empty log message ""
[November 2, 2003, gudy] "" empty log message ""
[October 27, 2003, nolar] 'check pieces on complete' is now done synchronously

in state FINISHING, and restarts download if incomplete
[October 22, 2003, nolar] File allocation cleanup
[October 22, 2003, nolar] Turn off 'auto-switch to low priority when seeding' by default

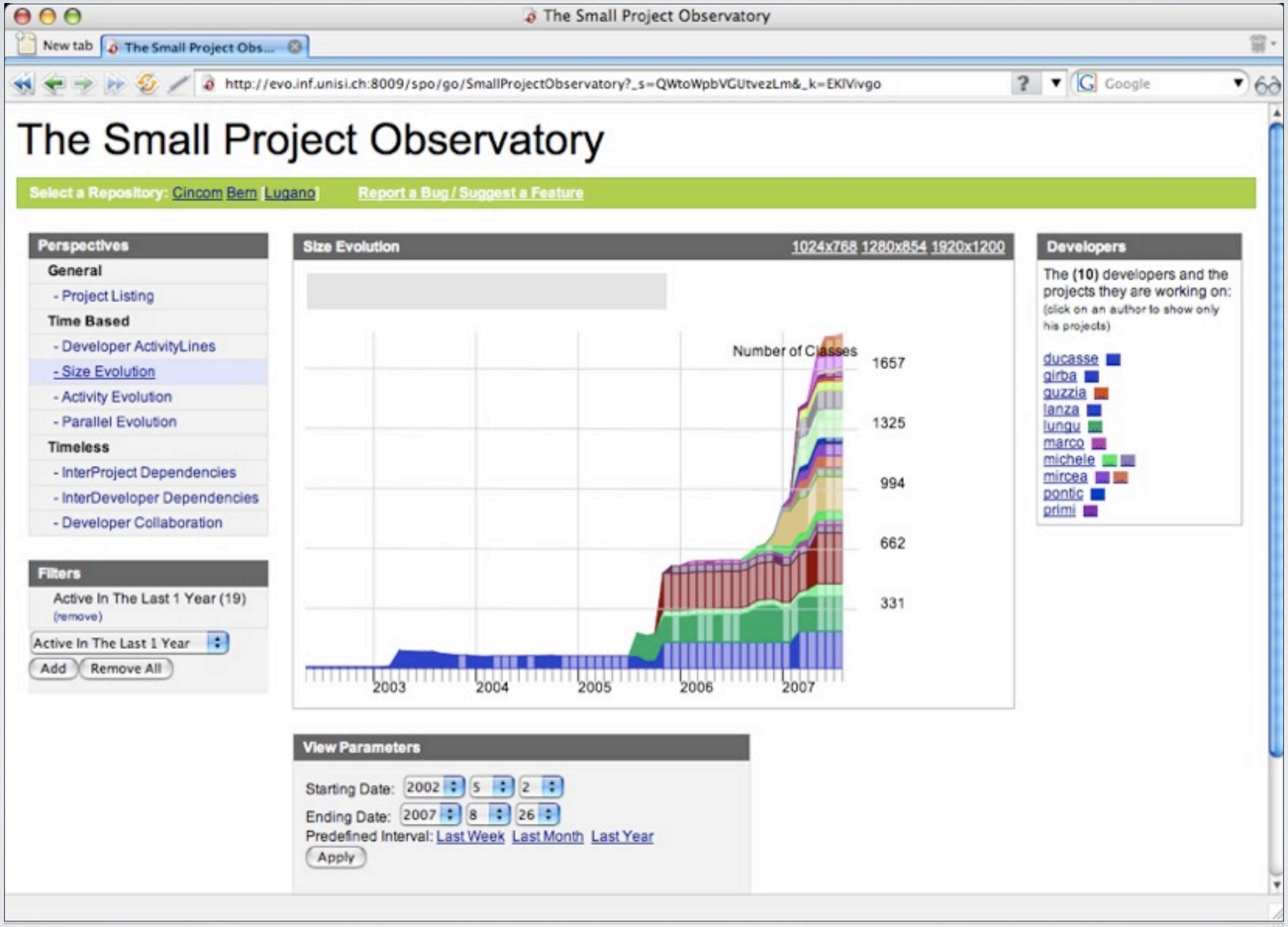
BugCrawler


BugCrawler – Directory Fractal Rectangle Tree View of Graph Main Graph (1)
BugCrawler
Apply View
Layout
numberOfBugs : 286
Color
- : 0
XPos
- : 0
YPos
- : 0
Inspect Figure
Send to back
Bring to front
Inspect Entity
Spawn Product Views
Spawn Grow Views
unammx
adrian
nicklamb
gregm
acapnotic
dindinx
xach
stric
kelly
tml
teichman
maurits
kmaraas
halcyon
mandrake
monniaux
nuke
pavel
gnomecvs
mitch
weskagg
sopwith
jseidel
schumaml
jtl
kcozens
Helvetix
pcg
jaycox
mitchell
mathieu
johnsonm
nether
plafleur
erich
sjburges
pgimeno
neo
alt
raphael
tommy
akkana
austin
bolsh
owen
timj
asbjoer
carol
jimmac
dsrogers
msw
scott
egger
bex
ok
raph
chyla
olofk
lewing
mvachhar
tigert
simon
rockwalru
16 Nodes, 15 Edges - 0 selected Nodes
BugCrawler – God Product View of Graph Main Graph (1)
CVS Products
God Products
Product Black Holes
Product Bugs Timeline
Product Timeline
Discrete Time Bug Product
Discrete Time Product
Discrete Time Combo Product
Product Fractal Rectangle Author Black Holes
Product Fractal Rectangle Checkerboard
Product Fractal Rectangle Checkerboard With Bug Metric
Color
numberOfBugs : 44
XPos
- : 0
YPos
- : 0
259 Nodes, 0 Edges - 0 selected Nodes

churrasco.inf.unisi.ch [CSMR 08, SCP 09]



spo.inf.unisi.ch [WCRE 2007, SCP 2009]



Promises & Perils

Availability & privacy

Collaboration & performance

Error handling

Development

Promises & Perils

Availability & privacy

Collaboration & performance

Error handling

Development

Availability & privacy

Availability

Just a URL to use the tool

Privacy

Sensible information on the web?

