

Sino-German Forum on Cloud-based High Performance Computing  
September 26-30, 2011, Shanghai, China

# The Lively Cloud

## A Programming and Deployment Environment for End-user Applications in the Web

Robert Hirschfeld, Jens Lincke, and Robert Krahn

Software Architecture Group  
Hasso-Plattner-Institut Potsdam  
[www.hpi.uni-potsdam.de/swa](http://www.hpi.uni-potsdam.de/swa)

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上海大学  
Shanghai University



DFG Deutsche  
Forschungsgemeinschaft



## Background (rhi)

- 1989-1997 | Ilmenau University of Technology
  - Dipl.-Inf. (1994), Dr.-Ing. (1997)
- 1994-1997 | Mercedes-Benz & Daimler-Benz
  - Software Architecture
- 1997-2001 | Windward Solutions
  - Distributed Processing Environments
  - CORBA & TINA
- 2001-2006 | NTT DoCoMo Euro-Labs
  - Dynamic Aspect-oriented Programming
  - Dynamic Service Adaptation
- 2009 | University of Tokyo (東京大学)
  - Programming Principles and Practices Group
  - Aspectual Context-oriented Programming
- Since 2006 | Hasso-Plattner-Institute
  - Software Architecture Group
  - Context-oriented Programming
  - Dynamic Programming Environments
  - Minimal Language and Application Kernels



