

Choose your own PLNOGventure



OPSCODE

Adam Jacob
Co-Founder & CTO

Twitter: [@adamhjk](https://twitter.com/adamhjk), Email: adam@opscodel.com

WHO ARE YOU



<http://www.flickr.com/photos/timyates/2854357446/sizes//>

WHO ARE YOU

- Developers?

KEEP

<http://www.flickr.com/photos/timyates/2854357446/sizes//>

WHO ARE YOU

- Developers?
- Systems Administrators?

KEEP

<http://www.flickr.com/photos/timyates/2854357446/sizes//>

WHO ARE YOU

- Developers?
- Systems Administrators?
- Network Administrators?

KEEP

<http://www.flickr.com/photos/timyates/2854357446/sizes//>

WHO ARE YOU

- Developers?
- Systems Administrators?
- Network Administrators?
- “Business” People?

KEEP

<http://www.flickr.com/photos/timyates/2854357446/sizes//>

WHO ARE YOU

- Developers?
- Systems Administrators?
- Network Administrators?
- “Business” People?
- Executives?

KEEP

<http://www.flickr.com/photos/timyates/2854357446/sizes//>

- **14 years as a Systems Administrator**
- **Lots of Mergers and Acquisitions**
- **Consultant**

The Crossroads

<http://www.flickr.com/photos/cubajones/3131087119/sizes/o/>

The Crossroads

- Needed to streamline the high touch parts of our consultancy

<http://www.flickr.com/photos/cubajones/3131087119/sizes/o/>

The Crossroads

- Needed to streamline the high touch parts of our consultancy
- After analysis, the tools were letting us down

<http://www.flickr.com/photos/cubajones/3131087119/sizes/o/>

The Crossroads

- Needed to streamline the high touch parts of our consultancy
- After analysis, the tools were letting us down
- Re-thinking how we approach the entire stack

<http://www.flickr.com/photos/cubajones/3131087119/sizes/o/>



- 3 Years Old
- Grew out of a consulting company
- Raised \$2.5 million in January 2009 from DFJ
- Raised \$11 million from Battery and DFJ in June 2010

What do
you want to
talk about?

Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

Chef

Startups

Open Sourcing Your Kit


Random Advice



Cultural and Professional Movement



**It is not a Job
Description**

A marble bust of a man with curly hair, set against a red background. The bust is positioned centrally, and the text 'Traditional Systems Operations' is overlaid on it.

Traditional Systems Operations

Traditional Operations

WebOps

Some VP

Dir.

Dir.

Dir.

Dir.

Software Developers

Network Engineers

Systems Administrators

Security Engineers

Dir.

Dir.

Friends

Software Developers

Network Engineers

Peers

Fun

Systems Administrators

Security Engineers

Dir.

Dir.

Mentors

The movement is *inclusive*

Awesome
Happy
Cool
Built neat stuff!

There are *exclusive* people

Grumpy

Tool-centric

Us vs Them

I'm a DevOp, you're a Sysadmin!

Join the *inclusive* people
We're neater.

Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

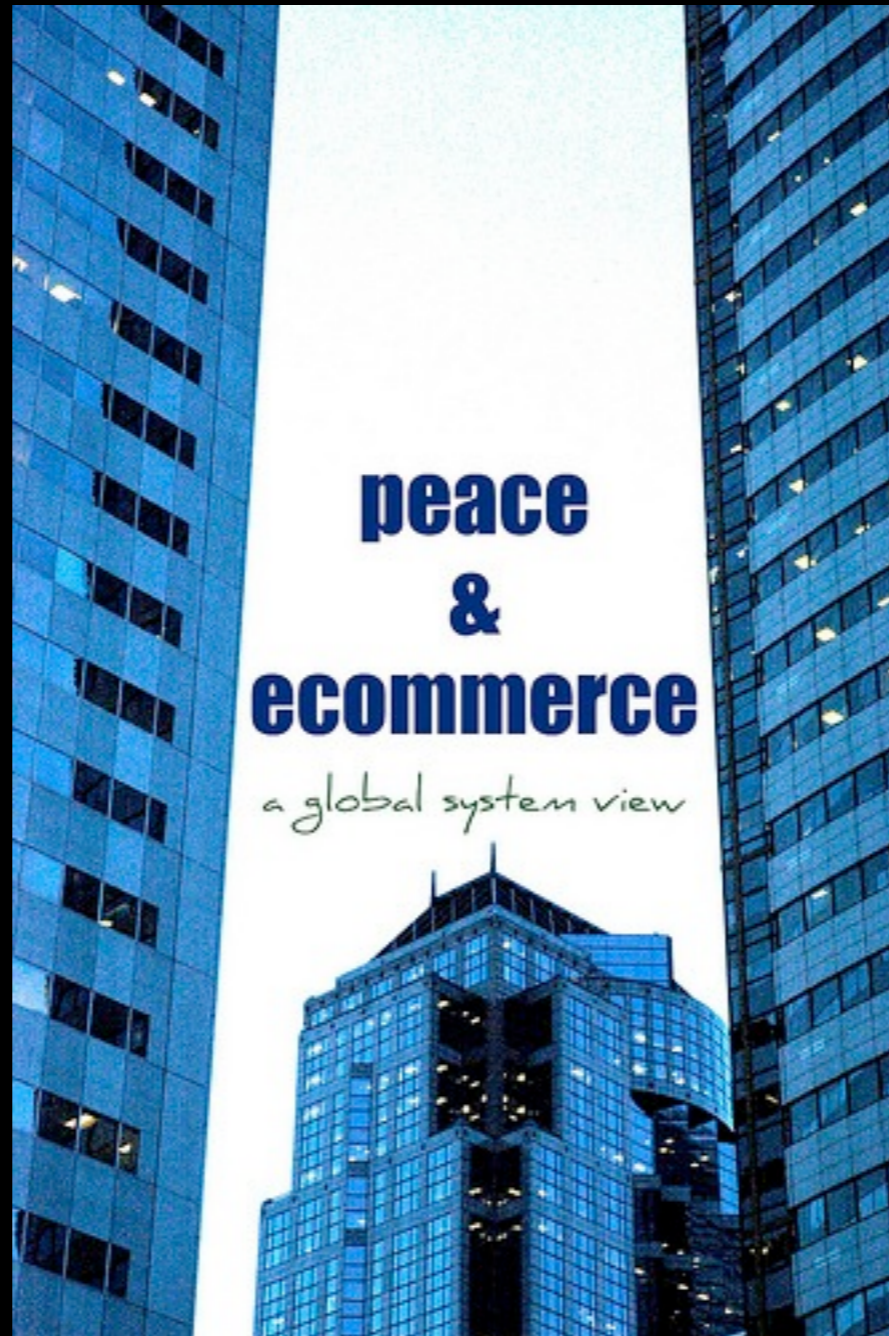
Chef

Startups

Open Source Businesses &
Licensing

Random Advice

Infrastructure as Code



<http://www.flickr.com/photos/wonderlane/2306082998/>

Infrastructure as Code is...



<http://www.flickr.com/photos/kwerfeldein/2634561264/sizes/o/>

Copyright © 2010 Opscode, Inc - All Rights Reserved



Infrastructure as Code is...

A technical domain revolving around building and managing infrastructure programmatically



<http://www.flickr.com/photos/kwerfeldein/2634561264/sizes/o/>

Copyright © 2010 Opscode, Inc - All Rights Reserved

**Enable the reconstruction of
the business from nothing
but a source code
repository, an application
data backup, and bare metal
resources.**



Theory of Constraints

Your Prime Constraint Should Be



<http://www.flickr.com/photos/visualage/2126833132/sizes/o/>

Your Prime Constraint Should Be

**The time it
takes to
restore your
application
data**



<http://www.flickr.com/photos/visualage/2126833132/sizes/o/>

3 Disciplines Combined



<http://www.flickr.com/photos/sebastianairalt/688050214/sizes/l/>



3 Disciplines Combined



Service Oriented Architecture



<http://www.flickr.com/photos/sebastianiralt/688050214/sizes/l/>

3 Disciplines Combined



Service Oriented Architecture

+



<http://www.flickr.com/photos/sebastiagiralt/688050214/sizes/l/>

3 Disciplines Combined



Service Oriented Architecture + Configuration Management



<http://www.flickr.com/photos/sebastianiralt/688050214/sizes/l/>

3 Disciplines Combined



Service Oriented Architecture
+
Configuration Management
+



<http://www.flickr.com/photos/sebastianiralt/688050214/sizes/l/>

3 Disciplines Combined



Service Oriented Architecture
+
Configuration Management
+
Systems Integration



<http://www.flickr.com/photos/sebastiagiralt/688050214/sizes/l/>

3 Disciplines Combined



Service - Yields 10 Principles -

- Modular
- Repeatable
- Cooperative
- Declarative
- Composable
- Abstract
- Flexible
- Idempotent
- Extensible
- Convergent

Systemic Integration



<http://www.flickr.com/photos/sebastiagiralt/688050214/sizes/l/>



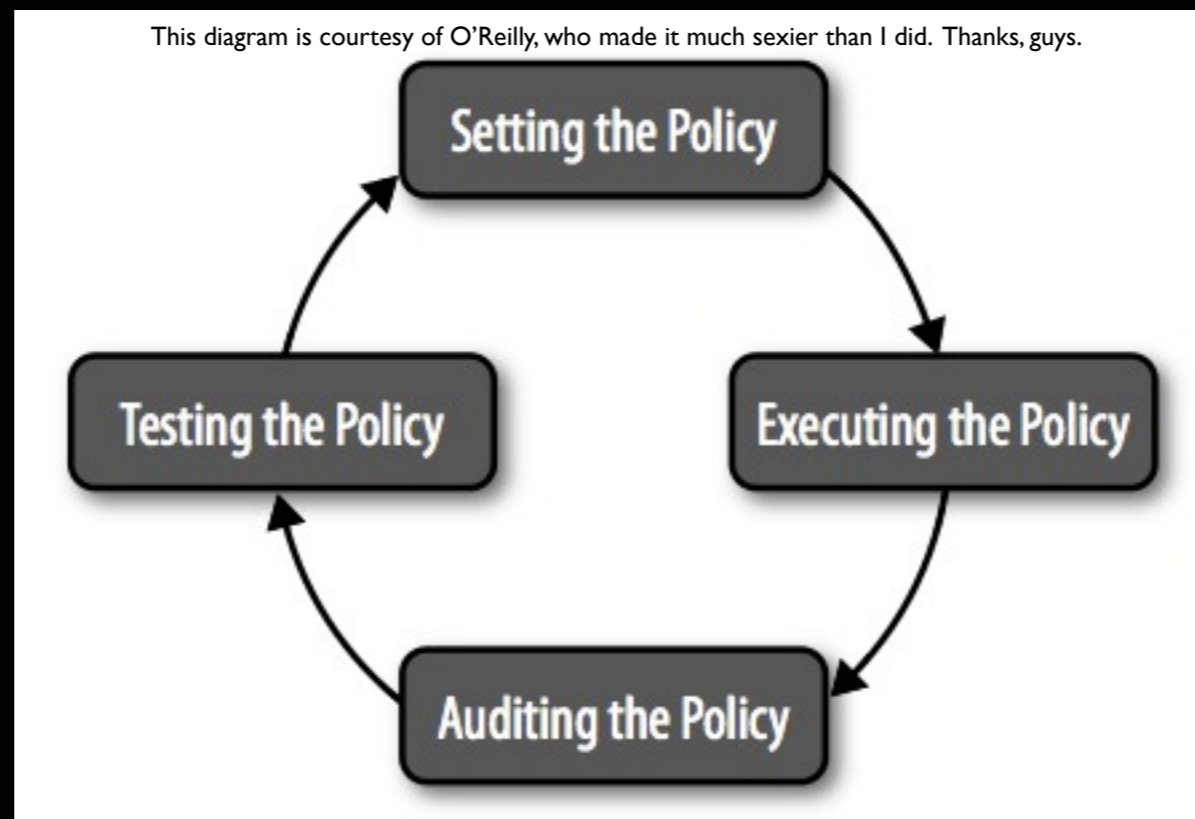
Two-Steps

Step One

**Break the infrastructure down
into reusable, network-
accessible services**

Step Two

Integrate those services together with policies



Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

Chef

Startups

Open Source Businesses &
Licensing

Random Advice

THE INSPIRATION FOR *DELICIOUS*.US

DO WEB 2.0
SITES
DREAM OF
AJAX
SHEEP?