Promises & Perils

Availability & privacy

Collaboration & performance

Error handling

Development

Collaboration & performance

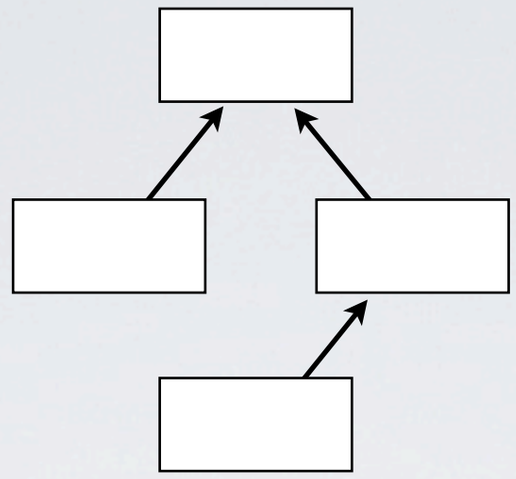
Collaboration

- ✓ Increasing importance (e.g. IBM Jazz)
- ✓ Easier than in desktop application

Performance & scalability

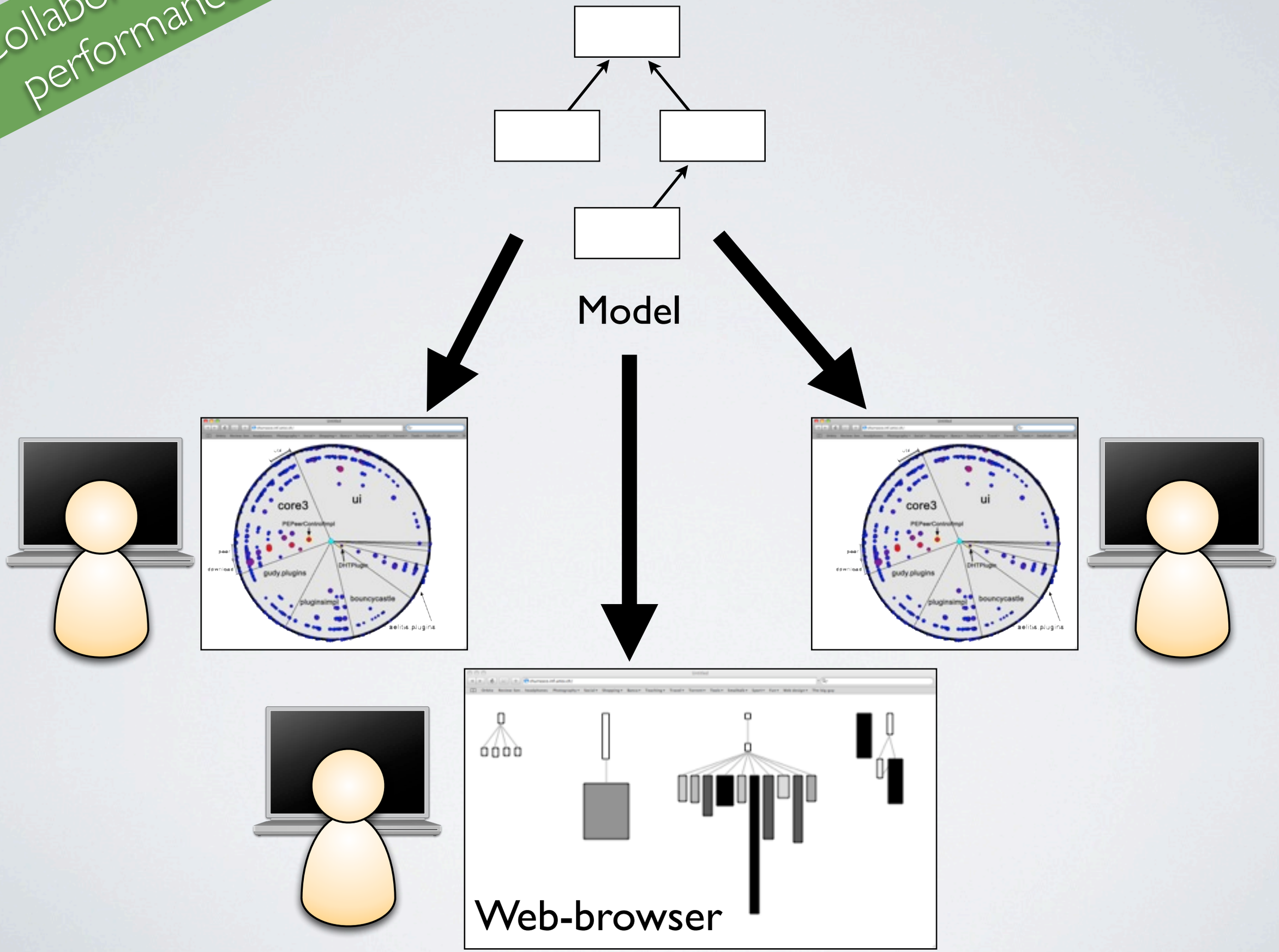
- Many users, one application
- Large datasets to render
- Latency of page refresh
- Worse in a collaborative setting

