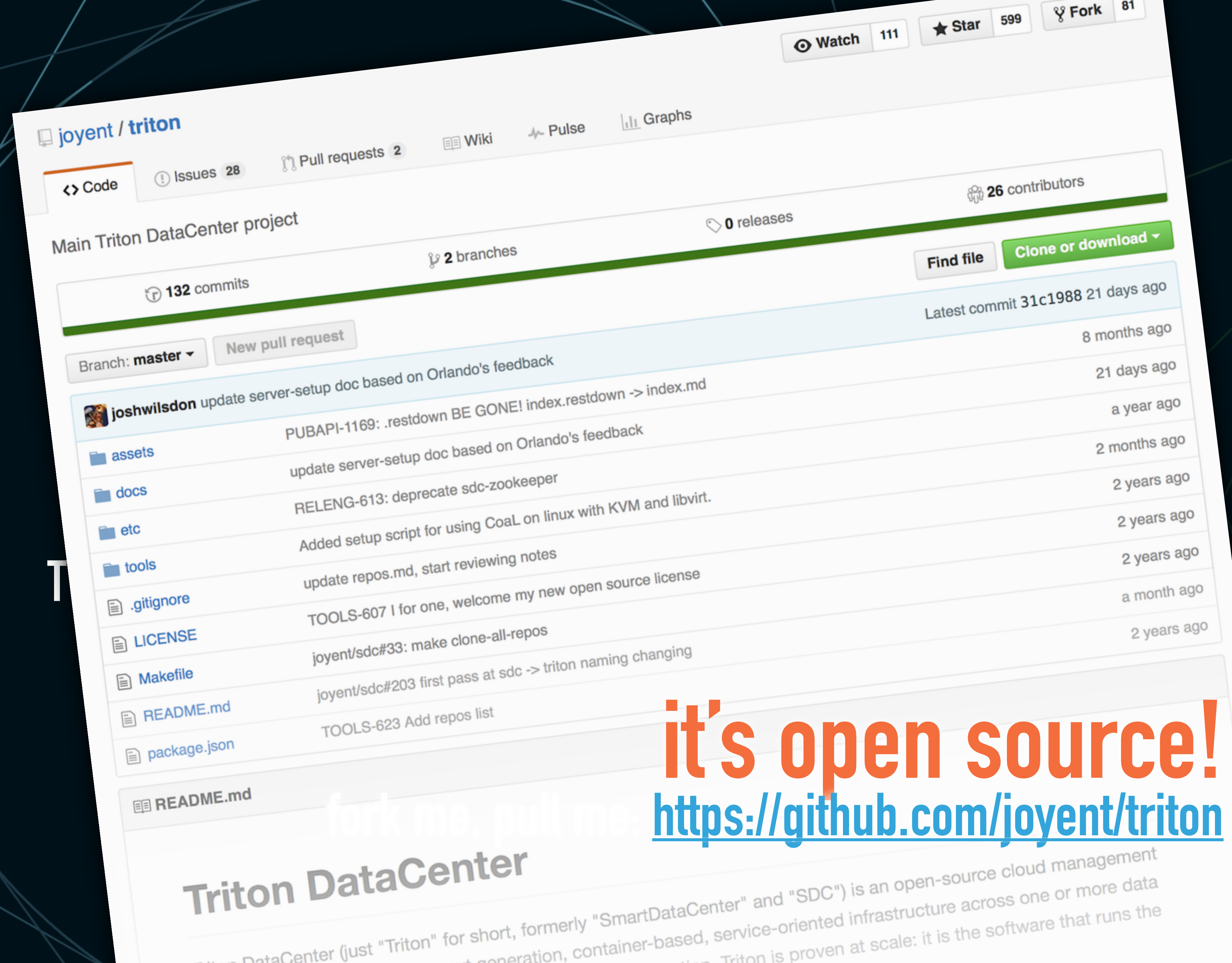

SOFTWARE

DEFINED CULTURE

TRITON

THE NEXT GENERATION OF CLOUD

SAMSUNG



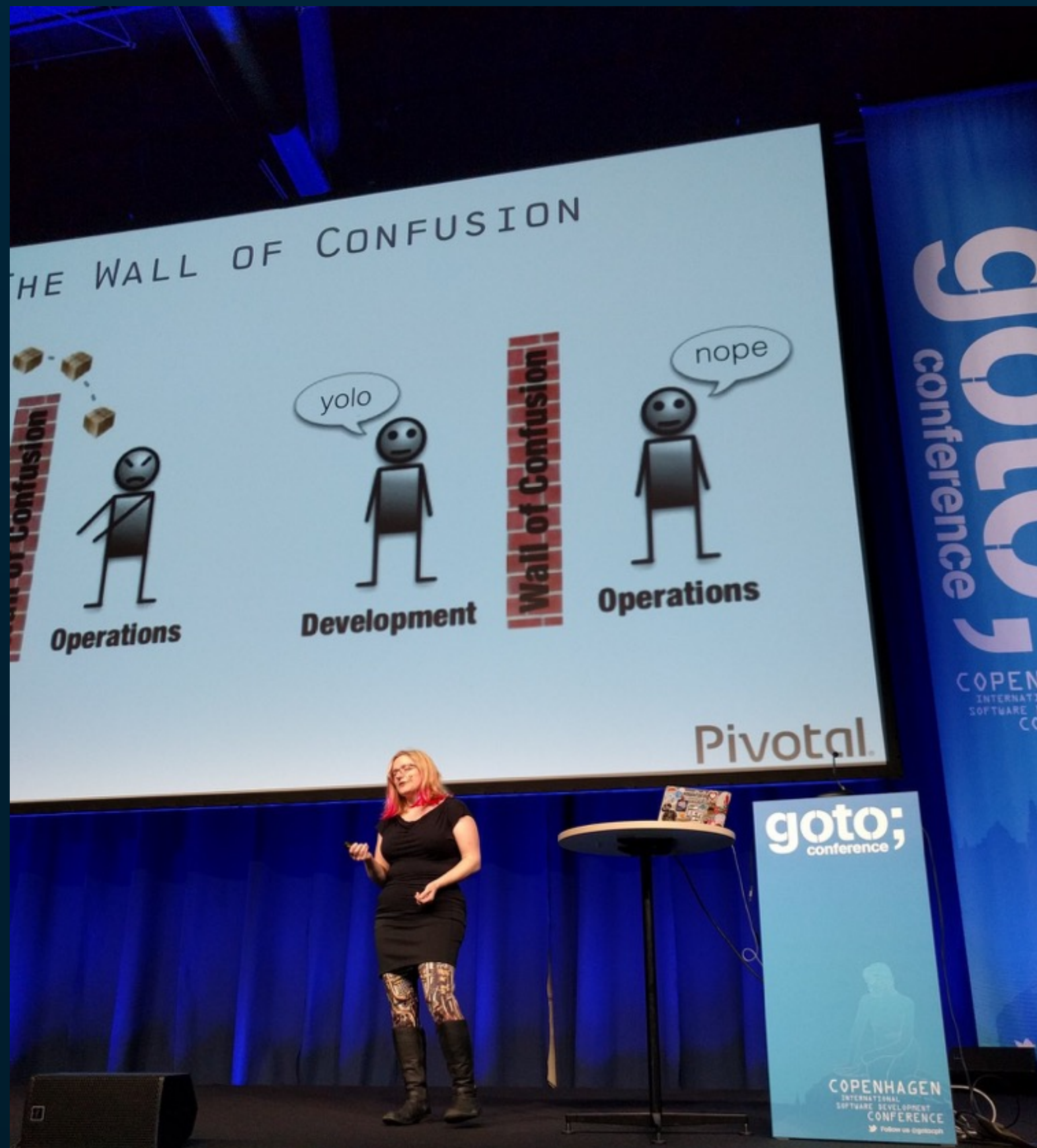
End-user license agreement (EULA):

The opinions expressed in this talk are the speaker's alone and do not necessarily reflect the view of his employer, his mother, or this conference. It may portray situations intentionally exaggerated for humorous effect about software systems such as Node.js (which should not be used by children) or MongoDB (which should not be used by anyone), with the goal of improving our community dialog around software culture. By attending this talk the speaker hereby grants you an irrevocable, perpetual, non-exclusive, transferable, worldwide license to be excellent to each other.

“Containers won’t fix your broken culture.”

Bridget Kromhout

*Principal Technologist for Cloud Foundry
DevOpsDays global organizer,
Buffy the Vampire fan*



“Tools will not fix a broken culture.”



Katherine Daniels

*Senior ops guru at Etsy,
Co-author of O'Reilly book Effective DevOps,
Prominent cat enthusiast*



Colette Alexander

@colettecello



Follow

Architect: "we should break this down into 6 microservices"

Me: "you have 6 teams who hate each other?"

Architect: "how did you know that?"

RETWEETS

1,977

LIKES

2,619



9:31 PM - 1 Jul 2016



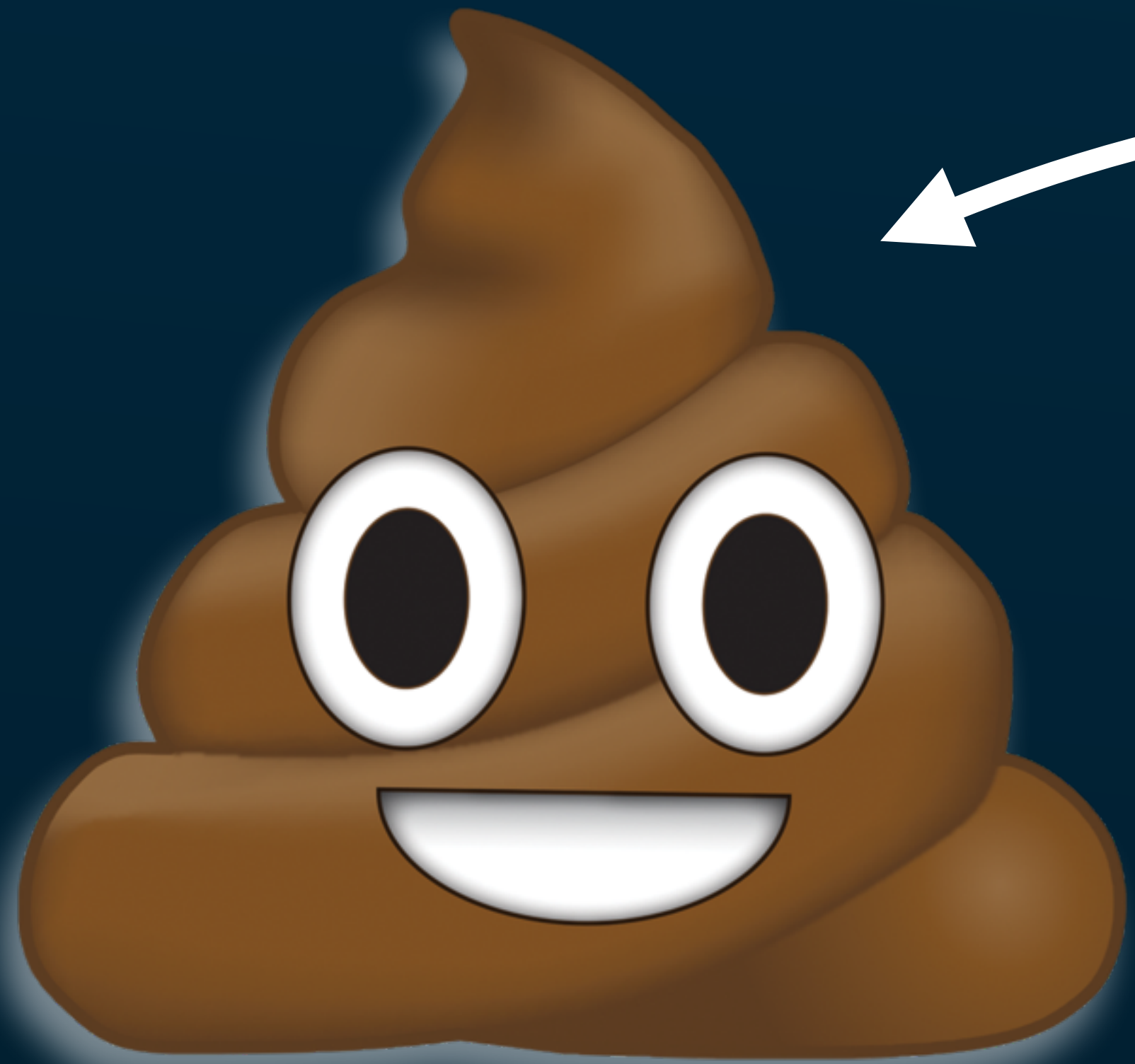
2K



2.6K



Monolith



Microservices



Today



Excited New Person 10:37 AM

Hi everyone! I've been charged with implementing a devops initiative at work.
Should we be using Puppet or Chef?



