The wide range of DevOps

Mitchell Hashimoto
@mitchellh

Vagrant

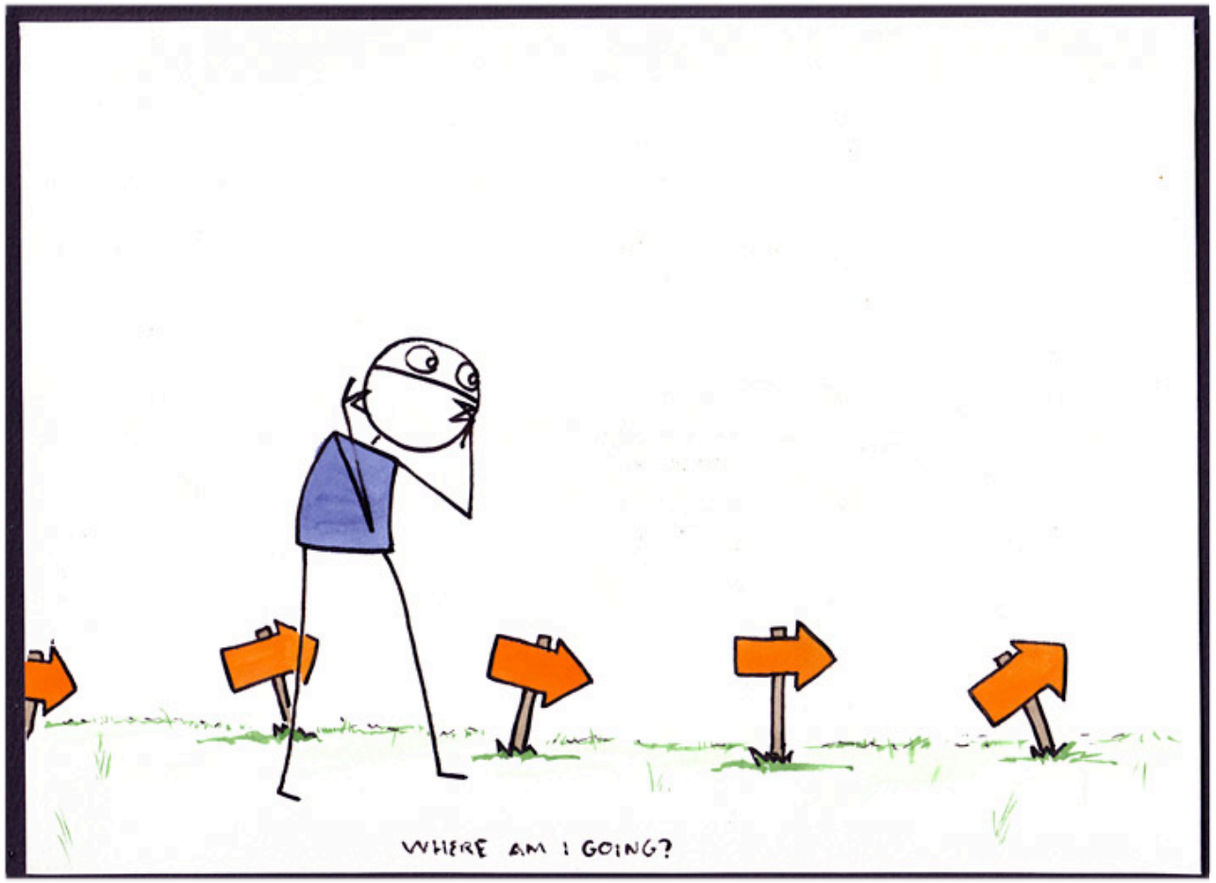

küp


TM
Engine
Yard

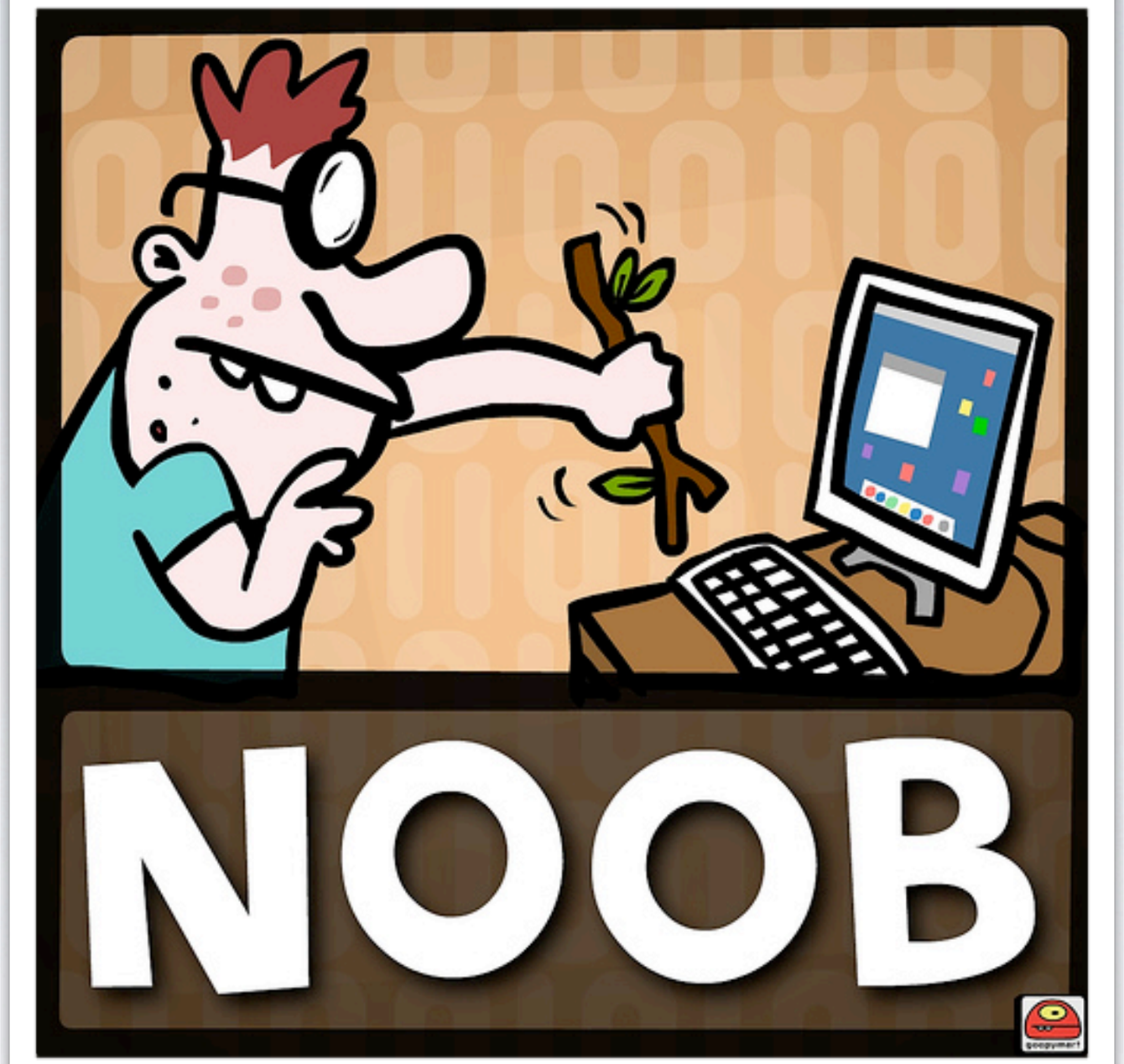
DevOps

WARNING!

Memes



I got into DevOps by accident.
(But I love it!)



Confession: I'm new to this.

No experience with
Rack & Stack.

I am the Cloud generation.

More specifically...
I am the bridge.

I practice DevOps!

But my devs don’t do ops…

Is this still DevOps?

DevOps:
A range.

Based on my experience transitioning to DevOps...

Vagrant

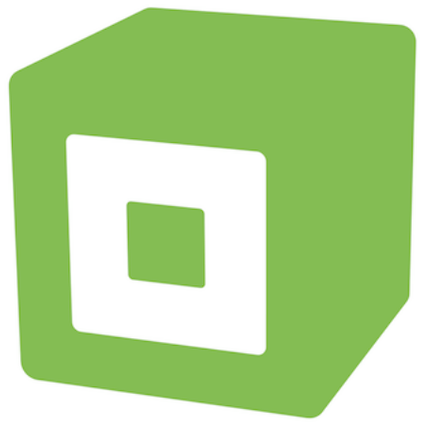
tumblr.

livingsocial

Eventbrite®

Events Made Easy

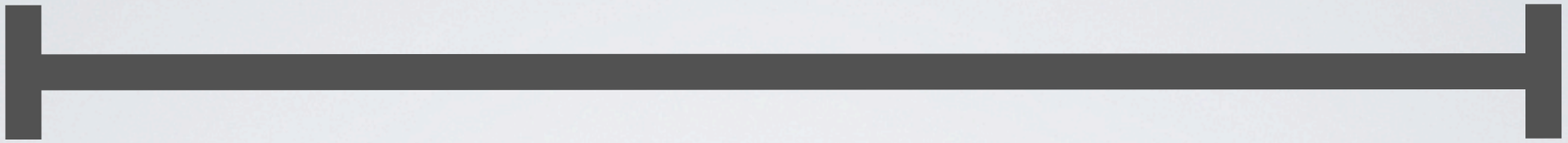
theguardian



2 people to 200 people

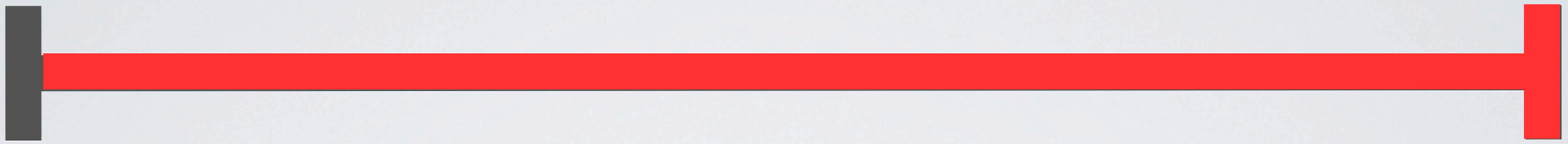
Ops is a
black box.