Collaboration & performance

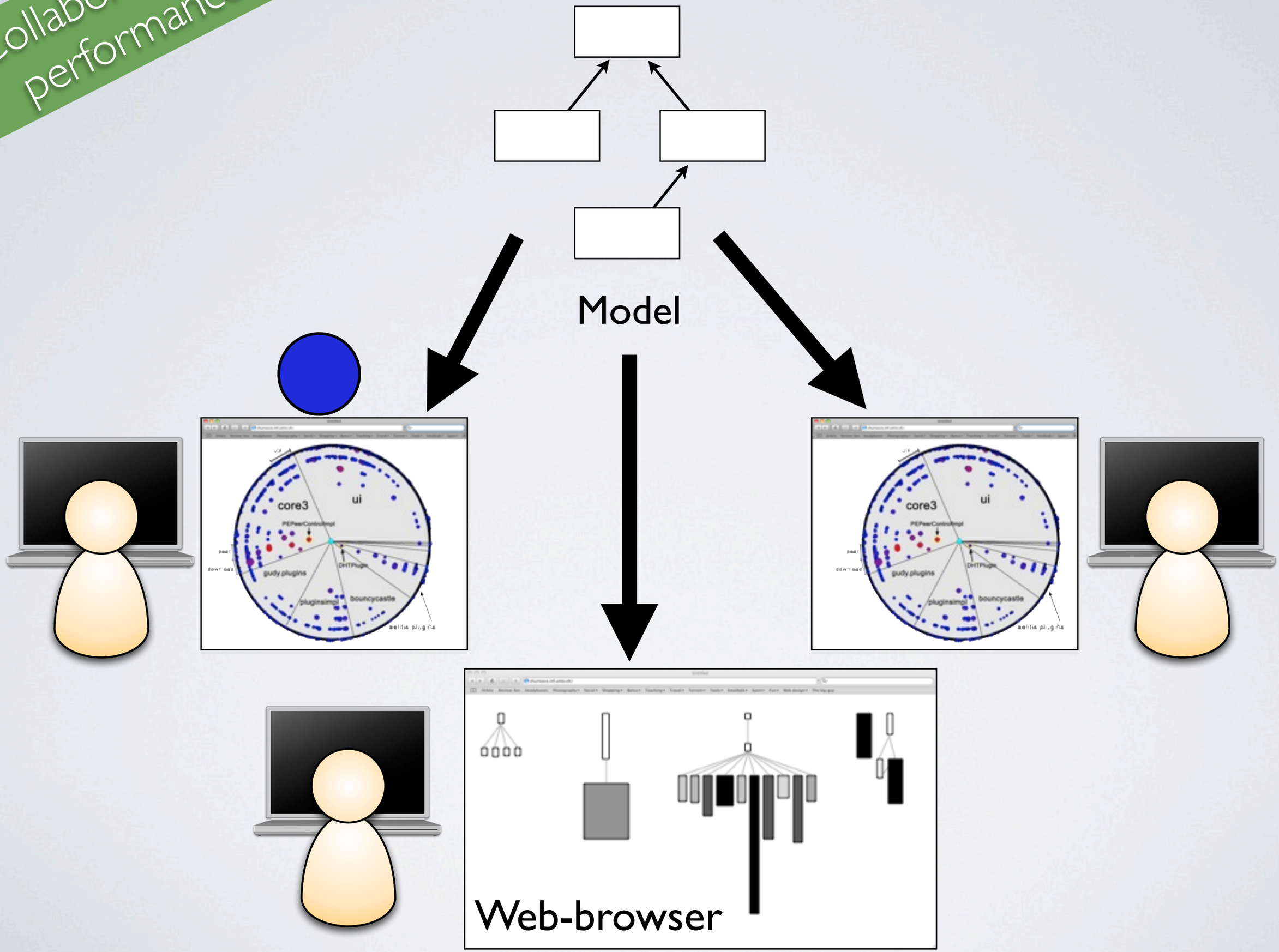


Model

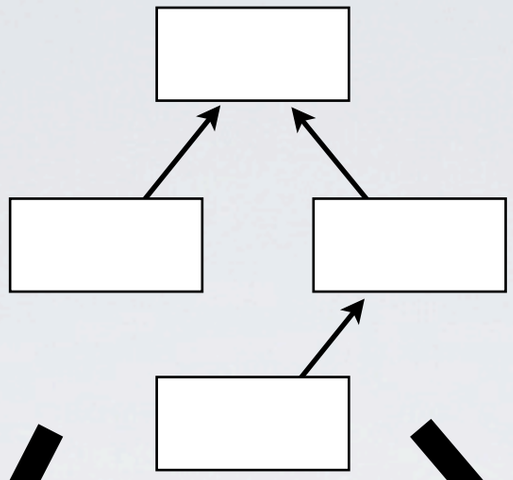
Collaboration & performance



Collaboration & performance

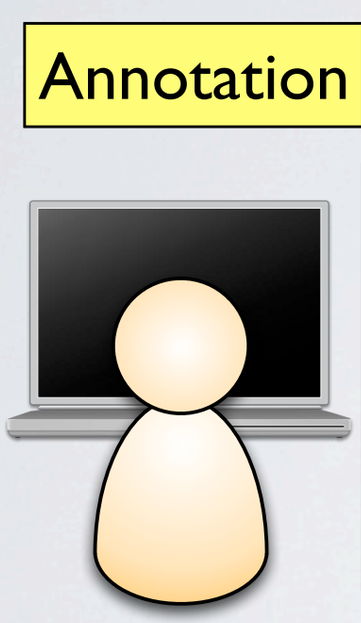


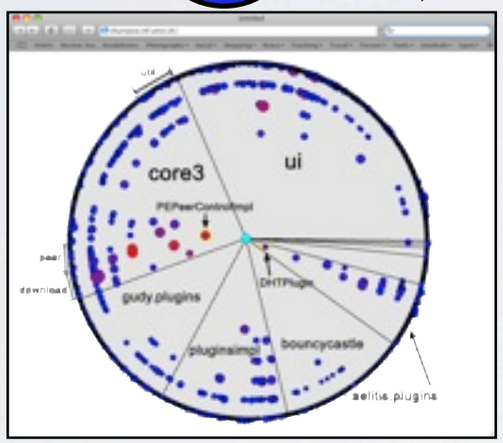
Collaboration & performance