J. Random Ops Person

Oh honey.



DevOps tools as spiritual bypass



[spoiler alert]

Firing up a Jenkins server
does not turn you into Google.

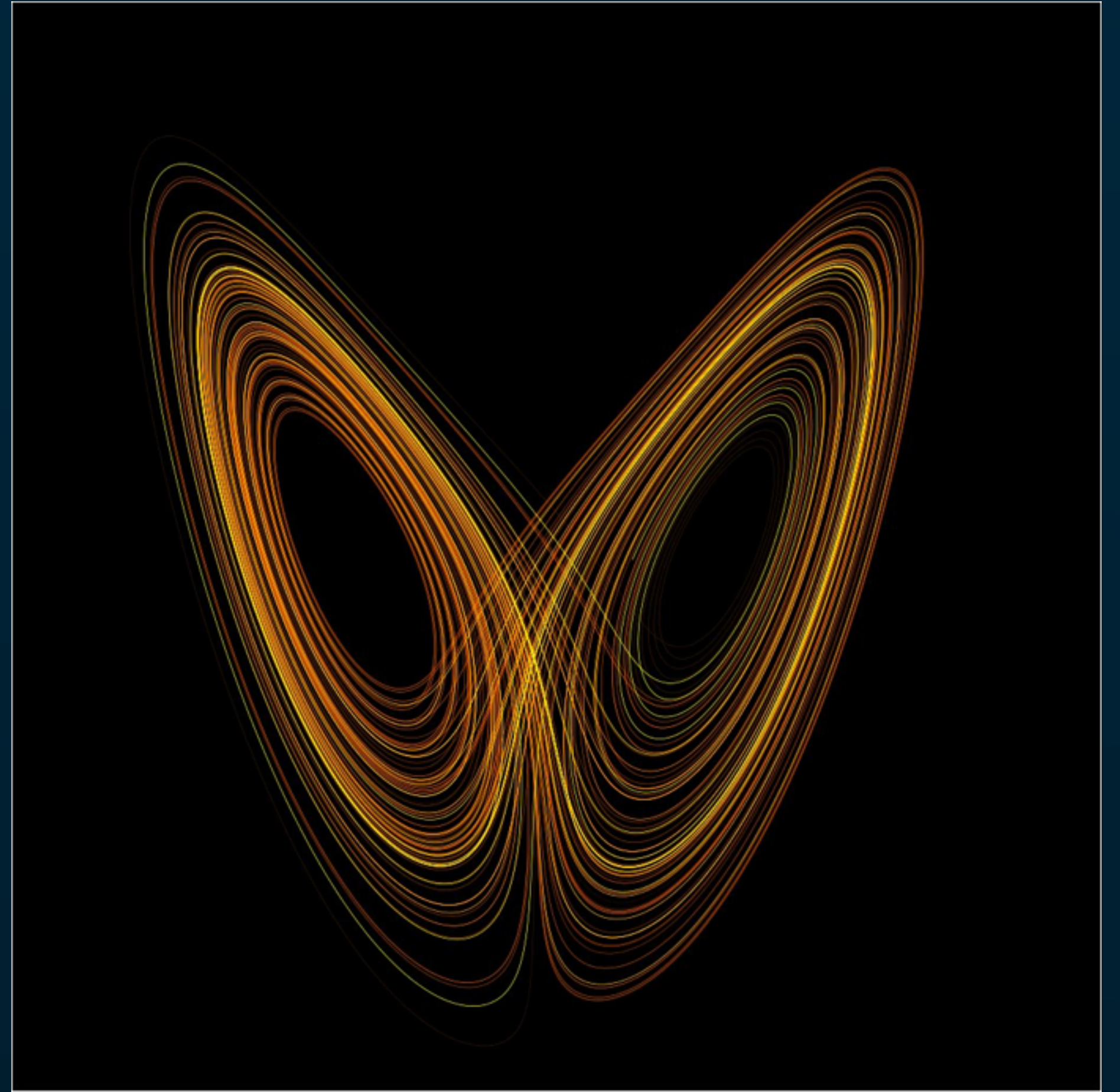
“Any organization that designs a system (defined more broadly here than just information systems) will inevitably produce a design whose structure is a copy of the organization's communication structure.”

Melvin Conway

How Do Committees Invent?

“Shipping the org chart”

The Butterfly Effect







SEEN BY
DEVELOPERS



SEEN BY
DESIGNERS



SEEN BY
PROJECT
MANAGERS



SEEN BY
QA



SEEN BY
SYSADMINS



DEVELOPERS

DESIGNERS

PROJECT
MANAGERS

QA

SYSADMINS



Monday Morning Kitteh



Really Needs a Coffee

ICANHASCHEEZBURGER.COM 🐱 ☹️ 🐱

Mail ▼

COMPOSE

Inbox (ETOOMUCHMAIL)

Starred

Sent Mail

Drafts



beanstalk



“The magic is in the new, better practices that the tools enable. A tool is a vehicle for practices. Practices directly shape habits and tacit assumptions. Habits and tacit assumptions are the foundations of culture.”

Bill Higgins

IBM Distinguished Engineer

<https://medium.com/@BillHiggins/tools-as-a-catalyst-for-culture-change-f012b2c0b527>

@0x74696d

“A lot of CD is to do with culture, much more than tools. I know people who do it with Deployinator, Jenkins, Dreadnot, and a bunch of other things. But the culture is really what makes it. Once you have the culture moving in the right direction, where developers are happy pushing code and owning software problems, and operations teams are OK letting go of the control and working with developers, the tools become less important.”

Avleen Vig

Operations Engineer, Etsy

4 Principles of Software-Defined Culture

- Build for Reliability
- Build for Operability
- Build for Observability
- Build for Responsibility

#1. BUILD FOR RELIABILITY

“Stop fighting fires.”

Roger Bohn

Harvard Business Review July-Aug 2000

<https://hbr.org/2000/07/stop-fighting-fires>

- Solutions are incomplete
- Problems recur and cascade
- Urgency supersedes importance
- Problems become crises

Zombie bugs



Source: <http://nero-nero.deviantart.com/>

“Reward firefighting and you'll
create a culture of arsonists.”

Jimmy Leppert

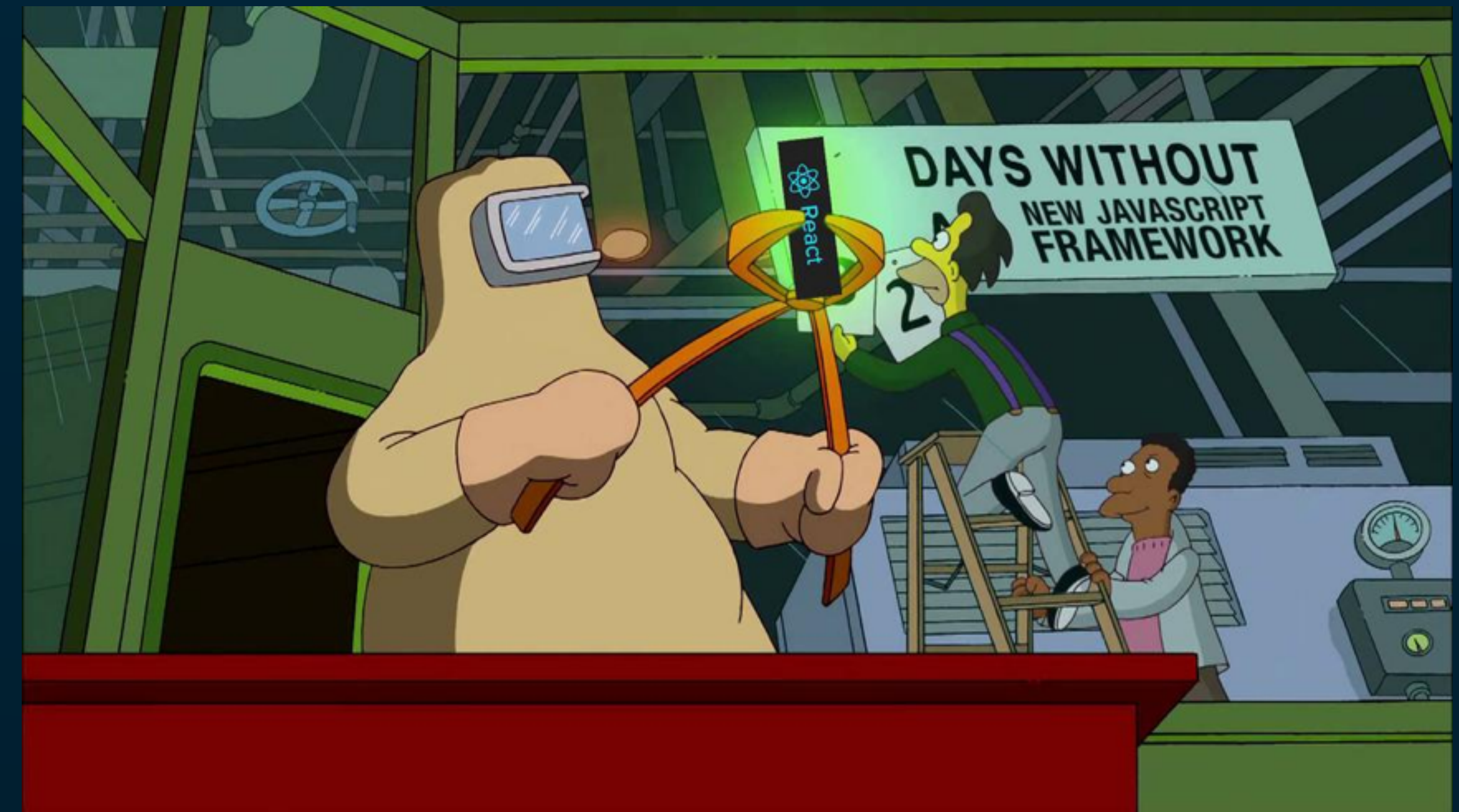
Forbes June 2013

<http://ow.ly/STqJ305tmvg>

Burnout



Avoid resume-driven development



Normalizes
risky decision-
making

[Image source \(www.miramax.com\)](http://www.miramax.com)



“SAY #YOLO AGAIN.”

Attracts like-minded hires

This time you have definitely chosen the right libraries and build tools



Real World

Rewriting Your Front
End Every Six Weeks

ORLY?