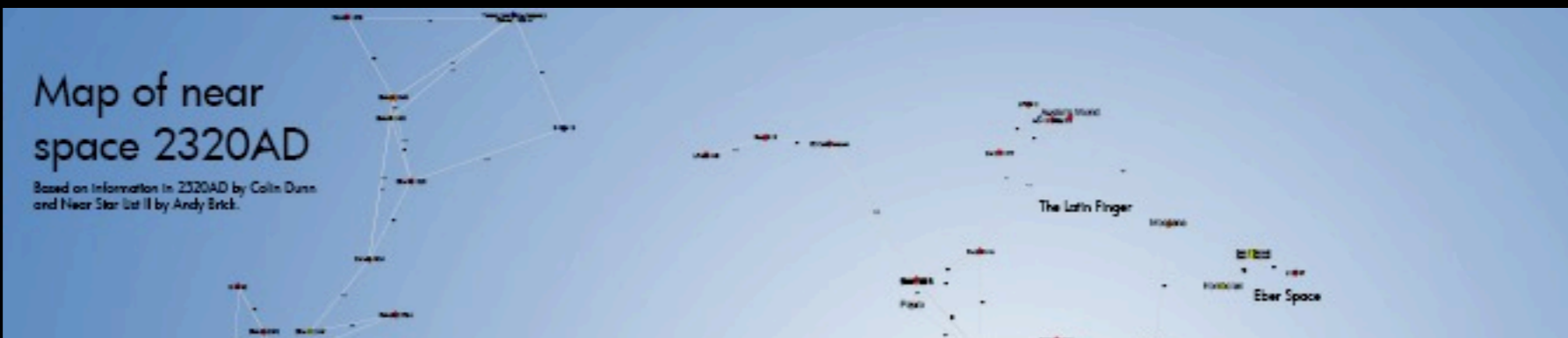
A KIND OF
CODE HAPPY
BERNERS-LEE.

A PROPHET
-- TIM RILEY

THE RILEY NETWORK

PHILIP K LONG

Service Oriented Architectures



Network accessible services integrated together to build an application



A “Primitives” Approach



http://www.comicbookreligion.com/img/all/Alpha_Primitives.jpg

BUSINESS

Build a Web 2.0 Startup!

In the new new new economy - wait, how many news was that? - it's easier than ever to start your own Web 2.0 company. Just use our handy StartUp-O-Tron™ algorithm. It generates pitches, critical for persuading venture capitalists to throw money at you. "What's your company?" they'll ask. "It's a [market] site that uses [hyped tech] and [hyped tech] to do [service] in a [architecture]," you'll confidently reply. We've provided the tools below. Mix and match, then slap on a name with a pun or a rogue capital letter somewhere, and bang! Pretty soon you're driving a Z4 and looking at second-round funding. Hey, don't forget us during IPO allocation. - Robert Capps and Adam Rogers

Ingredients:

MARKET

HYPED TECH

SERVICE

ARCHITECTURE

DATING

AJAX

RECOMMENDATIONS

PODCAST

Fundamental

competency of many

Web 2.0 Companies

REVISIONS

STREAMING

MESSAGING

AUCTION

GAMBLING

VIDEO

INTERACTIVE

BLOG

MAPS

BITTORRENT

PUBLISHING

VODCAST

PORN

MUSIC

RFID

WIRELESS

BUYING/SELLING

SOCIAL NETWORK

NEWS

VOIP

GPS

DATA MINING

SHARING

PHOTO

PRODUCTIVITY

RECOMMENDATIONS

SEARCH

SEARCH

DISCUSSION

WIKI

AGGREGATION

COMMUNITY

Previous successful pitches:

It's a **MUSIC** site that uses **AJAX** and **STREAMING** to do **RECOMMENDATIONS** in a **SOCIAL NETWORK**. We call it **LAST.FM**.

It's a **PHOTO** site that uses **TAGGING** and **RSS** to do **SEARCH** in a **COMMUNITY**. We call it **FLICKR**.

It's a **PRODUCTIVITY** site that uses **AJAX** and **RUBY ON RAILS** to do **PUBLISHING** in a **WIKI**. We call it **BASECAMP**.

Principles



<http://www.flickr.com/photos/hmk/4254522384/sizes/l/>

Principles

Modular



<http://www.flickr.com/photos/hmk/4254522384/sizes/l/>

Principles

Modular

“Do one thing, and do it well”



<http://www.flickr.com/photos/hmk/4254522384/sizes/l/>

Principles

Modular

“Do one thing, and do it well”

Cooperative



<http://www.flickr.com/photos/hmk/4254522384/sizes/l/>

Principles

Modular

“Do one thing, and do it well”

Cooperative

“It takes a village”



<http://www.flickr.com/photos/hmk/4254522384/sizes/l/>

Principles

Modular

“Do one thing, and do it well”

Cooperative

“It takes a village”

Composable



<http://www.flickr.com/photos/hmk/4254522384/sizes/l/>

Principles

Modular

“Do one thing, and do it well”

Cooperative

“It takes a village”

Composable

“Ready for anything”



<http://www.flickr.com/photos/hmk/4254522384/sizes/l/>

WHO DO YOU

LOVE?

FREE SERVICE!

SEND 'EM A LETTER!
PROVIDE THE WORDS



DNS

NIS

LDAP

Yum

APT

Operations people love services

“Give me an API, or give me death!”



Andrew
Clay
Shafer
@littleidea



Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

Chef

Startups

Open Source Businesses &
Licensing

Random Advice



Configuration Management

Many Definitions

Many Definitions

“Configuration management is a management activity that applies technical and administrative direction over the life cycle of a product, its configuration items, and related product configuration information.”

— iSO 10007:2003, Quality management systems— guidelines for configuration management

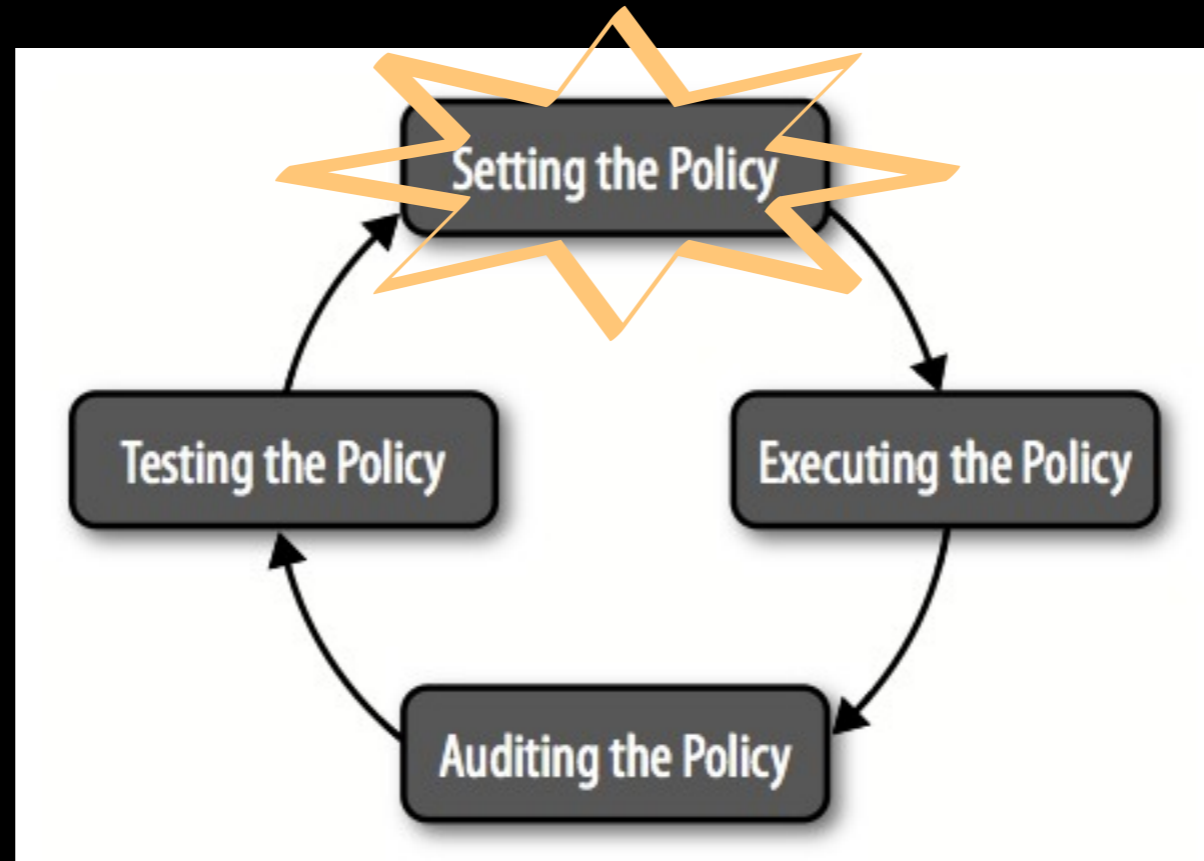
Many Definitions

Take things from bare metal to
doing its job.

-- Me

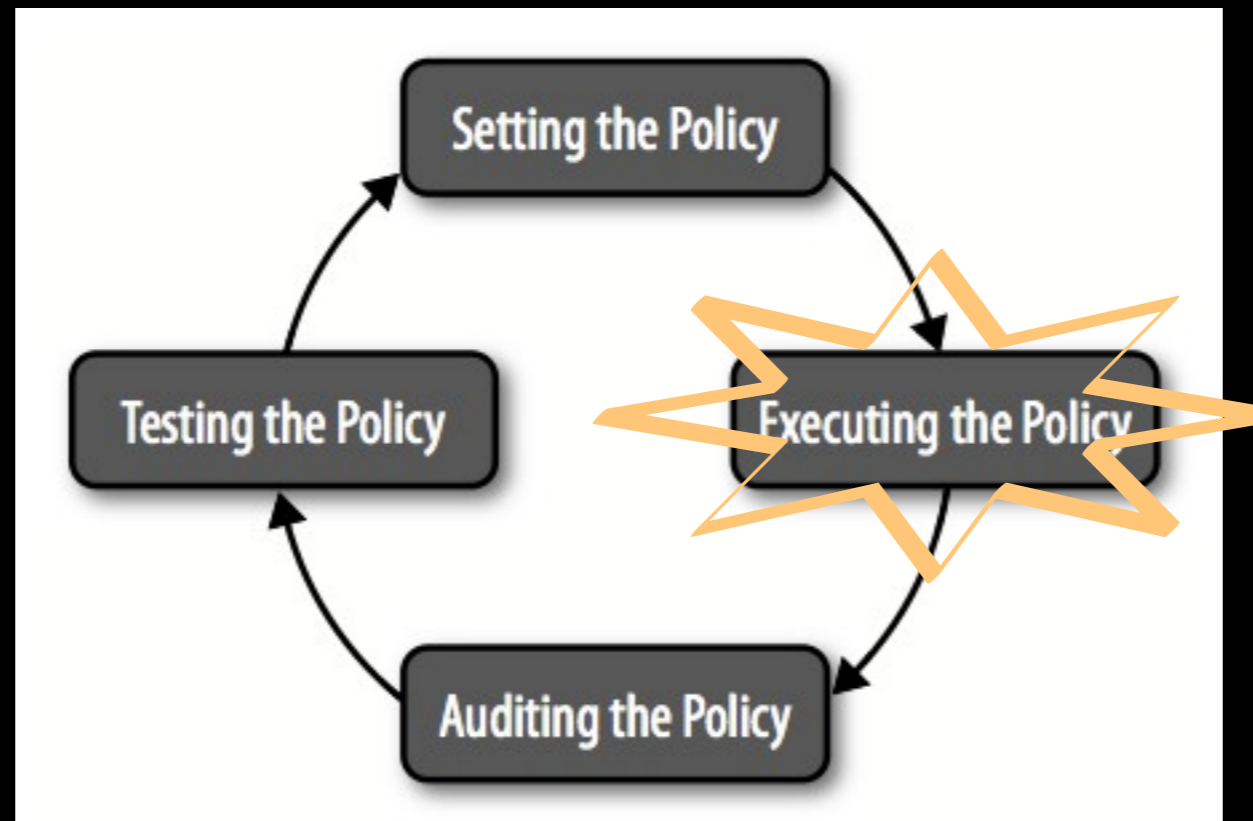
—iSO 10007:2003, Quality
management systems— guidelines
for configuration management