Devs do
all ops



Ops is a
black box.

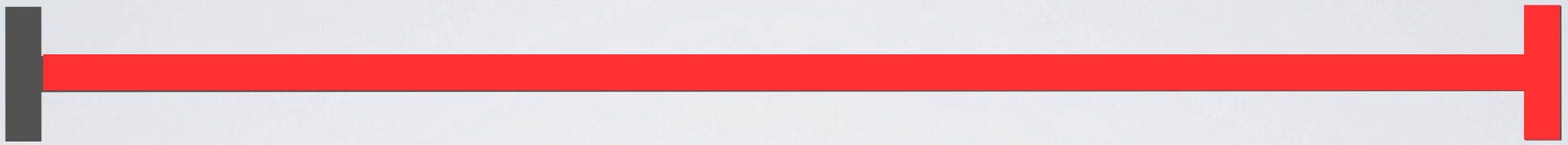
Devs do
all ops



The Range Requires More than Ops

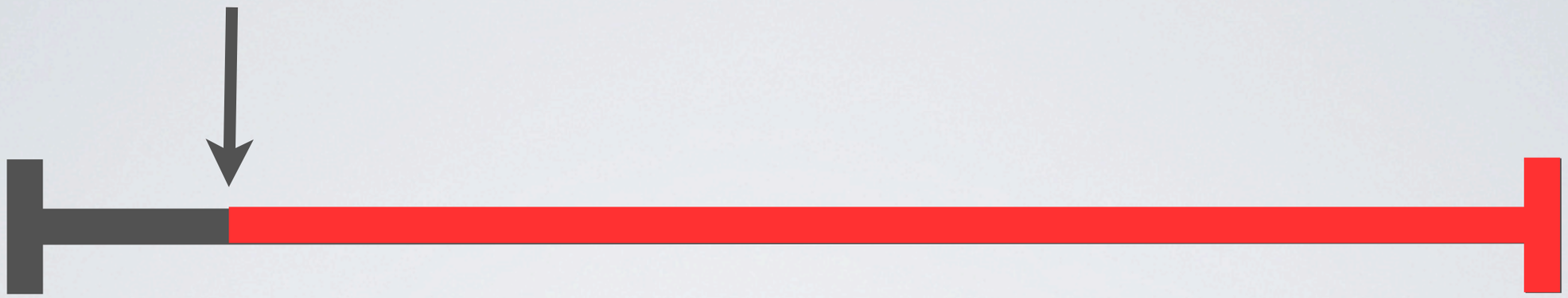
Ops is a
black box.

Devs do
all ops



Road to... increased stability.
Road to... faster feedback.
Road to... cheaper iteration.

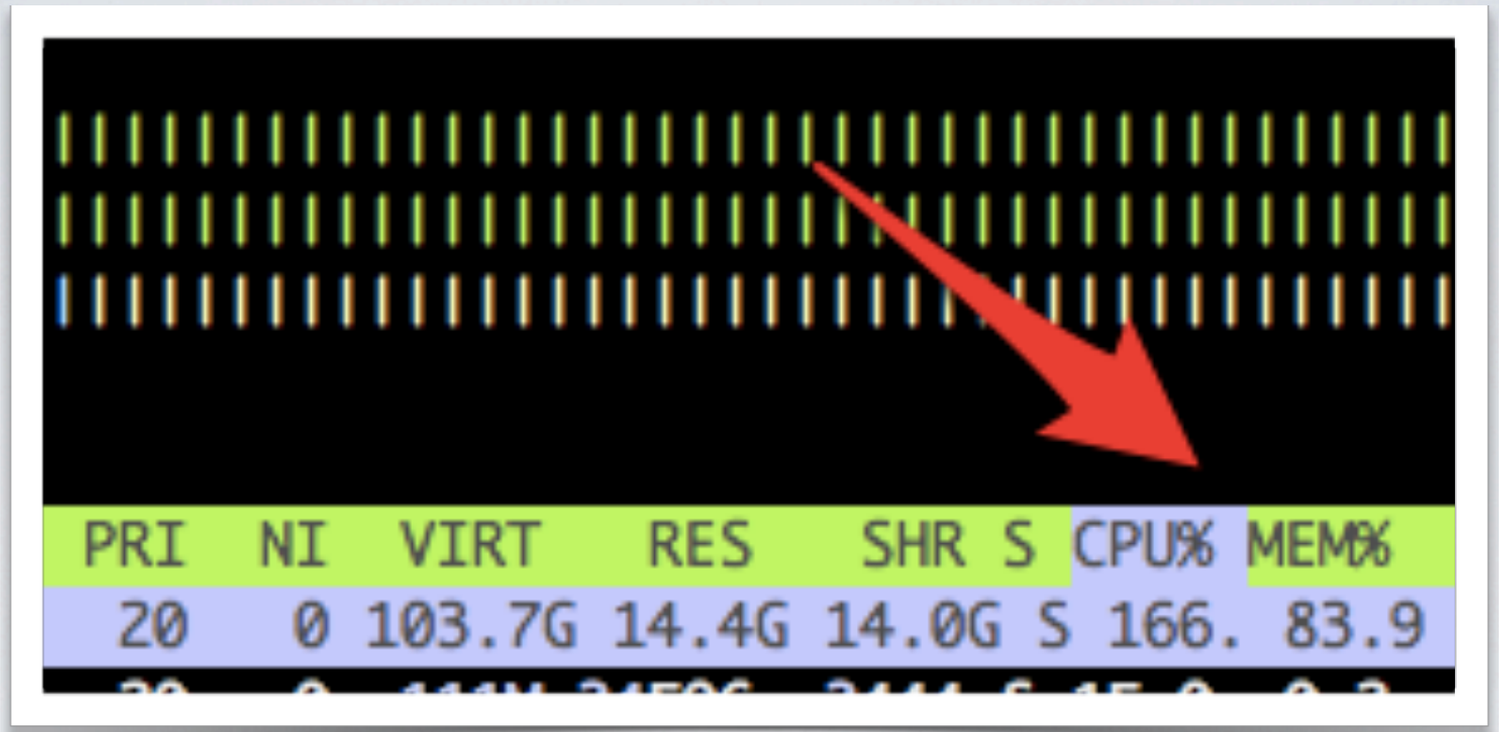
Metrics, metrics, everywhere.



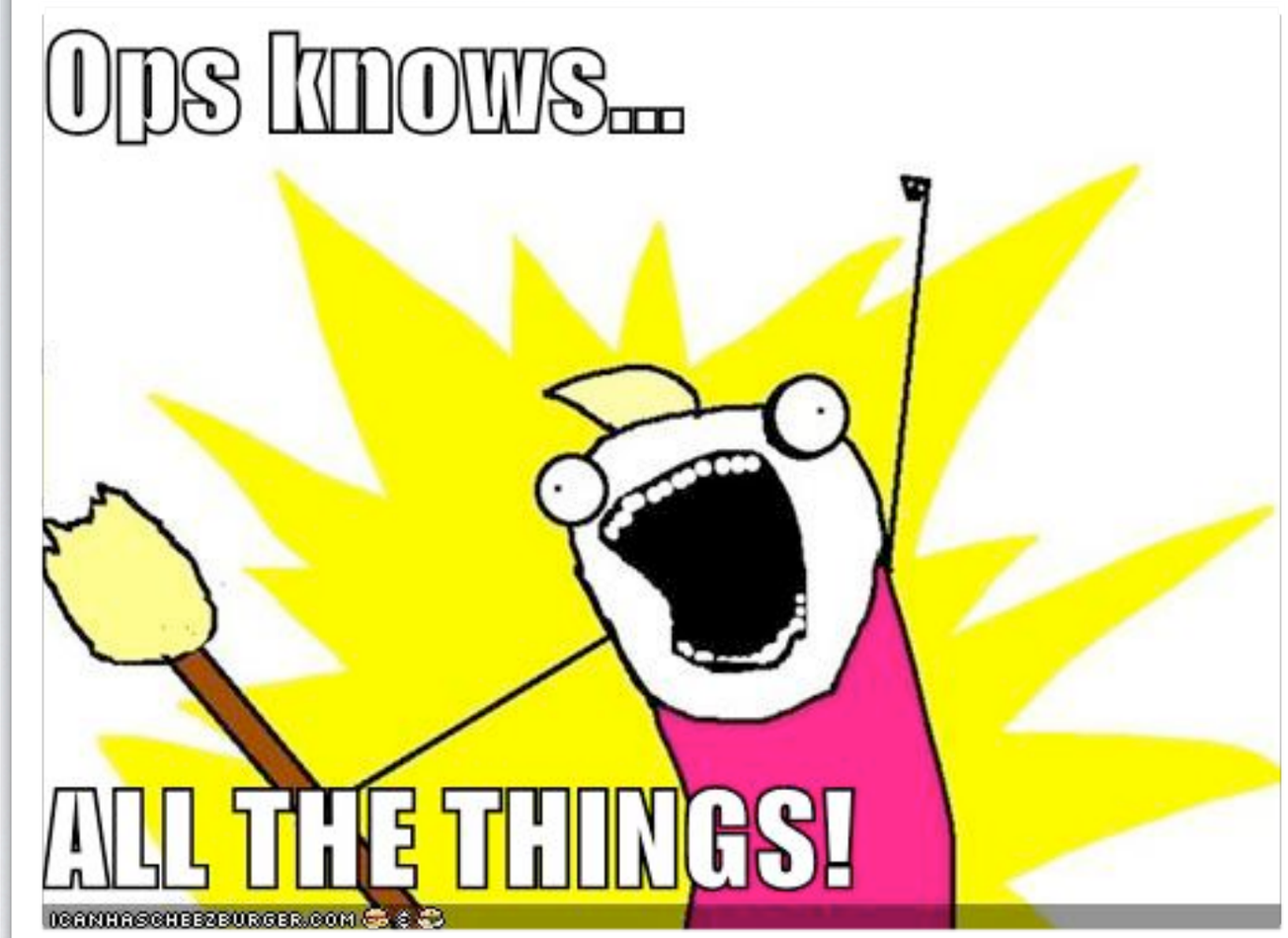
What does my code do?

