Cloud... so much more than a tools fest

Patrick Debois

http://localizationlocalisation.files.wordpress.com/2010/08/rolling-out-old-tools.jpg

Vagrant &
Veewee

http://jedi.be/blog


@patrickdebois

CUTTER CONSORTIUM
ACCESS TO THE EXPERTS
www.cutter.com

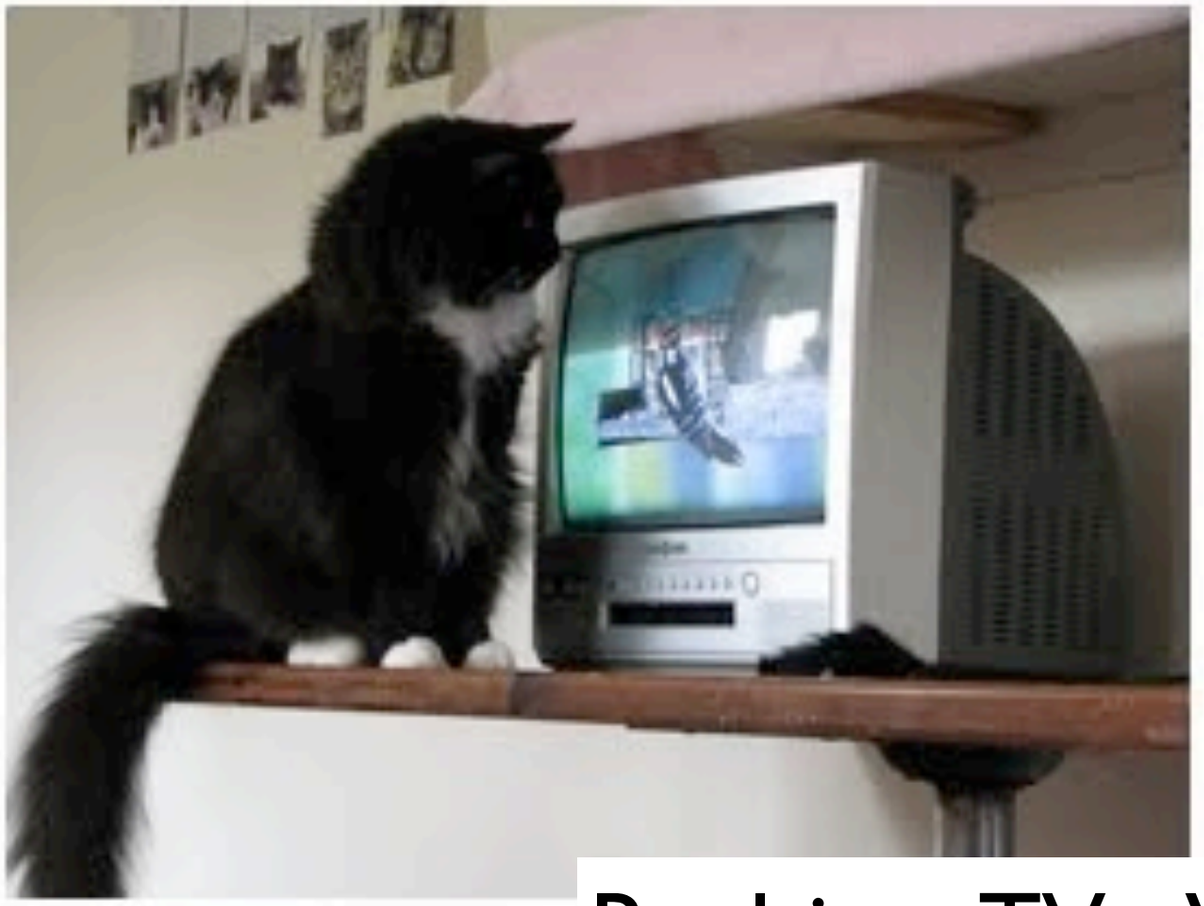
Atlassian

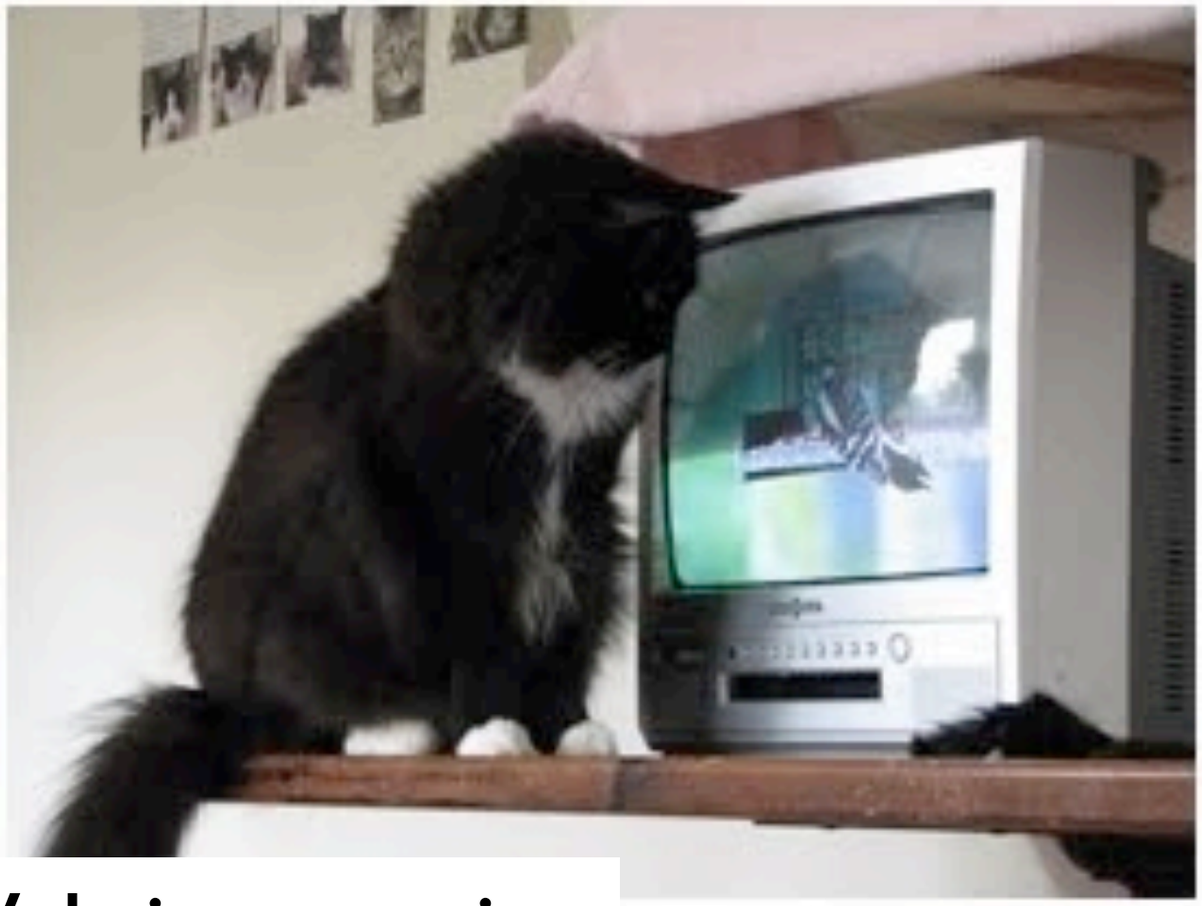
Freelancer

Context: a traditional enterprise

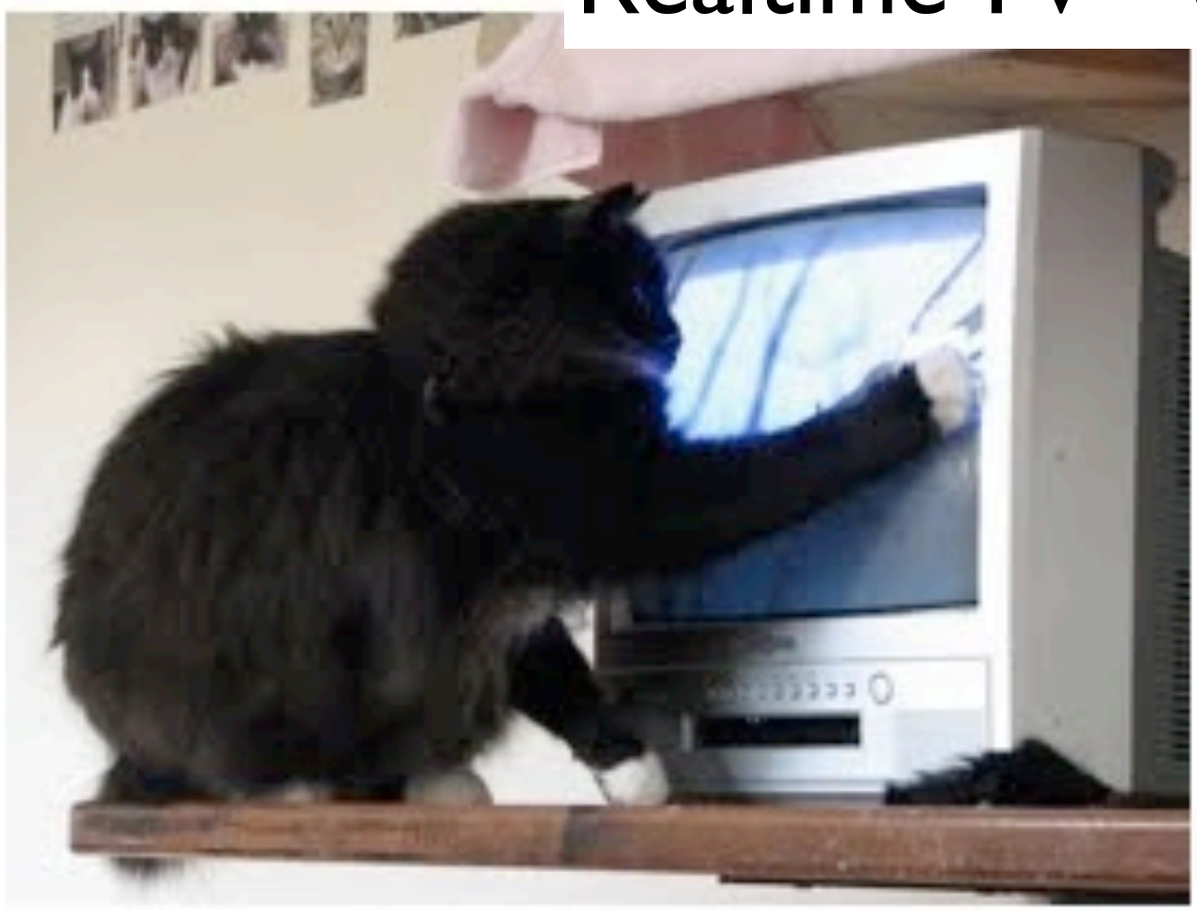
With a
developer group
on a mission
to ***innovate***

http://1.bp.blogspot.com/-dJydLIEZCQA/TtO26OpjywI/AAAAAAAADBg/wo3Vpl-eesc/s800/Cat%2BArmy.jpg