Policy Driven



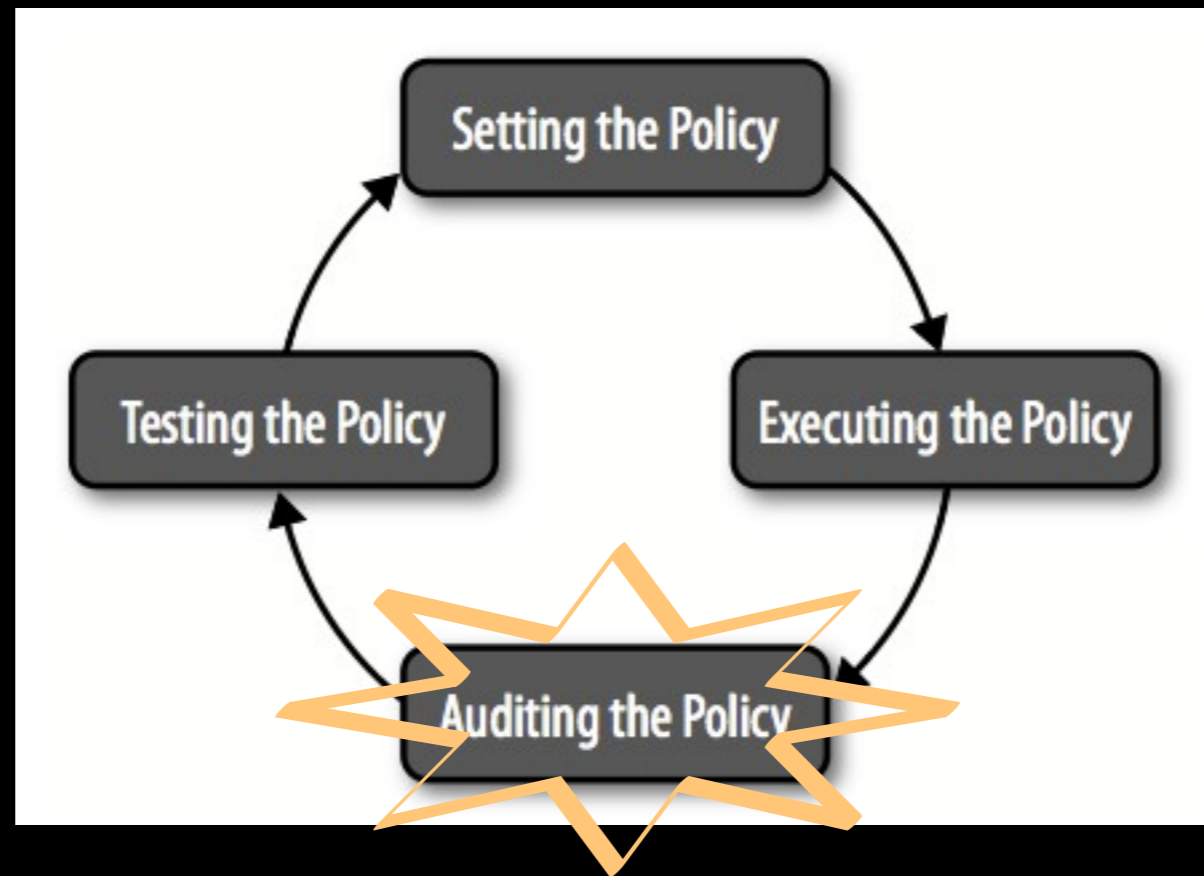
Document the problem, and what the success criteria is.

Policy Driven



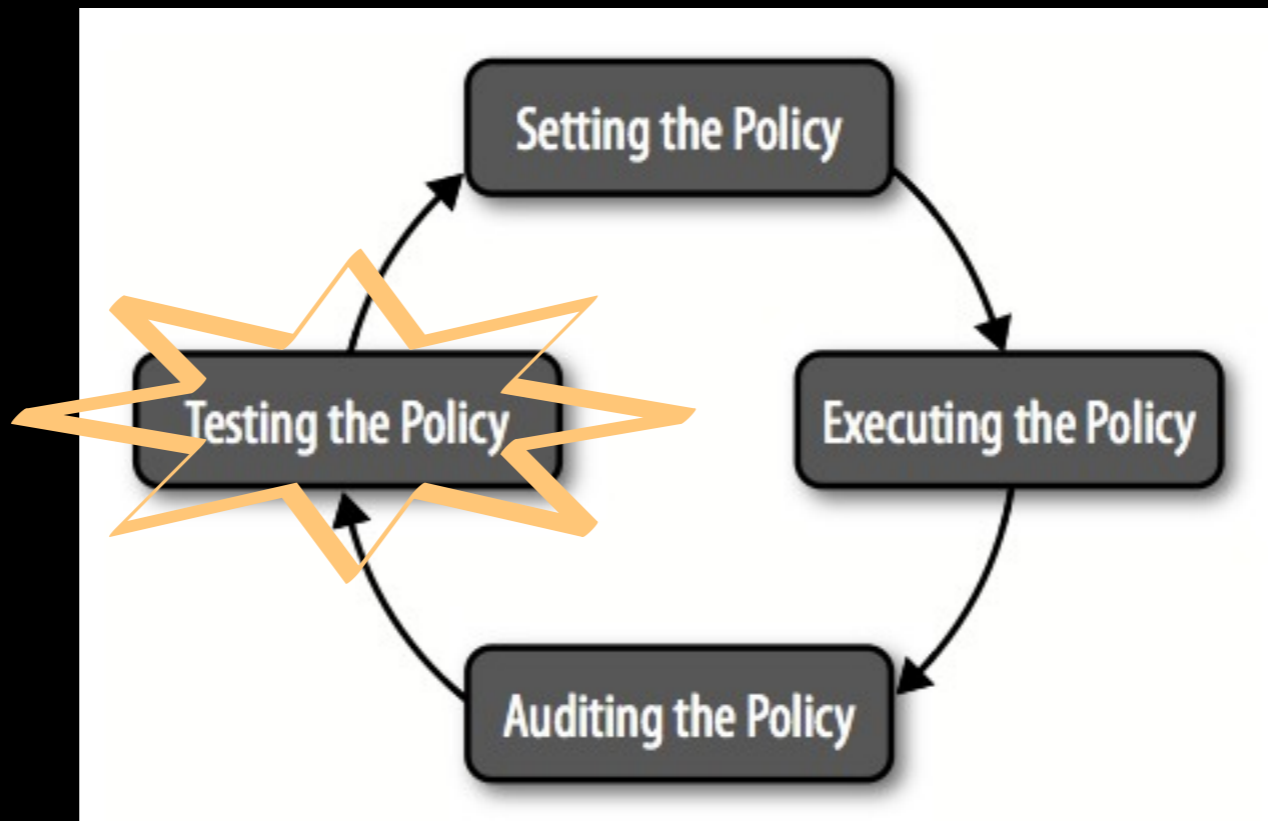
Write code to implement the policy.

Policy Driven



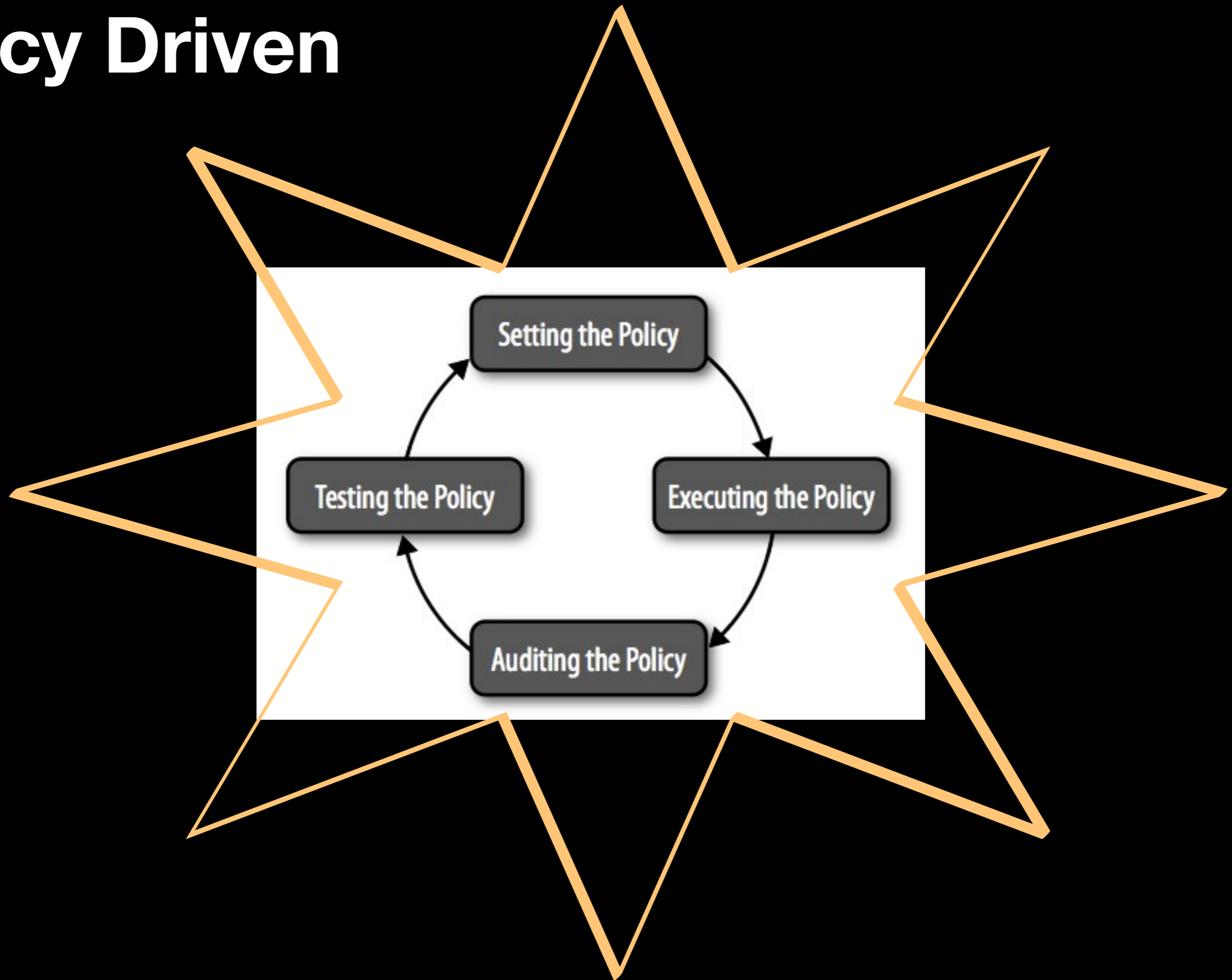
Confirm that the code successfully applies to policy.

Policy Driven

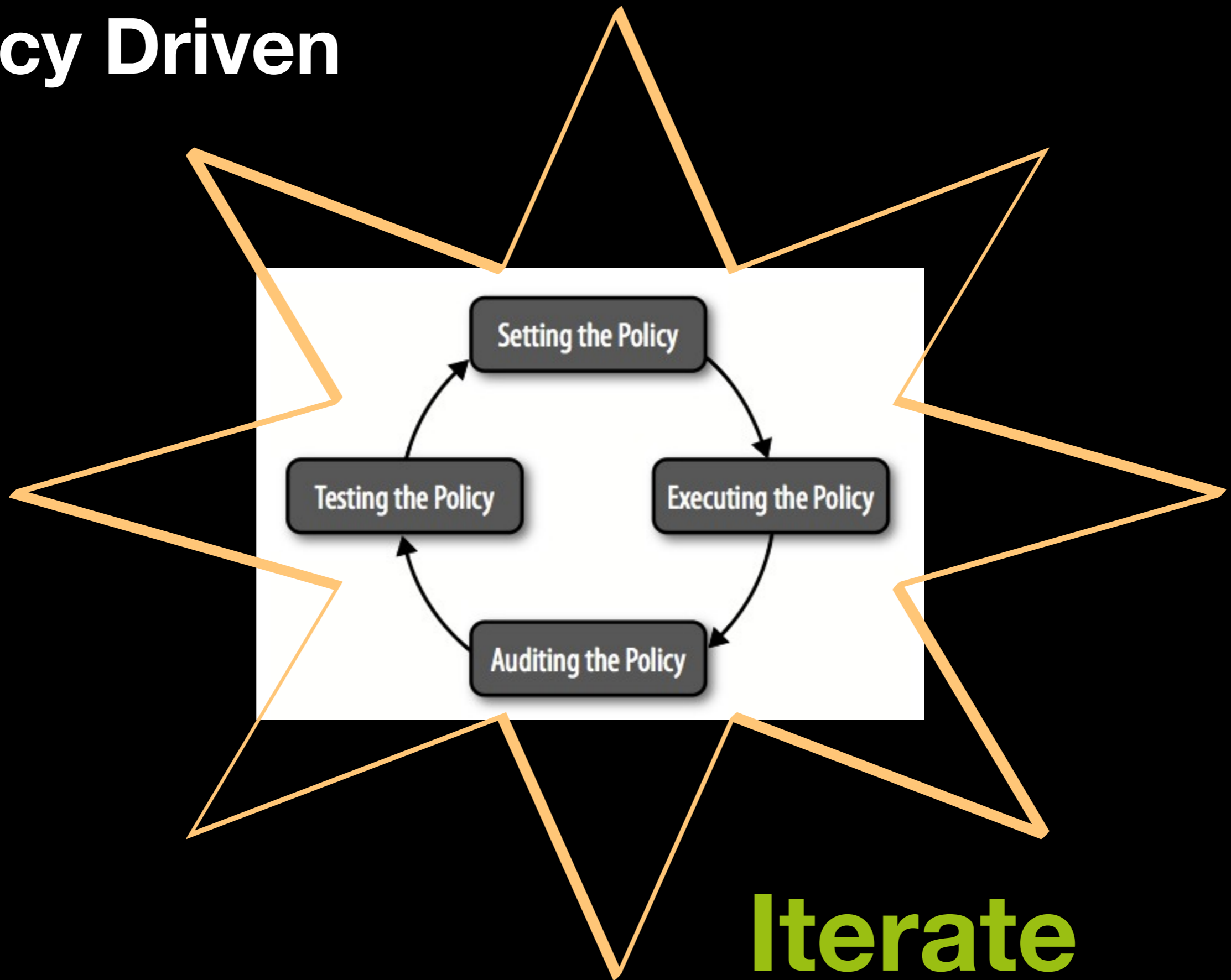


Have a co-worker repeat the process, to confirm you can reliably do it again.