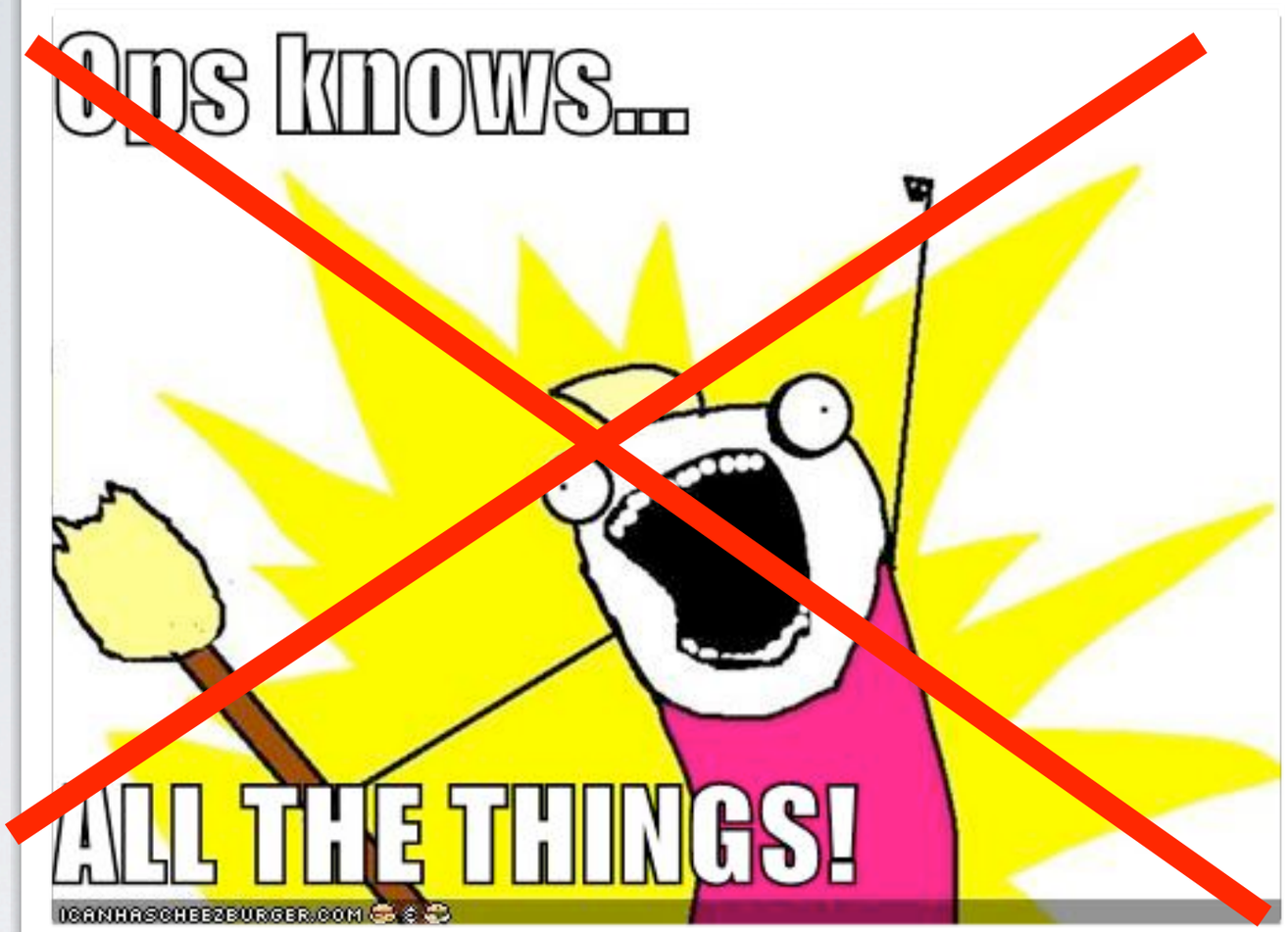
What is the system -wide effect of this change?

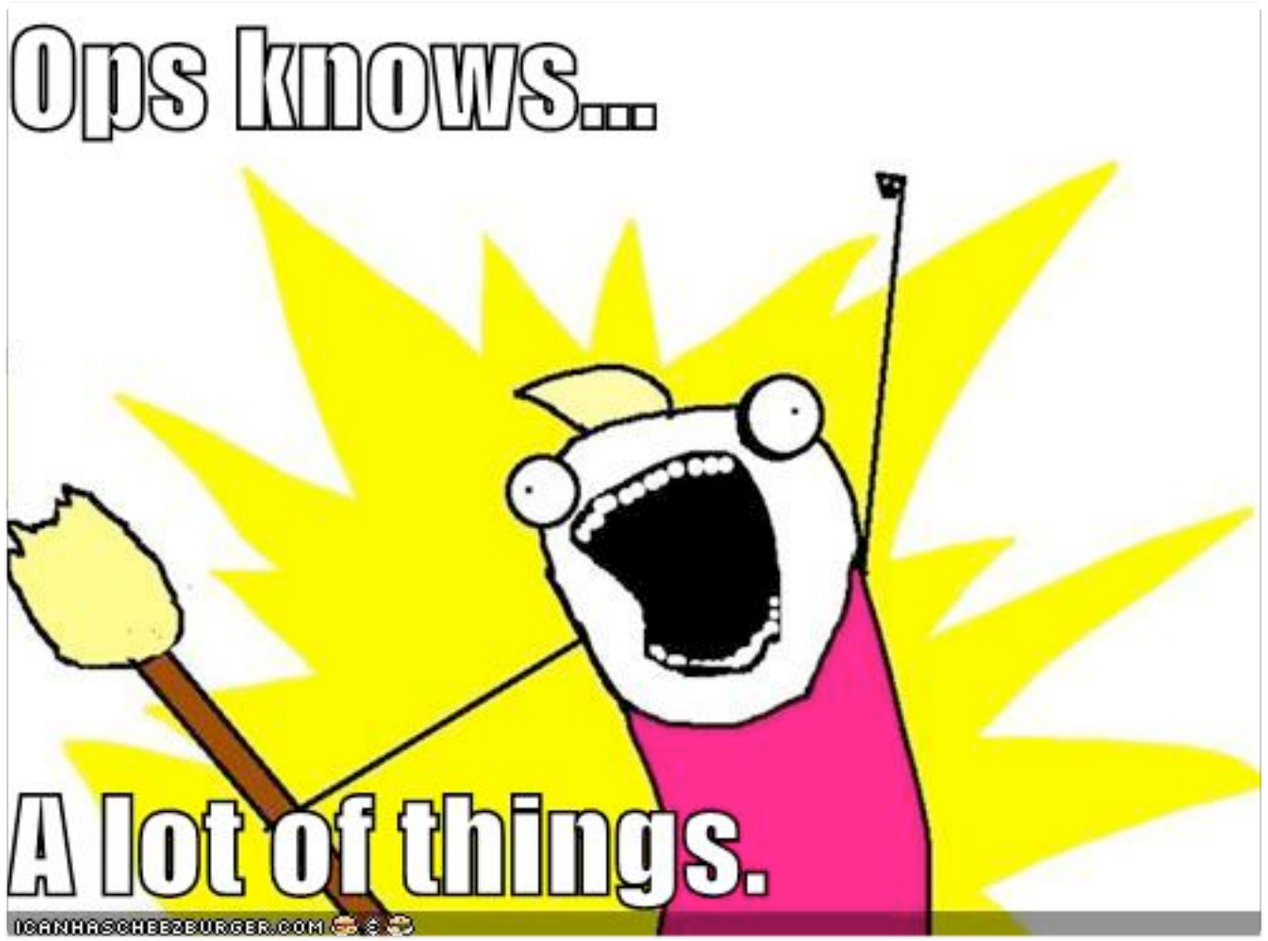
Why is my service slow?



