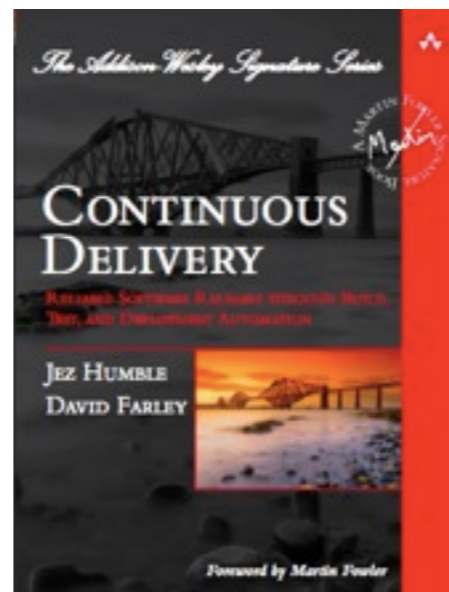


remediation patterns

Jez Humble
GOTO Copenhagen 2011 #gotocph



jez@thoughtworks.com @jezhumble #continuousdelivery

remediation

ITIL: “Recovery to a known state after a failed Change or Release.”

Recovery: “Returning a Configuration Item or an IT Service to a working state.”

Jez: “Fixing shit when it breaks”

strategies for remediation

prevention

patterns for low-risk release

patterns for incremental delivery

1 oz of prevention

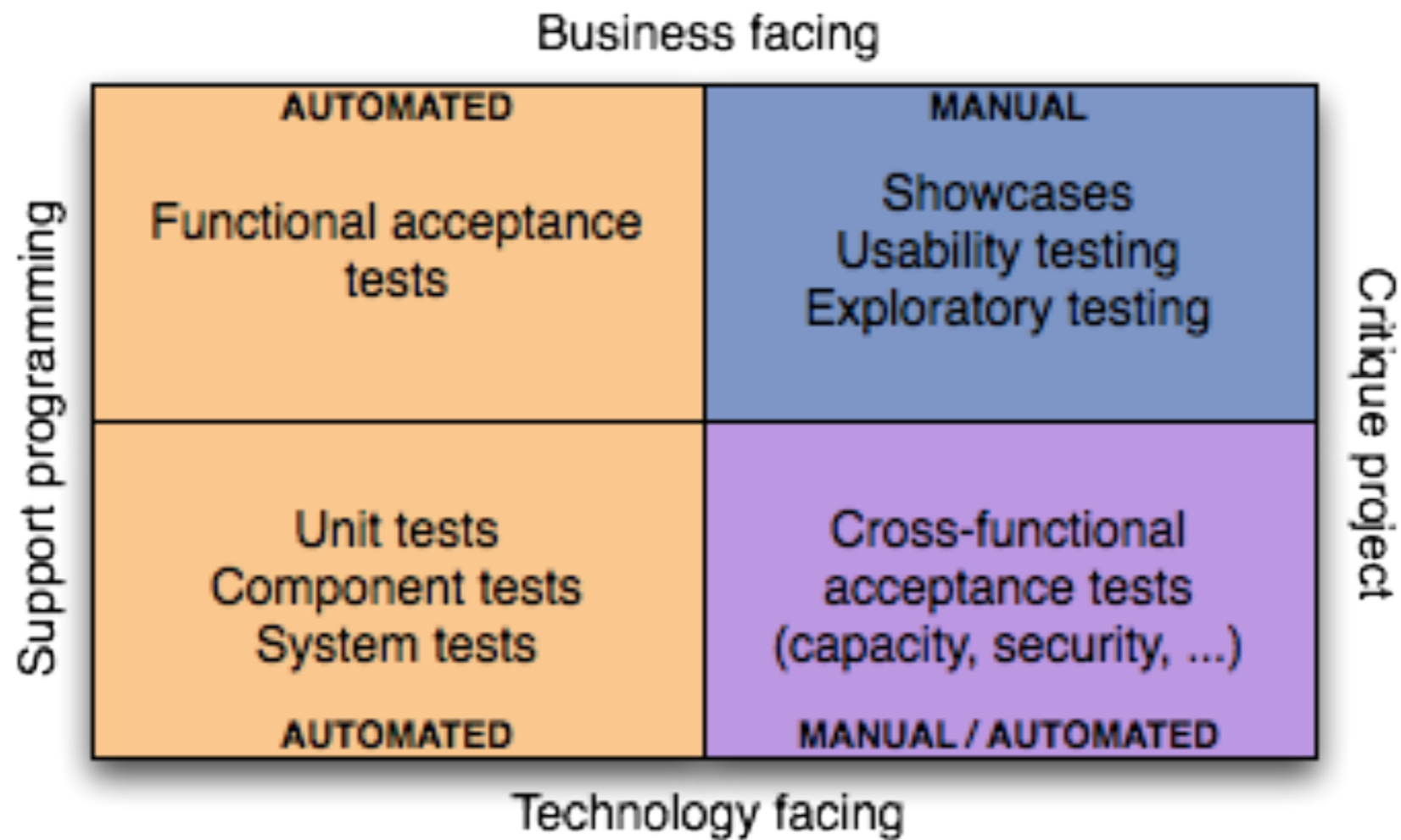
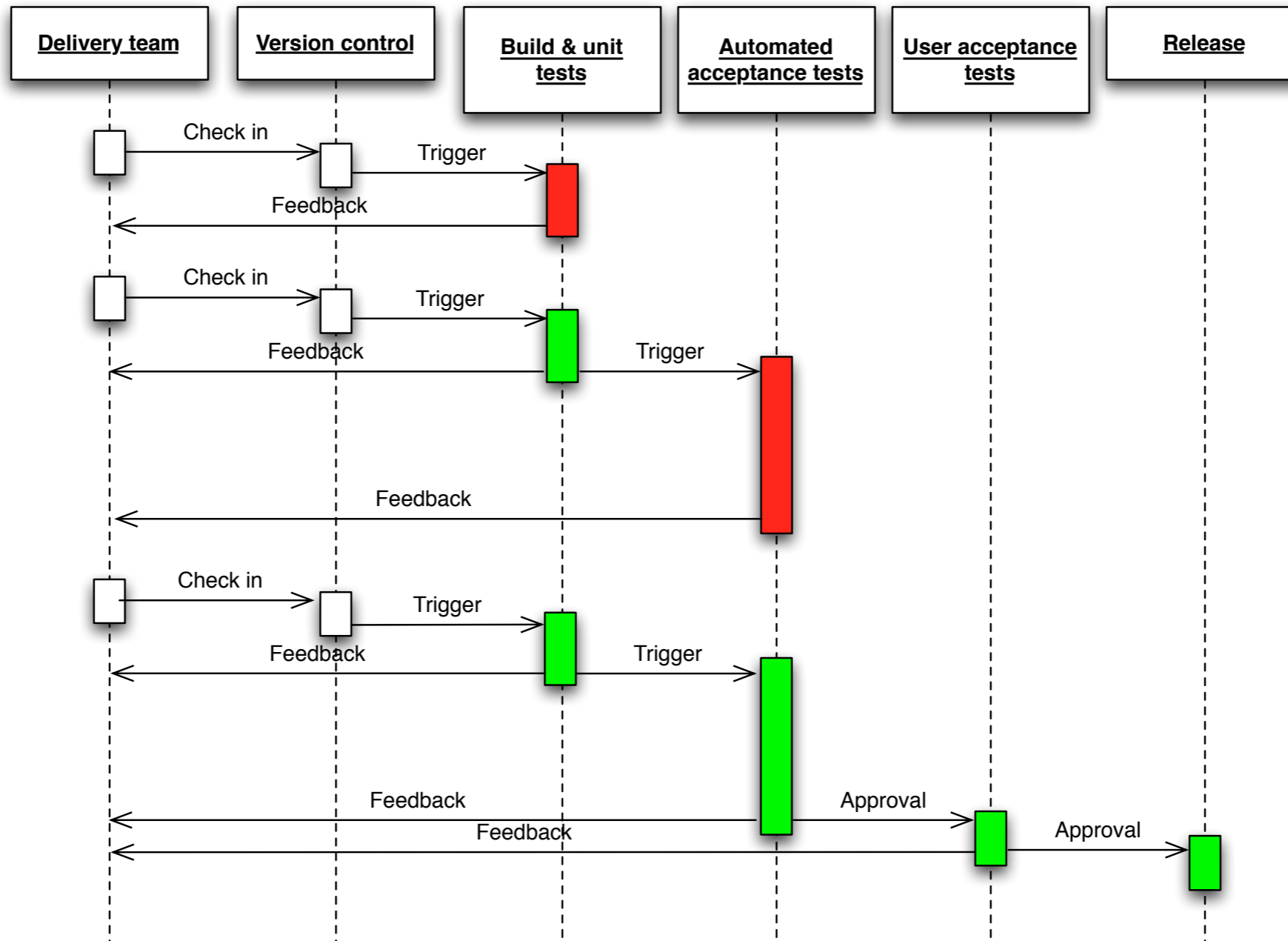