Policy Driven



Policy Driven



MY DESIGN PROCESS

by MARIO SIGUEIRA

BEST SOLUTION

... FOR THE MOMENT
... CONSIDERING DEADLINE

TEAM WORK & HOLISTIC APPROACH

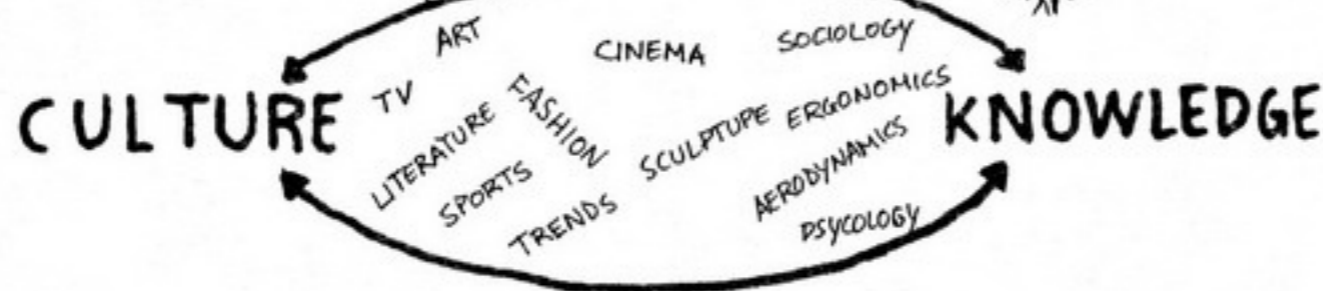
DURING DEVELOPMENT A PLANT WILL INCORPORATE WHICHEVER ELEMENTS AVAILABLE IN THE SOIL MUCH LIKE A GOOD DESIGNER IS INSPIRED BY THE KNOWLEDGE AND CULTURE OF SOCIETY DURING DEVELOPMENT OF A PRODUCT.

PROBLEM - DRIVEN DEVELOPMENT

An implementation of a policy is a **Process**



EACH BRANCH = ATTEMPT AND ITS VERSIONS



Bellissima alma
A Guide for the Modern Wedding Planner

Ruby
Perl

Scripting languages are A++ for implementing Process

Quality and Style
C'est l'affaire de tout le monde
My darling you never forget at the end of the darkest night I'll love you forever

Python
Bash

Principles from Scripting Languages...



- All Rights Reserved

Principles from Scripting Languages...

Flexible



Principles from Scripting Languages...

Flexible

“Capable of doing whatever is required”



Principles from Scripting Languages...

Flexible

“Capable of doing whatever is required”

Extensible



Principles from Scripting Languages...

Flexible

“Capable of doing whatever is required”

Extensible

“Can easily be made better”



Principles from Scripting Languages...

Flexible

“Capable of doing whatever is required”

Extensible

“Can easily be made better”

Repeatable



Principles from Scripting Languages...



Flexible

“Capable of doing whatever is required”

Extensible

“Can easily be made better”

Repeatable

“Works the same way”

Systems Administrators are special

Systems Administrators are special
We get our own branch of tools!

Systems Administrators are special
We get our own branch of tools!

Systems Administrators are special
We get our own branch of tools!

(We even co-opt the phrase!)

Systems Administrators are special
We get our own branch of tools!

(We even co-opt the phrase!)

Systems Administrators are special
We get our own branch of tools!

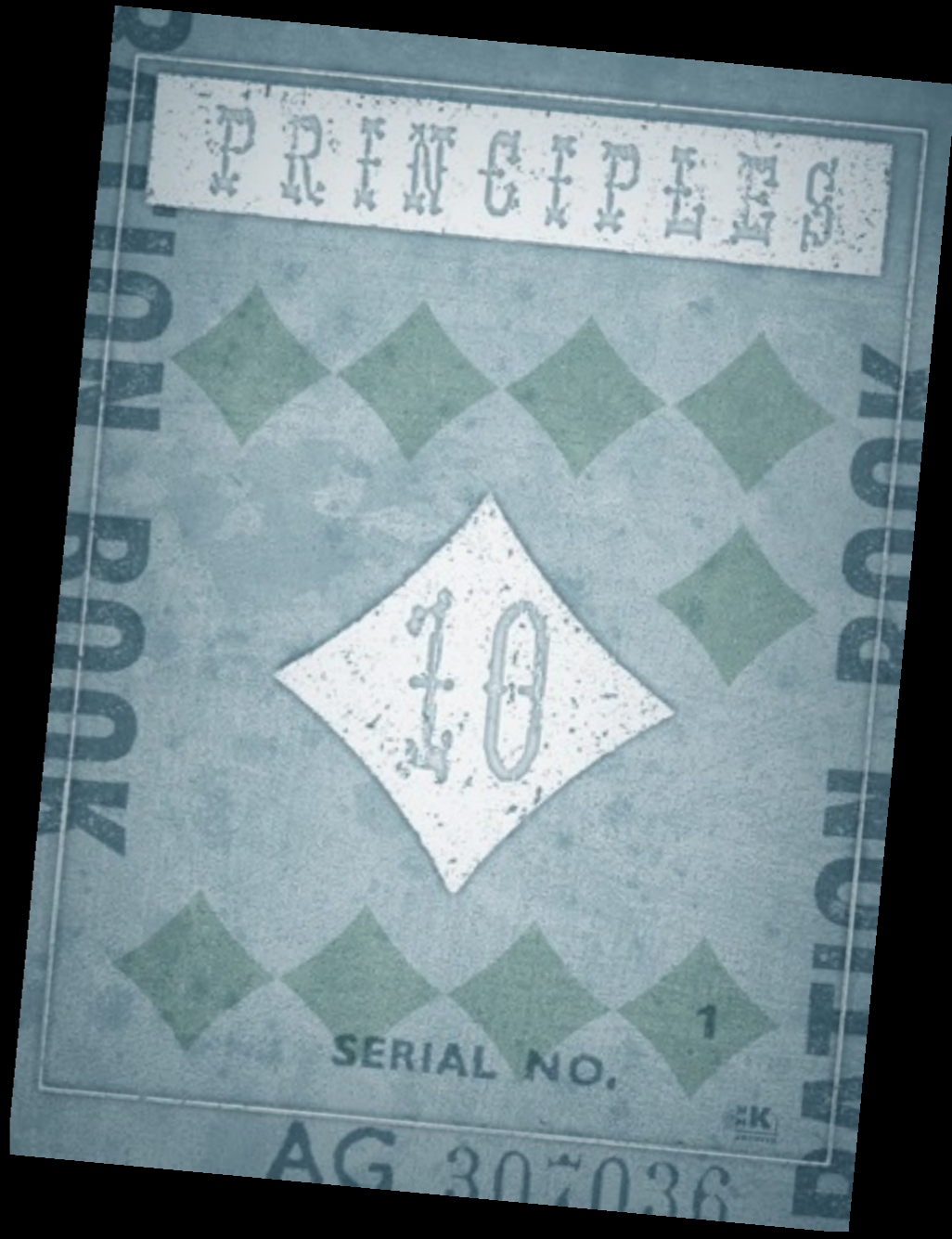
(We even co-opt the phrase!)

Systems Administrators are special
We get our own branch of tools!

(We even co-opt the phrase!)



Principles from Config Management Tools..



Principles from Config Management Tools..

Declarative



Principles from Config Management Tools..

Declarative

“It’s about what you want to do, not how to do it”



Principles from Config Management Tools..

Declarative

“It’s about what you want to do, not how to do it”

Abstract



Principles from Config Management Tools..

Declarative

“It’s about what you want to do, not how to do it”

Abstract

“It takes care of the details for you”



Principles from Config Management Tools..

Declarative

“It’s about what you want to do, not how to do it”

Abstract

“It takes care of the details for you”

Idempotent



Principles from Config Management Tools..

Declarative

“It’s about what you want to do, not how to do it”

Abstract

“It takes care of the details for you”

Idempotent

“Only takes action if it needs to”



Principles from Config Management Tools..

Declarative

“It’s about what you want to do, not how to do it”

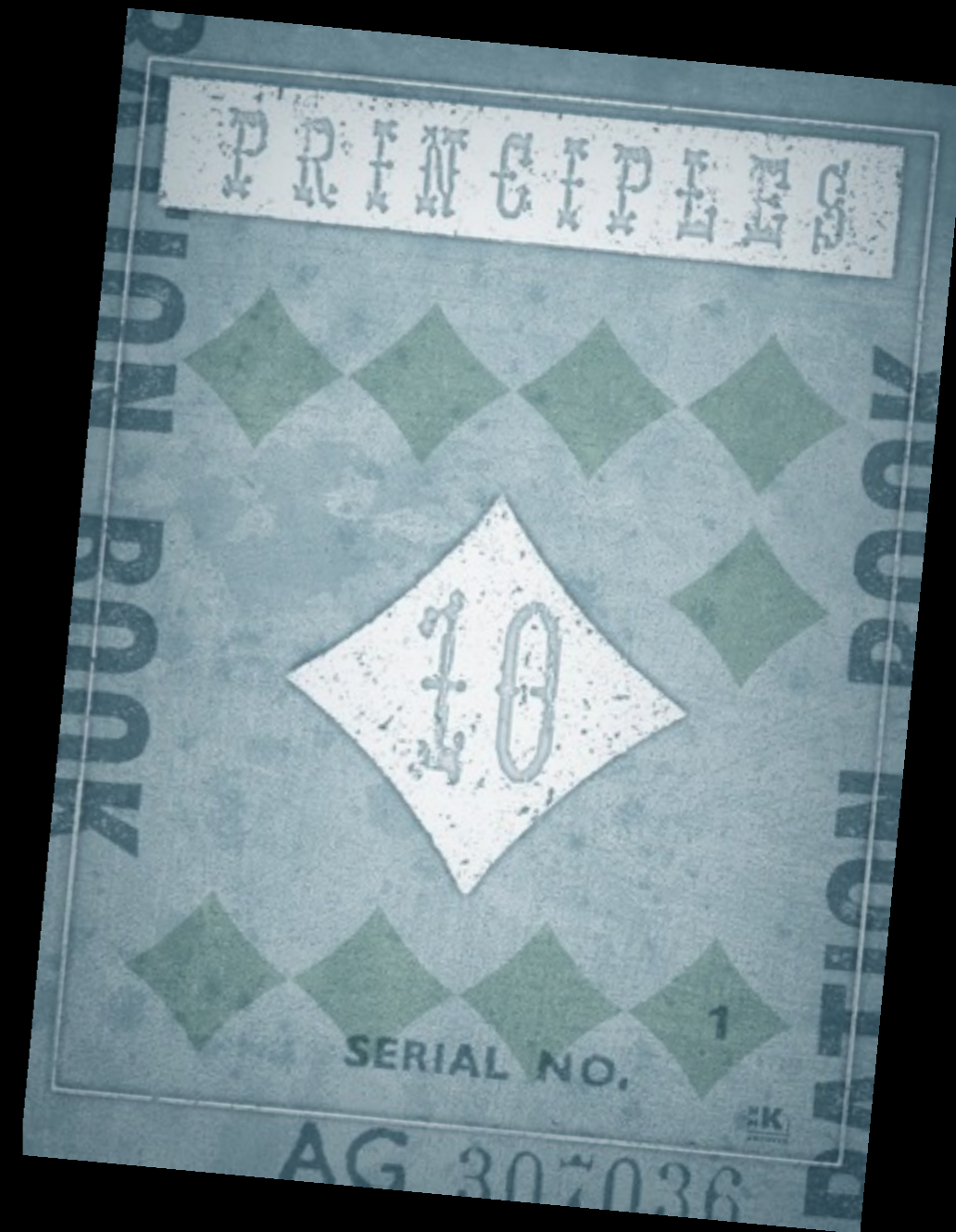
Abstract

“It takes care of the details for you”

Idempotent

“Only takes action if it needs to”

Convergent



Principles from Config Management Tools..

Declarative

“It’s about what you want to do, not how to do it”

Abstract

“It takes care of the details for you”

Idempotent

“Only takes action if it needs to”

Convergent

“Takes care of itself and relies on others to do the same”



**All of these tools share
these properties**

**They are not equals
when it comes to the
kind of services they
offer**

**If you want more about
Chef, pick it. :)**

Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

Chef

Startups

Open Source Businesses &
Licensing

Random Advice

How Websites Fail

<http://www.flickr.com/photos/wingler/3429634150/sizes//>



CAP Theorem

- Consistency
- Availability
- Partition Tolerance

Pick
Two

Most use of Relational Databases...

- Choose **Consistency** over all
- **Availability** comes distant second

Web Applications need...

