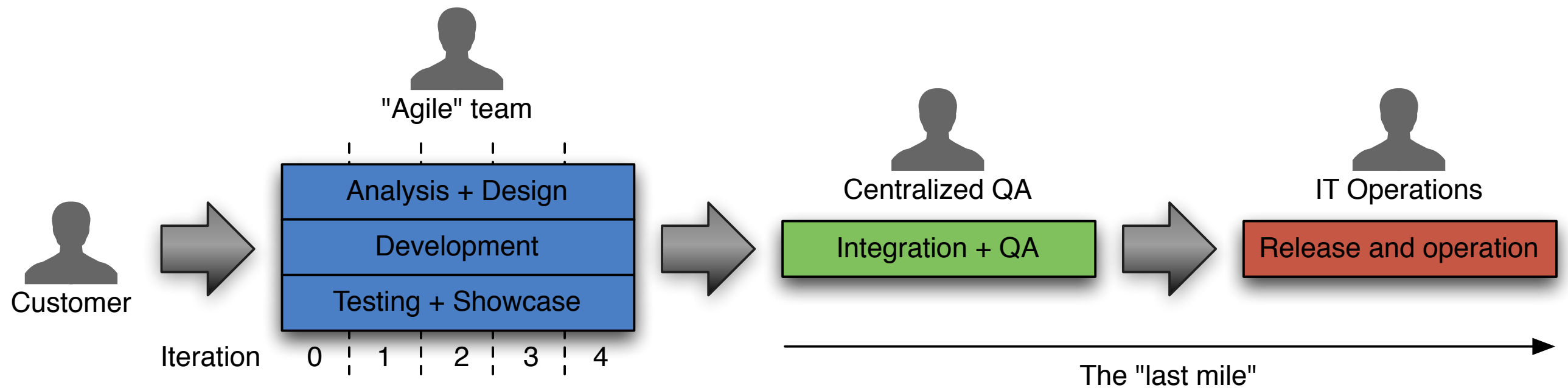


# Continuous Delivery

Jez Humble  
@jezhumble

# agile 101

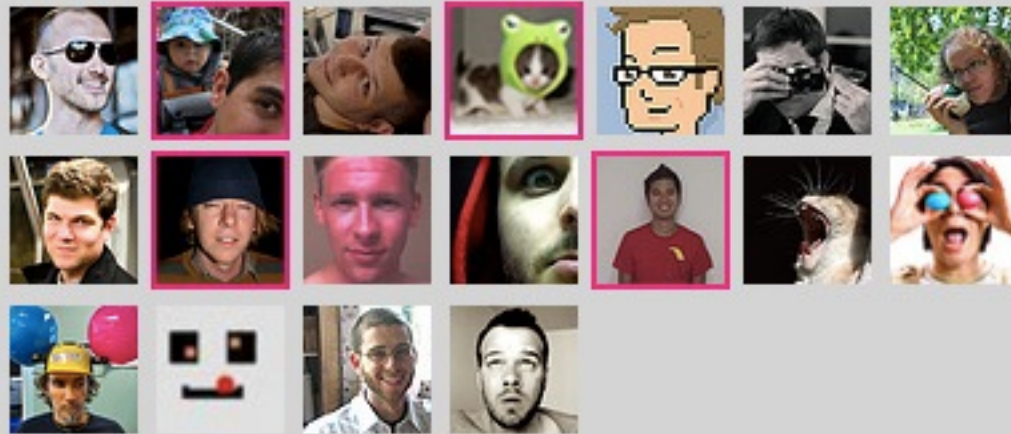


# web 2.0

---

disrupting traditional businesses

## FEATURING



*Flickr was last deployed 12 hours ago, including 9 changes by 5 people.*

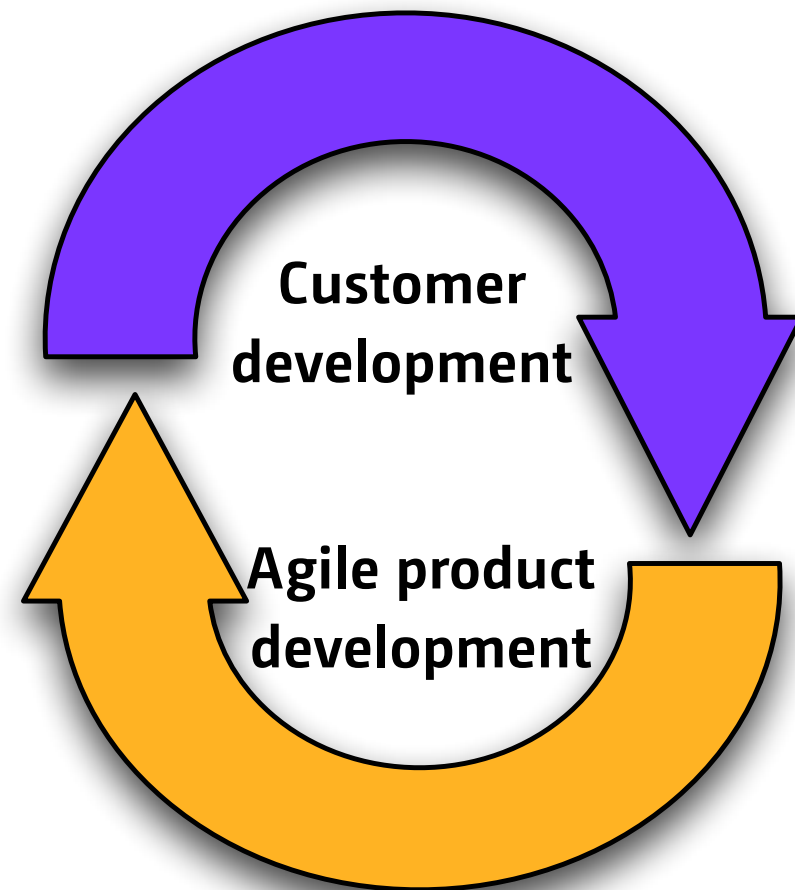
*In the last week there were 54 deploys of 636 changes by 23 people.*

