

PL@NES - Reading Club

Paper: **Deprecating the Observer
Pattern with Scala.React**

by Ingo Maier & Martin Odersky

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THE FOLLOWING **PRESENTATION** DOES **NOT** INCLUDE
MATERIAL ABOUT **SCALA** NOR **SCALA.REACT**.
IT WILL HIGHLIGHT THE GREAT PARTS OF THE ORIGINAL
PAPER IN A GENERIC WAY.



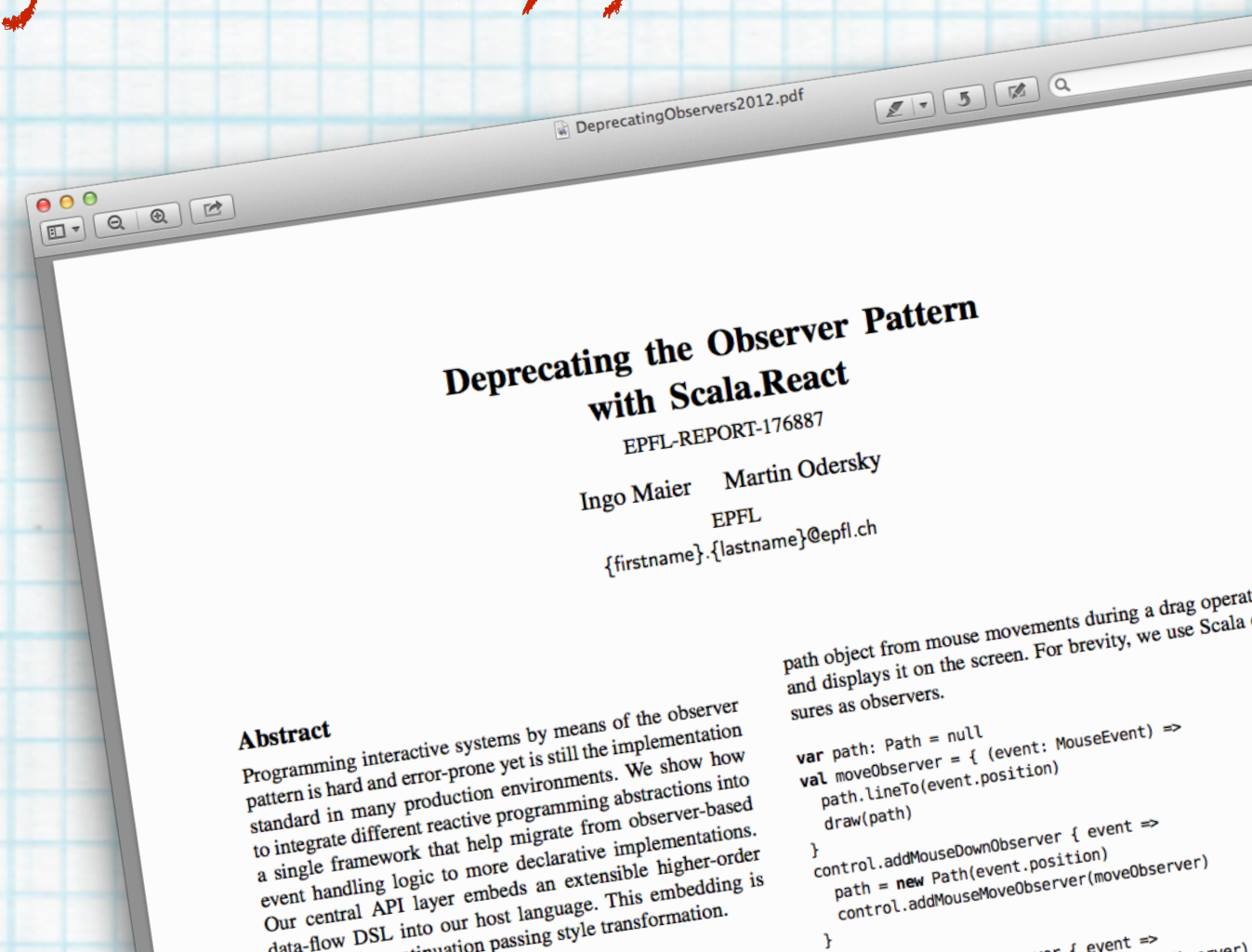
Contributions

- Observer Pattern
- Reactive Semantics
- ~~Scala React~~
- Reactive Performance