Realtime TV - Web interaction



Second Screen Applications

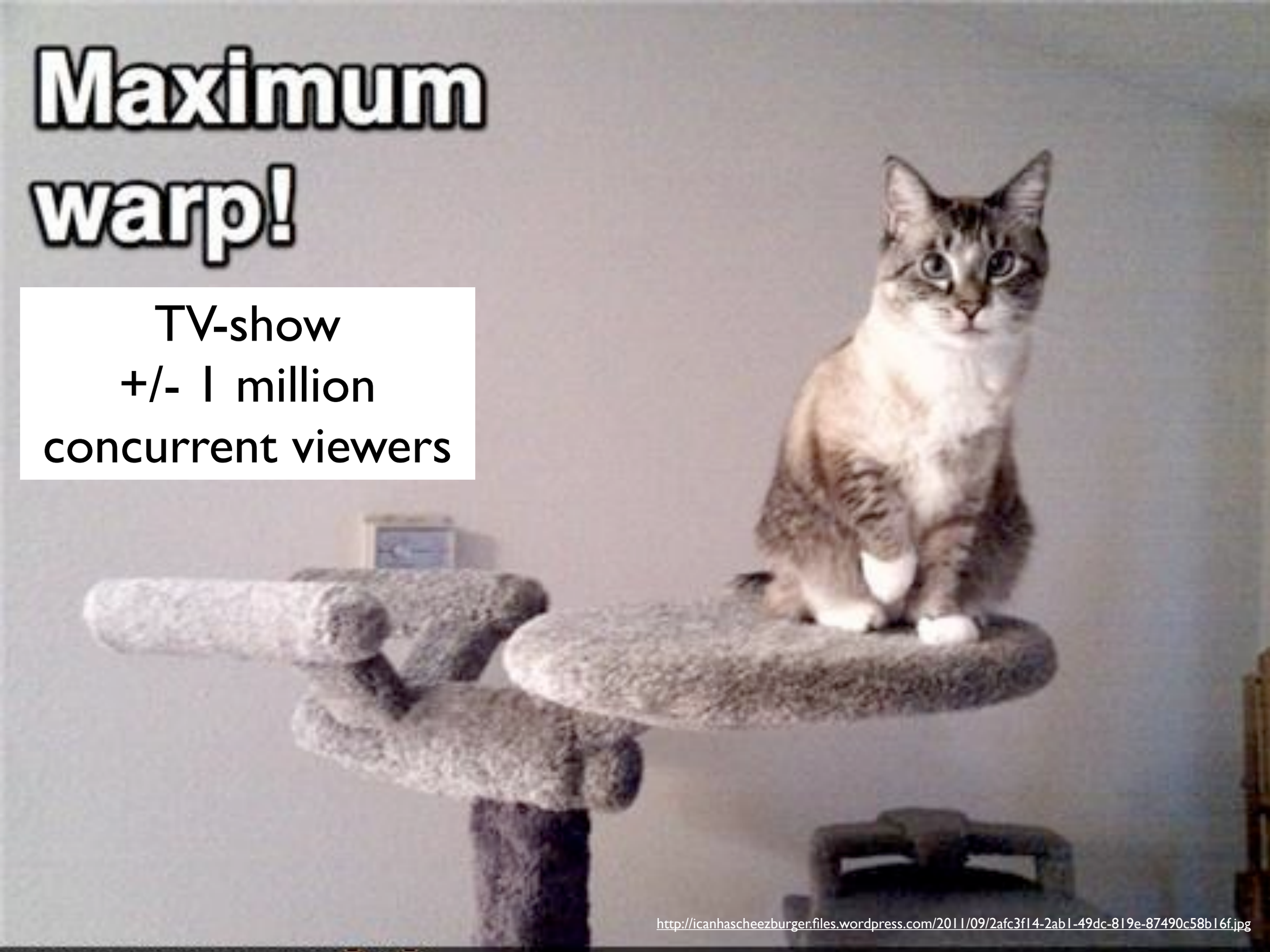
ENTERPRISE CAT

IS READY FOR PROVISIONING

http://www.twylah.com/billycoover/topics/xamarin

Maximum warp!

TV-show
+/- 1 million
concurrent viewers



http://icanhascheezburger.files.wordpress.com/2011/09/2afc3f14-2ab1-49dc-819e-87490c58b16f.jpg

ENTERPRISE CAT

IS RI FOR

PRO ING

THIS IS NOT A SIGN

http://www.twylah.com/billycoover/topics/xamarin

Cloud Cat

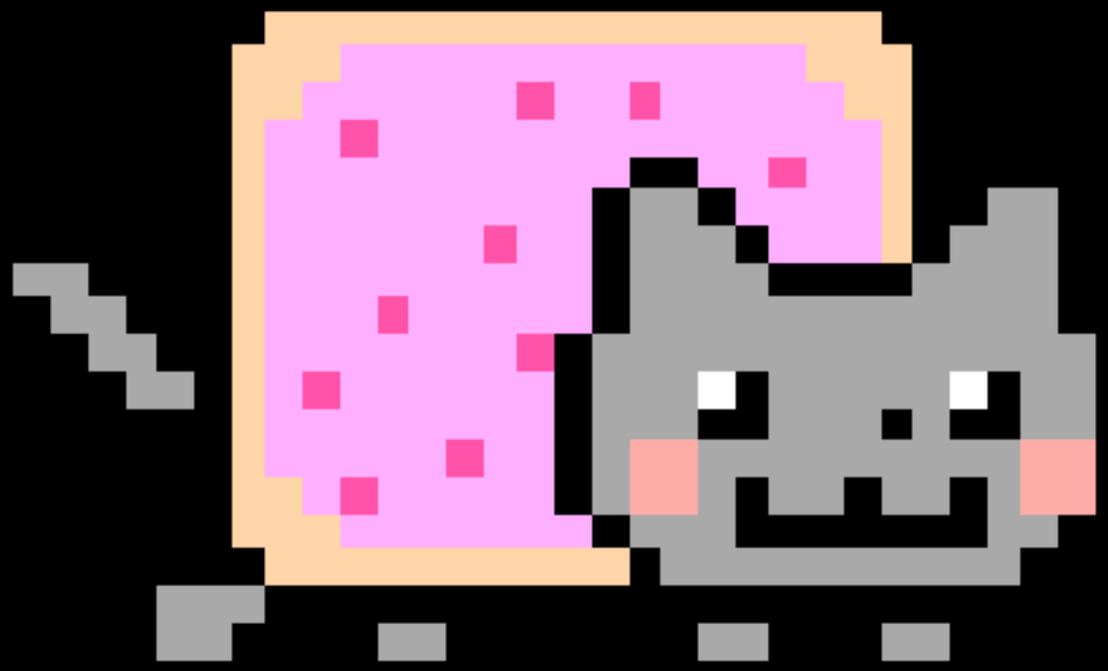
Doin' his cloud thing

Google App Engine


Abstraction is AWESOME

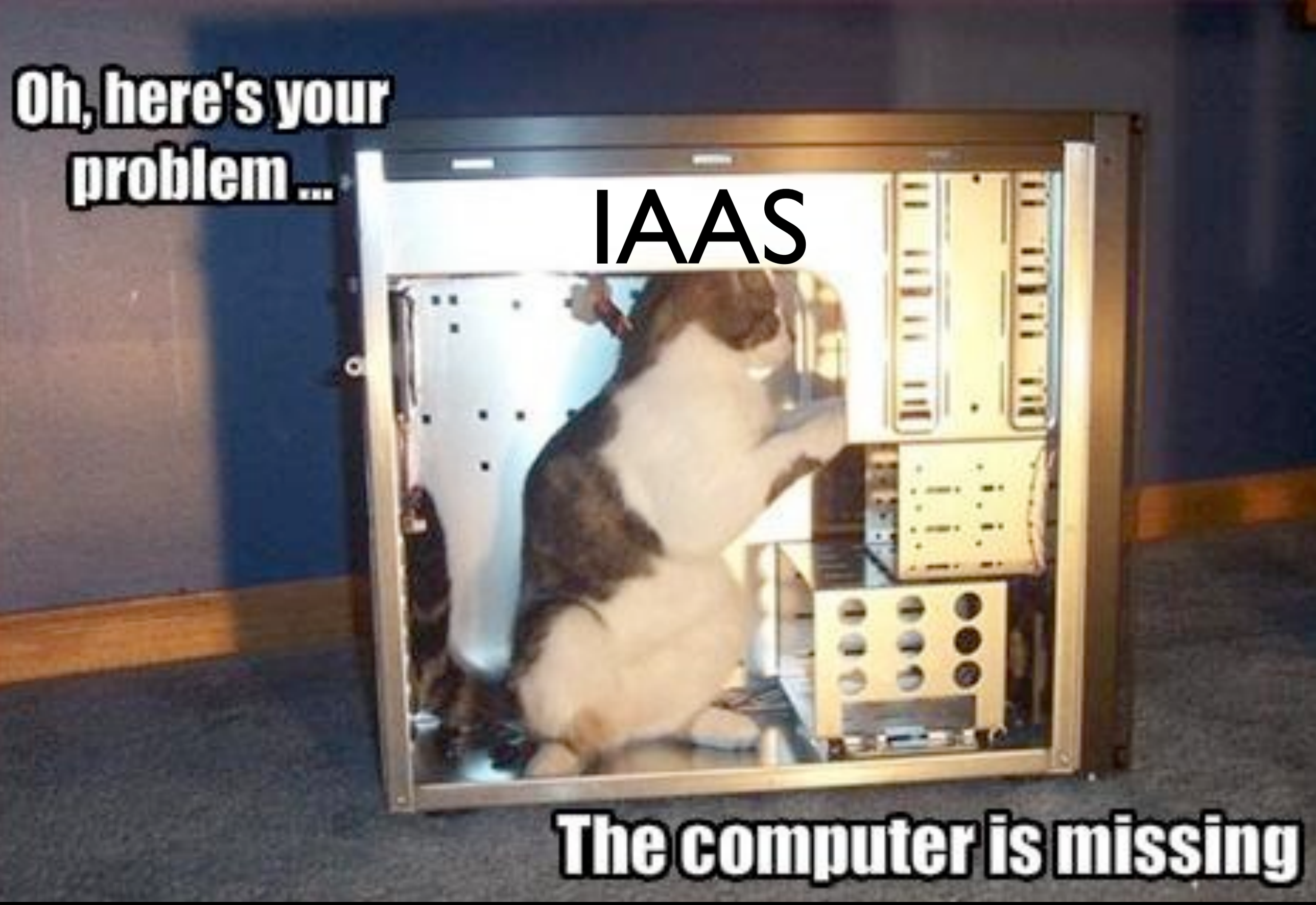
If it fails
hard to debug/
understand

Too generic



Java Rails Esper Redis Hadoop ETL tools
Python Nodejs
Mongodb Mysql

Need more control



http://3.bp.blogspot.com/-TgmC6DkVNiU/TzCTP_BxWqI/AAAAAAAAAb8/797iiSLQ3FY/s1600/funny-pictures-cat-fixes-your-computer.jpg

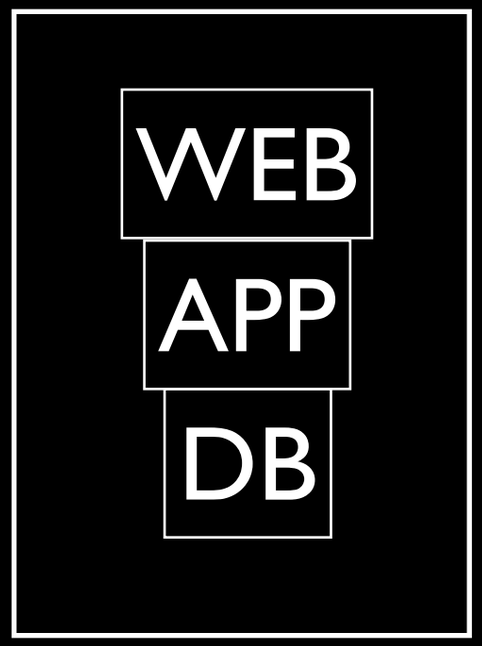
I never did any cloud before. Only enterprise stuff

http://meowcheese.com/files/lolpics/2010/05/dog-not-cat.jpg

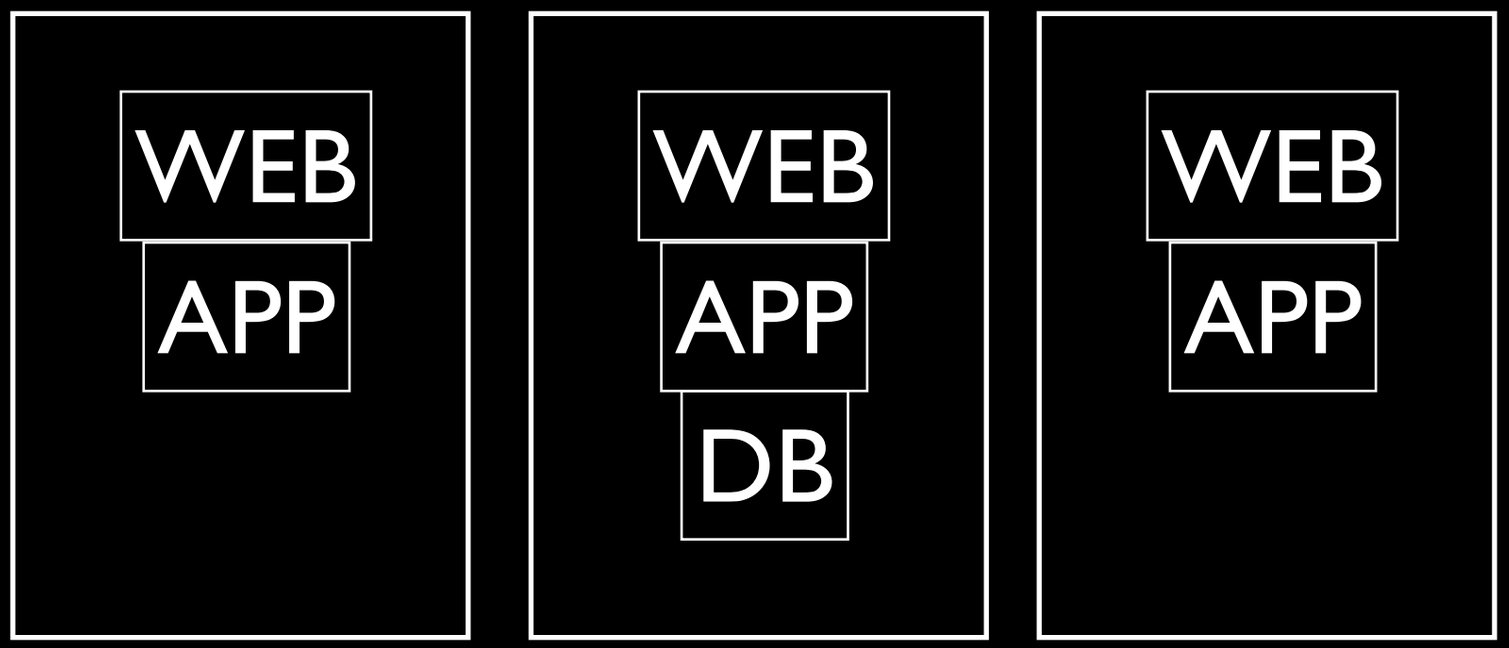
What I learned from managing Production Servers

