CONSCIOUS COUPLING
FOR ANTIFRAGILITY

NOV 2016

Hi. I'm Dave.

@laribee
dave@nerdnoir.com

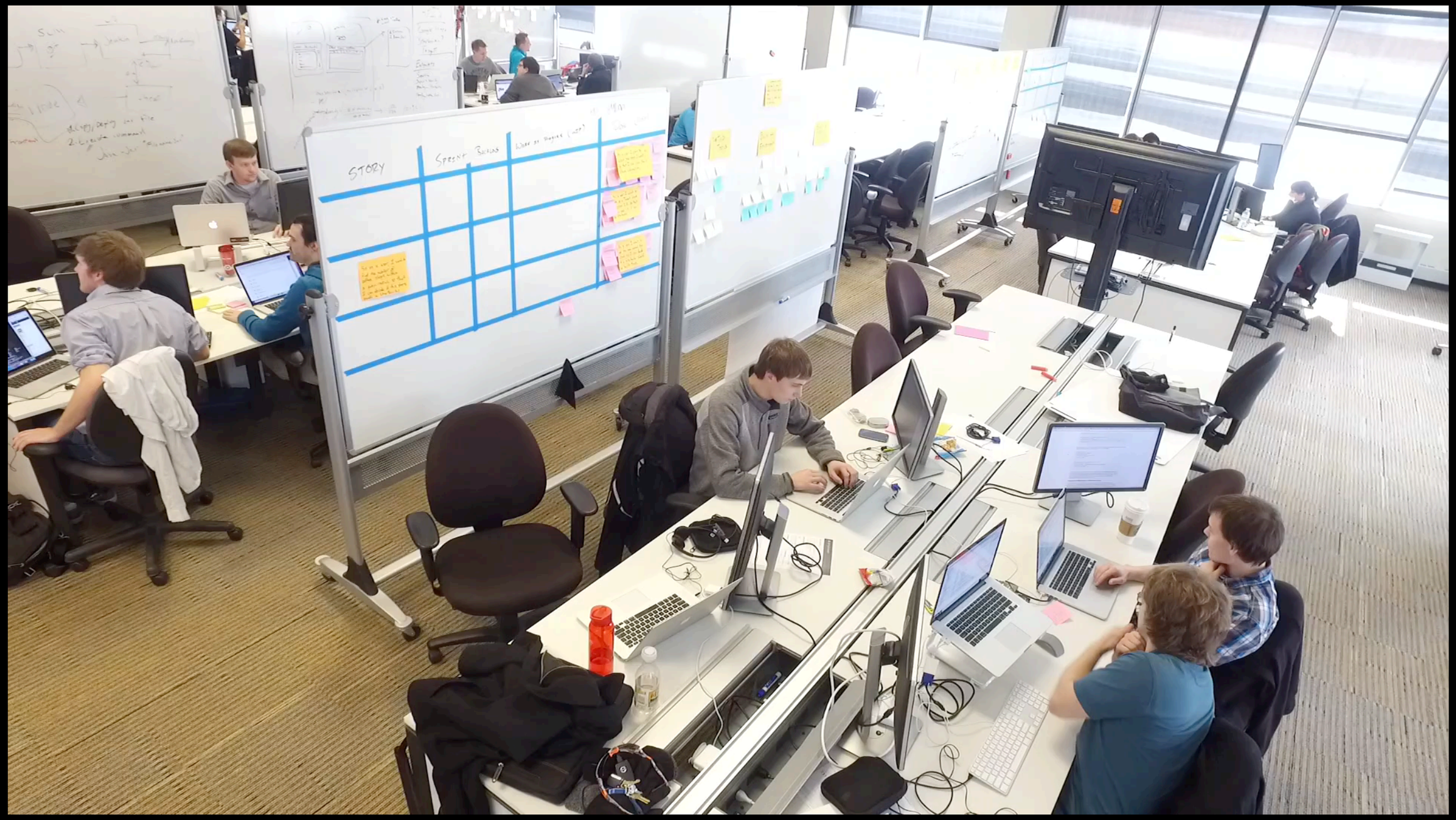
20+ Years in Dev,
Former C#/Arch MVP,
Former Coach @ VersionOne,
ALT.NET Enfant Terrible,
Playing, Full Stack Coach

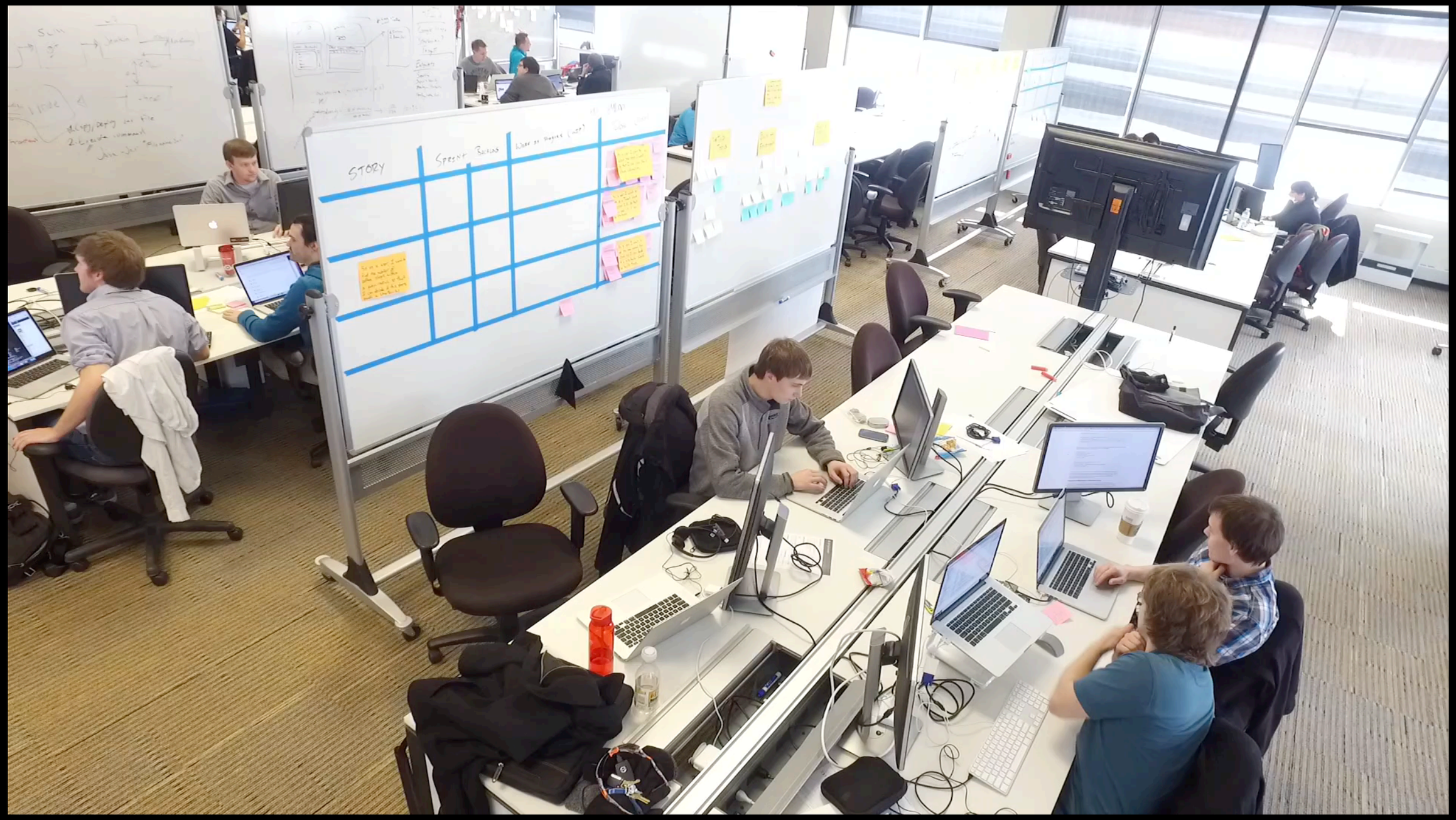
Coaching & Workshops
Product Thinking,
Continuous Delivery,
Test Driven Design,
Managing Technical Debt

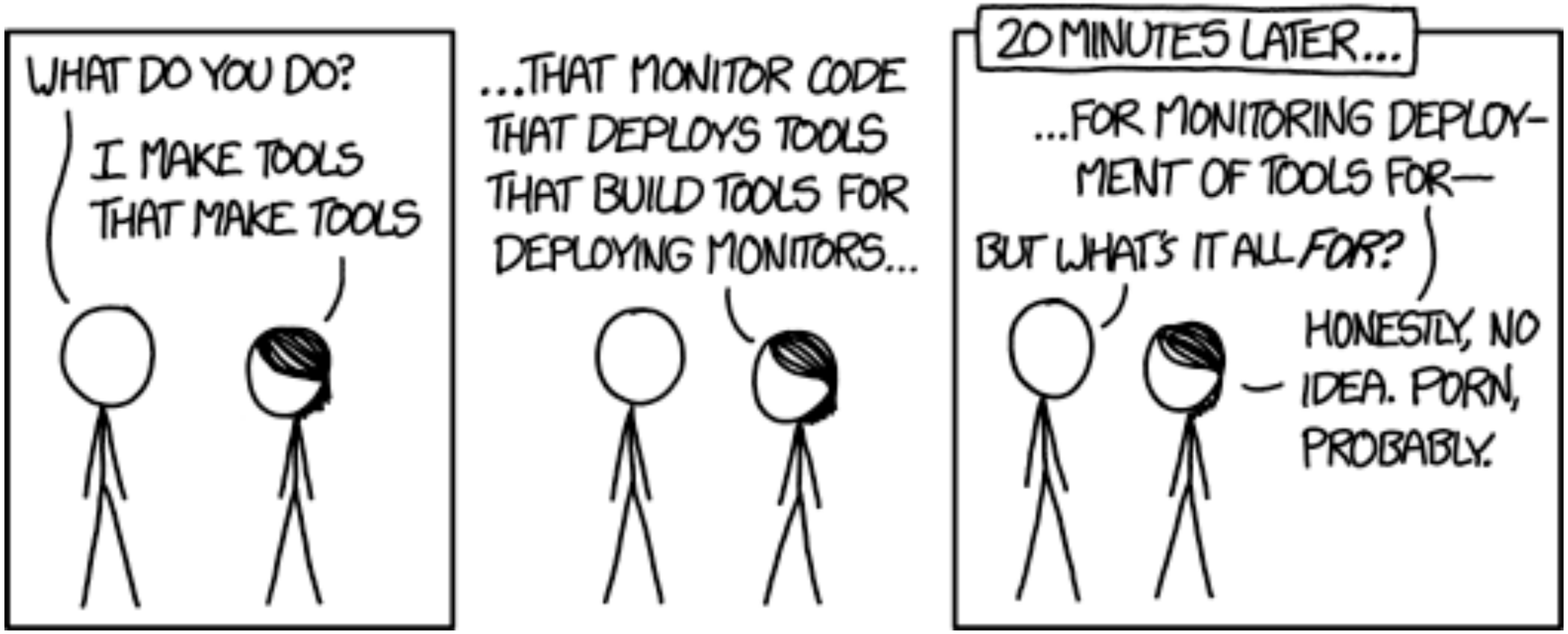
© 2016 Nerd/Noir, LLC.

MOTIVES

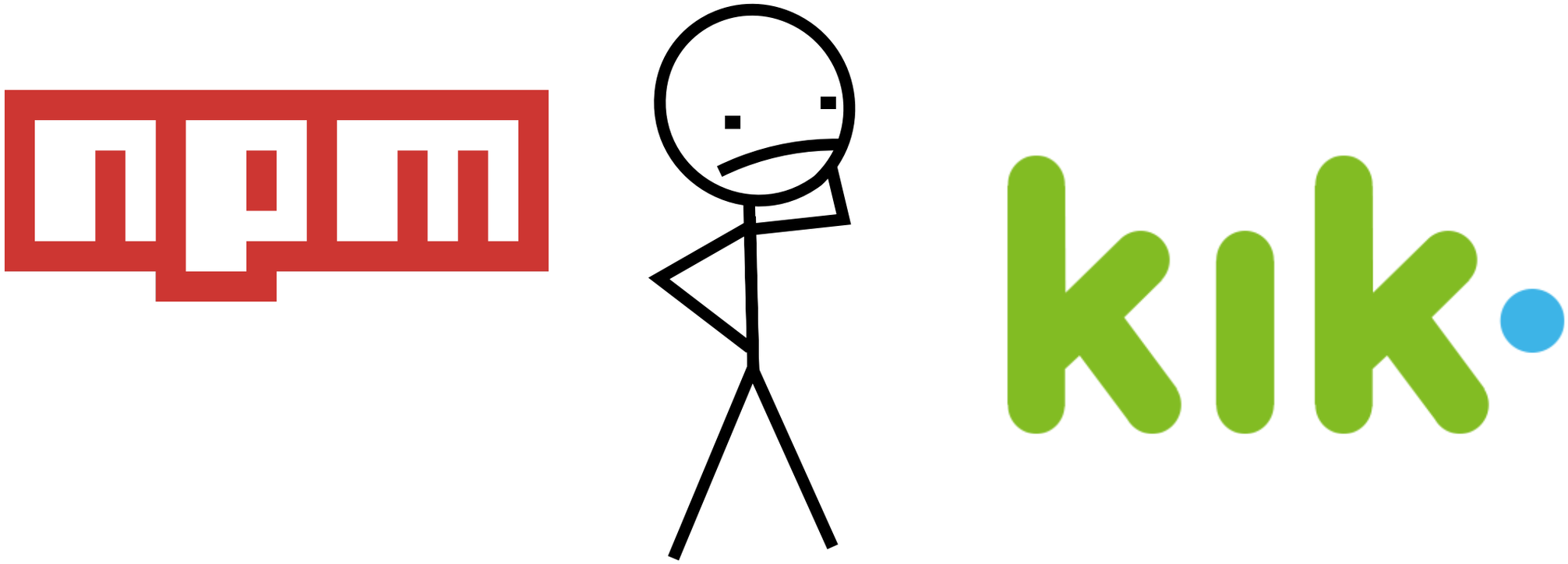
© 2016 Nerd/Noir, LLC.


STORY


STORY



© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.

NETFLIX

BABEL

Spotify®

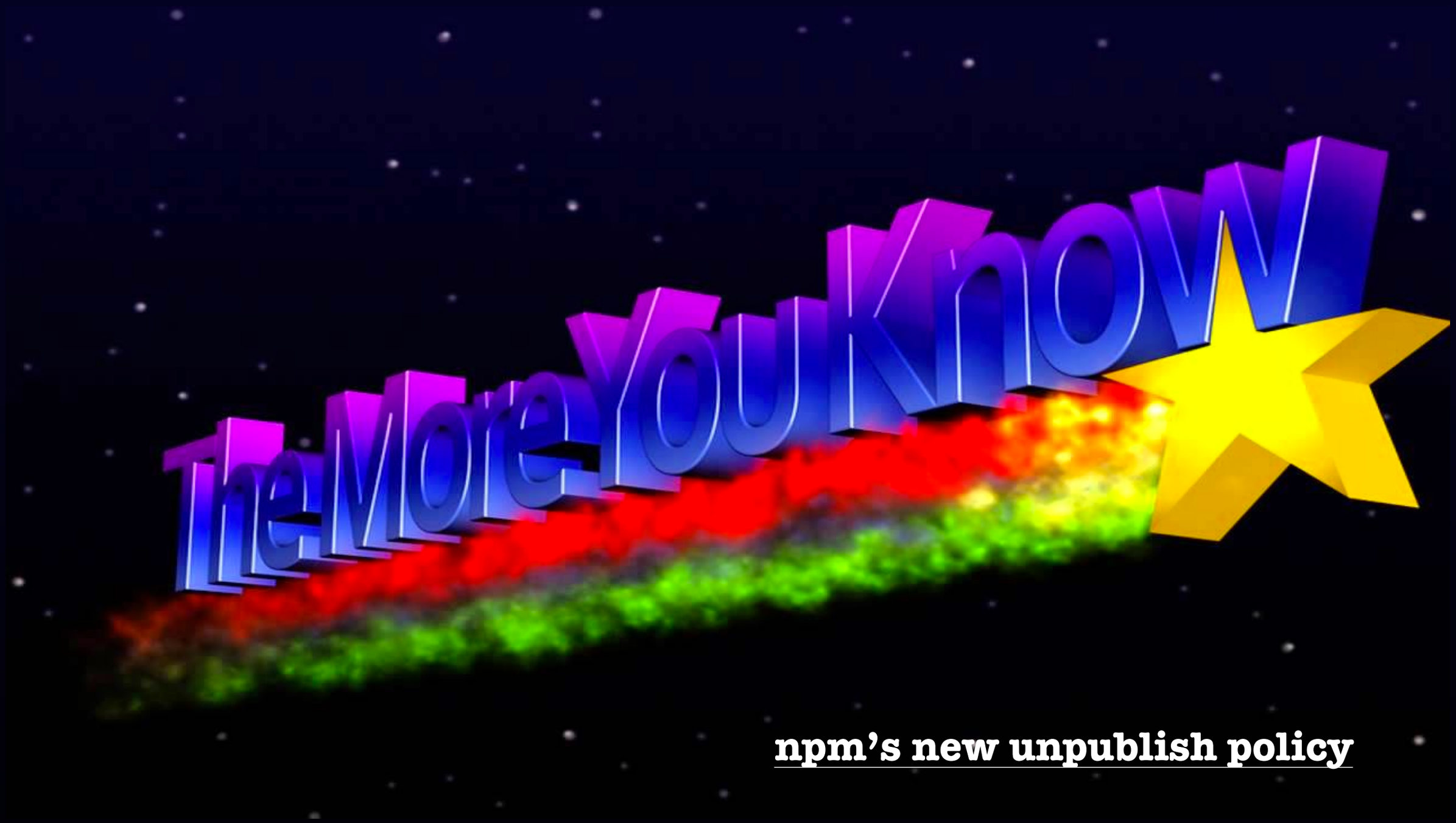
facebook

ATOM

© 2016 Nerd/Noir, LLC.

SURPRISE!

YOUR CUSTOMERS ARE F*CKED



npm's new unpublish policy

© 2016 Nerd/Noir, LLC.

1. NAMING
2. COUPLING
3. COHESION
4. COMPLEXITY

© 2016 Nerd/Noir, LLC.

1. NAMING
2. COUPLING
3. COHESION
4. COMPLEXITY

© 2016 Nerd/Noir, LLC.

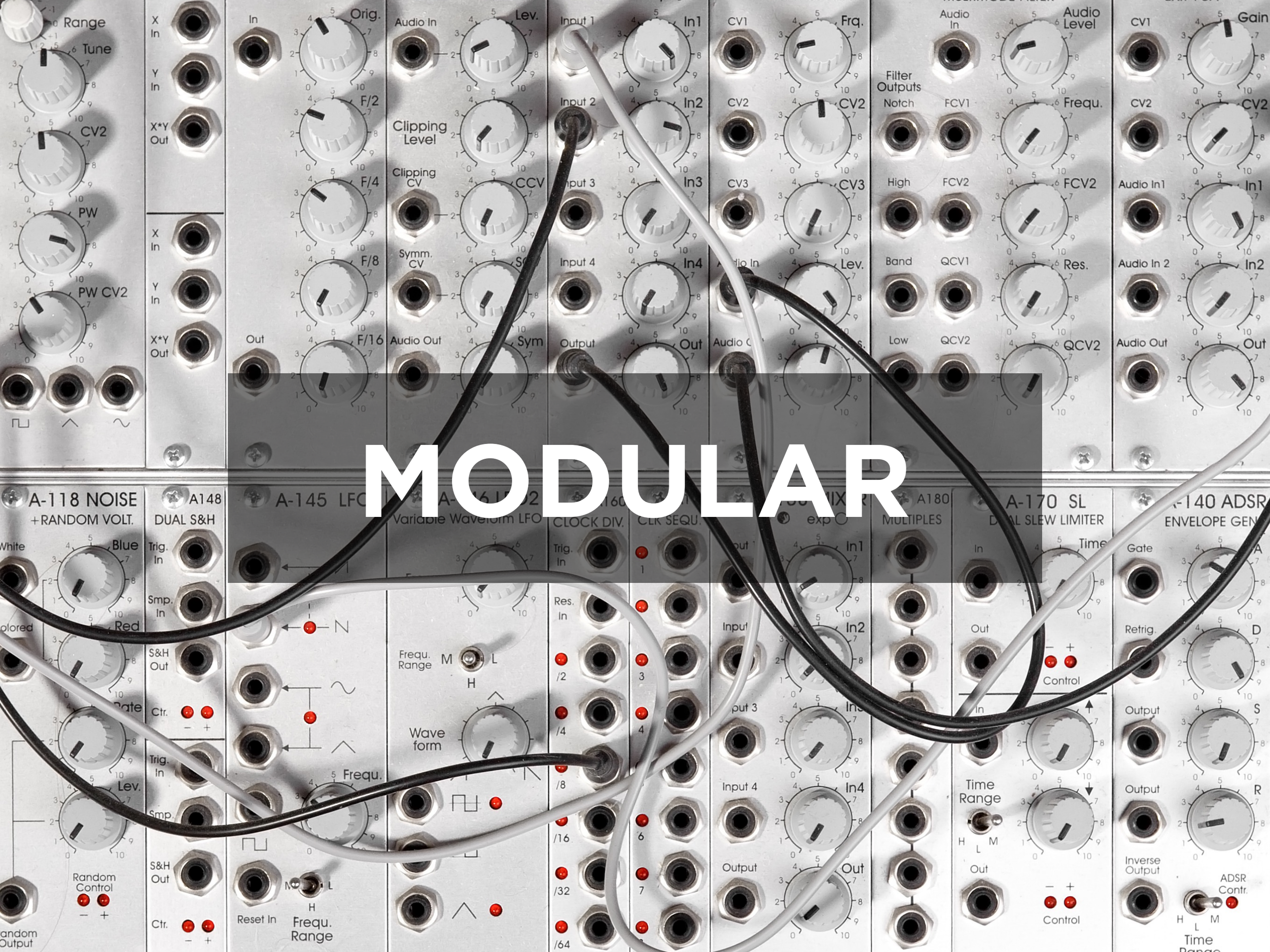
0. CACHE INVALIDATION
1. NAMING
2. COUPLING
3. COHESION
4. COMPLEXITY

© 2016 Nerd/Noir, LLC.

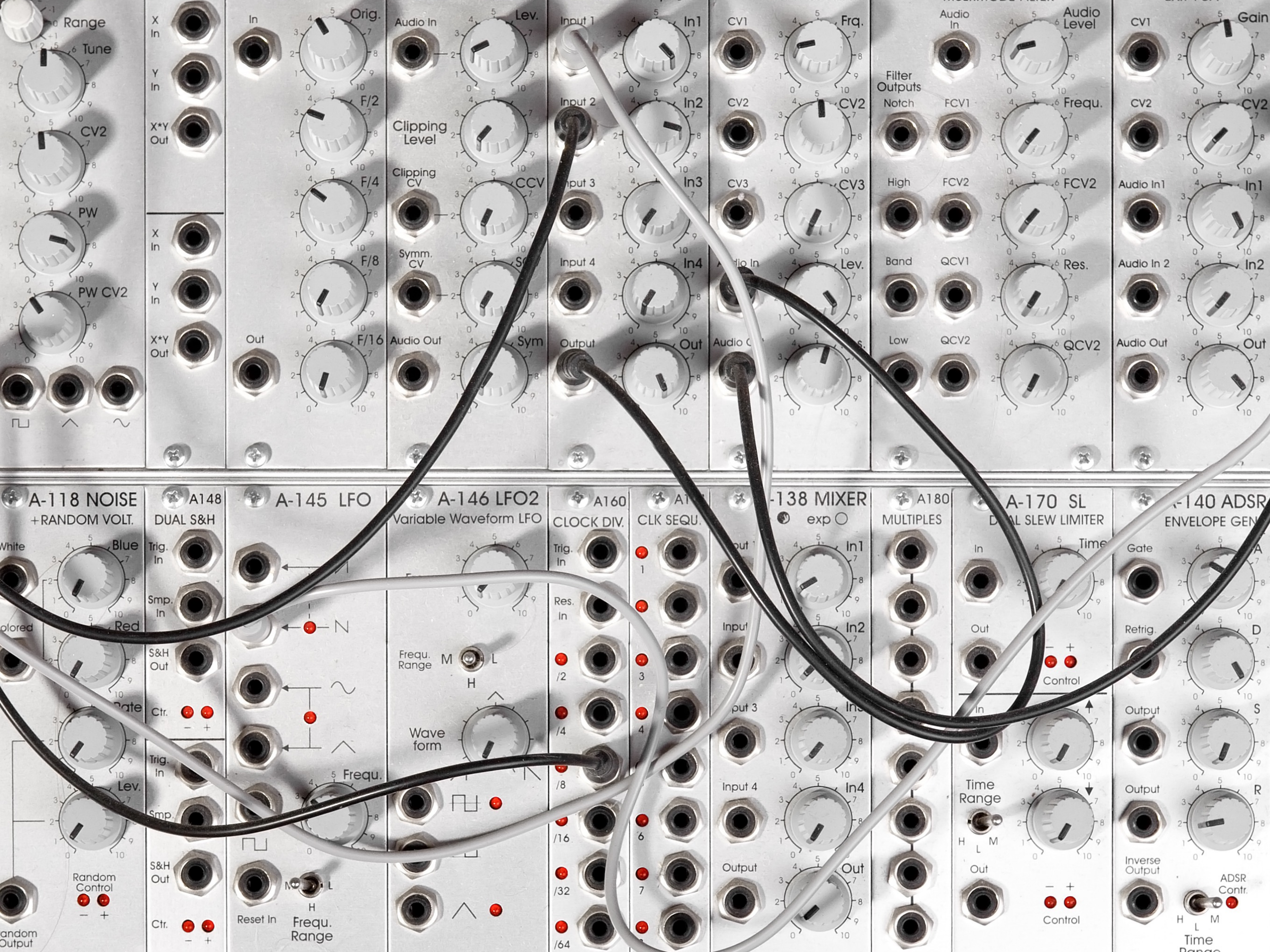
2. COUPLING

© 2016 Nerd/Noir, LLC.