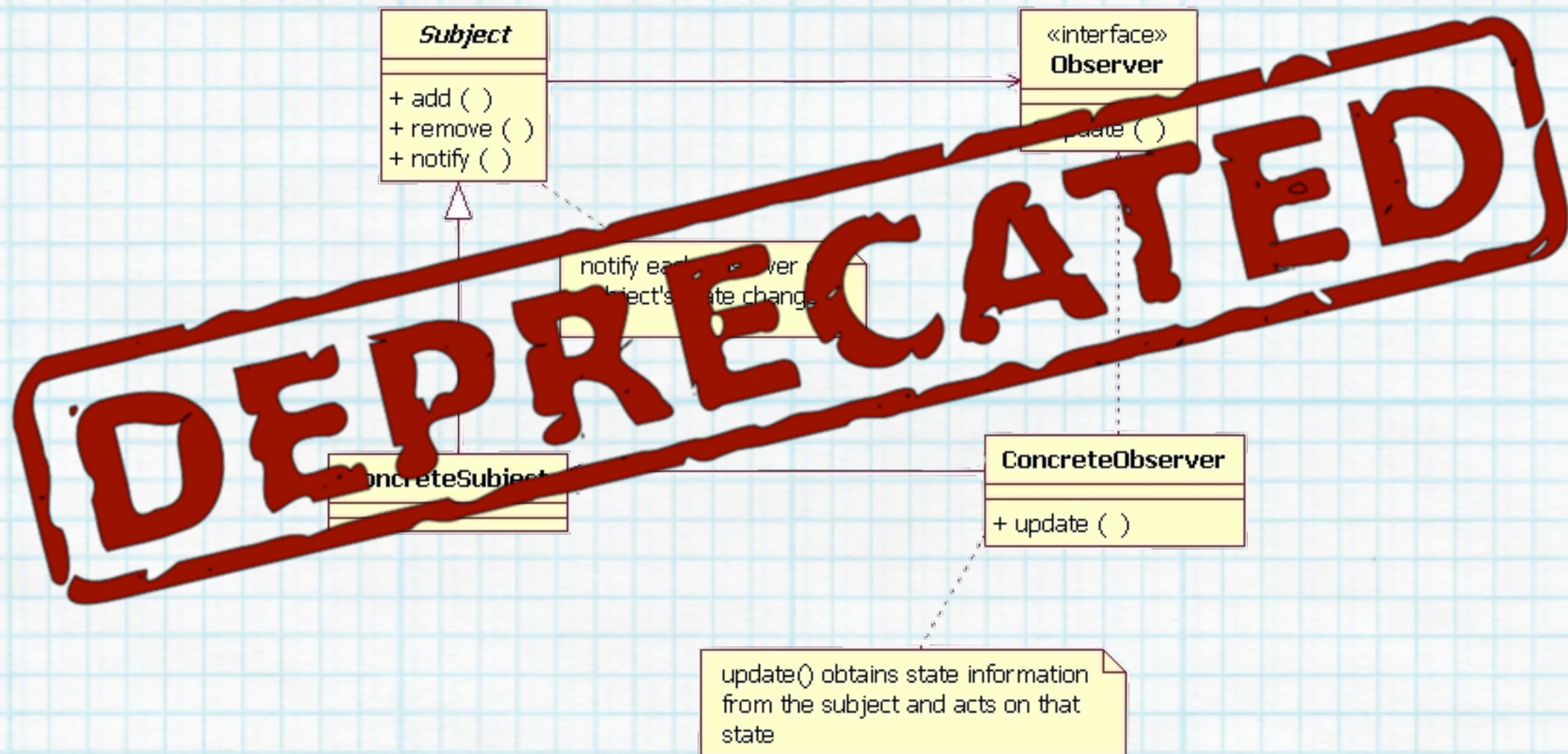
ok, maybe a little ;-)

Goals

- summary of RP
- applicability to NES



Observer Pattern





REALLY!?!

UPDATE WEEKEND UPDATES

Observer Pattern

```
var path: Path = null
```

composability

encapsulation

```
val moveObserver = { (event: MouseEvent) =>
    path.lineTo(event.position)
    draw(path)
}
```

abstraction

```
control.addMouseDownObserver { event =>
    path = new Path(event.position)
    control.addMouseMoveObserver(moveObserver)
}
```