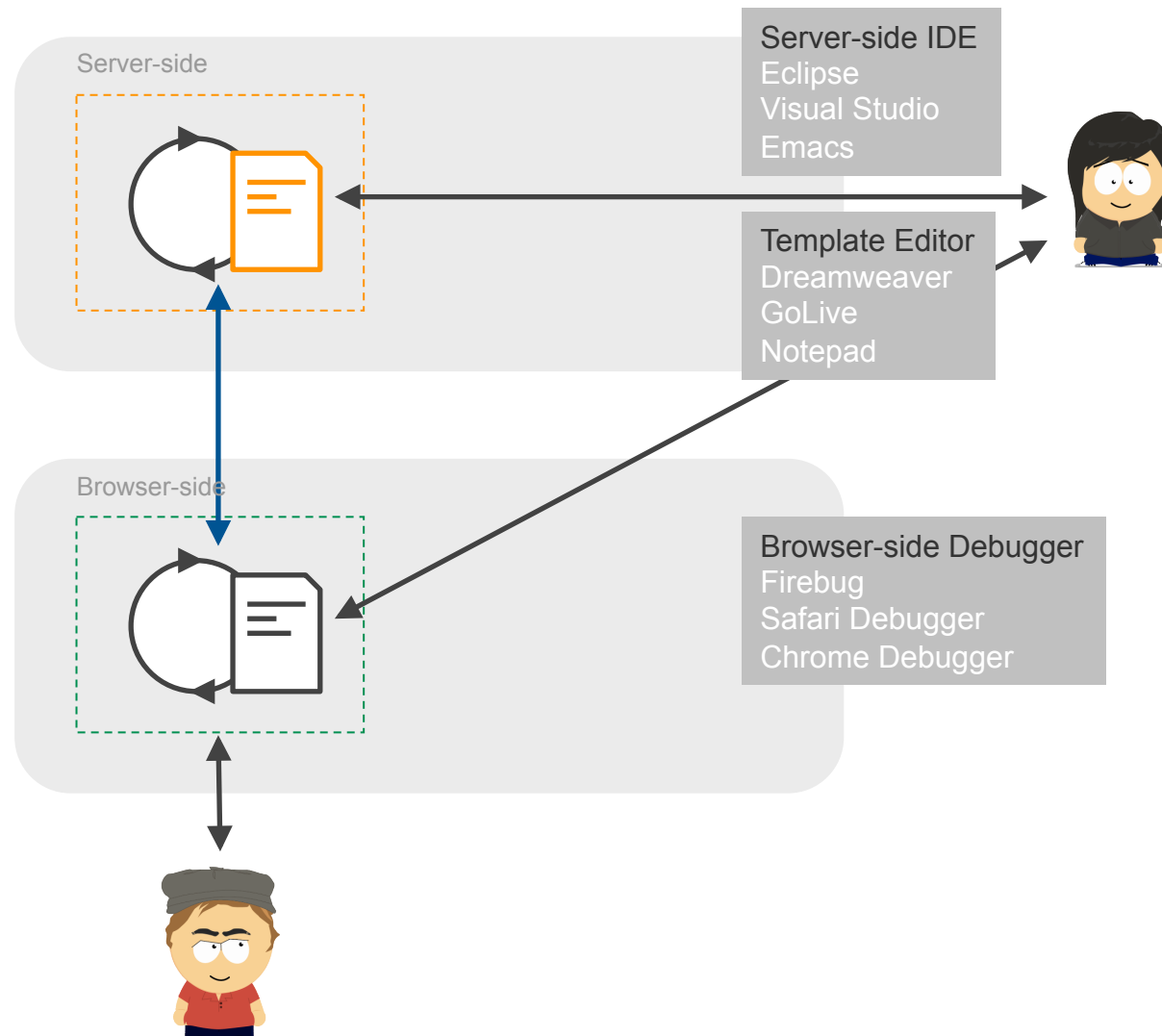
DoCoMo Euro-Labs



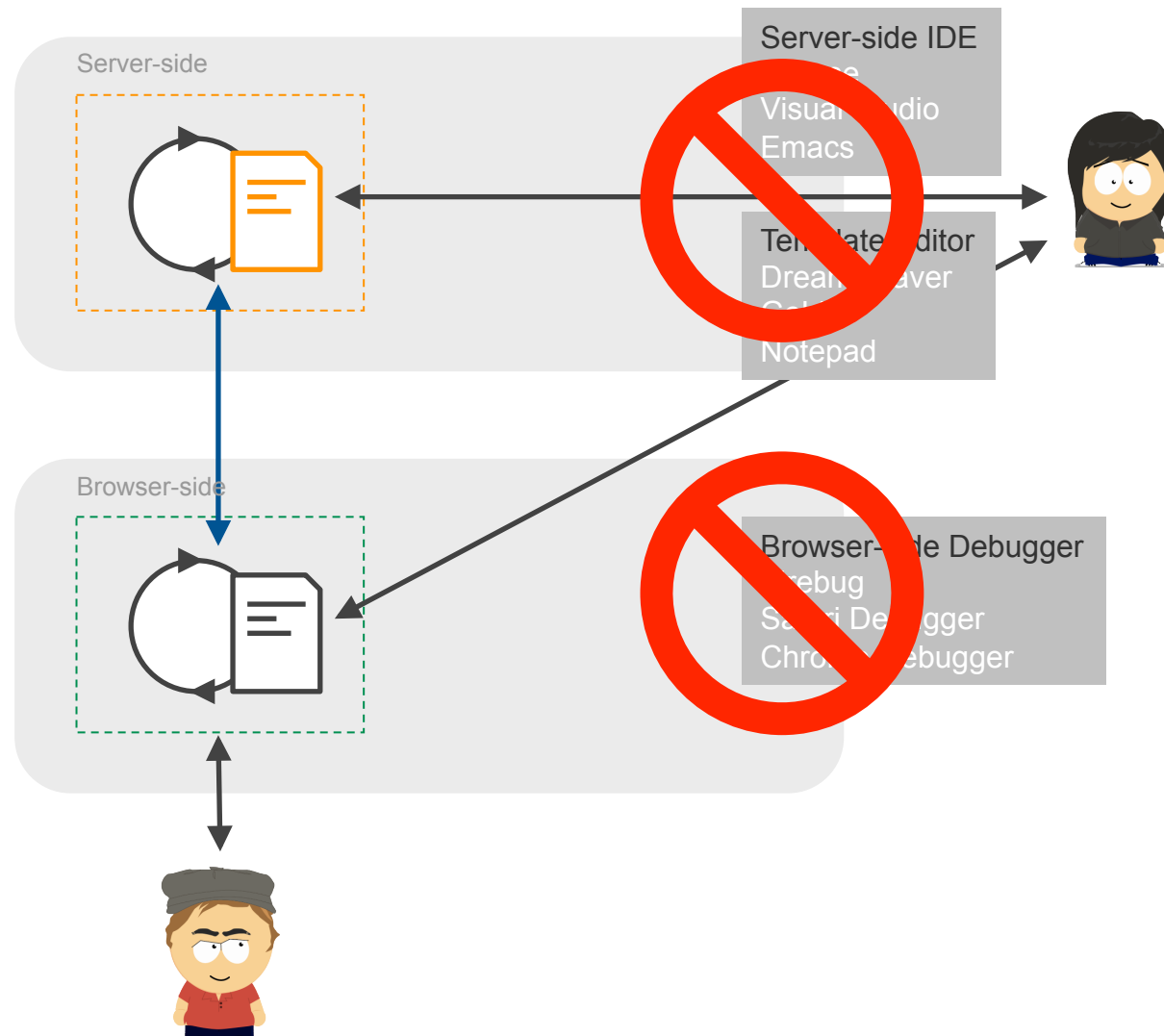
READY



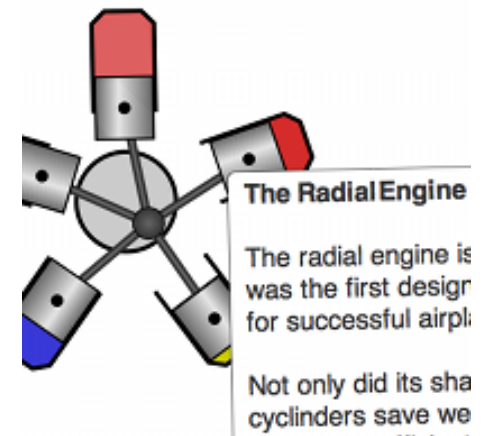
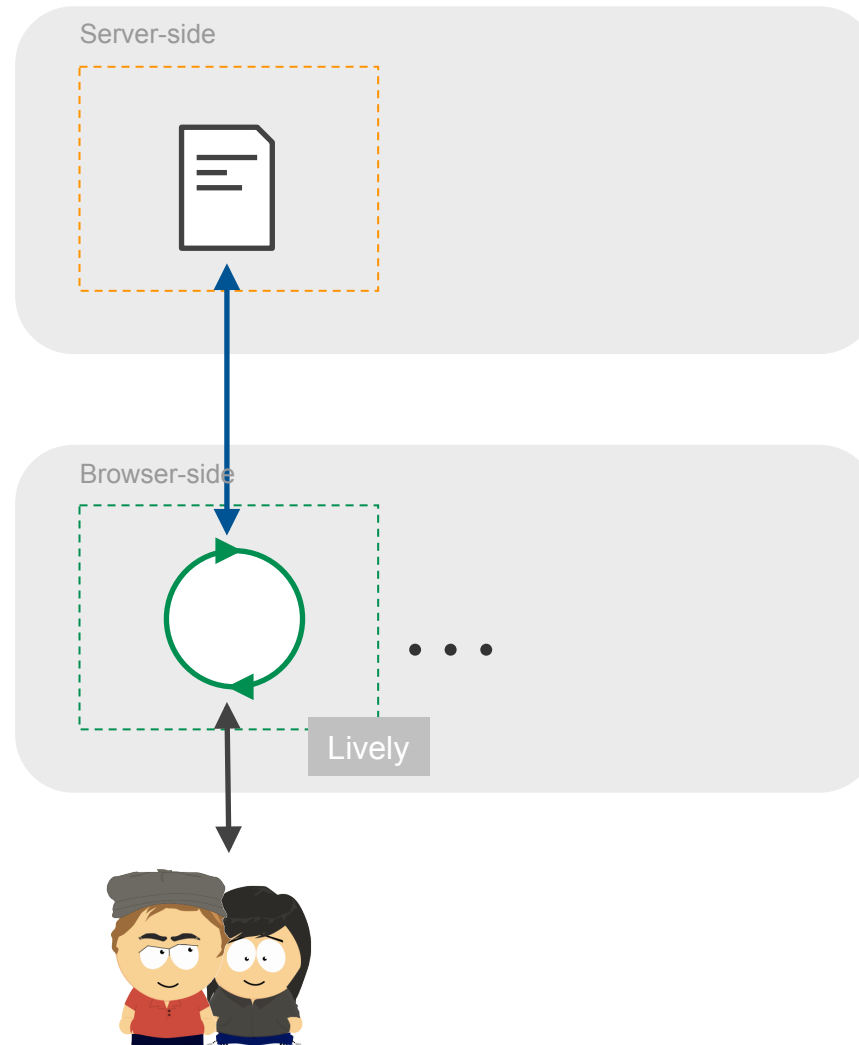
# Contemporary Web Development



# Contemporary Web Development



# Lively Kernel



Wiki control



### TestRunner

- AsyncTestCase
- MorphTestCase
- cop.tests.ActiveLayersTest (2ms)
- cop.tests.AdaptArgumentsInLayer (1ms)
- cop.tests.CopExampleTest (2ms)
- cop.tests.GetterAndSetterTest (2ms)
- cop.tests.LayerActivationRestrictionTest
- cop.tests.LayerObjectActivationTest (4ms)
- cop.tests.LayerStateTest (7ms)
- cop.tests.LayerSubclassingTest (66ms)
- cop.tests.LayerTest (16ms)
- cop.tests.LayerTestCase

Run TestCases

### Examples.js:ClockMorph:setHands (proto)

http://www.lively-kernel.org/repository/webwerkstatt/lively/

- ChangeSet.js (not parsed)
- Connector.js (not parsed)
- Contributions.js (not parsed)
- Core.js (not parsed)
- Data.js (not parsed)
- defaultconfig.js (not parsed)
- demofox.js (not parsed)
- EmuDom.js (not parsed)
- Examples.js
- TestWidget
- ClockMorph
- SymmetryMorph
- PianoKeyboard
- FeedWidget
- SquiggleMorph
- WeatherWidget
- StockWidget
- EngineMorph
- AnimMorph

codebase local

- openForDragAndDrop (proto)
- styleClass (proto)
- initialize (proto)
- makeNewFace (proto)
- angleForHour (proto)
- reshape (proto)
- startSteppingScripts (proto)
- setHands (proto)