MODULAR + SOCIAL


Range
Tune
CV2
PW
PW CV2
X In
Y In
X*Y Out
In
Orig.
F/2
F/4
F/8
F/16
Out
Audio In
Lev.
Clipping Level
Clipping CV
CCV
Symm. CV
Sym
Audio Out
Input 1
In1
Input 2
In2
Input 3
In3
Input 4
In4
Output
Out
CV1
Frq.
CV2
CV3
Lev.
Filter Outputs
Notch
FCV1
Frequ.
High
FCV2
Band
QCV1
Res.
Low
QCV2
Gain
Audio In1
Audio In 2
A-118 NOISE
+RANDOM VOLT.
A148
DUAL S&H
A-145 LFO
Variable Waveform LFO
CLOCK DIV.
CLK SEQU.
A180
MULTIPLES
A-170 SL
DUAL SLEW LIMITER
A-140 ADSR
ENVELOPE GEN
White
Blue
Red
Trig. In
Smp. In
S&H Out
Ctr.
Lev.
Random Control
Random Output
Frequ.
Reset In
Frequ. Range
Wave form
Res. In
/2
/4
/8
/16
/32
/64
exp
Time
Gate
Retrig.
Control
Time Range
Output
Inverse Output
ADSR Contr.

MODULAR


Range
Tune
CV2
PW
PW CV2
X In
Y In
X*Y Out
In
Out
Orig.
F/2
F/4
F/8
F/16
Audio In
Clipping Level
Clipping CV
Symm. CV
Audio Out
Lev.
CCV
Sym
Input 1
Input 2
Input 3
Input 4
Output
In1
In2
In3
In4
Out
CV1
CV2
CV3
Frq.
Filter Outputs
Notch
High
Band
Low
FCV1
FCV2
QCV1
QCV2
Frequ.
Res.
Audio Level
Gain
Audio In1
Audio In 2
A-118 NOISE
+RANDOM VOLT.
White
Blue
Red
Rate
Random Control
Random Output
A148
DUAL S&H
Trig. In
Smp. In
S&H Out
Ctr.
Smp.
A-145 LFO
Frequ.
Reset In
Frequ. Range
A-146 LFO2
Variable Waveform LFO
Wave form
A160
CLOCK DIV.
Res. In
/2
/4
/8
/16
/32
/64
CLK SEQU.
-138 MIXER
exp
A180
MULTIPLES
A-170 SL
DUAL SLEW LIMITER
Time
Control
Time Range
A-140 ADSR
ENVELOPE GEN
Gate
Retrig.
Output
Inverse Output
ADSR Contr.
Time Range

A COMPONENT...

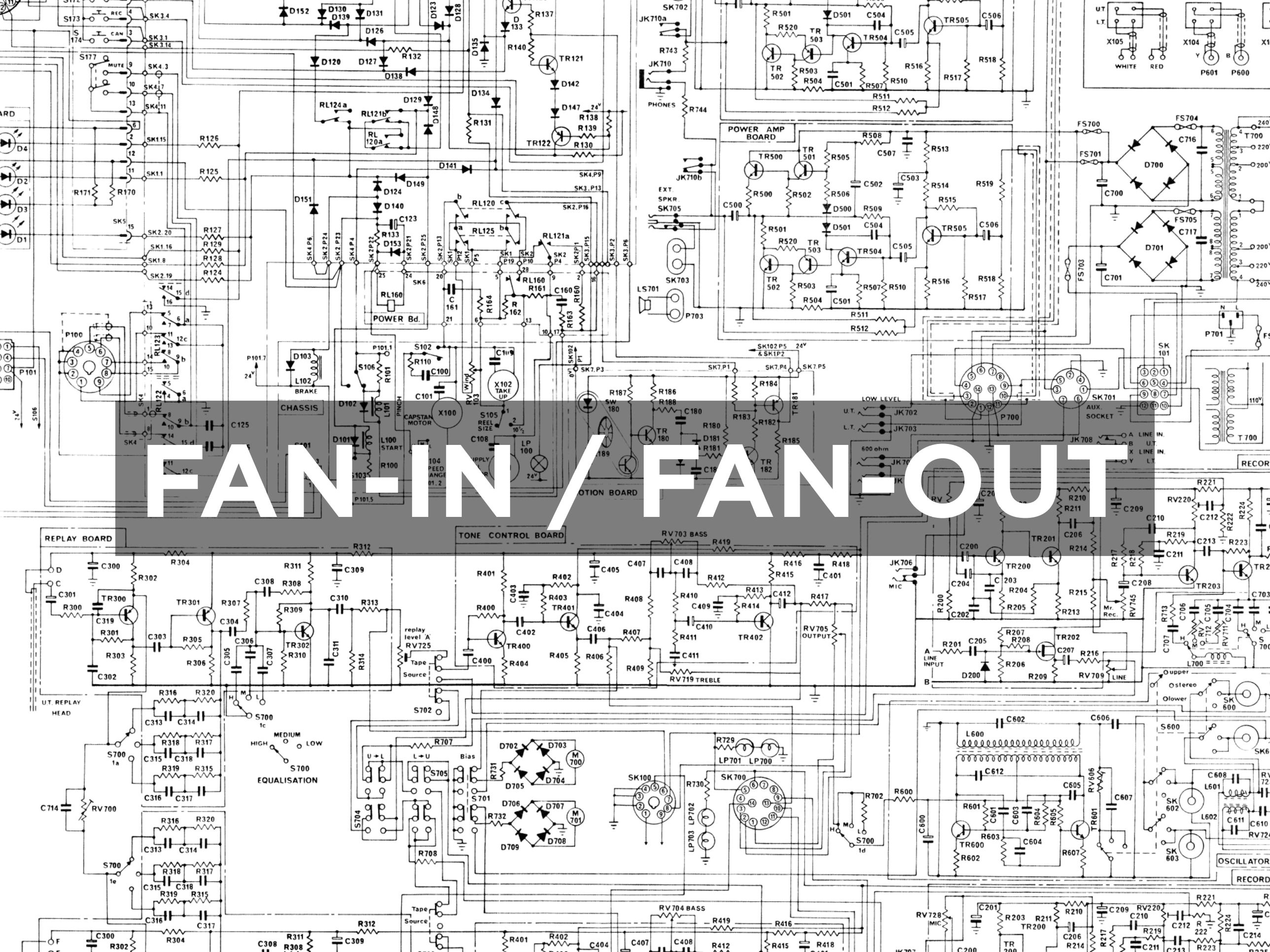
...provides some kind of value.

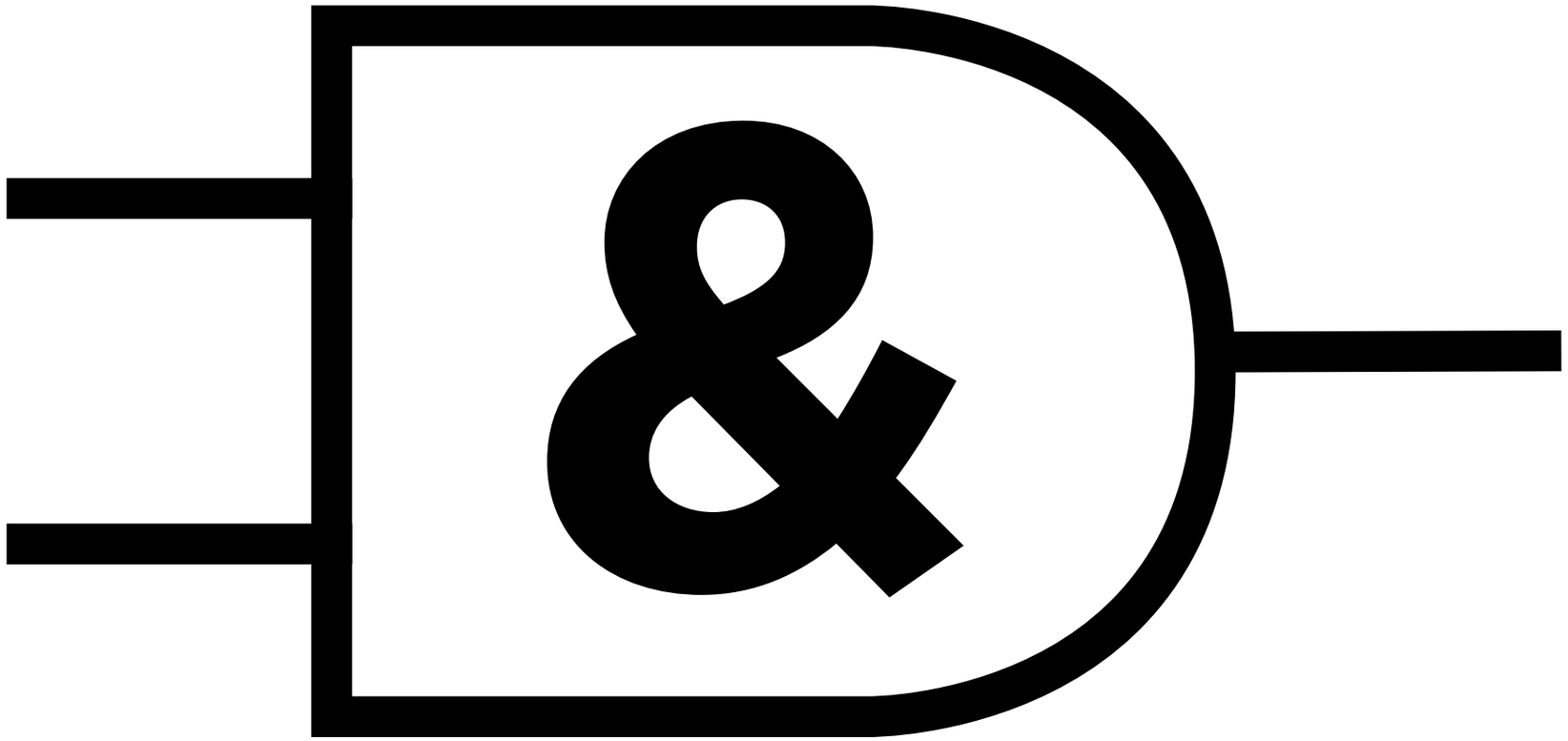
...is explicit about its needs.

...is a unit of reuse.

...is a unit of replacement.

© 2016 Nerd/Noir, LLC.


POWER AMP BOARD
POWER Bd.
CHASSIS
REPLAY BOARD
TONE CONTROL BOARD
MOTION BOARD
EQUALISATION
OSCILLATOR
RECORD
FAN-IN / FAN-OUT



© 2016 Nerd/Noir, LLC.

C^E = EFFERENT

C^A = AFFERENT

© 2016 Nerd/Noir, LLC.

C^E = EFFERENT

(Fan-out, Outbound, Dependencies)

© 2016 Nerd/Noir, LLC.

C^A = AFFERENT

(Fan-in, Consumers, Dependents)

© 2016 Nerd/Noir, LLC.

INSTABILITY

$$C^E / (C^E + C^A)$$

© 2016 Nerd/Noir, LLC.

$$C^E / (C^E + C^A)$$

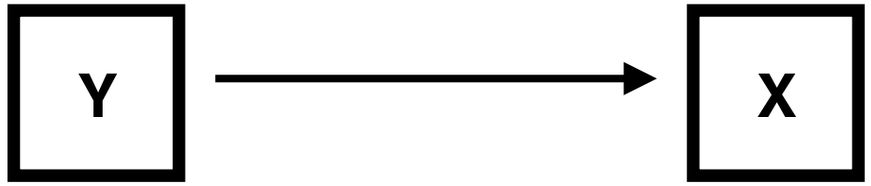
© 2016 Nerd/Noir, LLC.

$$C^E / (C^E + C^A)$$

x

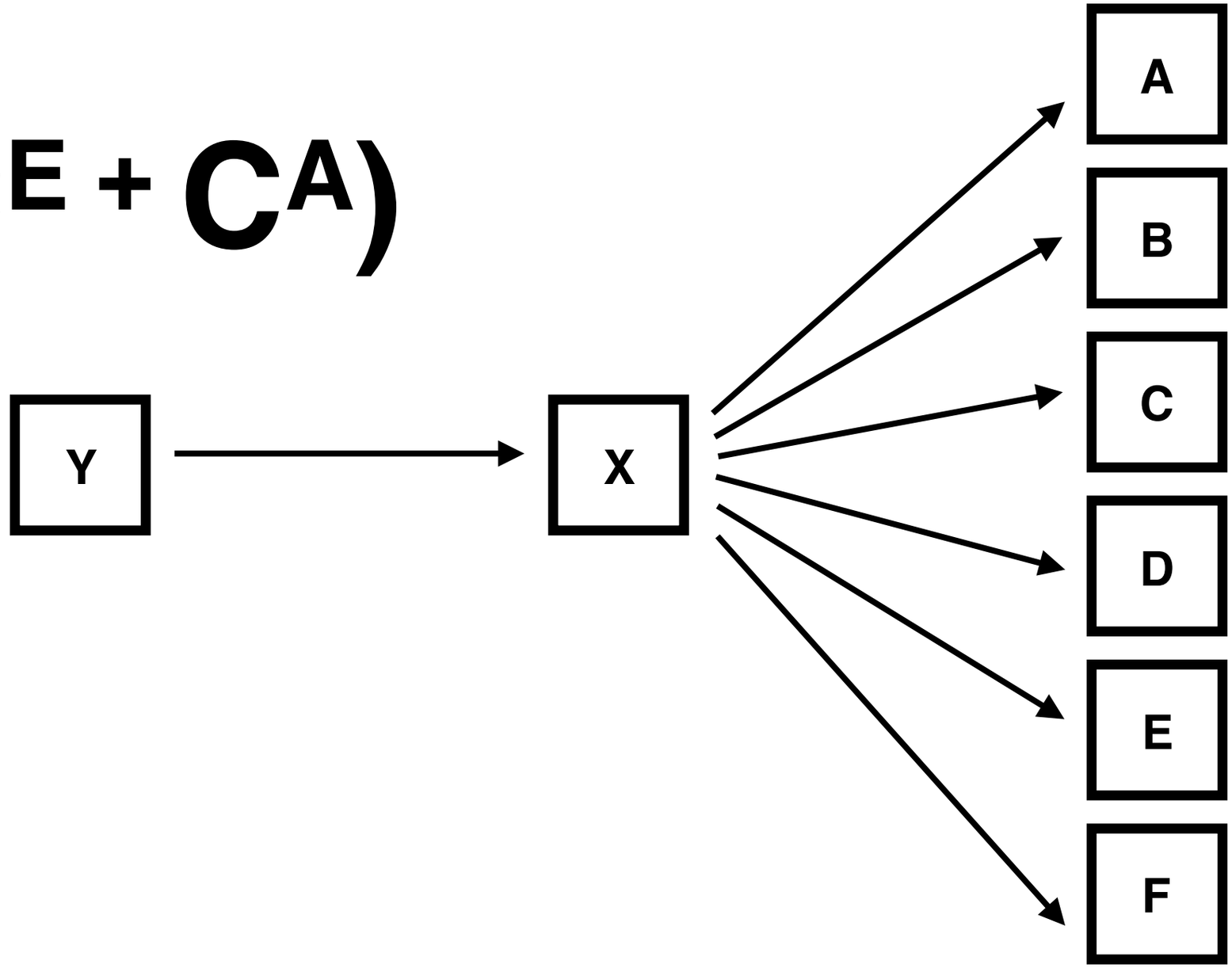
© 2016 Nerd/Noir, LLC.

$C^E / (C^E + C^A)$



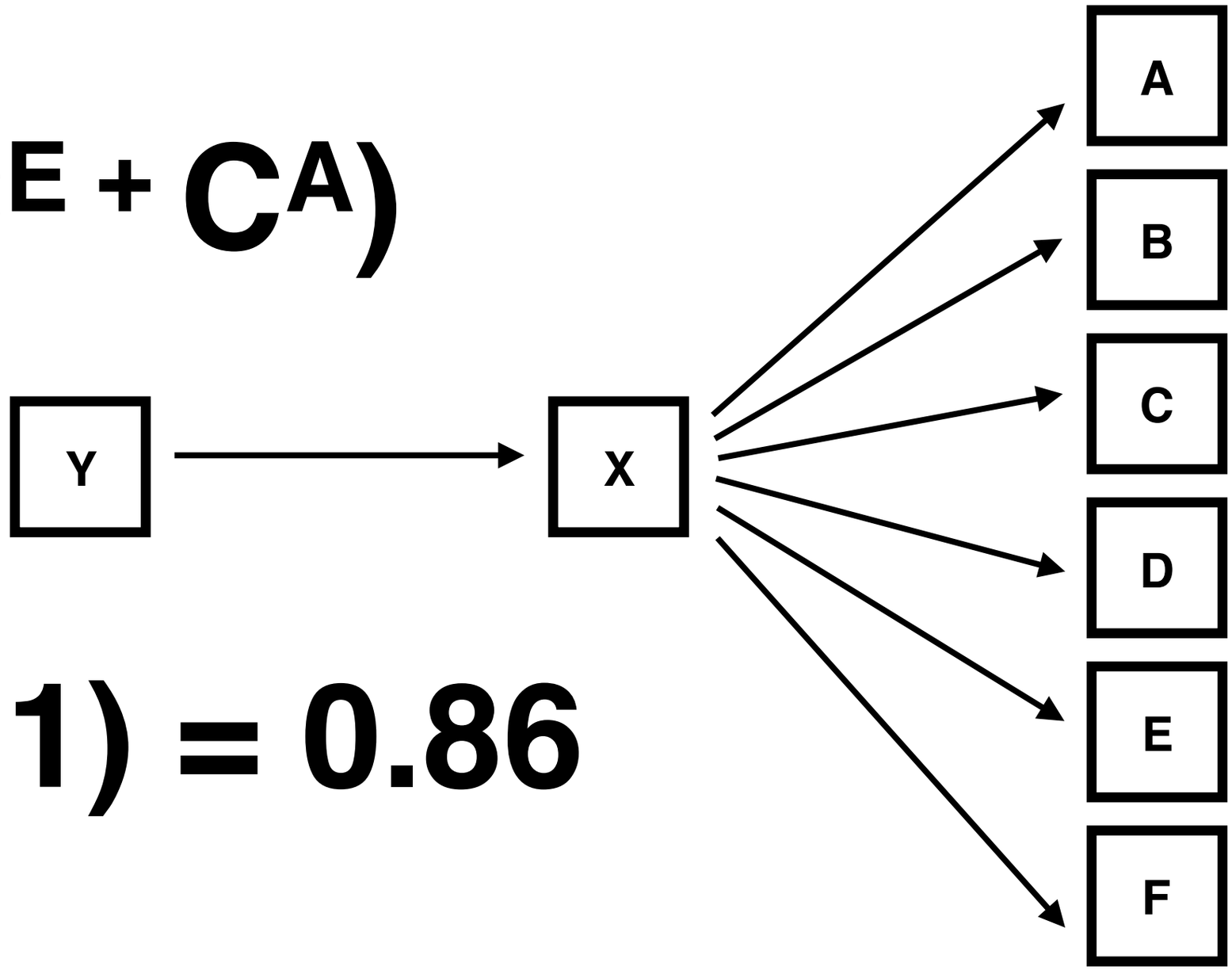
© 2016 Nerd/Noir, LLC.

$C^E / (C^E + C^A)$



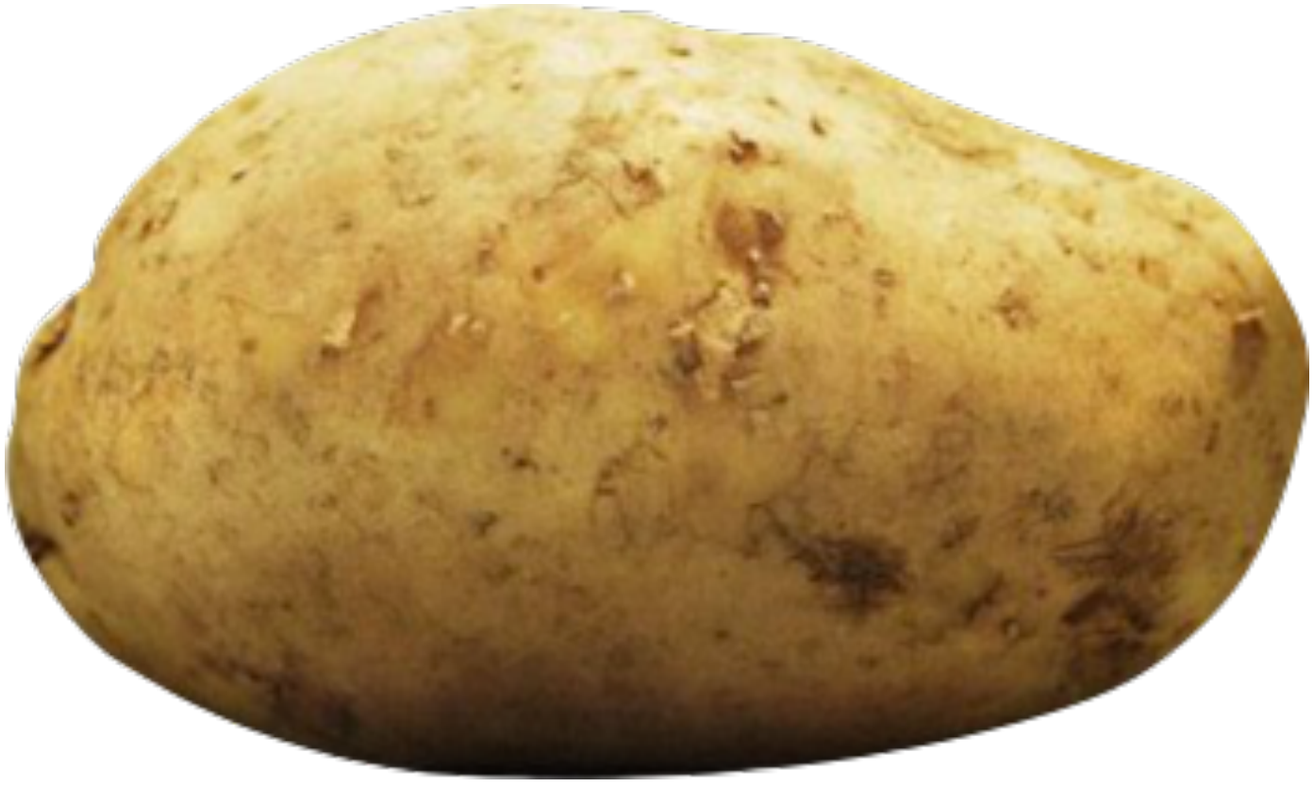
© 2016 Nerd/Noir, LLC.

$$C^E / (C^E + C^A)$$



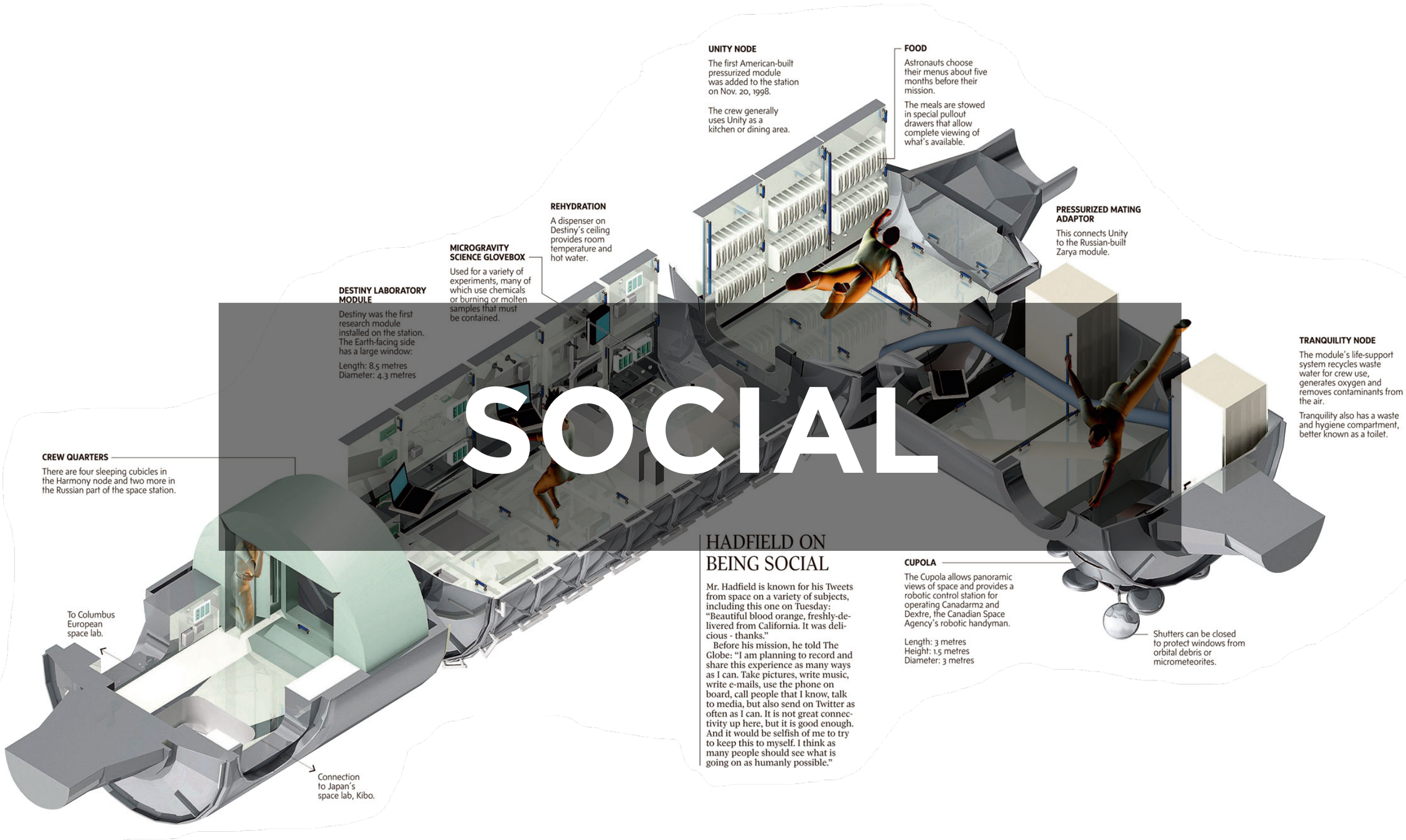
$$6 / (6 + 1) = 0.86$$

© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.

