





**When I was a young developer**



I loved to develop  
simple applications



I kept my own little server going

Most of the time , the results were fine



Sometimes the applications would crash  
and I didn't really know why



# But overall my friends seemed to like my work



— LEGENDS OF —

# TEXAS

BARBECUE

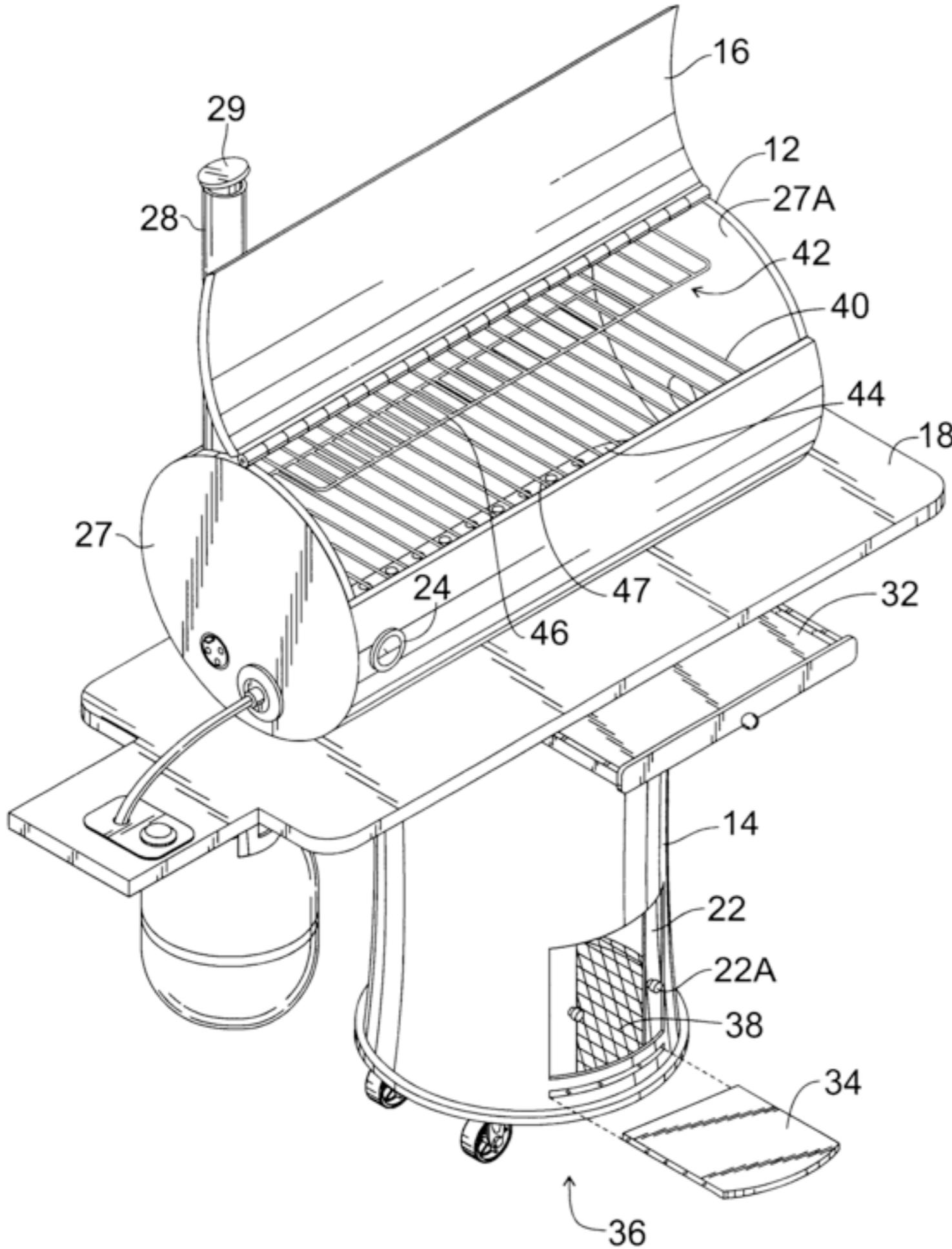


— ★ —  
**COOK  
BOOK**  
★ —

Recipes and  
Recollections from  
the Pit Bosses

ROBB WALSH

I learned from the pro's



**Read about  
software  
architecture**

I even got my Scrum certification



# Still I was experiencing the occasional problems



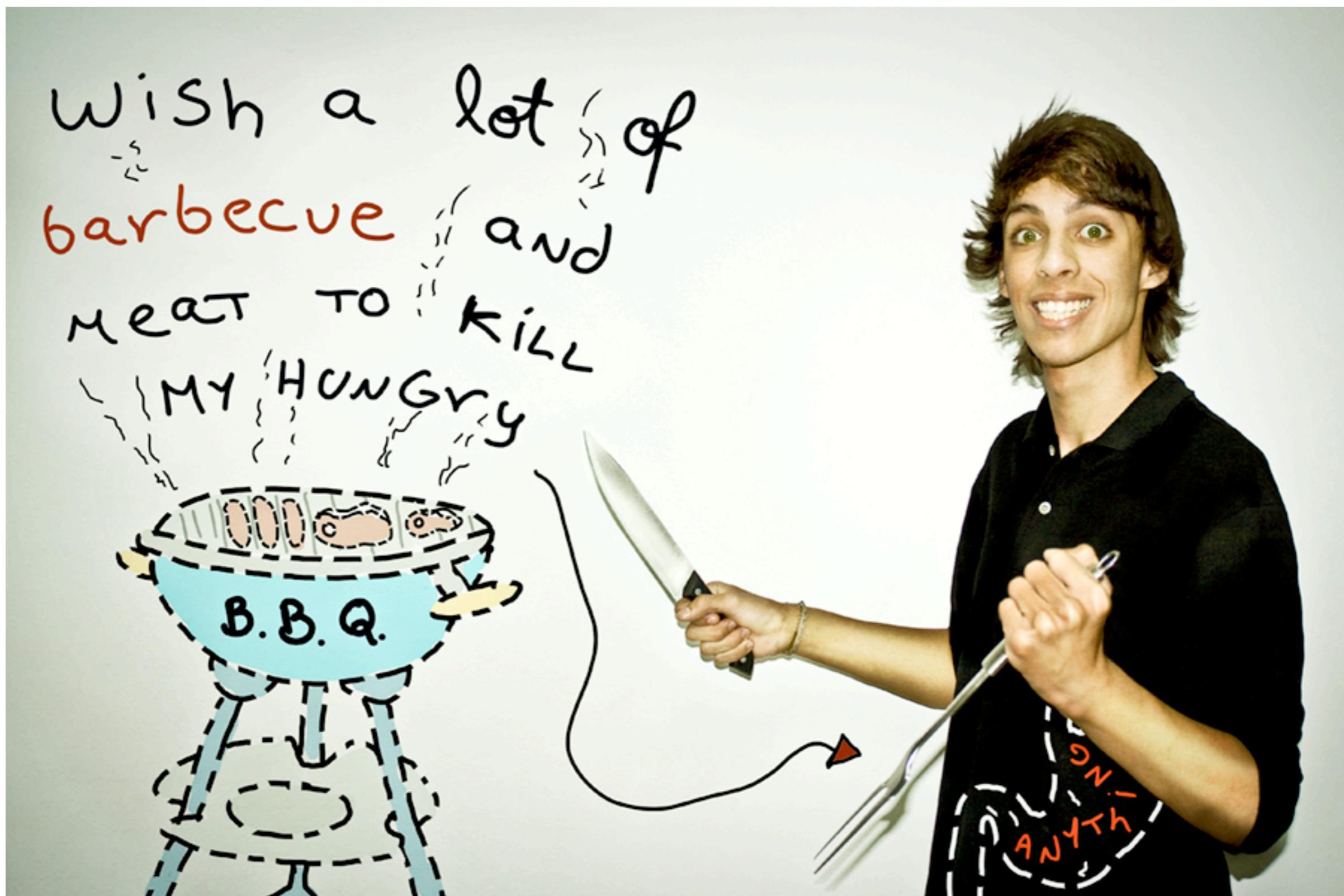


I blamed the  
operations guys

# I decided to leave the cowboys



And make plans of my own



I really wanted to focus on the customer

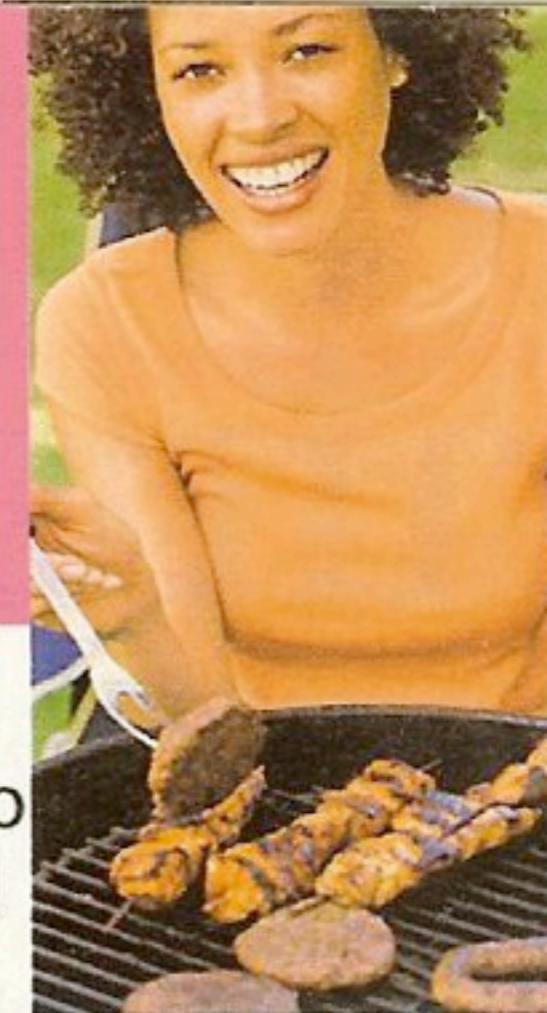


I had the developers use  
the coolest programming languages



# Use the best frameworks available

<http://www.bbqsaucereviews.com/wp-content/uploads/2009/06/bbqsaucereview-001.jpg>



You Deserve  
The Best . . .  
Barbecue sauce!

Whether you prefer your barbecue five-alarm hot or smoked-apple sweet, we have the all-star sauces sure to turn your next backyard bash into the talk of the town!

If you want . . .



## PEPPER-PACKING HEAT:

### Scott's Barbecue Sauce

John Shelton Reed and his wife, Dale Volberg Reed, coauthors of *Holy Smoke: The Big Book of North Carolina Barbecue*, say this sauce keeps the heat in their ribs, chicken, pulled pork—and relationships! “It’s really spicy,

We had the  
DBA's take  
care of the  
database  
schemas



# Explained them that User Interface is important



<http://www.flickr.com/photos/bhamsandwich/3601018752/sizes/l/>



<http://www.flickr.com/photos/jayneandd/4078134280/sizes/l/>

Up until now we had done only some manual checks.



So we moved to  
unit tests



# Even Behavior Driven Development



We were still  
experiencing problems  
with our application  
servers.