semantic
distance

uniformity

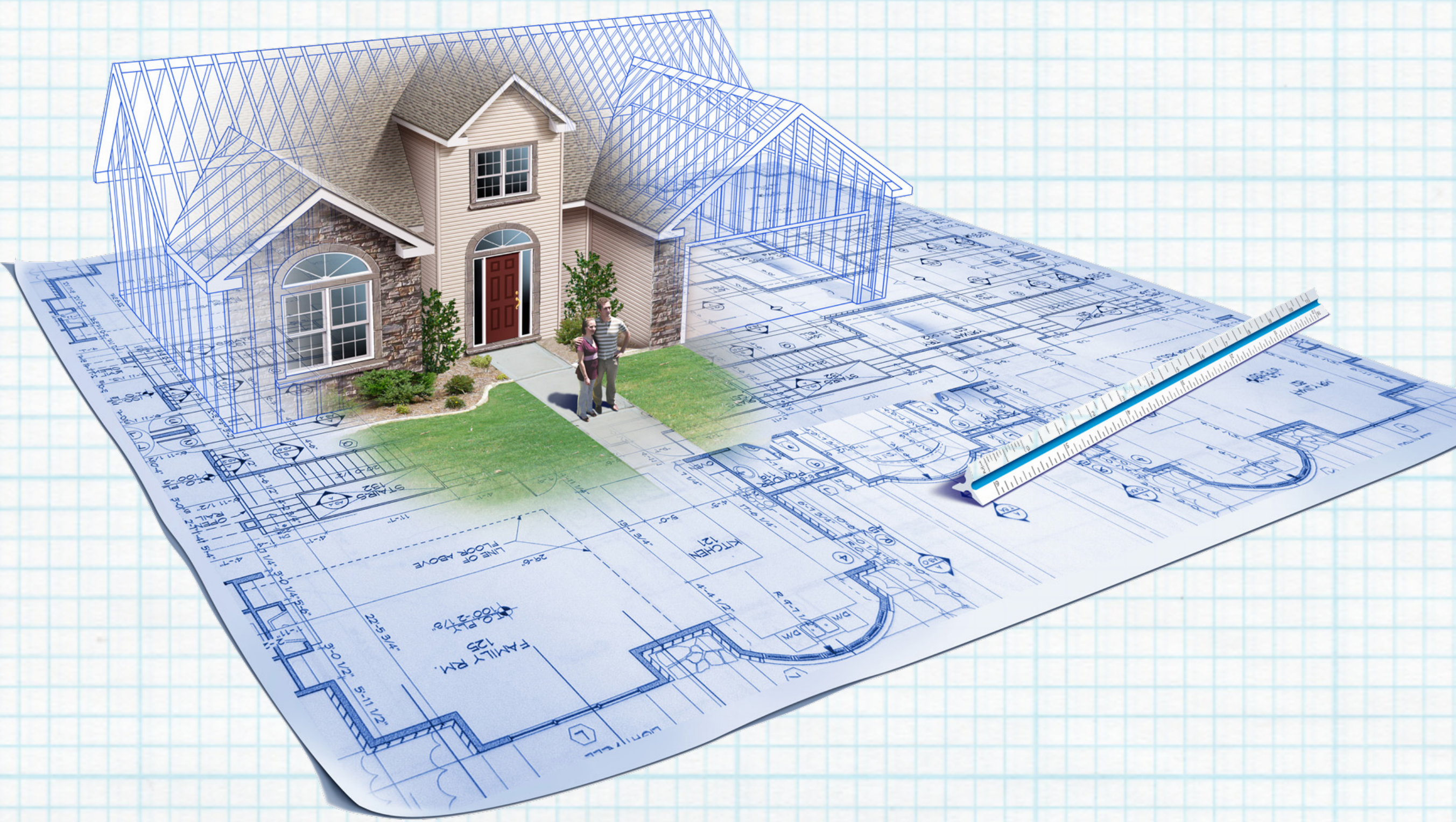
```
control.addMouseUpObserver { event =>
    control.removeMouseMoveObserver(moveObserver)
    path.close()
    draw(path)
}
```