http://www.collthings.co.uk/2008/06/10-very-rare-clouds.html

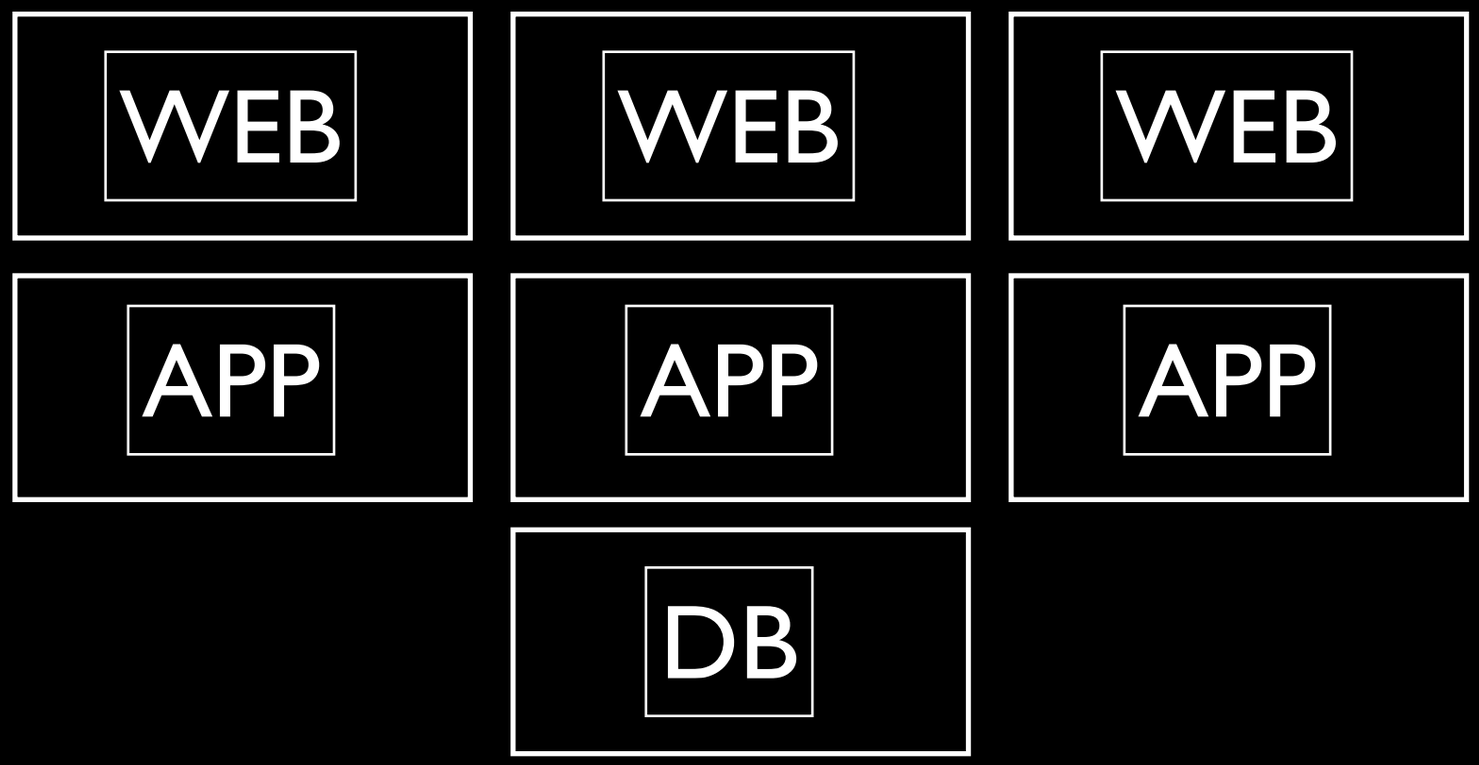
A Single Server



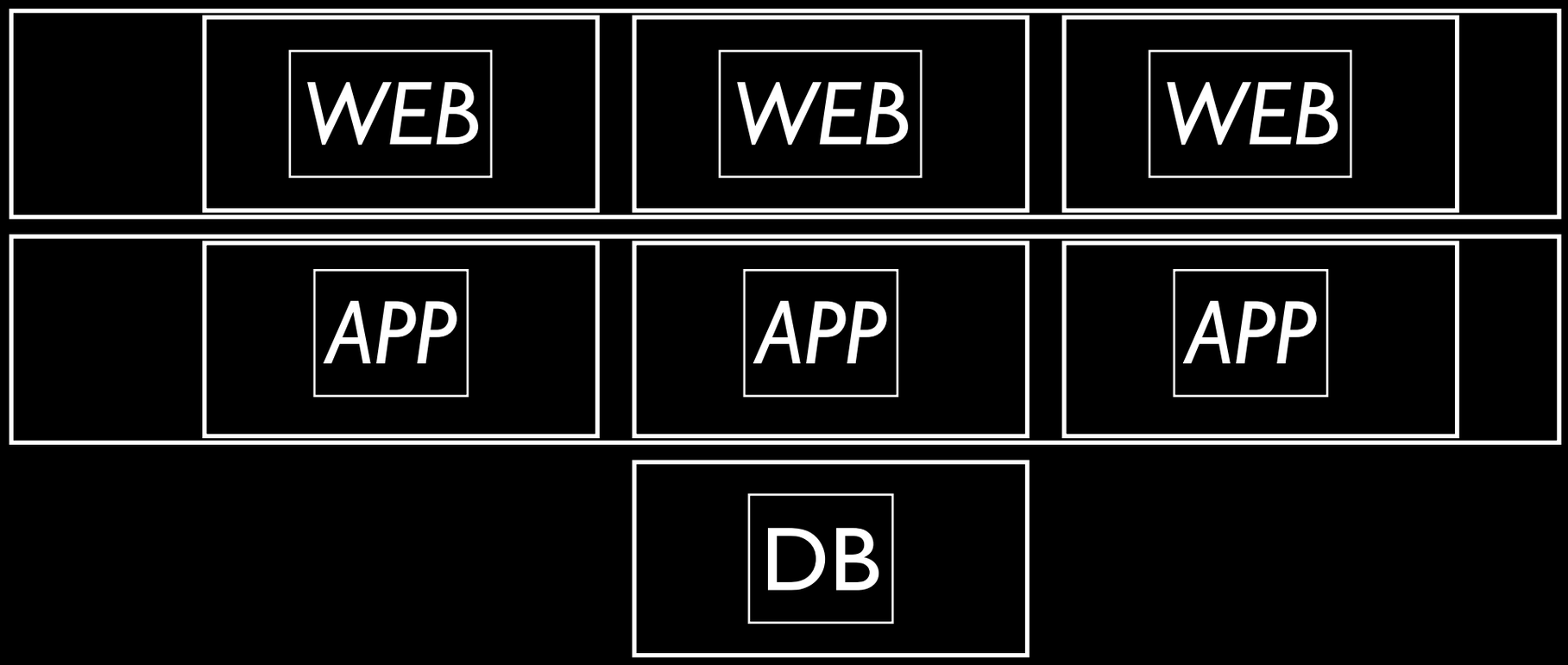
Starts Growing



Generic Servers become Specific Servers

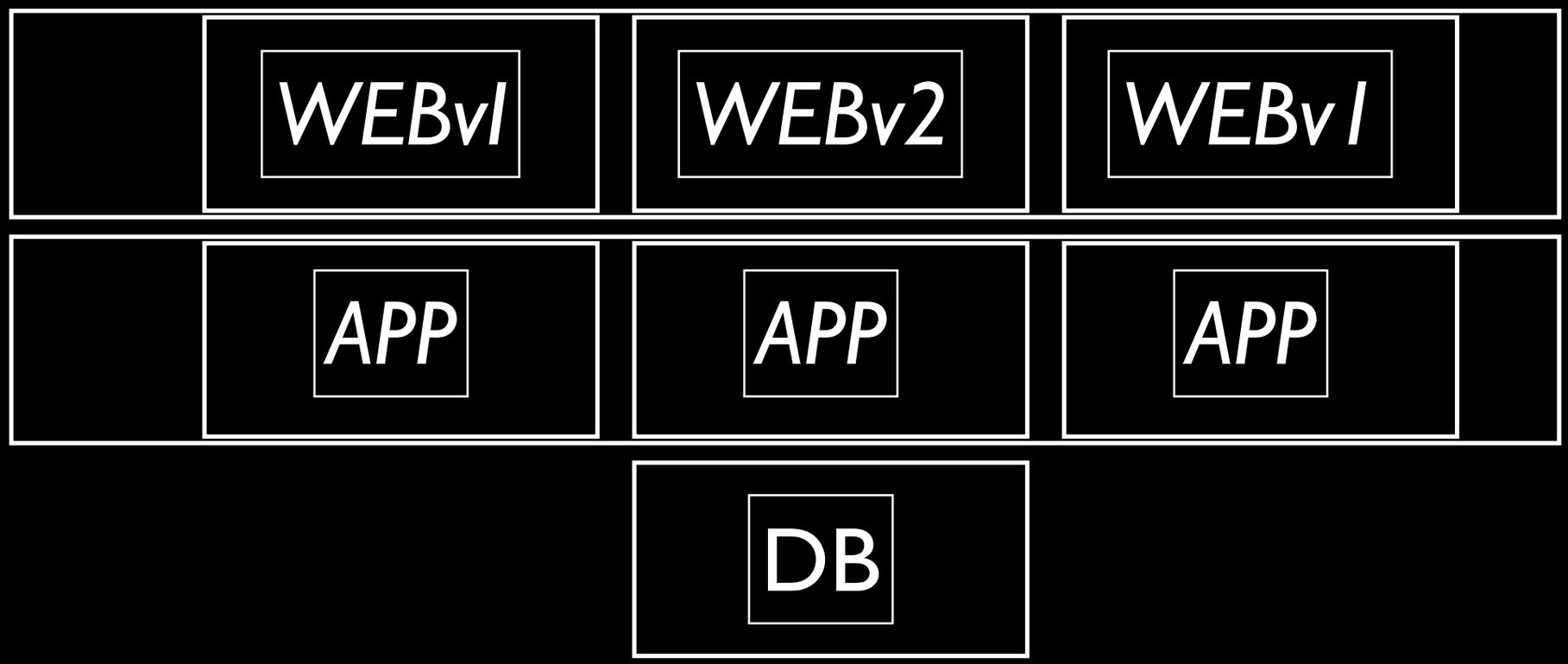


Physical becomes Virtual



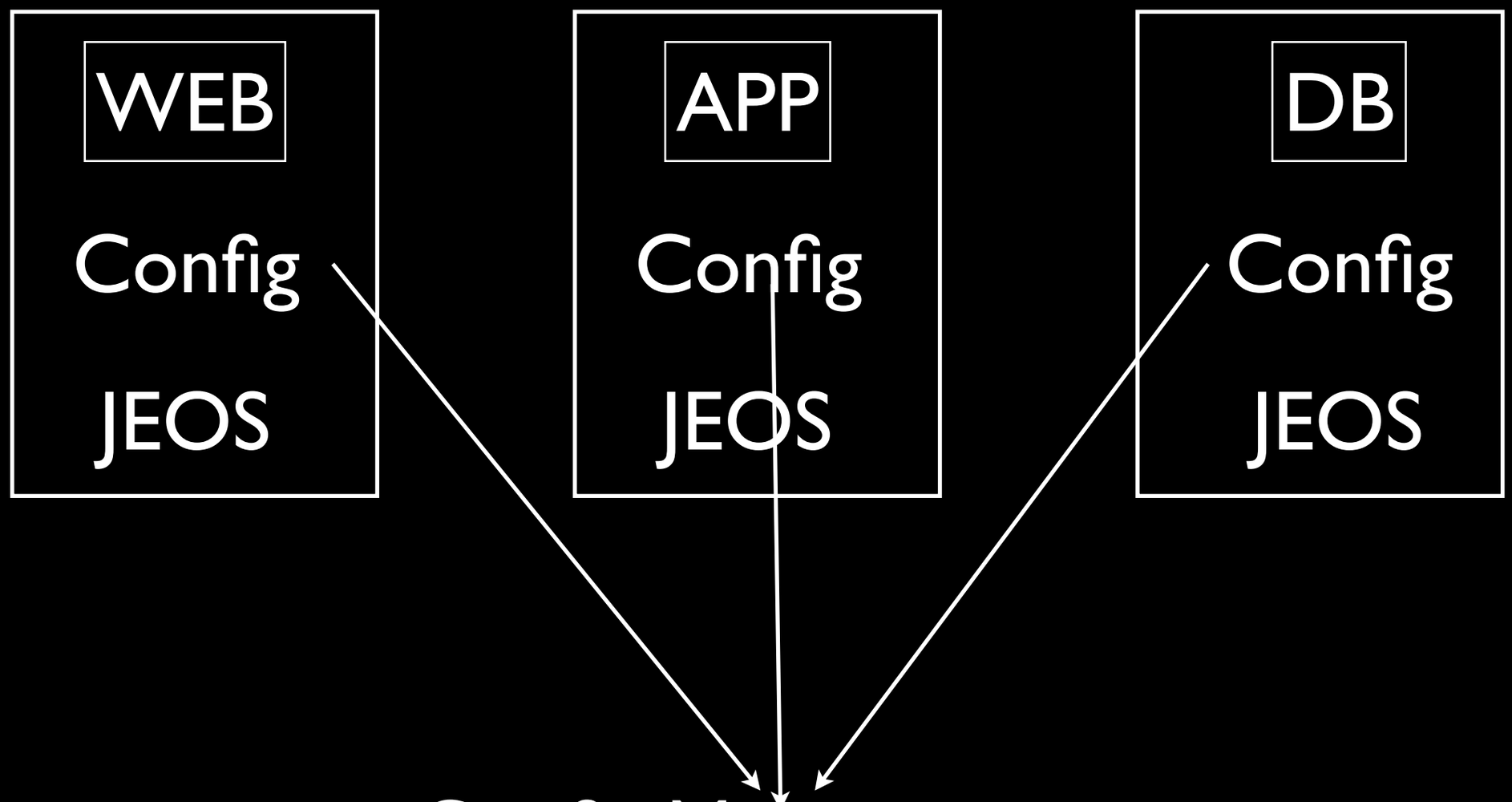
xen/vsphere/kvm/...

We learned cloning isn't working



We introduce config management

Infrastructure as code



Config Management
Code Repository

Cfengine/Puppet/Chef