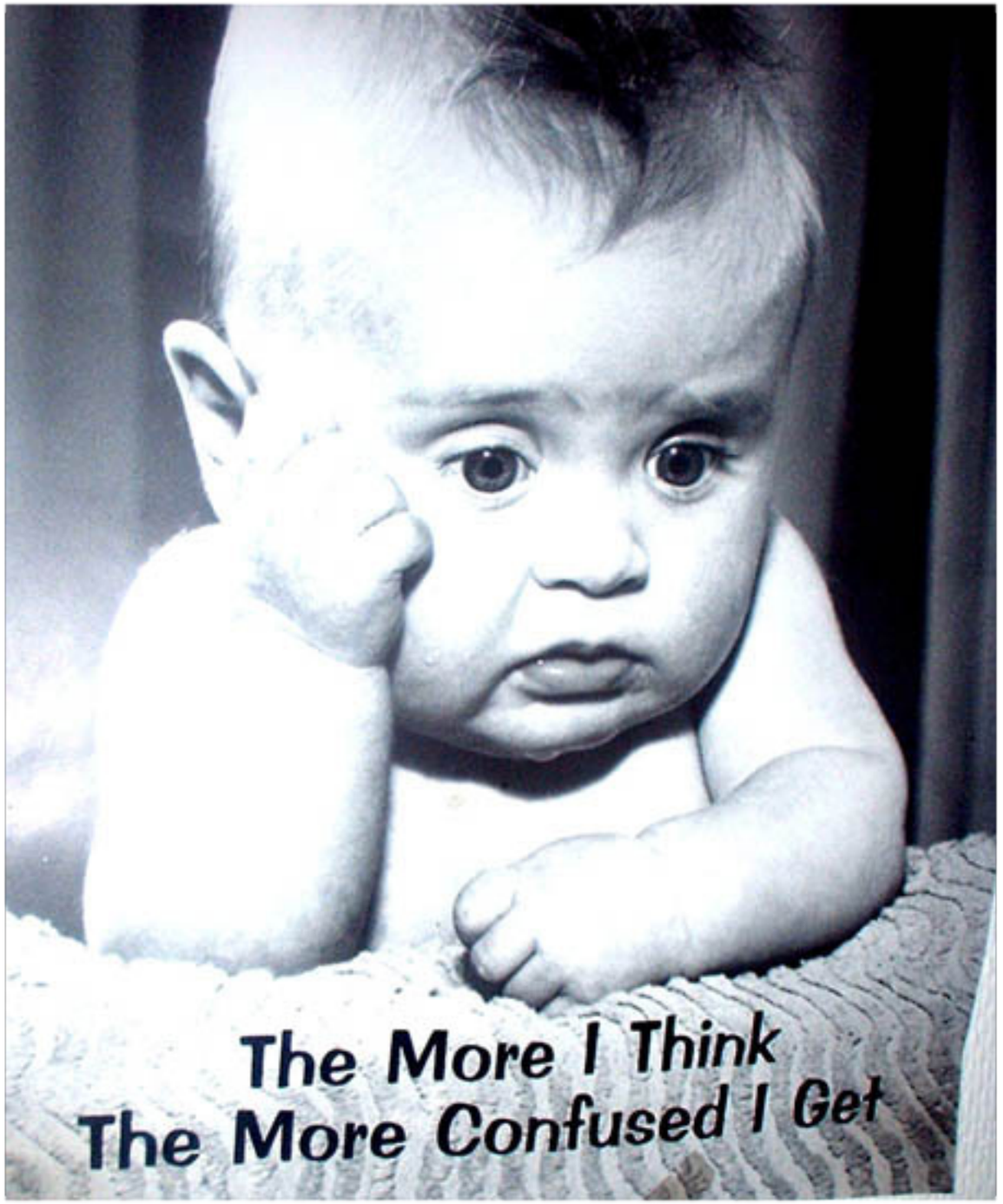
Ops knows.


Ops knows...
ALL THE THINGS!
ICANHASCHEEZBURGER.COM


Ops knows...
ALL THE THINGS!
ICANHASCHEEZBURGER.COM

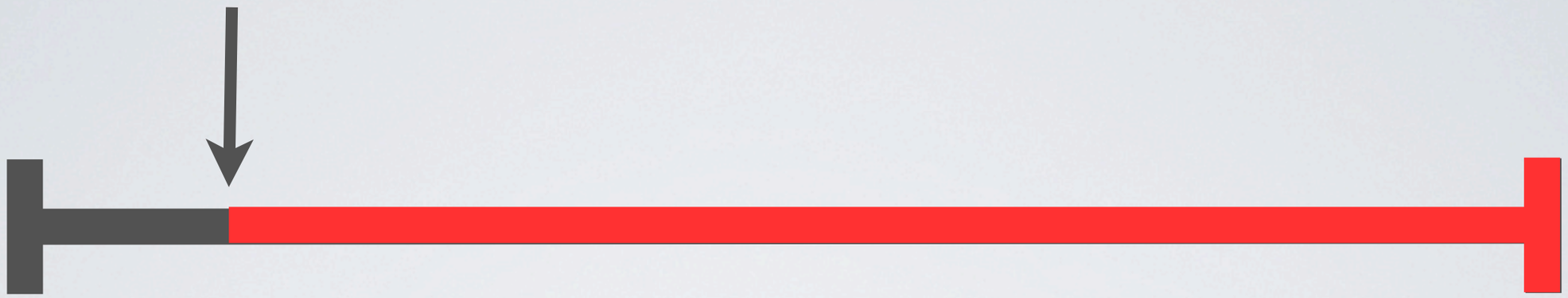

Ops knows...
A lot of things.
ICANHASCHEEZBURGER.COM

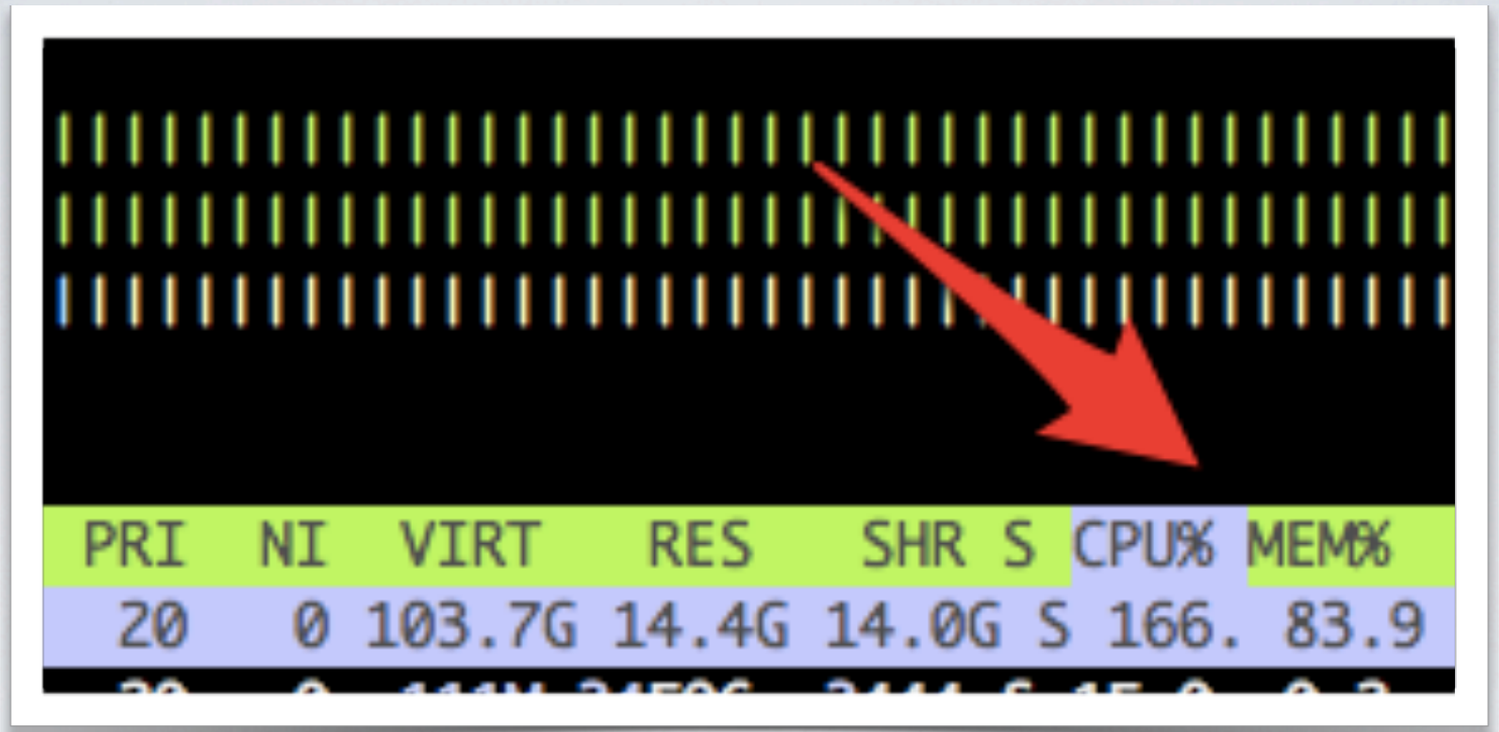
Developers should know, too.


The More I Think
The More Confused I Get

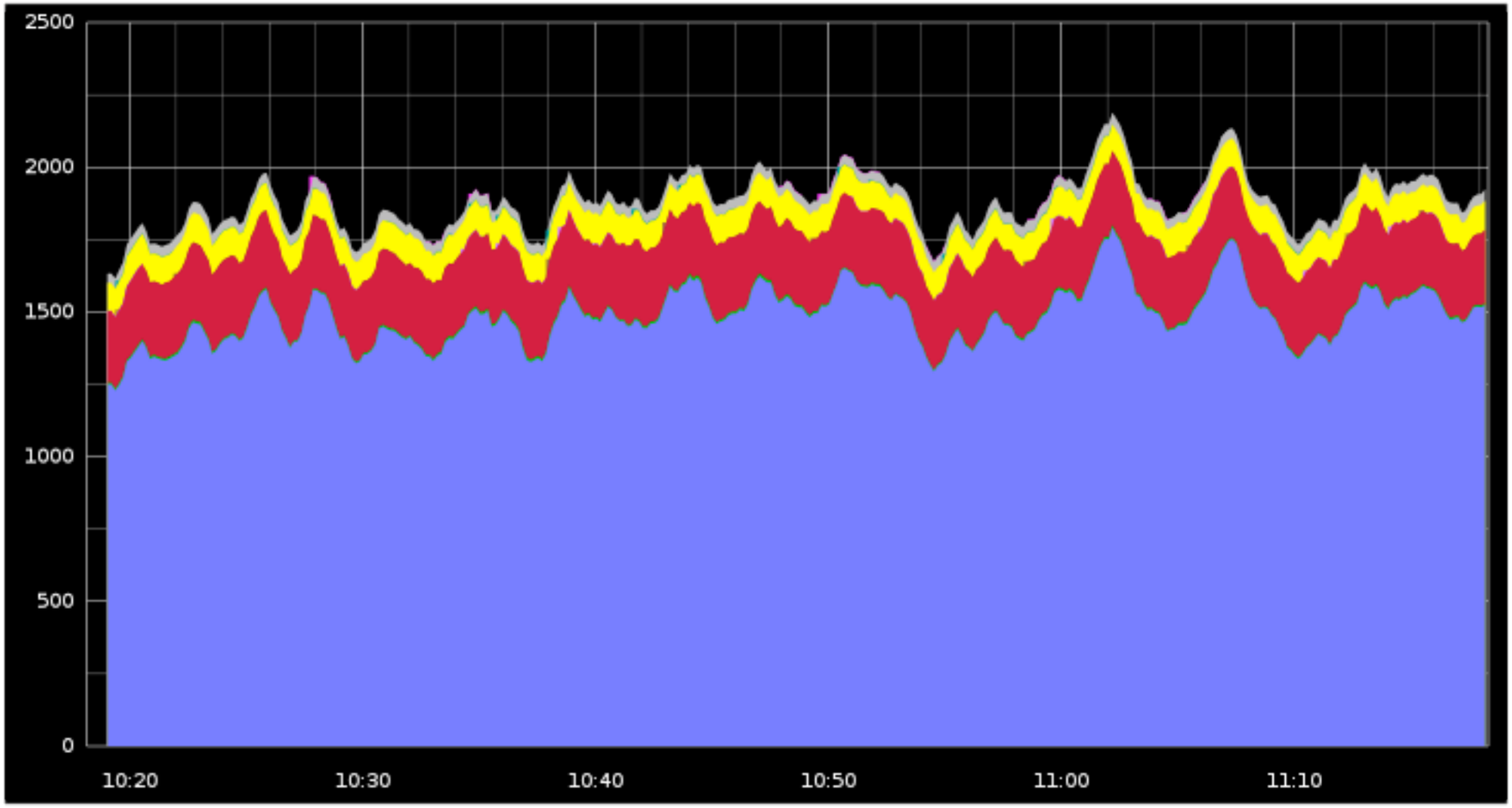
It should be easy

Remember, we're right here now.