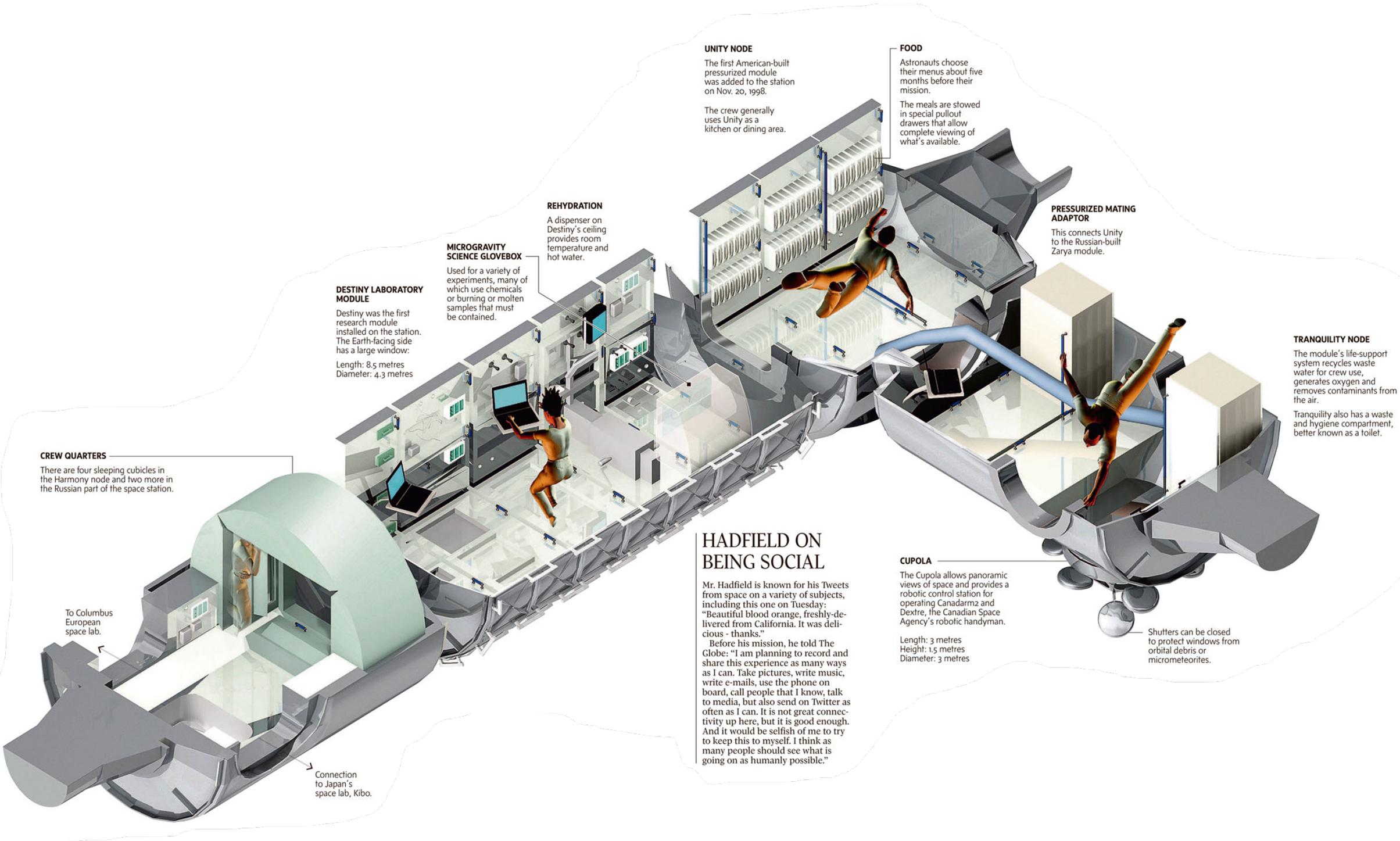
SOCIAL



HADFIELD ON BEING SOCIAL

Mr. Hadfield is known for his Tweets from space on a variety of subjects, including this one on Tuesday: "Beautiful blood orange, freshly-delivered from California. It was delicious - thanks."

Before his mission, he told The Globe: "I am planning to record and share this experience as many ways as I can. Take pictures, write music, write e-mails, use the phone on board, call people that I know, talk to media, but also send on Twitter as often as I can. It is not great connectivity up here, but it is good enough. And it would be selfish of me to try to keep this to myself. I think as many people should see what is going on as humanly possible."



HADFIELD ON BEING SOCIAL

Mr. Hadfield is known for his Tweets from space on a variety of subjects, including this one on Tuesday: "Beautiful blood orange, freshly-delivered from California. It was delicious - thanks."

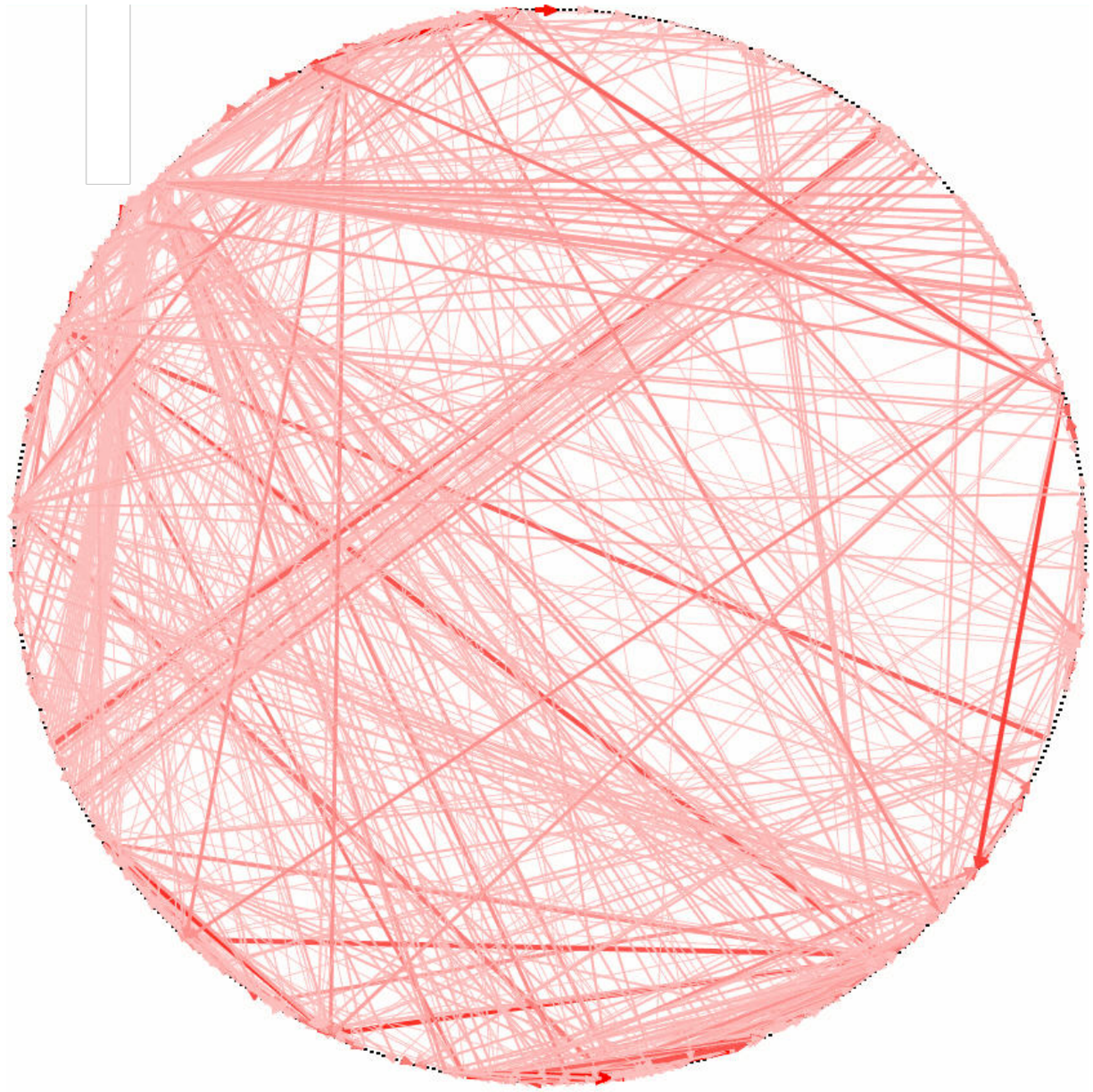
Before his mission, he told The Globe: "I am planning to record and share this experience as many ways as I can. Take pictures, write music, write e-mails, use the phone on board, call people that I know, talk to media, but also send on Twitter as often as I can. It is not great connectivity up here, but it is good enough. And it would be selfish of me to try to keep this to myself. I think as many people should see what is going on as humanly possible."

"organizations which design systems ... are constrained to produce designs which are copies of the communication structures of these organizations"

Melvin Conway

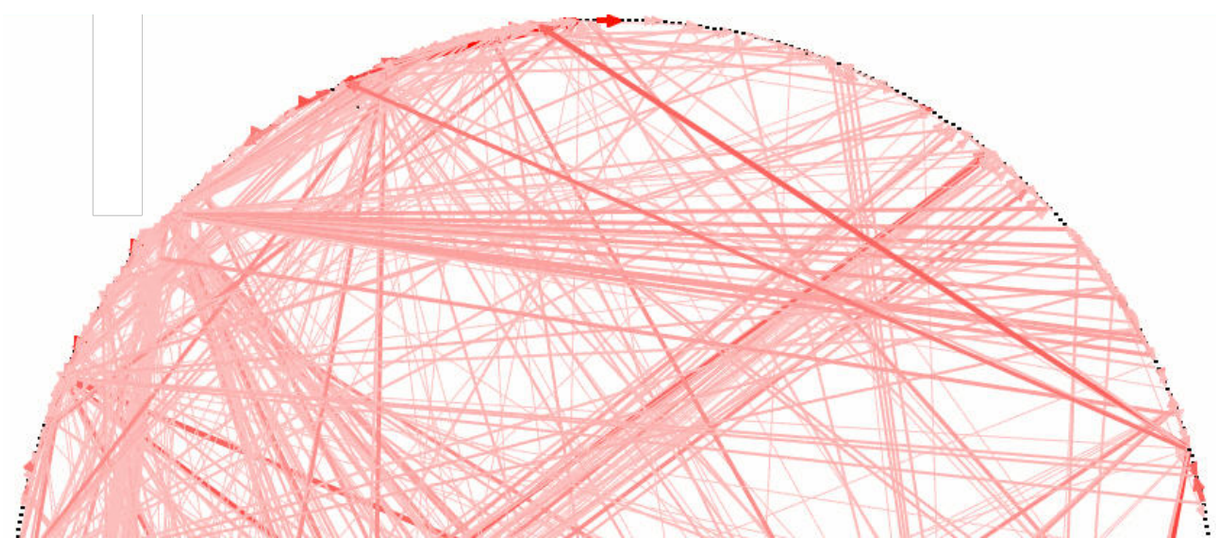
© 2016 Nerd/Noir, LLC.

MONOLITHS & MUD BALLS & MOAR!

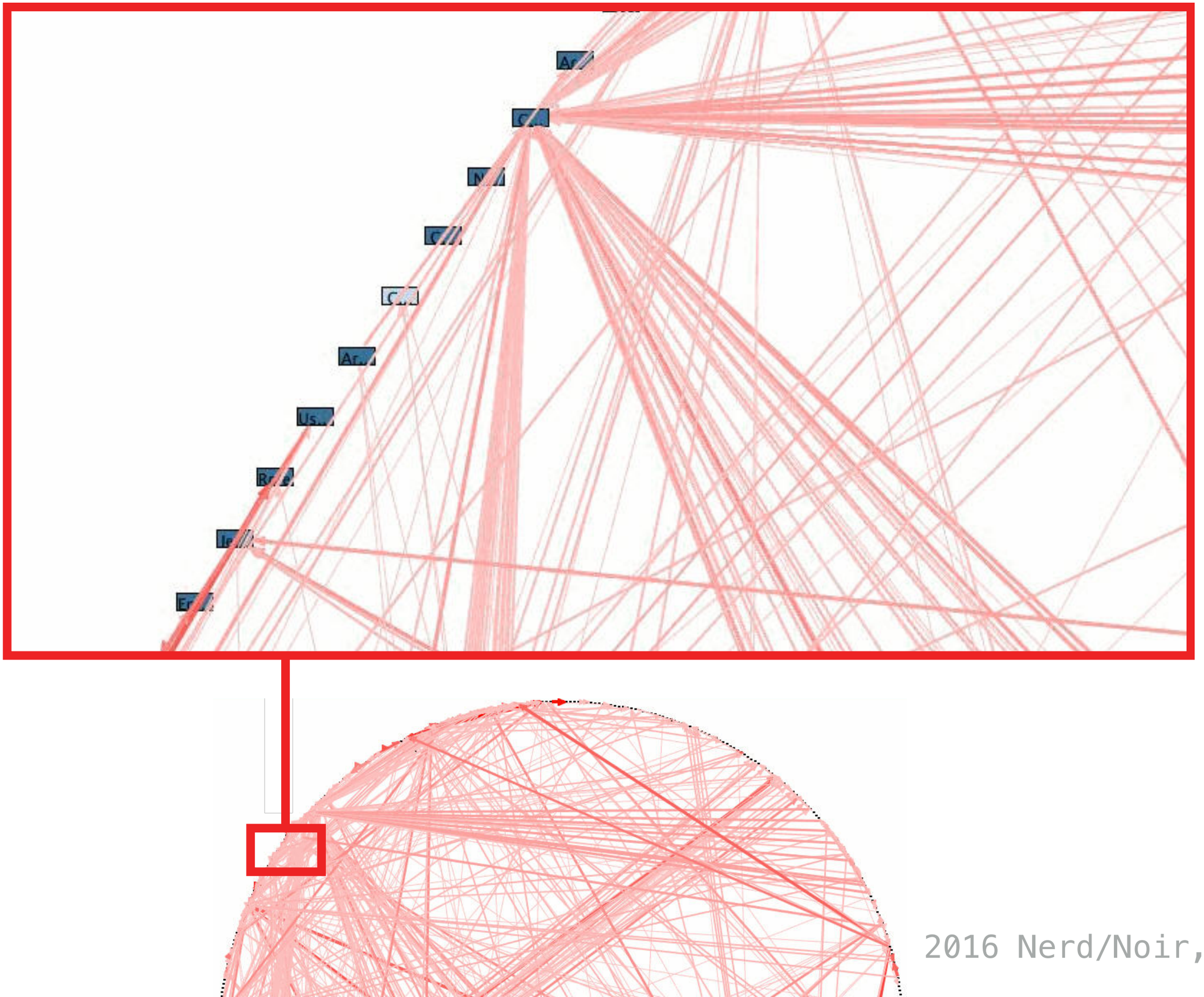


http://thedailywtf.com/articles/Enterprise-Dependency-Big-Ball-of-Yarn

© 2016 Nerd/Noir, LLC.



2016 Nerd/Noir, LLC.



2016 Nerd/Noir, LLC.

© 2016 Nerd/Noir, LLC.

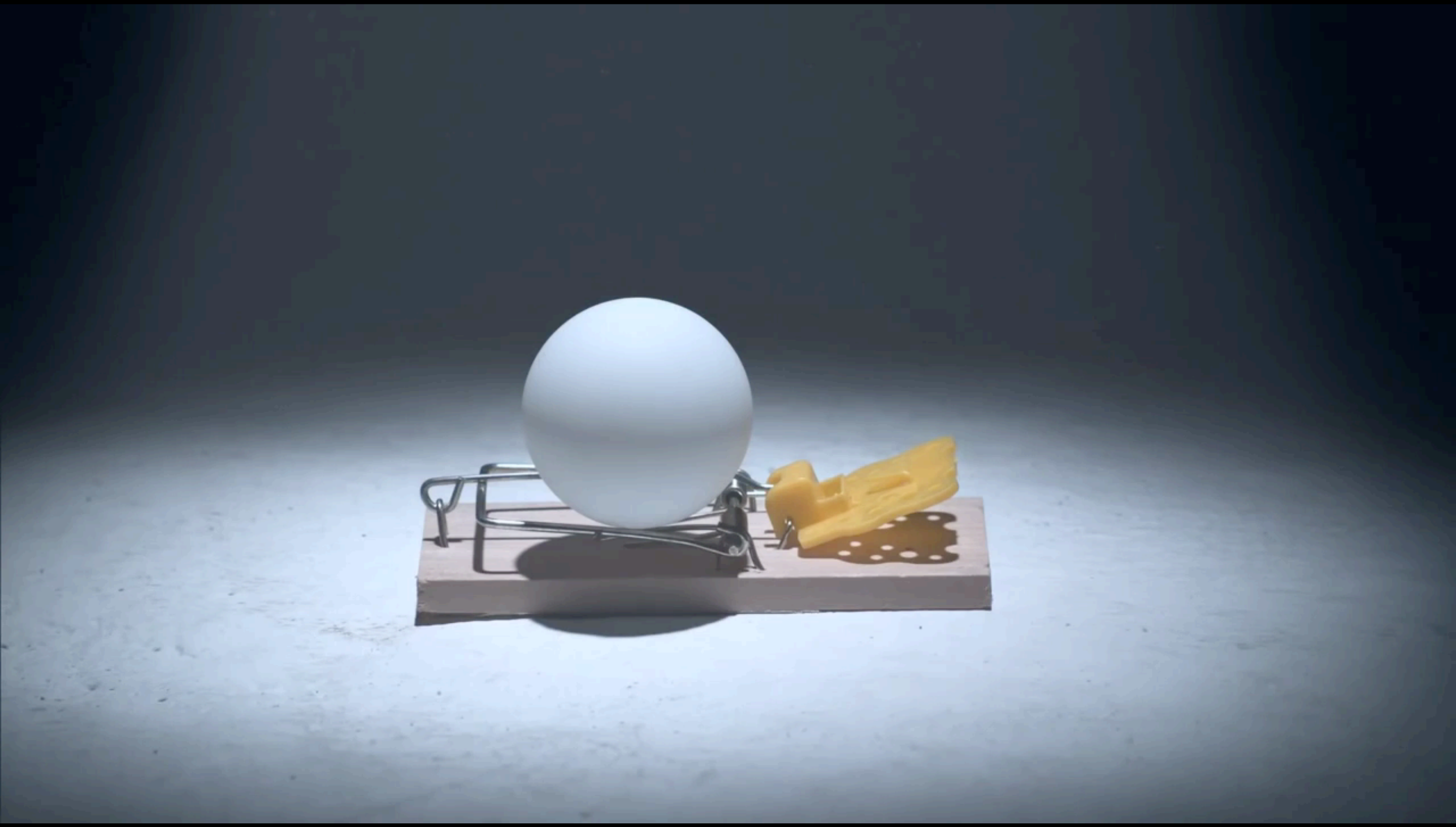
My Little Pony Glue Factory

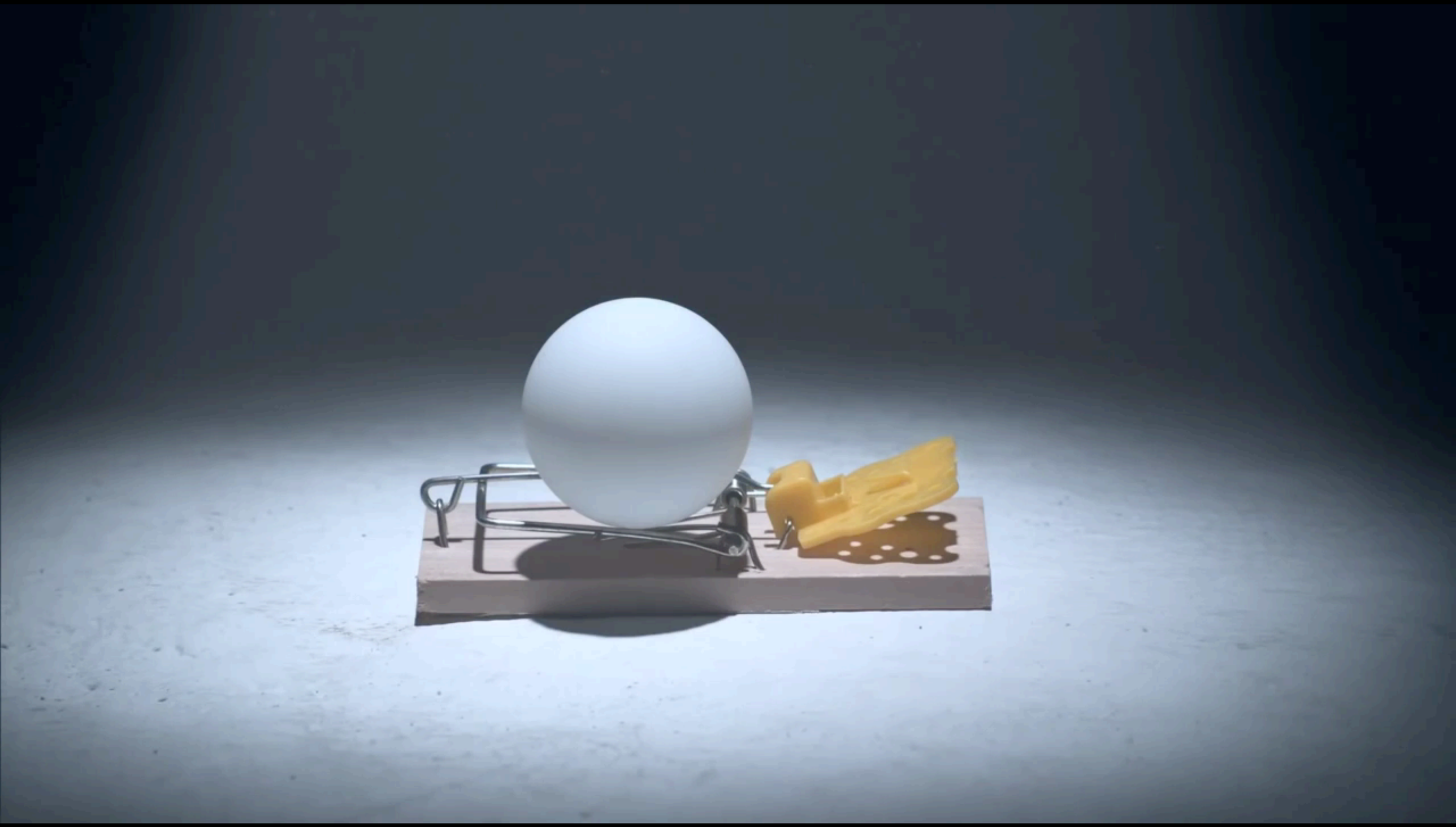
© 2016 Nerd/Noir, LLC.