Add module Load all LineNo Refresh Eval on Sort View as...

```
setHands: function() {  
    var timeNow = new Date();  
    var offset = Number(this.timeZoneOffset) + 1;  
    offset += (this.nHours == 12) ? 3 : 6; // compensate for angl  
    var second = timeNow.getUTCSeconds();  
    var minute = timeNow.getUTCMinutes() + second/60;  
    var hour = timeNow.getUTCHours() + offset + minute/60;  
    this.hours.setRotation(this.angleForHour(hour));  
    this.minutes.setRotation(minute/60*2*Math.PI);  
    this.seconds.setRotation(second/60*2*Math.PI);  
}
```

### Stock Widget

BigCharts  
A service of MarketWatch

NASDAQ 2,173.90 -45.27 -2.08%

DOW JONES  
NASDAQ  
NYSE  
S&P INX

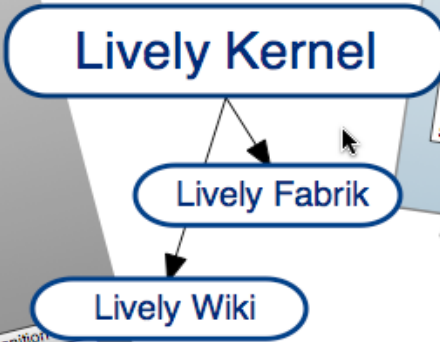
Gold Hits New Highs While DJIA and S&P 500 Face the Abyss; BB  
Opening View: DJIA Futures Modestly Higher; Indexes Search for Supp  
DJIA Support Broken, Bearish Technical Sign  
Asian Shares Mostly Higher; But Demand Remains Patchy  
Green: DJIA, S&P 500 At Lowest Closes Since Nov  
... Below Key Support Levels; WMT, BAC, B  
... But Further Rises Limited  
Fabrik

### The Radial Engine

Number of cylinders  
1

Ignition  
sequential  
alternate

Operating State  
run

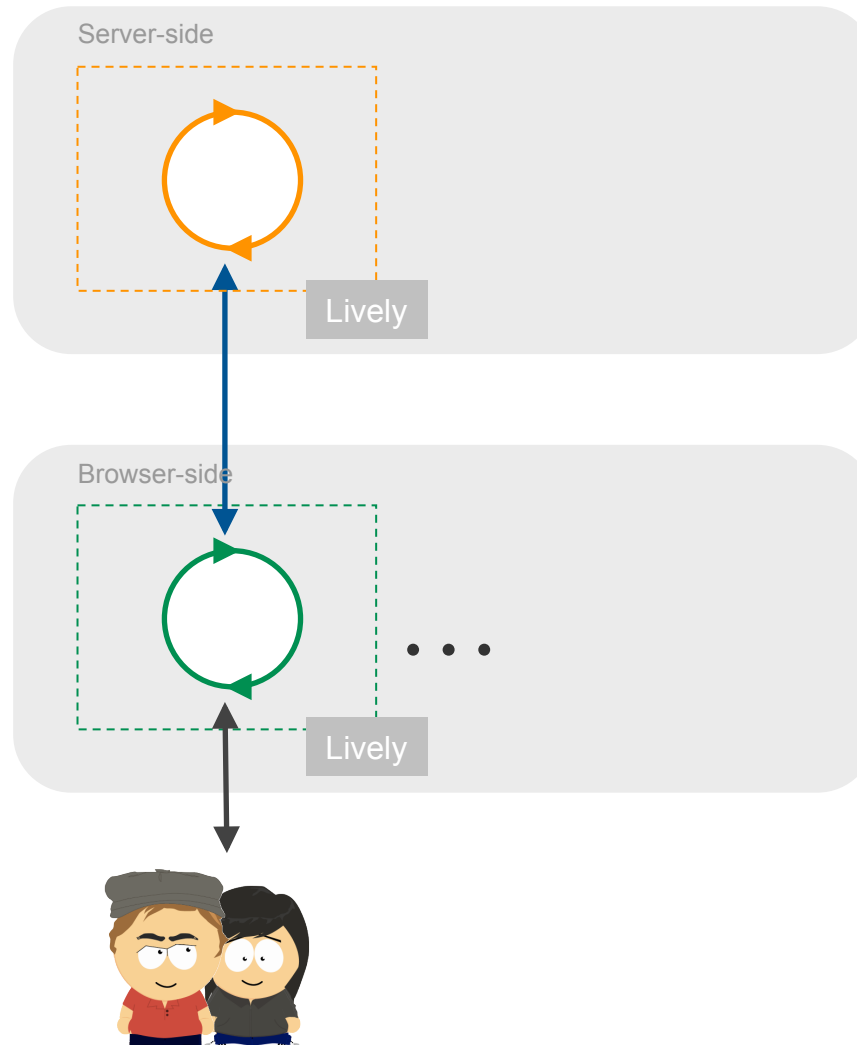


```
function f(input)  
    return [1,2,3,4,5]
```



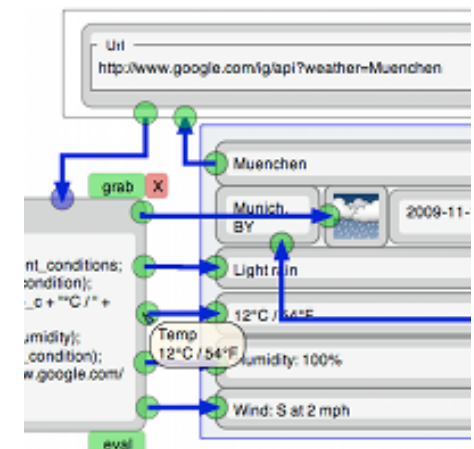
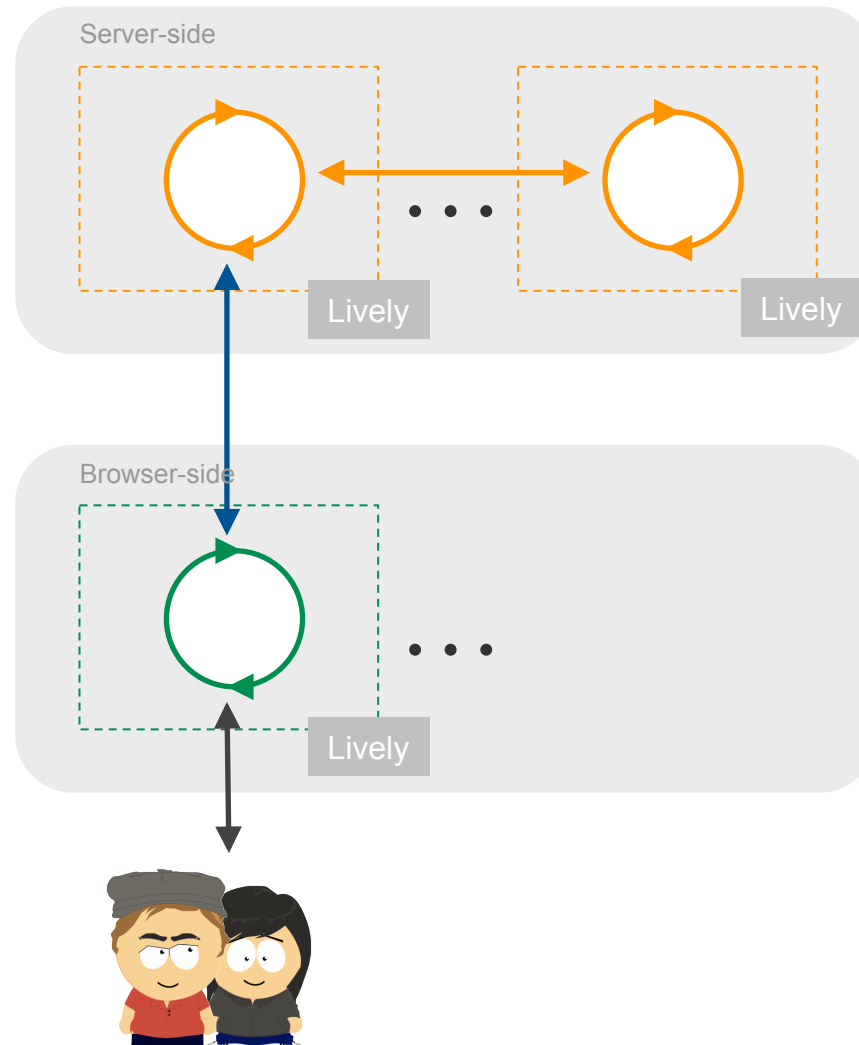