# We brought in bigger storage boxes



**gave the  
sysadmins the  
biggest servers**



created virtual  
machines to  
create different  
environments



# Used the cloud to solve some scalability problems



# Still the customer wasn't happy



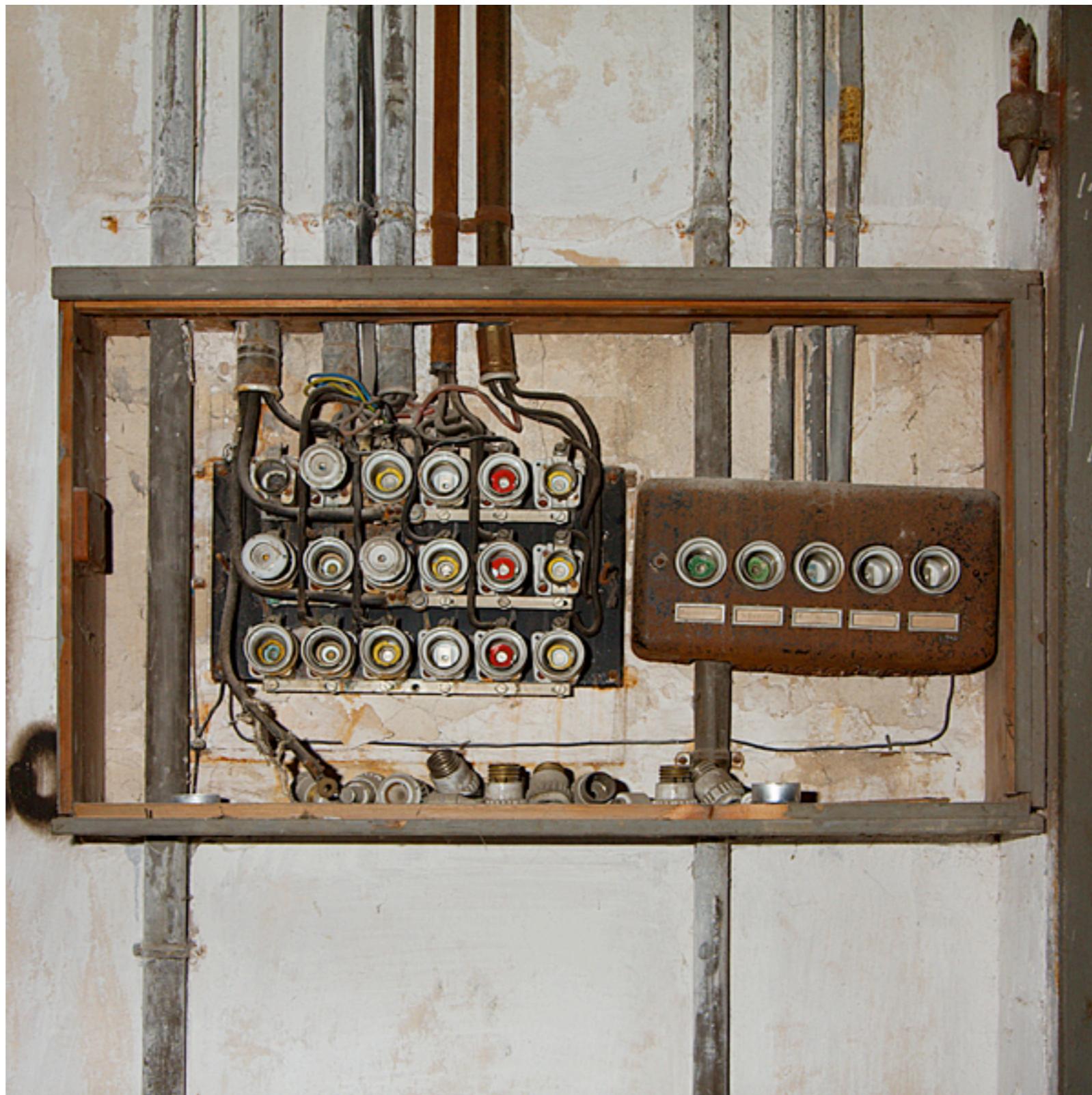
# And the IT department was firefighting all the time



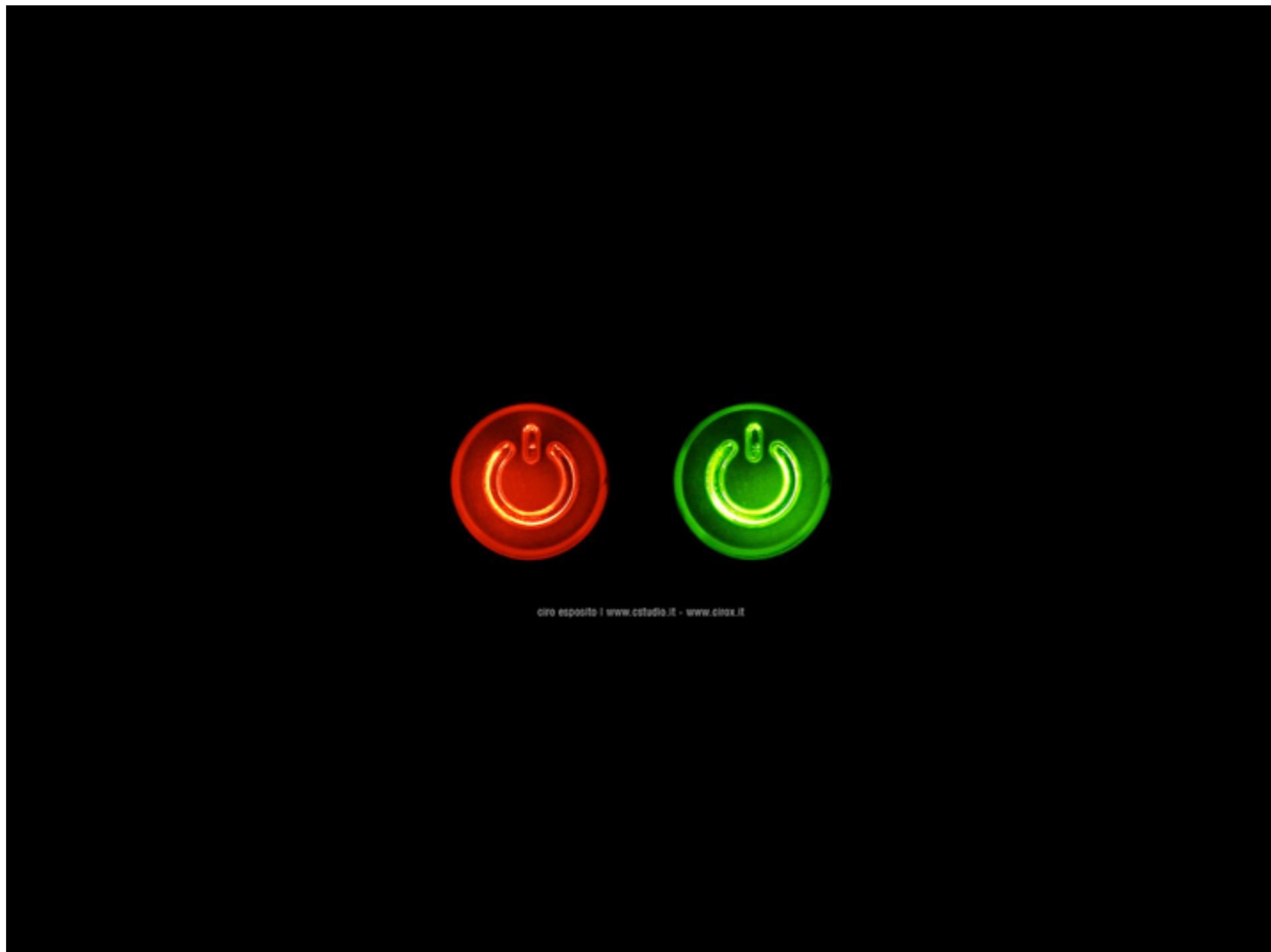
Then there was a complete power failure



# Nobody had checked the power installation



# Leaving the application in an unknown state



Resulting again in a major outage



# Our small fixes would not help anymore



All backups were corrupt because we could only backup properly when the application was down



<http://www.flickr.com/photos/jmv/16366498/sizes/o/>

# Luckily we had a cold Standby Backup



[r.com/photos/tom-poes/60373623/](http://r.com/photos/tom-poes/60373623/)

Time to  
take a  
step back



# We worked hard on minimizing technical debt in our code

[http://allwecaneat.files.wordpress.com/2008/08/\\_igp7826\\_sm.jpg](http://allwecaneat.files.wordpress.com/2008/08/_igp7826_sm.jpg)



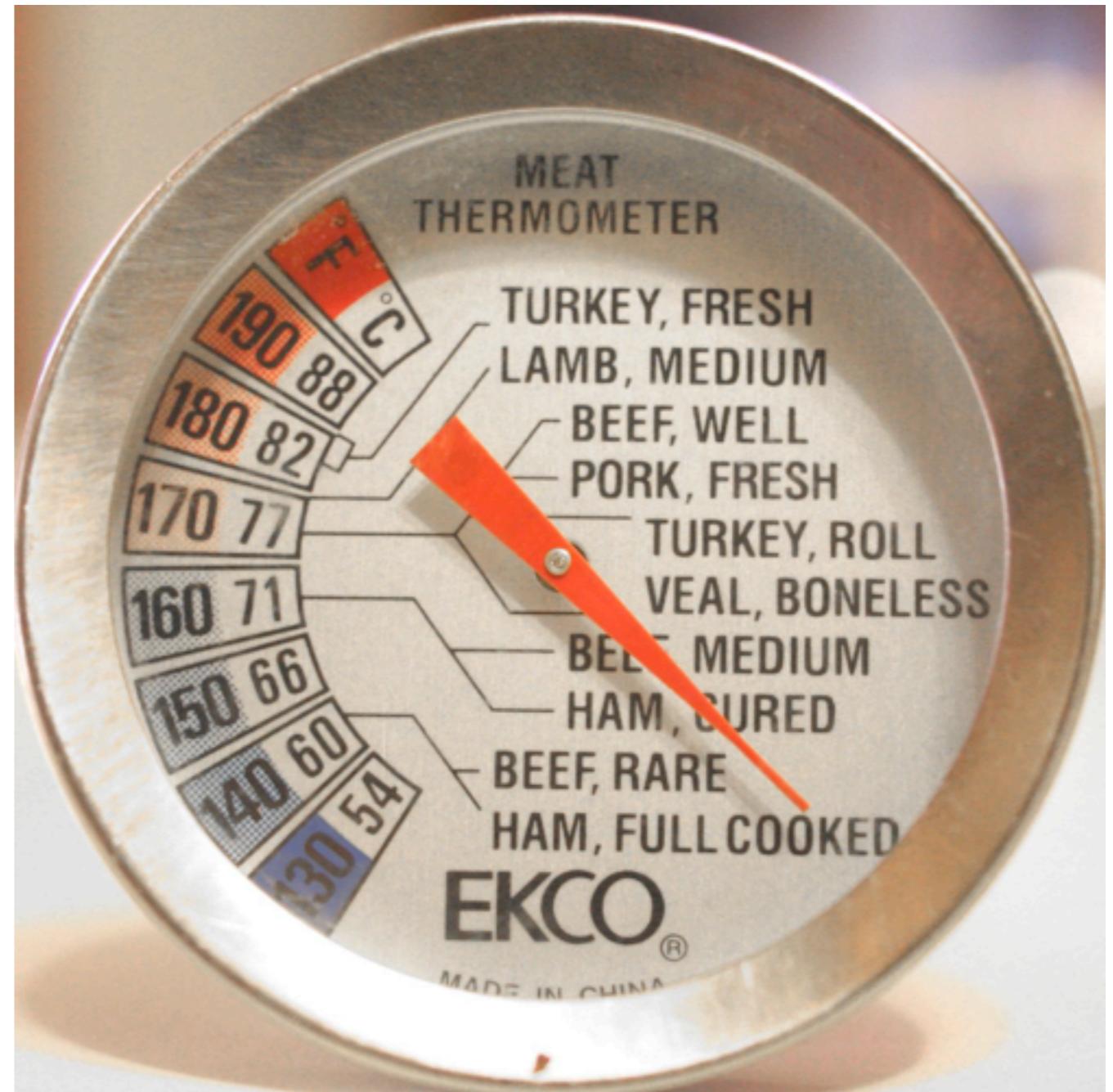
# We started to improve our deployment tools



<http://www.eggcookers.net/images/pictures/progressive-stainless-steel-bbq-tongs-bbq505.jpg>

<http://ecx.images-amazon.com/images/I/41wSaS%2BMy8L.jpg>

Put monitoring in  
our development  
and test  
environment



# Reused it in the production environment



# Implemented scaling from the ground up



# We made deployment reproducible

**UNIVERSAL BBQ GRILL**

\* COMPACT AND EASY TO TRANSPORT  
\* DURABLE AND VERY FUNCTIONAL  
\* PERFECT FOR STORING IN SMALL SPACES



# Improved the way to collect metrics



To offload some of the appservers  
we installed a caching system



# And loadbalancers solved the webserver scaling problem



# Content Delivery Networks



# Made our application security proof



Comply to  
regulations



# Integrated backups on the application level



# Solved the multi-user problem problem



# Self healing on our database



For some known  
states

We would automatically  
reset the system

So you want to be a great agile chef?