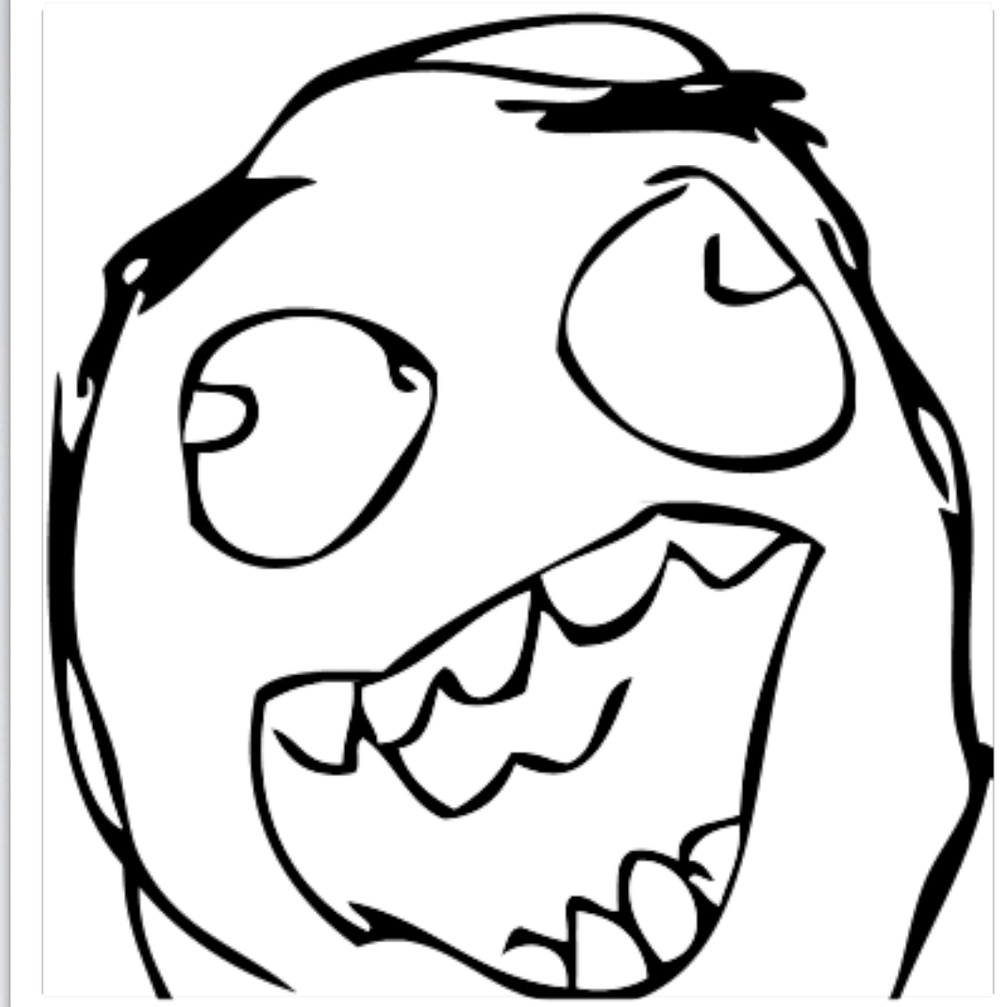
How do we make this easy?


2500
2000
1500
1000
500
0
10:20
10:30
10:40
10:50
11:00
11:10

Graphite + Statsite = ❤

```
        # Emit the timing metrics
        if not supress_timing:
            end_time = time.time()
            key = self._handler_name+"."+self.request.method
            statsite_instance().add_timer(key, end_time - self._start_time)
```

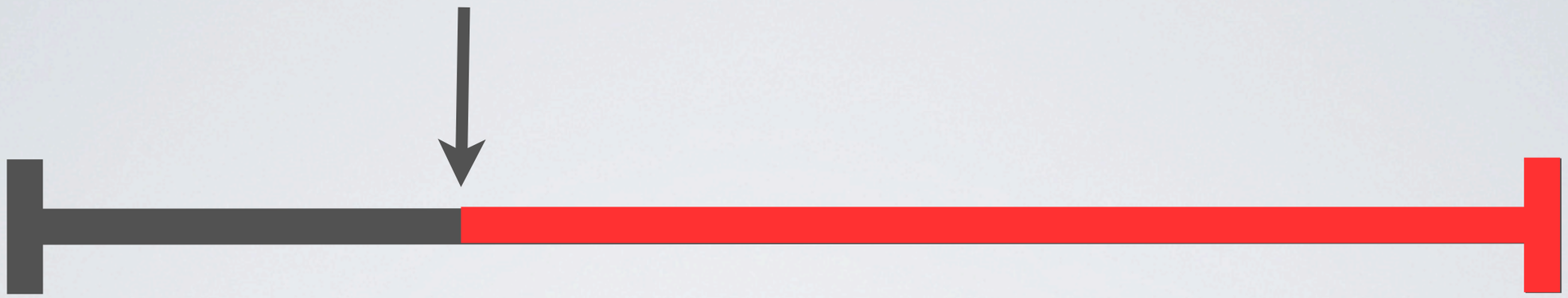
That was easy.



1UP

Insight into... performance
Insight into... system-wide effect
Insight into... ops!

Document your infrastructure

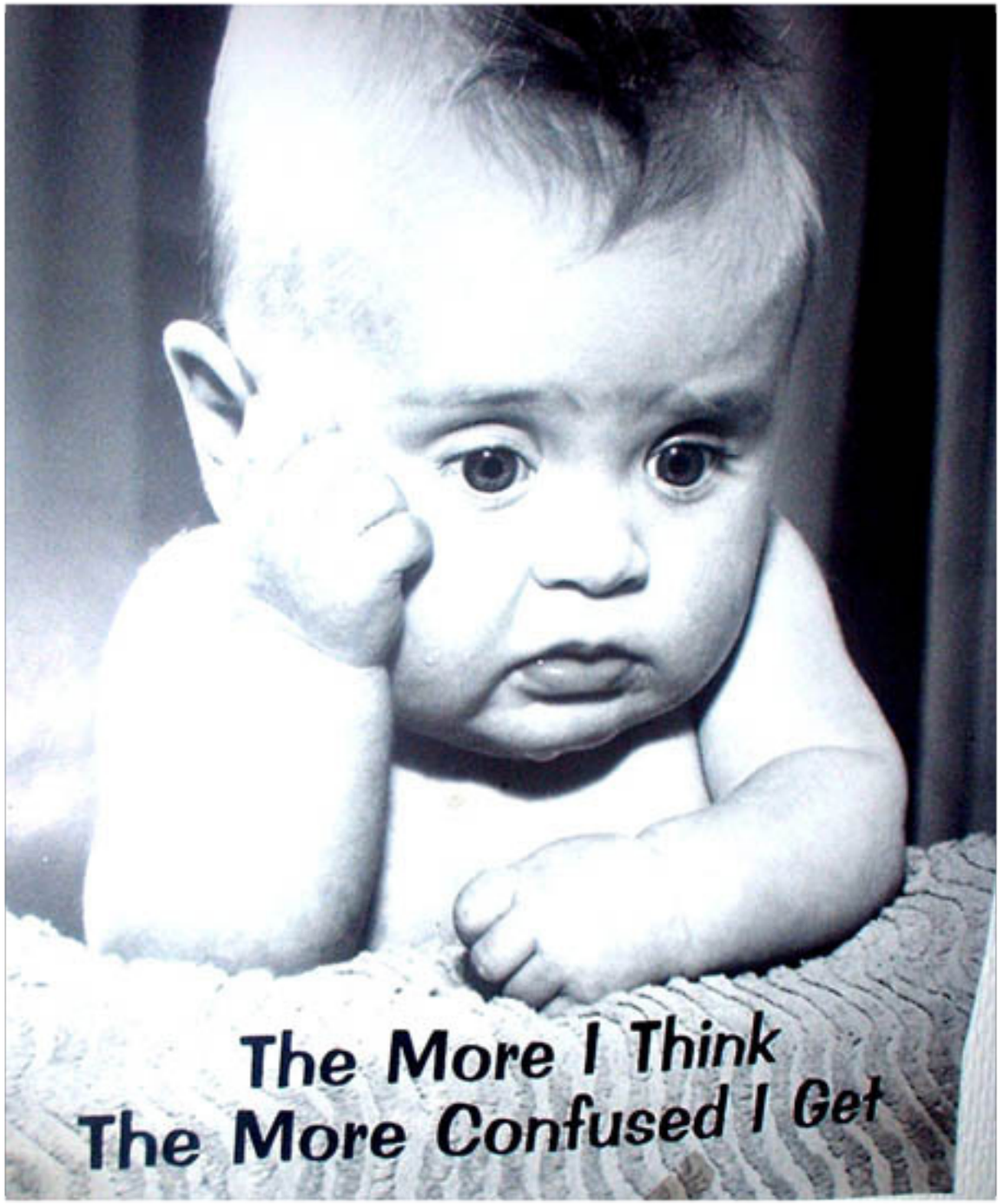



Request goes in.
Response comes out.
YOU CANT EXPLAIN THAT
ICANHASCHEEZBURGER.COM

“Its *easy!*”

"Its *easy!*"

Your request comes in. IPTables lets it pass through because its global traffic on a load balancer. It then hits an SSL terminator which proxies the request back to a level 7 load balancer, which round robins the request to an app server. If its a static file request its served directly off disk otherwise it goes to the actual application process. **Now your code is executed.** Got it? Ready to learn about service orchestration, response caching, and how the site stays running?