Diagram invented by Brian Marick

deployment pipeline



the hard bits

testing on production environments

creating maintainable acceptance tests

testing cross-functional requirements

reducing release risk

automate provisioning and deployment

ensure devs, testers and ops collaborate
throughout

canary releasing

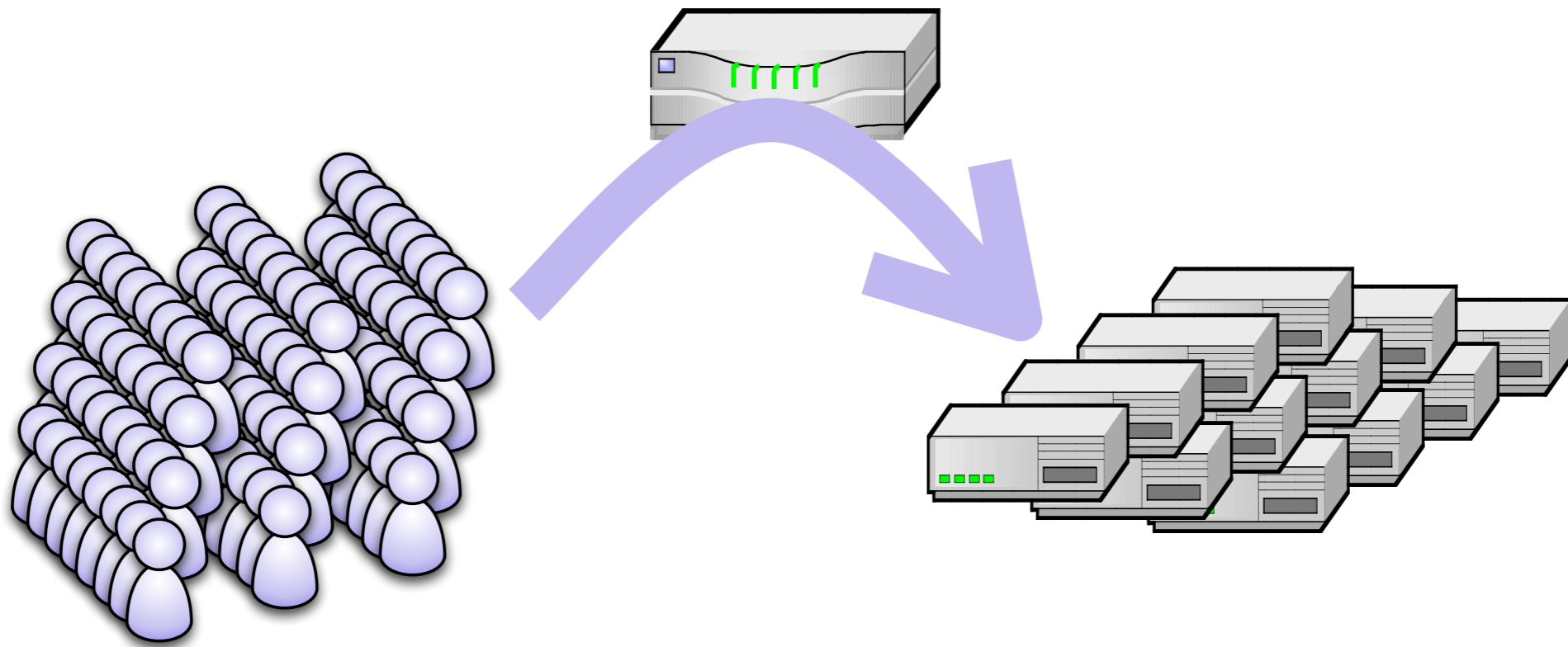


Diagram by Martin Fowler

canary releasing

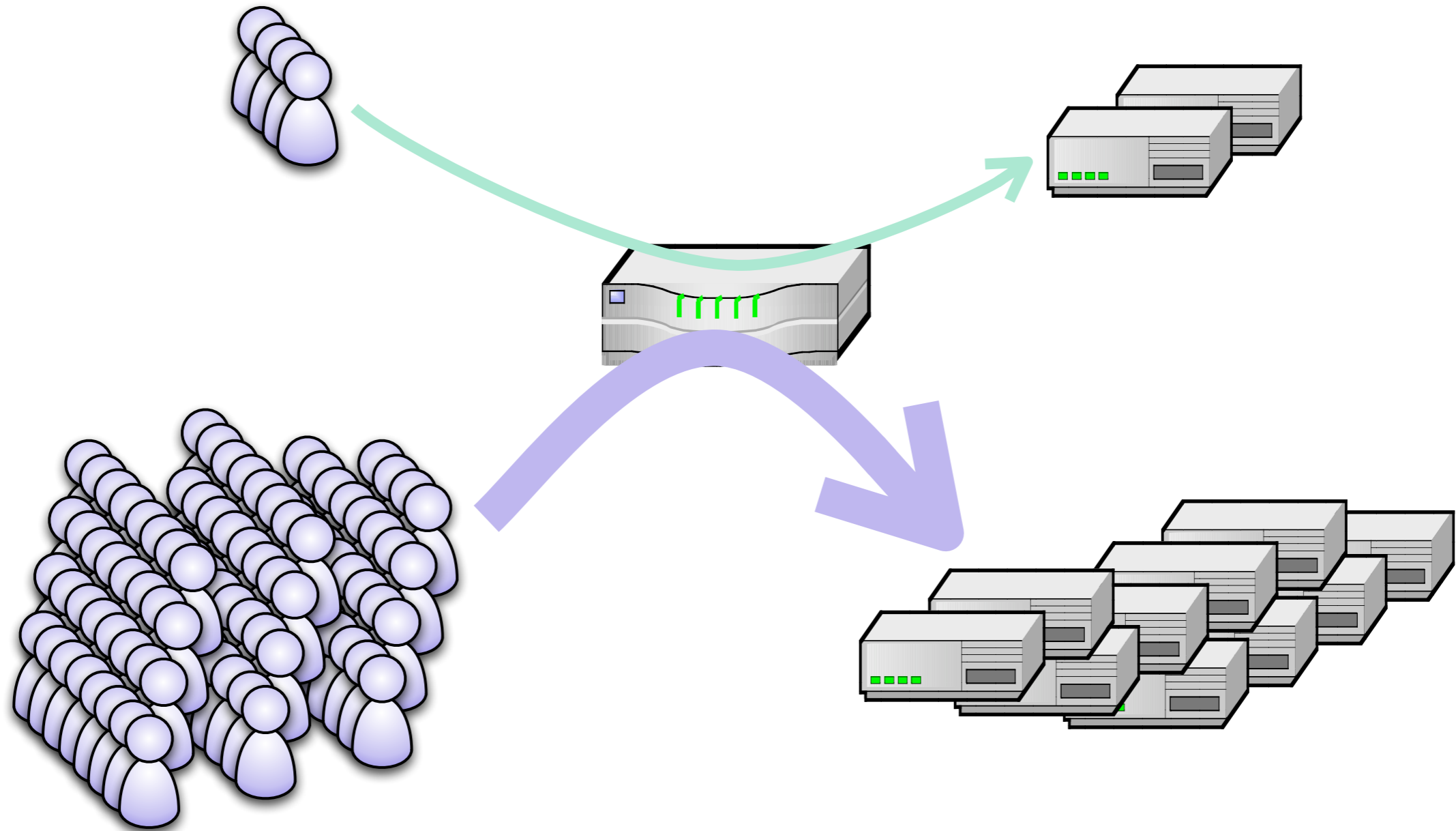


Diagram by Martin Fowler

canary releasing

reduce risk of release

multivariant testing

performance testing

A fluorescence microscopy image showing a large number of T cells. The cells are stained with various fluorescent dyes, resulting