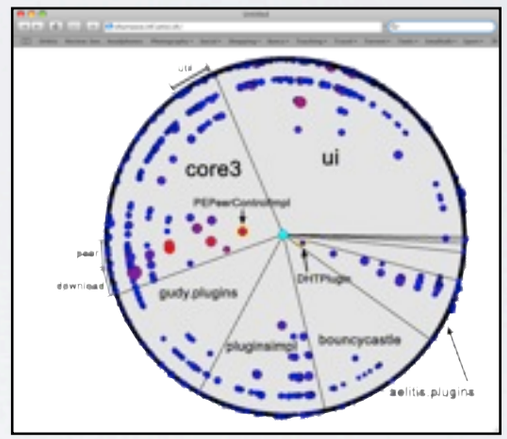


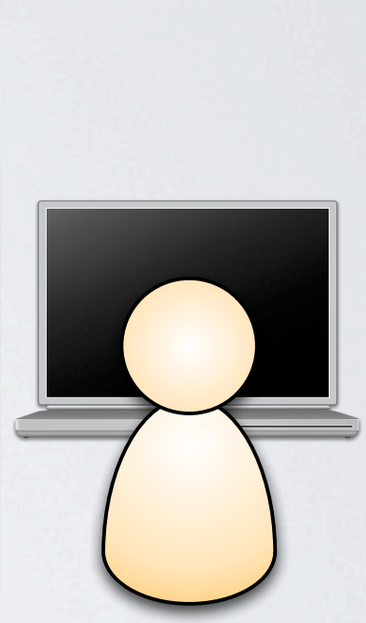
Model

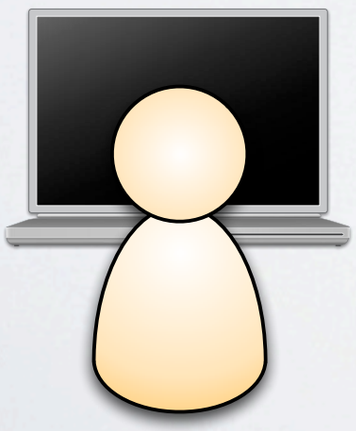
Annotation

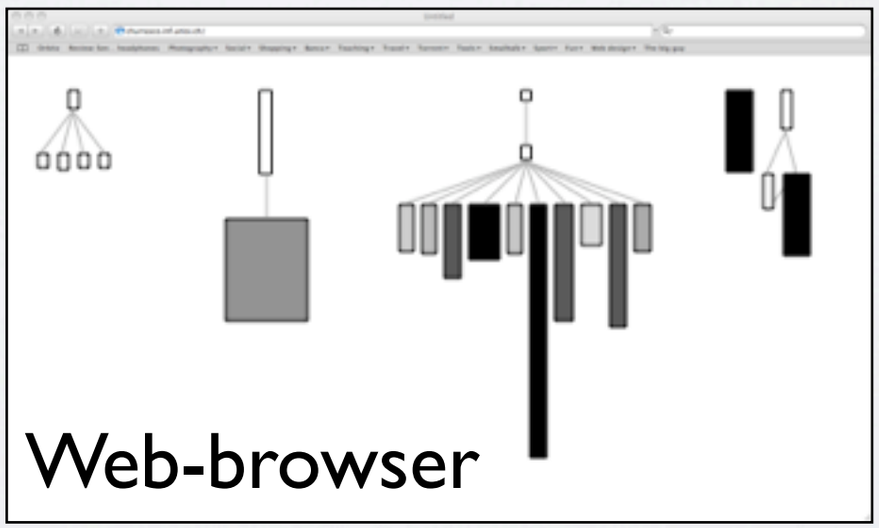












Collaboration & performance

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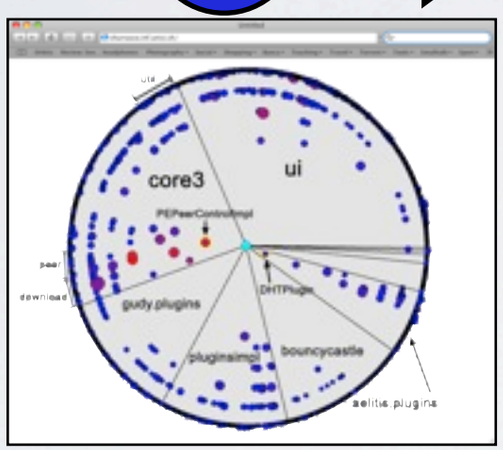