What I learned from managing Test Servers

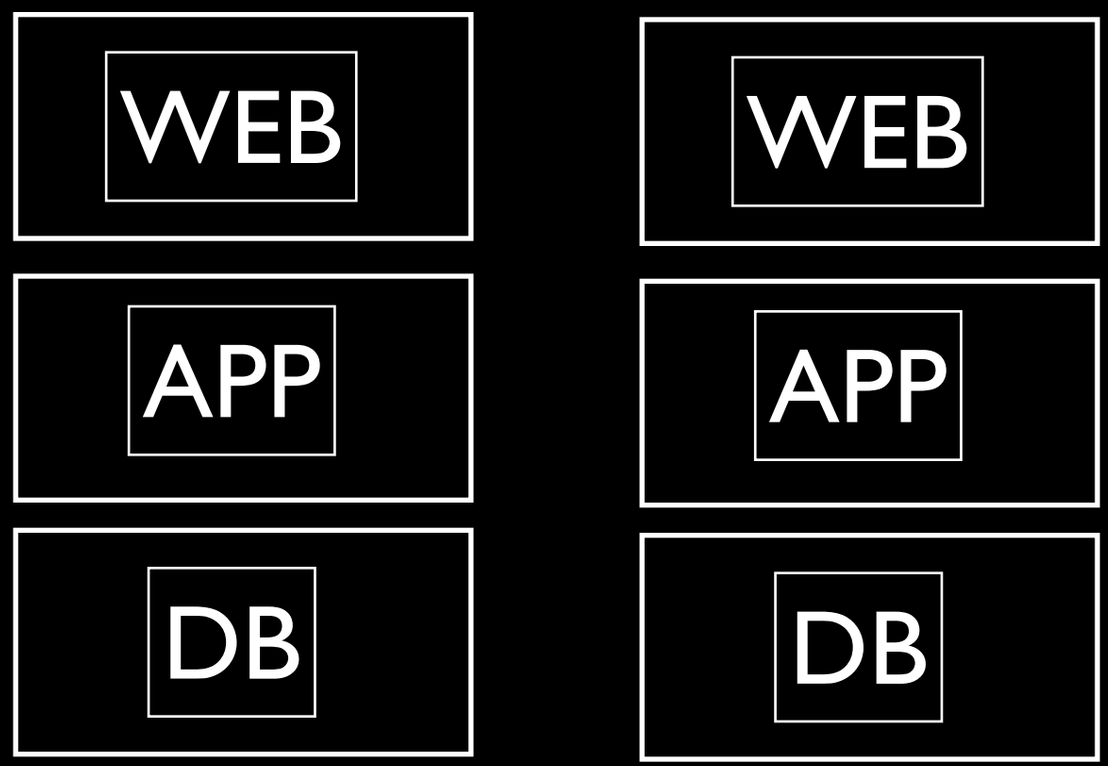
http://www.collthings.co.uk/2008/06/10-very-rare-clouds.html

Reuse Across Environments

DEV

TEST

PROD



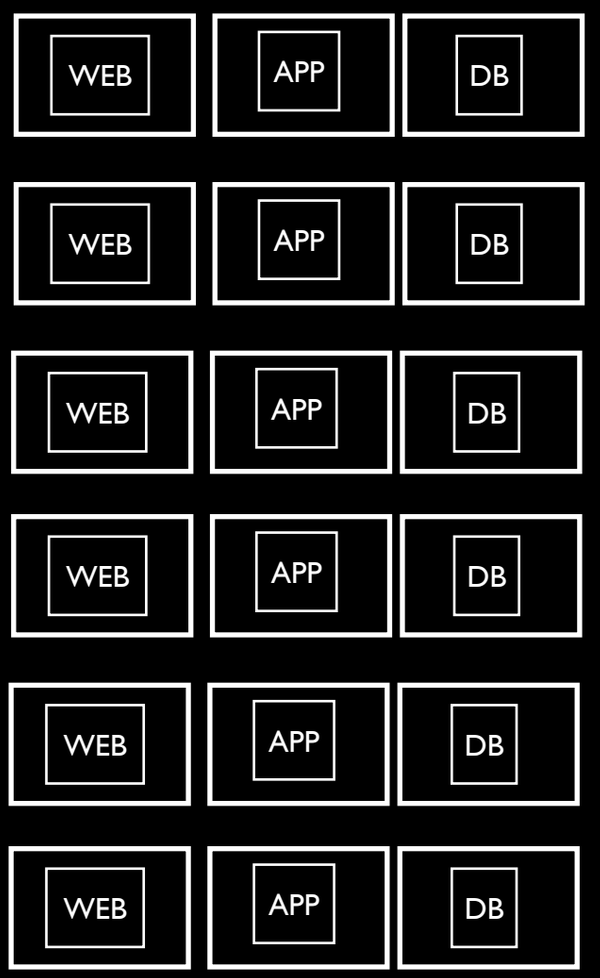
Infrastructure
Code Repository

Explosion of VM creation

DEV

TEST

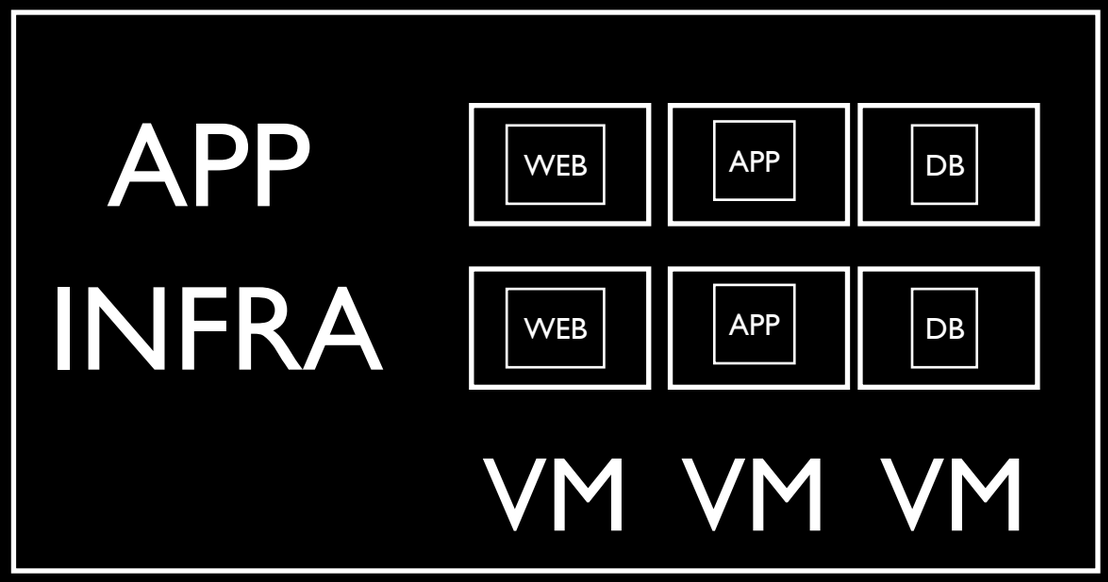
PROD



Infrastructure
Code Repository

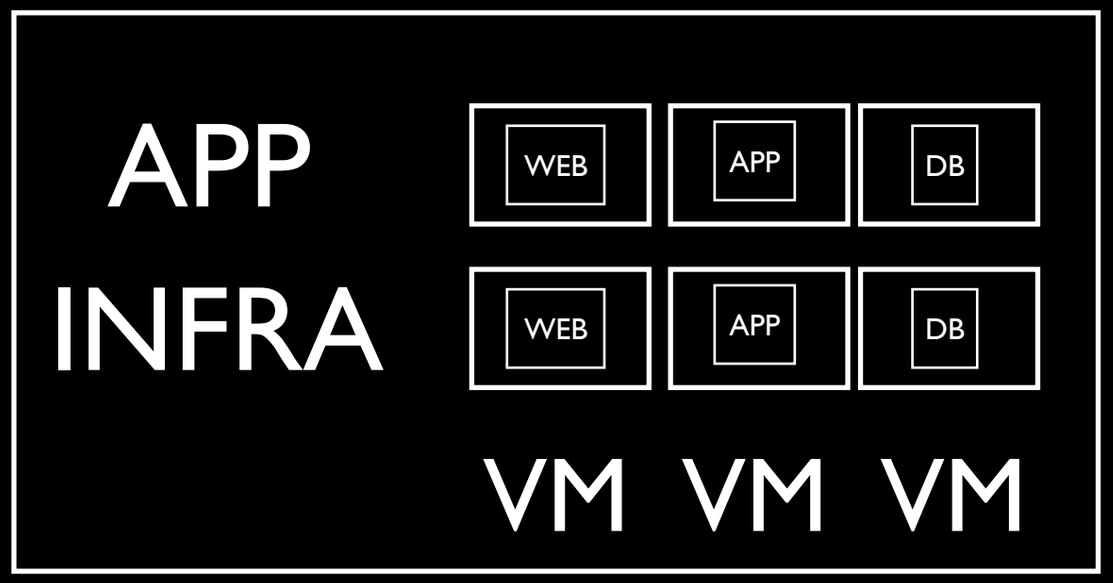
Application
Code Repository

UI Interface to Automated Provisioning of VMS



Cobbler, Spacewalk, ...