in a mix of colors including blue, green, red, and yellow. The cells are scattered across the field of view, with some appearing in small clusters and others more isolated. The background is dark, making the brightly stained cells stand out.

immune system

**what if someone replaced your
“buy” button with spacer.gif?**

T cells <http://www.flickr.com/photos/gehealthcare/3326186490/>

monitoring



Business metrics - revenue, # orders, # users

Ops metrics - changes, incidents, TTD, TTR, TBF

Technical metrics - TPS, response time, hits

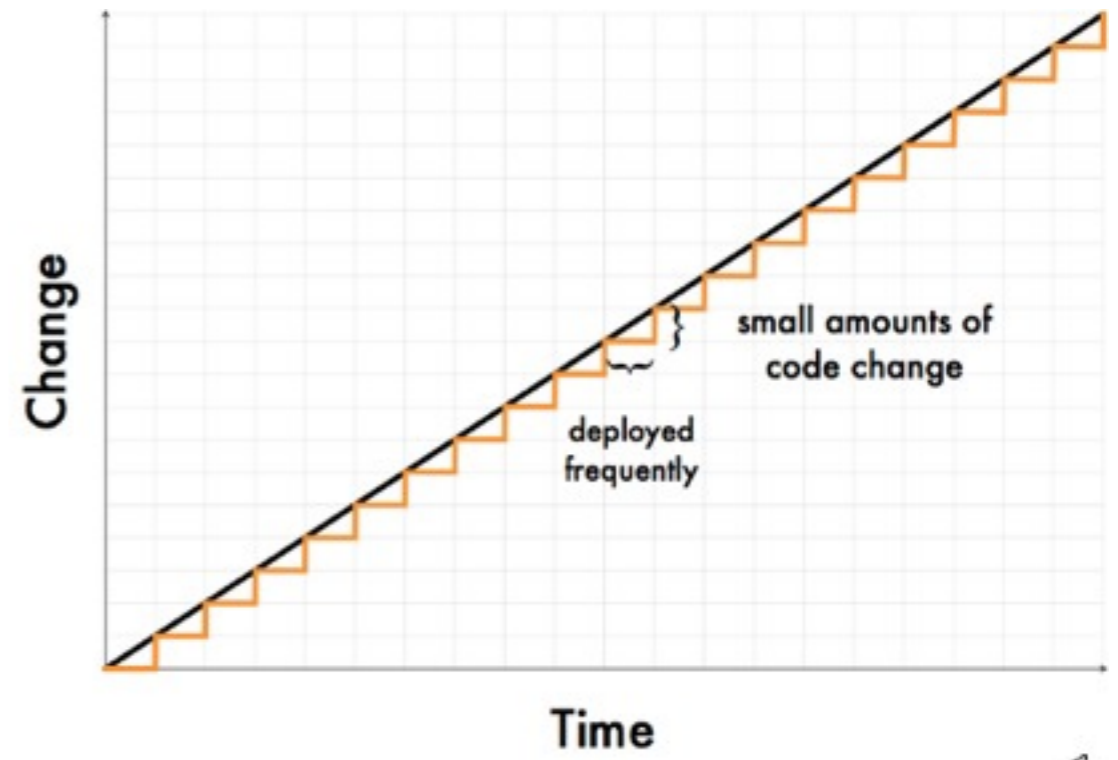
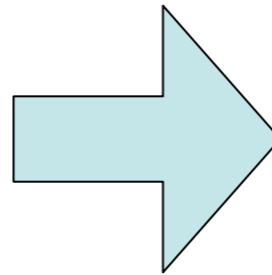
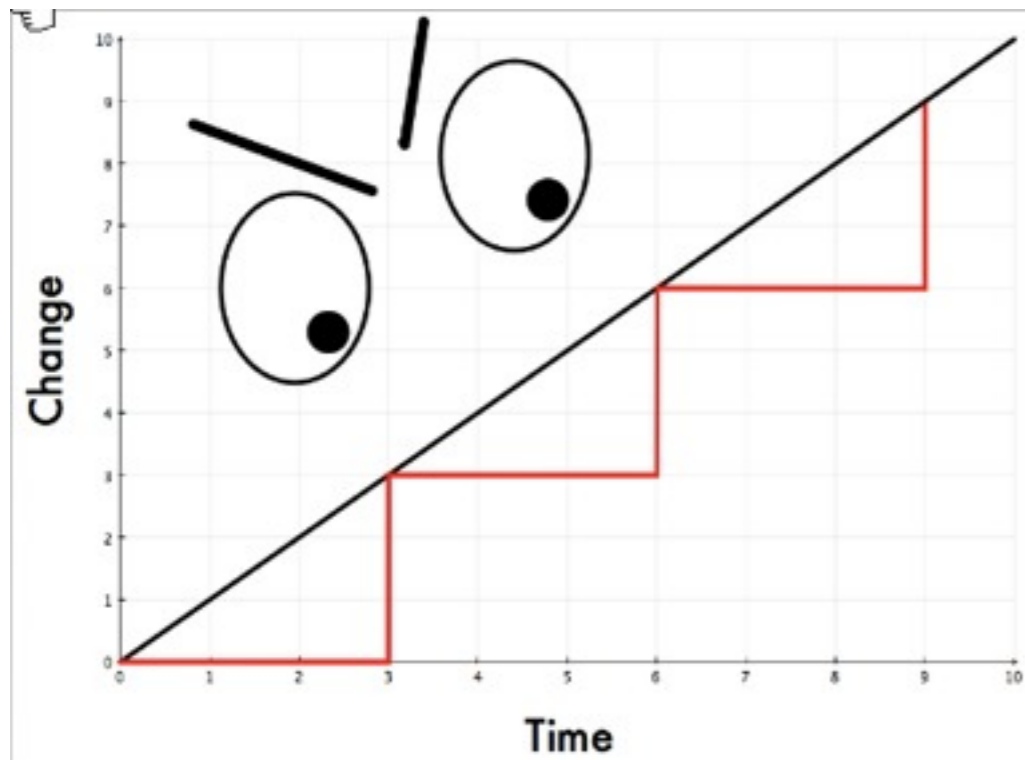
the hard bits