<http://code.flickr.com/>

# releasing frequently

---

## 1. build the right thing



Eric Ries, "The Lean Startup" <http://bit.ly/8ZoX5F>



# innovate

**You can't just ask  
customers what  
they want and then  
try to give that to  
them.**

**By the time you get  
it built, they'll want  
something new.**

# scientific method

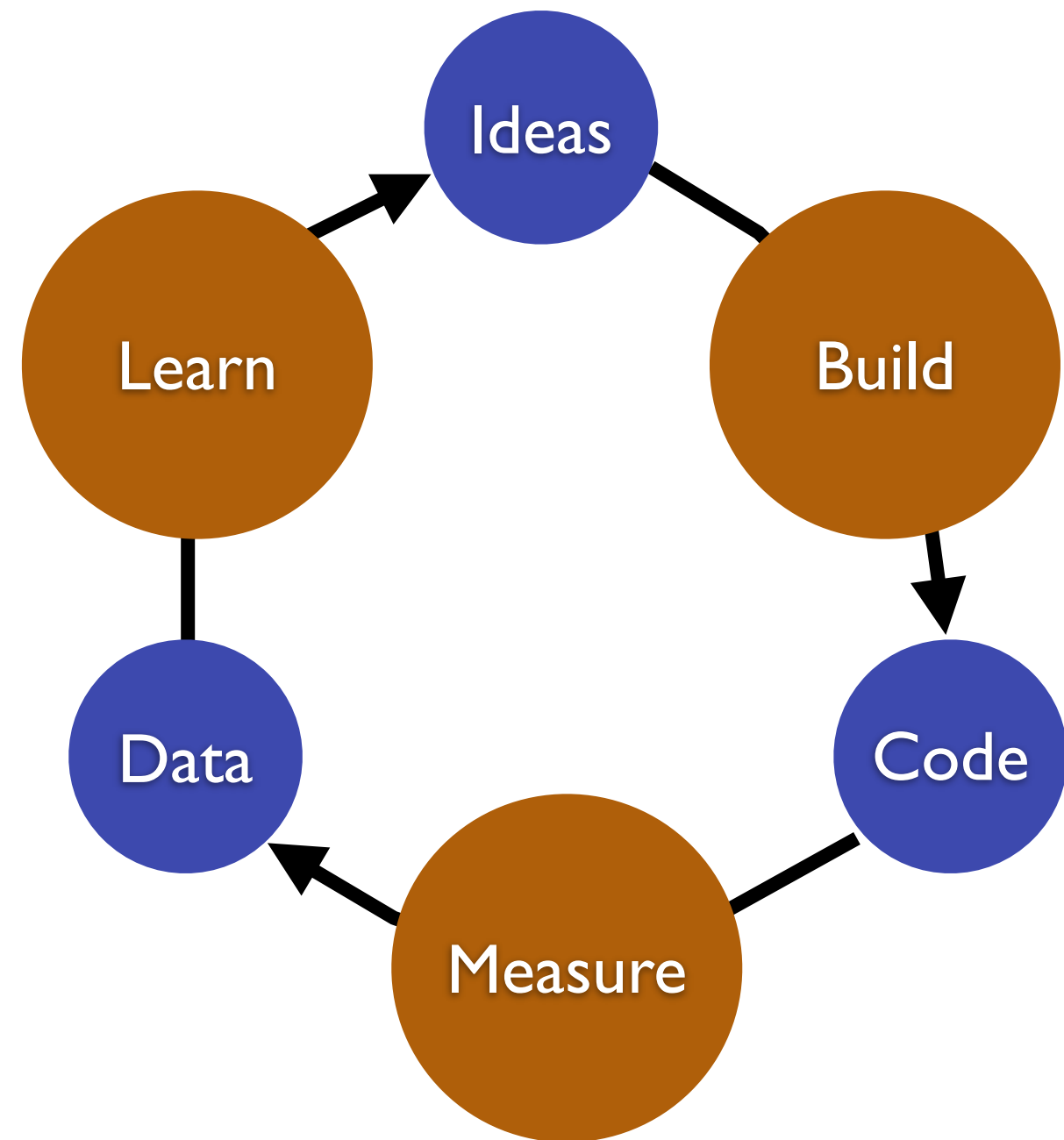
---

create hypothesis

deliver **minimum  
viable product**

get feedback

(repeat)



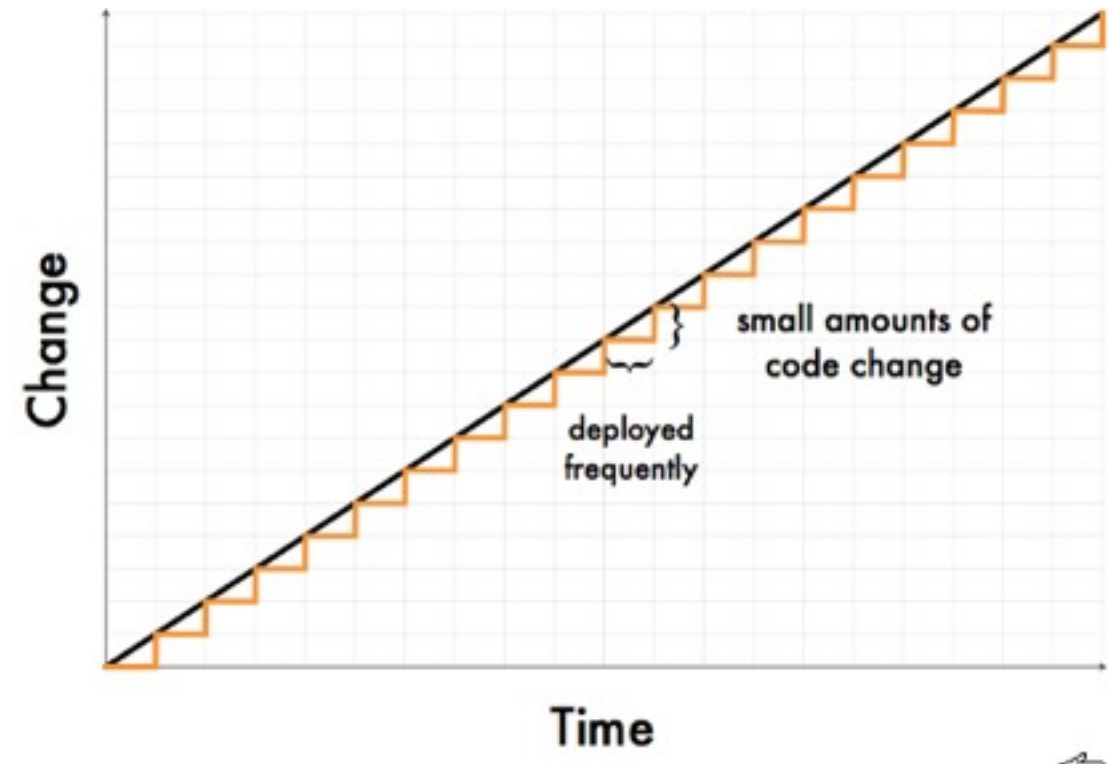
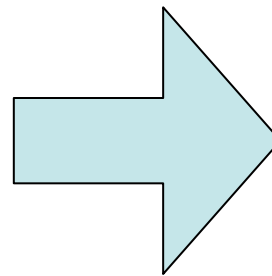
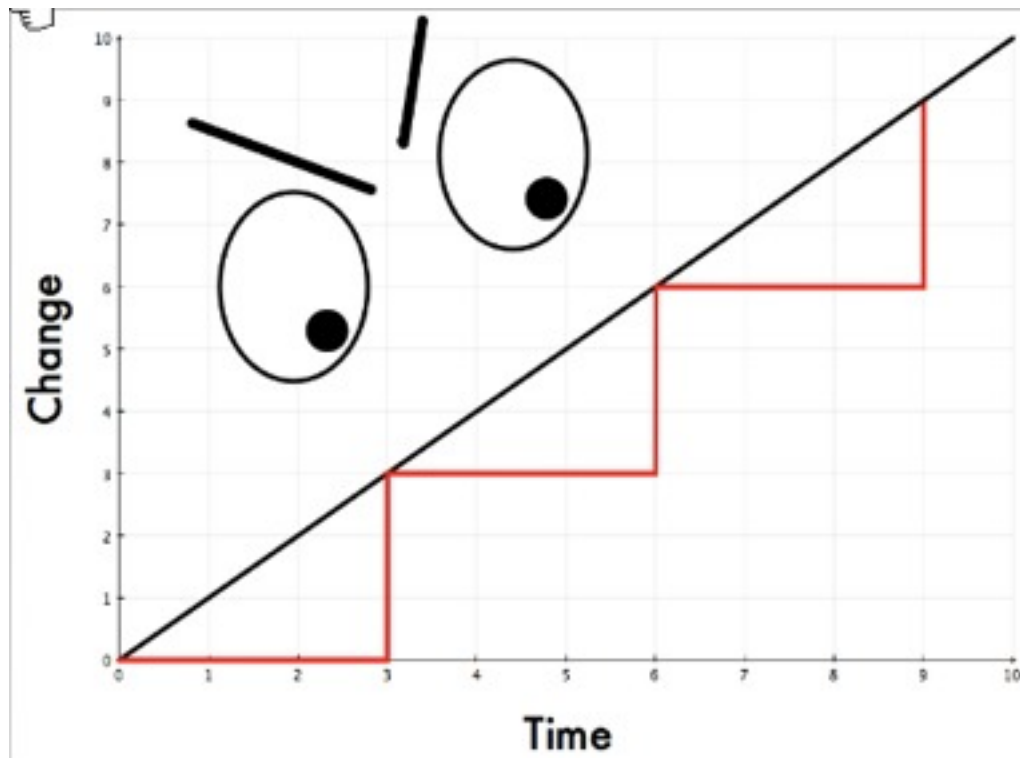
# ask this question