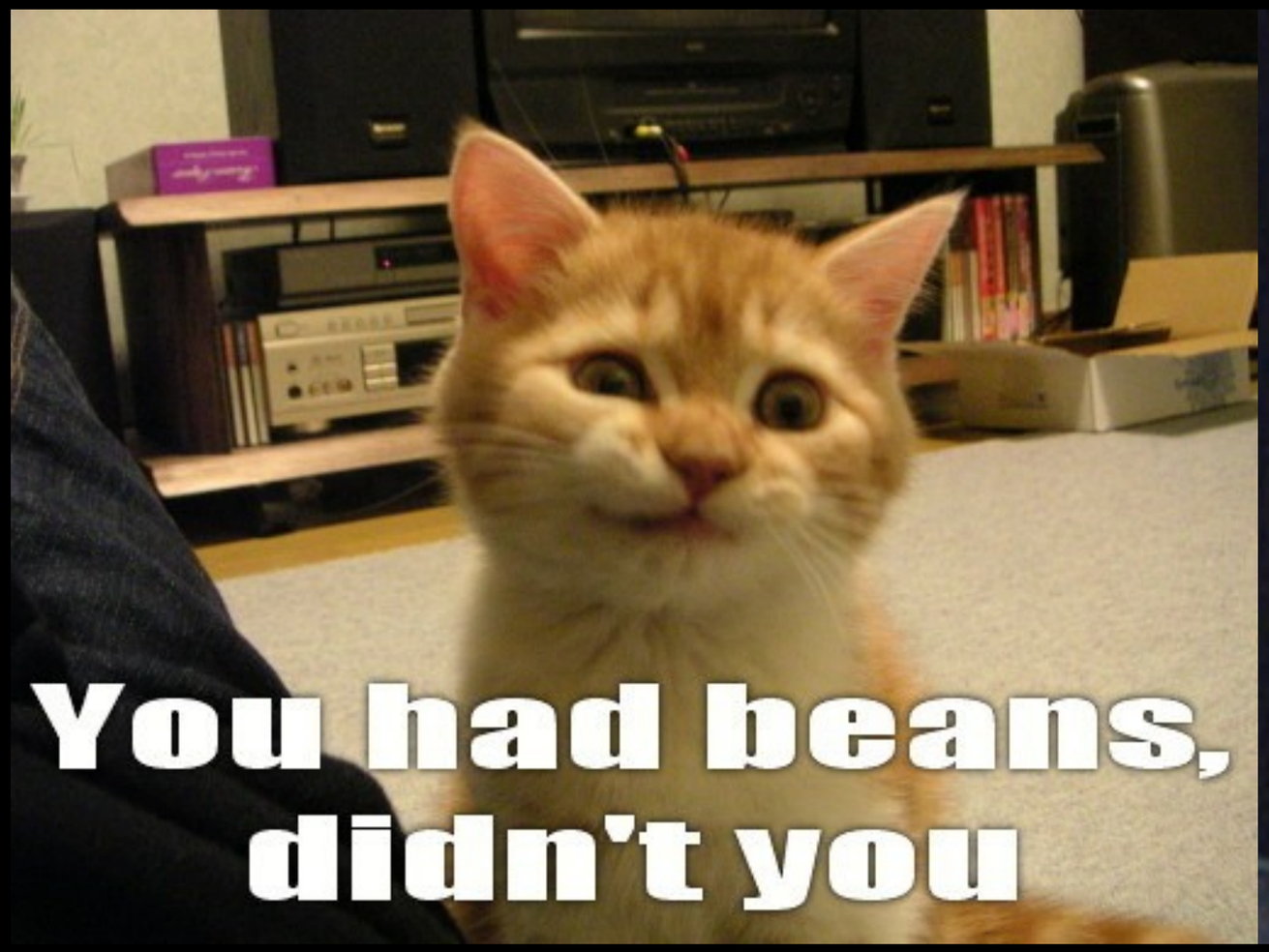
Metadata Registry for Systems



Config Management

Puppet/Chef Server


we hearz thingz
from de other side...


You had beans,
didn't you


amazon
web services
JAVA

I'VE NEVER INSTALLED A
GUI FOR THAT.

```
$ knife ec2 server create \
-r 'role[webserver]' -I ami-7000f019 \
-f m1.small \
-A 'Your AWS Access Key ID' \
-K 'Your AWS Secret Access Key'
```

Chef

```
$ puppet node create --image ami-XxXXxXXX \
--keypair puppetlabs.admin --type m1.small
```

aka “cloudpack”

Servers

Security groups

Elastic Load balancers

Keys

S3 Storage
E-Mail service

http://fog.io
@geemus

Chef

Puppet

Custom Scripts

AWS Network Constraints

Security Groups only on creation

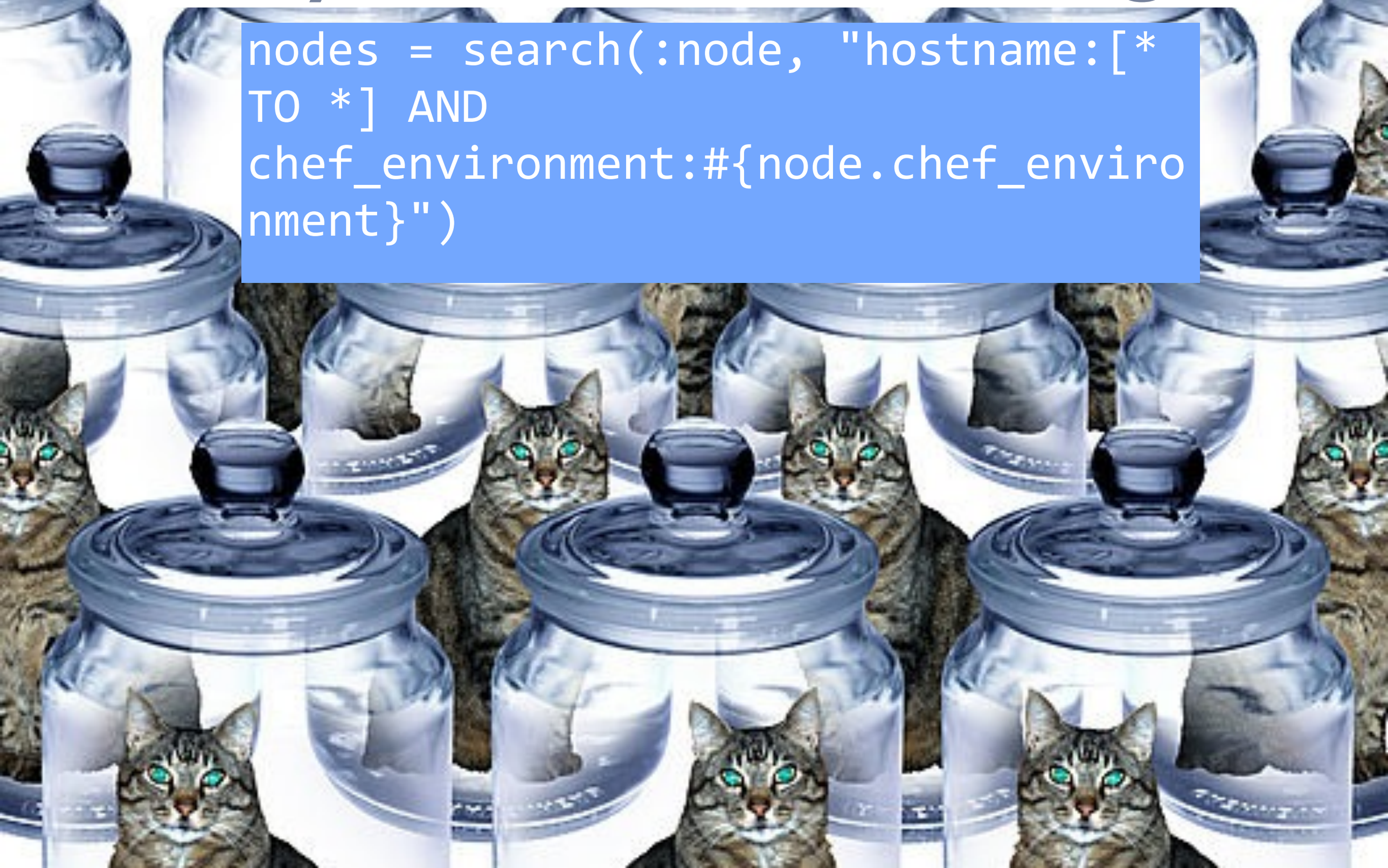
Only 1 network interface

ELB not on non-standard ports

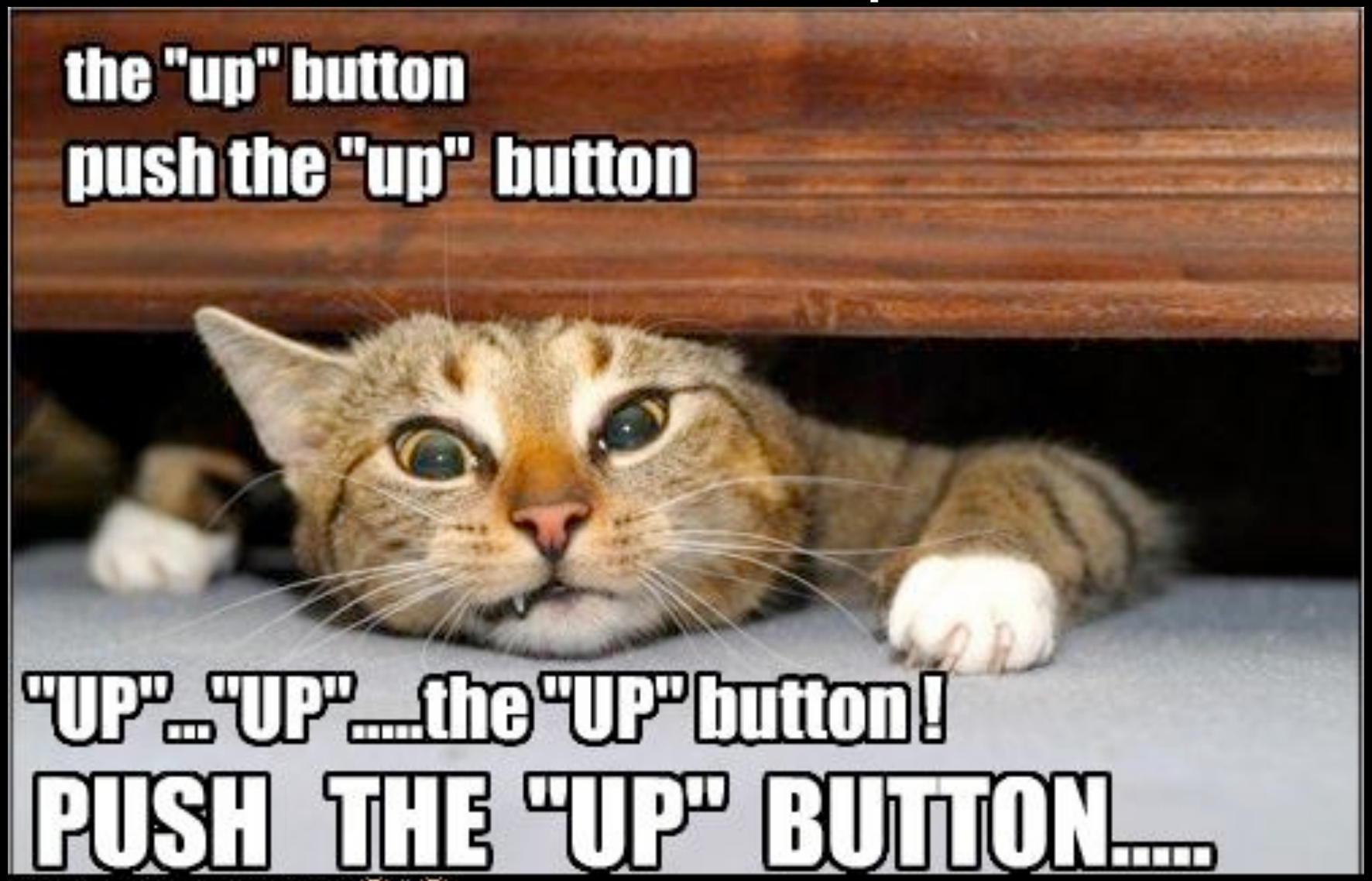
http://iruntheinternet.com/lulzdump/images/cat-in-jar-cok-stuck-1298144751i.jpg

Dynamic Monitoring

```
nodes = search(:node, "hostname:[* TO *] AND chef_environment:#{node.chef_environment}")
```