@ThePracticalDev

@0x74696d

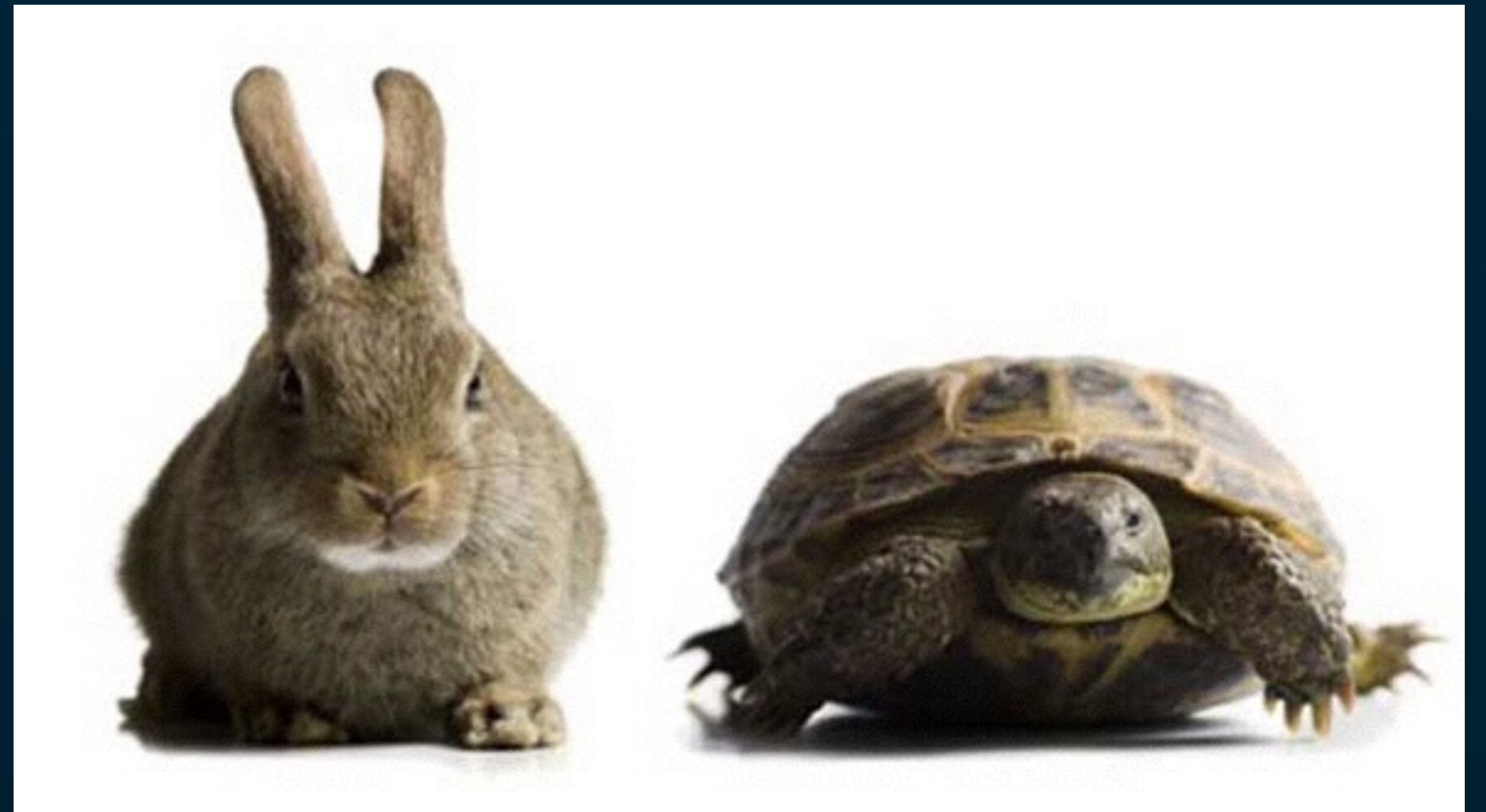
Bias vs. experience



<http://giphy.com/gifs/3b1JW7LxfsAKs>

“AWESOME MODE” VS. “SAD MODE”

Bi-modal IT



[Image source \(devops.com\)](https://devops.com)

Choose boring technology

“[A]s we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – the ones we don't know we don't know.”

- *Some jackass*

#2. BUILD FOR OPERABILITY



Build



Test



Deploy



Scale



everybody gets a



staging environment

GIFEE

“Google Infrastructure
For Everyone Else”





Ben Zvan
@BenZvan

 Follow

"Google does it this way so you should too"
"You're almost certainly wrong about that and
we can talk about why"
[@mipsytipsy](#) [#velocityconf](#)