separation of
concerns

resource
management

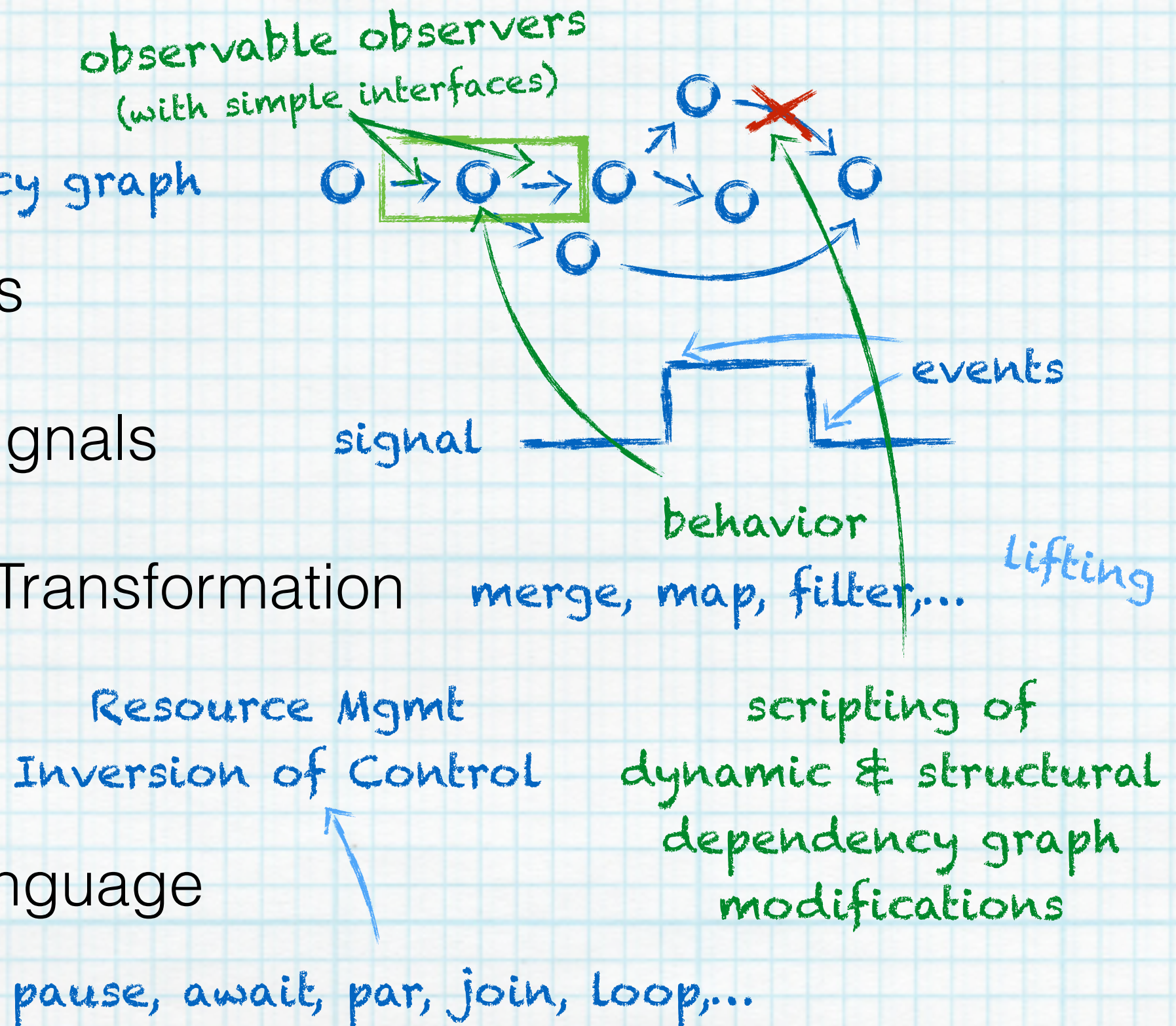
side-effects

data
consistency

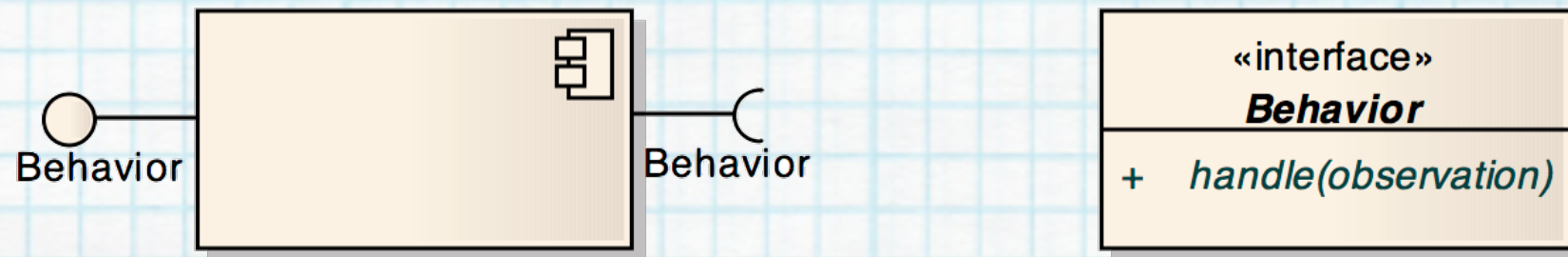


Reactive Semantics

- Event Streams
- Events and Signals
- Composition/Transformation
- Reactors
- Data Flow Language