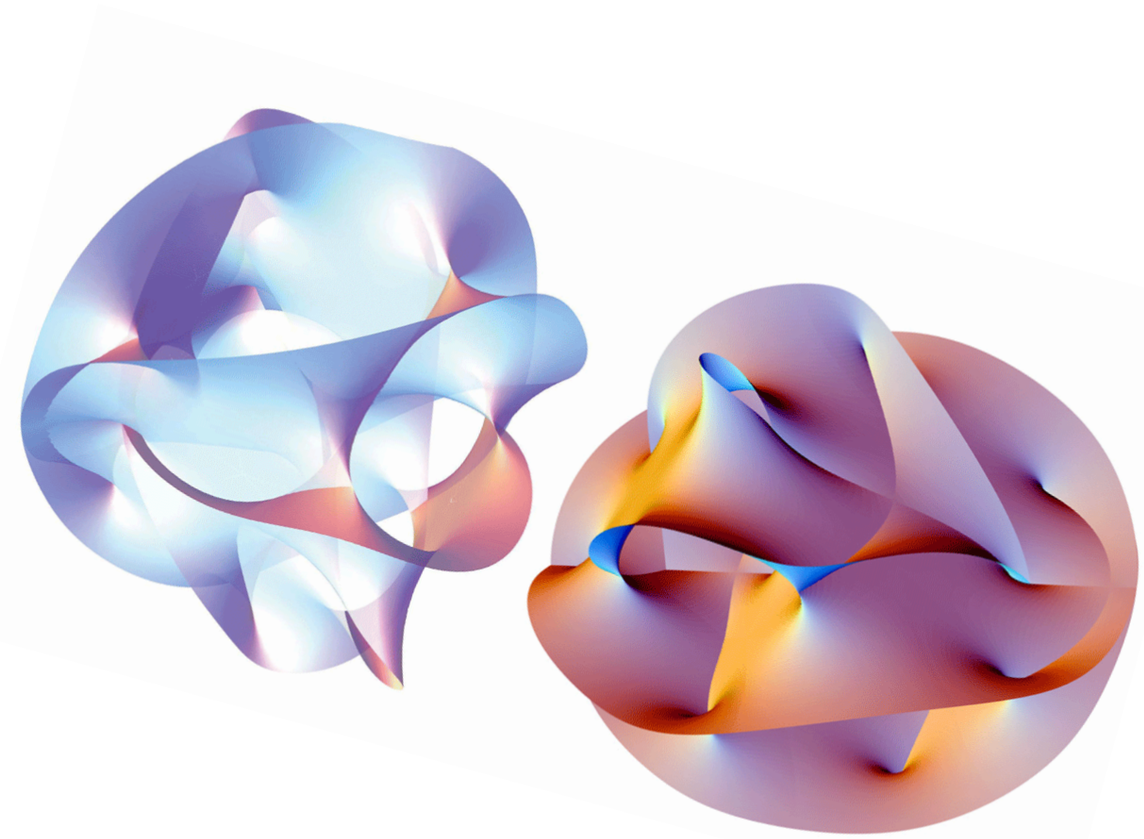
LOOKS LIKE I PICKED THE WRONG WEEK TO QUIT SNIFFING GLUE!

PAINFUL EFFECTS

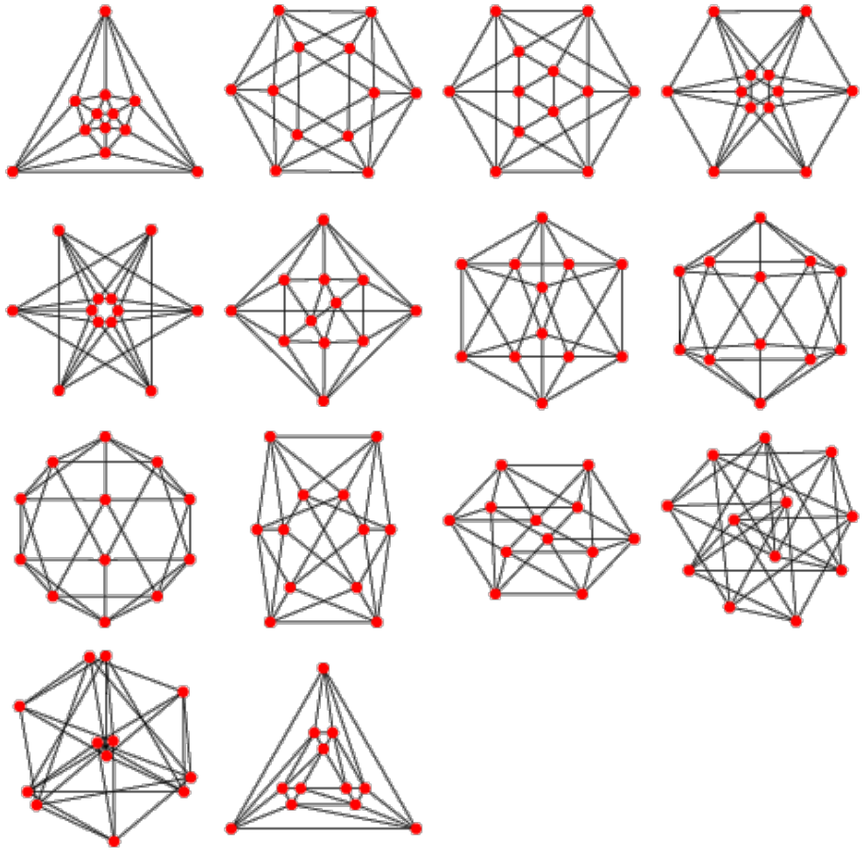
MERRELL
690
Ayerst
881
PD
237
ALTACE HOECHST
MINIPRESS
PFIZER
438







© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.

💩 HAPPENS

😎 DEAL WITH IT

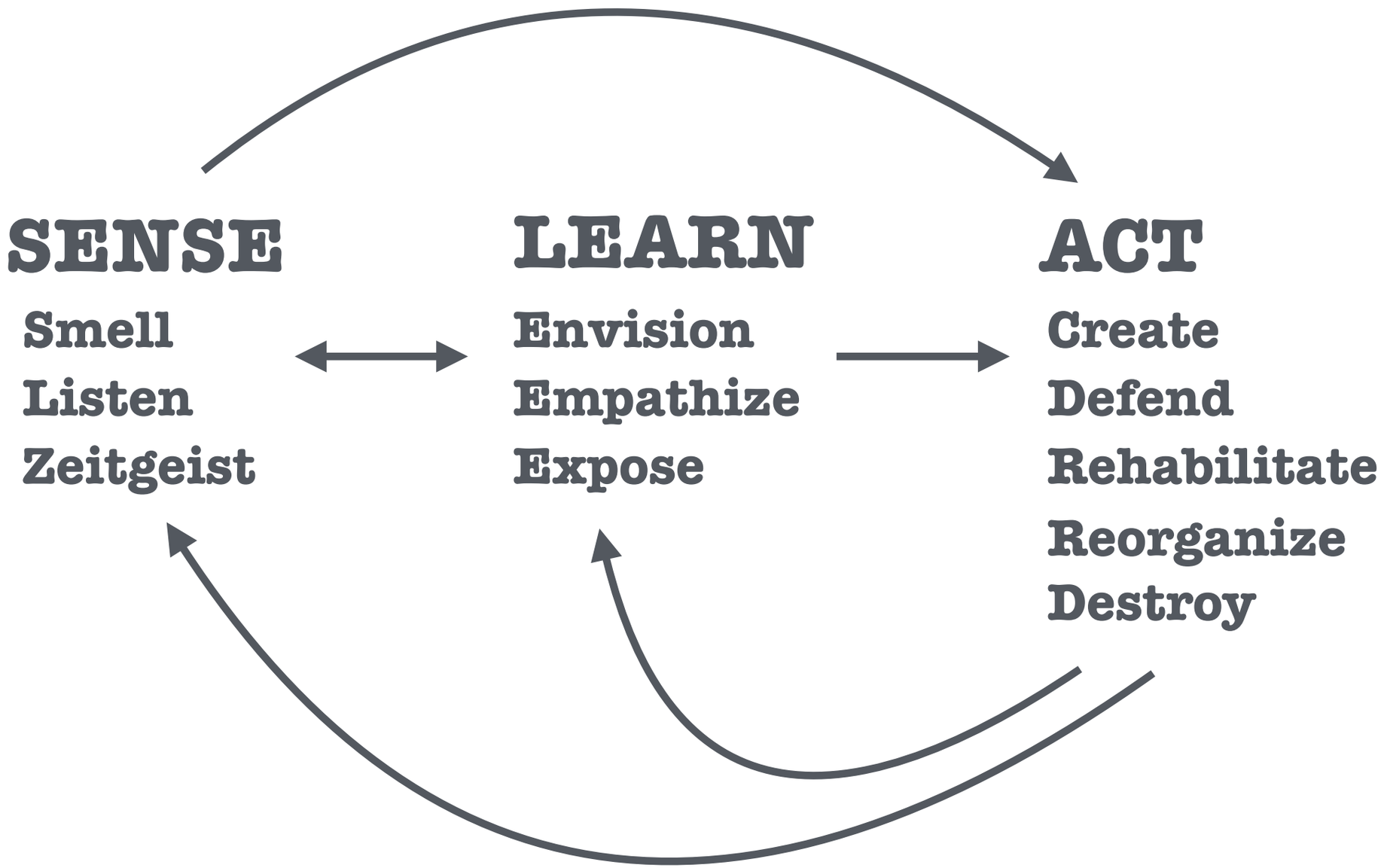
© 2016 Nerd/Noir, LLC.

© 2016 Nerd/Noir, LLC.

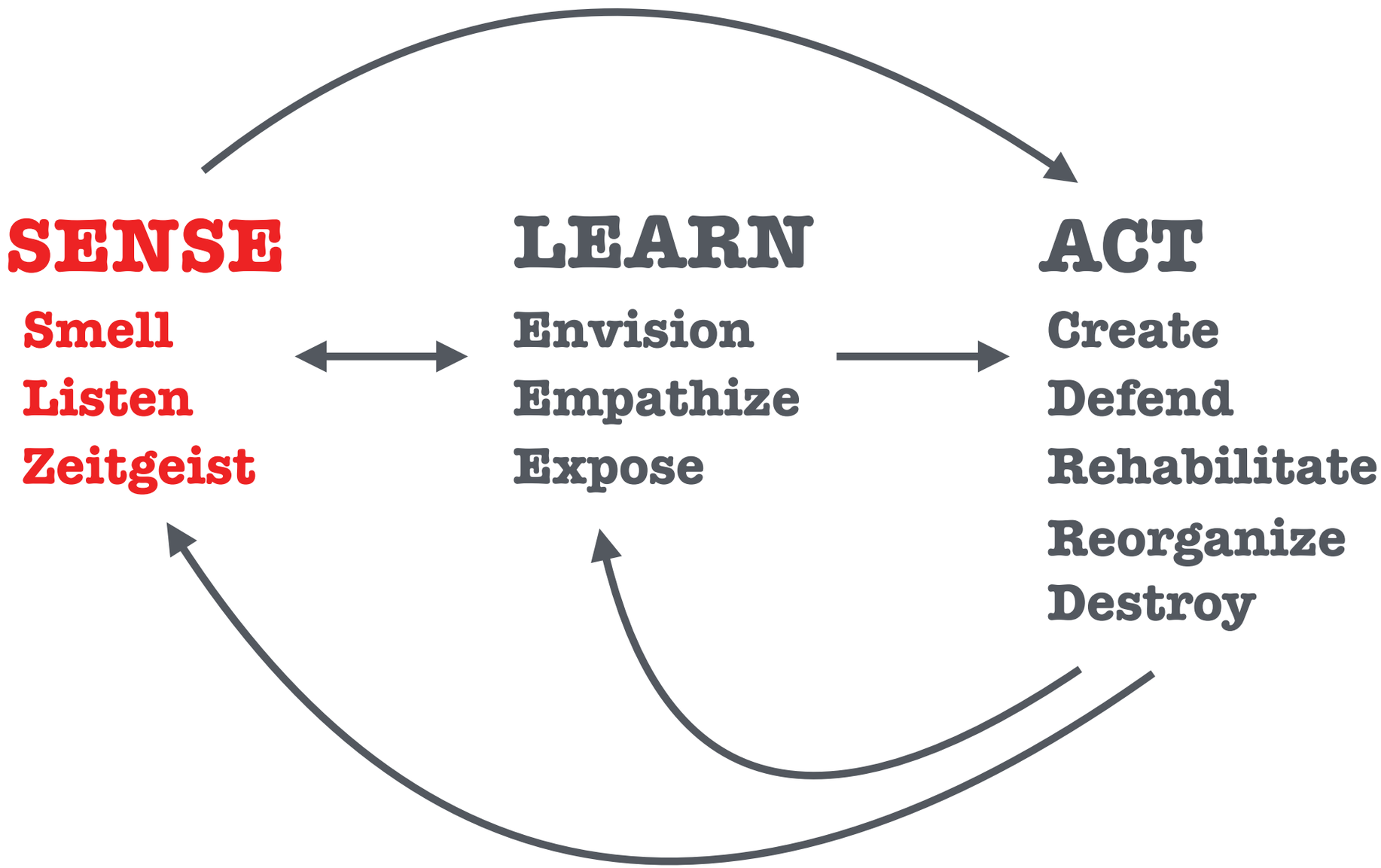
© 2016 Nerd/Noir, LLC.

SENSE	LEARN	ACT
Smell	Envision	Create
Listen	Empathize	Defend
Zeitgeist	Expose	Rehabilitate
		Reorganize
		Destroy

© 2016 Nerd/Noir, LLC.

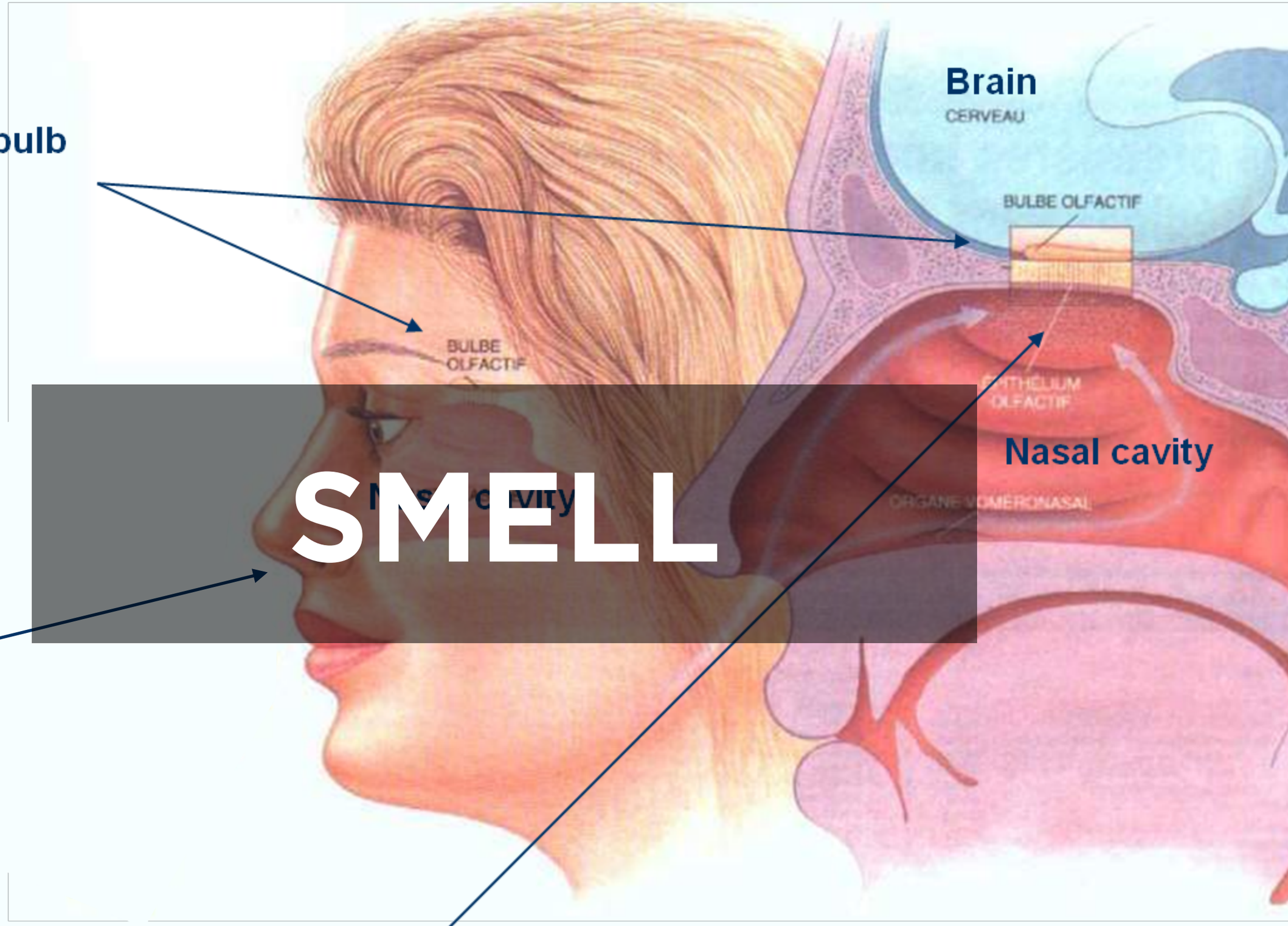


© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.