RETWEETS
10

LIKES
28



2:10 PM - 21 Sep 2016

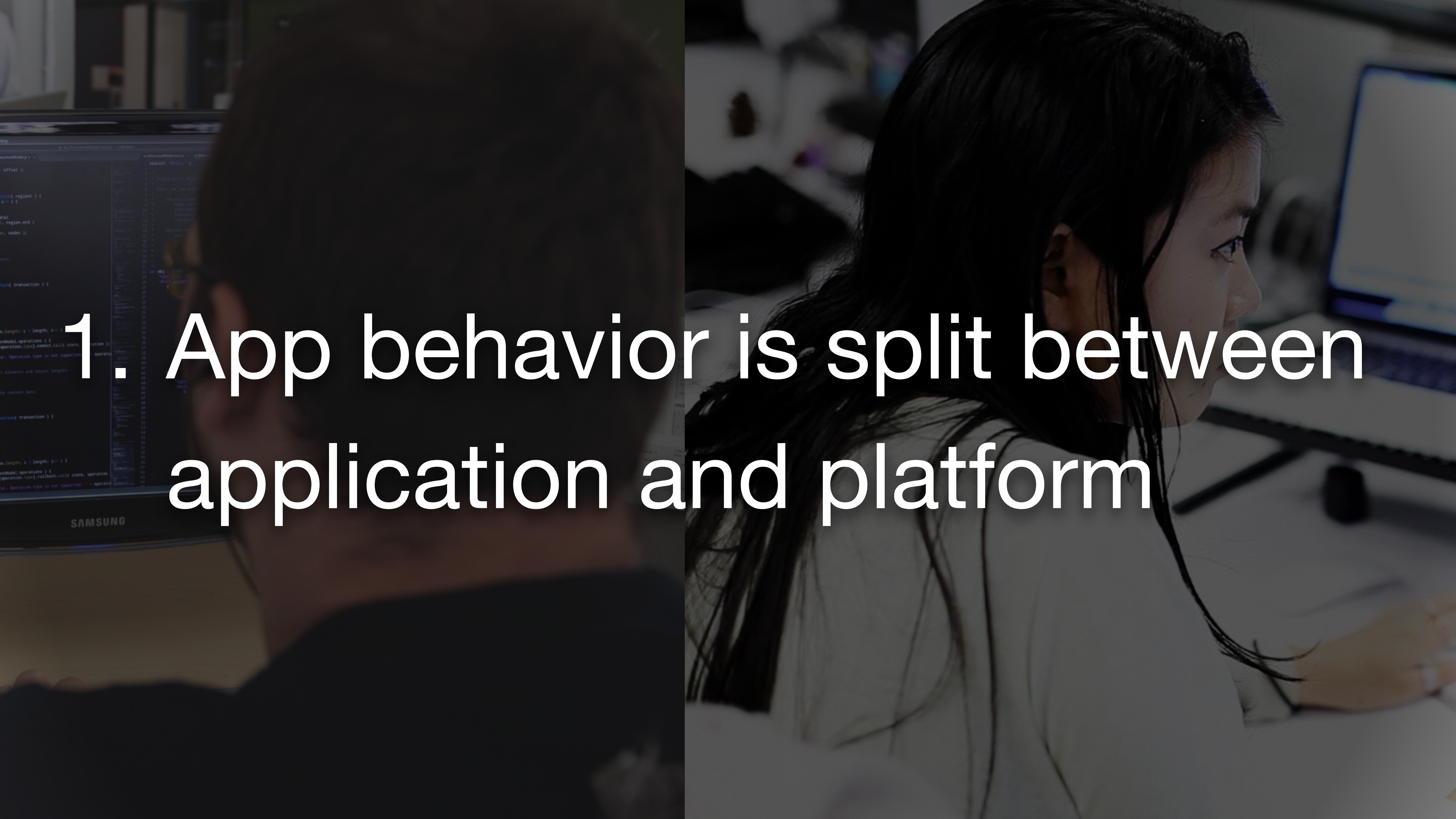


10



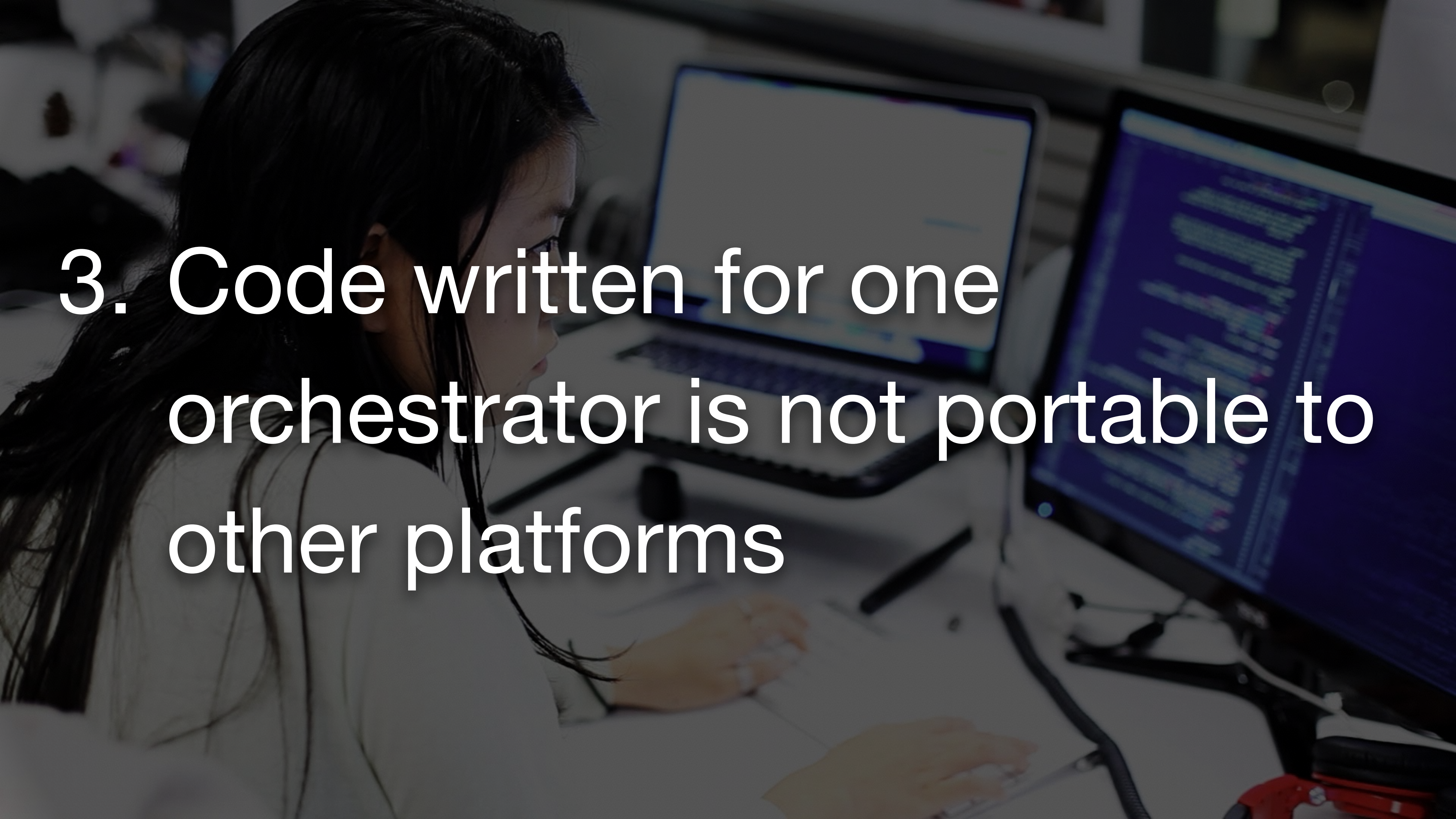
28



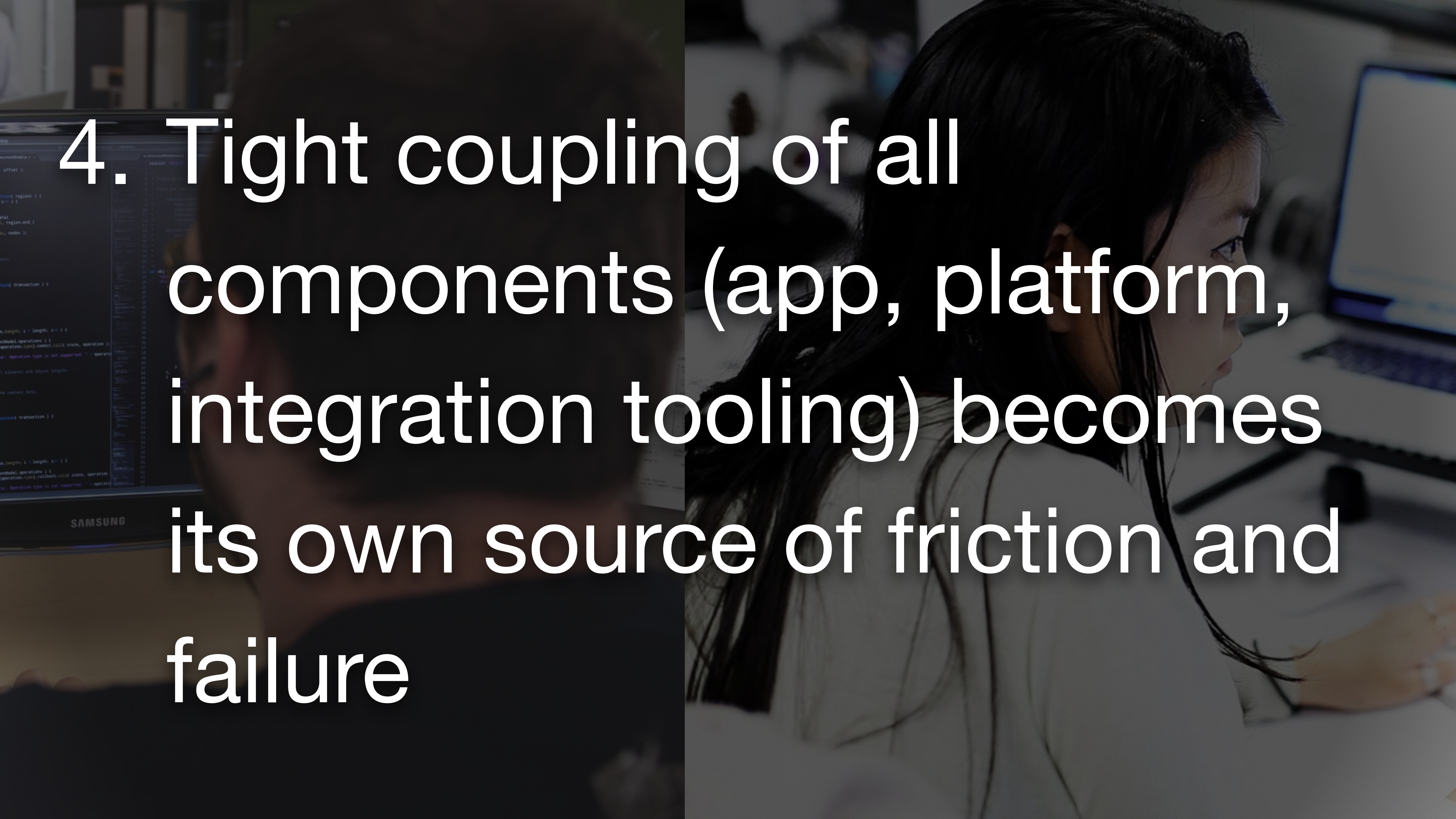


1. App behavior is split between application and platform

2. Developers don't run the platform in local development

A person with long dark hair and glasses is seen from the side, working at a desk. There are two computer monitors in front of them. The monitor on the right displays a dark-themed code editor with blue and green syntax highlighting. The monitor on the left shows a lighter interface. The person's hands are visible on the desk, and there are some papers and a red object (possibly a stapler or a small robot) in the foreground. The overall scene is dimly lit, with the light from the monitors illuminating the person's face and hair.

3. Code written for one
orchestrator is not portable to
other platforms



4. Tight coupling of all components (app, platform, integration tooling) becomes its own source of friction and failure





TRITON

AutopilotPattern

Make applications share responsibility for:

Startup

Discovery

Shutdown

Recovery

Scaling

Telemetry



TRITON

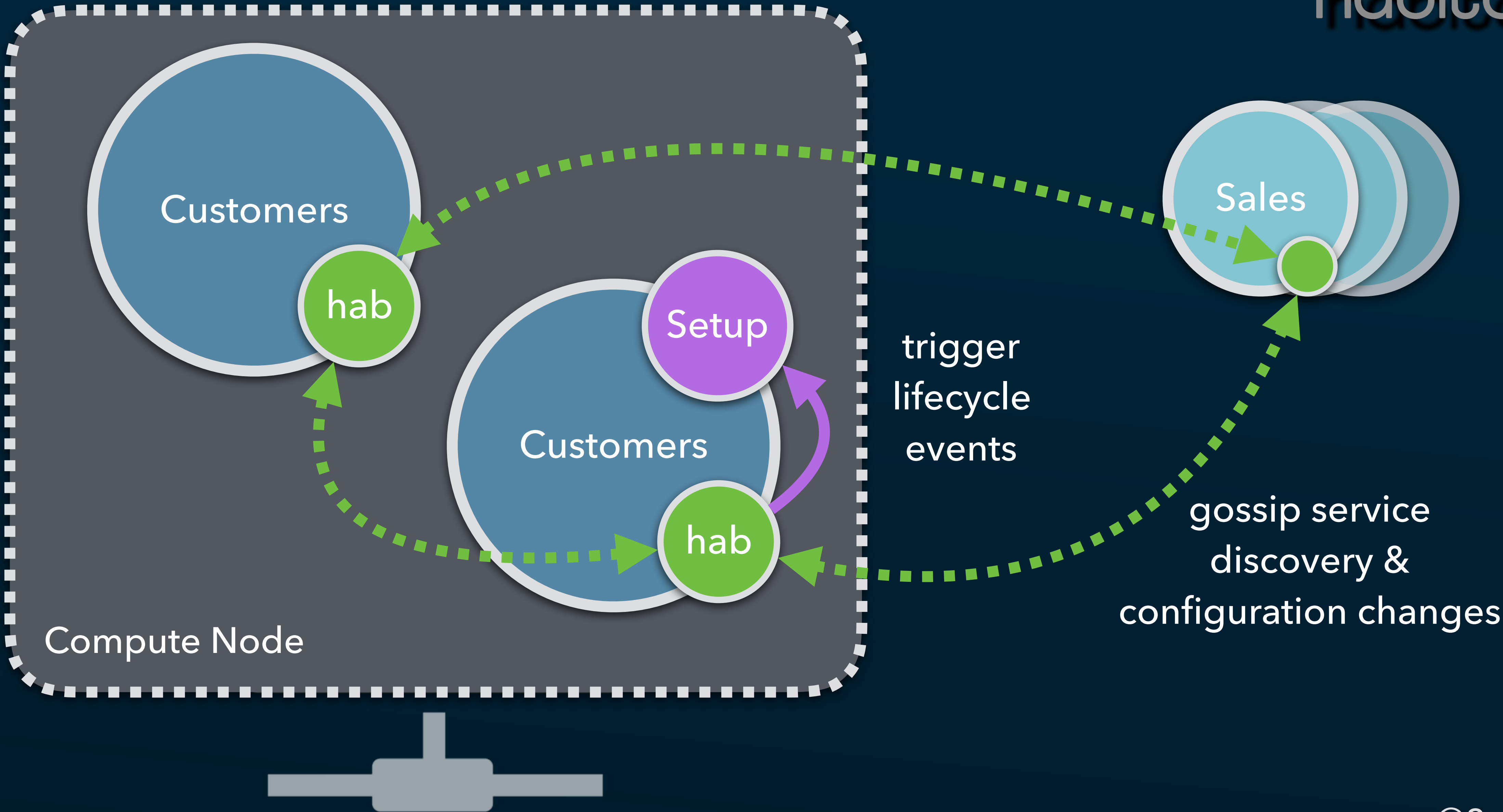
ContainerPilot

habitat



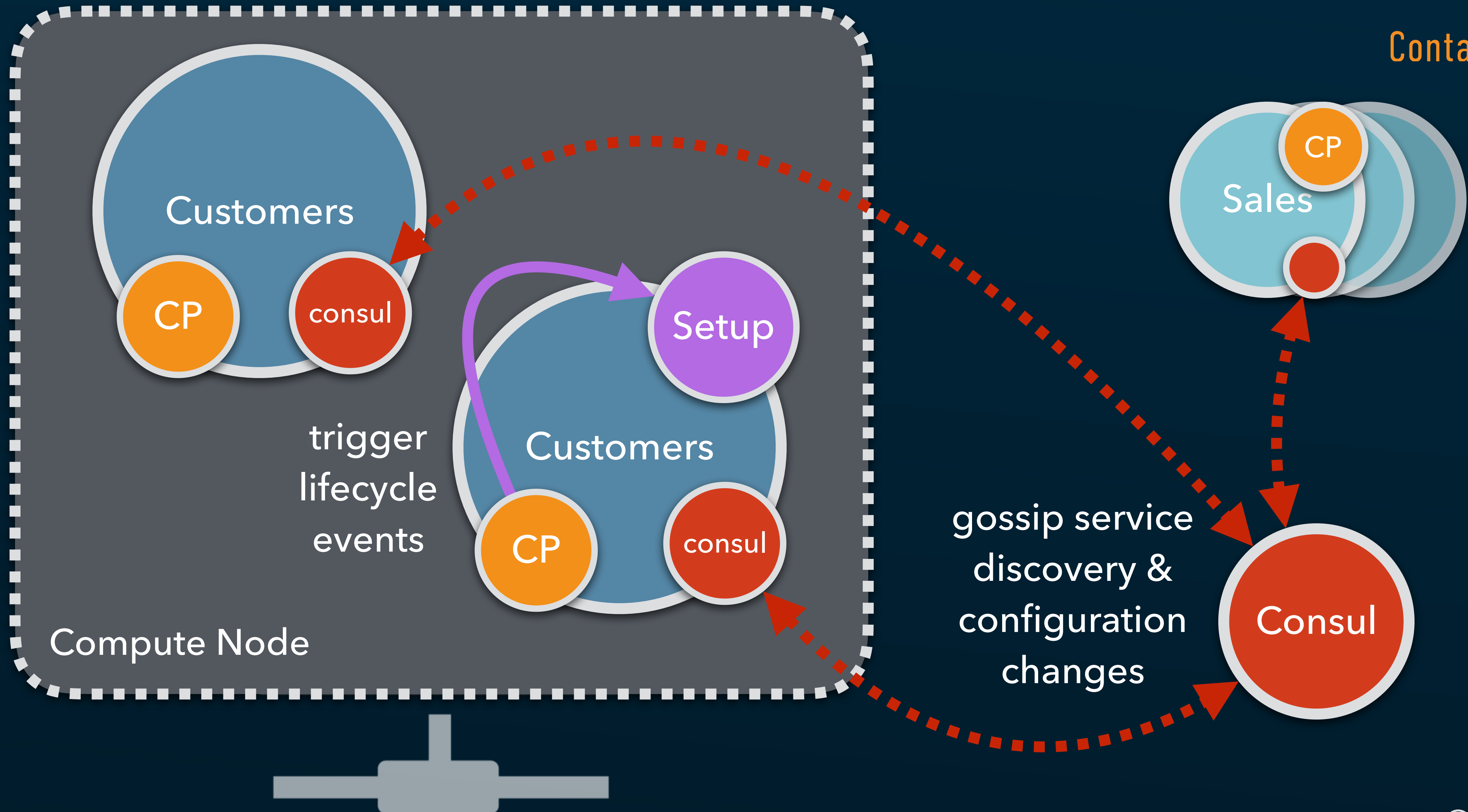


habitat





TRITON
ContainerPilot



Platform-independent separation of concerns

- Application / service
- Scheduler
- Infrastructure

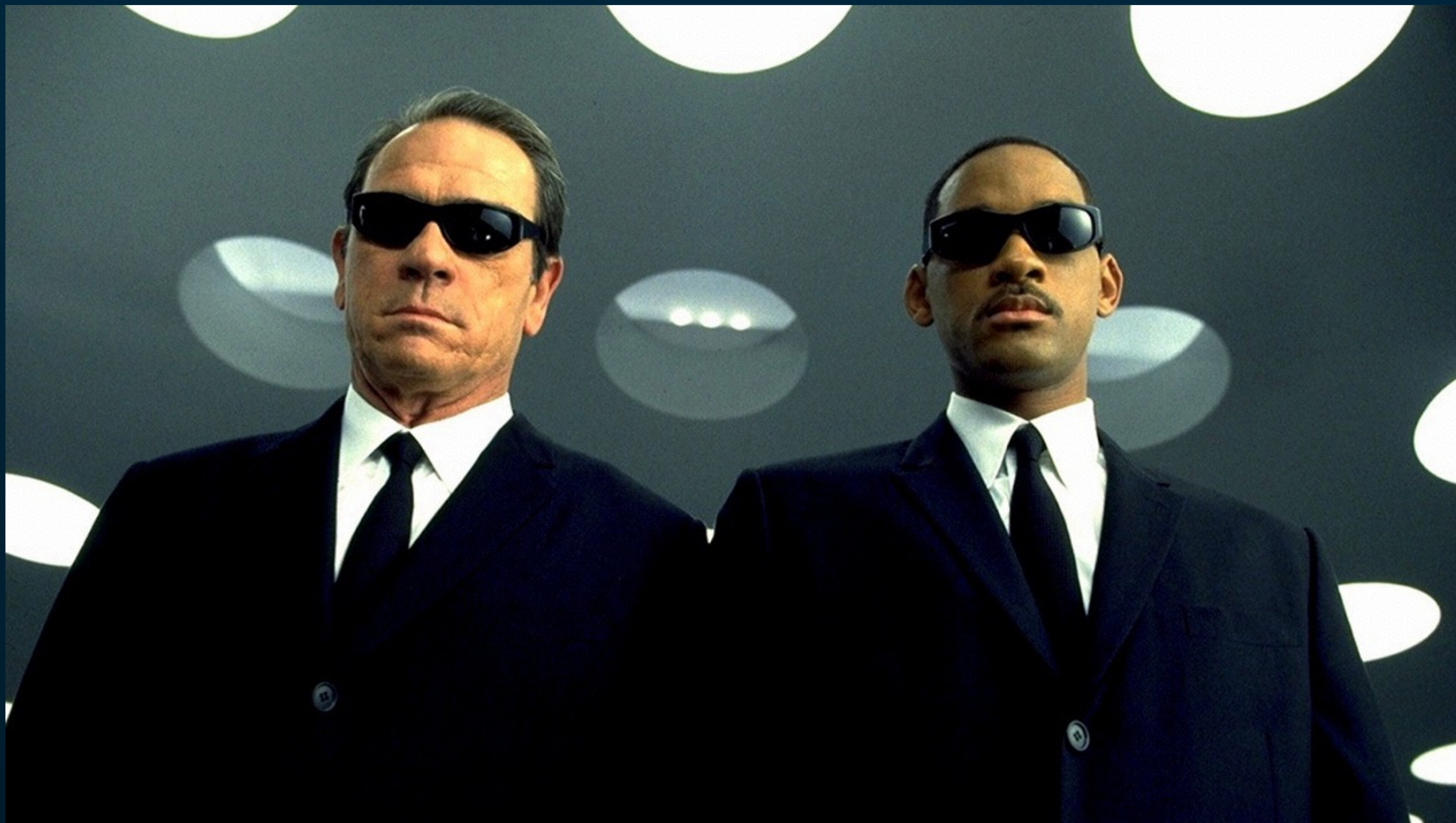
Platform-independent orchestration

- Orchestration needs to be laptop-friendly
- Service-specific code needs to live with the application code for that service.



Source ([gettyimages](#))

@0x74696d



U+1F92F EXPLODING HEAD

Empower development
teams to operationalize
their applications

GIIPABDISAPWAH

“Google Infrastructure Is Probably
Awesome But Does It Solve A
Problem We Actually Have?”

#3. BUILD FOR OBSERVABILITY

Monitor all the things!!!

(TODO: insert
"monitor all the things"
meme here)

“We have built mind-bogglingly complicated systems that we cannot see, allowing glaring performance problems to hide in broad daylight in our systems.”

Bryan Cantrill, Joyent CTO

ACM Queue Vol 4, Issue 1, 2006 Feb 23

<http://queue.acm.org/detail.cfm?id=1117401>

Monitoring in Production

- Hardest problems appear only in production
- Must be able to monitor safely
- No crashes
- No performance impact

Kill your dashboards



“[T]ake as a first design principle that outages and other “untoward” events are handled not by a lone engineer, but more often than not by a team of engineers all with their different expertise and focus of attention.”

John Allspaw

*An Open Letter To Monitoring/
Metrics/Alerting Companies, May 2016
<http://ow.ly/zn6k305tt6f>*



Kiwi

prodrrds

RECENT SAMPLES ↓



Count, 95th Percentile of query_time, and 95th Percentile of lock_time broken down by normalized_query showing top 25 by count desc



CHANGE QUERY NAME

Run a few seconds ago

TIME RANGE

10 hours, 11 mins ago
to 2 hours, 11 mins ago

DURATION: 8 HR 11 SEC

BREAK DOWN

normalized_query

CALCULATE PER GROUP

COUNT
P95(query_time)
P95(lock_time)

FILTER

None; include all rows

ORDER

COUNT desc

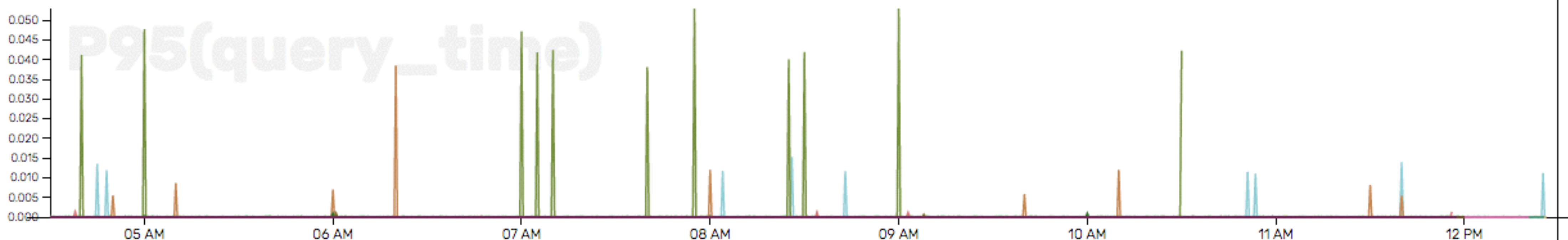
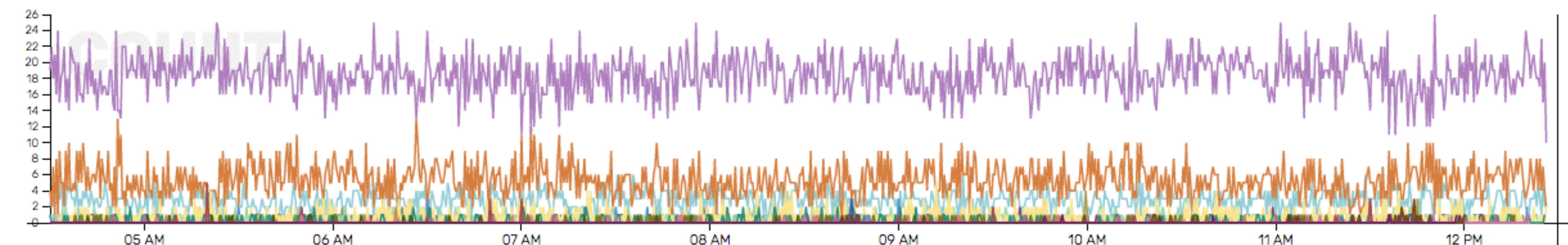
LIMIT

25

Edit

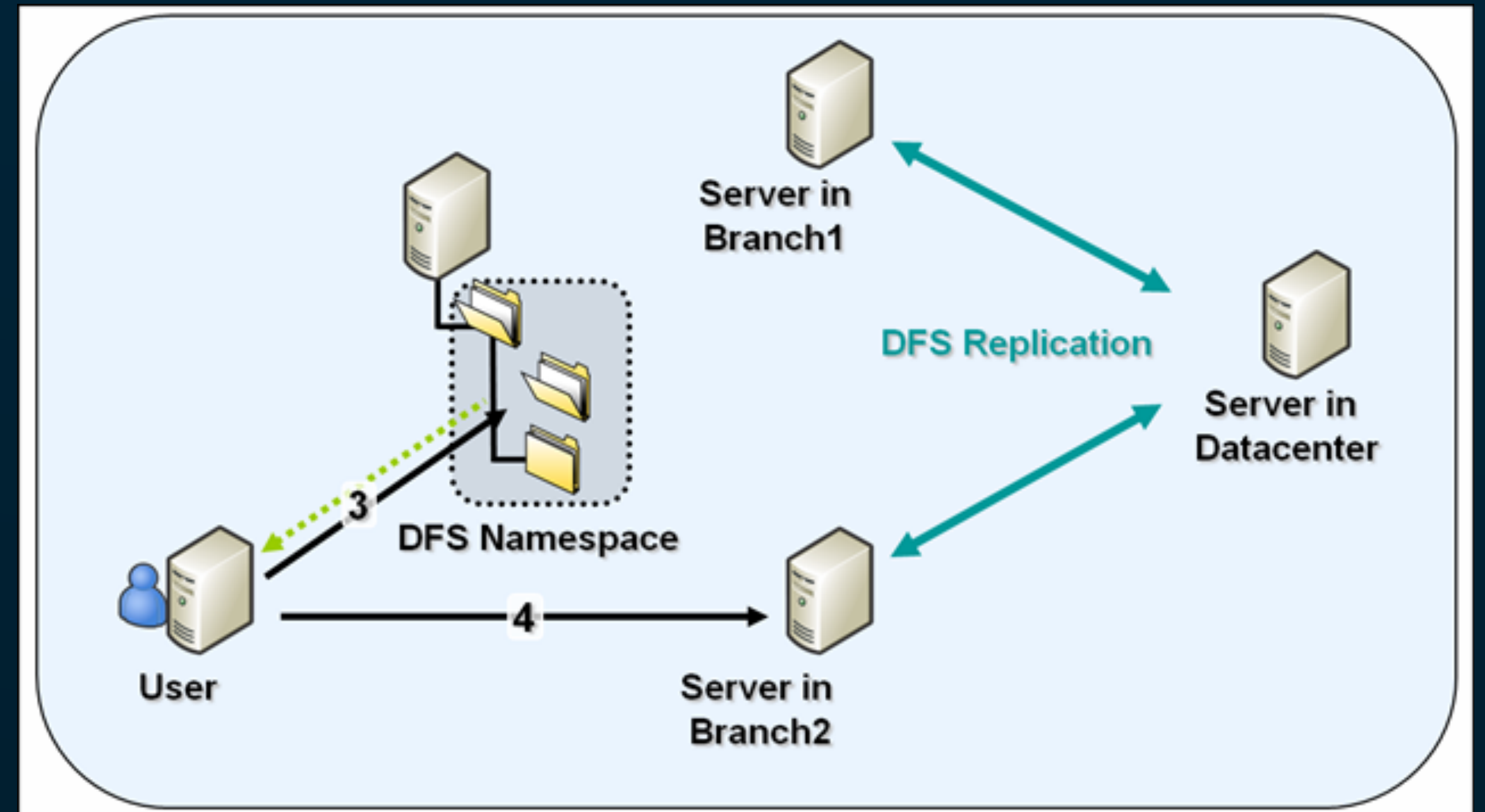
Rerun

Go deeper: Enter Data Mode ↗



@0x74696d

Monitorability as a functional requirement



[Image source \(jensolekragh.wordpress.com\)](http://jensolekragh.wordpress.com)