Reactive Semantics



+ API for dynamic binding modifications



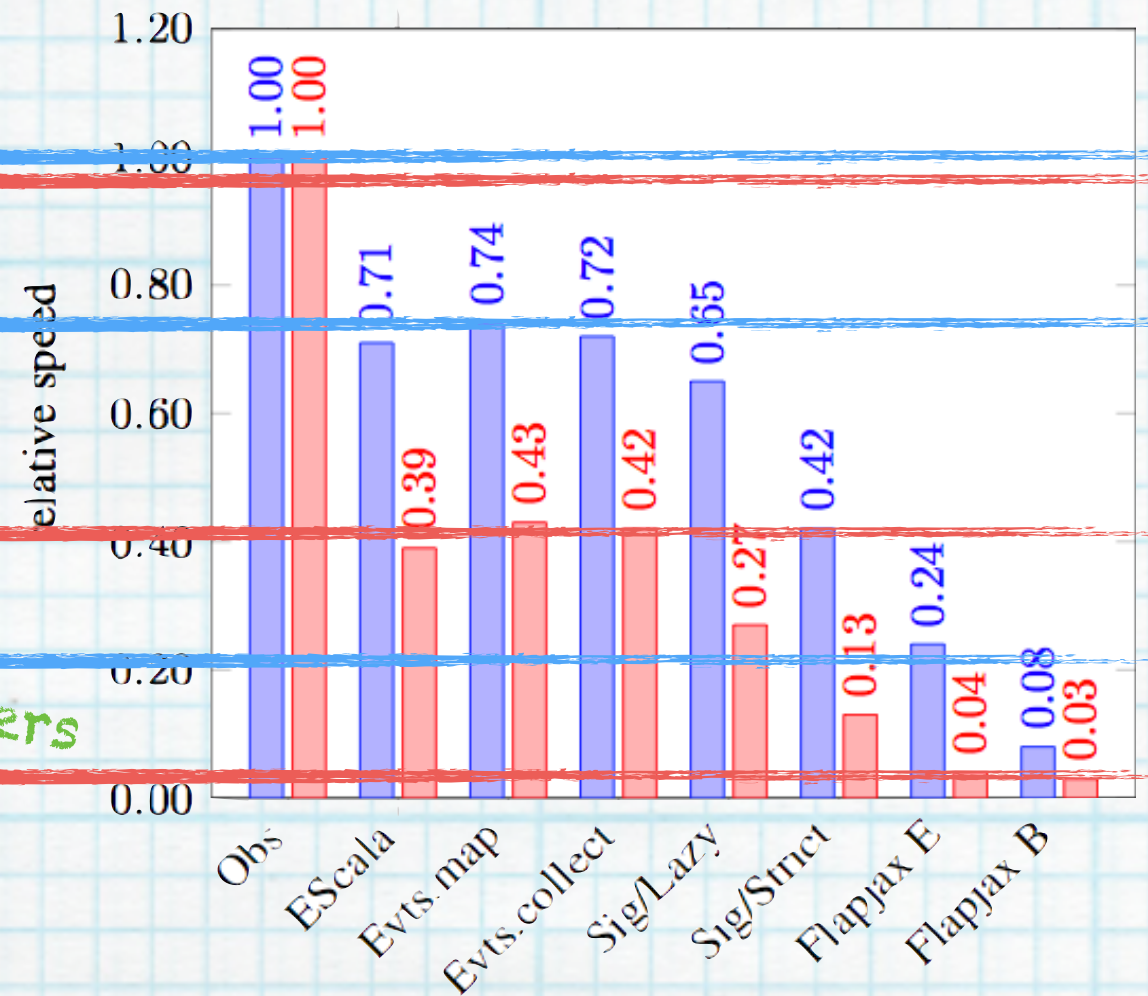
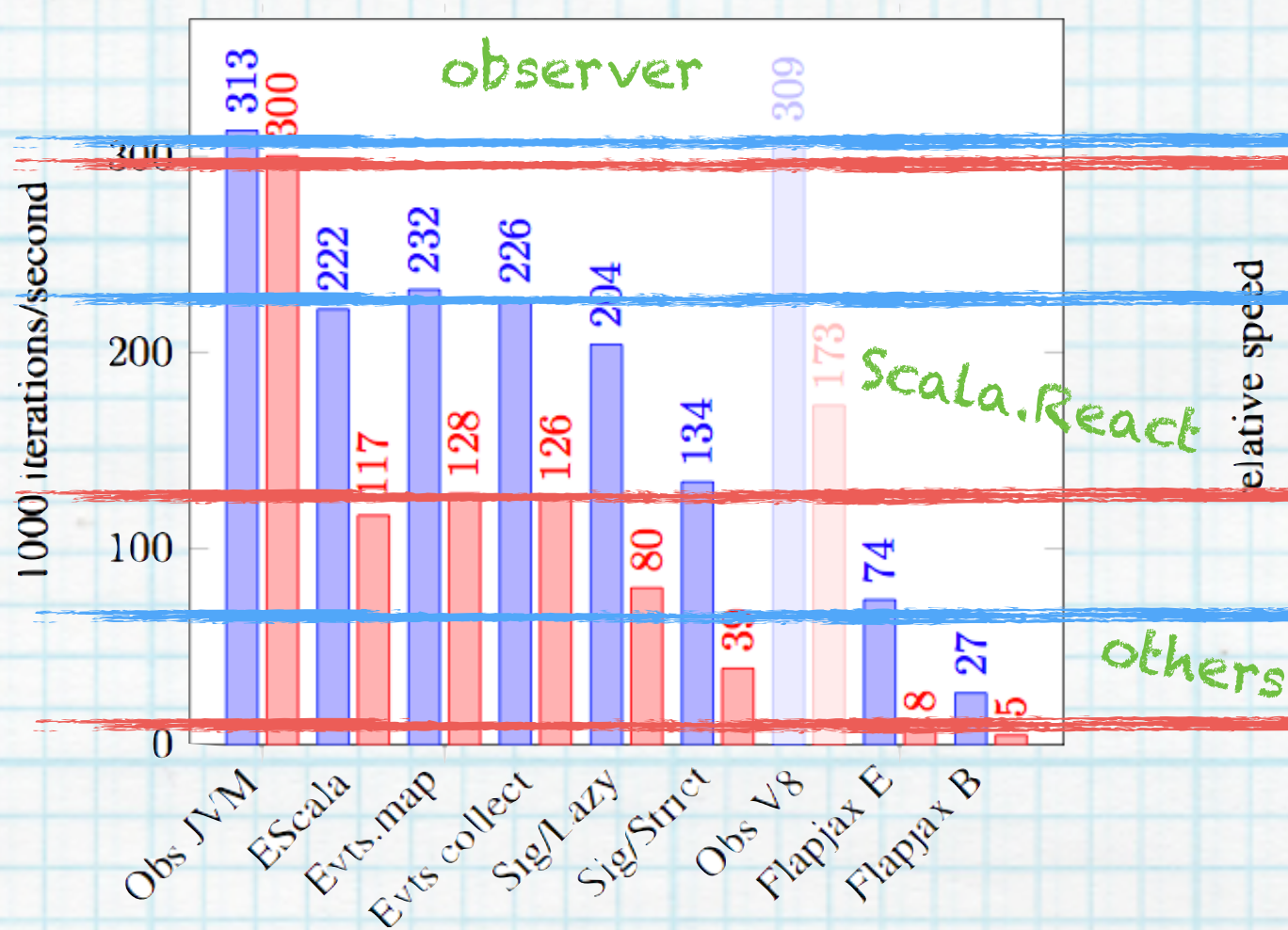
Reactive Performance