- #1 care for the whole lifecycle
- #2 look at it from a business perspective
- #3 work together as a team

## Presentation

Software  
Project

Infrastructure  
Operations



Testing

**It's not about the  
software**



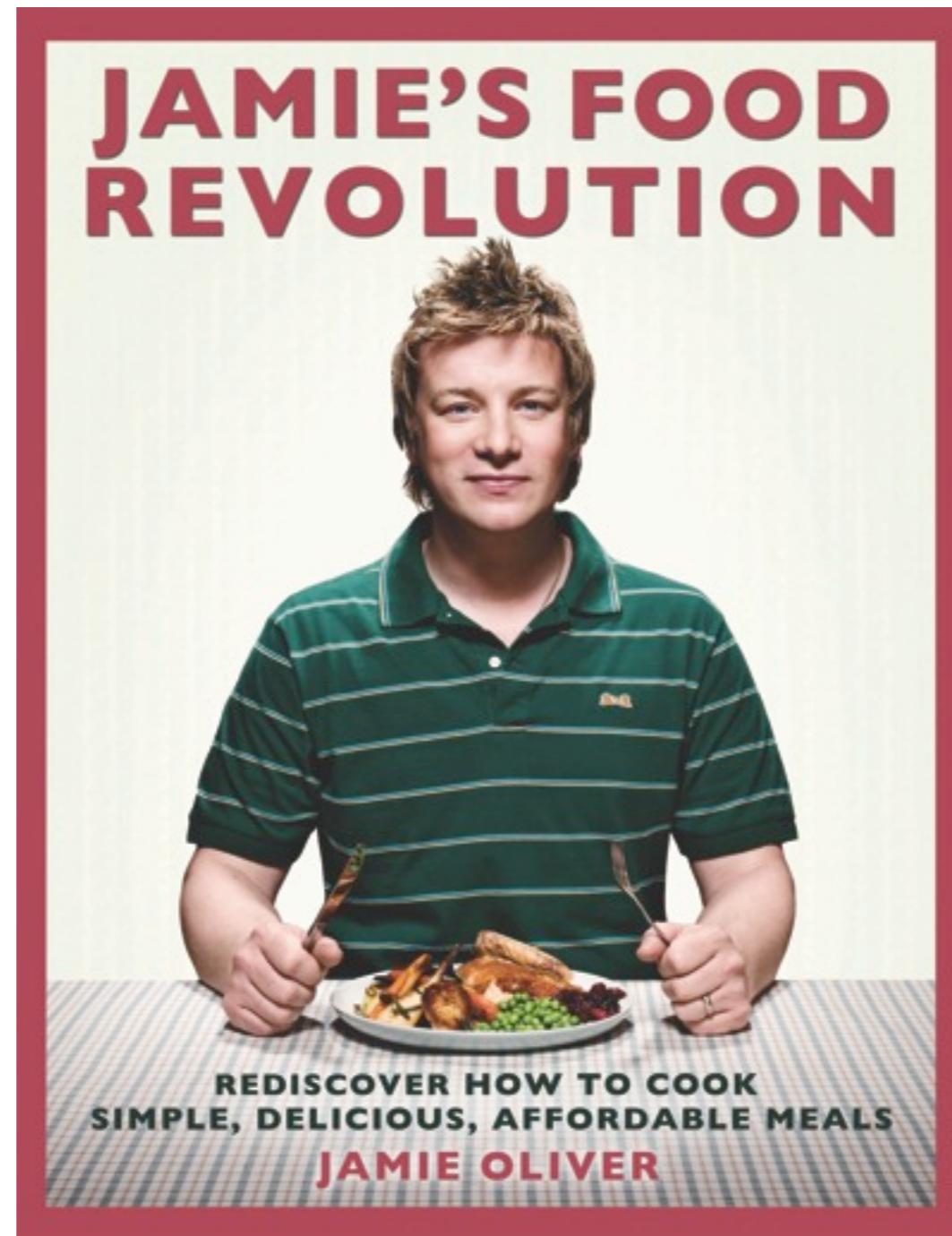
**It's not about the  
hardware**



A close-up photograph of a man with short brown hair and a slight smile. He is wearing a white t-shirt with horizontal black stripes. The background is dark and out of focus, showing some blurred lights and shapes.

I like my  
~~servers, software~~  
steak well done

# IT Tooling is changing



# Virtualization



- kvm
- xen
- solaris zones
- vmware
- virtualbox
- ...

# Cloud showed us how to scale



# Abstraction API



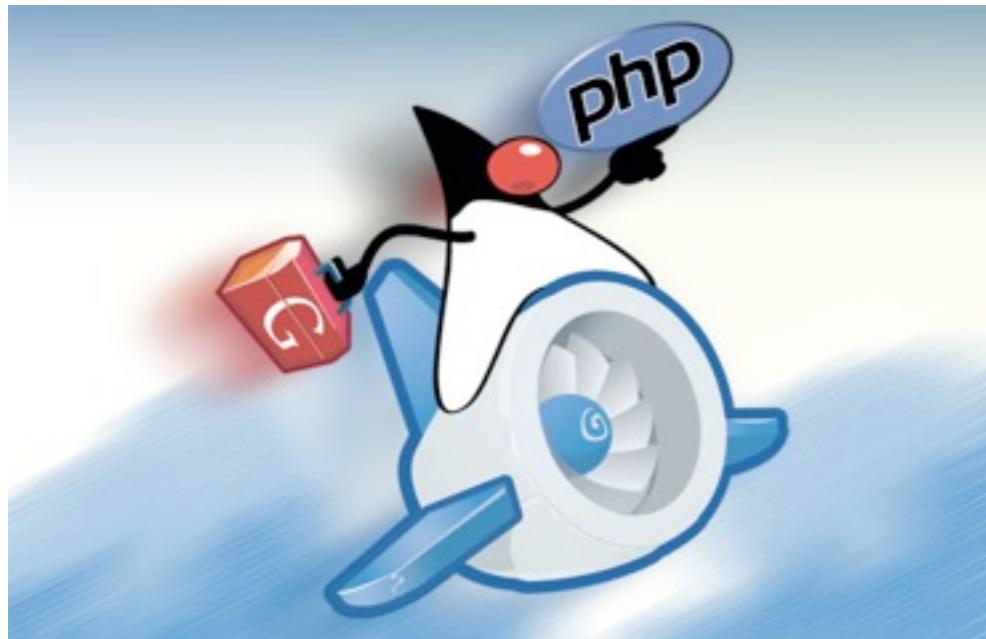
<http://libvirt.org/>



<http://www.jclouds.org/>

Adrian Cole  
@jclouds

# Platform as a Service



# Hudson as Service



<http://www.cloudbees.com/>

Steven Spielberg Presents  
A Matthew Robbins Film

# \*batteries not included



But who will  
manage  
your IAAS  
platform?

# First steps of Automation



Fully Automatic  
Installation

<http://fai-project.org/>

<https://fedorahosted.org/cobbler/>



<http://spacewalk.redhat.com/>

# Cloning



# Virtual Sprawl



# Configuration Management



<http://www.cfengine.org/>



Chef

<http://www.opscode.com/chef>



<http://www.puppetlabs.com>

[https://github.com/  
hugoduncan/pallet](https://github.com/hugoduncan/pallet) Pallet

```
# tomcat.pp
```

```
class tomcat {
```

```
  package {
```

```
    "java-1.6.0-sun-compat":  
      ensure => "installed";
```

```
    "tomcat6":  
      require => [Package["java-1.6.0-sun-compat"], Package["ntc-tomcat-log4j"]],
```

```
      ensure => "installed";
```

```
    "tomcat6-admin-webapps":  
      ensure => "installed";
```

```
    "log4j":  
      ensure => "installed";
```

```
    "tanukiwrapper":  
      ensure => "installed";
```

```
    "mysql-connector-java":  
      ensure => "installed";
```

```
  }
```

```
}
```

```
file {
```

```
  "/etc/init.d/tomcat6":
```

```
    mode    => "0755",
```

```
    owner   => "root",
```

```
    group   => "root",
```

```
    source  => "puppet:///tomcat/tomcat6.init";
```

```
}
```

```
user {
```

```
  "tomcat":
```