5 Stages of Unmonitorable Systems

- Denial
- Anger
- Bargaining
- Depression
- “Fuck This, We’ll Make Our Own Monitoring Tools”

```
import win32com
from win32com import client
from pywintypes import com_error
```

```
class WmiClient():
```

```
'''
```

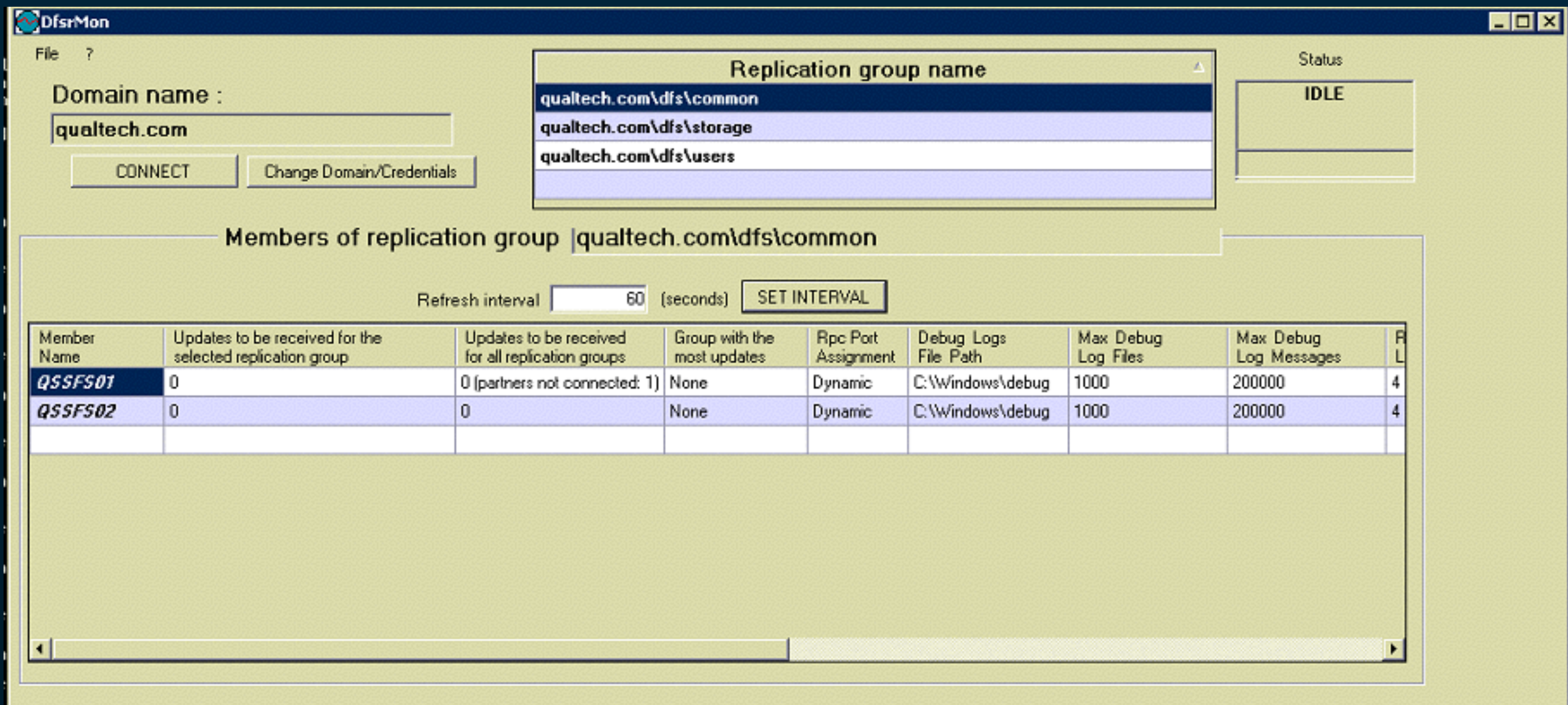
This class will use the default security context if not passed credentials. If you intend to make WQL query requests as part of a service, make sure that the service has valid login credentials to the DFSR server or its domain.

```
'''
```

```
def __init__(self, name_space=None, user='', password='',
    property_enums=None):
    win32com.client.gencache.is_readonly = False
    win32com.client.gencache.GetGeneratePath()
    self.wbem_locator = client.Dispatch('wbemscripting.swbemlocator')
```



```
def _get_friendly_value(self, com_class_name, name, val):  
    '''  
    Replaces the unfriendly integer index value for the COM enums with the  
    appropriate friendly string value in the property_enums dictionary, and  
    converts UTC time stamps to struct_time objects for the caller to  
    format. Note: WMI returns year 1601 or 9999 to indicate unfinished  
    processes, but this will return only the standard 1601.  
    '''
```



<http://www.kellestine.com/dfs-nightmare/>

@0x74696d

Bias for debuggability




```
'use strict';

const Http = require('http');

const server = Http.createServer(
  (req, res) => {
    let result = '';
    req.on('data', (data) => {
      result += data;
    });

    req.once('end', () => {
      const obj = JSON.parse(result);
      res.writeHead(200);
      res.end(obj.foo.bar);
    });
  });

server.listen(8080, () => {
  console.log('listening at http://localhost:8080');
});
```




```
$ node --abort-on-uncaught-exception server.js
```

```
listening at http://localhost:8080
```

```
Uncaught TypeError: Cannot read property 'bar' of undefined
```

```
FROM
```

```
IncomingMessage.req.once (/server.js:14:20)
```

```
IncomingMessage.g (events.js:286:16)
```

```
emitNone (events.js:86:13)
```

```
IncomingMessage.emit (events.js:185:7)
```

```
endReadableNT (_stream_readable.js:975:12)
```

```
_combinedTickCallback (internal/process/next_tick.js:74:11)
```

```
process._tickCallback (internal/process/next_tick.js:98:9)
```

```
Illegal instruction: 4 (core dumped)
```

```
> ::jsstack -v
native: v8::base::OS::Abort+9
native: v8::internal::IC::TypeError+0x52
native: v8::internal::LoadIC::Load+0x21c
native: v8::internal::Runtime_LoadIC_Miss+0x2f9
      (1 internal frame elided)
js:    <anonymous> (as req.once)
      file: /root/server.js
      posn: line 11
      this: 3783811141d9 (JSObject: IncomingMessage)
```

```
6    let result = '';
7    req.on('data', (data) => {
8      result += data;
9    });
10
11   req.once('end', () => {
12     const obj = JSON.parse(result);
13     res.writeHead(200);
14     res.end(obj.foo.bar);
15   });
16 });
```



```
> ::jsfunctions -s /server.js
      FUNC      #FUNCS  NAME                                FROM
378381117f51      1 <anonymous> (as req.once)           /server.js line 11
378381117be1      1 <anonymous> (as req.on)                /server.js line 7
3783810d6a69      1 <anonymous> (as server.listen)              /server.js line 18
3783810d4af1      1 <anonymous> (as Http.createServer)            /server.js line 5
378381014bb9      1 <anonymous> (as <anon>)                      /server.js line 1
```

```
> 378381117f51::jsclosure
  "res": 378381116171: {
    "domain": 1e40ce504101: null,
    "_events": 378381116301: [...],
    "_eventsCount": 100000000: 1,
    "_maxListeners": 1e40ce504189: undefined,
    "outputCallbacks": 378381116691: [...],
    "outputSize": 0: 0,
    "writable": 1e40ce504231: true,
    "_last": 1e40ce504299: false,
    "chunkedEncoding": 1e40ce504231: true,
    "shouldKeepAlive": 1e40ce504231: true,
    "useChunkedEncodingByDefault": 3783811174d1: [...],
    "sendDate": 378381111909: function updateOutgoingData,
    "_removedHeader": 145ea0c63831: "OK",
    "_contentLength": c800000000: 200,
    "_hasBody": 1e40ce504189: undefined,
    "_trailer": 1e40ce504189: undefined,
  }
  "result": 378381118951: "{ \"hi\": \"world\" }"
```

Oops!
res.end(obj.foo.bar)



```
'use strict';

const Http = require('http');

const server = Http.createServer((req, res) => {
  const promise = new Promise((resolve, reject) => {
    let result = '';
    req.on('data', (data) => {
      result += data;
    });

    req.once('end', () => {
      const obj = JSON.parse(result);
      resolve(obj);
    });
  });

  promise.then((obj) => {
    res.writeHead(200);
    res.end(obj.foo.bar);
  }).catch((reason) => {
    res.writeHead(500);
    res.end();
  });

  server.listen(8080, () => {
    console.log('listening at http://localhost:8080');
  });
});
```

No process.abort()!




```
> ::jsstack -v
native: libc.so.1`_lwp_kill+0xa
native: libc.so.1`raise+0x20
native: libc.so.1`abort+0x98
      (1 internal frame elided)
native: v8::internal::FunctionCallbackArguments::Call+0xf4
native: _ZN2v88internal12_GLOBAL__N_119HandleApiCallHelperILb0EEENS0_11M...
native: _ZN2v88internalL21Builtin_HandleApiCallEiPPNS0_6ObjectEPNS0_7Iso...
      (1 internal frame elided)
js:    <anonymous> (as promise.then.catch)
      file: /server.js
      posn: line 21
      this: 1e3b87204189 (Oddball: "undefined")
      arg1: 347ffb11c9f9 (JSObject: TypeError)
```

```
16    });
17
18    promise.then((obj) => {
19      res.writeHead(200);
20      res.end(obj.foo.bar);
21    }).catch((reason) => {
22      res.writeHead(500);
23      res.end();
24      console.error(reason);
25      process.abort()
26    });
27 });
```

```
> 347ffb11c9f9::jsprint
{
  "message": "Cannot read property 'bar' of undefined",
}
```

```
> ::jsfunctions -s server.js
```

FUNC	#FUNCS	NAME	FROM
347ffb1198f1	1	<anonymous> (as promise.then.catch)	/server.js line 21
347ffb1189b1	1	<anonymous> (as promise.then)	/server.js line 18
347ffb118791	1	<anonymous> (as req.once)	/server.js line 12
347ffb118421	1	<anonymous> (as req.on)	/server.js line 8
347ffb117cb9	1	<anonymous> (as Promise)	/server.js line 6
347ffb0d7049	1	<anonymous> (as server.listen)	/server.js line 29
347ffb0d50d1	1	<anonymous> (as Http.createServer)	/server.js line 5
347ffb014bb9	1	<anonymous> (as <anon>)	/server.js line 1


```
> 347ffb1189b1::jscssure
  "res": 347ffb116171: {
    "domain": 1e3b87204101: null,
    "_events": 347ffb116301: [...],
    "_eventsCount": 100000000: 1,
    "_maxListeners": 1e3b87204189: undefined,
    "output": 347ffb1164a9: [...],
    "outputEncodings": 347ffb116591: [...],
    "outputCallbacks": 347ffb116691: [...],
    "outputSize": 0: 0,
    "writable": 1e3b87204231: true,
    "_last": 1e3b87204299: false,
    "chunkedEncoding": 1e3b87204231: true,
    "shouldKeepAlive": 1e3b87204231: true,
    "useChunkedEncodingByDefault": 347ffb1174d1: [...],
    "sendDate": 347ffb111909: function updateOutgoingData,
    "_removedHeader": 63dffb63879: "OK",
    "_contentLength": 1f400000000: 500,
    "_hasBody": 1e3b87204189: undefined,
    "_trailer": 1e3b87204189: undefined,
  }
  "req": 347ffb1141d9: {
    "_readableState": 347ffb1142c9: [...],
    "readable": 1e3b87204299: false,
    "domain": 1e3b87204101: null,
    "_events": 347ffb114769: [...],
    "_eventsCount": 100000000: 1,
    "_maxListeners": 1e3b87204189: undefined,
    "socket": 347ffb10f681: [...],
    "connection": 347ffb10f681: [...],
```

```
> ::findjsobjects -v
```