- **Availability**
- **Partition Tolerance**





“Global temporal
consistency is a fiction”

Christopher Brown

Choosing Consistency for your Web App...

Means failure is global

FAIL

When you choose Partition Tolerance and Availability...



FAIL

You fail or succeed for a subset of
users

Apologies



- Apologize after the fact for failures
- Better than nothing at all

NoSQL

- Many different tools
- They tweak CAP differently
 - CouchDB
 - Cassandra
 - Redis
 - Riak
 - MongoDB

Change in Mindset

A large, stylized white play button icon is centered on a gray background. The play button is composed of three overlapping, rounded rectangular shapes that create a 3D effect. The top shape is slightly offset to the left, the middle shape is centered, and the bottom shape is slightly offset to the right. The lighting is soft, coming from the top-left, creating subtle shadows and highlights on the edges of the shapes.

Yields simplicity in return

Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

Chef

Startups

Open Source Businesses &
Licensing

Random Advice

Managing Operations



Professional Road Blockers



Reason:
Responsibilities
are all out of
whack.



Operations is
responsible for **two**
things

System Availability

Efficiency

Operations should

- Set standards
- Troubleshoot
- Enable everyone
- Be the fire department



An aerial photograph of a mountain range. The mountains are covered in green grass and have some rocky patches. A winding river or lake is visible in the valley between the mountains. The sky is filled with large, dark, dramatic clouds, with some light breaking through near the horizon. The overall scene is rugged and expansive.

Push responsibility to the edges

Developers must be **on call**

Systems Administrators should be **escalated** to

Drill



Metrics tie to \$\$

When you say no...

**DON'T JUST
SAY NO, SAY YES
TO SOMETHING
MORE IMPORTANT.**

When you say no...

DON'T JUST

You **should** be saying
“I’ll say yes if you take responsibility”

**TO SOMETHING
MORE IMPORTANT.**

When you say no...

DON'T JUST

You **should** be saying
“I’ll say yes if you take responsibility”

**TO SOMETHING
MORE IMPORTANT.**

Managers, Executives - you have to live this

Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

Chef

Startups

Open Source Businesses &
Licensing

Random Advice



The Cloud

You know it when you see it

<http://www.flickr.com/photos/ancawonka/65927497/sizes/o/>

Private Clouds?

私家菜

Private vegetables

Private Clouds?

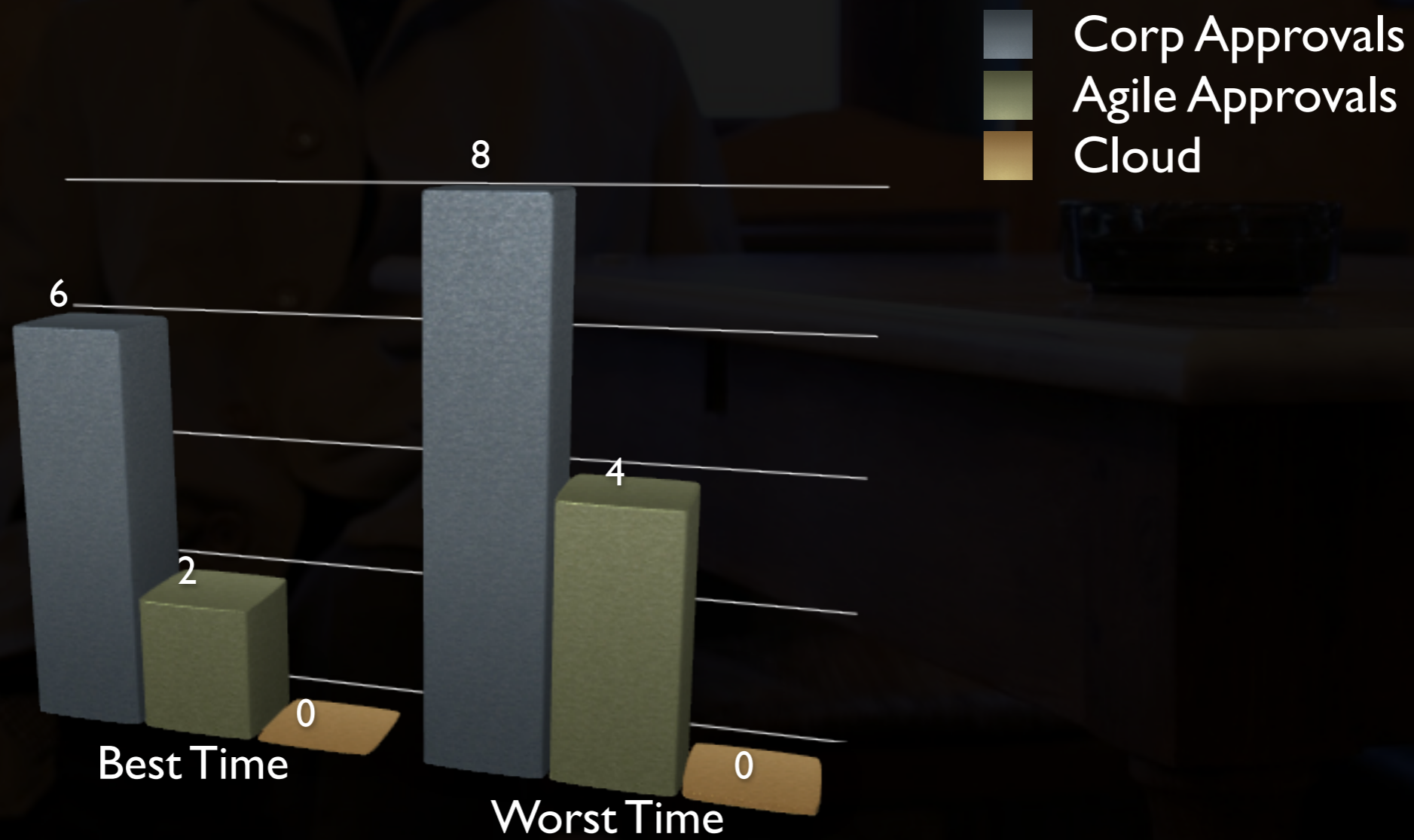
Private Vegetables

YES

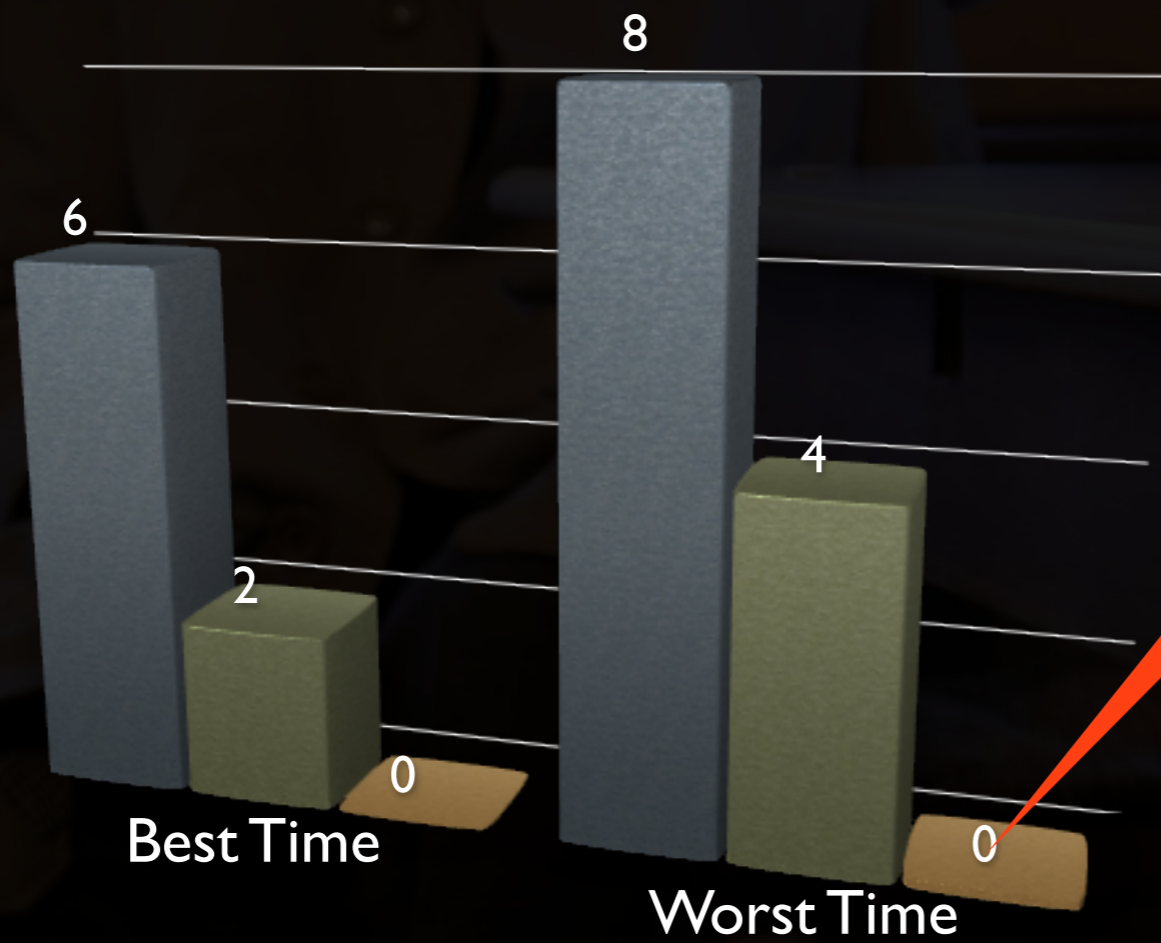


<http://www.flickr.com/photos/murplejane/1033445070/sizes/o/>

Total Bootstrapping Time in Weeks



Total Bootstrapping Time in Weeks



This is the secret of Cloud Computing. Every other virtue stems from here.

Benefits



HONEST

Benefits



HONEST

- Time to provision

Benefits



HONEST

- Time to provision
- Maybe cost

Benefits



HONEST

- Time to provision
- Maybe cost
- Ease of entry

Benefits



HONEST

- **Time** to provision
- Maybe **cost**
- Ease of **entry**
- **Distribution** of responsibility

Suckages

HONEST

Suckages



HONEST

- The cloud breeds bad application architectures

Suckages

HONEST

- The cloud breeds **bad application architectures**
- Inflexible at the network layer



You need an API

STANDARD





STANDARD

- Are **meaningless** without **working code**

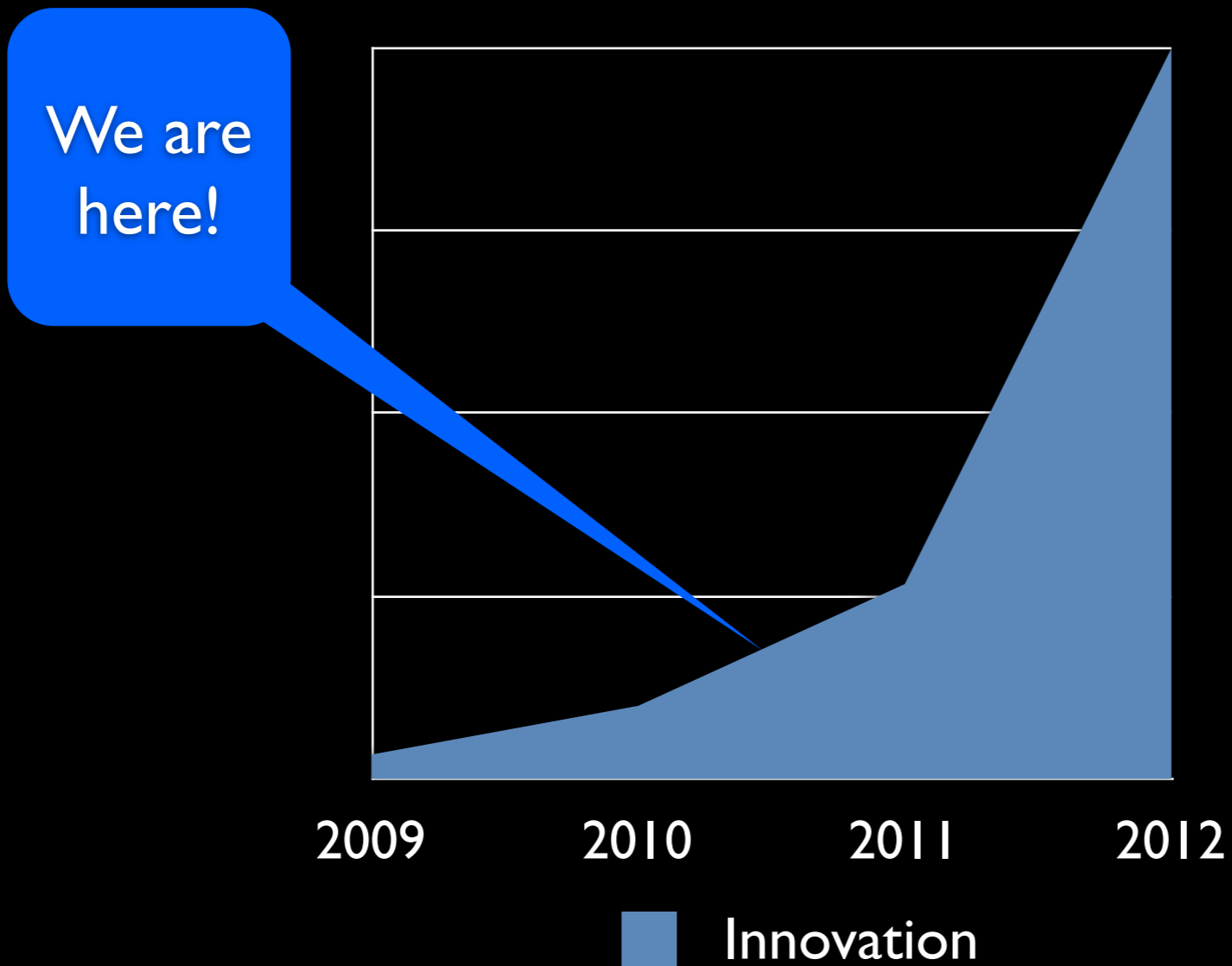
STANDARD

- Are **meaningless** without **working code**
- Open Source **Reference Implementation**

STANDARD

- Are **meaningless** without **working code**
- Open Source **Reference Implementation**
- You don't want a standard yet, honestly

Early in the curve



So get to work!

Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

Chef

Startups

Open Source Businesses &
Licensing

Random Advice



Cloud Bursting



No Photography

These animals are highly sensitive.

You probably can't

No Photography

These animals are highly sensitive.

You probably can't

No Photography

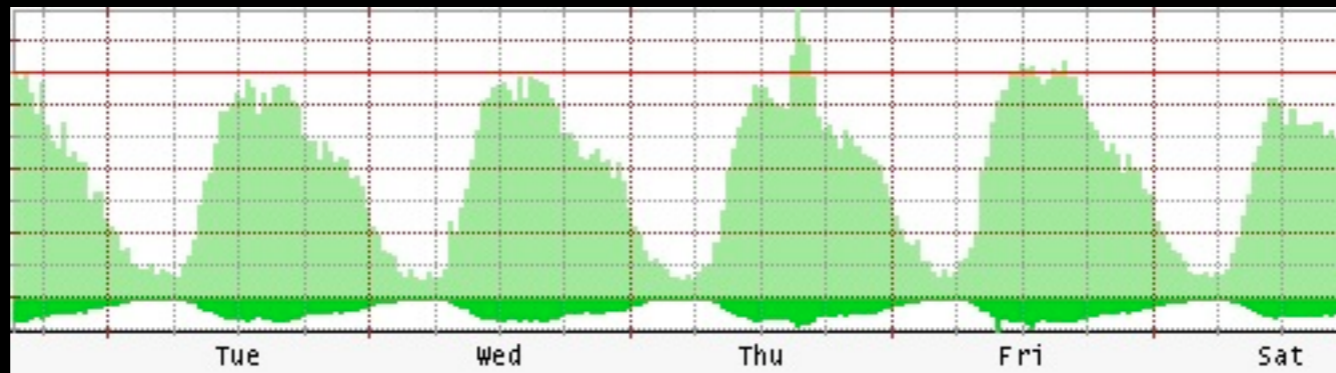
These animals are highly sensitive.

**At least, not like you
think.**



A word about Load...

Typical Peak Load

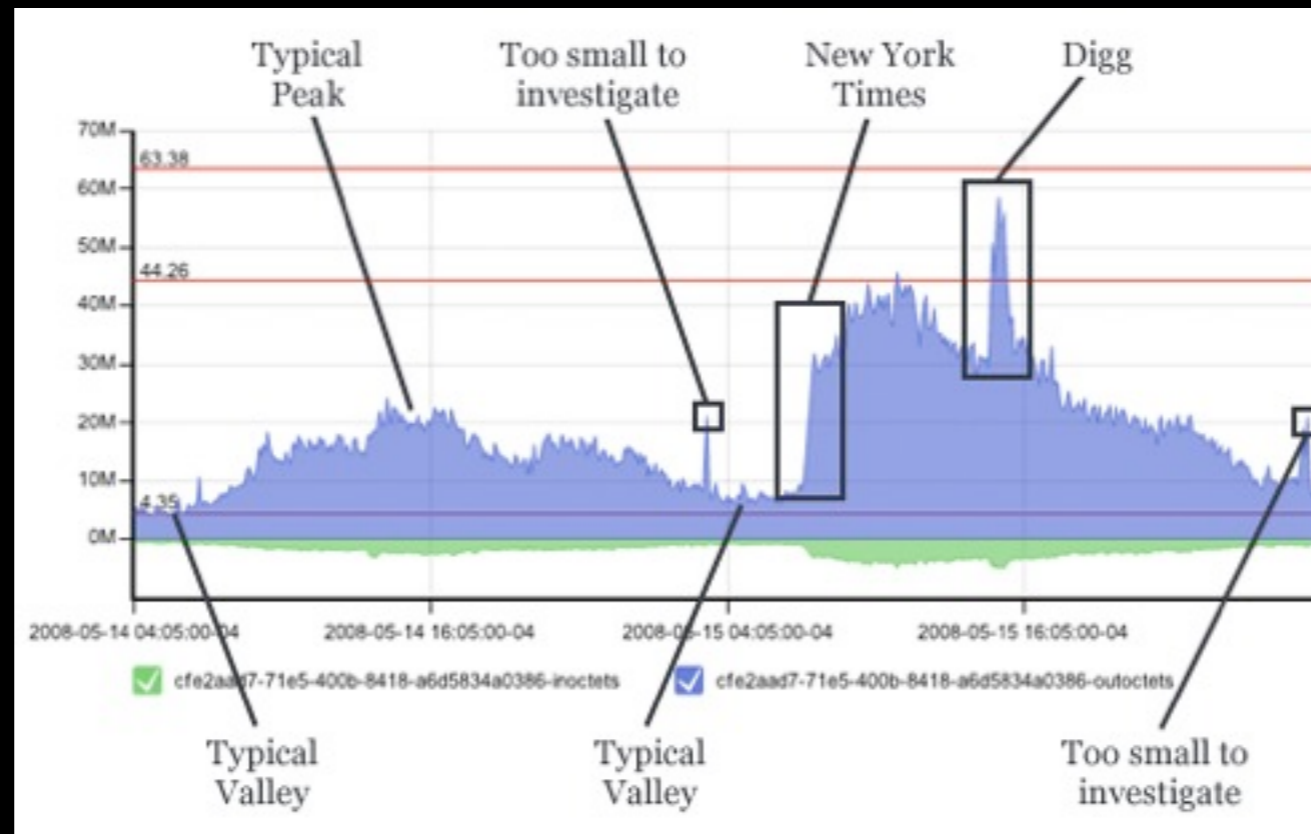


1. Bring on capacity as traffic ramps up
2. Take down capacity as it ramps down
3. 10-15 Minutes on either side, fully unattended

Graphs in this portion of the presentation taken from Theo Schlossnagle
<http://omniti.com/seeds/dissecting-todays-internet-traffic-spikes>

Atypical Load

No way
around
Capacity
Planning



However,
you are
still better
off!

1. Hope you know it is coming.
2. Increase capacity in advance.
3. Take down capacity as it ramps down.

Graphs in this portion of the presentation taken from Theo Schlossnagle
<http://omniti.com/seeds/dissecting-todays-internet-traffic-spikes>

Capacity Planning is king.



<http://www.flickr.com/photos/allspaw/2095439645/sizes//>

Have a queue?

Have a queue?

Does it scale linearly with more resources?

Does it



sources?

Congratulations - you can auto-scale!

Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

Chef

Startups

Open Source Businesses &
Licensing

Random Advice



http://www.brooklynstreetart.com/theBlog/wp-content/uploads/2008/12/swedish_chef_bork-sleeper-cell.jpg

At a High Level...



<http://www.flickr.com/photos/asten/2159525309/sizes/l/>

At a High Level...

- A **library** for configuration management

At a High Level...

- A **library** for configuration management
- A **configuration management** system

At a High Level...

- A **library** for configuration management
- A **configuration management** system
- A **systems integration** platform

At a High Level...

- A **library** for configuration management
- A **configuration management** system
- A **systems integration** platform
- An **API** for your entire Infrastructure



<http://www.flickr.com/photos/gi/518613153/sizes/o/>

The world moves pretty fast

- Primitives



<http://www.flickr.com/photos/gi/518613153/sizes/o/>

The world moves pretty fast

- Primitives
- You need a 3rd generation language



The world moves pretty fast

- **Primitives**
- You need a 3rd generation language
- You're already a programmer



The world moves pretty fast

- **Primitives**
- You need a 3rd generation language
- You're already a programmer
- You've just been lied to



Chef Client runs on your systems

They talk to **Chef** **Servers**

We call each system you
configure a **Node**

Nodes have Roles

Chef manages Resources on Nodes

```
20 package "sudo" do
21   action :upgrade ← Package Resource
22 end
23
24 template "/etc/sudoers" do
25   source "sudoers.erb"
26   mode 0440 ← Template Resource
27   owner "root"
28   group "root"
29   variables(
30     :sudoers_groups => node[:authorization][:sudo][:groups],
31     :sudoers_users => node[:authorization][:sudo][:users]
32   )
33 end
```

Package Resource

Template Resource


Resources take *action*
through **Providers**

Recipes are lists of **Resources**

Order Matters

Cookbooks are
packages for Recipes

Cookbooks are shareable!

Search  [Advanced Search](#)

Search results for 'category:"Databases"' Cookbooks

mysql 578 downloads 14 followers
★★★★★ 1 rating Category: Databases
Platforms: debian, ubuntu
Installs and configures mysql for client or server

database 19 downloads 0 followers
☆☆☆☆☆ 0 ratings Category: Databases
Sets up the database master or slave

Data bags store
arbitrary data

A user

```
$ knife data bag show users adam
```

```
1 {
2   "groups": "sysadmin",
3   "comment": "Adam Jacob",
4   "ssh_keys": "SNIPPED",
5   "files": {
6     ".zshrc": {
7       "mode": "0644",
8       "source": "dot-zshrc"
9     },
10    ".vimrc": {
11      "mode": "0644",
12      "source": "dot-vimrc"
13    }
14  },
15  "id": "adam",
16  "uid": 7000,
17  "shell": "/usr/bin/zsh",
18  "openid": "http://adamhjk.myopenid.com/"
19 }
```

**Data bags make recipes
awesome-r (that's
totally a word)**

Dat

pes

```
20 sysadmins = search(:users, 'groups:sysadmin')
21 sysadmins.each do |u|
22   home_dir = "/home/#{u['id']}"
23
24   user u['id'] do
25     uid u['uid']
26     shell u['shell']
27     comment u['comment']
28     supports :manage_home => true
29     home home_dir
30   end
31
32   directory "#{home_dir}/.ssh" do
33     owner u['id']
34     group u['id']
35     mode "0700"
36   end
37
38   template "#{home_dir}/.ssh/authorized_keys" do
39     source "authorized_keys.erb"
40     owner u['uid']
41     group u['id']
42     mode "0600"
43     variables :ssh_keys => u['ssh_keys']
44   end
45 end
```

Chef configures Nodes
according to their Roles
which apply Recipes
from Cookbooks.

Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

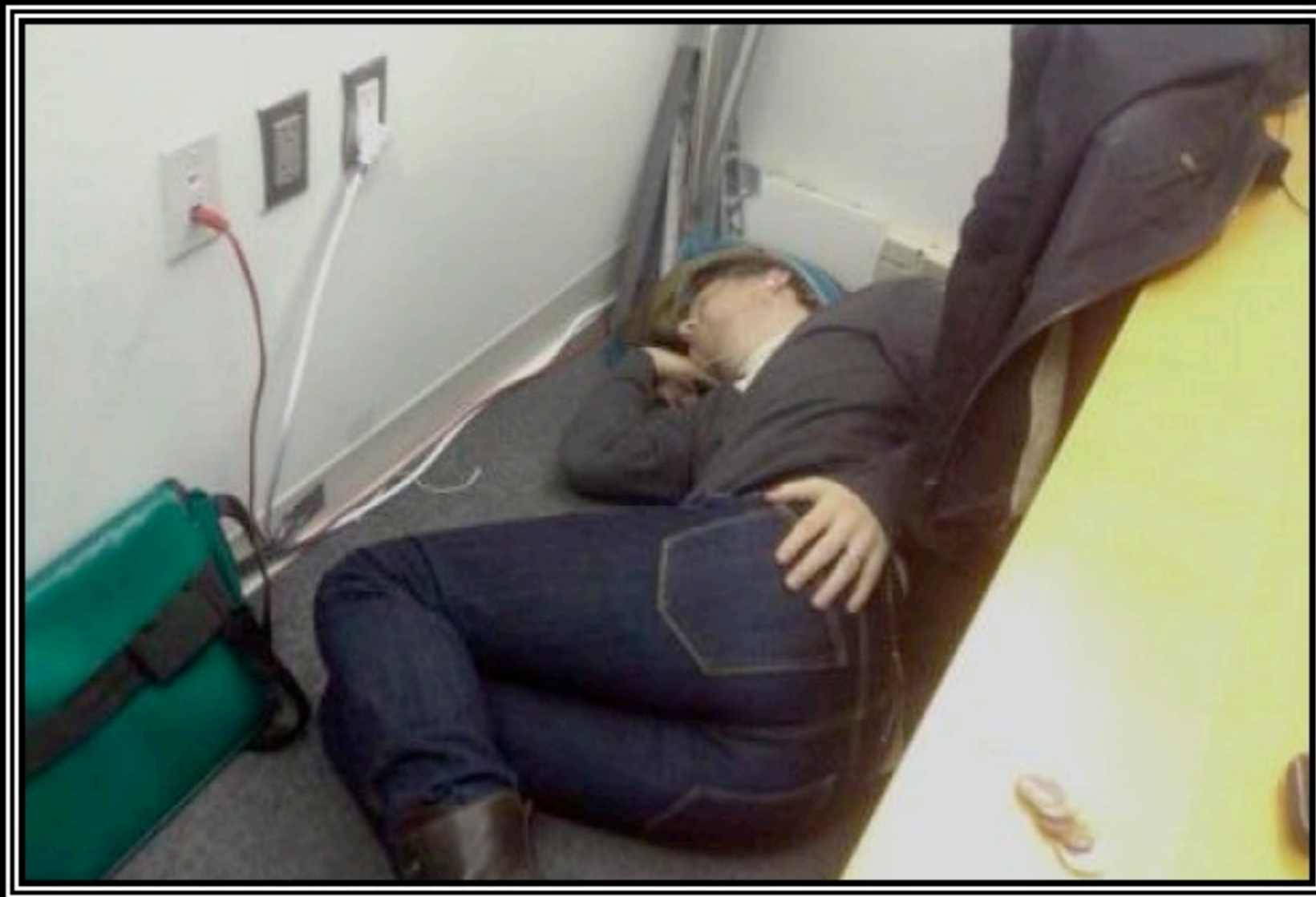
Cloud Bursting

Chef

Startups

Open Source Businesses &
Licensing

Random Advice



STARTUP CTO

I will not leave the office until we go live.

Care about
everything...

Care about everything...

- **More** than they should

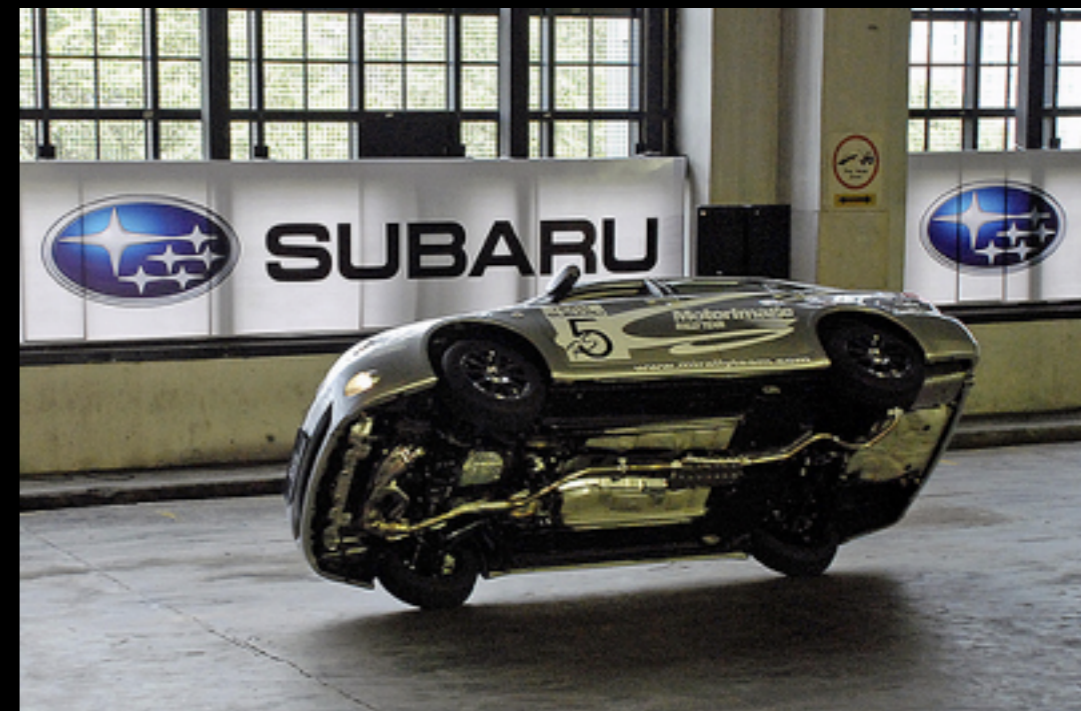
Care about everything...

- **More** than they should
- When you have **nothing**, the whole world is **uncertain**

Care about everything...

- **More** than they should
- When you have **nothing**, the whole world is **uncertain**
- Uncertainty breeds **fear**

Especially performance



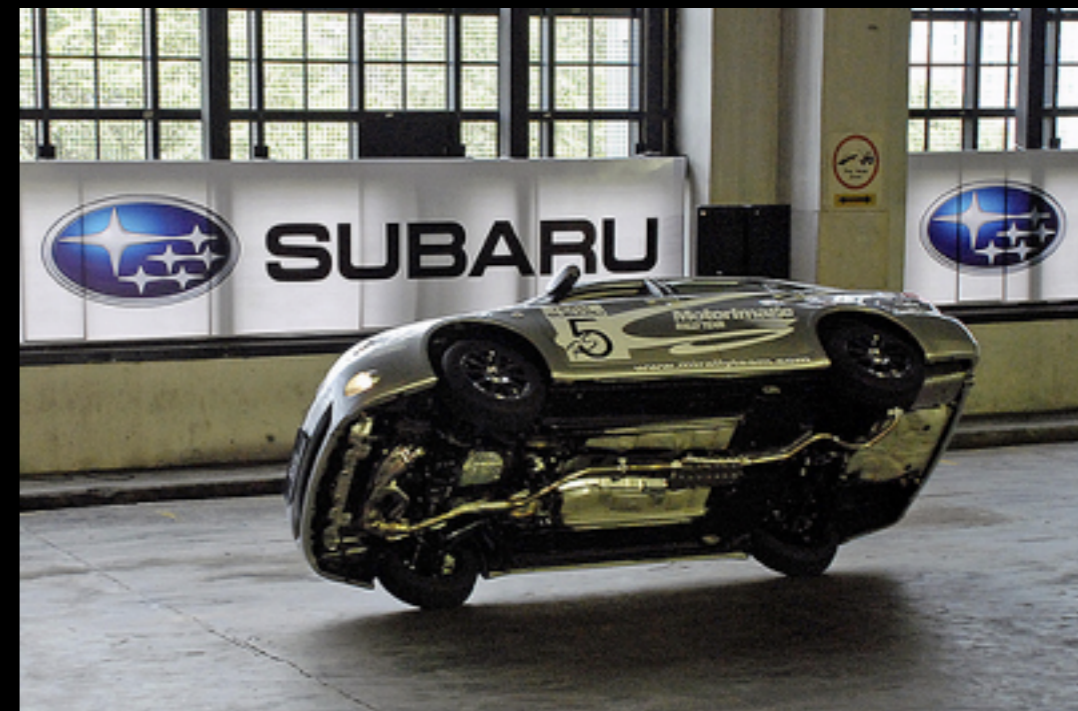
Especially performance

- Have a **plan** for **scaling**



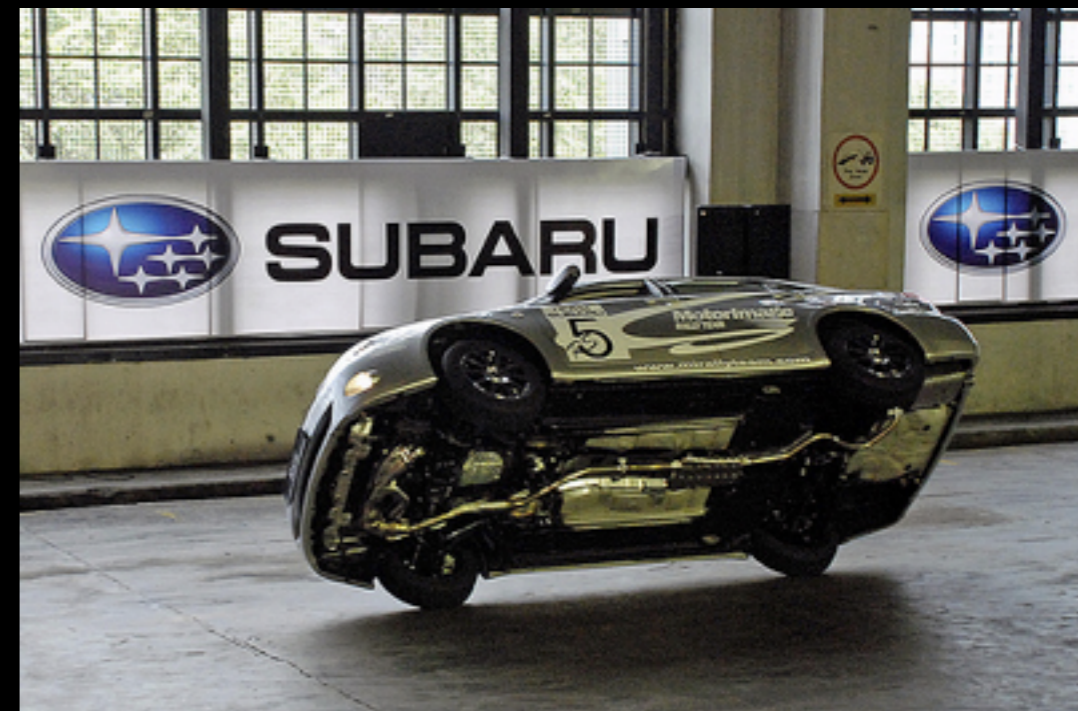
Especially performance

- Have a **plan** for **scaling**
- Be **‘good enough’**



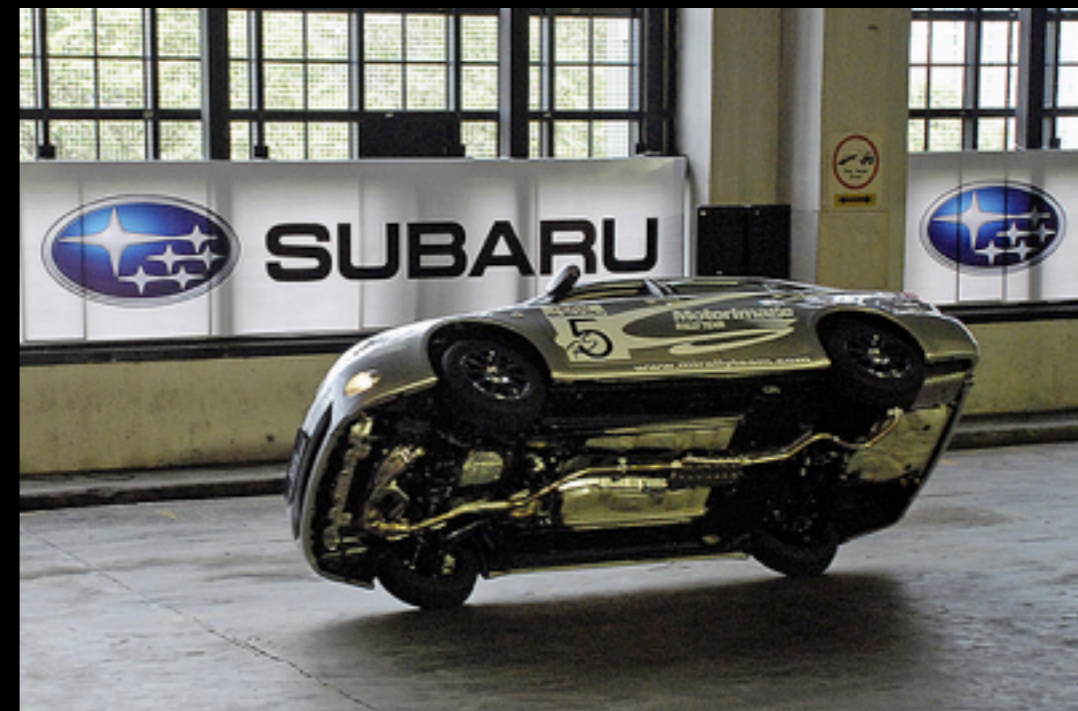
Especially performance

- Have a **plan** for **scaling**
- Be **'good enough'**
- Get it **working**, then **tune** it