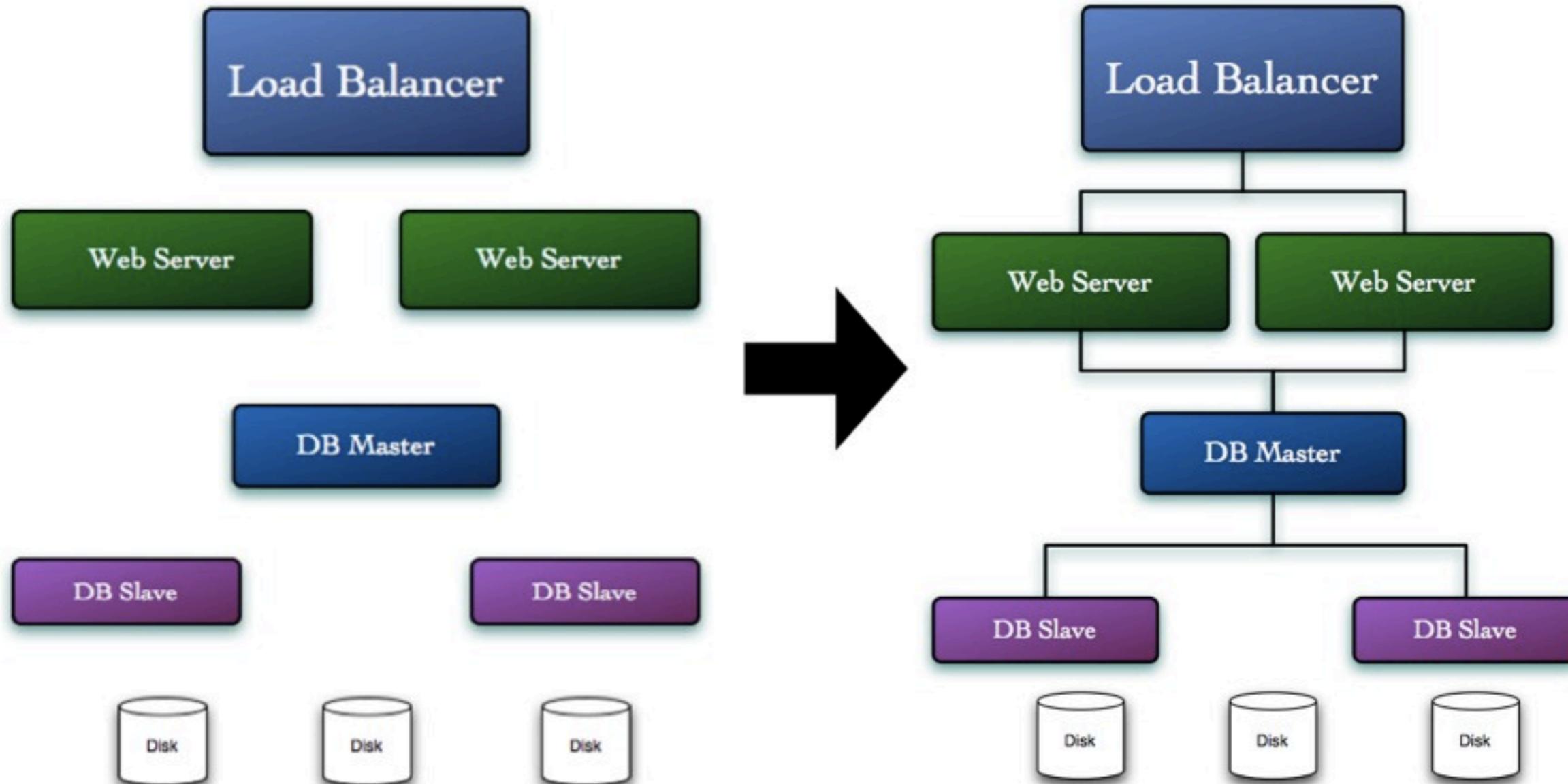
```
    ensure  => "present",
```

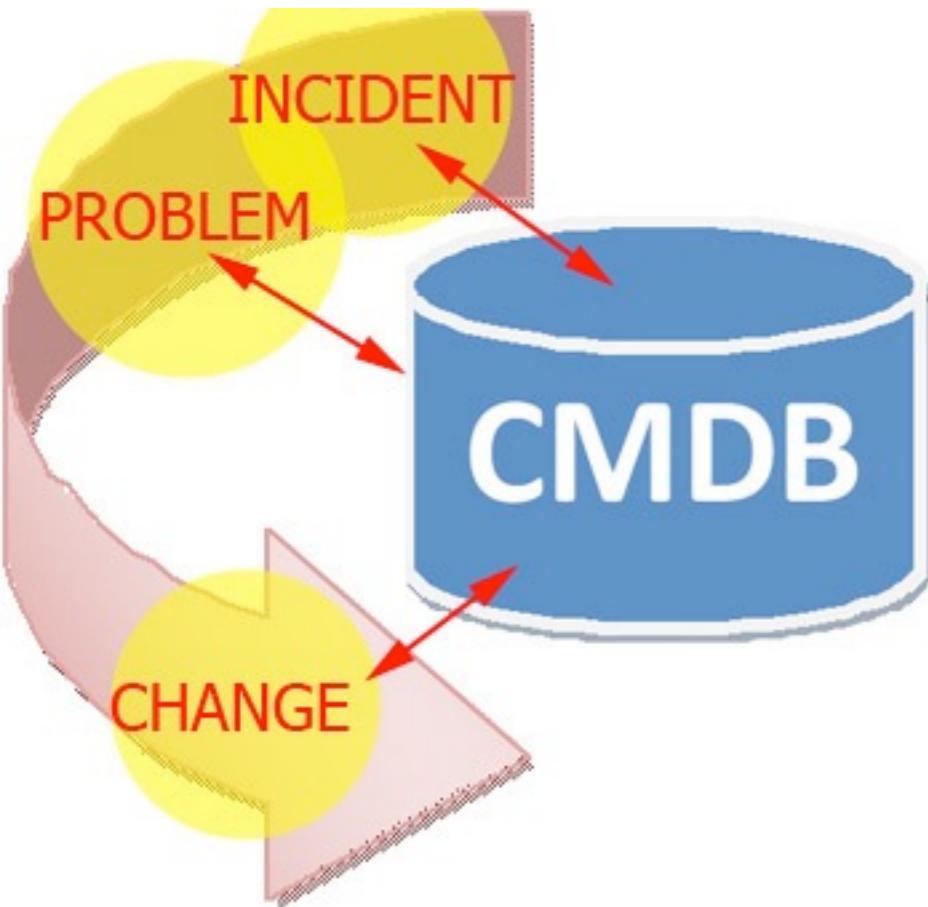
```
    require => Package["tomcat6"];
```

```
}
```

# Infrastructure as code

# Model Driven Infrastructure





←  
Definition  
of your  
infrastructure

John E.Vincent  
@lusis

<https://github.com/lusis/vogeler>

# Version Control

opscode / cookbooks

Source    Commits    Network    Pull Requests (12)    Graphs

Switch Branches (2) ▾    Switch Tags (0)    Branch List

Opscode Cookbooks for Chef — Read more  
<http://wiki.opscode.com/display/chef>

HTTP    Git Read-Only    <https://github.com/opscode/cookbooks.git>     This URL has **Read-Only** access

updated metadata in prep of release to cookbooks site.



schisamo (author)  
November 18, 2010

## Public Repositories (77)

puppet

### puppet-dhcp

Manage a dhcp server (and client - will come later)

Last updated November 17, 2010

 all commits  commits by owner

52 week participation

### puppet-bind

Installs and configures Bind9 domain name server

Last updated November 15, 2010

 all commits  commits by owner

52 week participation

### puppet-nagios

A simple way to build distributed monitoring solutions with puppet !

Last updated November 12, 2010

 all commits  commits by owner

52 week participation

### puppet-openvmtools

Shell 

Installs open-vm-tools, the open-source replacement for vmware-tools

Last updated November 08, 2010

 all commits  commits by owner

52 week participation

### puppet-nfs

manage your nfs shares (client and server)

# Reusable components

<https://github.com/camptocamp>

# Code/Server Smells



## Private Playground

The sysadmin uses the system as his toy playground, doesn't clean up.

- /tmp & /var/tmp full of old install files
- / full of files

## Gready Server

One server that does every function

- combined mail and web and dns and fileshares
- all users on the same system

## Root is the cause of all evil

- last show login all root
- no sudo is activated
- no sshd keys for logins
- nfs share/root?
- Chmod 777
- most processes run as root

# Sharing Recipes/Code

PuppetForge r0.1.14

[Sign in](#)

[Register](#)

**Search Modules**

**Go**

**Modules**

[All Modules](#)

[Web Servers](#)

[Applications](#)

[Package Management](#)

[Operating Systems](#)

[Programming Languages](#)

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Databases



Process Management



Programming Languages



Applications



Operating Systems & Virtualization



Other



Web Servers



Monitoring & Trending



Package Management



Networking



Utilities

<http://cookbooks.opscode.com/>

<http://forge.puppetlabs.com/>

Automation  
without tests is **IS**  
**MURDERER**



**TASTY, TASTY MURDER**

# cucumber-nagios

Feature: google.com

It should be up

And I should be able to search for things

Scenario: Searching for things

When I visit "http://www.google.com"

And I fill in "q" with "wikipedia"

And I press "Google Search"

Then I should see "www.wikipedia.org"

```
$ cucumber-nagios google.feature
```

```
Critical: 0, Warning: 0, 4 okay | passed=4, failed=0
```

Lindsay Holmwood  
@auxesis

# cucumber-ssh

Scenario: Checking /etc/passwd

When I ssh to "example.org" with the following credentials:

username   password   keyfile
jacob   spifeofstrife   /home/jacob/.ssh/id_dsa

And I run "cat /etc/passwd"

Then I should see "jacob" in the output

Lindsay Holmwood  
@auxesis

# cucumber-apache

## apache.feature

Feature:

In order to deploy my application

As a systems administrator

I want to know that the config files are legal

Scenario: Valid Apache config

Given a config file template apache2.conf **in** etc/apache2

When I generate it

Then there should be a file called apache2.conf **in** etc/apache2

And it should be valid

<http://pastie.org/693713>

Julian Simpson  
@builddoctor

# cucumber-puppet

Feature: cucumber-puppet

In order to run my puppet manifest's test suite  
As an admin  
I want the cucumber-puppet gem installed

Scenario: Install cucumber-puppet

Given a node of class "cucumber-puppet"  
When I compile the catalog  
Then gem "cucumber-puppet" should be "installed"

<https://github.com/nistude/cucumber-puppet>

Nikolay Sturm  
@nistude

# Orchestration



**ControlTier**

Deployment Automation

<http://controlltier.com/>

@damonedwards

The Marionette Collective  
*A modern scalable datacenter orchestration framework*