root cause analysis

collaboration

data

incremental delivery



John Allspaw: "Ops Metametrics" <http://slidesha.re/dsSZlr>

incremental delivery

develop on mainline

feature toggles and branch by abstraction

incremental deployments

dark launching

feature toggles

Config File

```
[featureToggles]
wobblyFoobars: true
flightyForkHandles: false
```

some.jsp

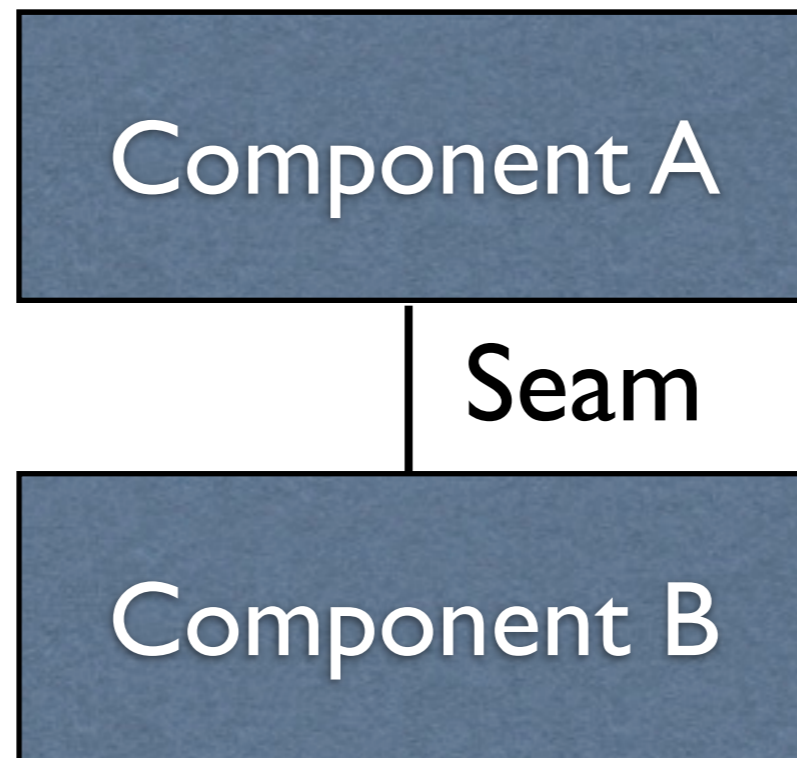
```
<toggle name=wobblyFoobars>
  ... various UI elements
</toggle>
```