chain

source ○ → ○ ... ○ → ○ observer

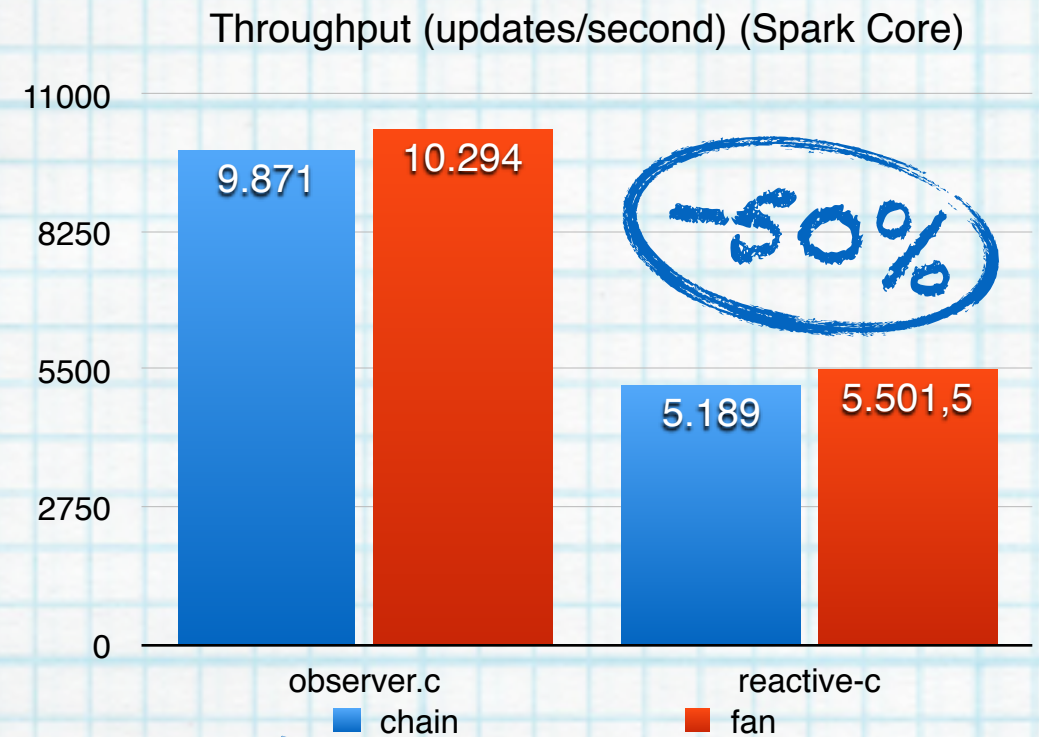
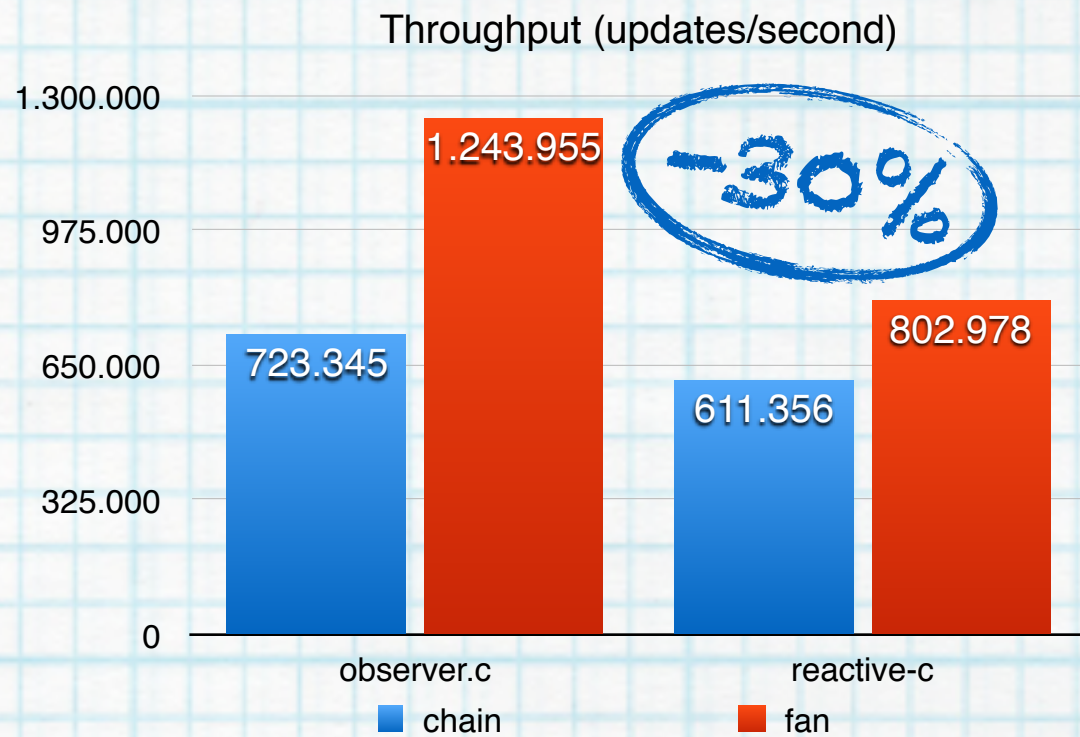
fan

source ○ → ○ → ○ → ○ observers
 ↓
 ○ → ○
 ↓
 ○ → ○



Does it Scale?