<http://marionett-collective.org>

@ripienaar

# Vagrant



Allows an easy way  
to use the production recipes  
in your own dev environment

<http://vagrantup.com/>

Mitchell Hashimoto  
@mitchellh

# IAAS and PAAS blurring



Pull in both your recipes and your code

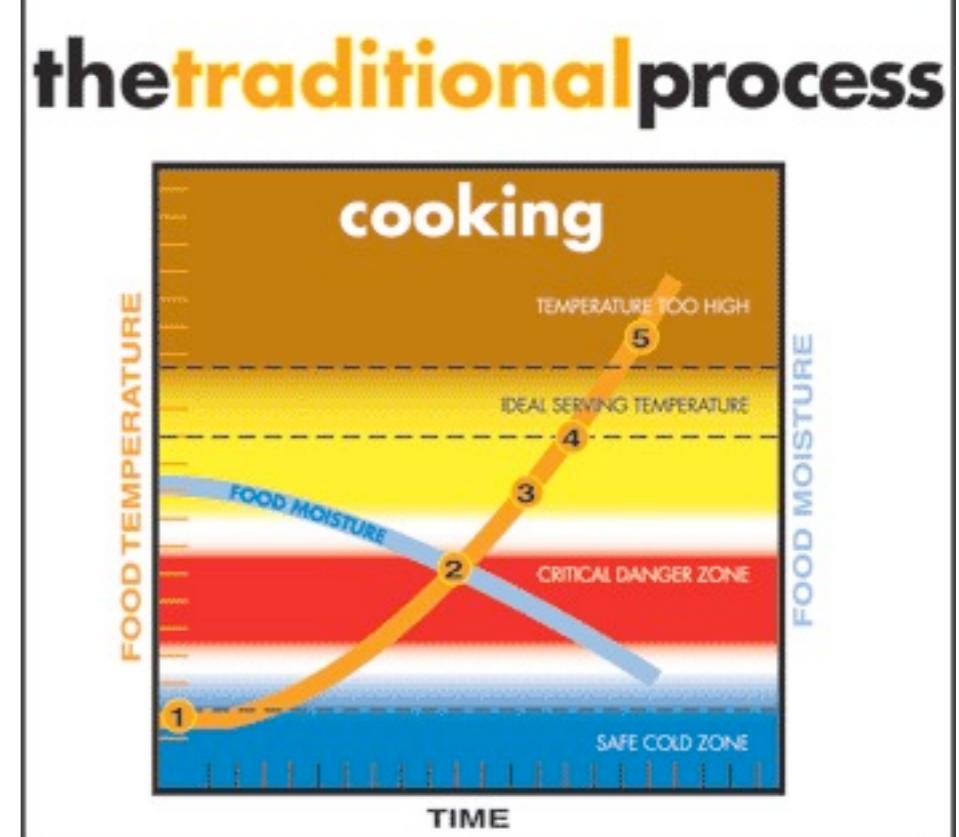


# Agile Infrastructure & Agile Sysadmin

# Comparing Agile and ITIL



Agile



ITIL

# Certifications



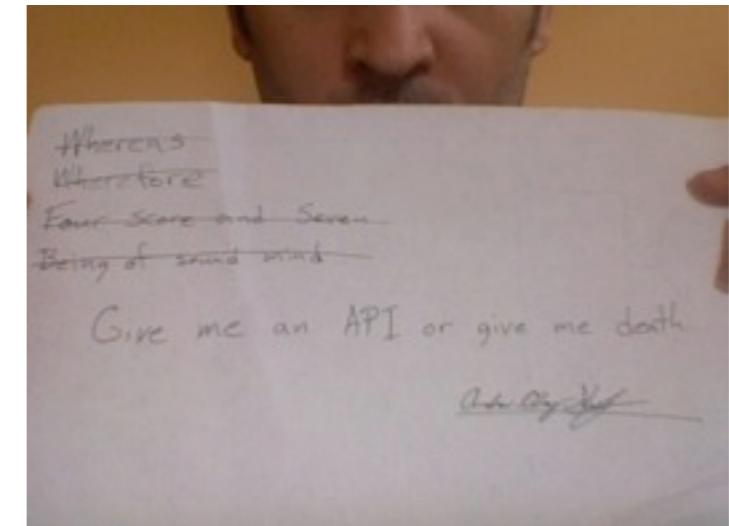
# Process Fundamentalism



# Manifesto's for the world



## Agile Manifesto



## Meat Cloud Manifesto

== Rules ==

On Infrastructure

-----  
There is one system, not a collection of systems.

The desired state of the system should be a known quantity.

The "known quantity" must be machine parseable.

The actual state of the system must self-correct to the desired state.

The only authoritative source for the actual state of the system is the system.

The entire system must be deployable using source media and text files.

On Buying Software

.....

## James White Manifesto



# Truck Factor 10th floor test

The number of people on your team  
who have to be hit with a truck before  
the project is in serious trouble

The ability to take a random machine in your infrastructure  
, drop it from the 10th floor,  
and be able to restore your infrastructure to working within 5-10 minu

# Backlog of items

- User Stories
- Features



- Tickets
- Incidents
- Problems

<b>Nutrition Facts</b>	
Per 1 bar (35 g)	
Amount	% DV†
Calories 130	
Fat 2.5 g	4 %
Saturated 1 g + Trans 0 g	5 %
Cholesterol 0 mg	0 %
Sodium 115 mg	5 %
Potassium 135 mg	4 %
Carbohydrate 26 g	9 %
Fibre 6 g	24 %
Sugars 7 g	
Starch 13 g	
Protein 2 g	

**INGREDIENTS:** WHOLE WHEAT ROLLED OATS, MILLED CORN, RICE, ROLLED BARLEY, SUGAR, FANCY MOLASSES, VEGETABLE OIL, SALT, BARLEY MALT SYRUP, HONEY, VITAMINS (THIAMIN HYDROCHLORIDE, NIACINAMIDE, d-CALCIUM PANTOTHENATE, PYRIDOXINE HYDROCHLORIDE, FOLIC ACID), MINERALS (IRON, ZINC OXIDE), SOY LECITHIN, BHT. CONTAINS WHEAT AND SOY INGREDIENTS.

# Requirements

## Functional

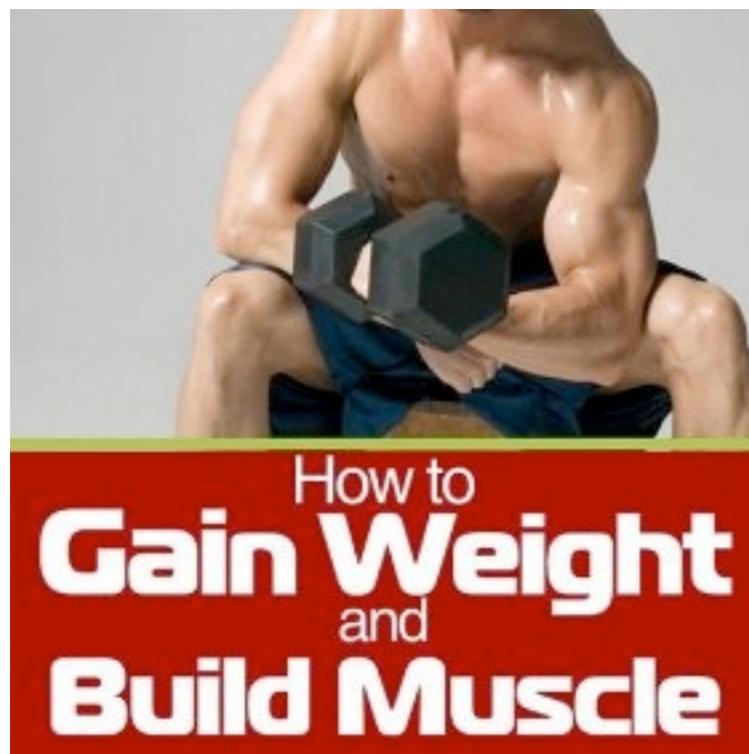
- Login/Logout
- Print order
- CRUD order

## Non-Functional

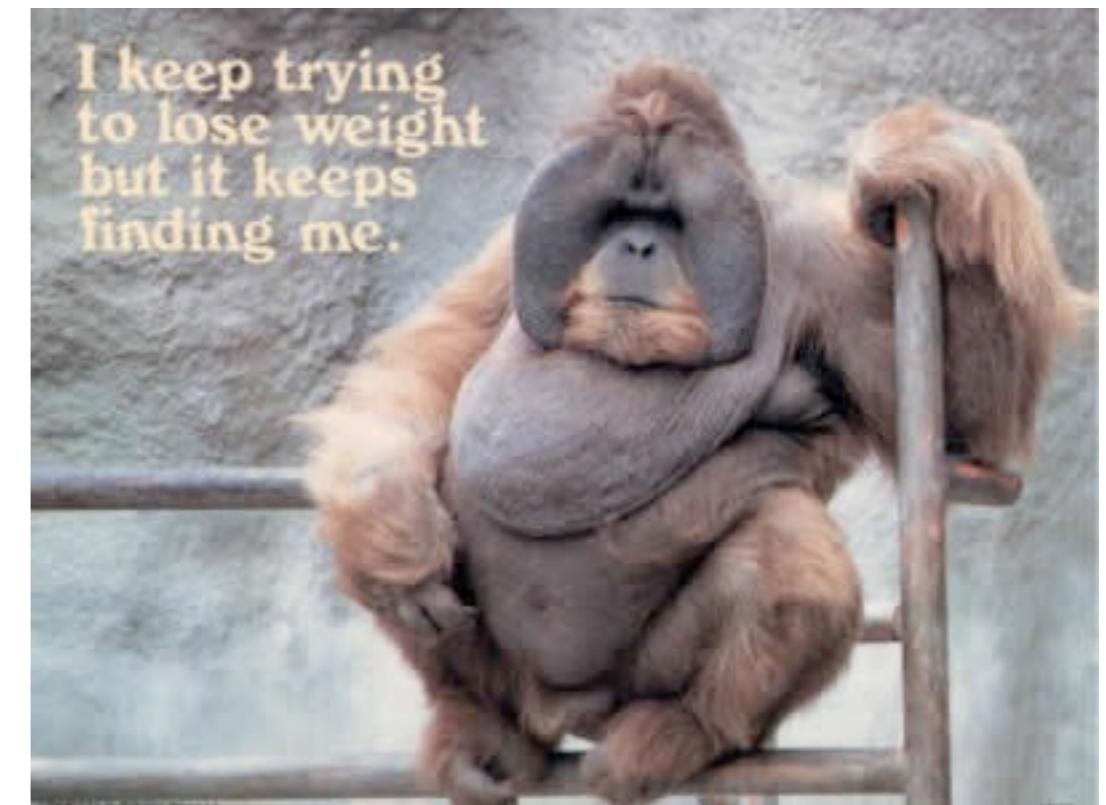
- Security
- Capacity
- Stability
- Scalability