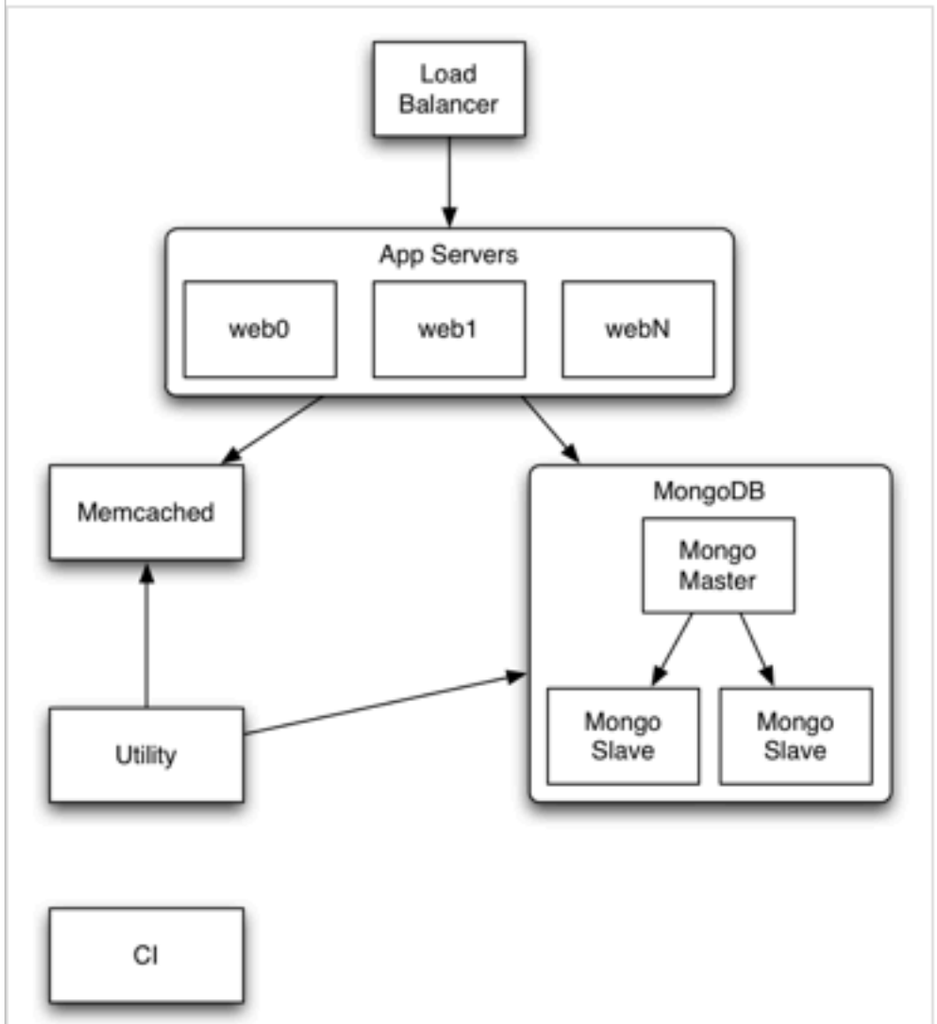

The More I Think
The More Confused I Get

1. Document your ops.

Architecture

New Page Edit Page

This page will outline our general server architecture. Details on how to maintain and add new infrastructure is not covered here. standard web application setup. The diagram below shows our architecture in a standard graph file. Details follow.



Specific Components

Load Balancer

Topics…

Deploy process
Lifecycle of a request
How do new servers come online?
Coding guidelines for Cookbooks
Failures and resolutions (automated or not)
Tools guides (htop, lsof, ps, netcat, strace)
Development VM internals (Vagrant)

Remove the Black Box

2. Company Tech Talks

Bi-weekly.
Short (15 minutes).
Deep dives.

Topics…

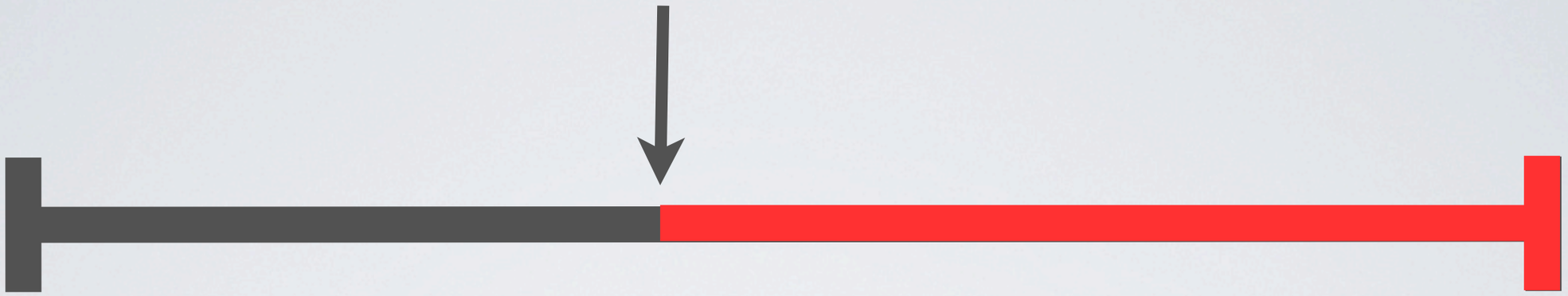
HAProxy
Vagrant
Configuration management philosophy
On-Call Practices
Infrastructure testing and verification

Deeper understanding
of technologies in use

1UP

Insight into... architecture
Insight into... scalability
Insight into... how code is executed
Insight into... ops!

Production-mirror Dev Environments



Vagrant

Duplicate efforts for production vs. development?

Use production ops
for development

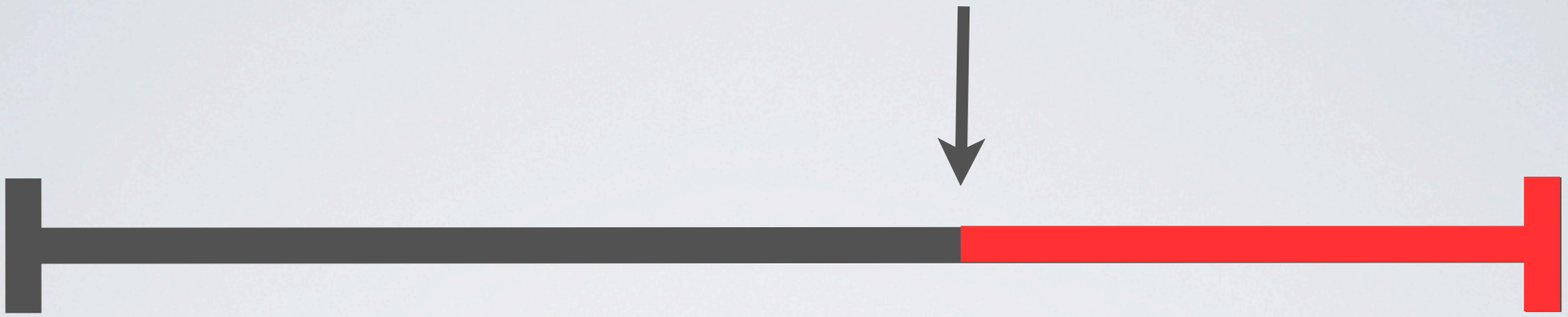
Extra effort involved.
Big gain.

Small effect on
developer workflow.

1UP

Insight into... provisioning
Insight into... server evolution
Insight into... architecture
Insight into... ops!