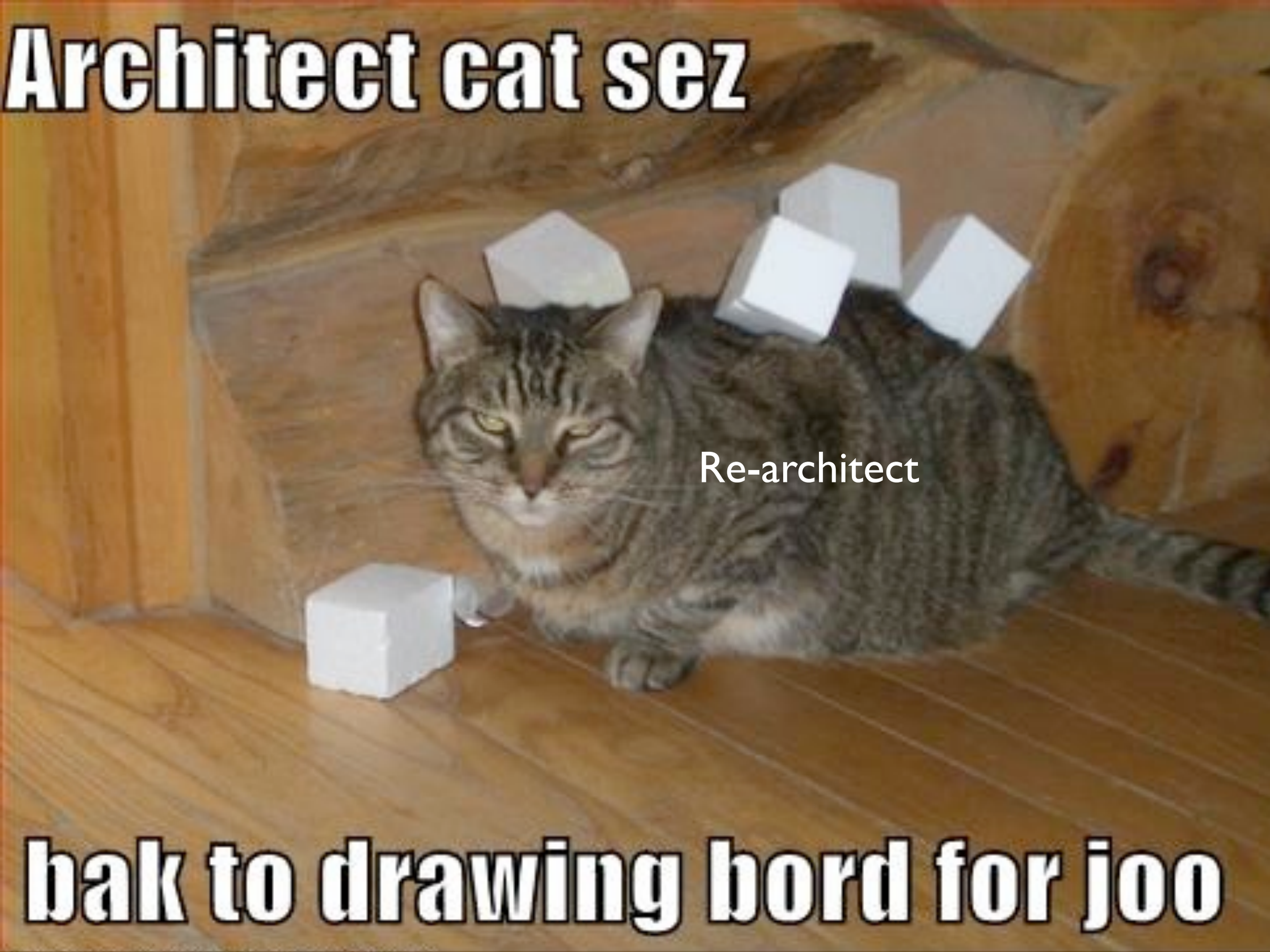


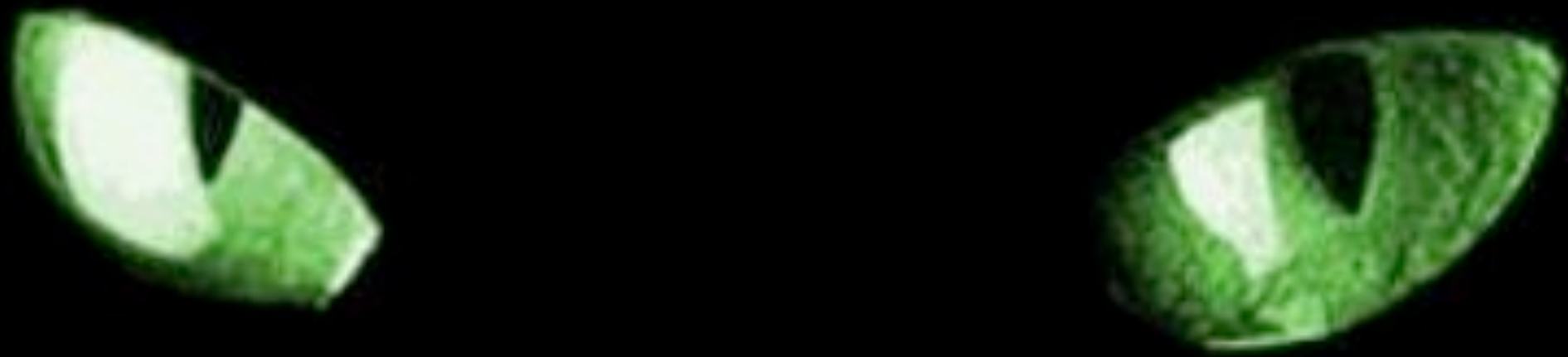
VM creation failure, network hickups, disk erratic behavior



http://icanhascheezburger.files.wordpress.com/2009/09/funny-pictures-cat-is-squished.jpg


Embrace Fail.


Architect cat sez
Re-architect
bak to drawing bord for joo



“Quis custodiet ipsos Custodes”

who watches the watchers

Noops

What I learned working in the (Amazon)cloud

what's the difference ?

Internal	Cloud
Web,App,DB	Web,App,DB
Config Mgmt	Config Mgmt
Metadata Registry	Metadata Registry
JEOS	AMI
VM	Xen
UI Provision	AWS Console

From console **to API**

Web UI

"Internals" API

Abstracted
API

AWS Console

AWS API

Fog
Jclouds
Boto

Beyond Servers Components

Server(s)