# Business Value

Ordered by  
the value gained



Ordered by the value  
protected



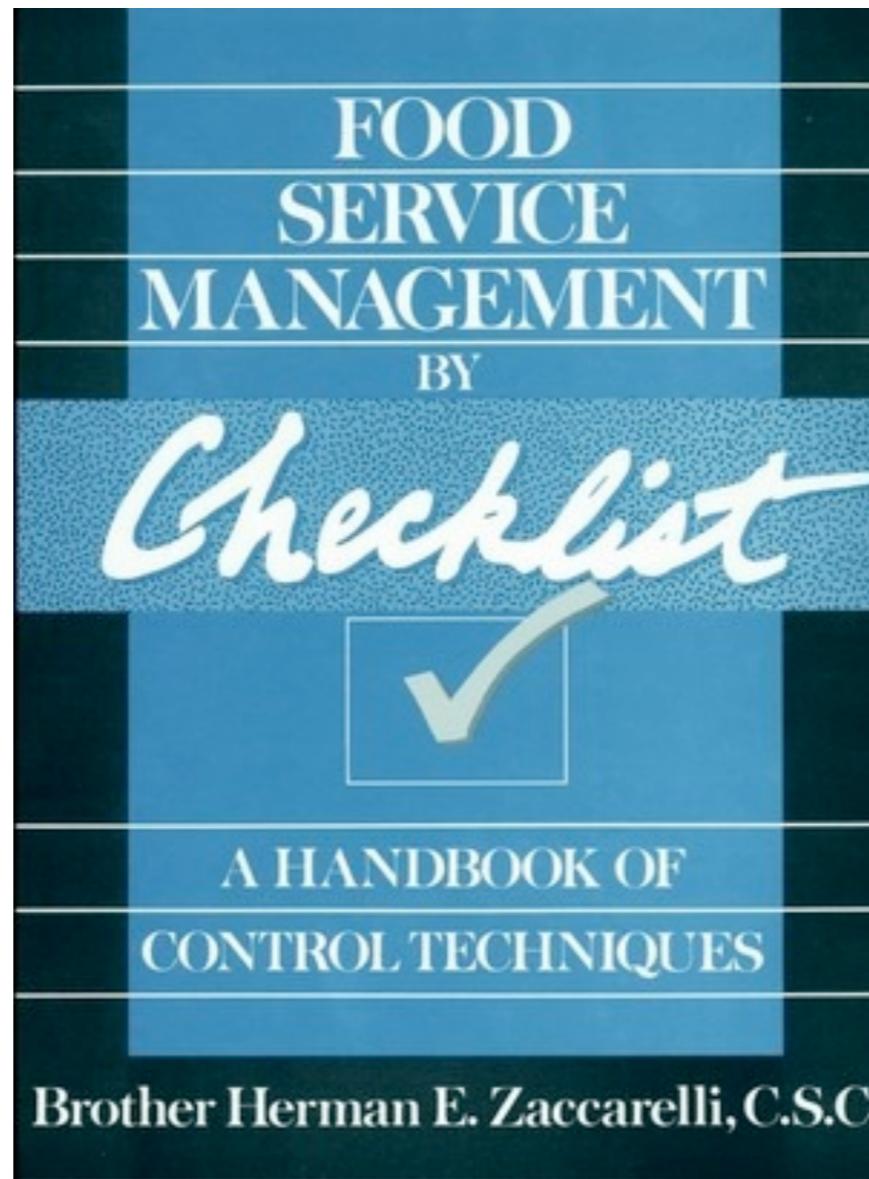
Increase Change

Avoid Change

# Understand what the business wants

Proxy  
Customers

Service  
Manager



# Support the team

Scrum Manager

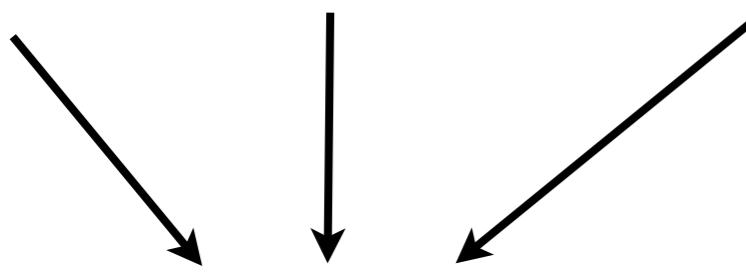


Service Delivery  
Manager

# Ideally one product owner

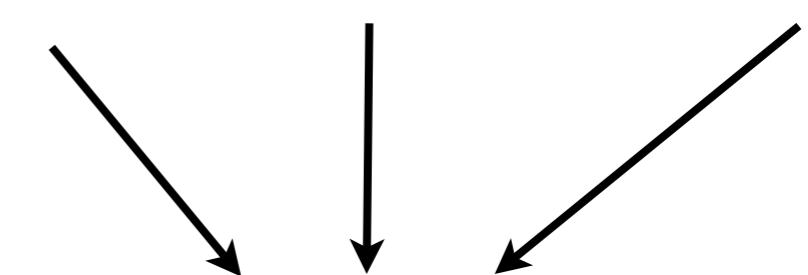


Product Owner1   Product Owner2   Product Owner3



Scrum Master

Project 1   Project 2   Project 3



Operations Manager

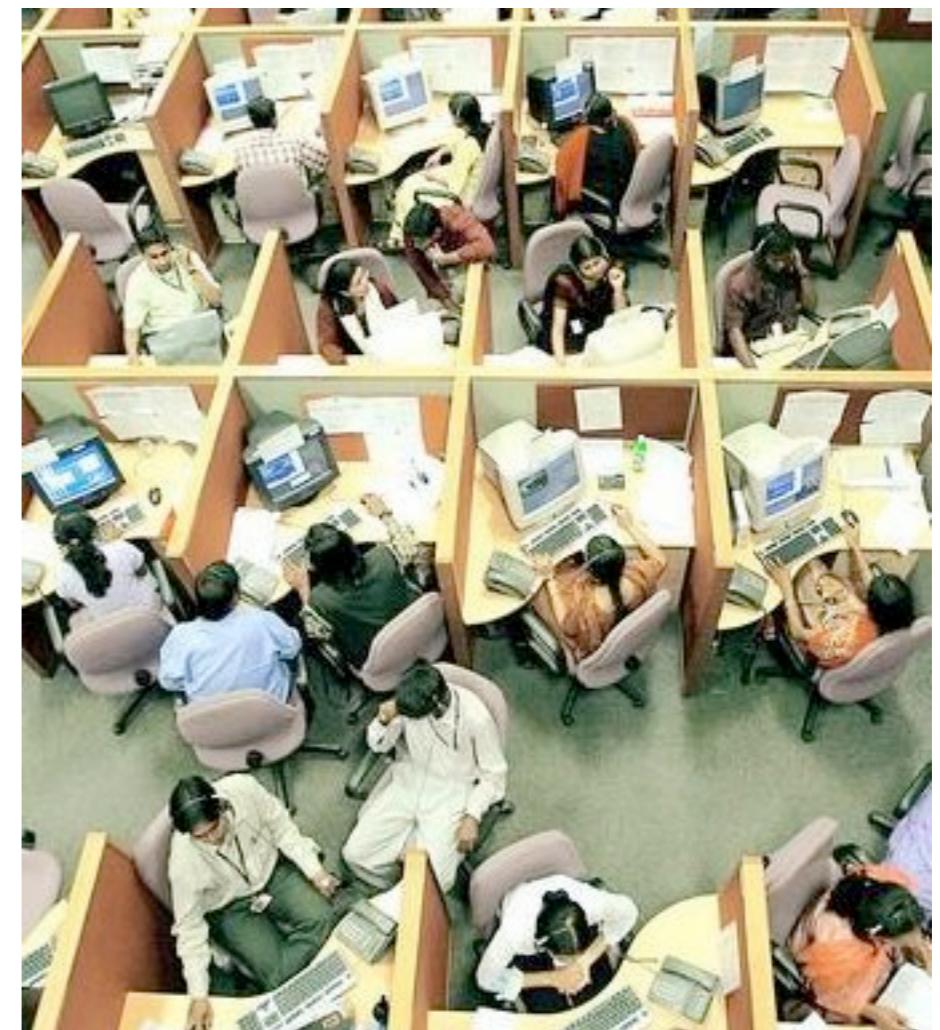
Development Team

Operations Team

# Outsourcing



© eTravelPhotos.com



Outsourced  
Development

Call Centers

# Specialist & Generalists

# Rockstar Mentality

Analysts

Testers      UI

Designers

Frontend

Backend

Security

Network

Sysadmins

Storage



# Global Ownership

It's the  
javascript

It's the  
backend

It's the  
database

It's the  
network

It's the  
server

It's the  
storage



# Sprint Review Meeting

# Change Advisory Board

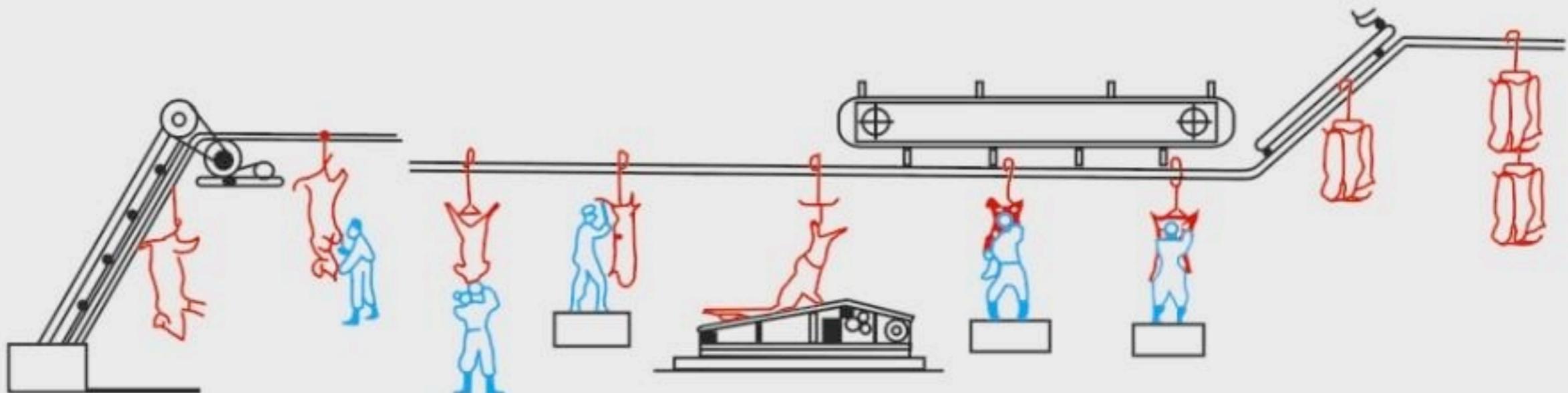


Approve Changes

# Iterations & Flow



# Kanban



提升机

Cattle Lifter

刺杀放血

Killing and  
Bleeding

预剥

Pre-  
Dehiding

换轨

Rail  
Changing

割头蹄

Head and  
Feet Cutting

扯皮

Skin  
Pulling

开腔分离内脏

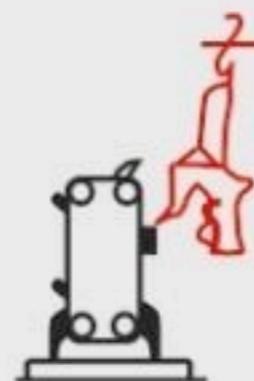
Thorax Open and  
Viscera Separation

修整检验

Trim & Exam

洗整过磅入库

Wash-Trim-  
Weight-Storage



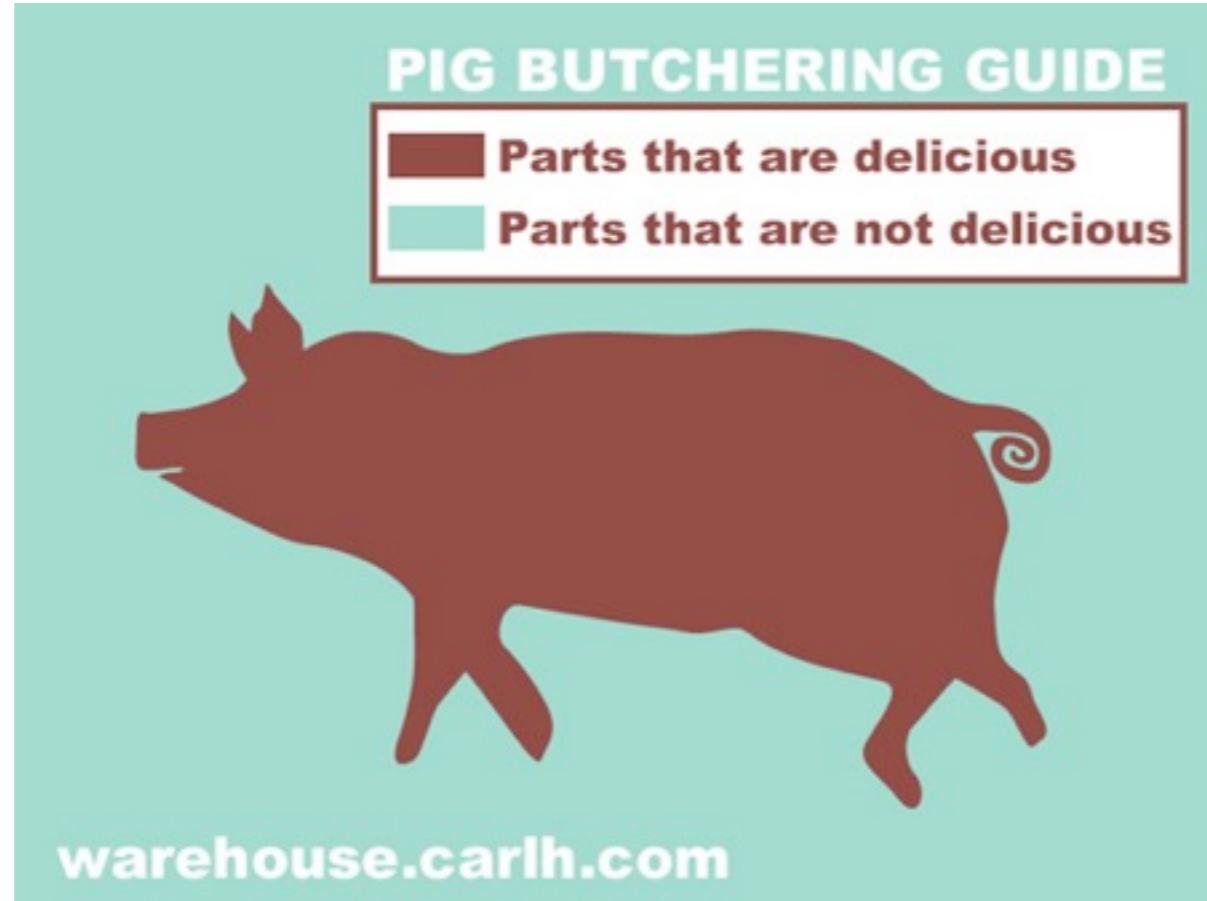
同步卫检

Synchronous Sanitary Inspection

# I day sprints Operations



# Sprint Velocity



# Service Levels

Story Points

Estimate  
Improves over time  
Team Approved

Uptime 99%

# Continuous Improvement

## Lean Thinking



lean meat contains little to no fat. you should be able to get whatever type of meat you would like from your butcher, you just have to ask.