DevOps Office Hours



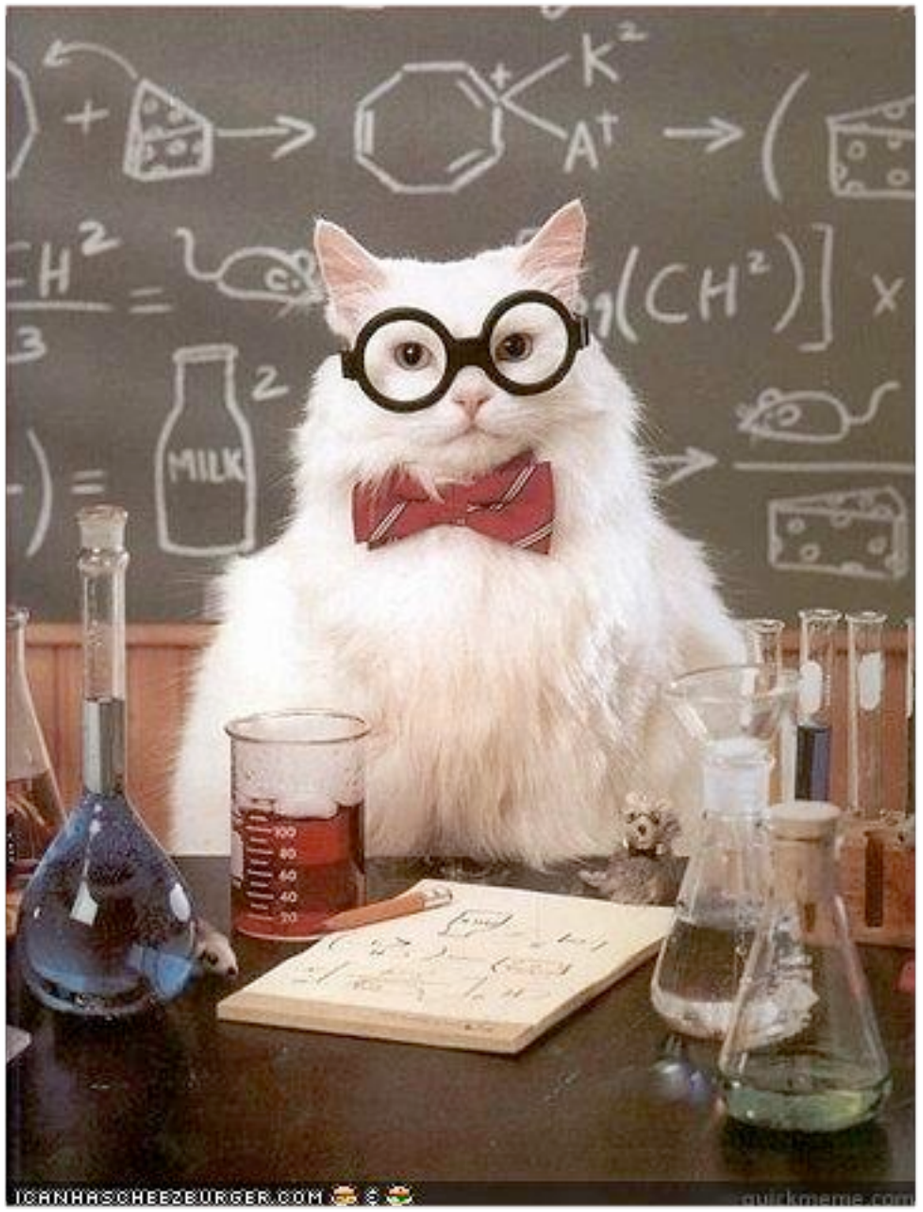
Ops can be scary
to those new to it.


What was that?!

Luckily, we're friendly.

Ops office hours.
Dev office hours.

A comfortable environment
to ask and learn anything.


MILK
ICANHASCHEEZBURGER.COM
quickmeme.com

Office hour activities...

Architecture explanation
Fast Chef tutorial
Help with cookbook bugs
Teaching how current cookbooks work
Code review!

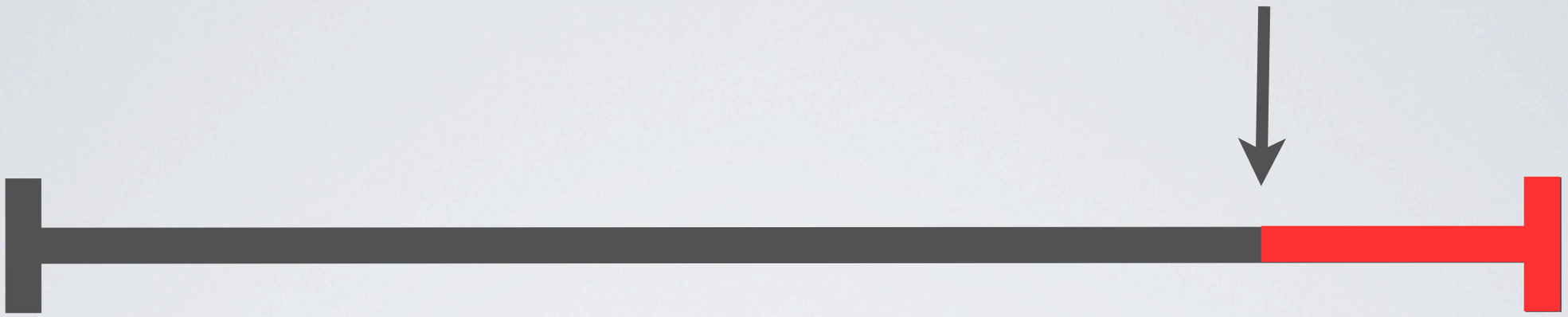
My Office Hours:
Mondays 3 - 5 PM

1UP

Insight into… anything

Provides a safe, comfortable learning environment.

Automated Infrastructure Tests



Warning: This field is
still under heavy development

Honestly: I don't trust devs to do ops, right now.

But… I don’t need to.

Test that Chef runs complete successfully.

Run integration tests
on top of that.

My Opinion: “Unit tests” for ops is still too new and doesn’t excite me yet.

Test at high level…

Do the new changes apply cleanly?
Can I still load the website?
Is it still secure?
Do all the interactions with the site still work?

Can we do better?

Can we do better?
I think so. We need tools.

Also: Code Review

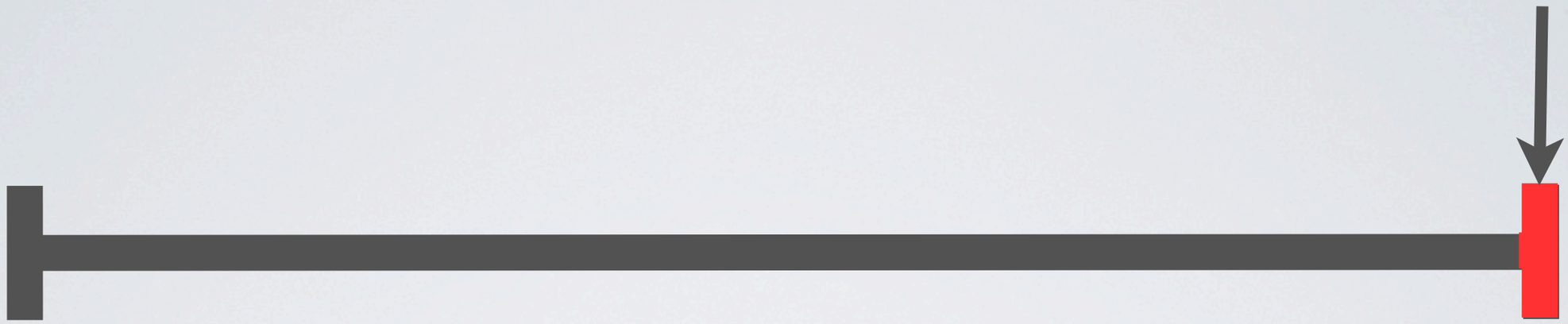
Ops engineers verify
any non-ops contributions

1UP

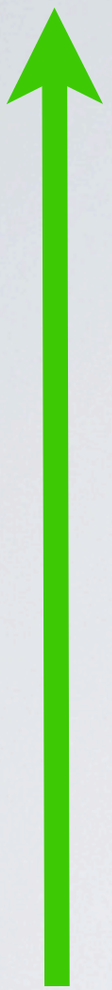
Developers are now safe
to make their own ops changes.*

* Ops supervision still important

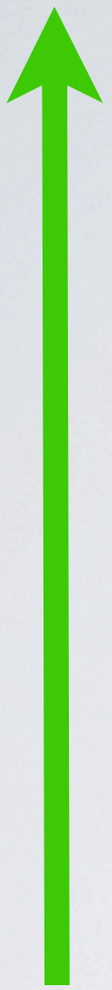
Devs: Go Crazy.



A strong foundation.



Powerful insight via metrics.



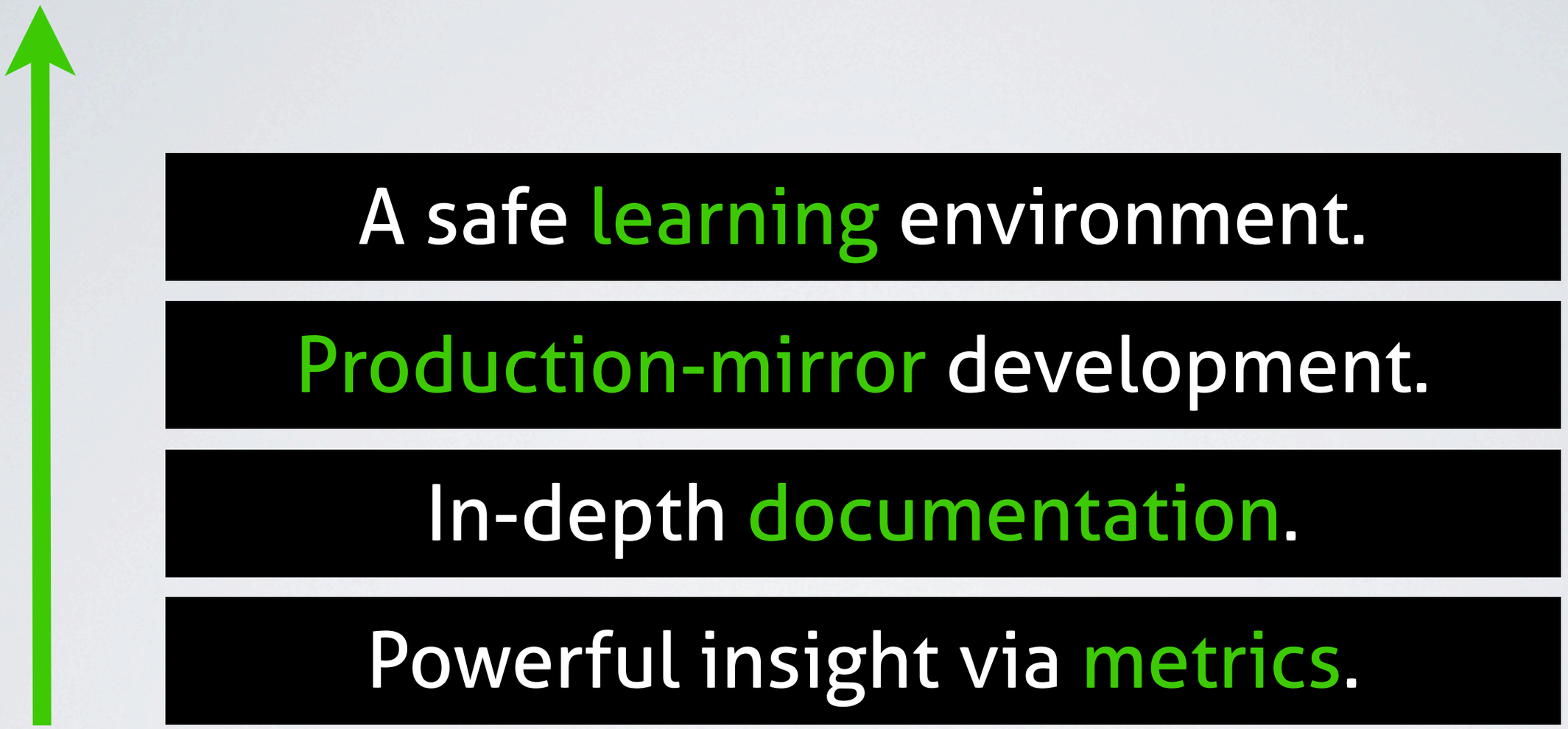
In-depth documentation.