OBJECT	#OBJECTS	#PROPS	CONSTRUCTOR: PROPS
347ffb105cc1	1	0	TTY
347ffb10eeb9	1	0	WriteWrap
1e3b872e51b9	1	0	process
347ffb1128e1	1	0	HTTPParser
347ffb112311	1	0	Timer
347ffb10ba79	2	0	Signal
1e3b872e51d1	2	0	<anonymous> (as <anon>)
1e3b872e50c1	2	0	Float64Array
347ffb08e2c1	3	0	Uint32Array
347ffb0ac459	5	0	EventHandlers
347ffa0c82c9	5	0	Uint8Array
1e3b87245a11	7	0	
347ffa012449	48	0	ContextifyScript
063dfffb4fa41	87	0	Array
063dfffb4e729	440	0	Object
347ffb11b001	1	1	Object: hi
347ffb114769	1	1	EventHandlers: data
347ffb10c189	1	1	EventHandlers: end
347ffb105481	1	1	Object: isTTY
347ffb0fa849	1	1	Object: handles
347ffb0d3f39	1	1	Object: aborted
347ffb0ac7a9	1	1	Object: path
347ffb0a96e1	1	1	Object: globalAgent
347ffb095e61	1	1	Object: ...
347ffb095e29	1	1	Object: /server.js
347ffb08c3c1	1	1	Object: methods
347ffb08c301	1	1	Object: hasIntl
347ffb00f691	1	1	Object: STATUS_CODES


```
> ::findjsobjects -v -p hi  
347ffb11b001
```

```
> 347ffb11b001::jsprint  
{  
  "hi": "world",  
}
```

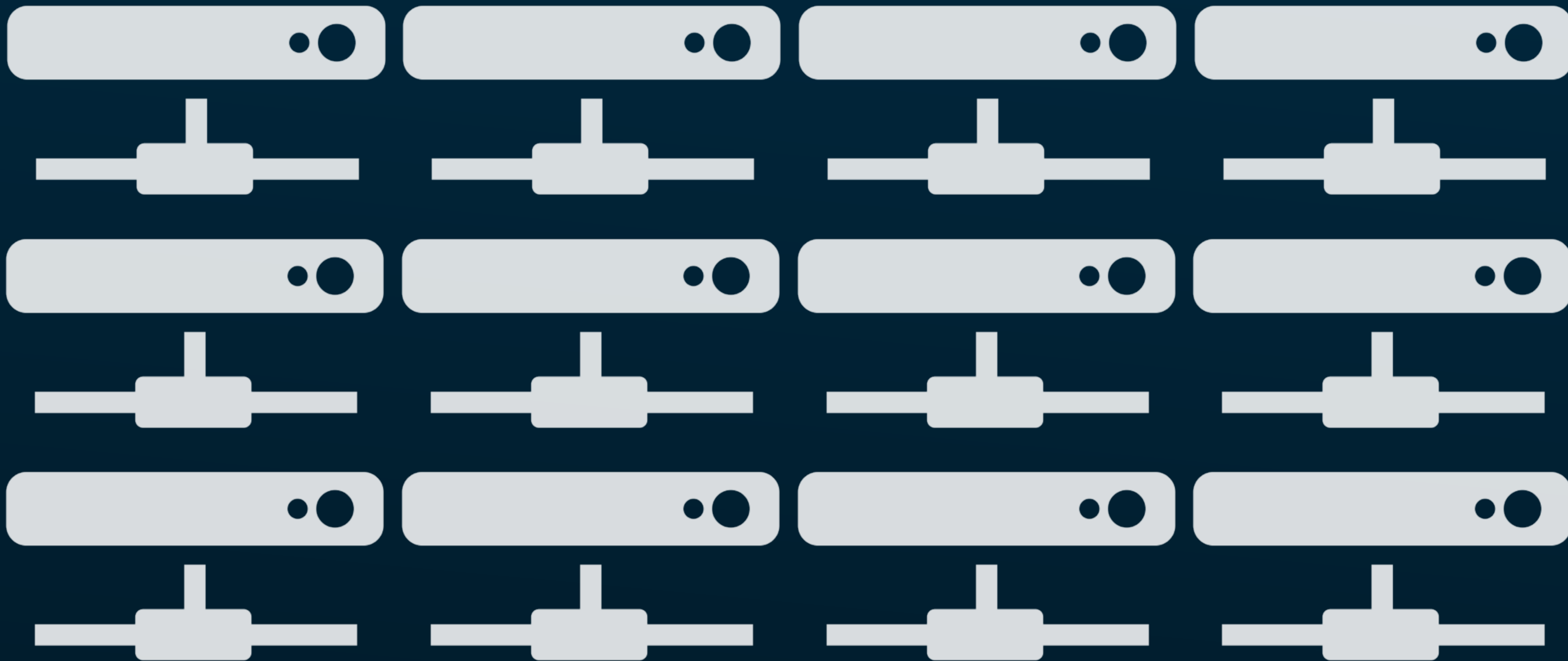
```
> 347ffb11c9f9::jsprint  
{  
  "message": "Cannot read property 'bar' of undefined",  
}
```

Oops!
`res.end(obj.foo.bar)`



Who cares?









≡ SECTIONS



The New York Times Magazine

Magazine

Bubble Indemnity

On Money

By GIDEON LEWIS-KRAUS MAY 10, 2016



**FREE
SOUP COFFEE & DOUGHNUTS
FOR THE UNEMPLOYED**

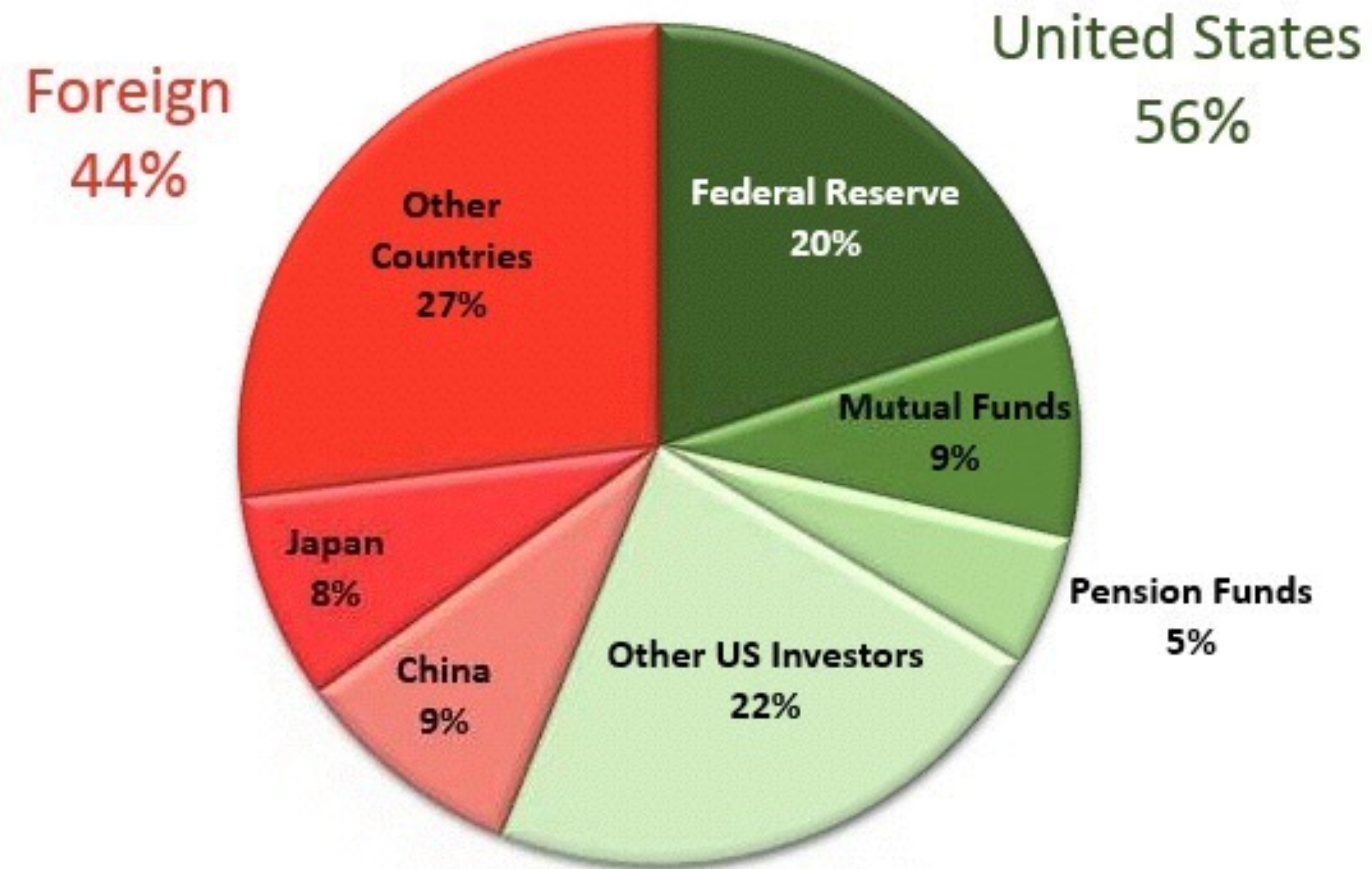
35

FINISHED
DAY
HEAT

FREE SOUP

PARKING 2

WHO OWNS THE DEBT?



Debt Held by the Public, December 2015
Source: U.S. Treasury Department. Countries include purchases by that government and by investors with accounts in that country.






```
'use strict';

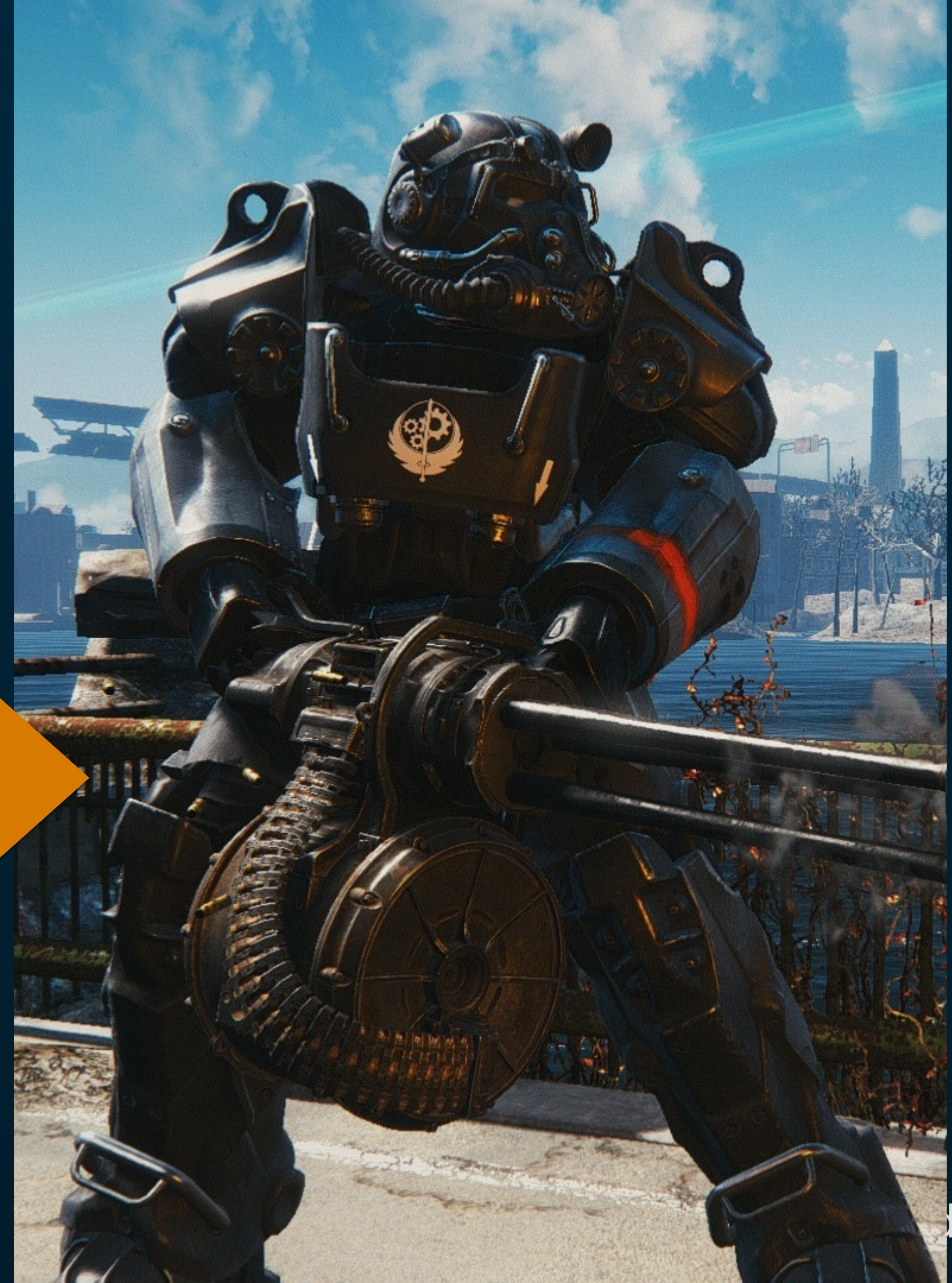
const Http = require('http');

const server = Http.createServer((req, res) => {
  const promise = new Promise((resolve, reject) => {
    let result = '';
    req.on('data', (data) => {
      result += data;
    });

    req.once('end', () => {
      const obj = JSON.parse(result);
      resolve(obj);
    });
  });

  promise.then((obj) => {
    res.writeHead(200);
    res.end(obj.foo.bar);
  }).catch((reason) => {
    res.writeHead(500);
    res.end();
  });
});

server.listen(8080, () => {
  console.log('listening at http://localhost:8080');
});
```




```
> ::jsfunctions -s /server.js
```