+

Loadbalancers
DNS Service
IP Address
Email Service
EBS Volume
Firewall
Keys

From server to **stack**

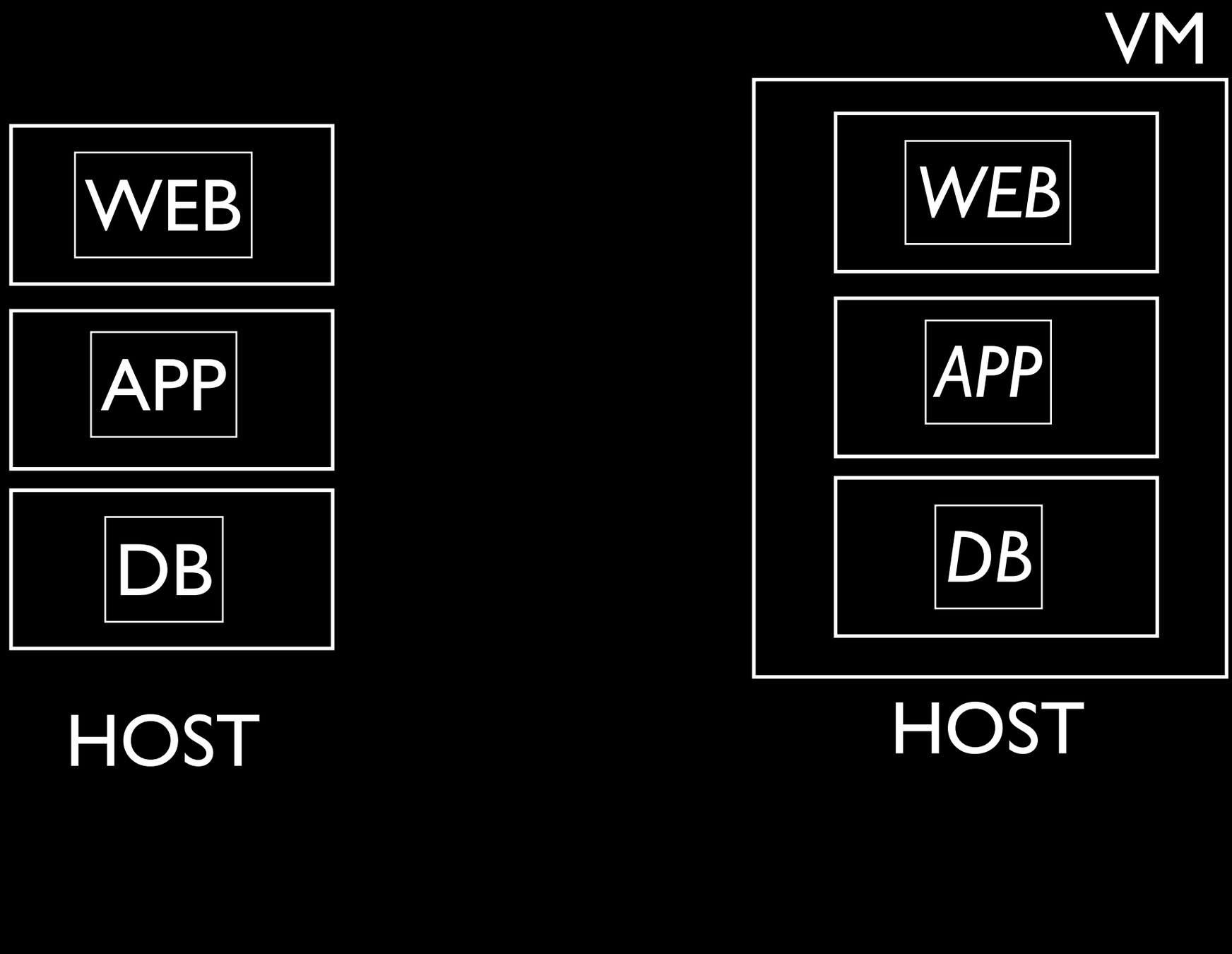
Cloudformation

Json file specifying
order of component creation
and dependencies

What I learned from managing development Servers

http://www.collthings.co.uk/2008/06/10-very-rare-clouds.html

Development moves
from host into **virtual machines**



Development
starts using **config mgt**

VM

WEB

APP

DB

HOST

VM

WEB

APP

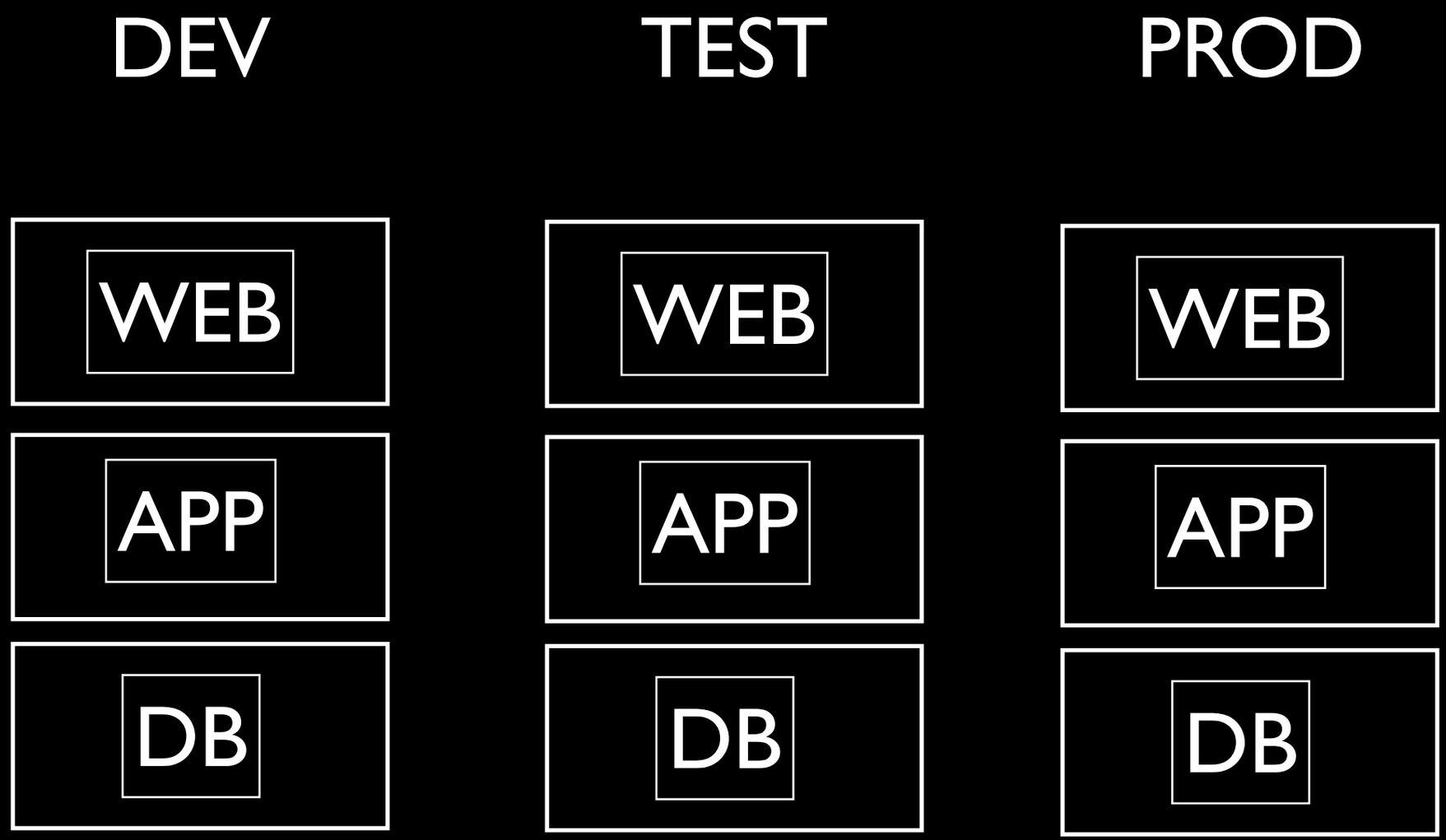
DB

Config

JEOS

HOST

Reuse "code" across Environments



Infrastructure
Code Repository

Vagrant

UP
PROVISION
HALT
DESTROY

Simple CLI

VM Management

VM

Vagrantfile

Puppet/Chef

Basebox

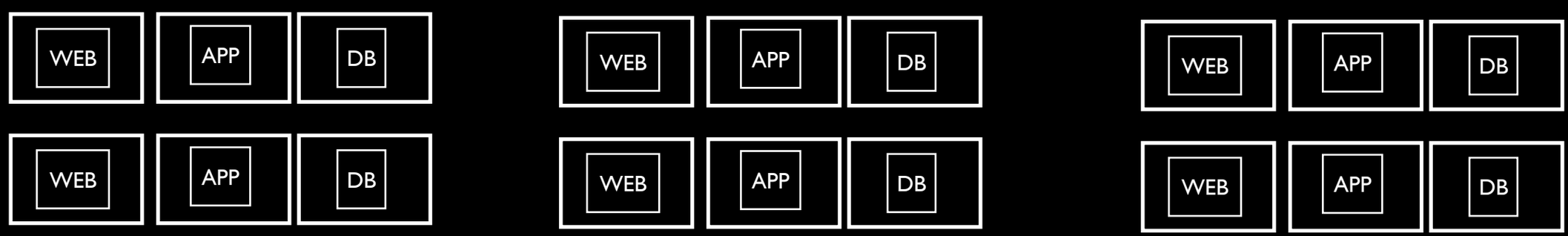
http://vagrantup.com/

Integrate with **Continuous Integration**

DEV TEST PROD

APP

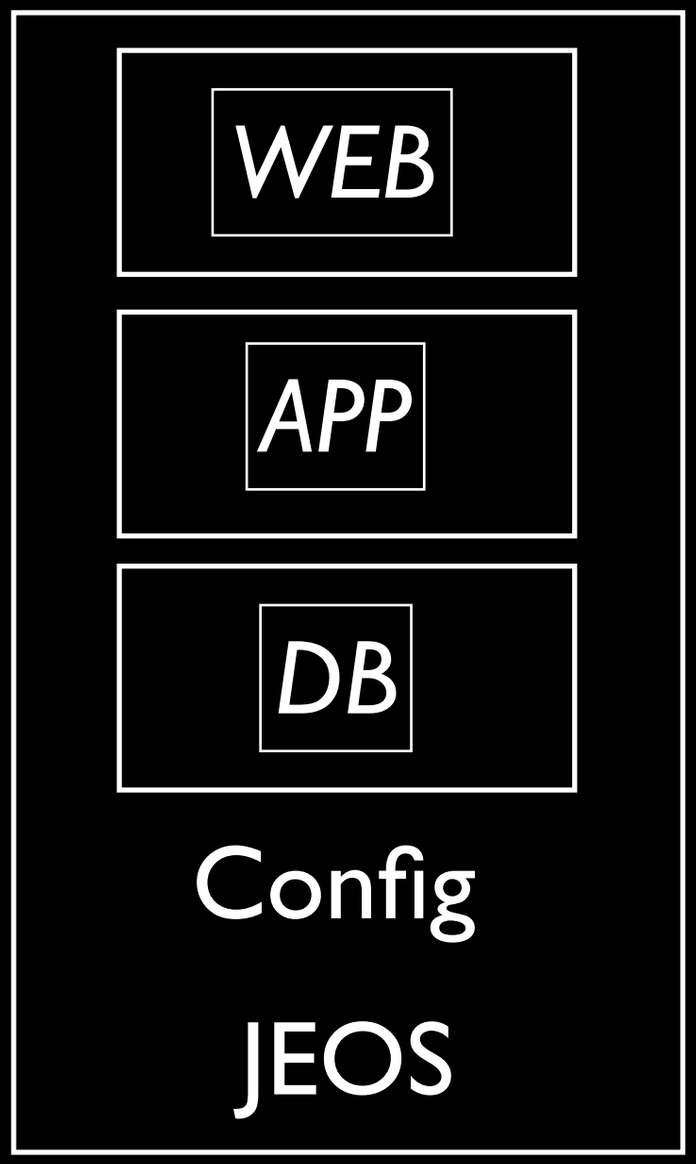
INFRA



Infrastructure Code Repository

Application Code Repository

Development/VM **workflow**



VM UP PROVISION HALT DESTROY

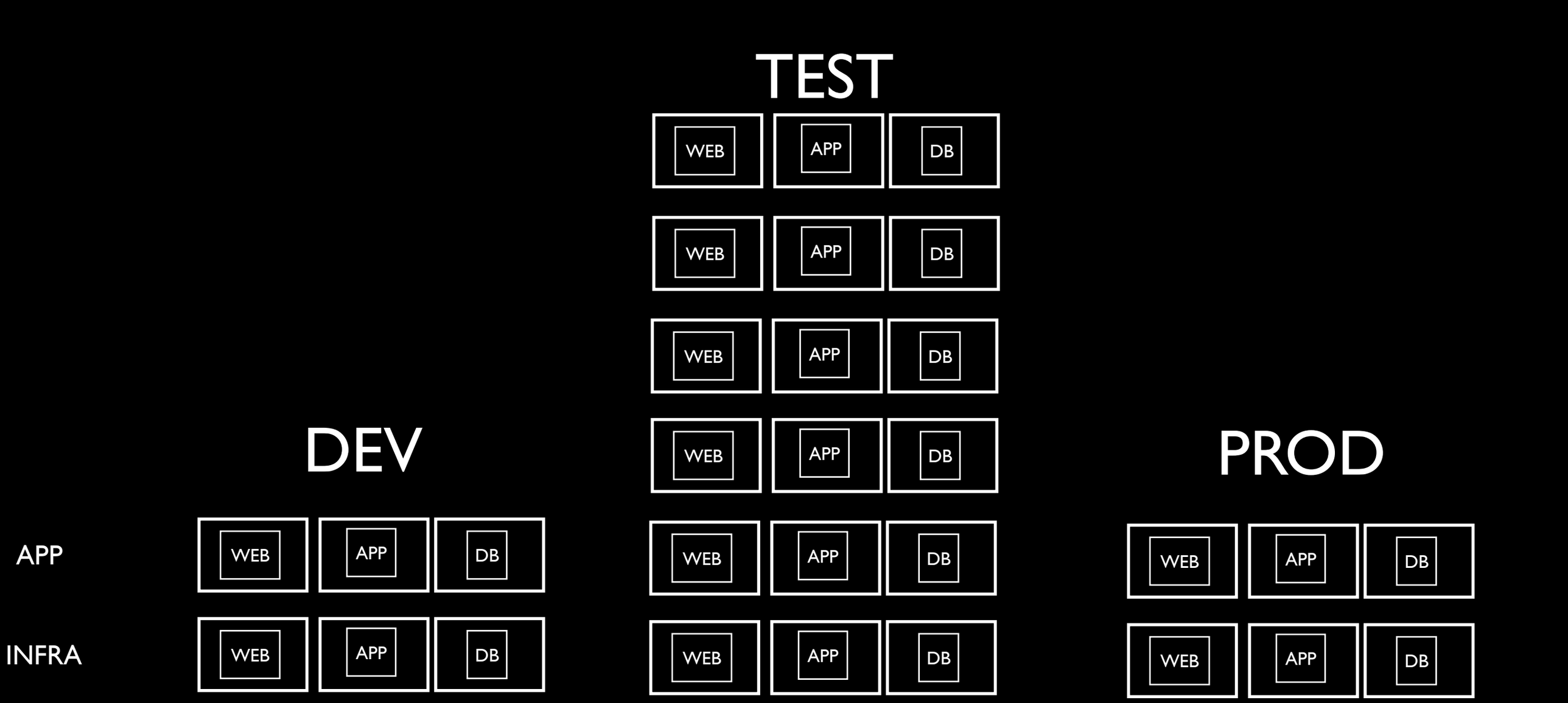
TEST

DEV

PROD

APP

INFRA



Setup Outgrew VM on Laptop

Setup Outgrew Test Lab

Peak Capacity needed in Prod

CLOUD

Reuse "workflow" across Environments

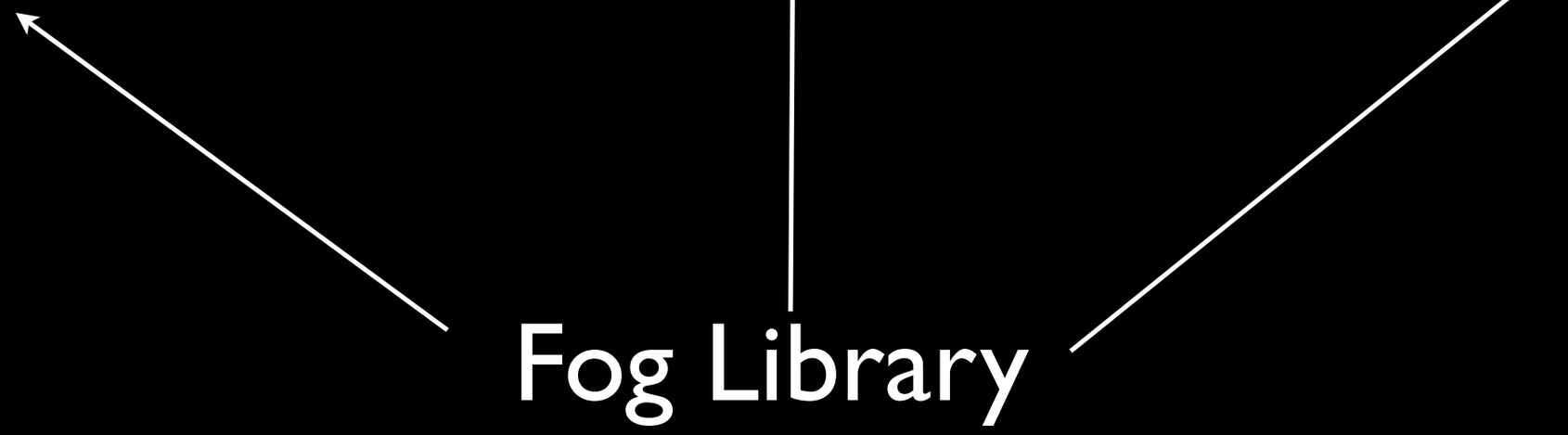
"If it's hard to it more often"

DEV	TEST	PROD
Web,App,DB	Web,App,DB	Web,App,DB
Config Mgmt	Config Mgmt	Config Mgmt
JEOS	JEOS	JEOS
AWS	*AWS*	AWS

Fog Library (API)
Mccloud (simple CLI)

+**Reuse workflow** across **hypervisors**
customers

Web,App,DB	Web,App,DB	Web,App,DB
Config Mgmt	Config Mgmt	Config Mgmt
JEOS	JEOS	JEOS
Virtualbox	**KVM**	**AWS**



Cloud Libs (Jclouds/Fog/Boto)
embracing **old and personal**

“personal”	“old”	“hybrid”	“new”
Virtualbox	Vsphere	Openstack	AWS
VM Fusion	Kvm	Eucalyptus	Rackspace
	Libvirt		