# Lively Server

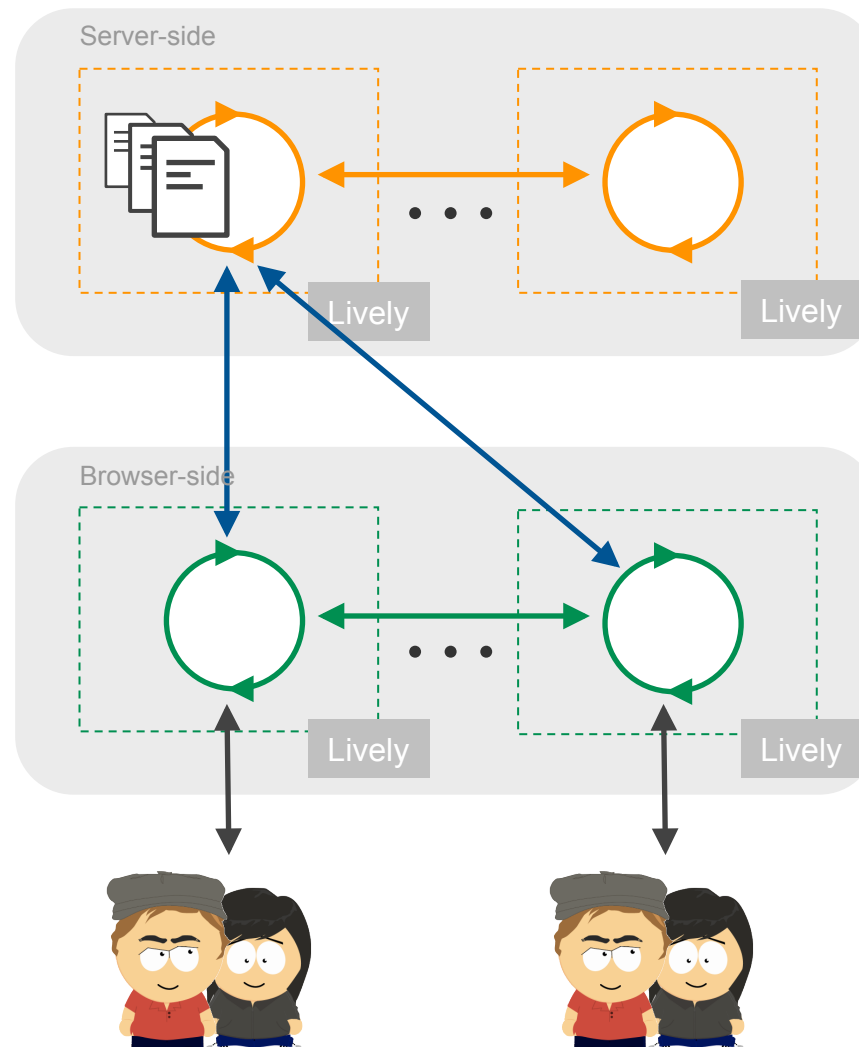


	M	C			
			Linux 2.6.32-5-amd64 (lively)		
S	10:33:01		CPU	%usr	%ni
	10:33:02		all	0.49	0.00
	10:33:02		0	1.01	0.00
	10:33:02		1	0.95	0.00
	Average:		CPU	%usr	%n
	Average:		all	0.49	0.00
R	Average:		0	1.01	0.00
	Average:		1	0.95	0.00

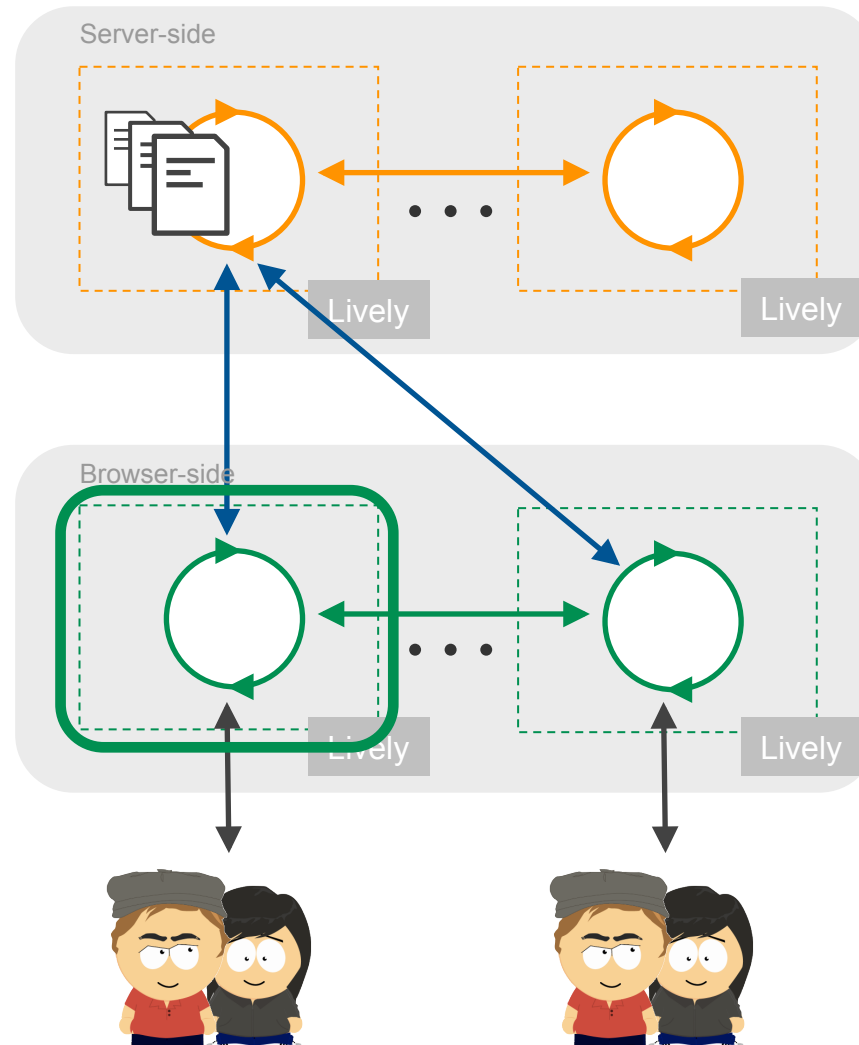
# Lively Mashup (Under Development)