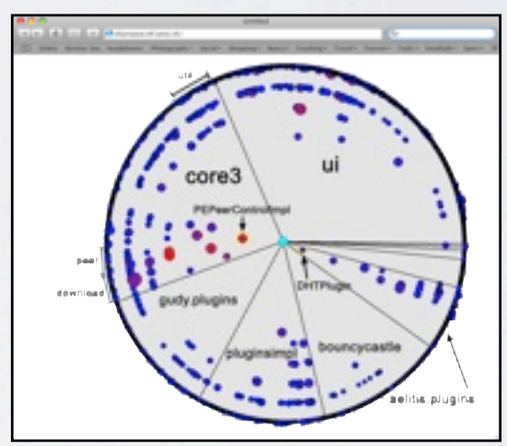

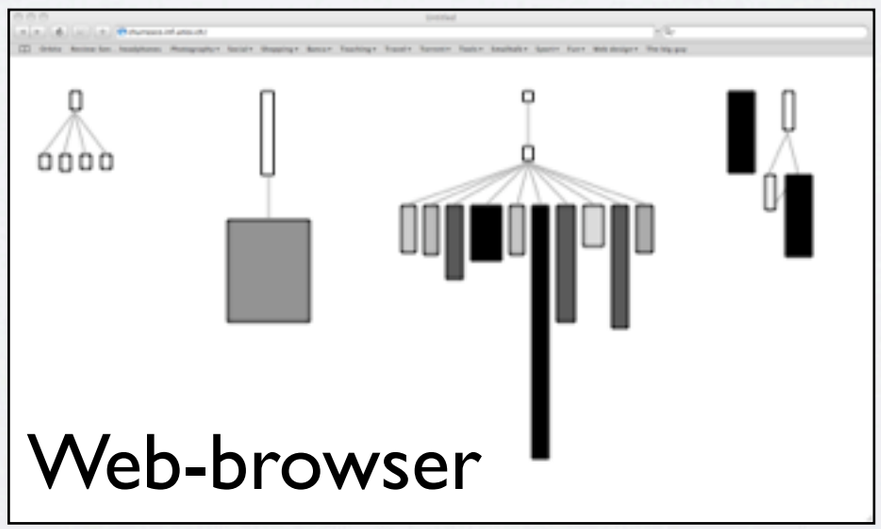

Collaboration & performance

Annotation

Model

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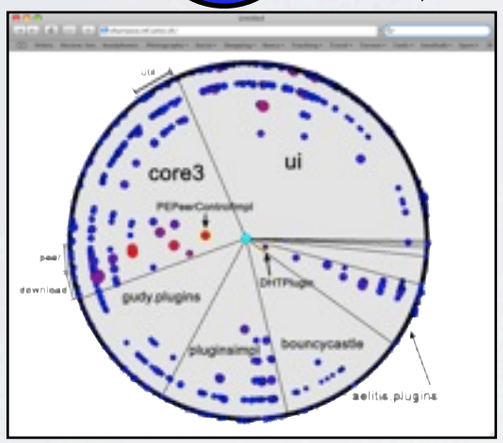
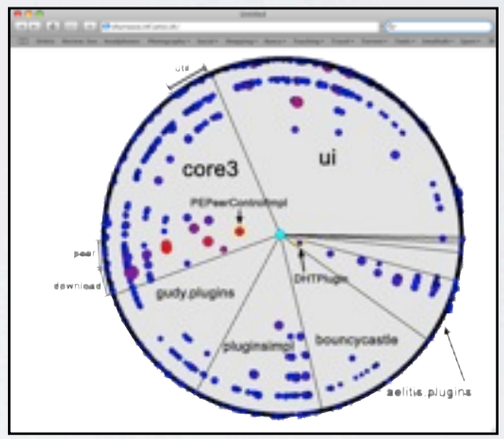
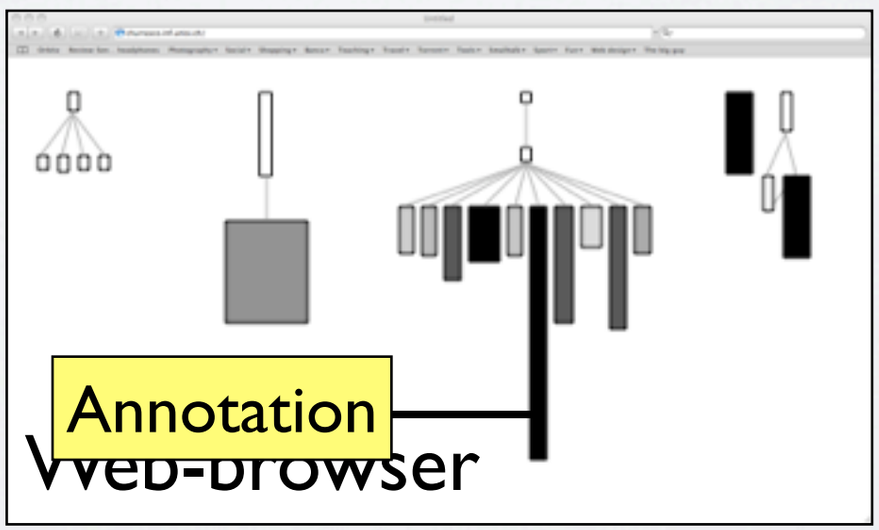


Annotation

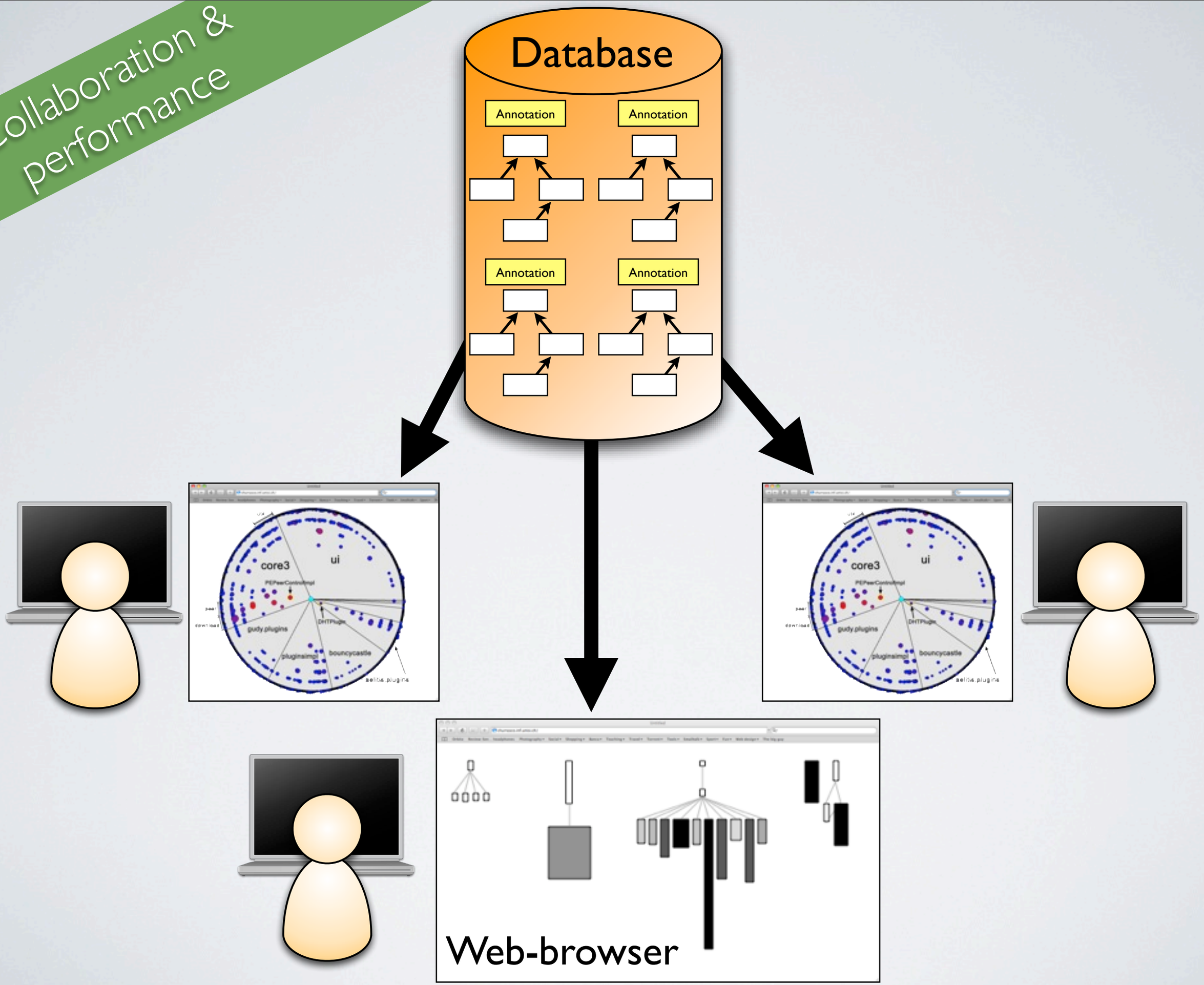




Annotation

Web-browser

Collaboration & performance



Collaboration & performance

Collaboration

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- ✓ Easier than in desktop application

Performance & scalability

- Many users, one application
- Large datasets to render
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Collaboration & performance