other.java

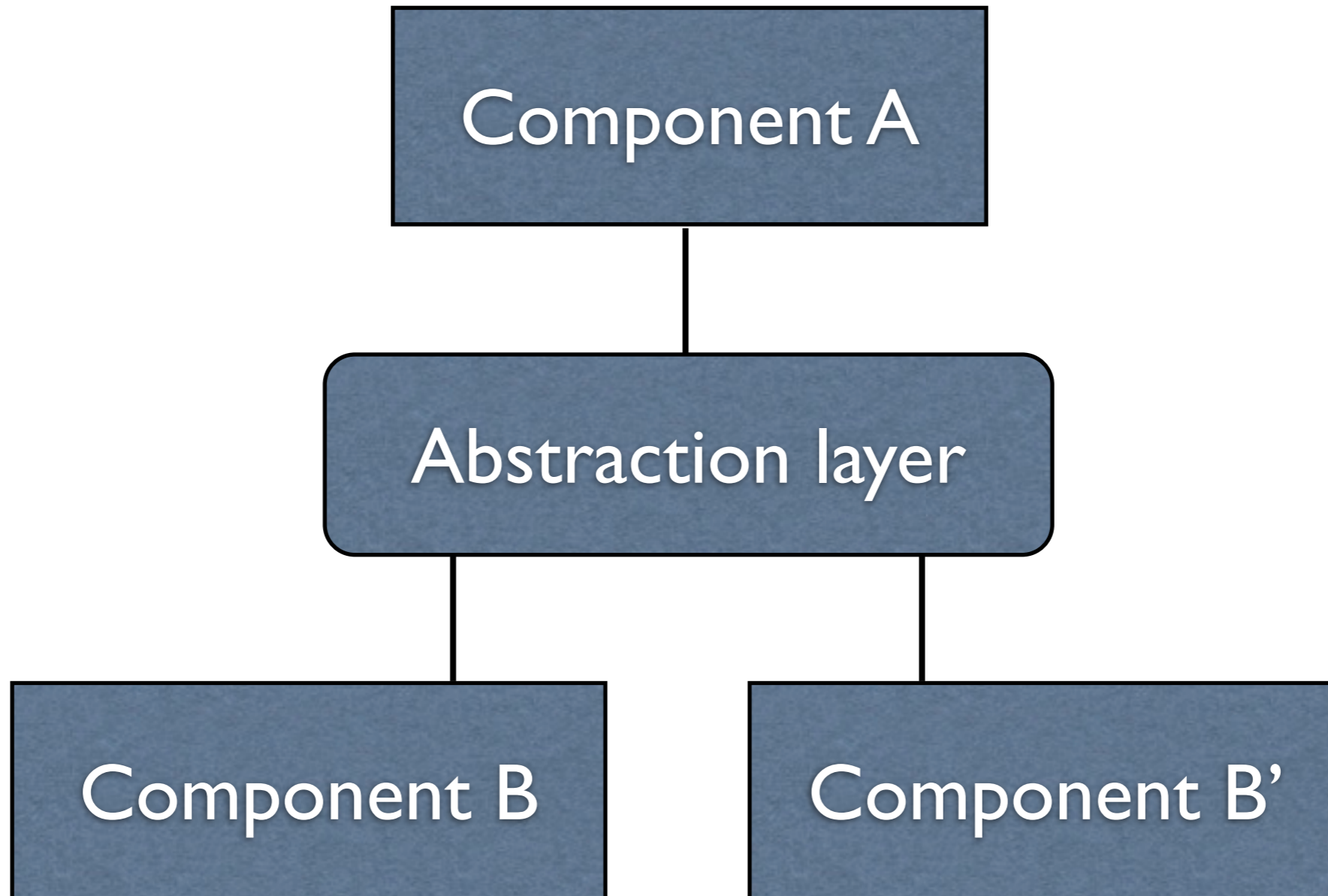
```
forkHandle = (featureConfig.isOn('flightyForkHandles')) ?
    new FlightyForkHandler(aCandle) :
    new ForkHandler(aCandle)
```