2 years ago

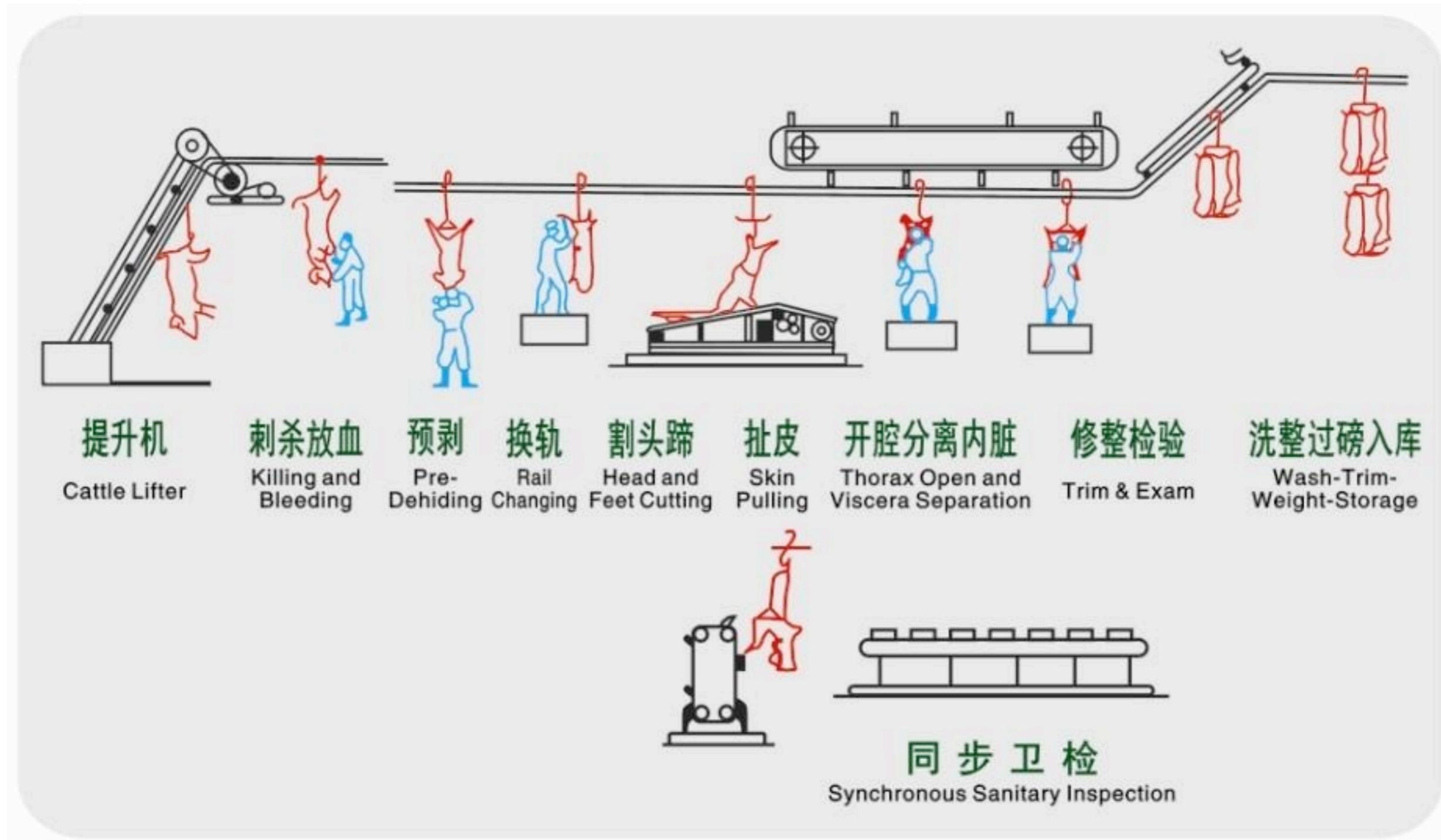
g/Rae

0% 0 Votes

Lean  
Software  
Development

Lean ITIL

# Value Stream Mapping



# Technical waste





REAL  
DOGS

EAT  
MEET

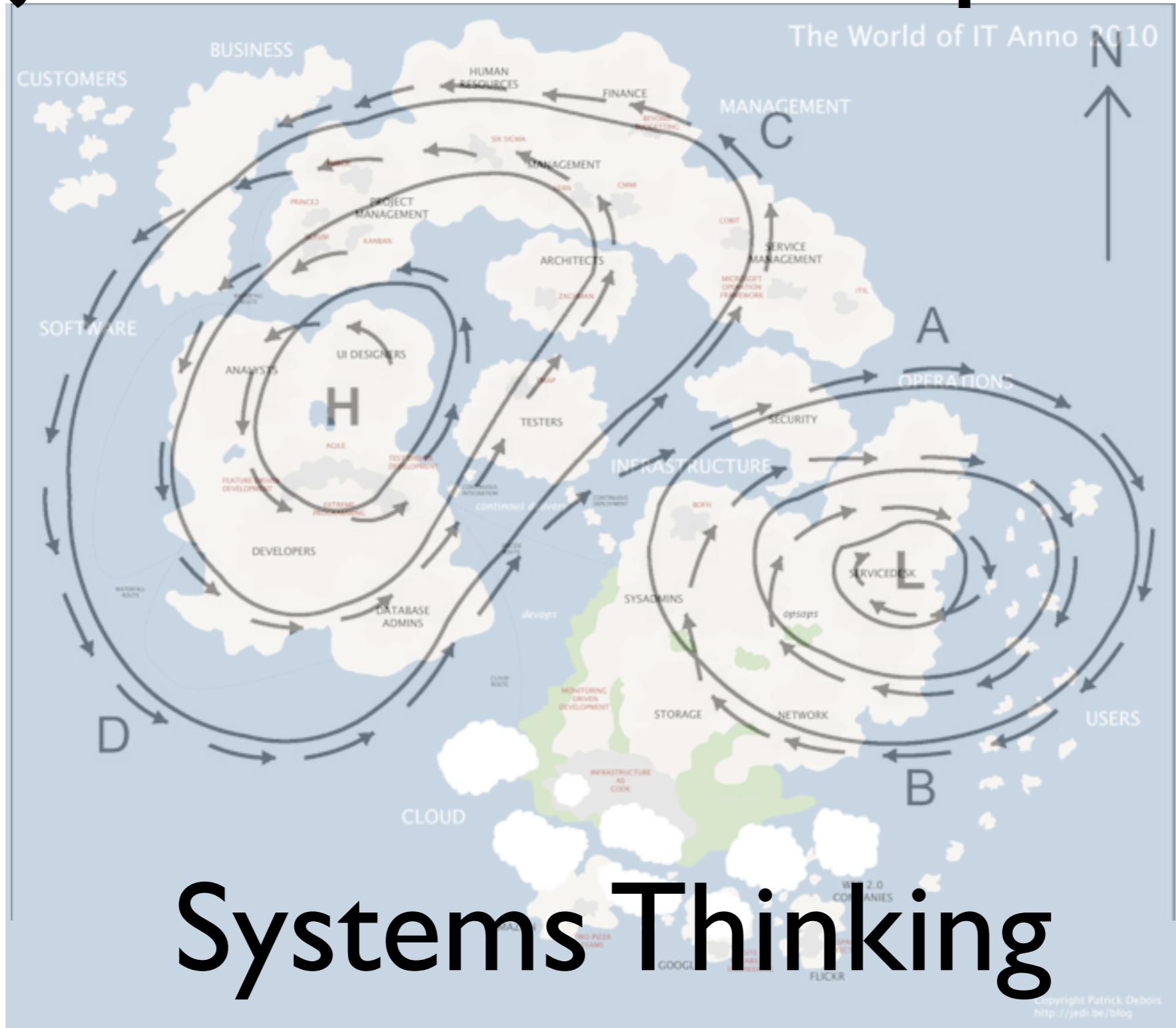
★ HANDBOOK ★

I know  
all that

What's new?



# Optimize the whole not just the individual parts



# People make it happen



# Culture & Mindset

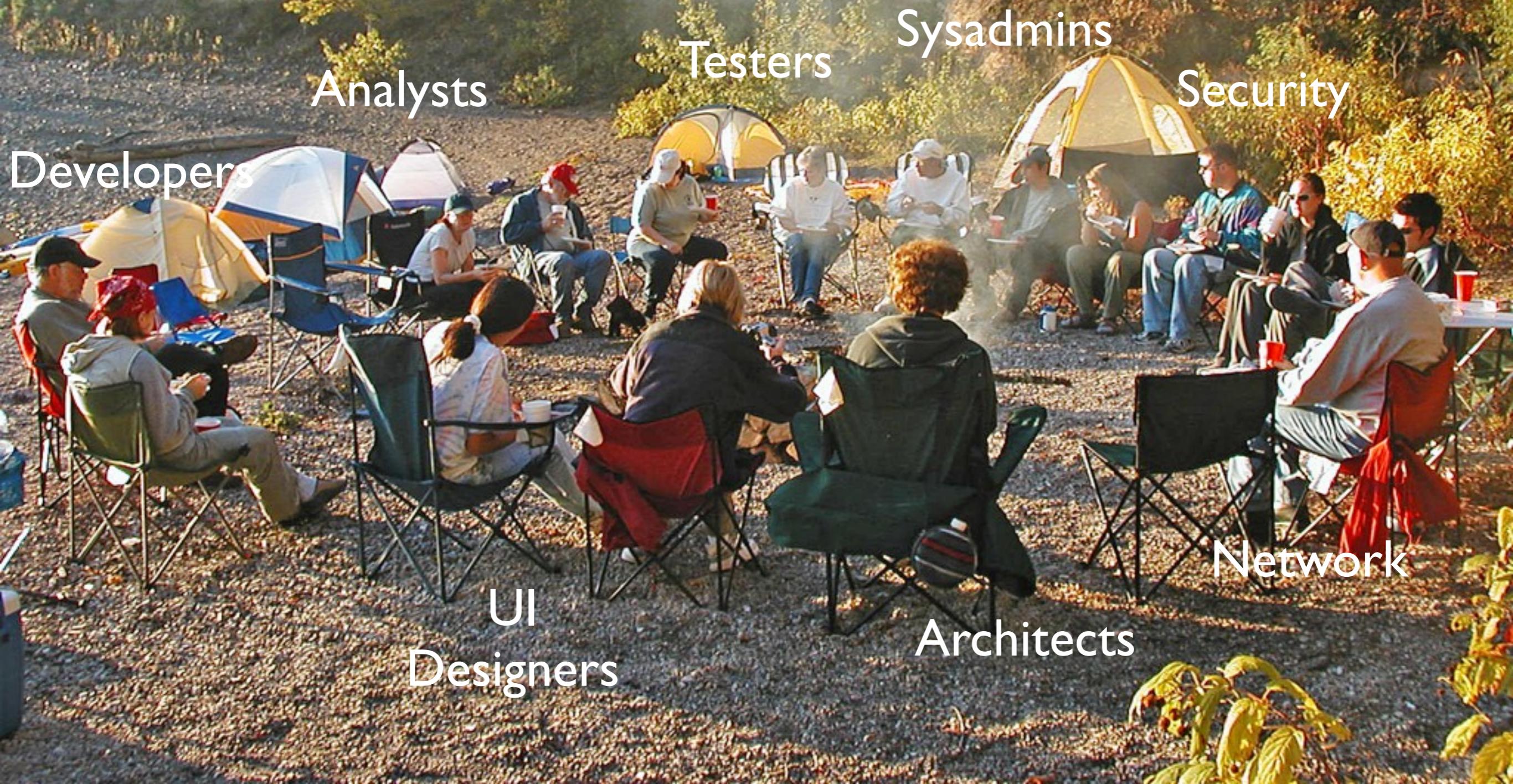
## meat without murder

Modern technology and a handful of motivated scientists may just make factory farms and slaughterhouses a thing of the past