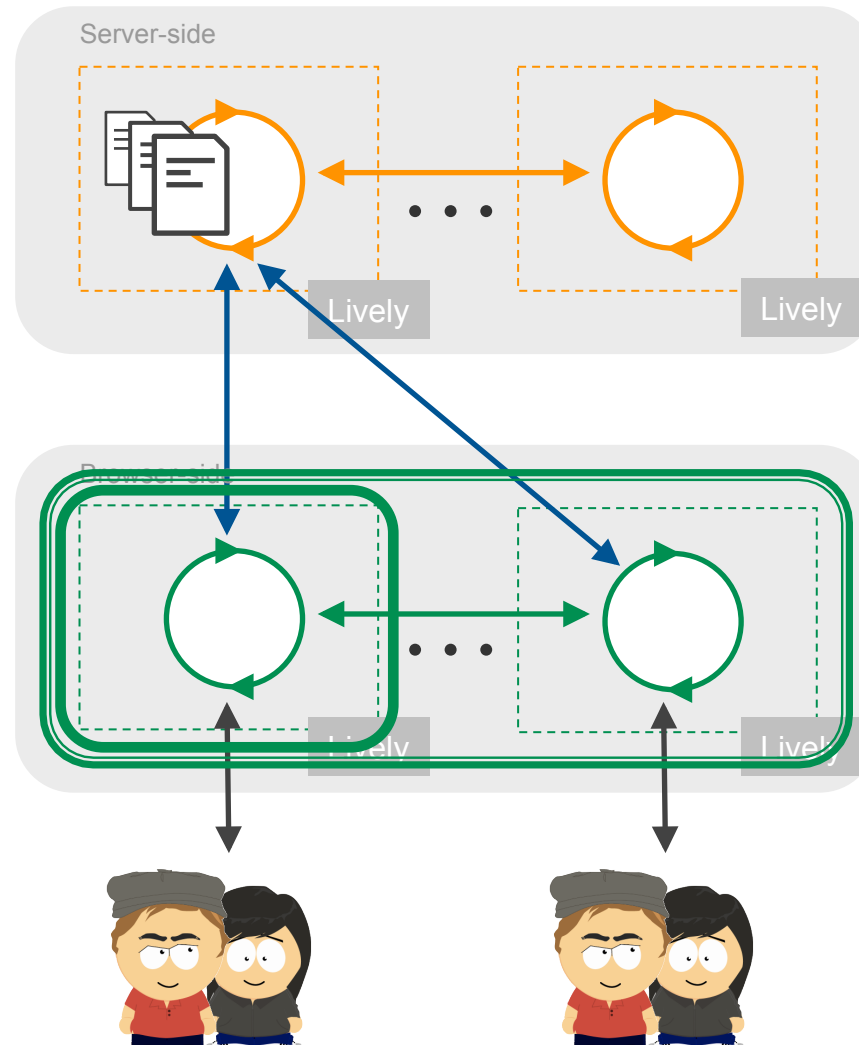
# Lively Kernel-Wiki-Server-Mashup



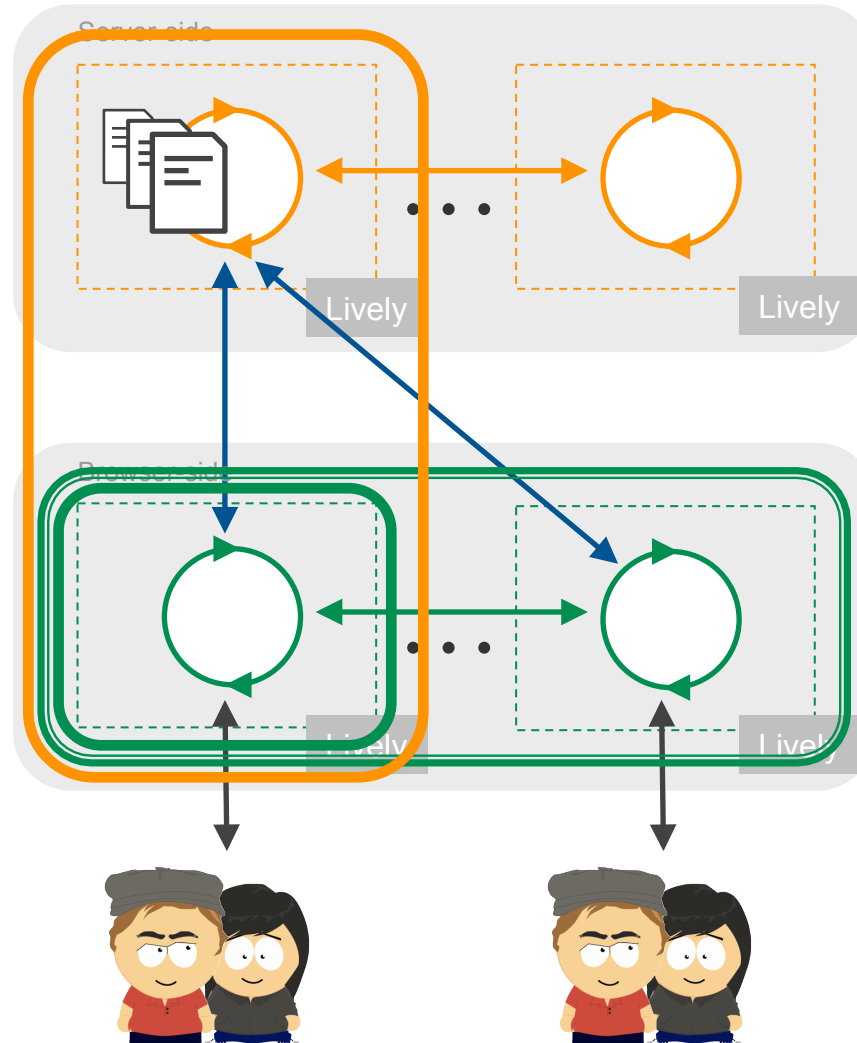
# Lively Kernel-Wiki-Server-Mashup



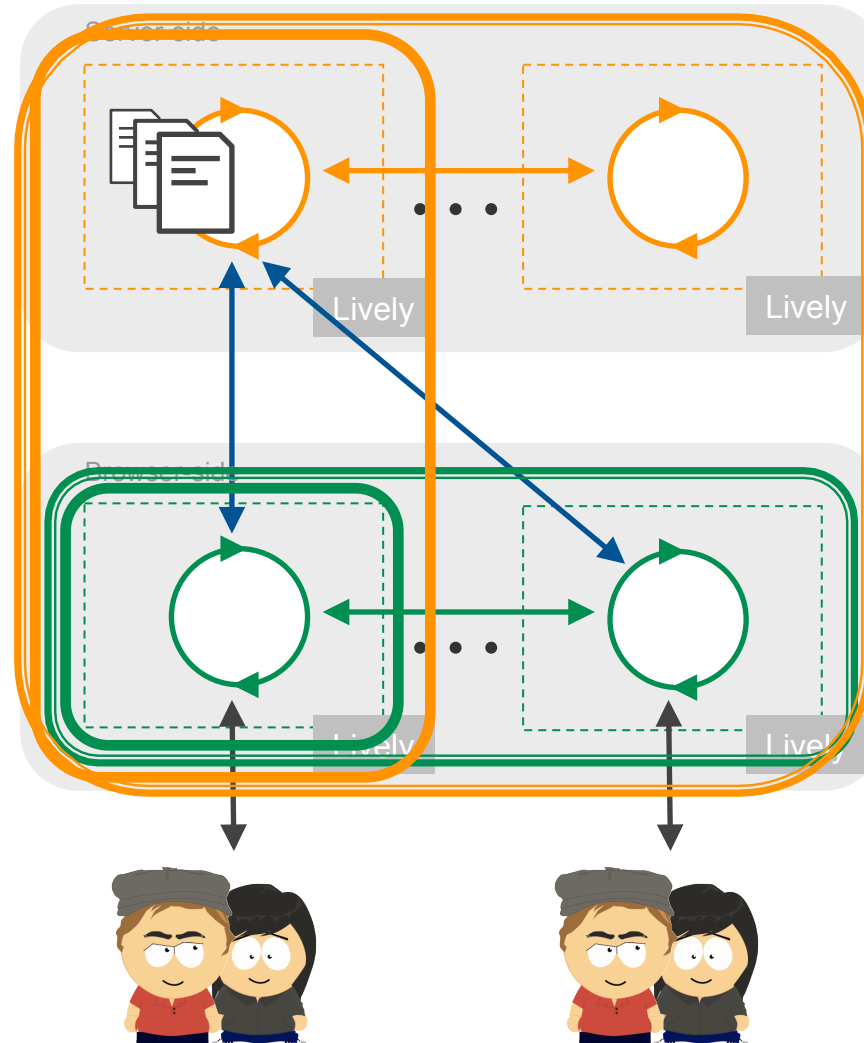
# Lively Kernel-Wiki-Server-Mashup



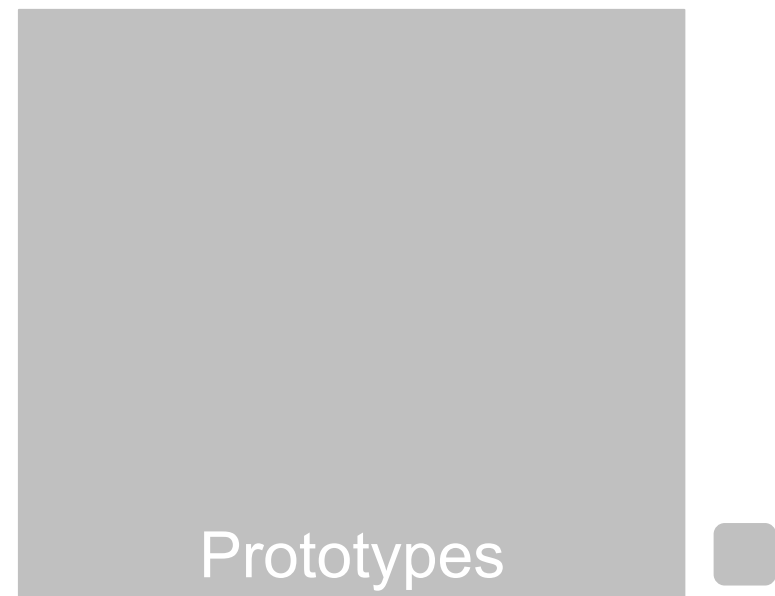
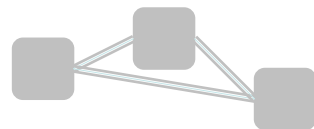