Powerful insight via metrics.

Production-mirror development.

In-depth documentation.

Powerful insight via metrics.


A safe learning environment.
Production-mirror development.
In-depth documentation.
Powerful insight via metrics.

Infrastructure verification.

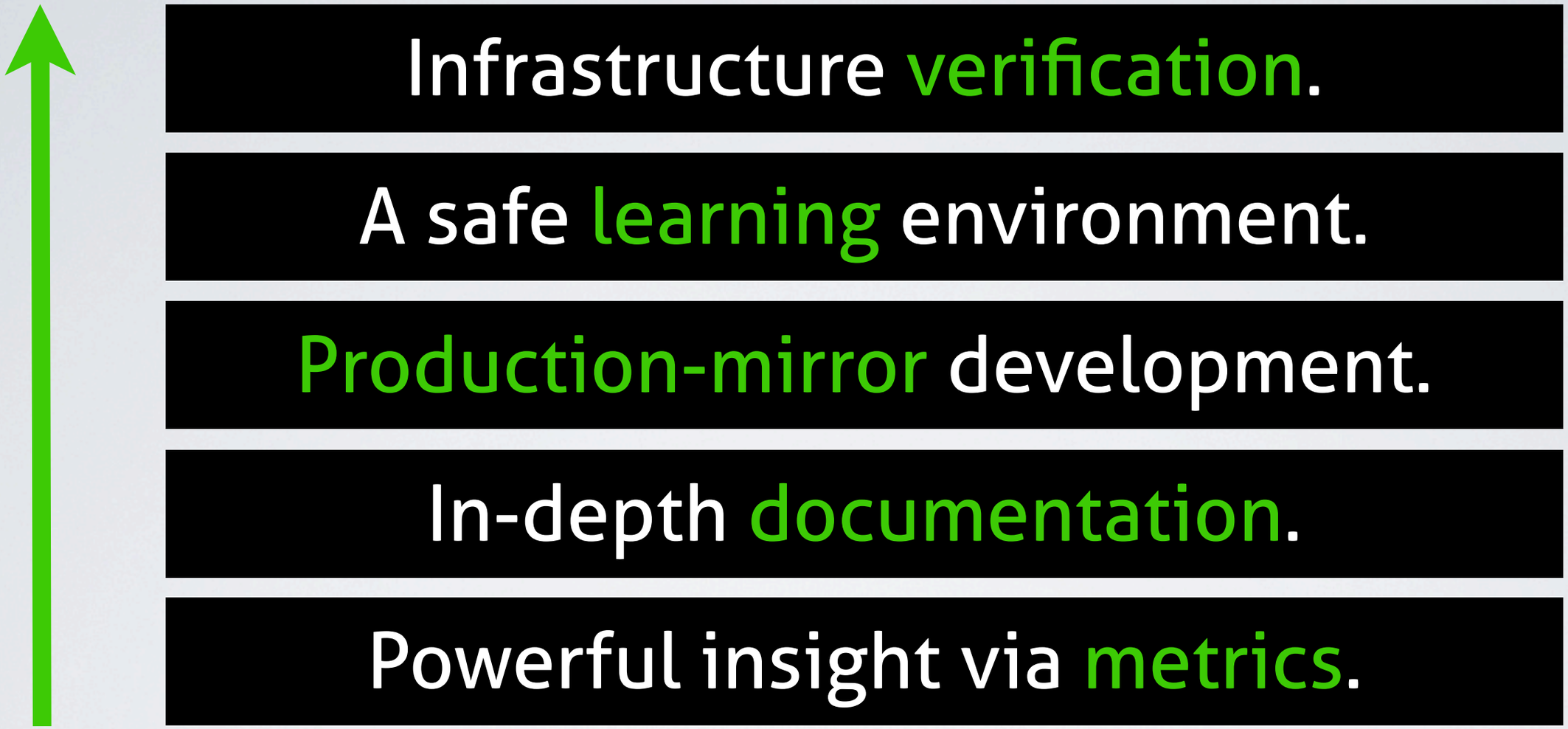
A safe learning environment.

Production-mirror development.

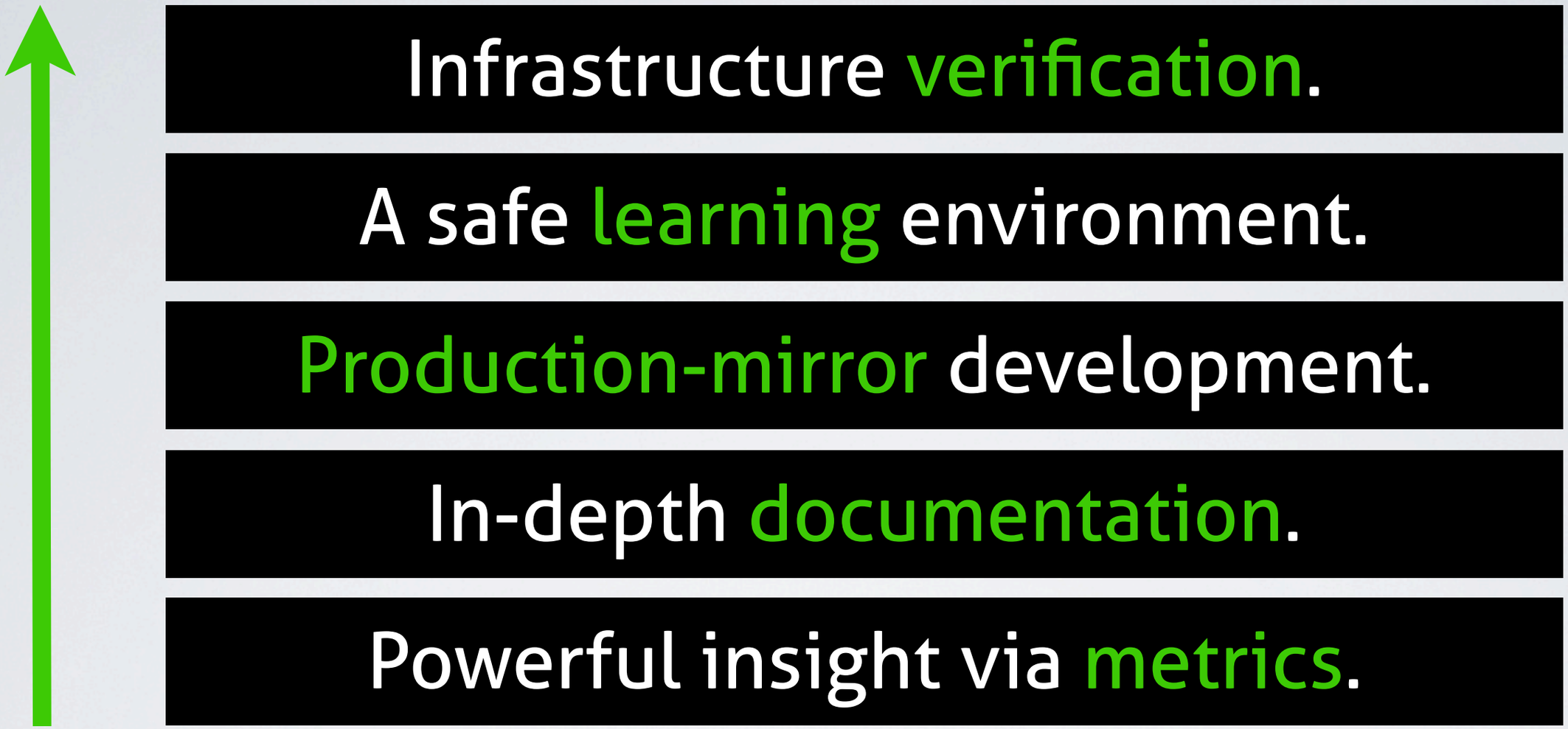
In-depth documentation.

Powerful insight via metrics.

Devs doing Ops.

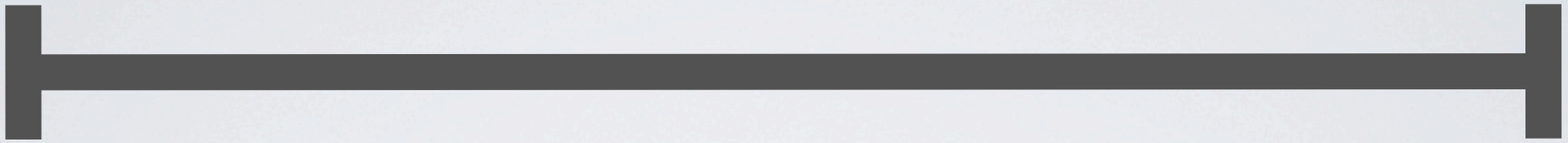


But: This is *all* DevOps.



Ops is a
black box.

Devs do
all ops



WAIT!
The most important
question of all…

Who wears the pager?

On-call rotation for
everybody.

Problem/Solution
not in the Wiki?
Call in the ops engineer.

Can’t fix the problem
in 5 minutes or less?
Call in the ops engineer.

I only care about the
site or services going down.

Nagios [almost]
never wakes me up.

1UP

People aren’t overworked.
Everyone shares responsibility.

THANK YOU

I ♥ DevOps

Questions?