Incremental Results

- ✓ Possible because of shared data
- ✓ Cross-fertilization of results

Collaboration & performance

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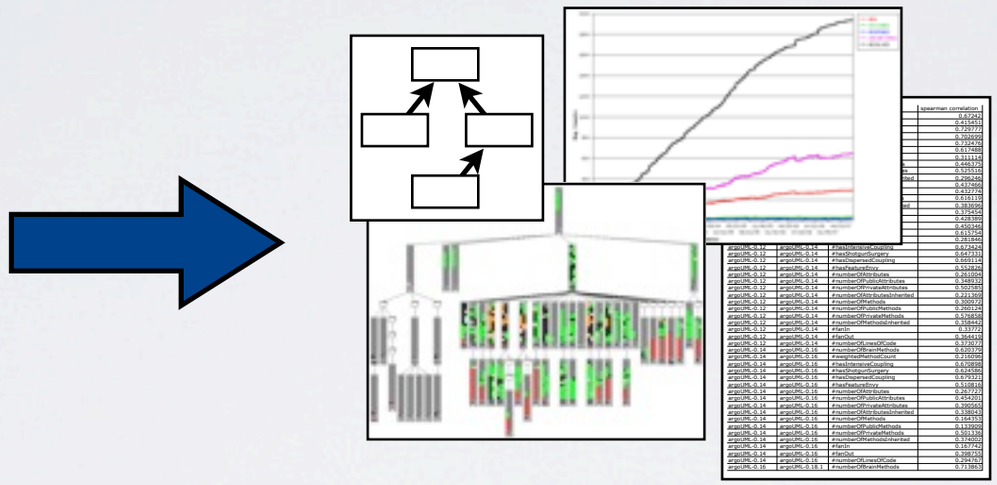

?

Collaboration & performance

Incremental Results

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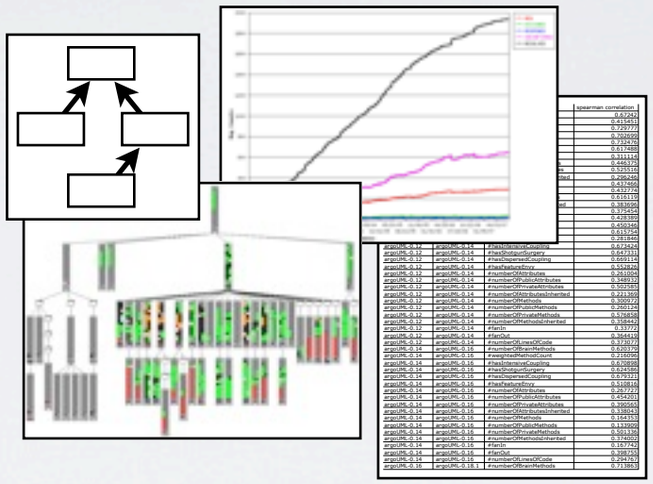


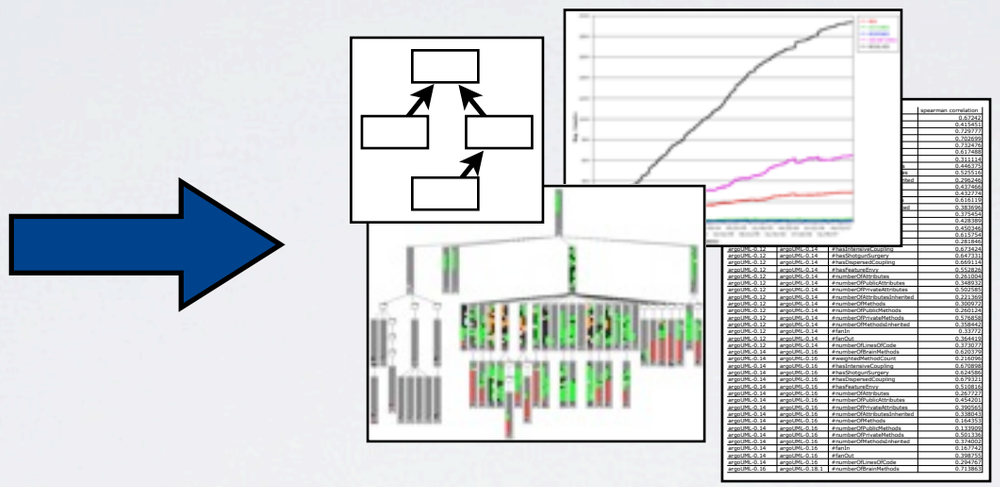
?

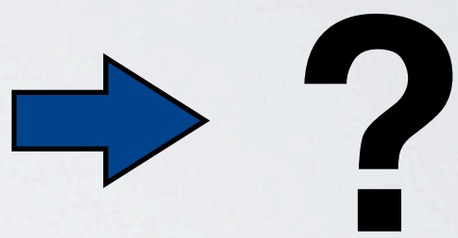
Class A
A.foo()
A.bar()