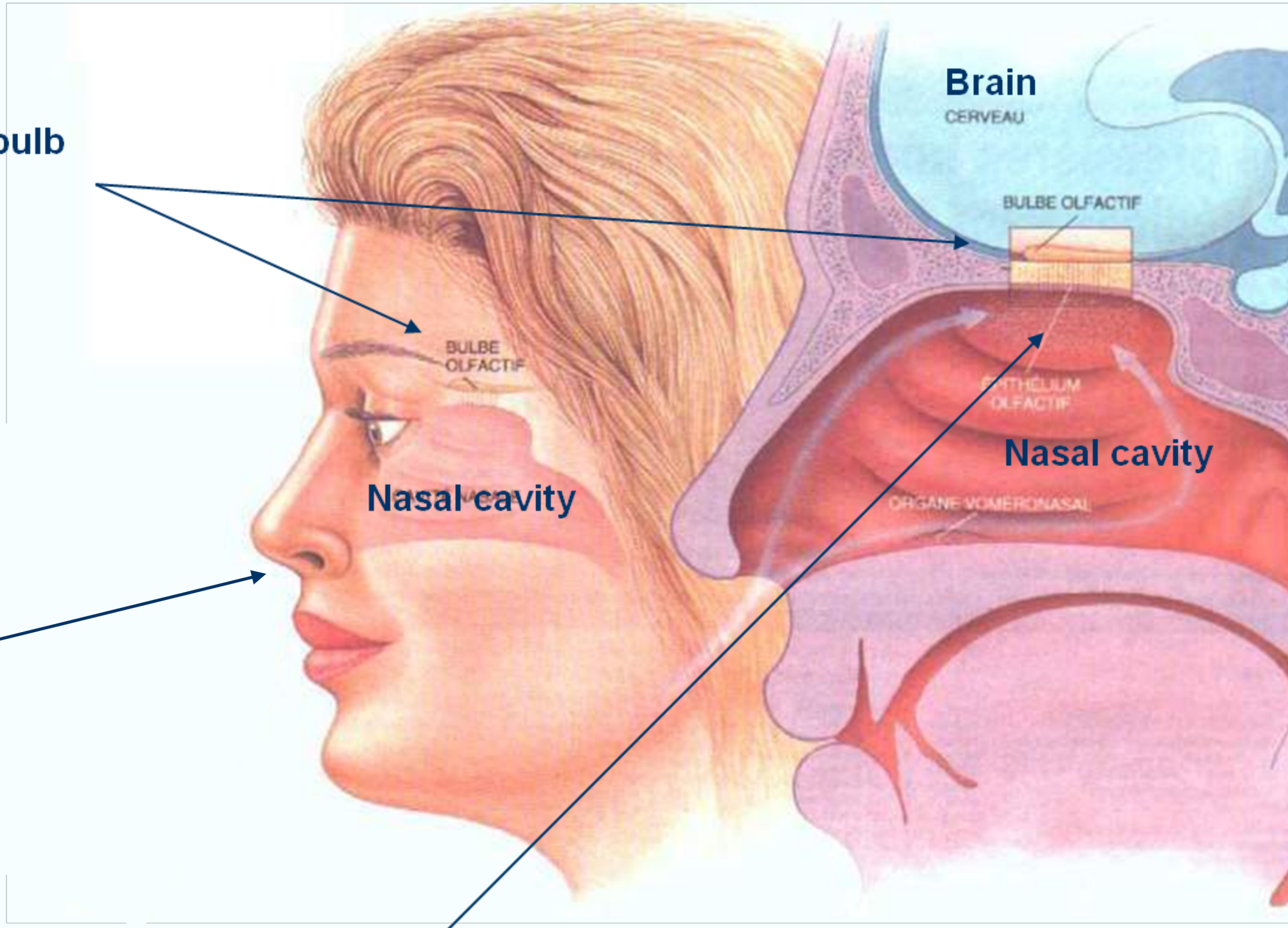
SMELL



Olfactory bulb

Something stinky

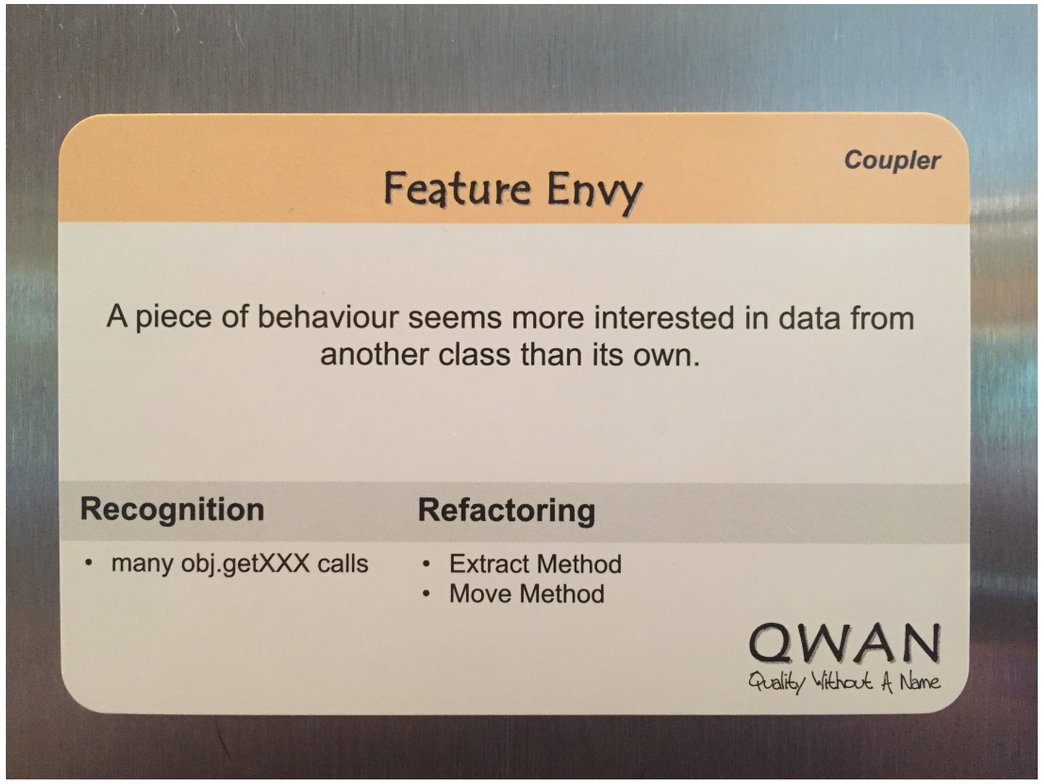
Olfactory ephithelium

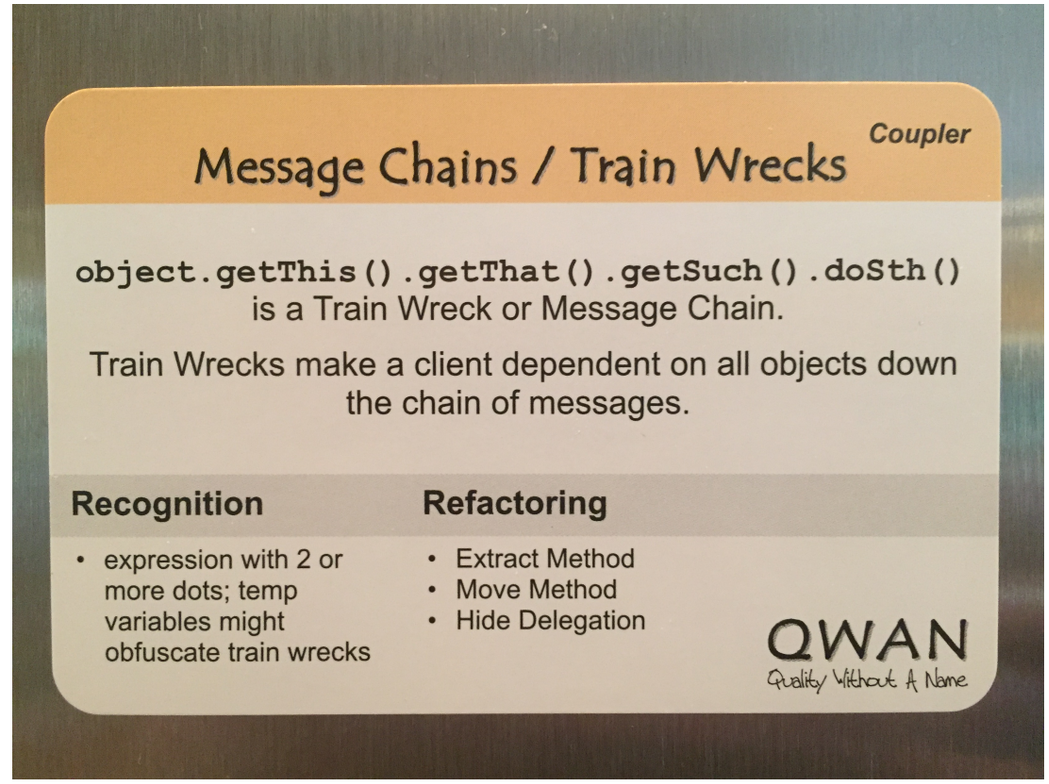


Olfactory bulb

Something stinky

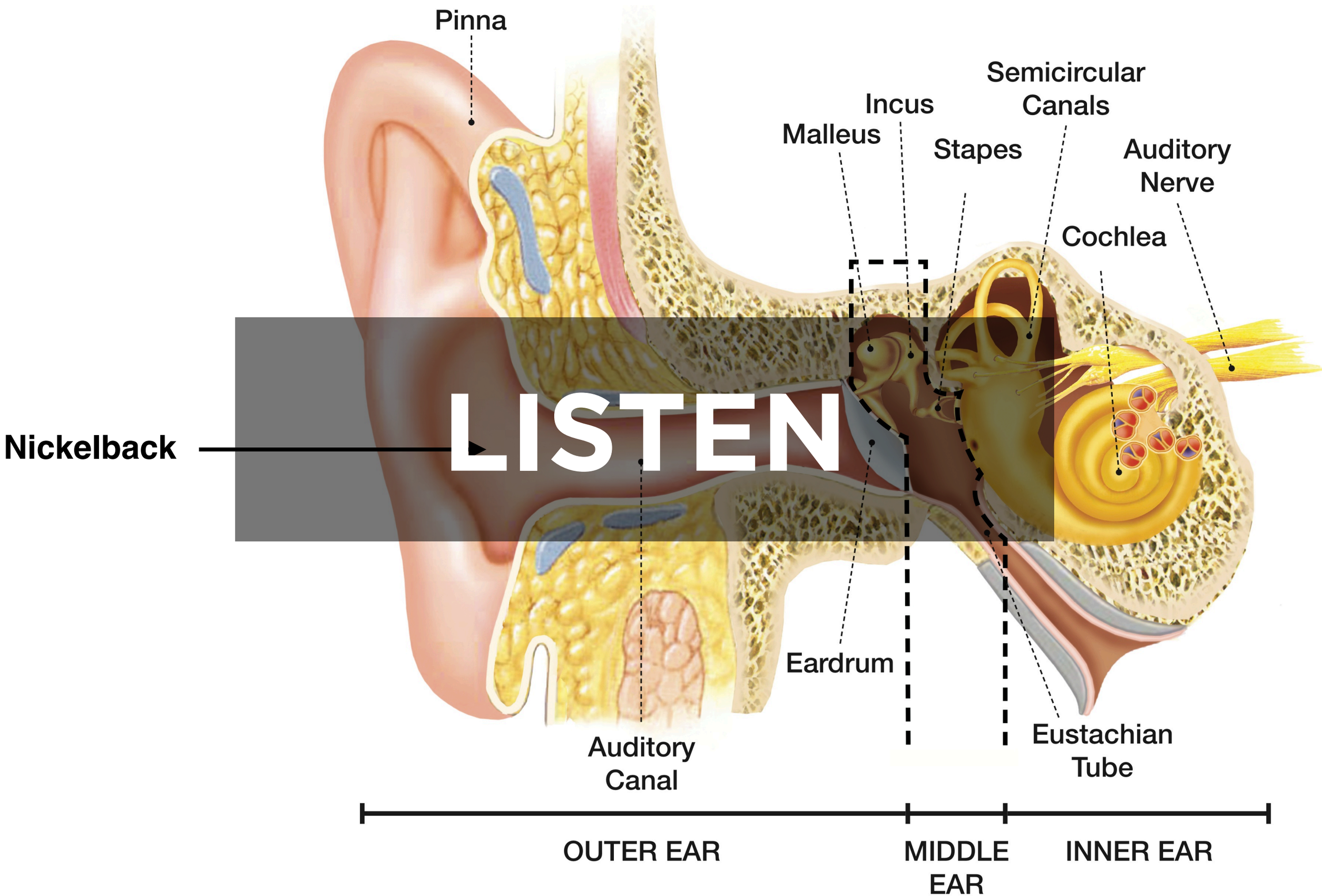
Olfactory ephithelium

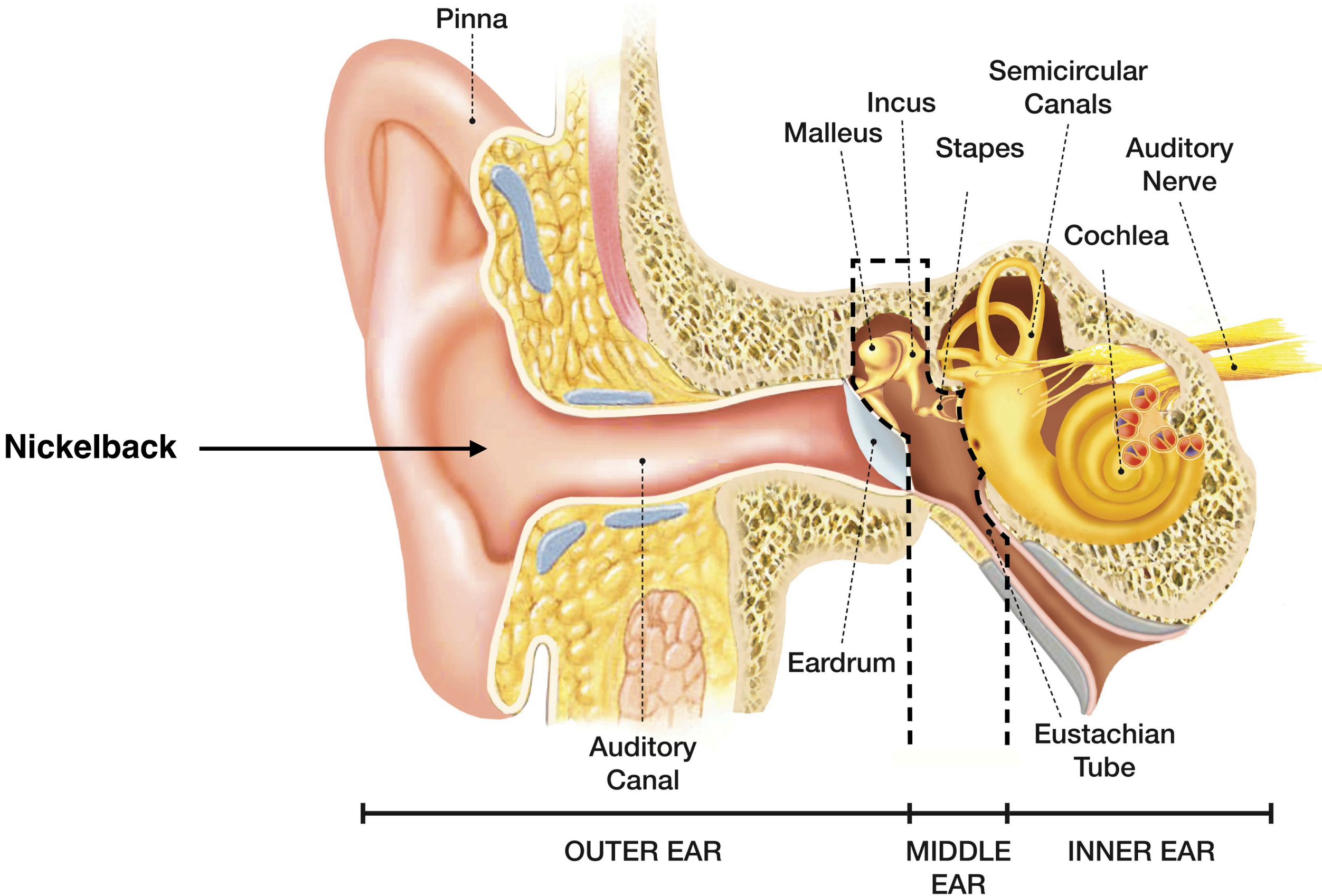




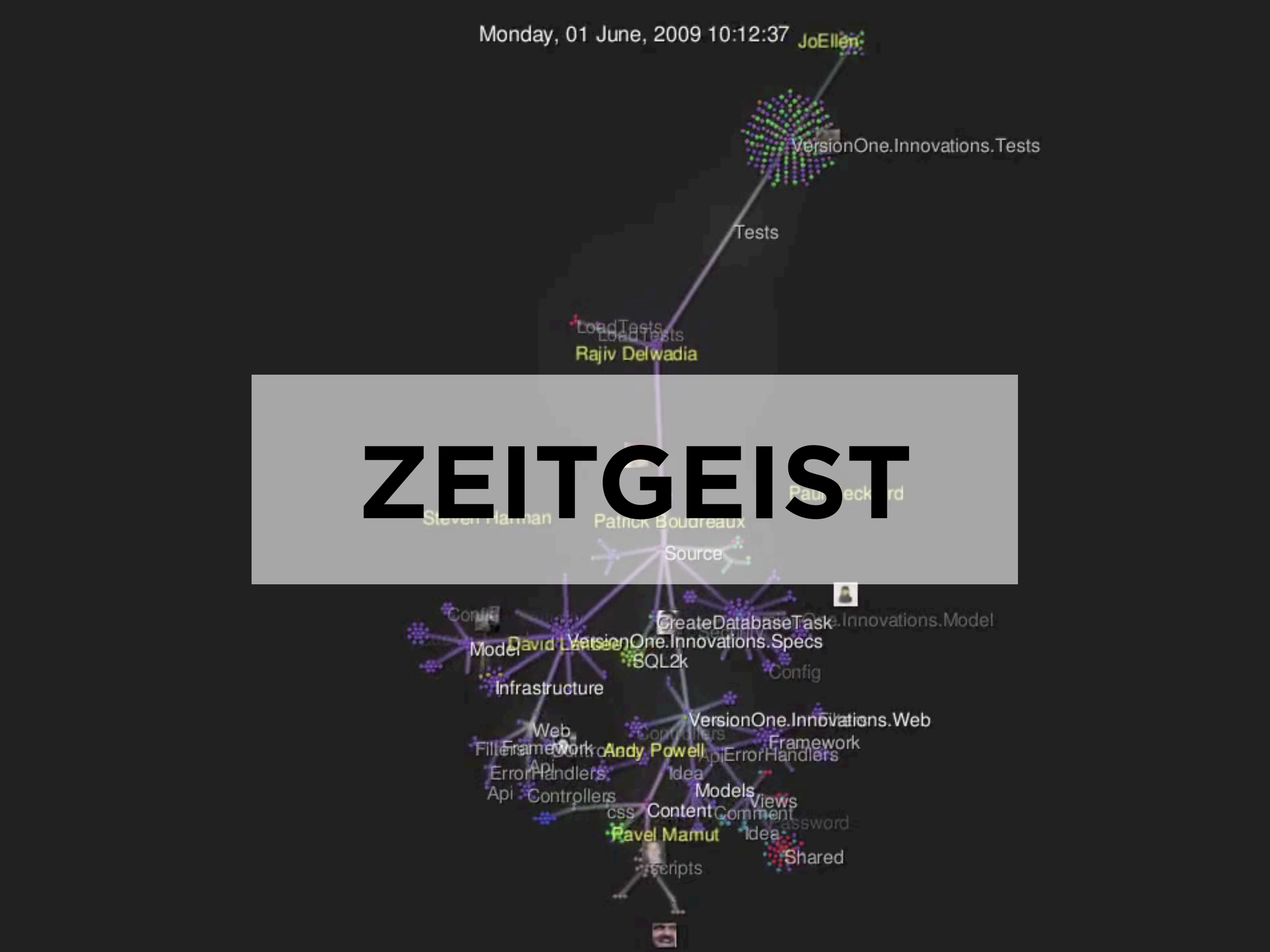
http://www.qwan.eu/en/shop

© 2016 Nerd/Noir, LLC.

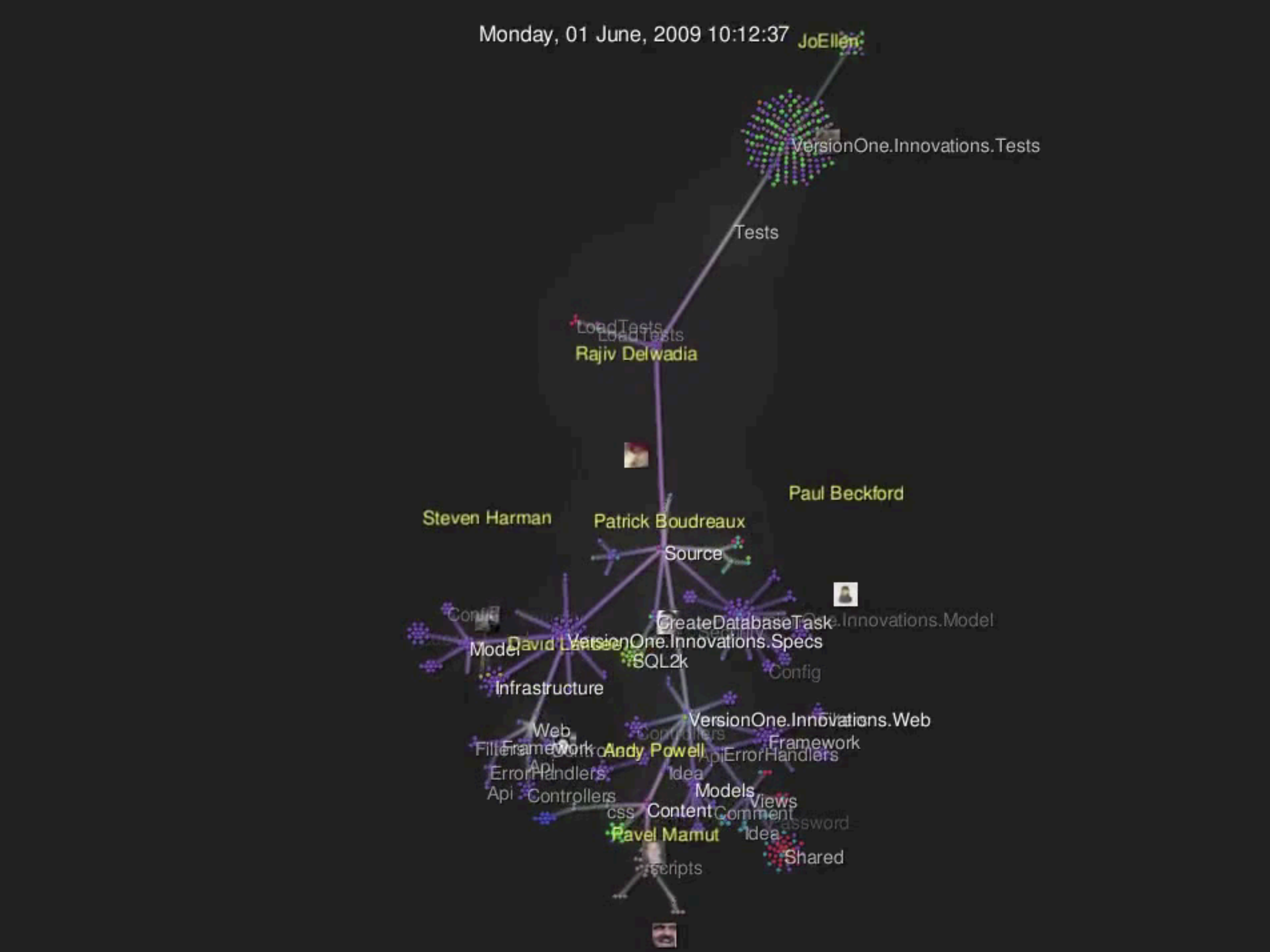

Pinna
Semicircular Canals
Incus
Malleus
Stapes
Auditory Nerve
Cochlea
LISTEN
Nickelback
Eardrum
Auditory Canal
Eustachian Tube
OUTER EAR
MIDDLE EAR
INNER EAR


Pinna
Semicircular Canals
Incus
Malleus
Stapes
Auditory Nerve
Cochlea
Nickelback
Eardrum
Auditory Canal
Eustachian Tube
OUTER EAR
MIDDLE EAR
INNER EAR

```
describe('TodoService', function() {

    var TodoService, InitialTodosMock;

    // Instantiate Angular JS context
    beforeEach(module("app"));

    // Register mocks in Angular JS context
    beforeEach(module(function($provide) {
        InitialTodosMock = [
            {
                label: 'Test todo',
                done: false
            }
        ];
        $provide.value('initialTodos', InitialTodosMock);
    }));

    // Get instance of TodoService with mocked dependencies from Angular JS context
    beforeEach(inject(function (_TodoService_) {
        TodoService = _TodoService_;
    }));
```


Monday, 01 June, 2009 10:12:37
JoEllen
VersionOne.Innovations.Tests
Tests
LoadTests
Rajiv Delwadia
Patrick Boudreaux
Source
CreateDatabaseTask
VersionOne.Innovations.Specs
SQL2k
Model
Infrastructure
Config
VersionOne.Innovations.Web
Web
Framework
Andy Powell
ErrorHandlers
Api
Controllers
Idea
Models
Views
Content
Comment
Pavel Mamut
Shared
Scripts

ZEITGEIST


Monday, 01 June, 2009 10:12:37
JoEllen
VersionOne.Innovations.Tests
Tests
LoadTests
LoadTests
Rajiv Delwadia
Paul Beckford
Steven Harman
Patrick Boudreaux
Source
CreateDatabaseTask
VersionOne.Innovations.Model
Model
David Lansey
VersionOne.Innovations.Specs
SQL2k
Config
Infrastructure
VersionOne.Innovations.Web
Web
Framework
Andy Powell
Framework
ErrorHandlers
Idea
Models
Views
Controllers
Content
Comment
Ravel Mamut
Idea
Shared
Scripts

Gestalt |gəˈSHtält,-ˈSHtôlt|
noun

1. an organized whole that is perceived as more than the sum of its parts.

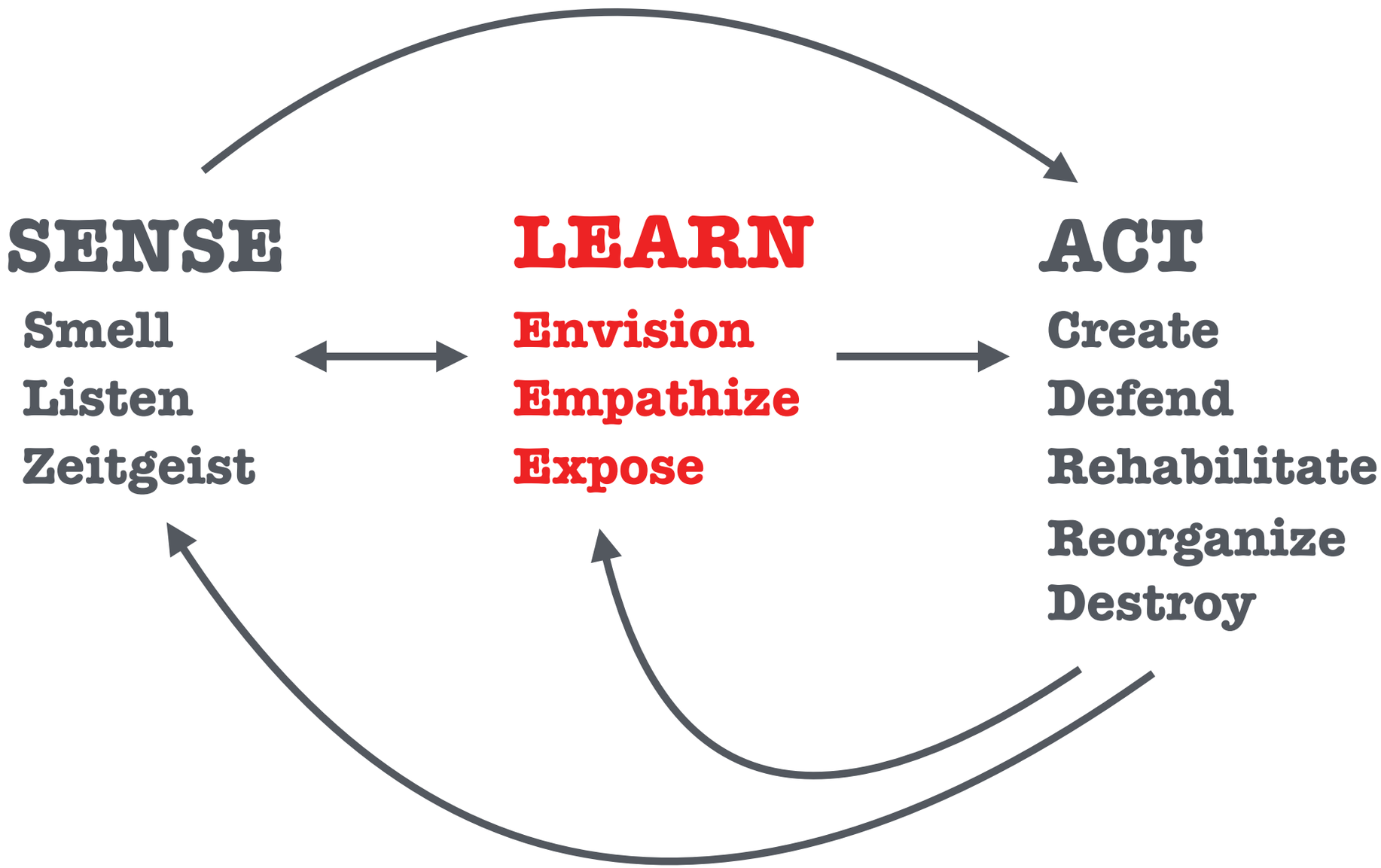
https://en.wikipedia.org/wiki/Gestalt_psychology

© 2016 Nerd/Noir, LLC.

Backpfeifengesicht
noun

1. a face in need of a slap.