on embedded devices



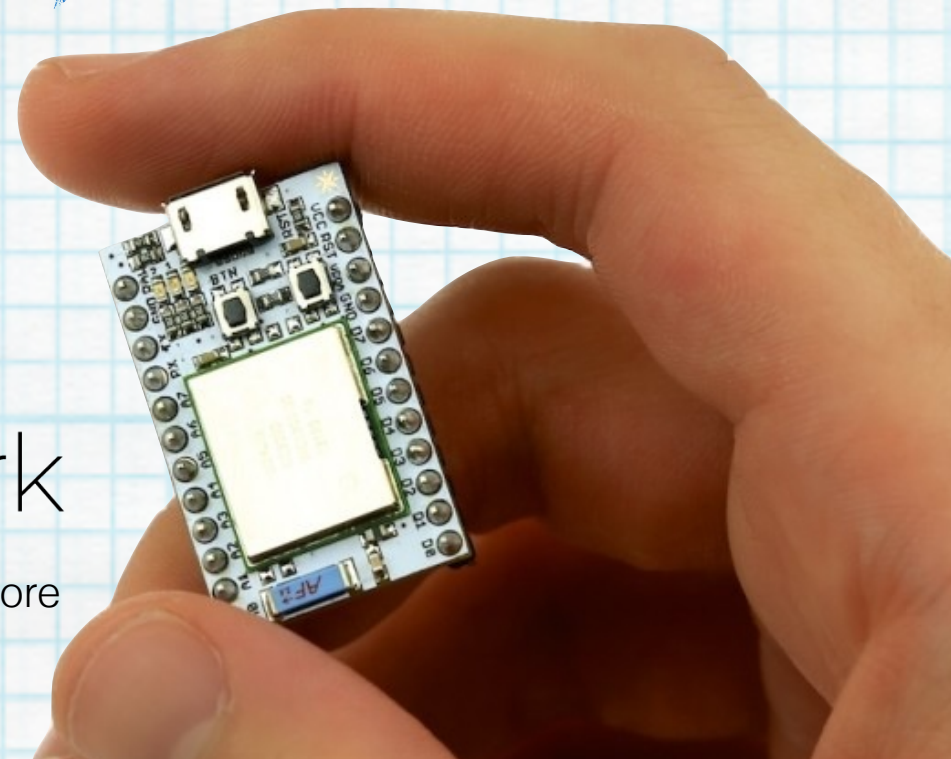
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Intel 2,4 GHz Intel Core 2 Duo
2530Mhz operating frequency