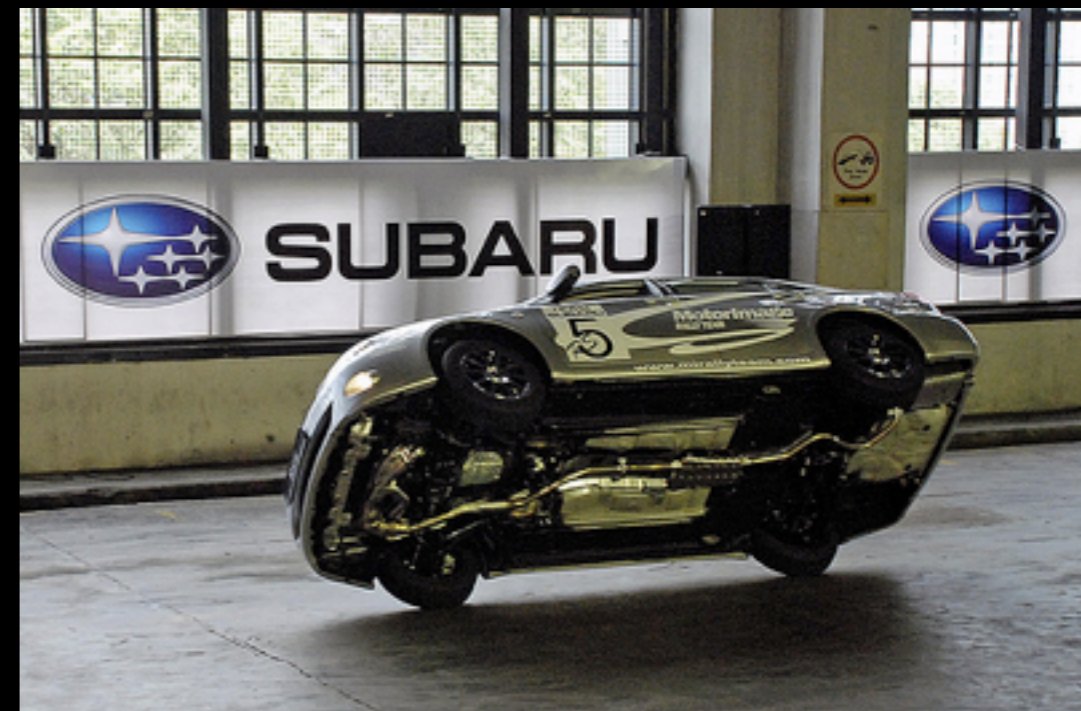
Especially performance

- Have a **plan** for **scaling**
- Be **'good enough'**
- Get it **working**, then **tune** it
- Ship **early**, ship **ugly**, ship **often**



Especially performance

- Have a **plan** for **scaling**
- Be **'good enough'**
- Get it **working**, then **tune** it
- Ship **early**, ship **ugly**, ship **often**
- **YAGNI**





SPECIAL SNOWFLAKE

Yes, you're special, just like all of the other snowflakes in the snowstorm
who will be pushed aside by the snow plow of progress and turned into slush.

DIY.DESPAIR.COM

You are 10% Unique



SPECIAL SNOWFLAKE

Yes, you're special, just like all of the other snowflakes in the snowstorm who will be pushed aside by the snow plow of progress and turned into slush.

DIY.DESPAIR.COM

You are 10% Unique



SPECIAL SNOWFLAKE

Yes, you're special, just like all of the other snowflakes in the snowstorm who will be pushed aside by the snow plow of progress and turned into slush.

DIY.DESPAIR.COM

And it's probably
the things you did wrong

Automate early

Automate early

- It only gets more expensive

Automate early

- It only gets more expensive
- And takes longer

**Spend Money
to gain**

focus n. (pl.

centre of in

Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

Chef

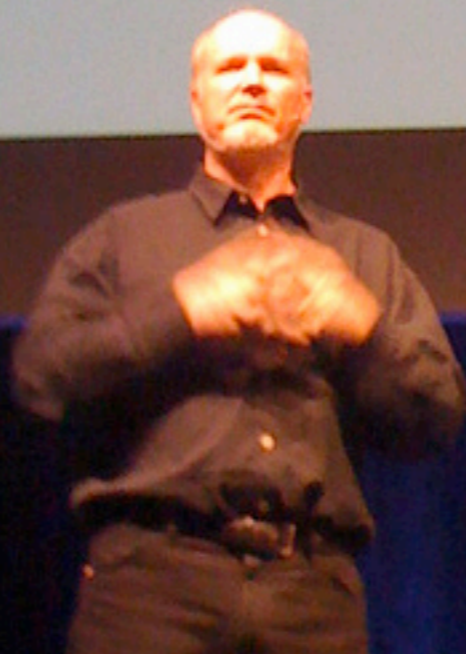
Startups

Open Source Businesses &
Licensing

Random Advice

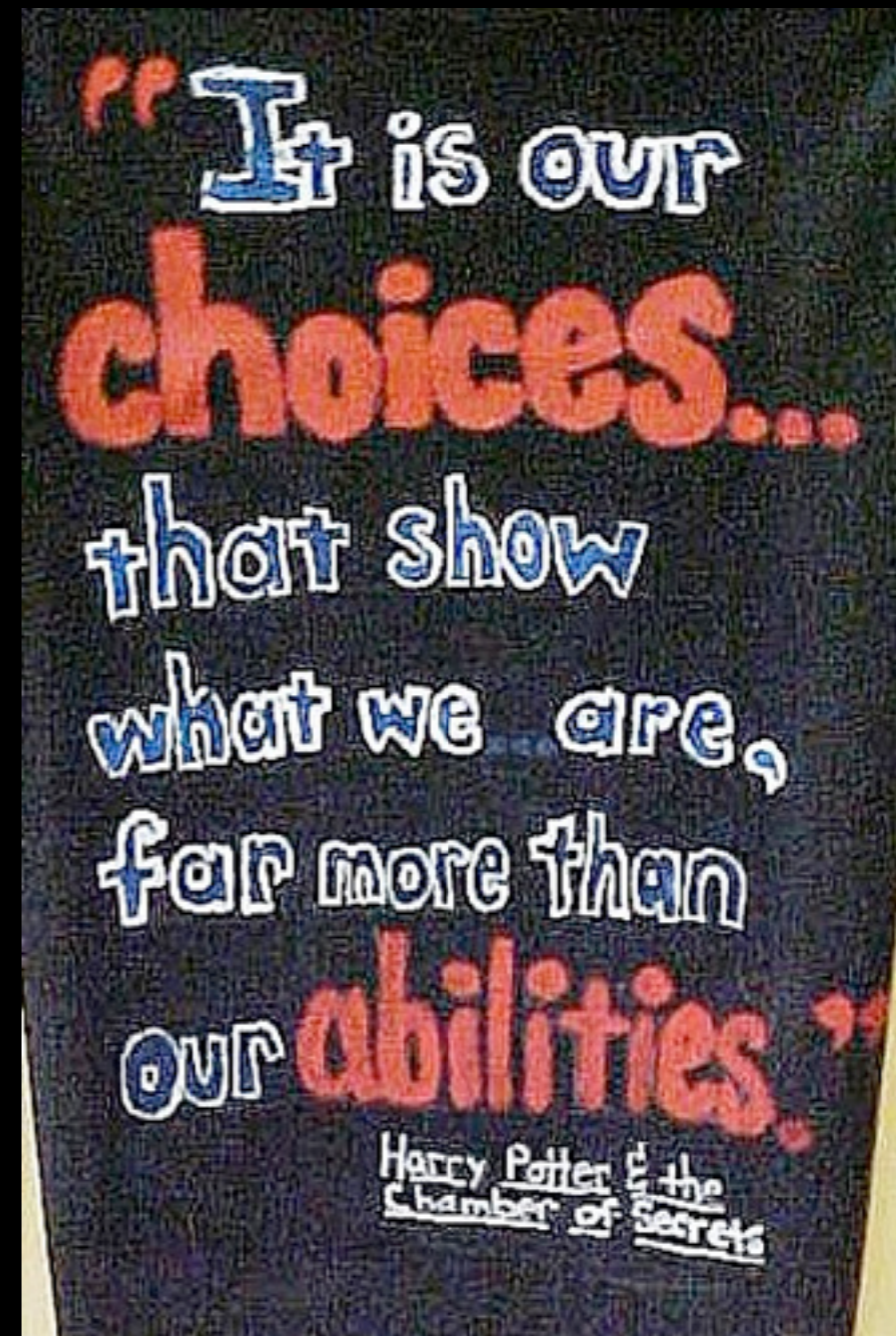
No software
licenses.

Open Source Licensing



Is a business choice

- Adoption vs Business security
- When you open source, you level the playing field



Consider...

- Copyright License
- Copyright Assignment
- Patent Protection
- Virality



GPL

- **Virality** used to create a **walled garden**
- “Open Core”
- Dual Licensing
- **AGPL is a pox**



New BSD/MIT License



- Very open
- No copyright or patent clauses

Apache

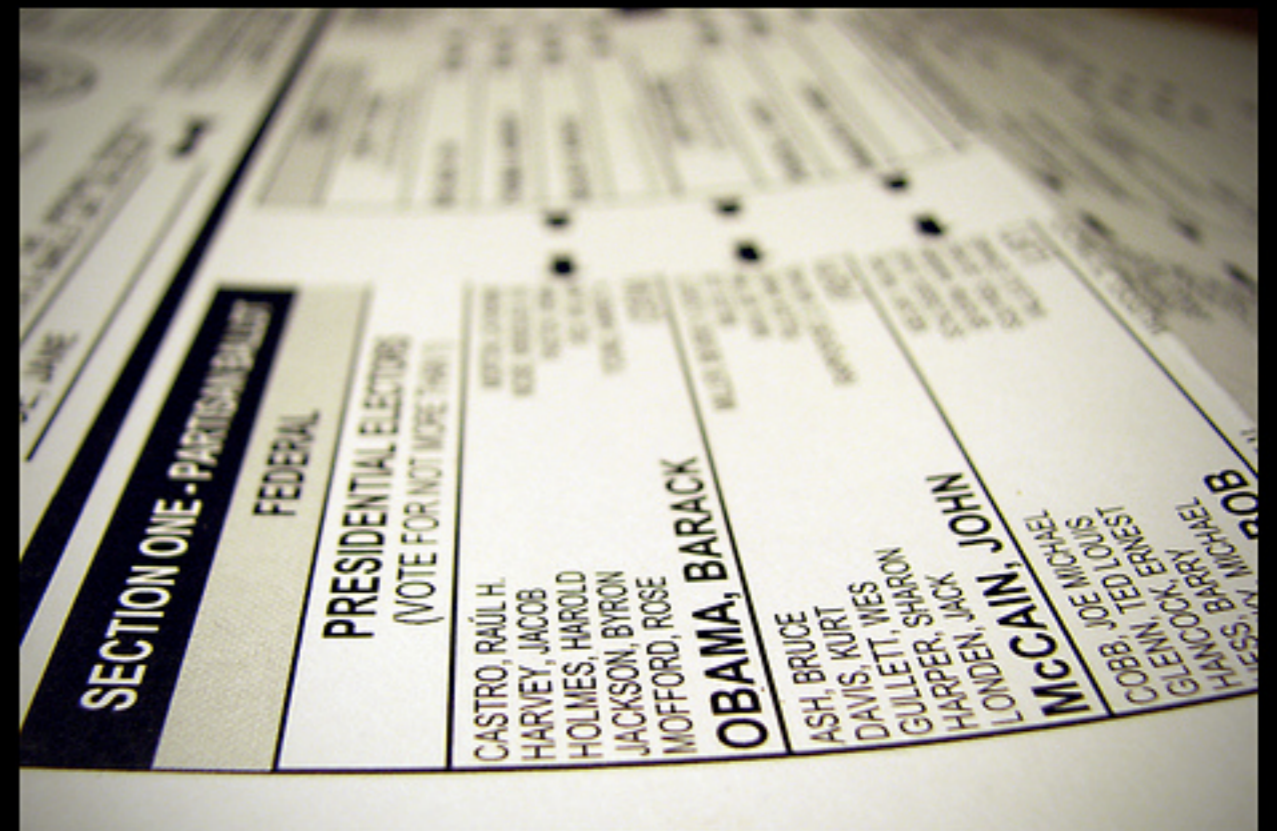
- Open like the BSD License
- Copyright License
- Patent Protection

Apache

- We chose Apache
- It was the best for our **business**
- It was the best for our **community**
- Equal **partners**

You must...

- Make an **informed decision** around **copyright** ownership
- Collect a **CLA/CCLA**
- Use Echesign



As a favor to me...



- Please do **not complain** when you don't get paid for your **open source** software.

Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

Chef

Startups

Open Source Businesses &
Licensing

Random Advice

Go to Italy.
Be a cobbler.

Make your choice...

DevOps

Infrastructure as Code

Service Oriented
Architecture

Configuration Management

How Websites Fail

Managing Operations

The Cloud

Cloud Bursting

Chef

Startups

Open Source Businesses &
Licensing

Random Advice