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# Lively Kernel-Wiki-Server-Mashup

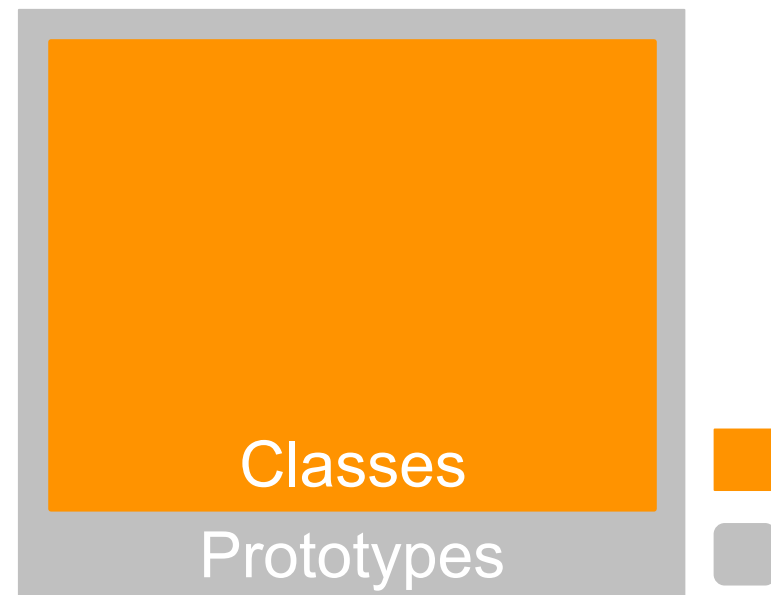
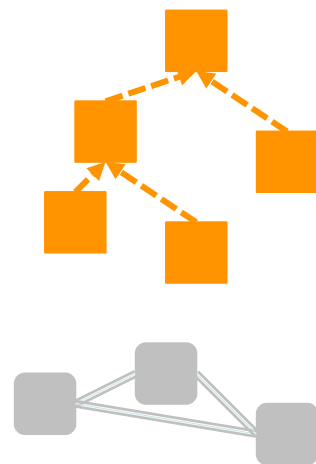


# Lively Programming Models

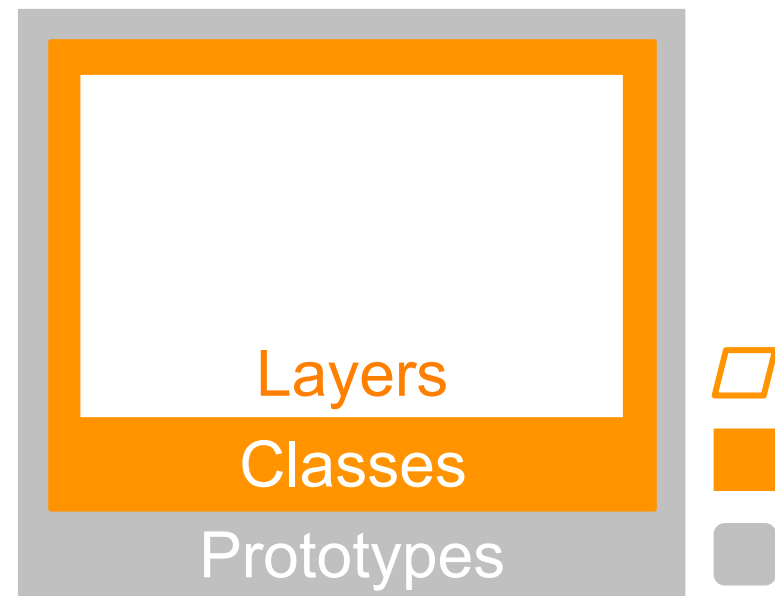
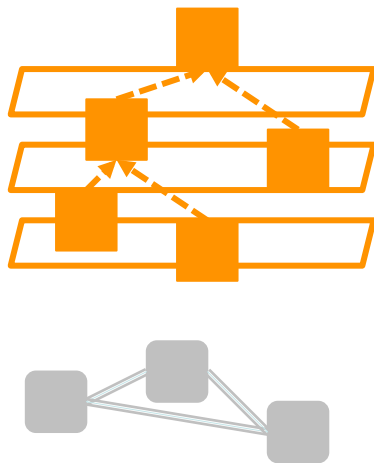