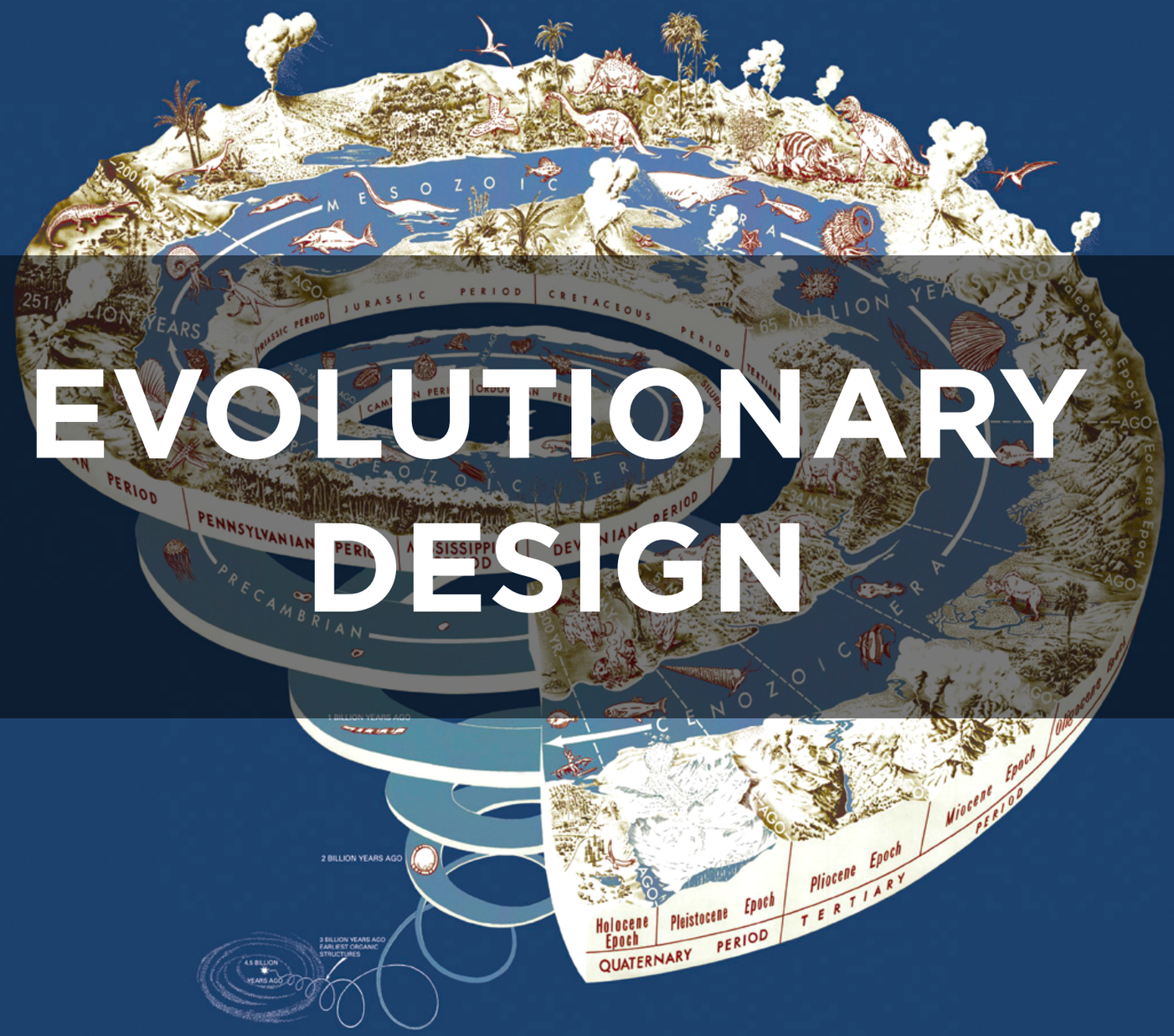
© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.

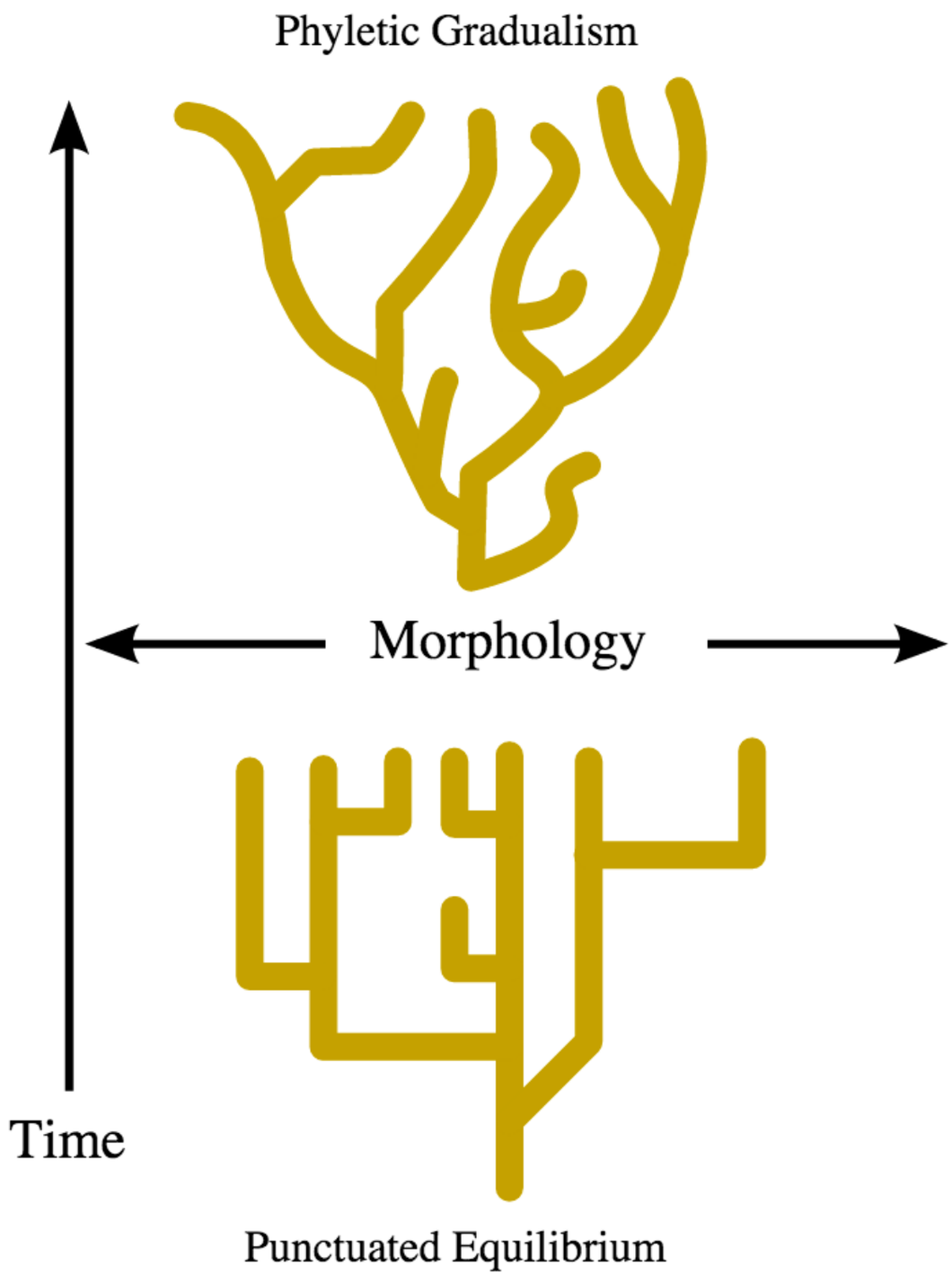
ENVISION

© 2016 Nerd/Noir, LLC.



EVOLUTIONARY DESIGN

MESOZOIC ERA
CENOZOIC ERA
PALEOZOIC ERA
PRECAMBRIAN
JURASSIC PERIOD
CRETACEOUS PERIOD
TERTIARY PERIOD
CAMBRIAN PERIOD
ORDOVICIAN PERIOD
SILURIAN PERIOD
DEVONIAN PERIOD
MISSISSIPPIAN PERIOD
PENNSYLVANIAN PERIOD
PERMIAN PERIOD
Paleocene Epoch
Eocene Epoch
Oligocene Epoch
Miocene Epoch
Pliocene Epoch
Pleistocene Epoch
Holocene Epoch
QUATERNARY PERIOD
TERTIARY PERIOD
251 MILLION YEARS AGO
65 MILLION YEARS AGO
1 BILLION YEARS AGO
2 BILLION YEARS AGO
3 BILLION YEARS AGO
EARLIEST ORGANIC STRUCTURES
4.5 BILLION YEARS AGO



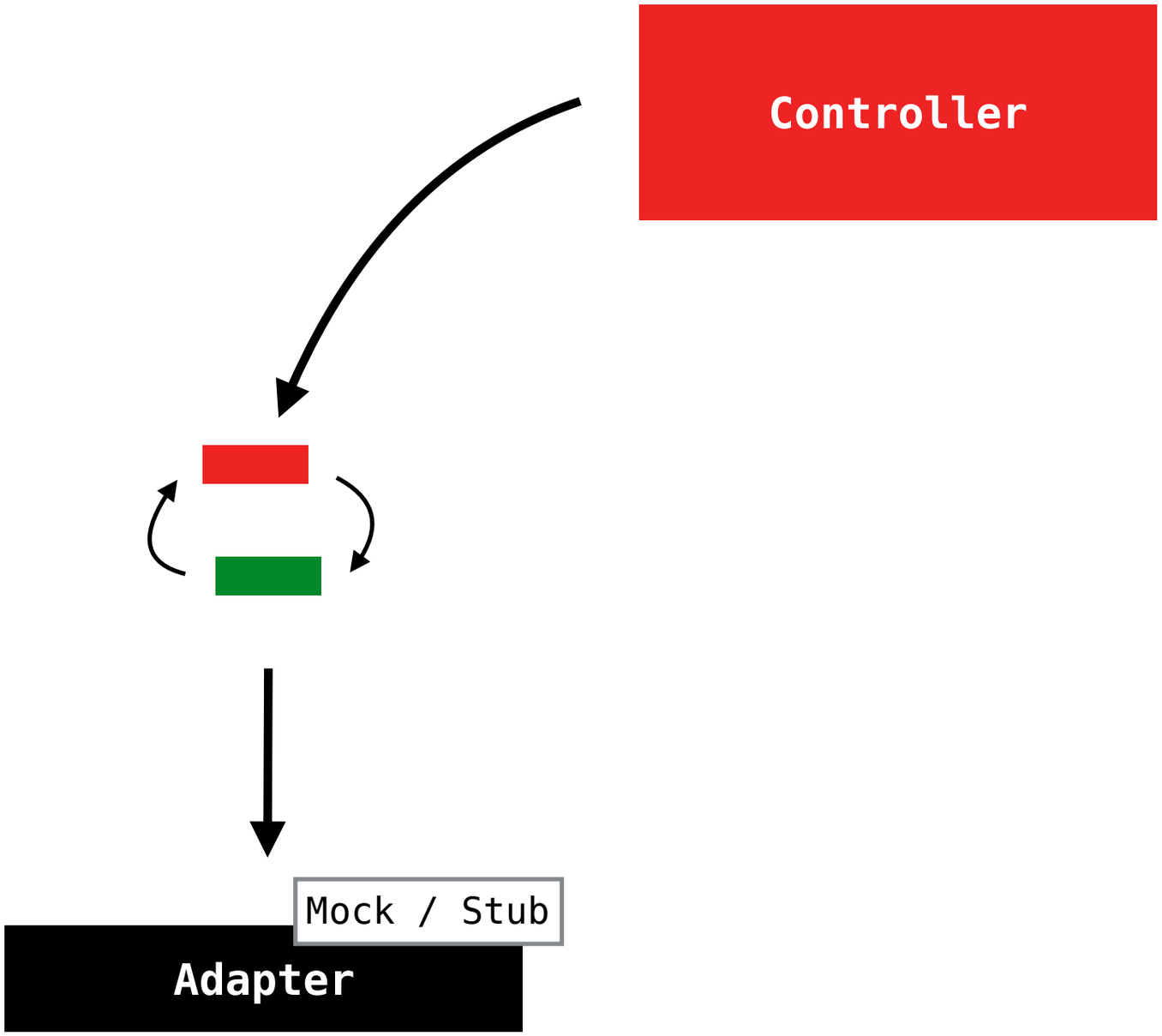
© 2016 Nerd/Noir, LLC.

HEXAGONAL ARCHITECTURE

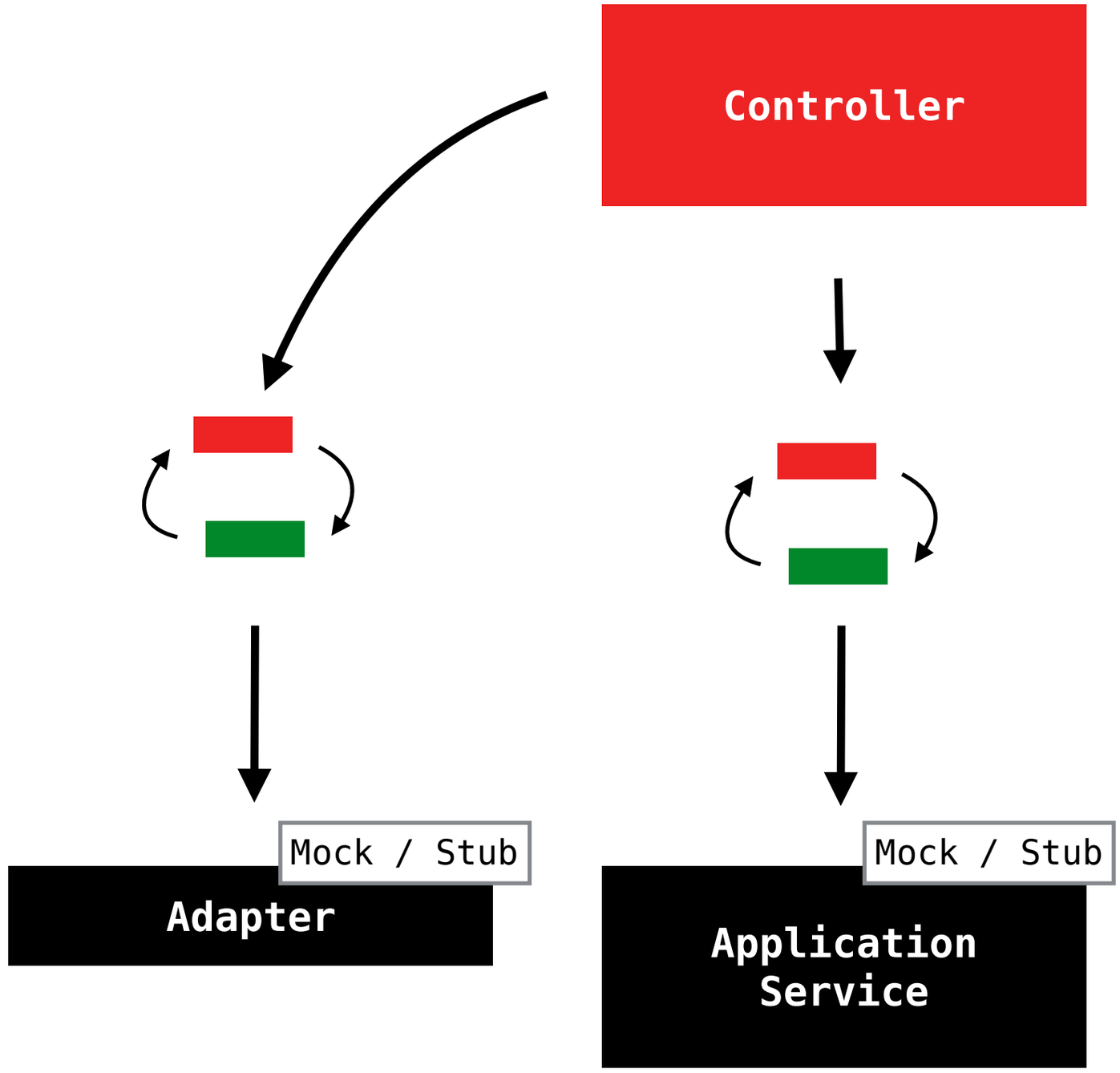
I’m HUUUUGE!

Controller

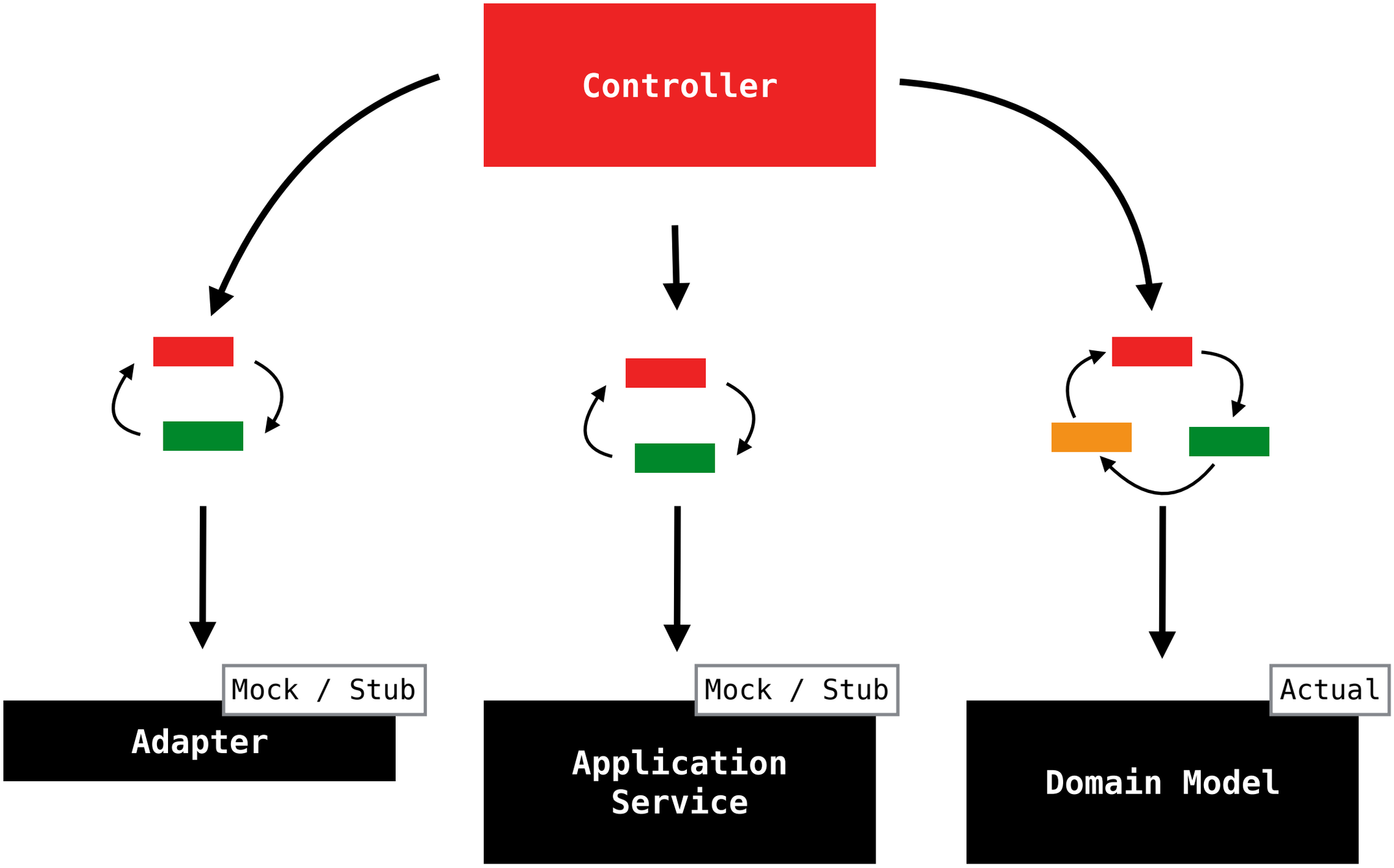
© 2016 Nerd/Noir, LLC.



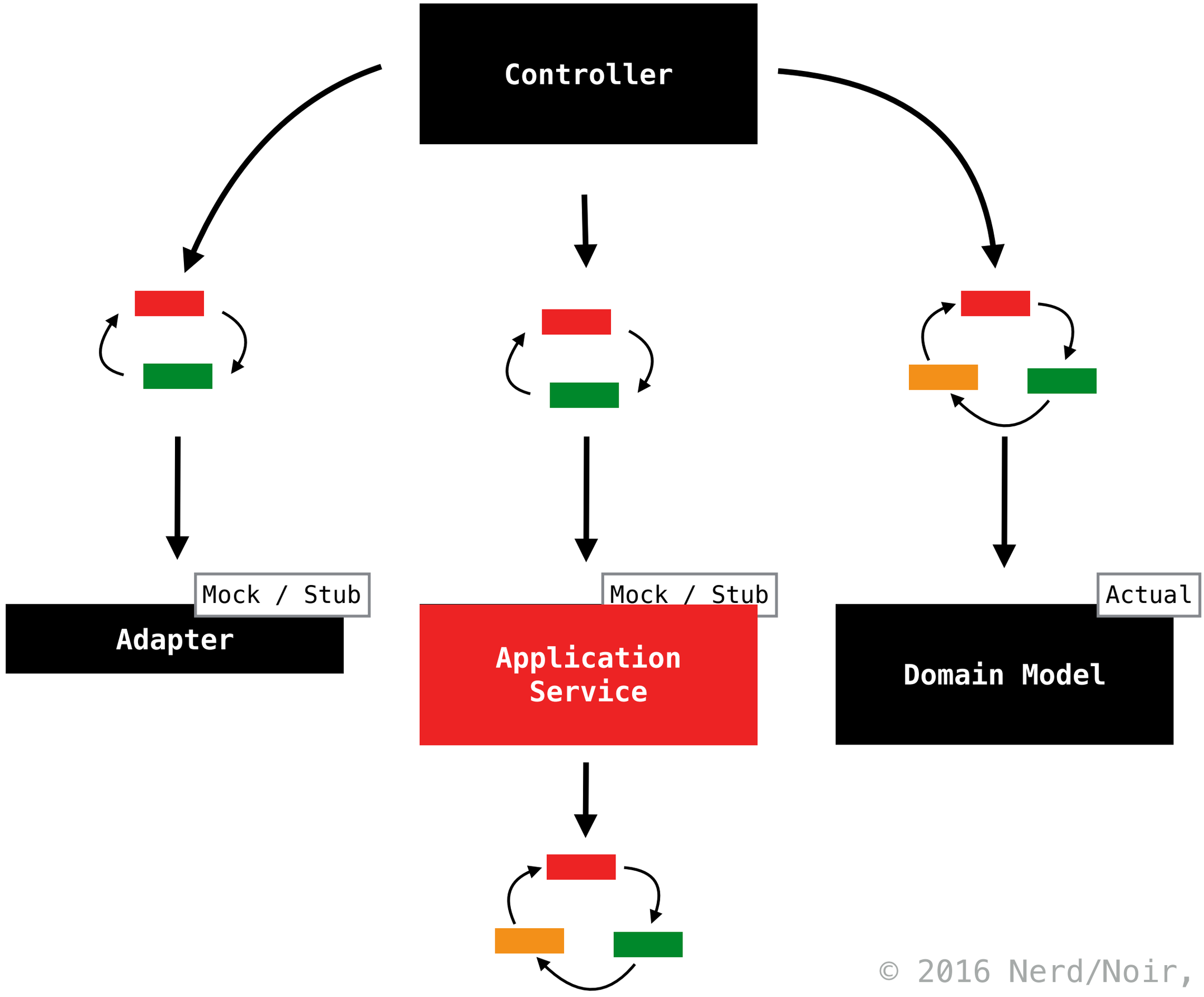
© 2016 Nerd/Noir, LLC.



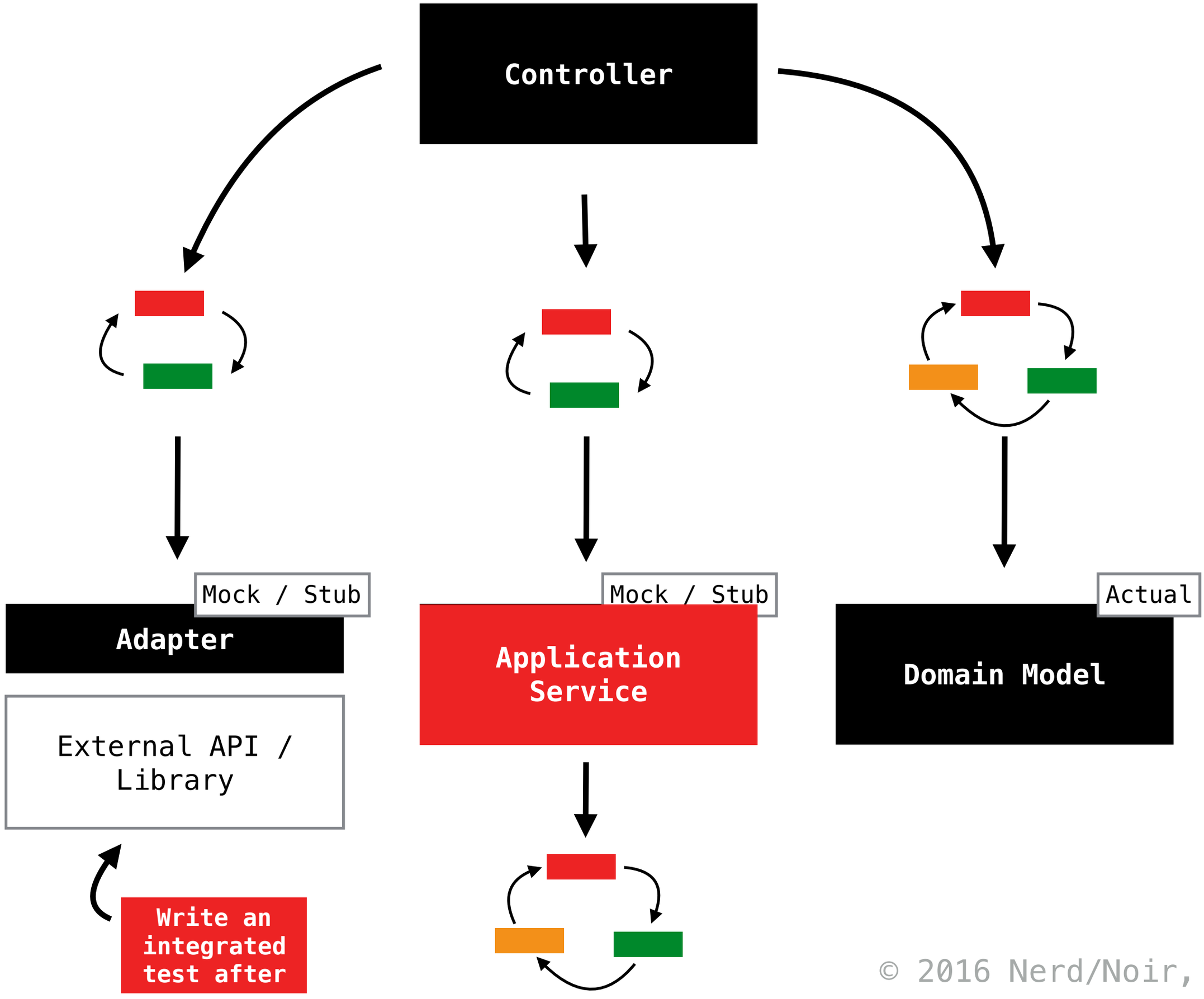
© 2016 Nerd/Noir, LLC.