Abstracting OS Installation

Debian Ubuntu Solaris Win Redhat

Archlinux Suse Centos

Kickstart Preseed

Unattended.xml

Virtualbox KVM Fusion Parallels

http://github.com/jedi4ever/veewee

Cloud Libs (Jclouds/Fog/Boto)

beyond servers

DNS Keys IPs Storage

Securitygroups Loadbalancer

Workflow **beyond servers**

VM

up
provision
halt
destroy

Other

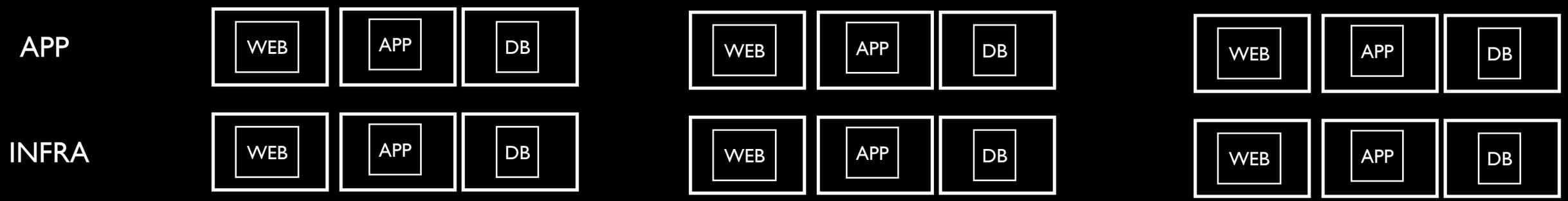
ip
balance
sorry

Self Servicing

Continuous Integration to Continuous Delivery

Faster/Delivery

DEV TEST PROD



Faster/Feedback

Infrastructure
Code Repository

Application
Code Repository

Confidence

Faster/Delivery

DEV OPS

Faster/Feedback

Infrastructure ~ Code

TDD Cycle

Add Test

Watch
Test Fail

Write Code

Run tests

Refactor

Testing ~ Monitoring

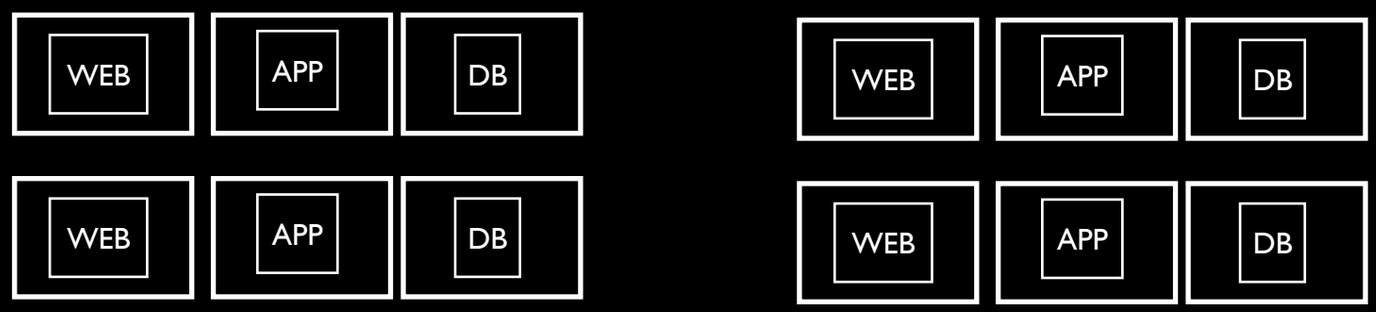
Cucumber-nagios

Debugging ~ Metrics

Metrics Reuse

Traditional Ops

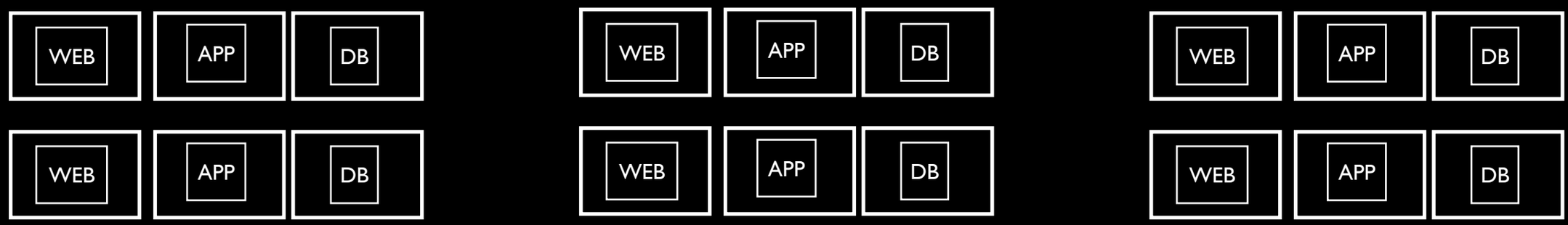
TEST PROD



Collectd, Ganglia,
Graphite, Opentsdb

Extend “metrics” to Development

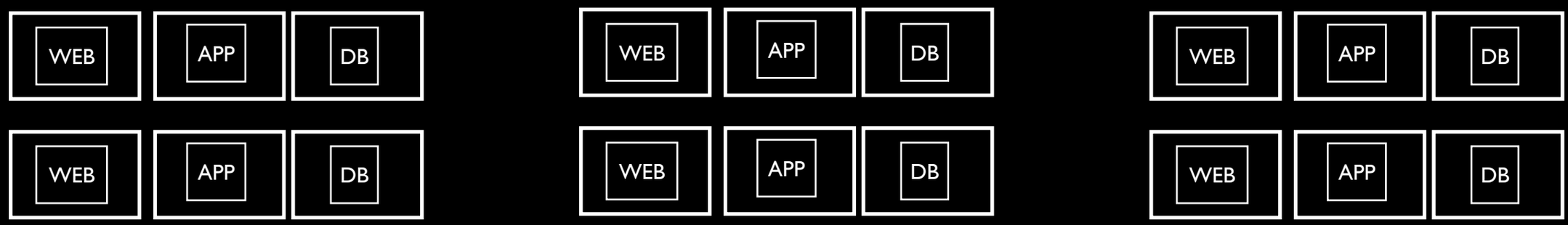
DEV TEST PROD



Collectd, Ganglia,
Graphite, Opentsdb

Extend “logs” to Development

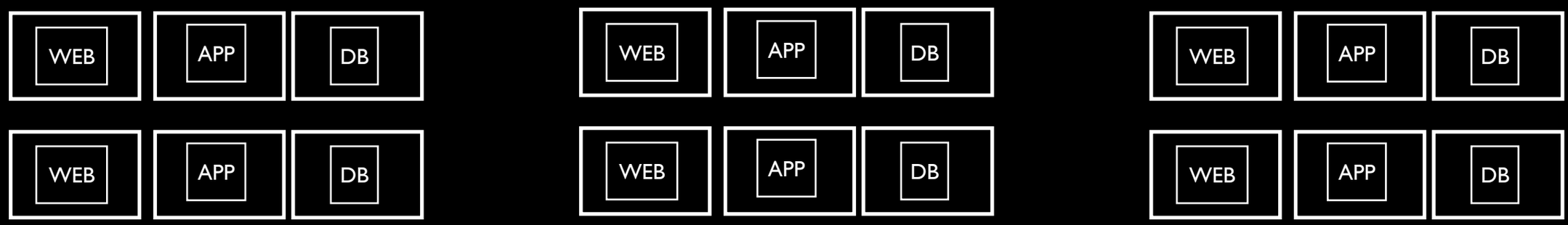
DEV TEST PROD



Logstash, Graylog

Selfservicing “metrics injection”

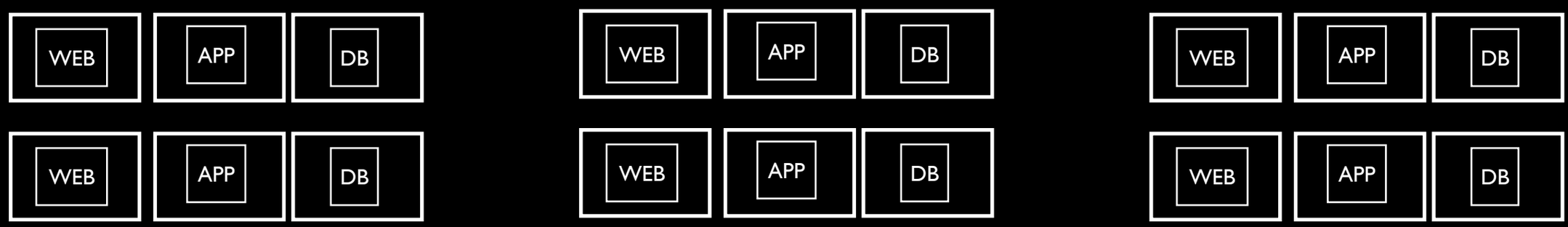
DEV TEST PROD



StatsD

Selfservicing “alerts”

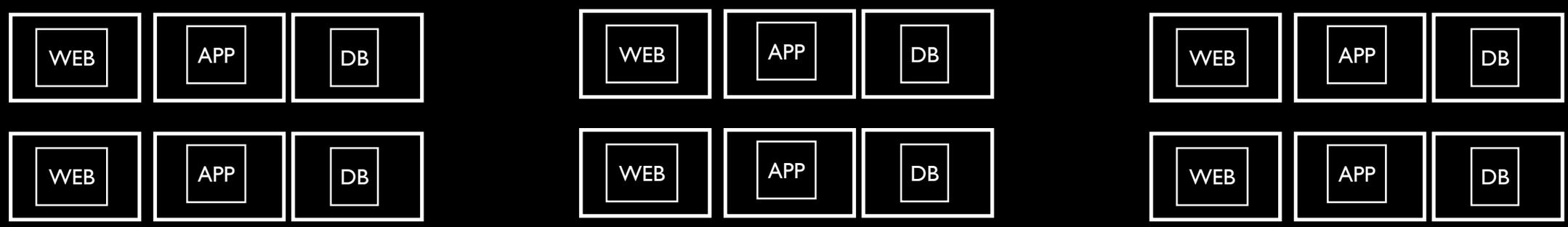
DEV TEST PROD



Tatle

Selfservicing “graphs”

DEV TEST PROD



Graphite

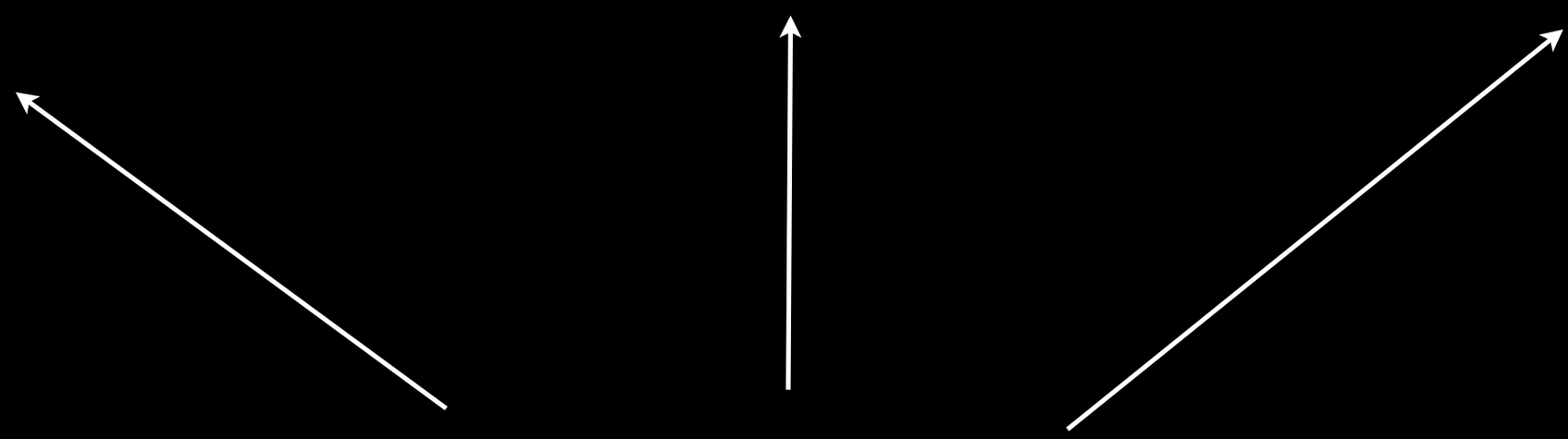
App Deployment	Continuous Integration	Load Testing	App Metrics	Monitoring	Alerting	App Metrics	Logging
Heroku	Cloudbees	Blitz.io	New Relic	Pingdom	Pager Duty	DatadogHQ	Loggly

Repeating Service Pattern
Simple API/CLI , Self-Servicing

+Reuse workflow across **monitoring tools**

Collectd **Ganglia** **Graphite**

Nagios **Zenoss** **Sensu**



Workflow reuse

Monitoring UP

Abstracting

It's all events

Timestamp - Key - Value

Logs Metrics Monitoring Meta Ops

Social IT

radiate information to where it's needed

Business 'Pulse'

http://www.collthings.co.uk/2008/06/10-very-rare-clouds.html

But you can shape your internal IT as a cloud

Questions?

Thank you!

http://www.collthings.co.uk/2008/06/10-very-rare-clouds.html