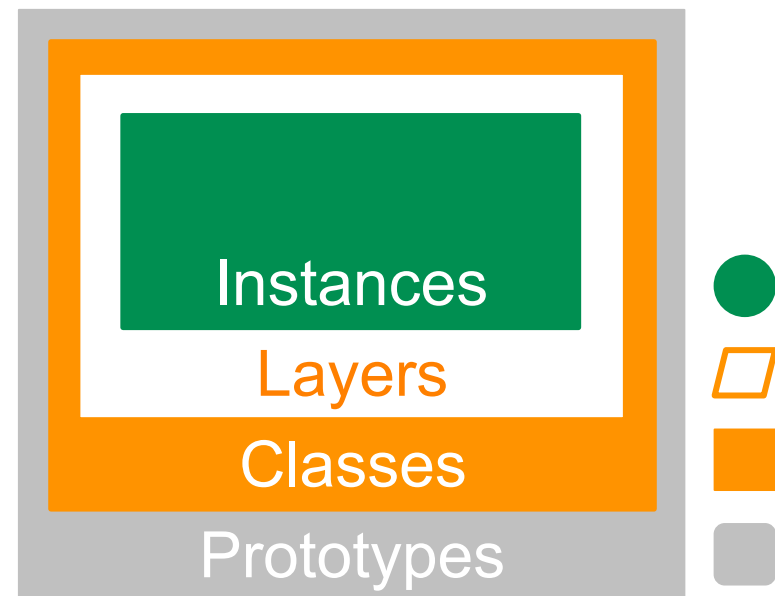
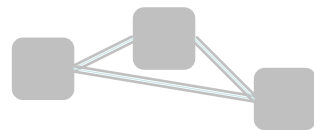
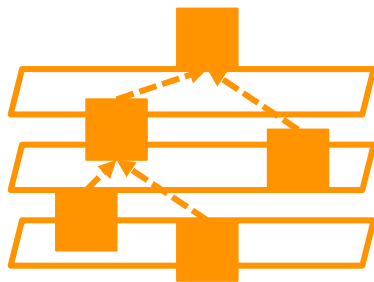
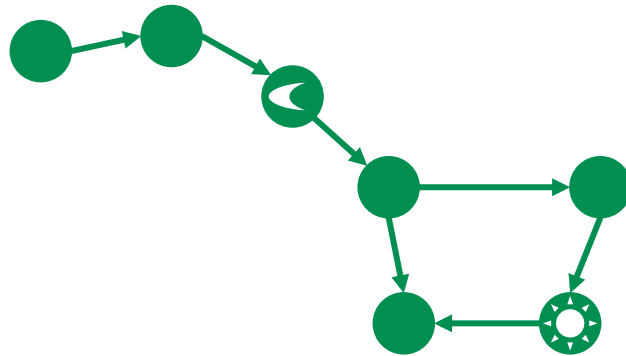
# Lively Programming Models



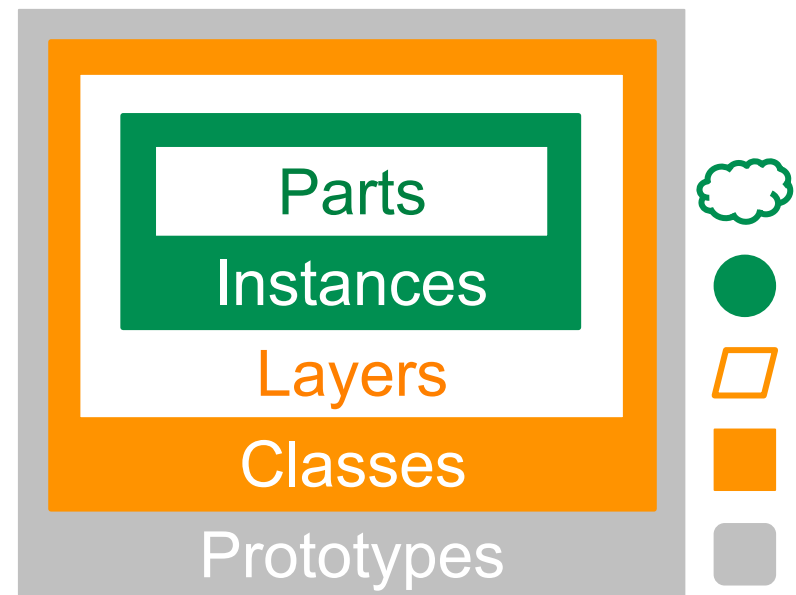
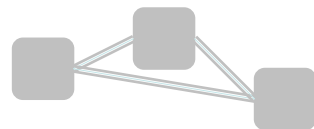
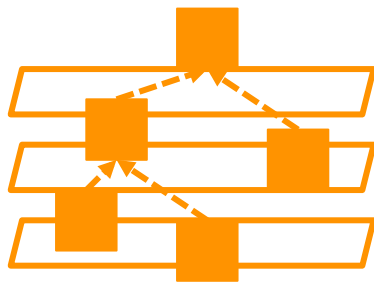
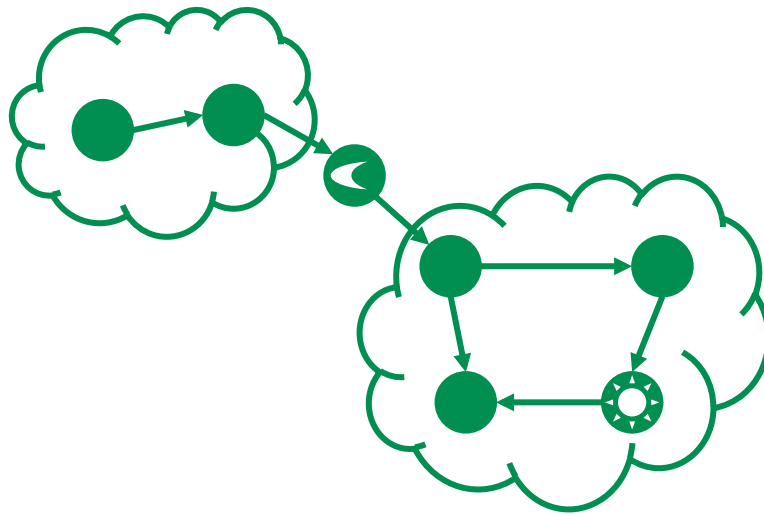
# Lively Programming Models