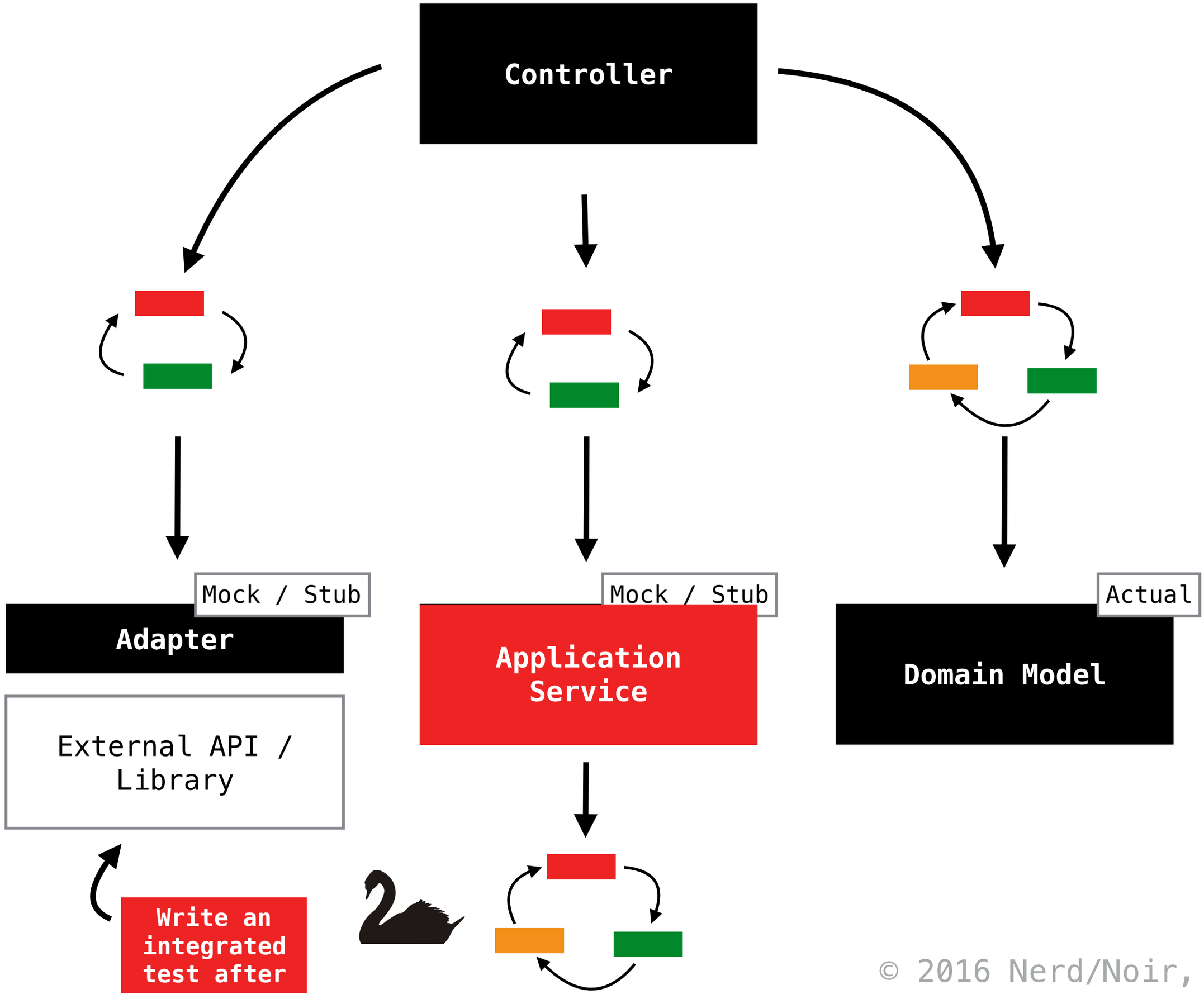
© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.

© 2016 Nerd/Noir, LLC.

EMPATHIZE

© 2016 Nerd/Noir, LLC.

DELIVERY vs. QUALITY

INERTIA

FX / COMMUNITY

FABER-CASTELL
since 1761

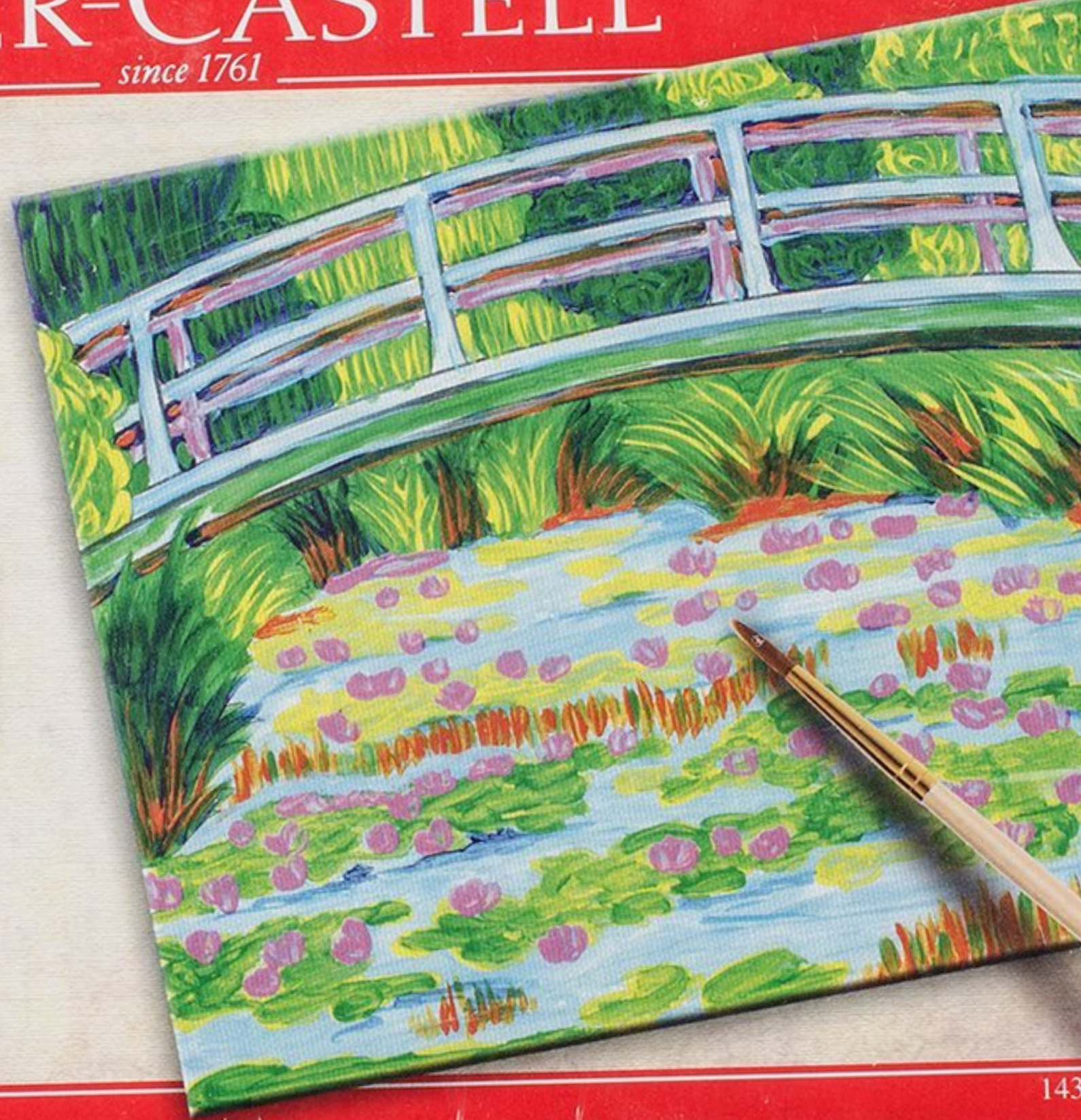
paint by number

Museum Series

The JAPANESE FOOTBRIDGE
by CLAUDE MONET

Learn to paint like the Masters

← LOOK! real canvas



143

EXPOSE

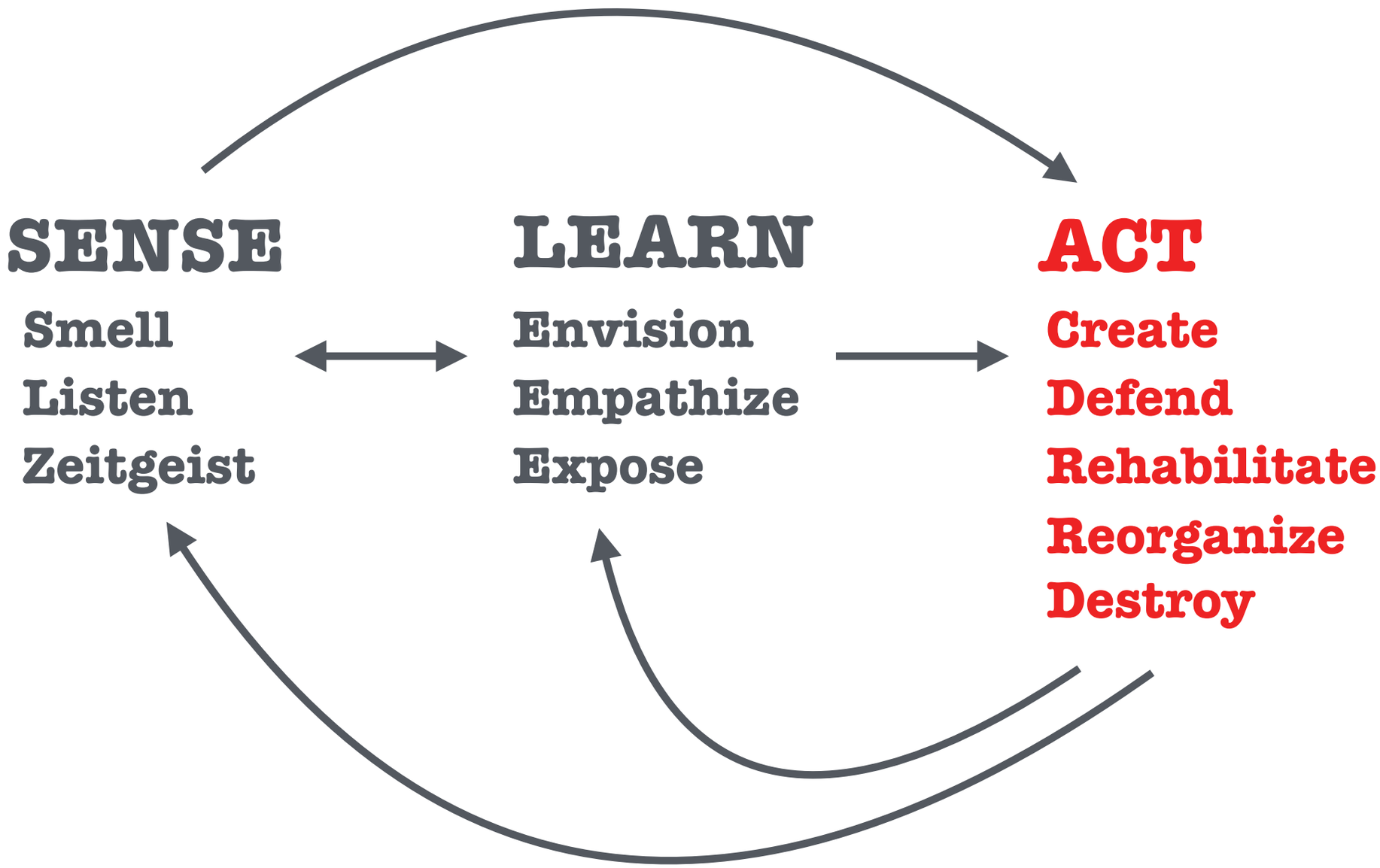
© 2016 Nerd/Noir, LLC.

2. laribee@mk19: ~/code/nerdnoir/strider (zsh)

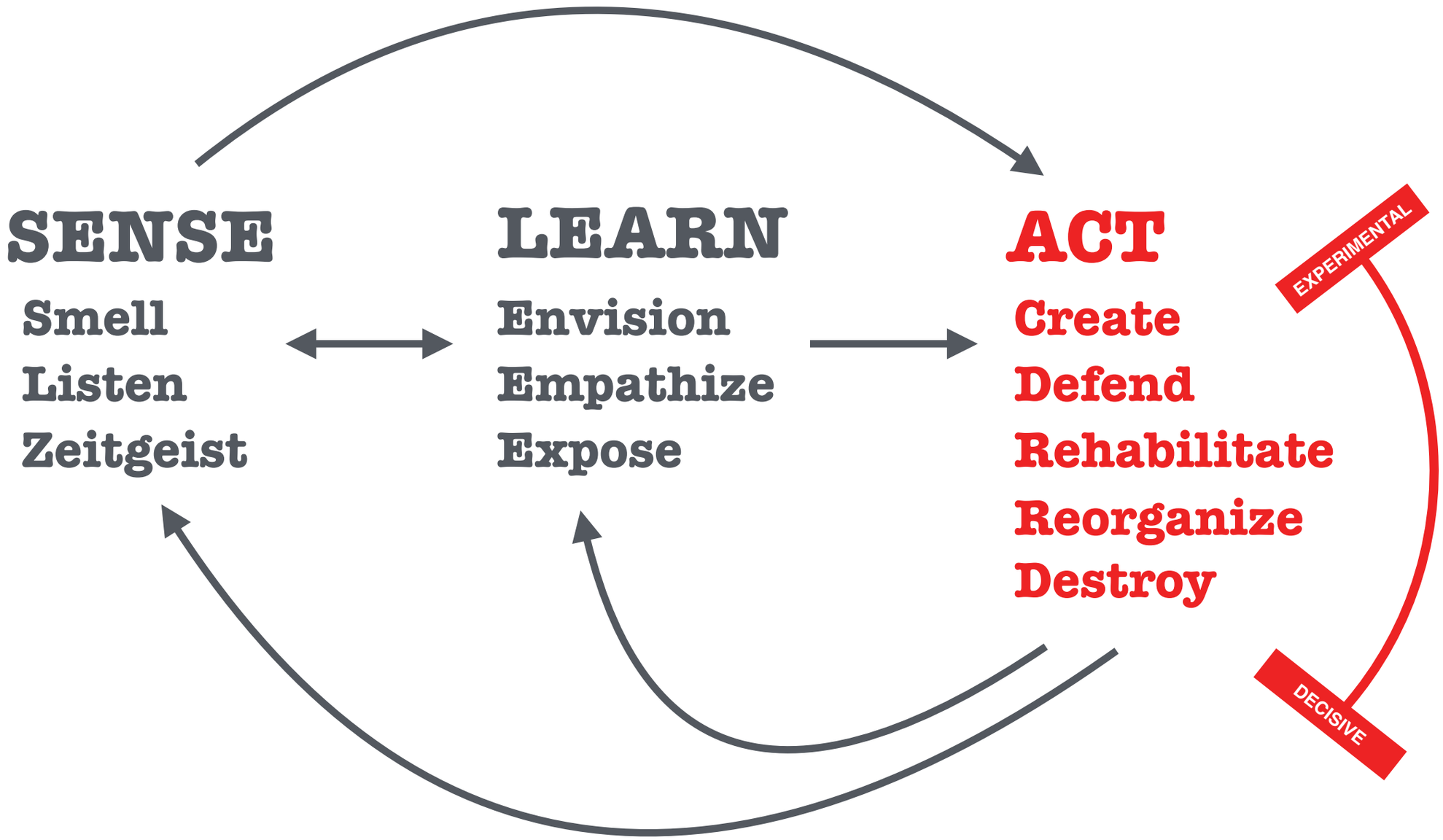
```
strider(master):
```

2. laribee@mk19: ~/code/nerdnoir/strider (zsh)

```
strider(master):
```



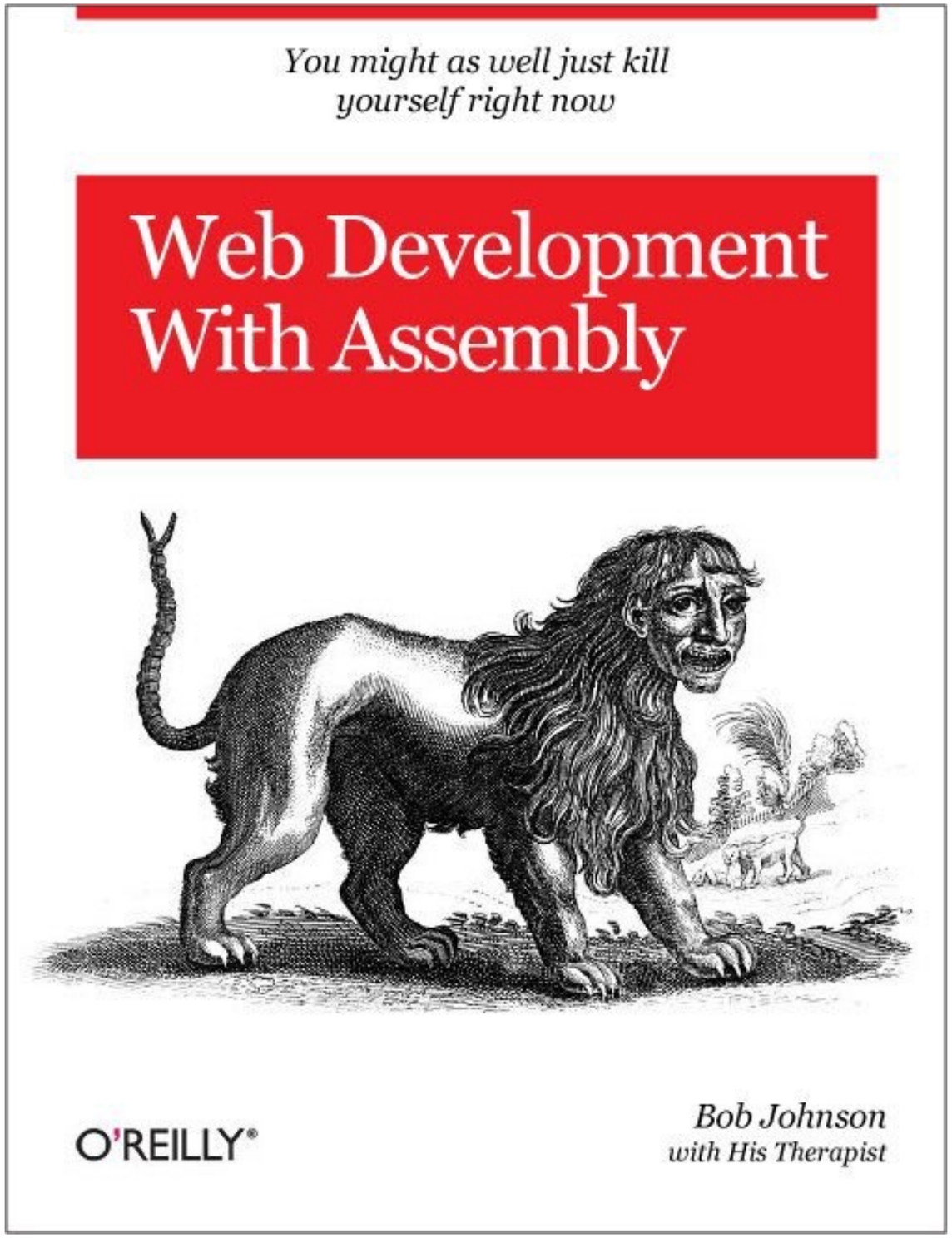
© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.

CREATE

NEW HOLLAND
648

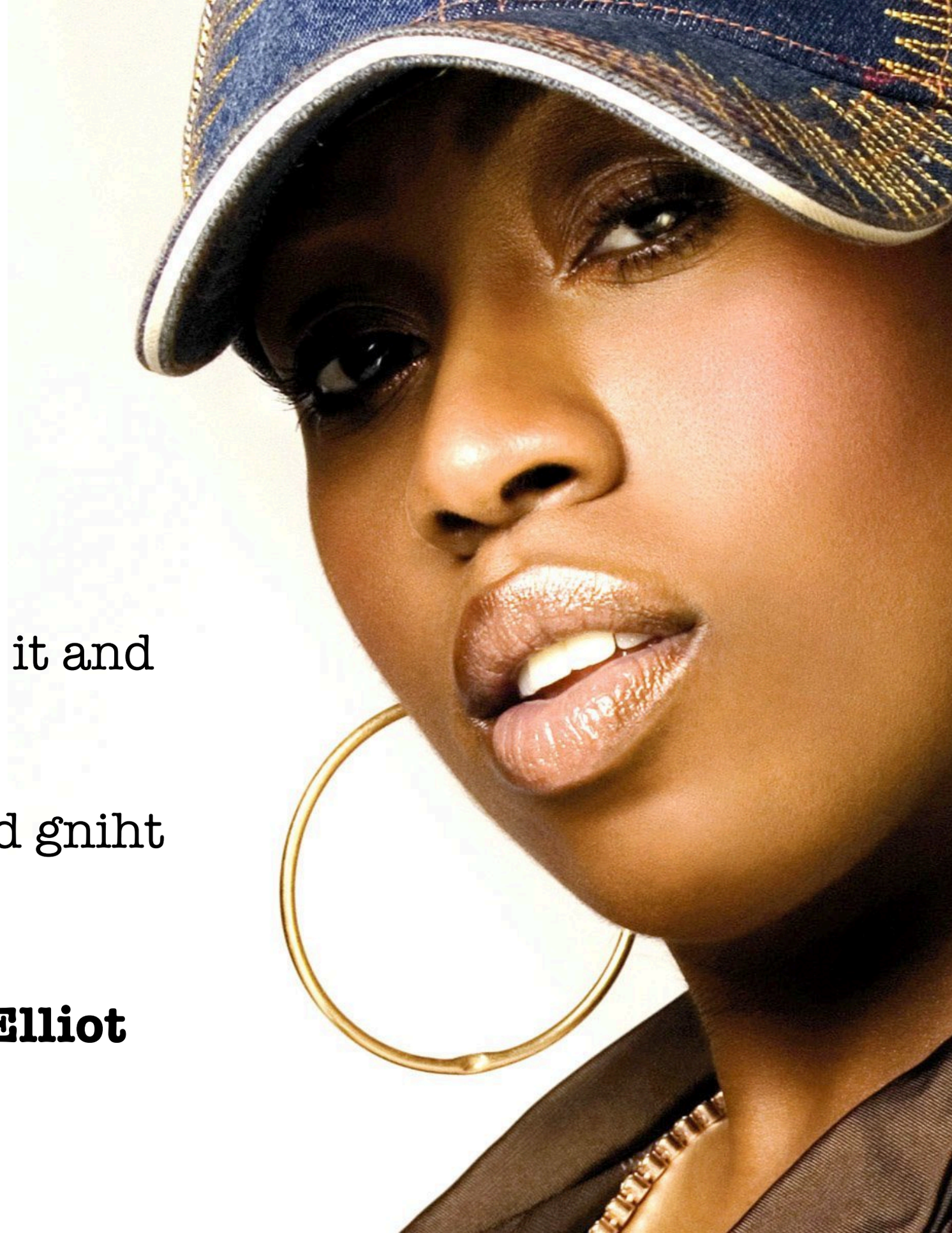


© 2016 Nerd/Noir, LLC.