Stolen from Martin Fowler <http://martinfowler.com/bliki/FeatureToggle.html>

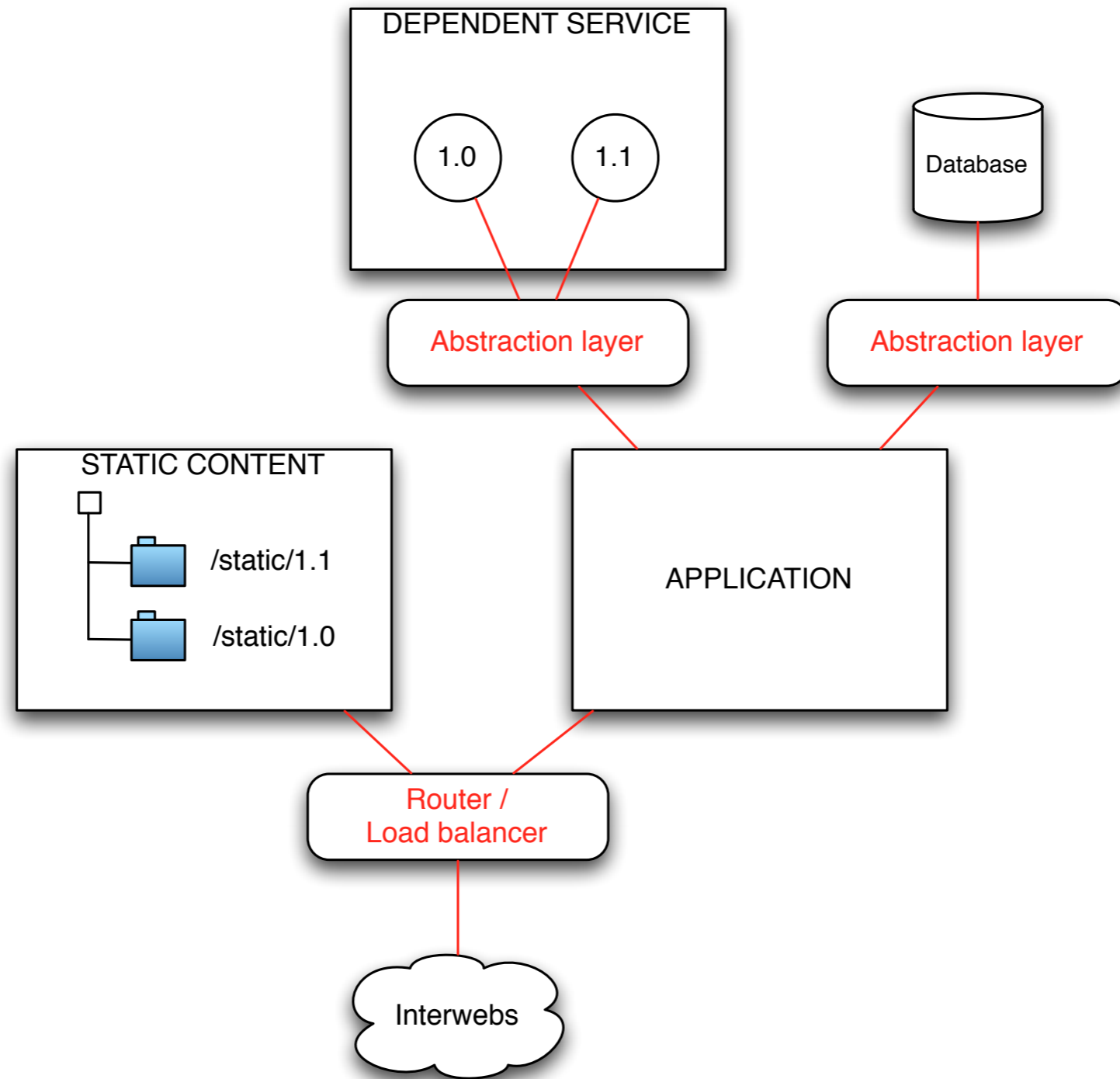
branch by abstraction



branch by abstraction



incremental deployment



dark launching

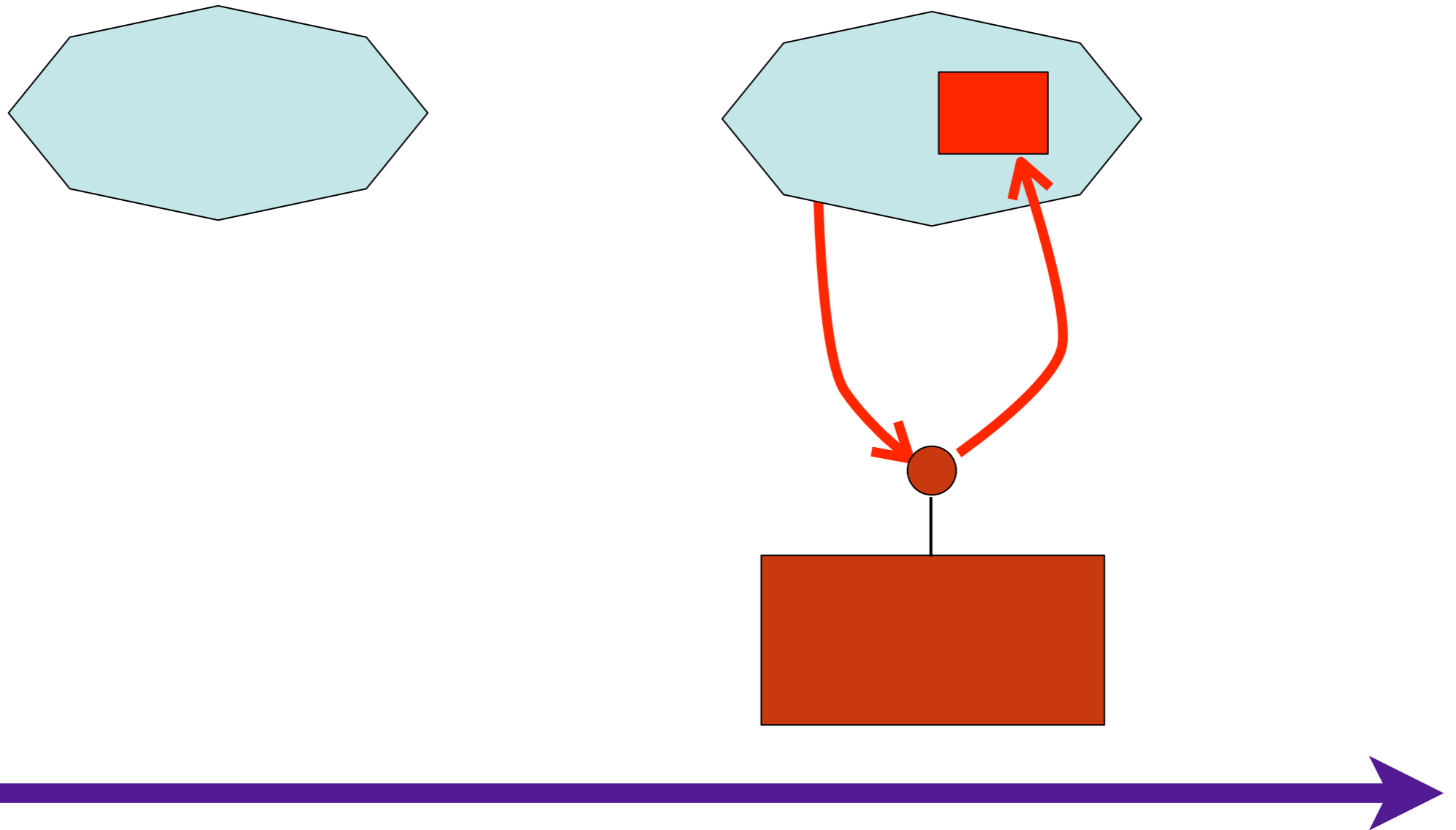


Diagram by Martin Fowler

dark launching

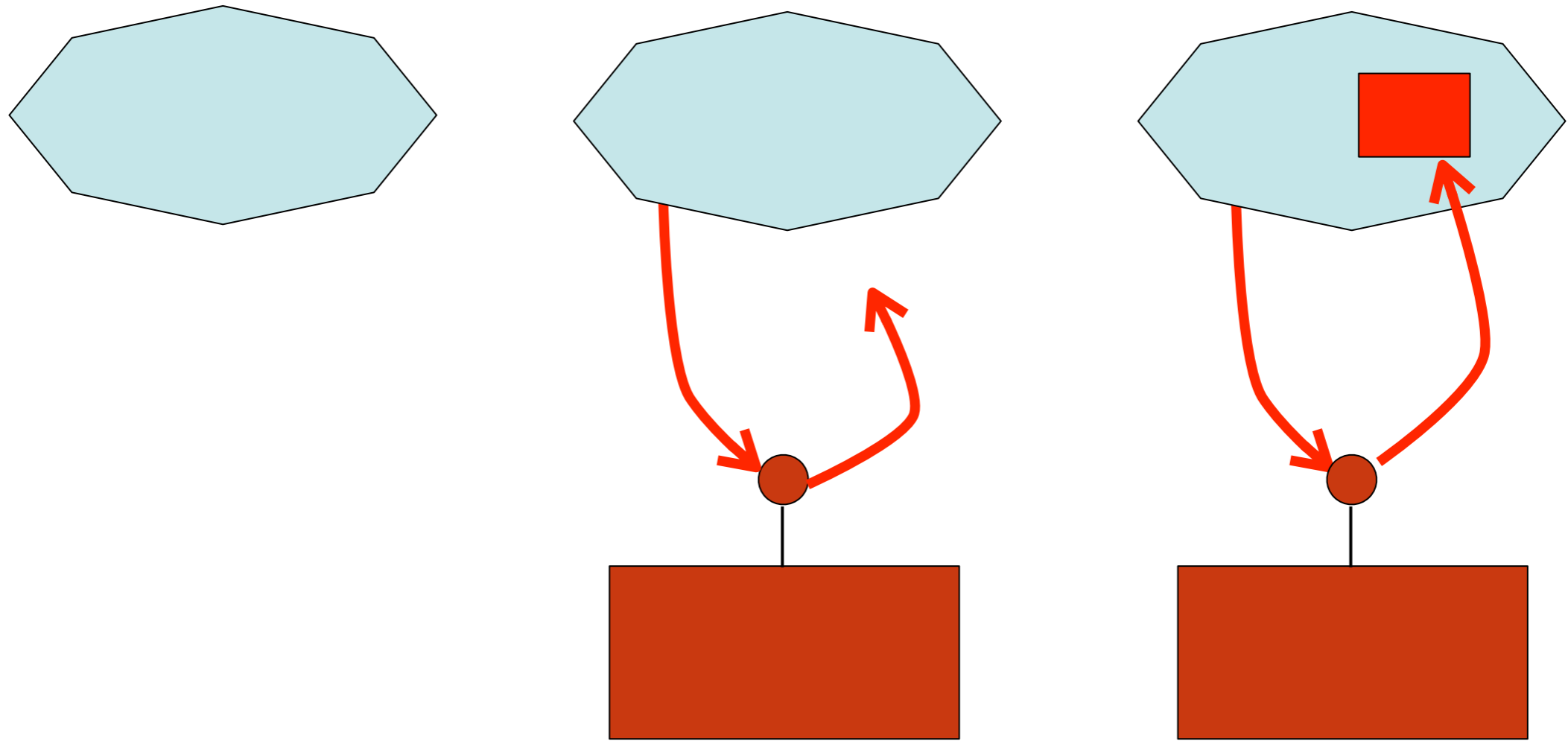


Diagram by Martin Fowler

measuring effectiveness

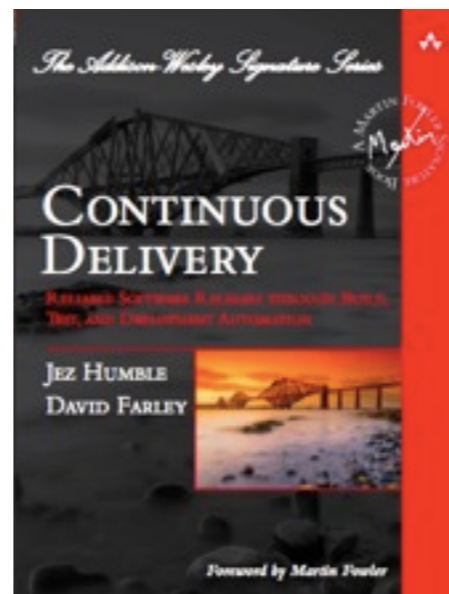
How long would it take you to release a change to a single line of code?

Ops metrics - changes, incidents, TTD, TTR, TBF

If your data center blew up, how long would you take to restore service?

thank you!

Jez Humble



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