	FUNC	#FUNCS	NAME	FROM
378381117f51		1	<anonymous> (as req.once)	/server.js line 11
378381117be1		1	<anonymous> (as req.on)	/server.js line 7
3783810d6a69		1	<anonymous> (as server.listen)	/server.js line 18
3783810d4af1		1	<anonymous> (as Http.createServer)	/server.js line 5
378381014bb9		1	<anonymous> (as <anon>)	/server.js line 1

```
> 378381117f51::jsclosure
  "res": 378381116171: {
    "domain": 1e40ce504101: null,
    "_events": 378381116301: [...],
    "_eventsCount": 100000000: 1,
    "_maxListeners": 1e40ce504189: undefined,
    "outputCallbacks": 378381116691: [...],
    "outputSize": 0: 0,
    "writable": 1e40ce504231: true,
    "_last": 1e40ce504299: false,
    "chunkedEncoding": 1e40ce504231: true,
    "shouldKeepAlive": 1e40ce504231: true,
    "useChunkedEncodingByDefault": 3783811174d1: [...],
    "sendDate": 378381111909: function updateOutgoingData,
    "_removedHeader": 145ea0c63831: "OK",
    "_contentLength": c800000000: 200,
    "_hasBody": 1e40ce504189: undefined,
    "_trailer": 1e40ce504189: undefined,
  }
  "result": 378381118951: "{ \"hi\": \"world\" }"
```

No root for
you?



Choose platforms for observability

Bias towards throwing money at a problem rather than brains works great for someone with more money than brains.

“GDB does not understand Go programs well... it is not a reliable debugger for Go programs, particularly heavily concurrent ones. Moreover, it is not a priority for the Go project to address these issues, which are difficult.”

<https://golang.org/doc/gdb>


```

1. jn-smartos1-go1 (ssh)
root@jn-smartos1-go1 ~/Code/go/src/github.com/jen20/basic-go
> dtrace -c './basic-go 3' -s pid.d
dtrace: script 'pid.d' matched 4 probes
dtrace: allowing destructive actions
Input: 3
Result: 36
dtrace: pid 92480 has exited
CPU FUNCTION
 1 -> main.first
 1   -> main.second
 1     -> main.third

root@jn-smartos1-go1 ~/Code/go/src/github.com/jen20/basic-go
> dtrace -w -c './basic-go 2' -s pid.d
dtrace: script 'pid.d' matched 4 probes
dtrace: allowing destructive actions
Input: 2
CPU FUNCTION
 0 -> main.first
 0   -> main.second
 0     -> main.third
 0       | main.third:entry
                                2           4
                                4           8
                                8          16
                                |
                                | main.third:entry - arg1 == 8, taking core dump
Stopping (PID 92496)....
gcore: core.1492054192.92496 dumped
Continuing....
Result: 24

dtrace: pid 92496 has exited

root@jn-smartos1-go1 ~/Code/go/src/github.com/jen20/basic-go
>

```



James Nugent

@jen20

Following



DTrace PID provider FBT for Go (with arguments) on SmartOS! In the second run we match on an arg value, stop, take a core dump and resume.

“Get used to interacting with your observability tooling every day. As part of your release cycle, or just out of curiosity. Honestly, things are broken all the time — you don’t even know what normal looks like unless you’re also interacting with your observability tooling under “normal” circumstances.”

Charity Majors

CEO Honeycomb.io

Building Badass Engineers and Badass Teams

<http://ow.ly/IDOs305uN7W>

#4. BUILD FOR RESPONSIBILITY

Every tool comes with a community.

“Even if you feel you were misinterpreted or unfairly accused, chances are good there was something you could’ve communicated better — remember that it’s your responsibility to make your fellow Rustaceans comfortable.”

Rust Community Code of Conduct

<https://www.rust-lang.org/en-US/conduct.html>

What community do we choose to be in?



The image features a background of four diagonal stripes in light yellow, light green, olive green, and magenta. In the center, the Haskell logo is displayed, consisting of a large stylized 'H' made of overlapping chevrons in blue, green, and olive, followed by an equals sign made of two horizontal bars in dark blue. Below the logo, the text 'Haskell '98' is written in a serif font, with 'Haskell' in dark red and ''98' in green.

Haskell '98

“The key point here is our programmers are Googlers, they’re not researchers. They’re typically, fairly young, fresh out of school, probably learned Java, maybe learned C or C++, probably learned Python. They’re not capable of understanding a brilliant language but we want to use them to build good software. So, the language that we give them has to be easy for them to understand and easy to adopt.”

Rob Pike

Lang.NEXT 2014: From Parallel to Concurrent

Removed use of gendered pronoun #1015

🔒 Closed

alex wants to merge 2 commits into joyent:master from alex:patch-1

💬 Conversation 228

🔗 Commits 2

📄 Files changed 2



alex commented on Nov 29, 2013

No description provided.

Removed use of gendered pronoun



✖ 1ff9d18

wtf?



bnoordhuis commented on Nov 29, 2013

Sorry, not interested in trivial changes like that.



bnoordhuis closed this on Nov 29, 2013

Inclusivity doesn't stop with your team

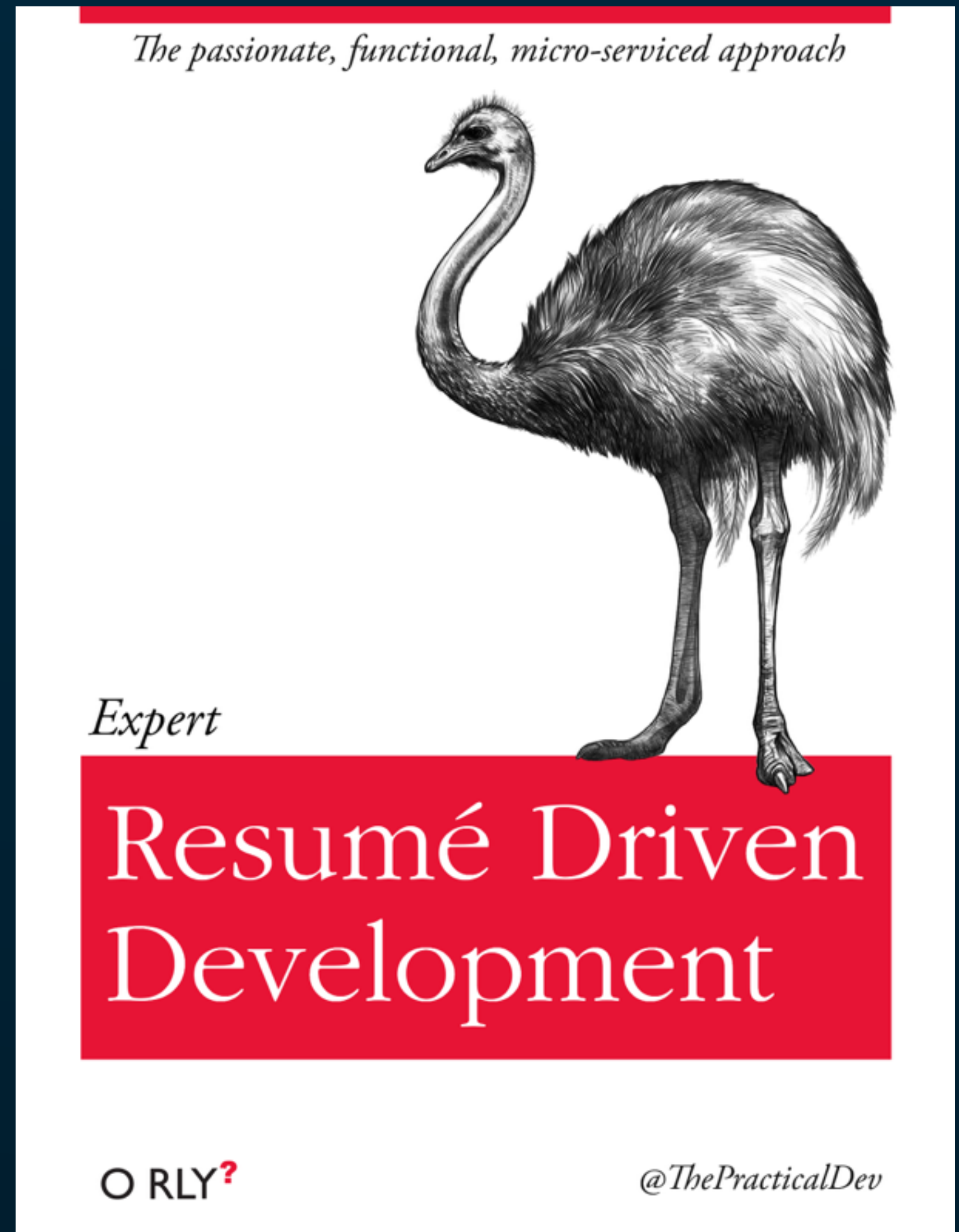


Why so many tools?



Our tools: an embarrassment of riches

- Resume-driven development?
- Are we not fulfilled by our work?



**ARE YOU BUILDING
CRAP?**



Marco Rogers

@polotek

 **Follow**



Kalanick keeps asking for unethical/illegal things, but at some point we have to talk about how engineers at Uber keep saying yes.

RETWEETS

893

LIKES

1,368



9:29 AM - 23 Apr 2017



50



893



1.4K

**STOP MAKING THE
WORLD WORSE**

STOP MAKING WORLD

— Come in... —
WE'RE HIRING!

<https://joyent.com/about/careers>

Your work creates your community

- Reflects our values
- Reflects our blind spots

Professional pride and ethics

“Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development... Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession.”

American Society of Civil Engineers
<http://www.asce.org/code-of-ethics/>



Marco Rogers

@polotek

 **Follow**



Kalanick keeps asking for unethical/illegal things, but at some point we have to talk about how engineers at Uber keep saying yes.

RETWEETS

893

LIKES

1,368



9:29 AM - 23 Apr 2017



50



893



1.4K

Professional pride and ethics

“Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development... Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession.”

American Society of Civil Engineers
<http://www.asce.org/code-of-ethics/>

**LET'S BUILD A
BETTER WORLD**