“I put my thing down, flip it and reverse it

Ti esrever dna ti pilf nwod gniht ym tup I”

Missy “Misdemeanor” Elliot



2. vim test/functional-left-pad.js (vim)

```
1

NORMAL  master  test/functional-left-pad.js +  utf-8  javascript  100%  0:1
--No lines in buffer--
```

2. vim test/functional-left-pad.js (vim)

```
1

NORMAL  master  test/functional-left-pad.js +  utf-8  javascript  100%  0:1
--No lines in buffer--
```

Stats

10,449 downloads in the last day

55,726 downloads in the last week

346,015 downloads in the last month

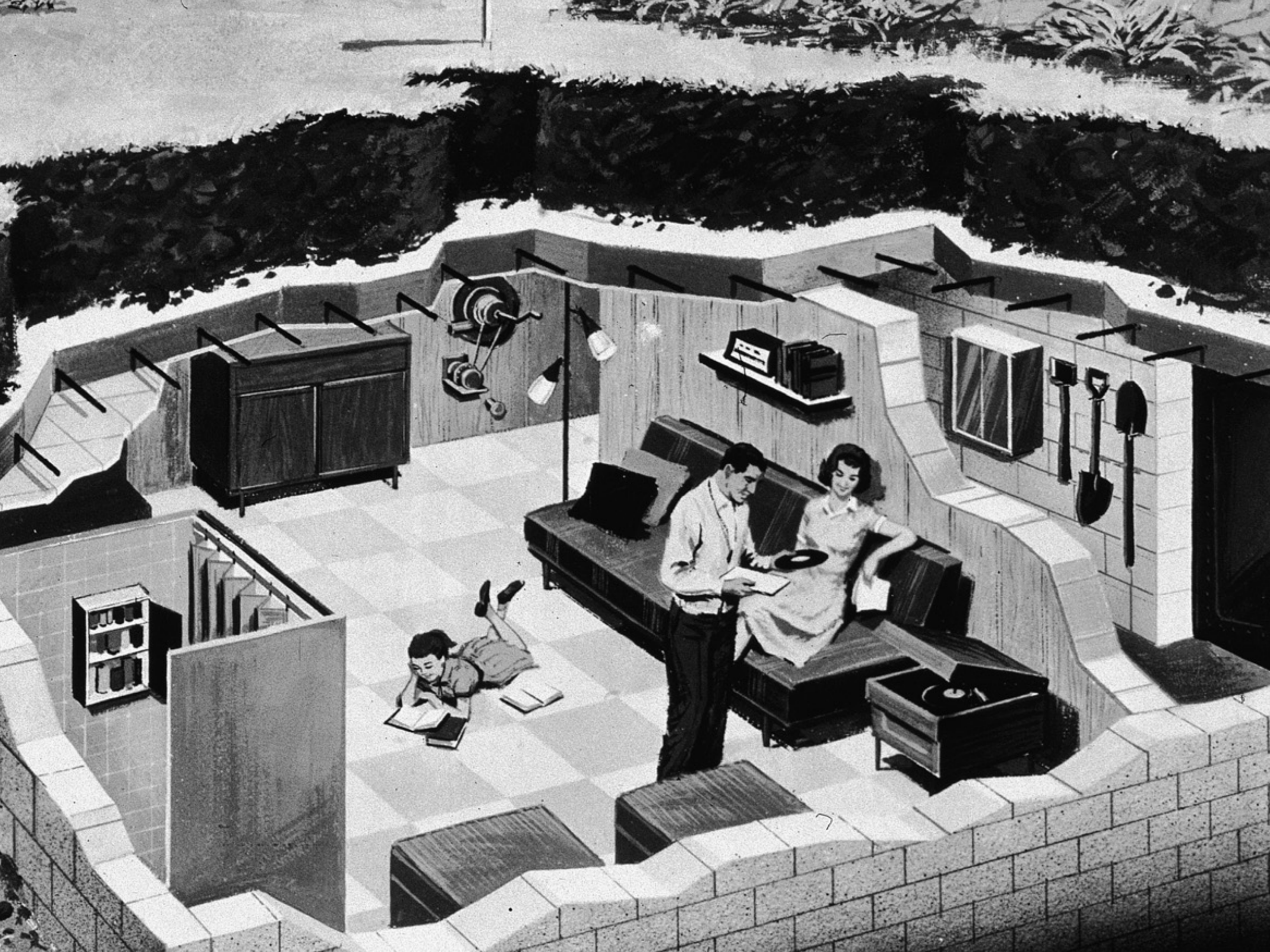
3 open issues on GitHub

No open pull requests on GitHub

#lulz

© 2016 Nerd/Noir, LLC.

DEFEND



“Just because you're paranoid doesn't mean they aren't after you.”

Joseph Heller

© 2016 Nerd/Noir, LLC.

HMS Queen Elizabeth

The QE Class aircraft carriers are the largest surface warships ever constructed for the UK. Due to enter service in 2020

SPECIFICATIONS

Displacement ... **65,000 tonnes**
Length ... **932ft** (280m)
Beam ... **239ft** (73m)
Draught ... **36ft** (11m)

4 helicopters
36 aircraft

COMPARISONS

US
USS George Washington (CVN 73)
Nimitz-class
Displacement ... **104,200 tonnes**
Length ... **1,092ft** (332.8m)
Beam ... **252ft** (76.8m)
Draught ... **37ft** (11.3m)

8 helicopters
80 aircraft

CHINA
Liaoning
Admiral Kuznetsov-class
Displacement ... **61,390 tonnes**
Length ... **999ft** (304.5m)
Beam ... **246ft** (75m)
Draught ... **29.4ft** (8.97m)

24 helicopters
30 aircraft

FRANCE
Charles de Gaulle
Unique aircraft carrier
Displacement ... **37,085 tonnes**
Length ... **858ft** (261.5m)
Beam ... **211.2ft** (64.36m)
Draught ... **30.9ft** (9.43m)

2 helicopters
38 aircraft

FIREPOWER

Lockheed F 35b Lightning
Short take-off and vertical-landing (STOVL)

Length ... **51.3ft** (15.64m)
Height ... **14.3ft** (4.36m)
Wingspan ... **35ft** (10.7m)
Weapons payload ... **15,000lb** (6,800kg)
Standard internal weapons load ... **Two AIM-120C air-to-air missiles**
Two 1,000-pound GBU-32 JDAM guided bombs

AugustaWestland Apache
Merlin Mk1
Chinook

Long range radar
Forward island bridge
After island emergency conning bridge
Medium range radar
Hangar forward bay
Aircraft lift
Each of the two aircraft lifts can move two Joint Strike Fighters from the hangar to the flight deck in 60 seconds
Special manoeuvre will allow landings without arrestor wires
Flight deck
Stabiliser

33 tonnes
Weight of each of two propellers

80MW
Output of propellers

56m
From keel to masthead

370 acres
Area of paintwork

Special phone app developed by scientists to stop workers getting lost in its 3,013 compartments

THE COST

Initial contract July 2008	Cost rises October 2010	Cost rises November 2013
£3.6bn	£5.2bn	£6.2bn

£1.6bn worth of sub contracts for work on the QE Class have now been placed with companies across most regions in the UK

BUILD STRATEGY

A&P Tyne
Babcock Rosyth
BAE Clyde
Cammell Laird Barrow-in-Furness
BAE Portsmouth

TO SCALE

Boeing 747
232ft
932ft

WEAPONS

Latest generation of the Phalanx close-in weapon system. 30mm guns and mini-guns located to counter asymmetric threats

© 2016 Nerd/Noir, LLC.

“Strange how paranoia can link up with reality now and then.”

Philip K. Dick

© 2016 Nerd/Noir, LLC.

© 201 Nerd/Noir, LLC.

GitHub URLs

As of version 1.1.65, you can refer to GitHub urls as just "foo": "user/foo-project". Just as with git URLs, a `commit-ish` suffix can be included. For example:

```
{
  "name": "foo",
  "version": "0.0.0",
  "dependencies": {
    "express": "visionmedia/express",
    "mocha": "visionmedia/mocha#4727d357ea"
  }
}
```

© 2016 Nerd/Noir, LLC.

Nexe

gitter join chat | dependencies up to date | Ready 9 | PASSED

Nexe is a command-line utility that compiles your Node.js application into a single executable file.

```
ludacraig:tet craig$
ludacraig:tet craig$ nexe -i ./index.js -o ./tet
----> downloading http://nodejs.org/dist/node-latest.tar.gz
[=================================================================]
----> tar -xf /tmp/nexe/latest/node-latest.tar.gz -C /tmp/nexe/latest
----> bundle /Users/craig/Desktop/tet/index.js
----> bundle -> /tmp/nexe/latest/node-v0.10.26/lib/nexe.js
----> monkey patch /tmp/nexe/latest/node-v0.10.26/node.gyp
----> monkey patch /tmp/nexe/latest/node-v0.10.26/src/node.js
----> make
{ 'target_defaults': { 'cflags': [],
                       'default_configuration': 'Release',
                       'defines': [],
                       'include_dirs': [],
                       'libraries': []},
  'variables': { 'clang': 1,
```

REHABILITATE

Santander
PIRELLI

2. vim refactor.js (vim)

```
1  const log = require('logomatic');
2  const authorizationService = require('./services/authorization');
3  const accountRepository = require('./model/repos/account');
4
5  export default class WithrawFunds {
6
7    constructor(log = require('logomatic'),
8        authorizationse) {}
9
10   execute(order) {
11     if (authorizationService.allowed(order.accountHolder, order.amount)) {
12       log(`unauthorized attempt to withdraw ${order.amount} by ${order.accountHolder}`);
13       throw;
14     }
15
16     // elided...
17   }
18
19 }
```

INSERT ?master ? refactor.js + ? unix ?utf-8 ?javascript ? 42% ? ? 8:22

-- INSERT --

2. vim refactor.js (vim)

```
1  const log = require('logomatic');
2  const authorizationService = require('./services/authorization');
3  const accountRepository = require('./model/repos/account');
4
5  export default class WithrawFunds {
6
7    constructor(log = require('logomatic'),
8        authorizationse) {}
9
10   execute(order) {
11     if (authorizationService.allowed(order.accountHolder, order.amount)) {
12       log(`unauthorized attempt to withdraw ${order.amount} by ${order.accountHolder}`);
13       throw;
14     }
15
16     // elided...
17   }
18
19 }
```

INSERT ?master ? refactor.js + ? unix ?utf-8 ?javascript ? 42% ? ? 8:22

-- INSERT --

REORGANIZE

nodejs/node: Node.js JavaS

David

GitHub, Inc. [US] https://github.com/nodejs/node

This repository Search

Pull requests Issues Gist

nodejs / node

Watch 1,572 Star 22,264 Fork 3,043

Code Issues 455 Pull requests 220 Wiki Pulse Graphs

Node.js JavaScript runtime ✨🐢🚀✨ https://nodejs.org

13,731 commits 127 branches 357 releases 894 contributors

Branch: master New pull request New file Upload files Find file SSH git@github.com:nodejs/node.g Download ZIP

ofrobots deps: upgrade to V8 5.0.71.34 ... Latest commit 49e42c5 18 hours ago

.github	doc: improve github templates by using comments	16 days ago
benchmark	benchmarks: fix lint error	19 hours ago
deps	deps: upgrade to V8 5.0.71.34	an hour ago
doc	doc: git mv to .md	19 hours ago
lib	http: disallow sending obviously invalid status codes	19 hours ago
src	doc: git mv to .md	19 hours ago
test	test: v8-flags is sensitive to script caching	2 hours ago
tools	doc: git mv to .md	19 hours ago
.editorconfig	tools: add .editorconfig	4 months ago
.eslintignore	tools: enable linting for v8_prof_processor.js	a day ago
.eslintrc	tools: lint rule for assert.fail()	a day ago

nodejs/node: Node.js JavaS

David

GitHub, Inc. [US] https://github.com/nodejs/node

This repository Search

Pull requests Issues Gist

nodejs / node

Watch 1,572 Star 22,264 Fork 3,043

Code Issues 455 Pull requests 220 Wiki Pulse Graphs

Node.js JavaScript runtime ✨🐢🚀✨ https://nodejs.org

13,731 commits 127 branches 357 releases 894 contributors

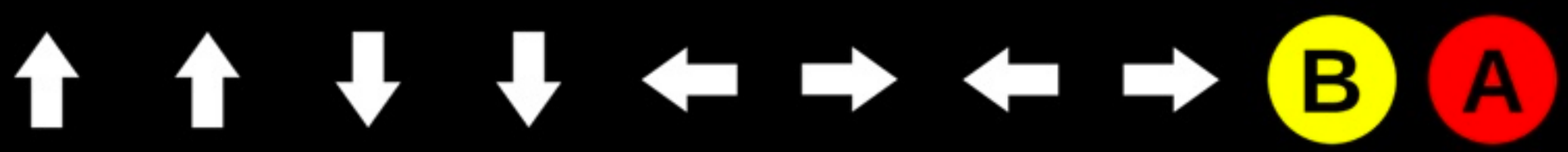
Branch: master New pull request New file Upload files Find file SSH git@github.com:nodejs/node.g Download ZIP

ofrobots deps: upgrade to V8 5.0.71.34 ... Latest commit 49e42c5 18 hours ago

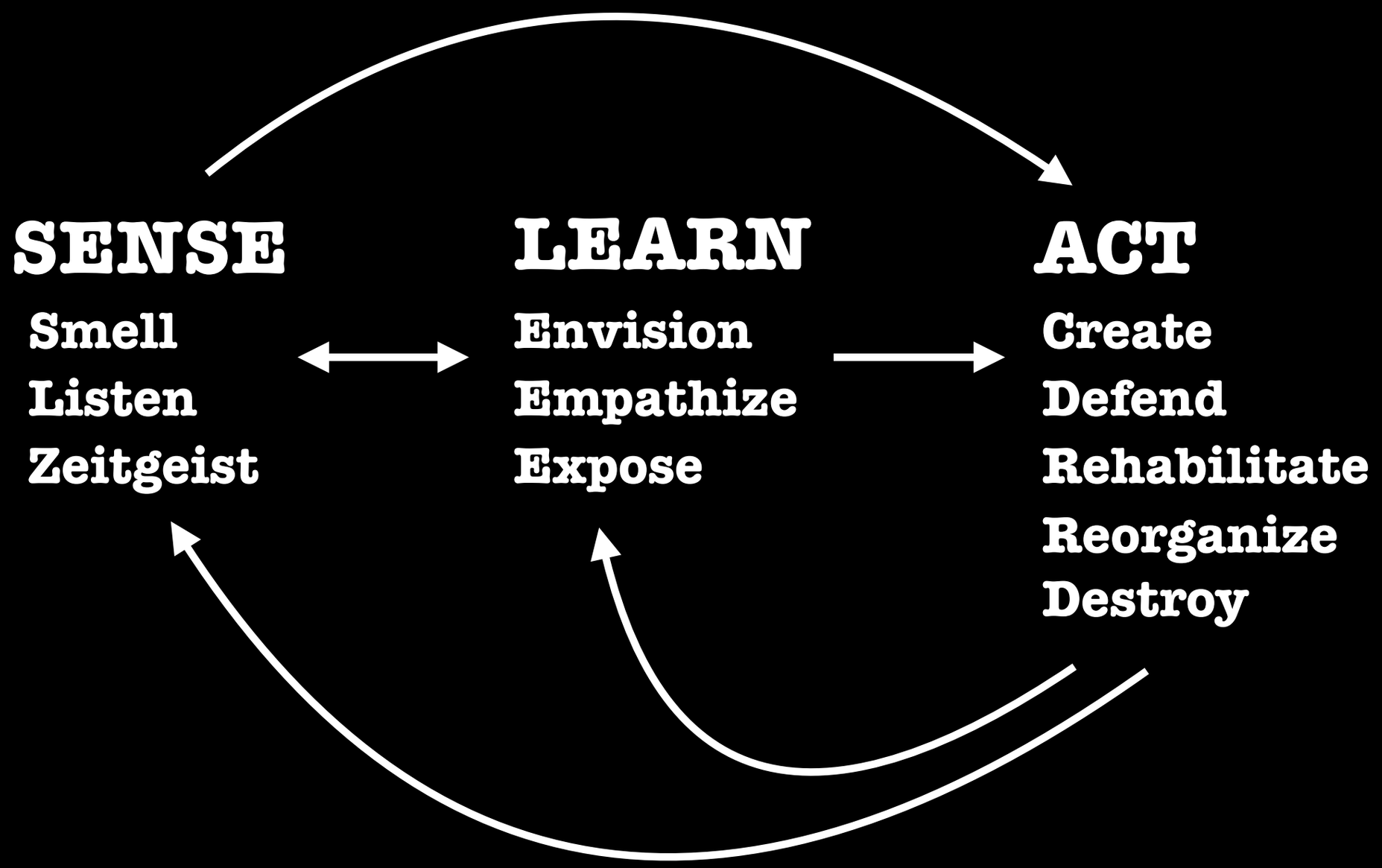
.github	doc: improve github templates by using comments	16 days ago
benchmark	benchmarks: fix lint error	19 hours ago
deps	deps: upgrade to V8 5.0.71.34	an hour ago
doc	doc: git mv to .md	19 hours ago
lib	http: disallow sending obviously invalid status codes	19 hours ago
src	doc: git mv to .md	19 hours ago
test	test: v8-flags is sensitive to script caching	2 hours ago
tools	doc: git mv to .md	19 hours ago
.editorconfig	tools: add .editorconfig	4 months ago
.eslintignore	tools: enable linting for v8_prof_processor.js	a day ago
.eslintrc	tools: lint rule for assert.fail()	a day ago

DESTROY

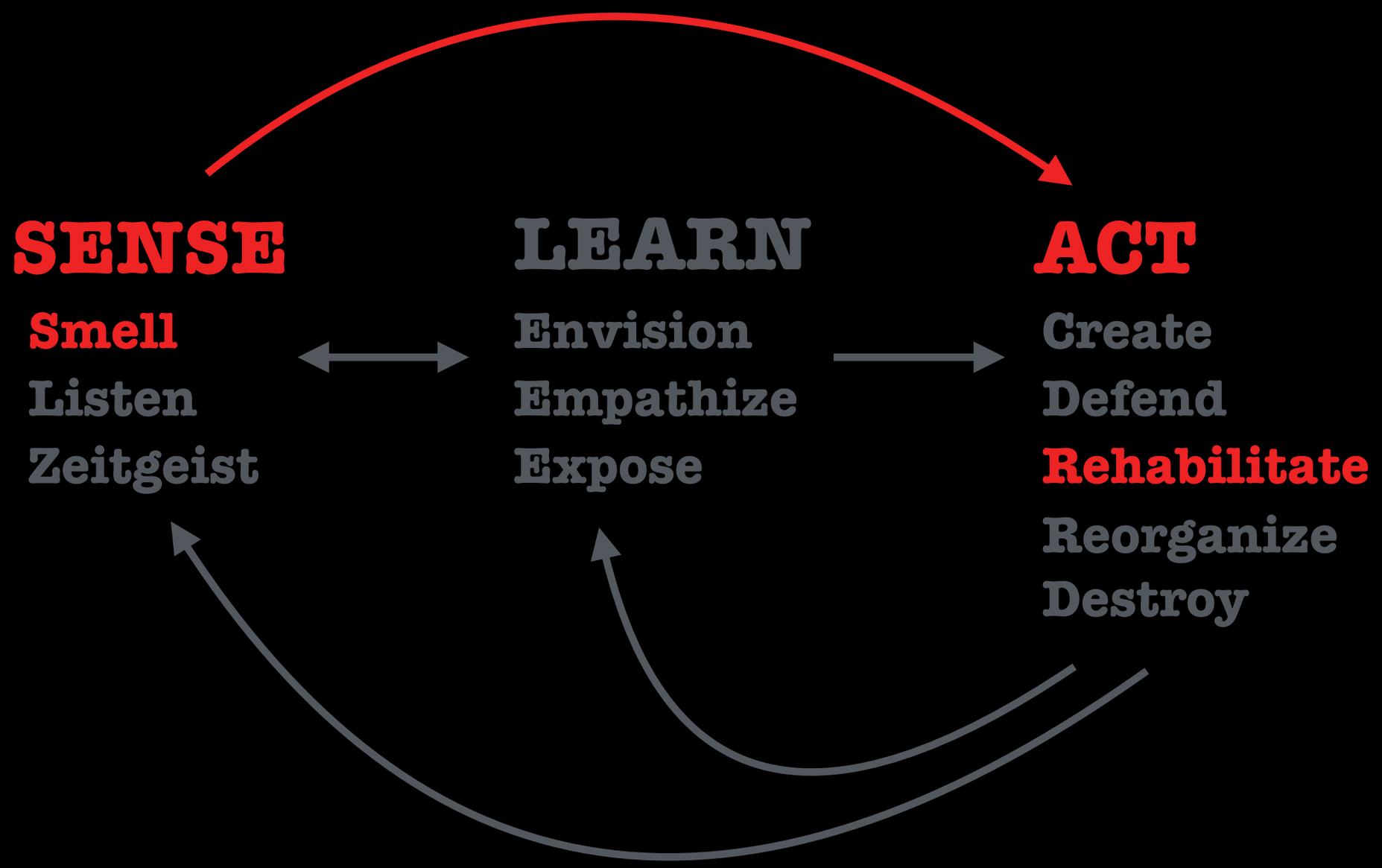
© 2016 Nerd/Noir, LLC.



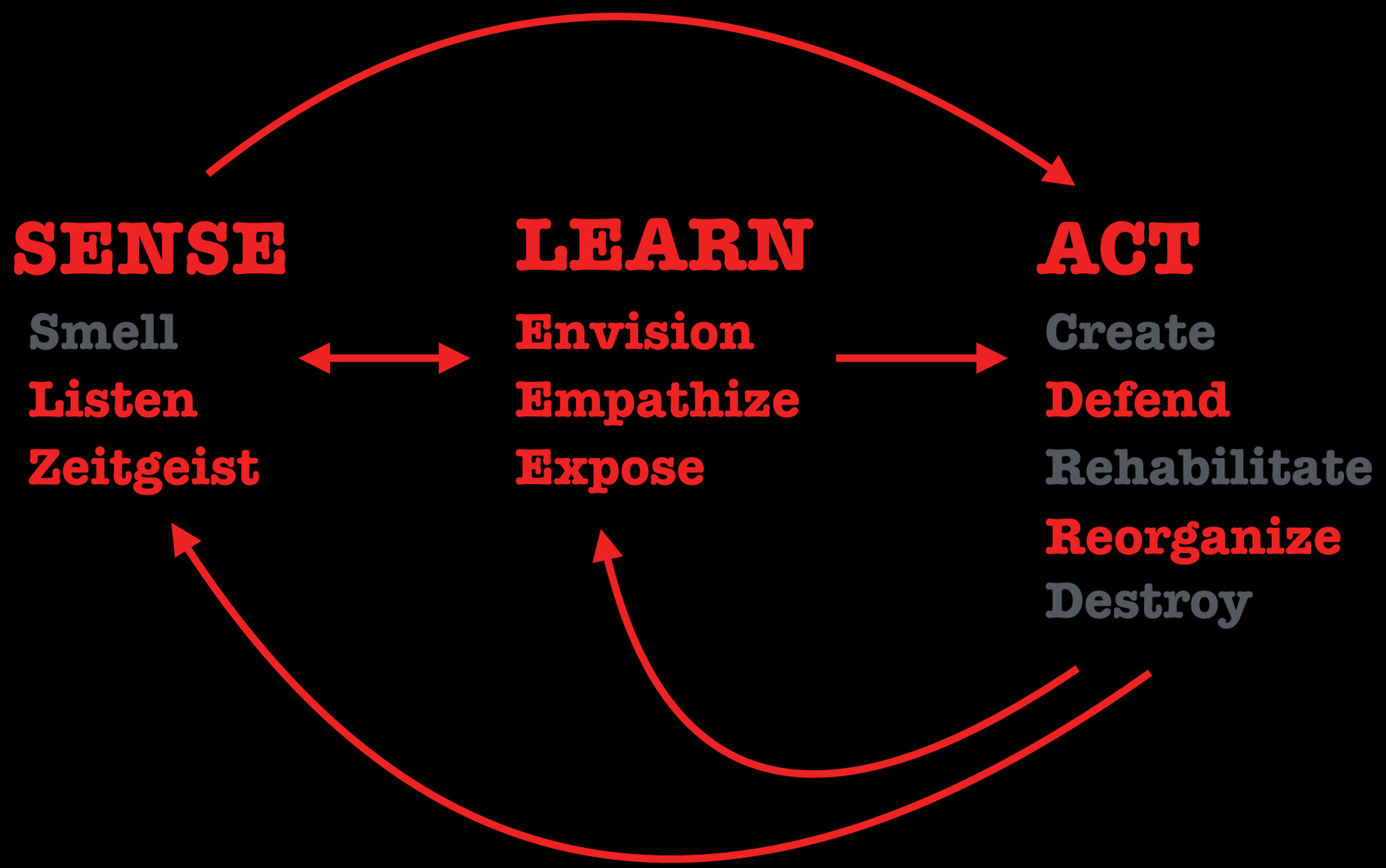
© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.



© 2016 Nerd/Noir, LLC.

"The only best practices are learning, experimentation, and situational awareness."

Don Reinertsen

© 2016 Nerd/Noir, LLC.

Thank you, Lithuania!

@laribee | @nerdnoir
dave@nerdnoir.com

Download slides -
nerdnoir.com/conscious-coupling

© 2016 Nerd/Noir, LLC.