ARM 32-bit Cortex™-M3 CPU Core
72Mhz operating frequency
12



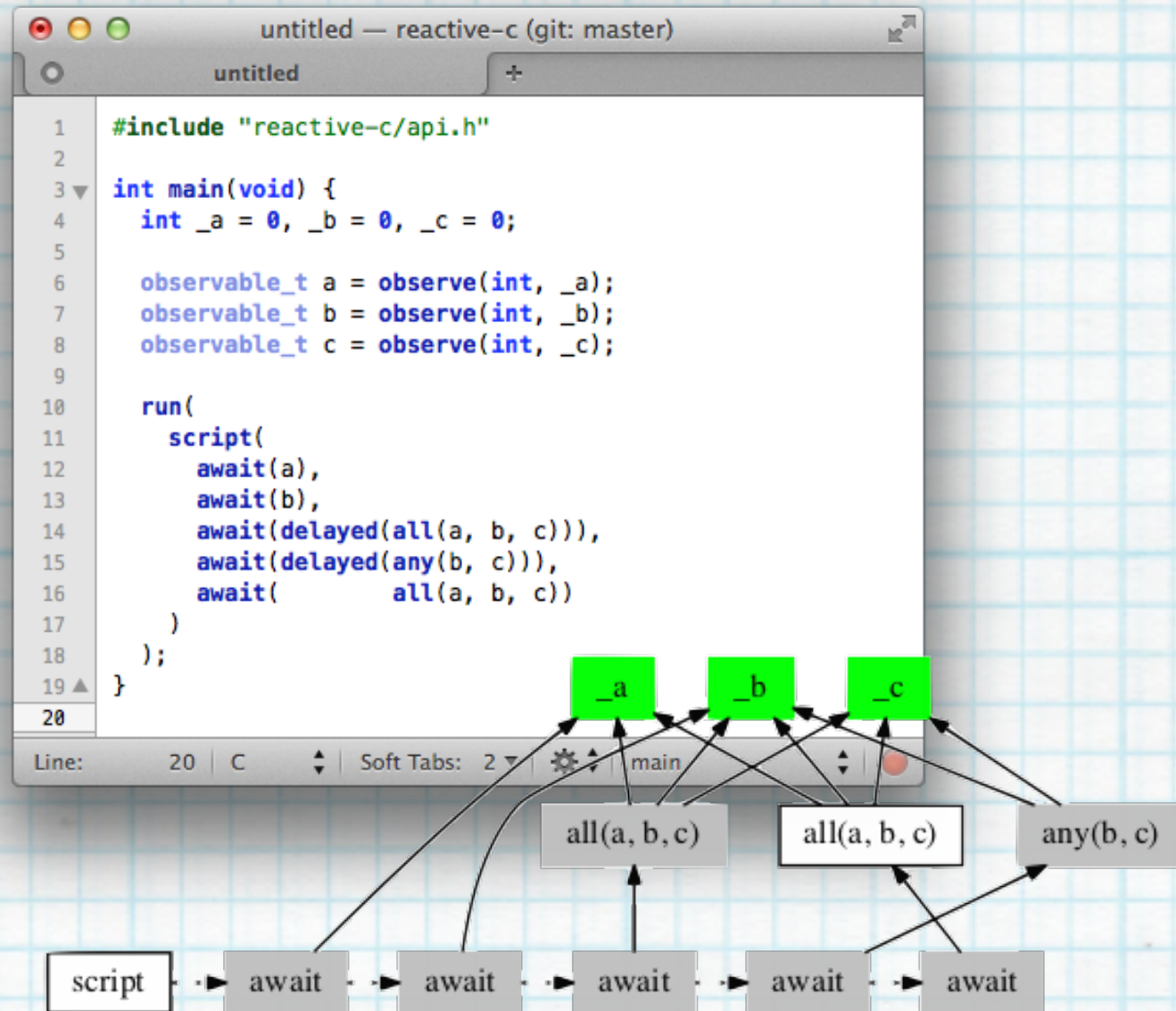


“Time moves in one direction,
memory in another.”

William Gibson

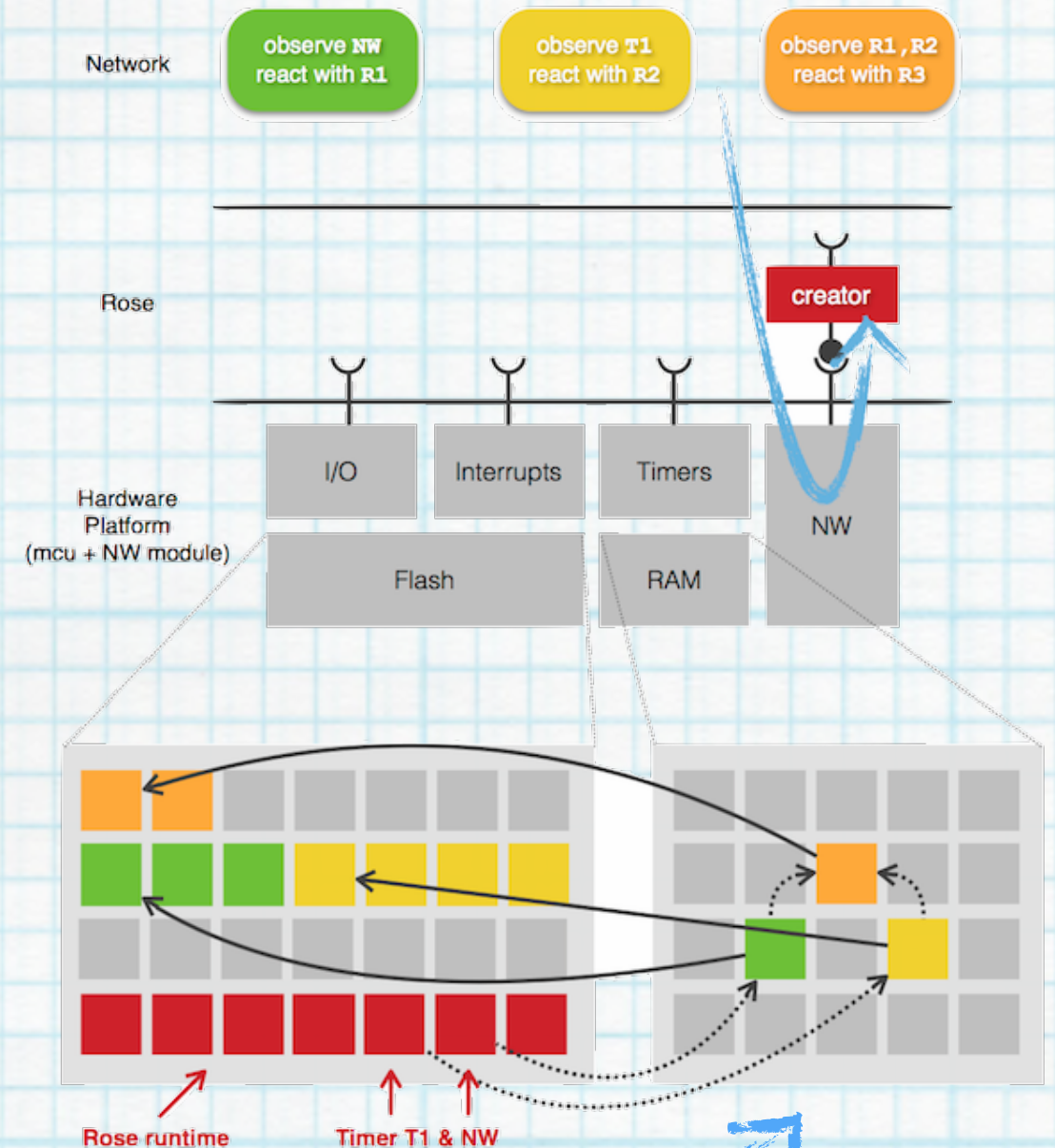
Shameless Plug

Reactive-C



<https://github.com/christophevg/reactive-c>

Rose



<https://github.com/christophevg/rose>

Deprecating the Observer Pattern?

- Automate Dependency Graph Management
- Avoid Data Inconsistencies
- Offer a Functional API
- Allow for Imperative Encoding of Algorithms

Observer Pattern
on Steroids!



Reactions ?

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<http://www.slideshare.net/christophevg/deprecating-the-observer-pattern>