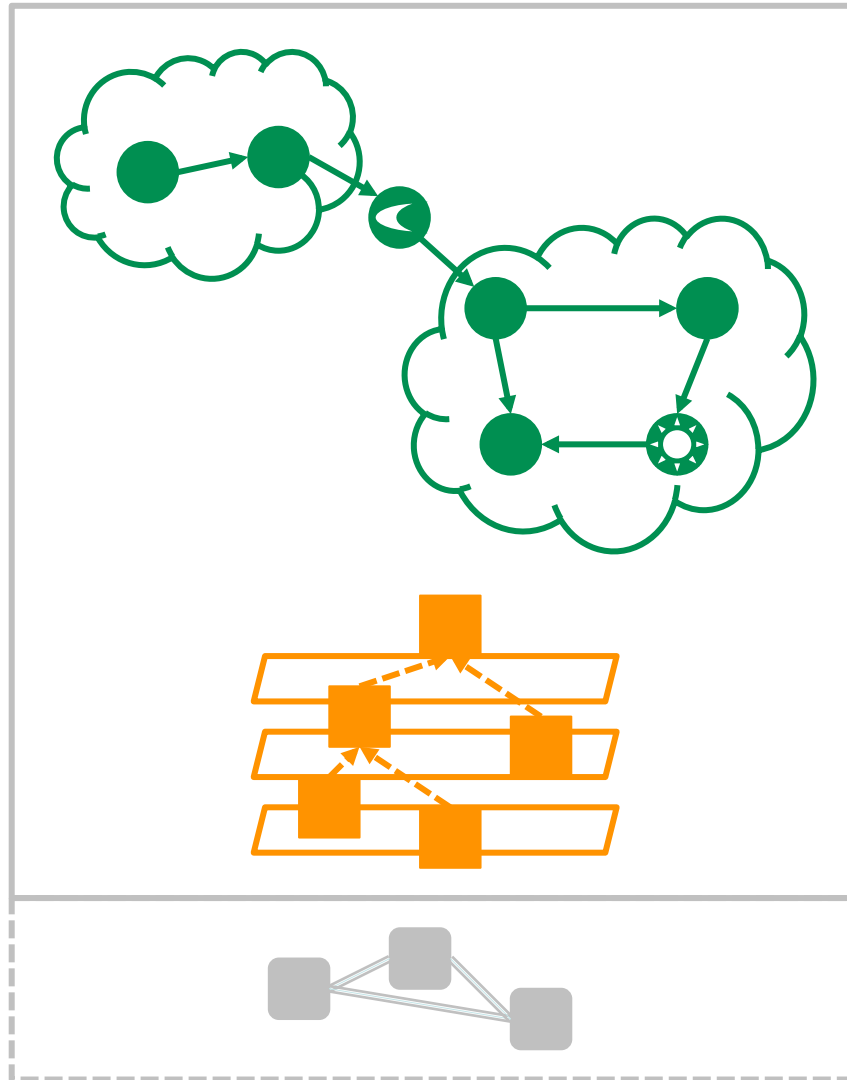
# Lively Programming Models



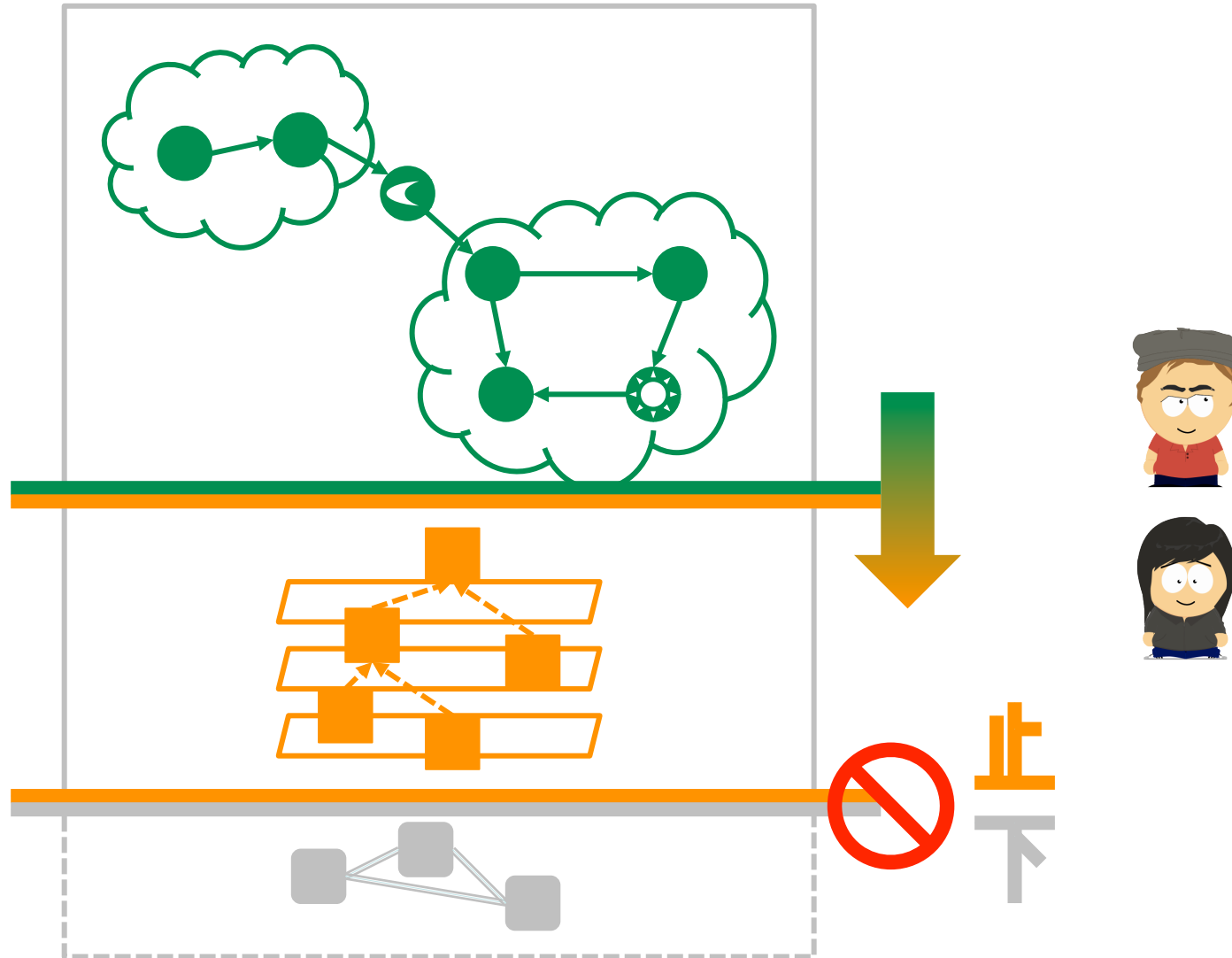
# Lively Programming Models



# Lively Programming Models



# Lively Programming Models

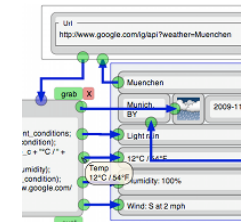
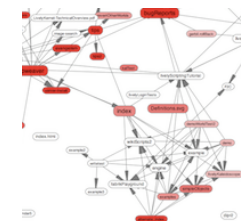
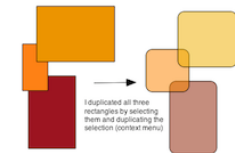


# Acknowledgements

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- Yoshiki Ohshima (Viewpoints Research Institute)
- Dave Thomas (Bedarra Research Labs)
- Bastian Steinert (Hasso-Plattner-Institute)
- Michael Perscheid (Hasso-Plattner-Institute)
- ...



This is a **sandbox**...  
you can change it



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