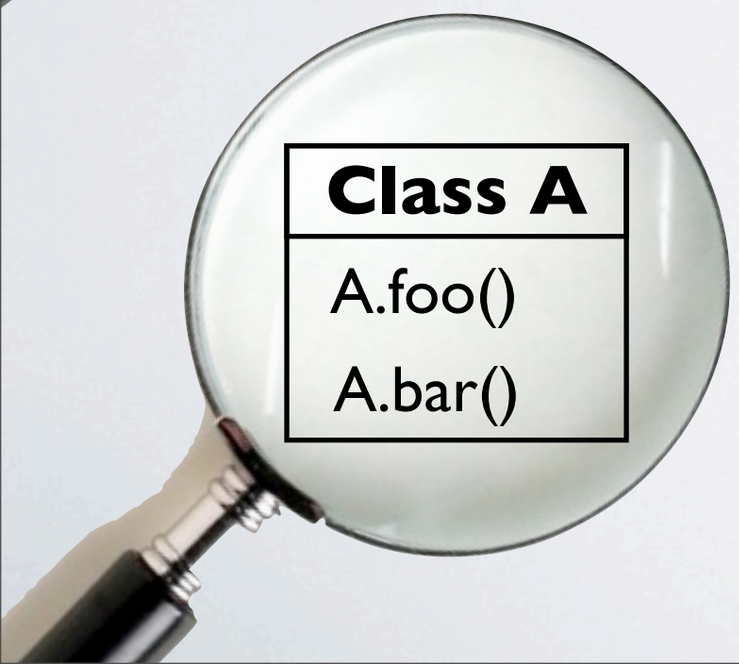
Collaboration & performance

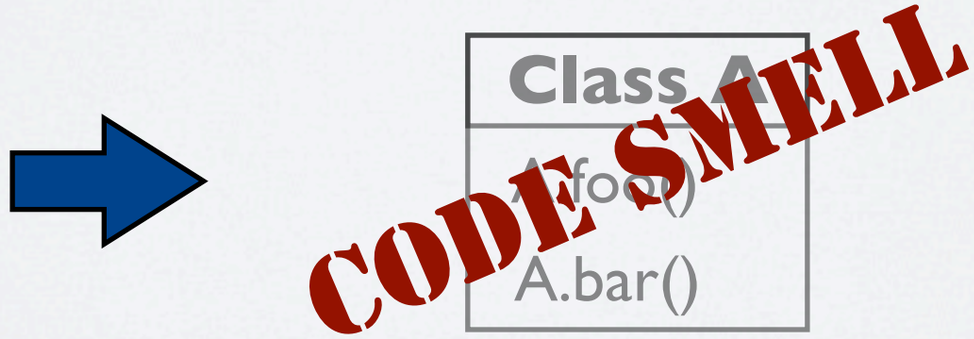
Incremental Results

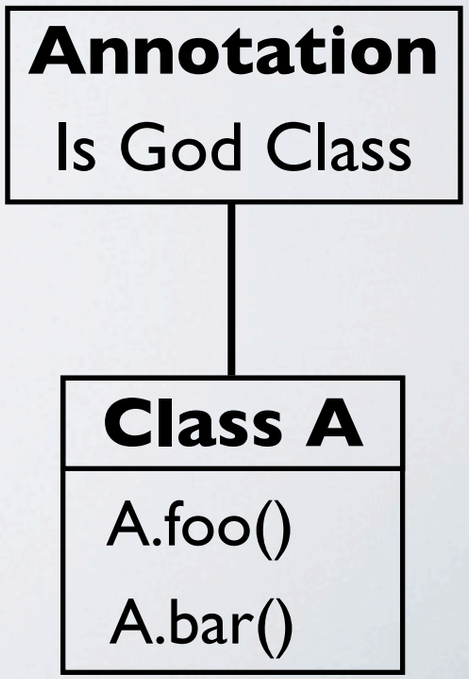
- ✓ Possible because of shared data
- ✓ Cross-fertilization of results











Promises & Perils

Availability & privacy

Collaboration & performance

Error handling

Development

Error handling

Single point of failure

A crash impacts all users

Debugging & testing

Harder than in desktop applications

Error handling

Feedback

Notification of bugs and deployment of fixes are easier than in desktop applications