By Barbara Tunick Illustrated by Yunmee Kyong



# Collaboration not only when things go wrong

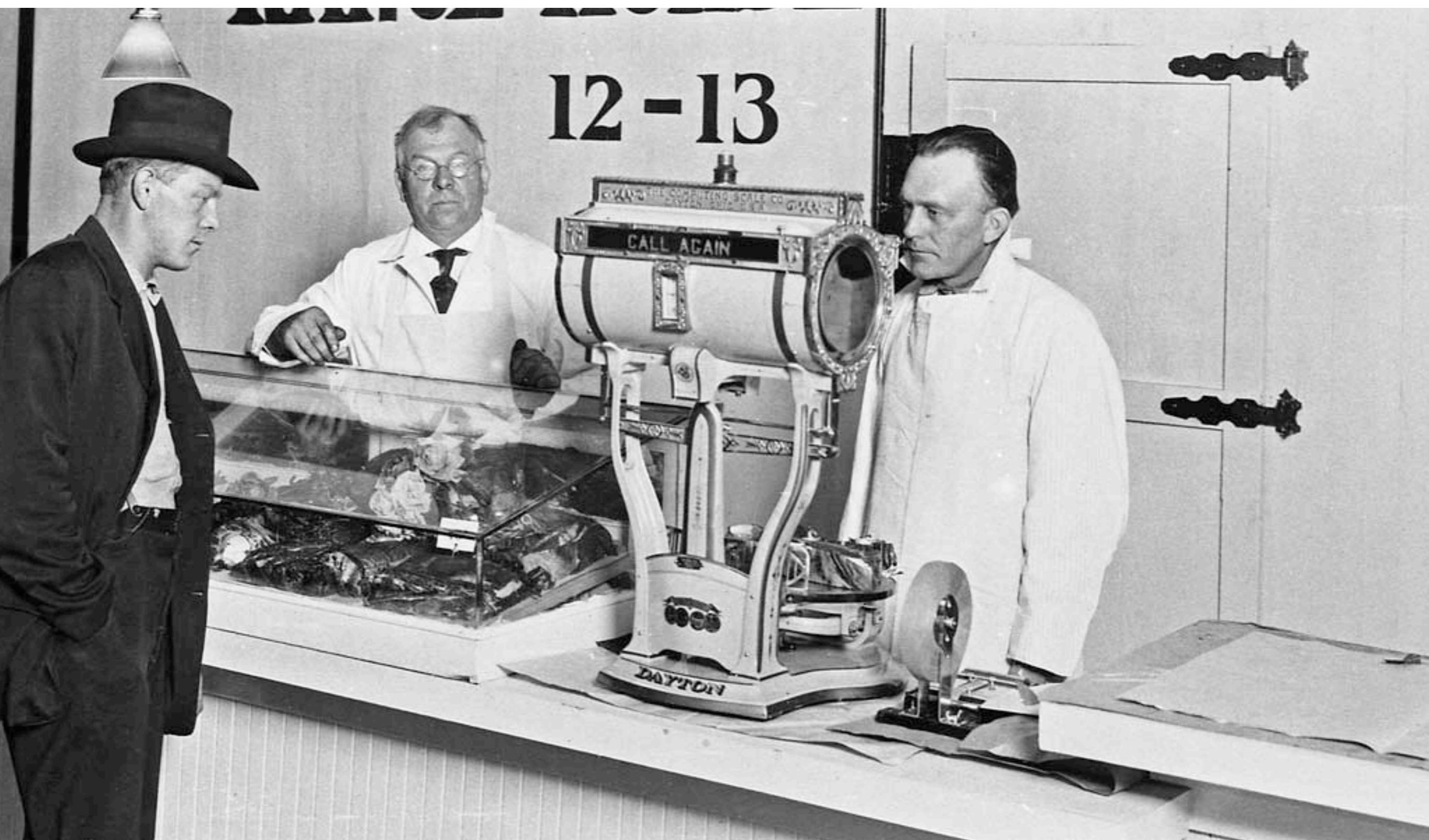


# No rock star mentality



Mine are bigger then yours

# Craftsmanship



# Trust



A close-up photograph of a man with short brown hair, smiling warmly at the camera. He is wearing a white t-shirt with black horizontal stripes. The background is filled with numerous books, their spines visible, creating a soft, out-of-focus texture. The lighting is warm and focused on his face.

It's about customer  
value

# Interesting Books

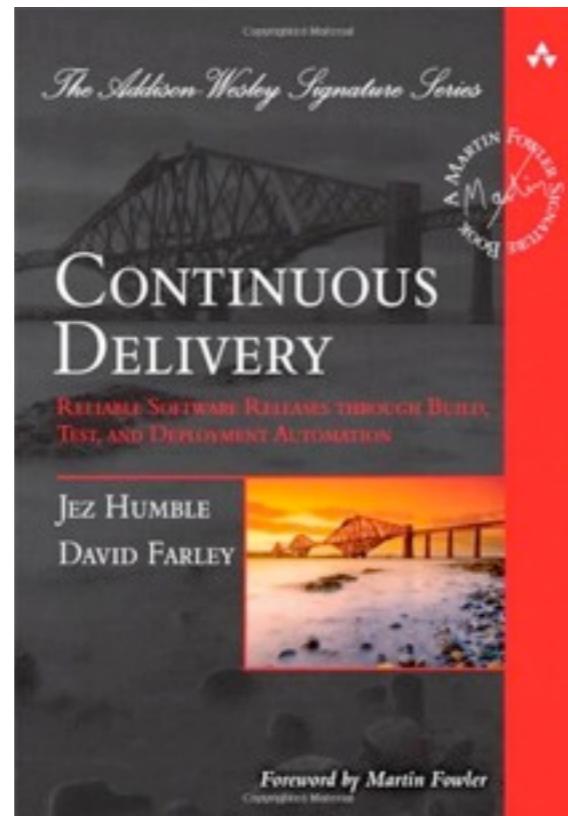
## KANBAN

Successful Evolutionary Change  
for Your Technology Business



David J. Anderson

Foreword by David G. Kaelin



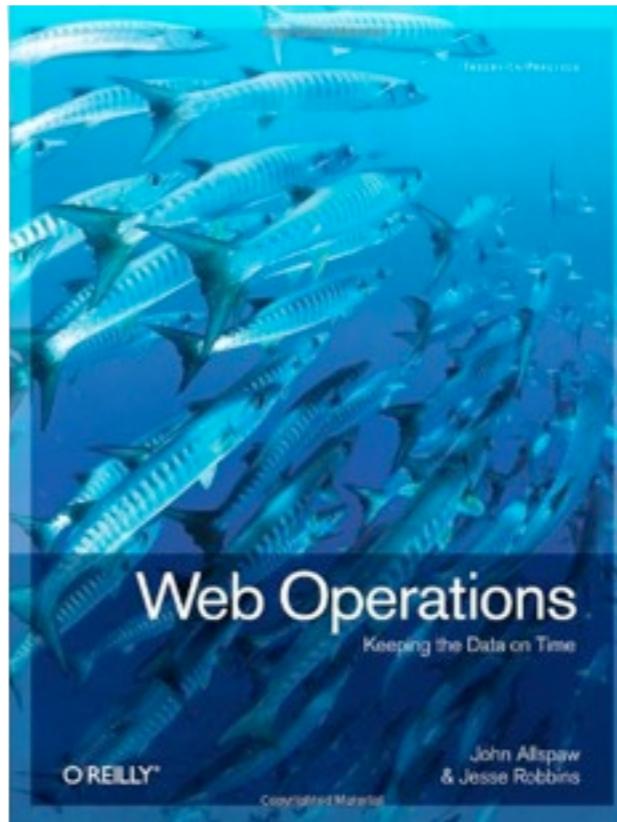
## CONTINUOUS DELIVERY

RELIABLE SOFTWARE RELEASES THROUGH BUILD,  
TEST, AND DEPLOYMENT AUTOMATION

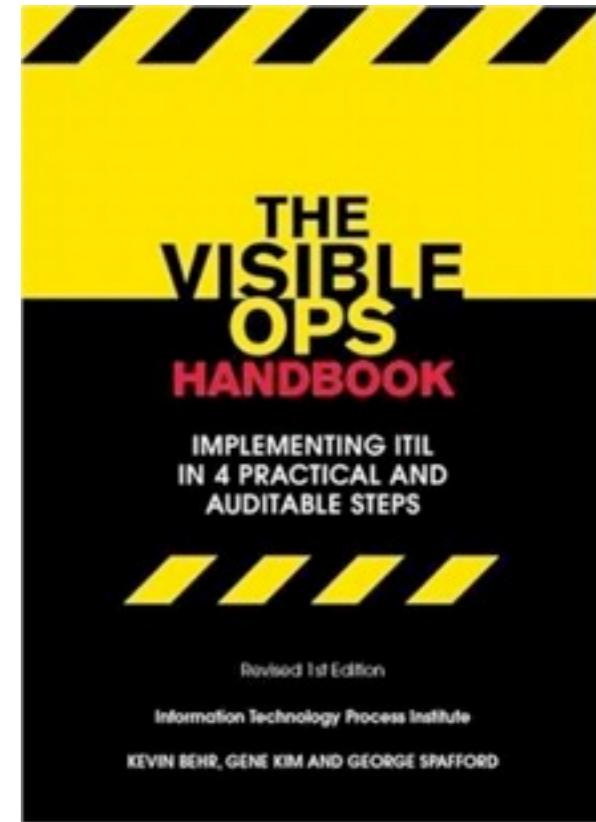
JEZ HUMBLE  
DAVID FARLEY



Foreword by Martin Fowler



John Allspaw  
& Jesse Robbins



## THE VISIBLE OPS HANDBOOK

IMPLEMENTING ITIL  
IN 4 PRACTICAL AND  
AUDITABLE STEPS

Revised 1st Edition

Information Technology Process Institute

KEVIN BEHR, GENE KIM AND GEORGE SPAFFORD



Want to know more?

#devops on twitter & irc

<http://devopsdays.org>

<http://devopscafe.org>

<http://planetdevops.net>

devops googlegroup

devops-toolchain googlegroup

**The End**