Usage Report

Easy by exploiting web statistics tools

Promises & Perils

Availability & privacy

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Development

Development

Interaction

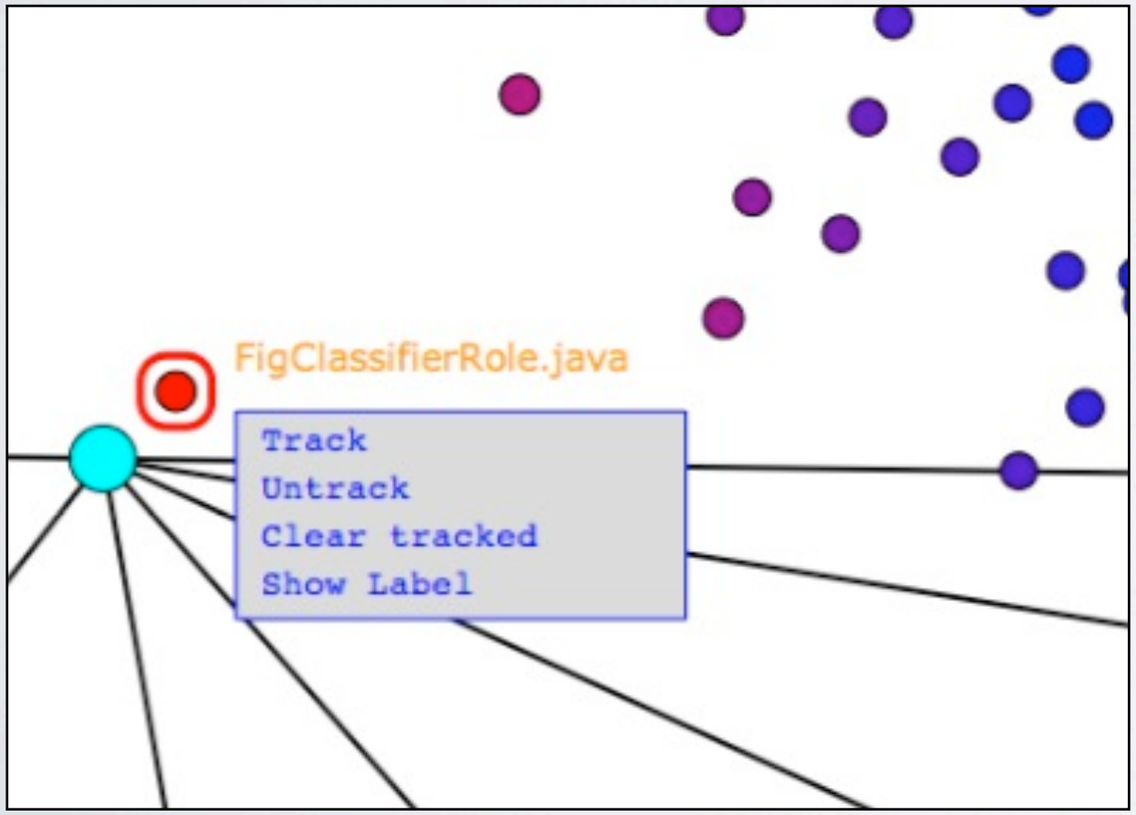
Basic features have to be implemented

Development

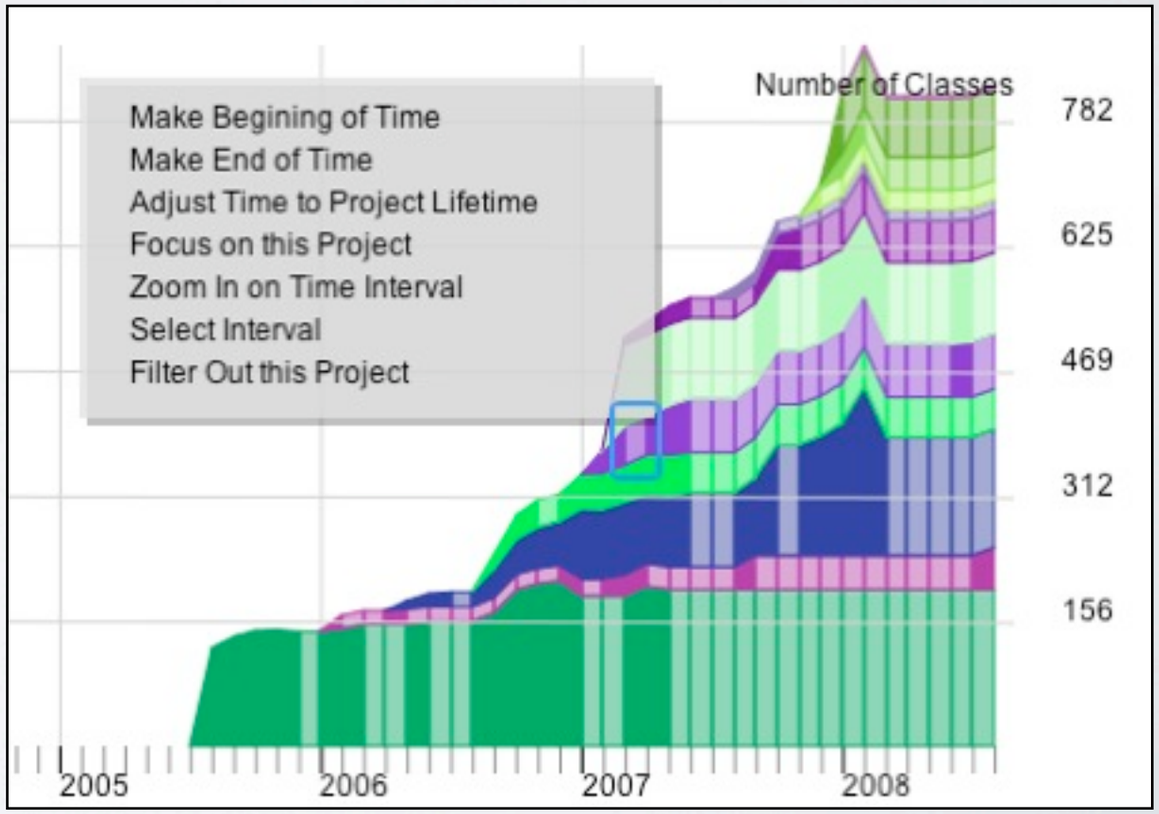
Interaction

Basic features have to be implemented

Example: context menu



Churrasco: SVG (server-side)



SPO: Javascript (client-side)

Development

Interaction

Basic features have to be implemented

Browser compatibility

- Churrasco is fully functional only in Firefox
- Different JS/SVG performances

Development

Interaction

Basic features have to be implemented

Browser compatibility

- Churrasco is fully functional only in Firefox
- Different JS/SVG performances

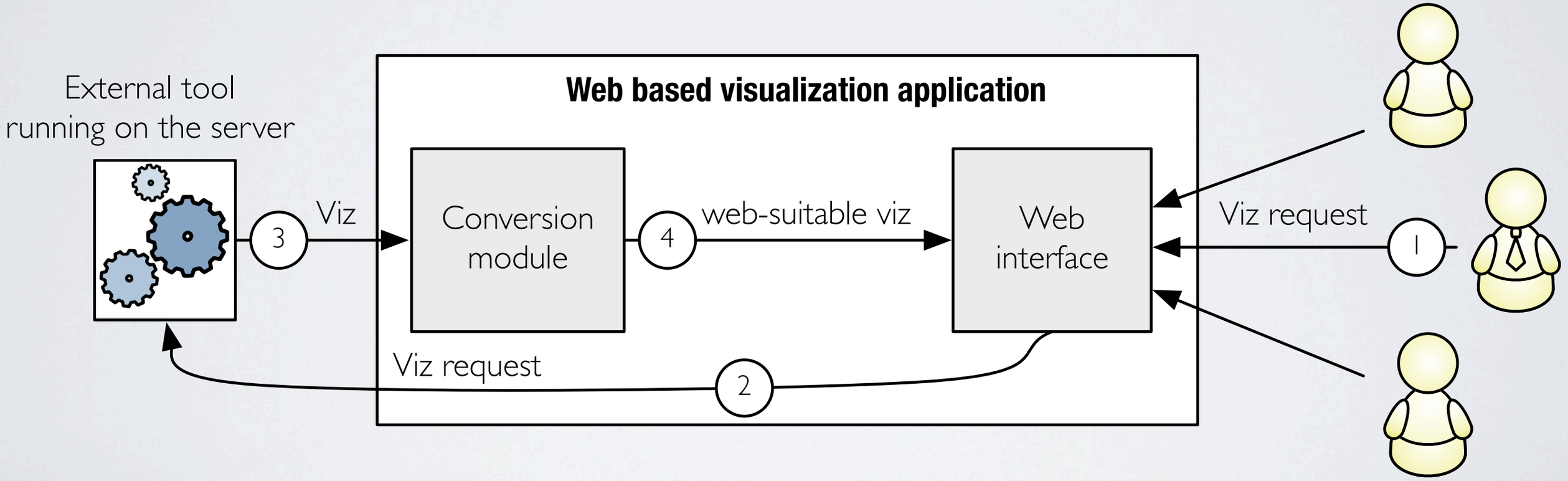
Rapid evolution

Web technologies are moving fast (Flash, Javascript, JQuery, Scriptacolous, *etc)*

Development

Hiding tasks & exposing services

Use external tools and provide the results as services



- ✓ Availability
- ✓ Collaboration
- ✓ Hiding tasks & exposing services
- ✓ Feedback
- ✓ Usage report
- ✓ Incremental results

- ! Privacy
- ! Performance & scalability
- ! Single point of failure
- ! Debugging & testing
- ! Interaction
- ! Browser compatibility
- ! Rapid evolution

Promises

Perils

- ✓ Availability
- ✓ Collaboration
- ✓ Hiding tasks & exposing services
- ✓ Feedback
- ✓ Usage report
- ✓ Incremental results

- ! Privacy
- ! Performance & scalability
- ! Single point of failure
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- ! Rapid evolution

- Availability
- Collaboration
- Hiding tasks & exposing services

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I WANT YOU TO PORT YOUR TOOL TO THE WEB*

- Availability
- Collaboration
- Hiding tasks & exposing services

I WANT YOU TO PORT YOUR TOOL TO THE WEB*

* After a careful evaluation of the mostly technical perils

- Availability
- Collaboration
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