---

“How long would it take your organization to deploy a change that involved just one single line of code? Do you do this on a repeatable, reliable basis?”

# releasing frequently

1. build the right thing
2. reduce risk of release

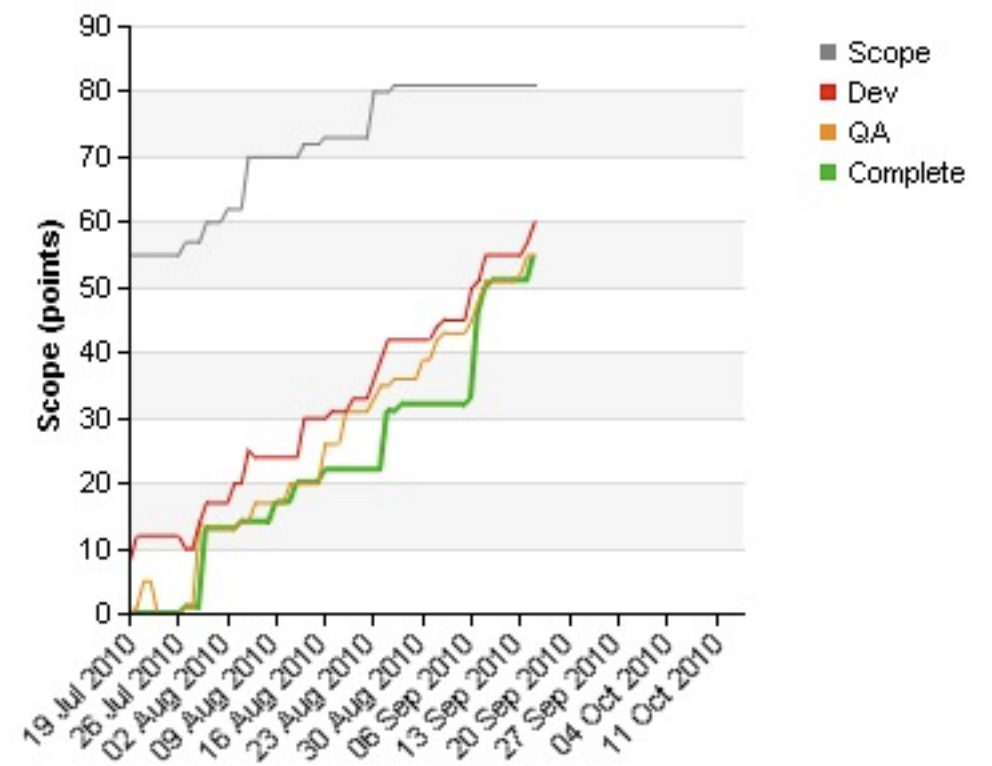




# releasing frequently

---

1. build the right thing
2. reduce risk of release
3. real project progress



# agile manifesto

---

Our highest priority is to satisfy  
the customer through early  
and **continuous delivery** of  
**valuable software**

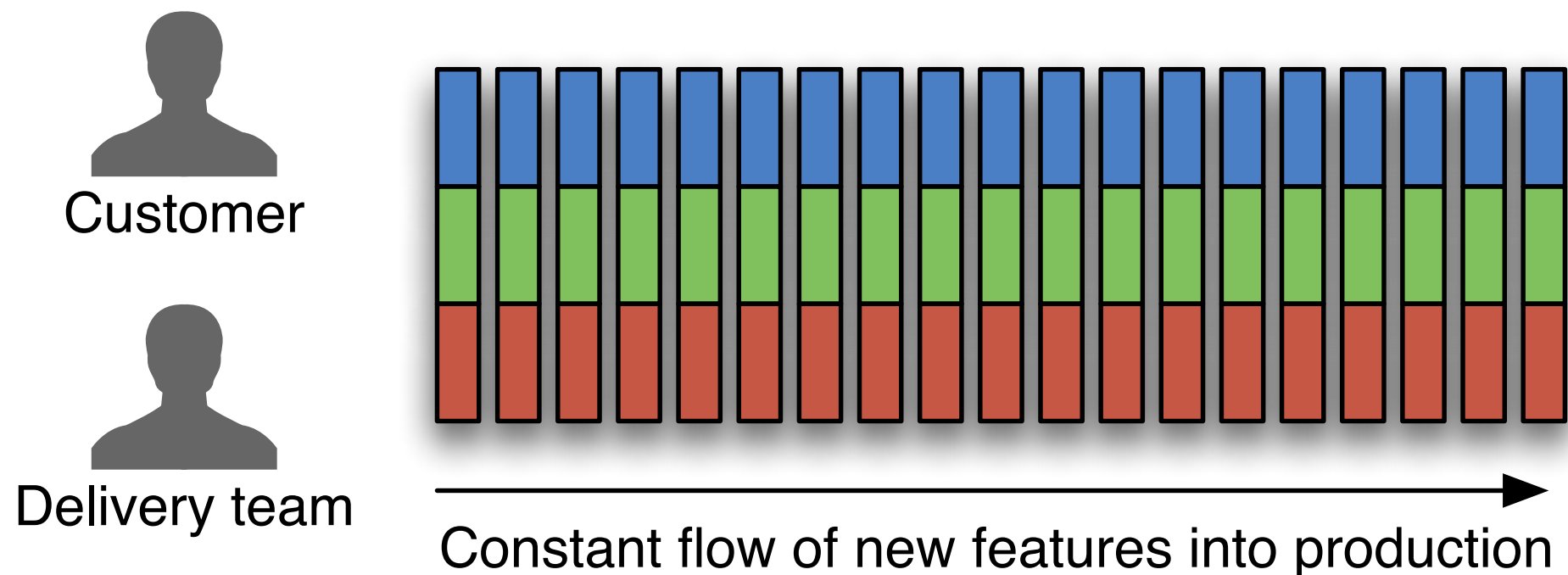
# production-ready software

---

**Fast, automated feedback on the production readiness of your applications every time there is a change - to code, infrastructure, or configuration**

# continuous delivery

---



Software always production ready

Releases tied to business needs, not  
operational constraints

# continuous delivery

---

automation

patterns and practices

collaboration

# ingredients

---

configuration management

continuous integration

automated testing



Local  
Workstation



Mainline Server



✓  
Done!

pull

push



Local  
Workstation

***Everyone Commits***



***To the Mainline***



pull



***Every Day***

push

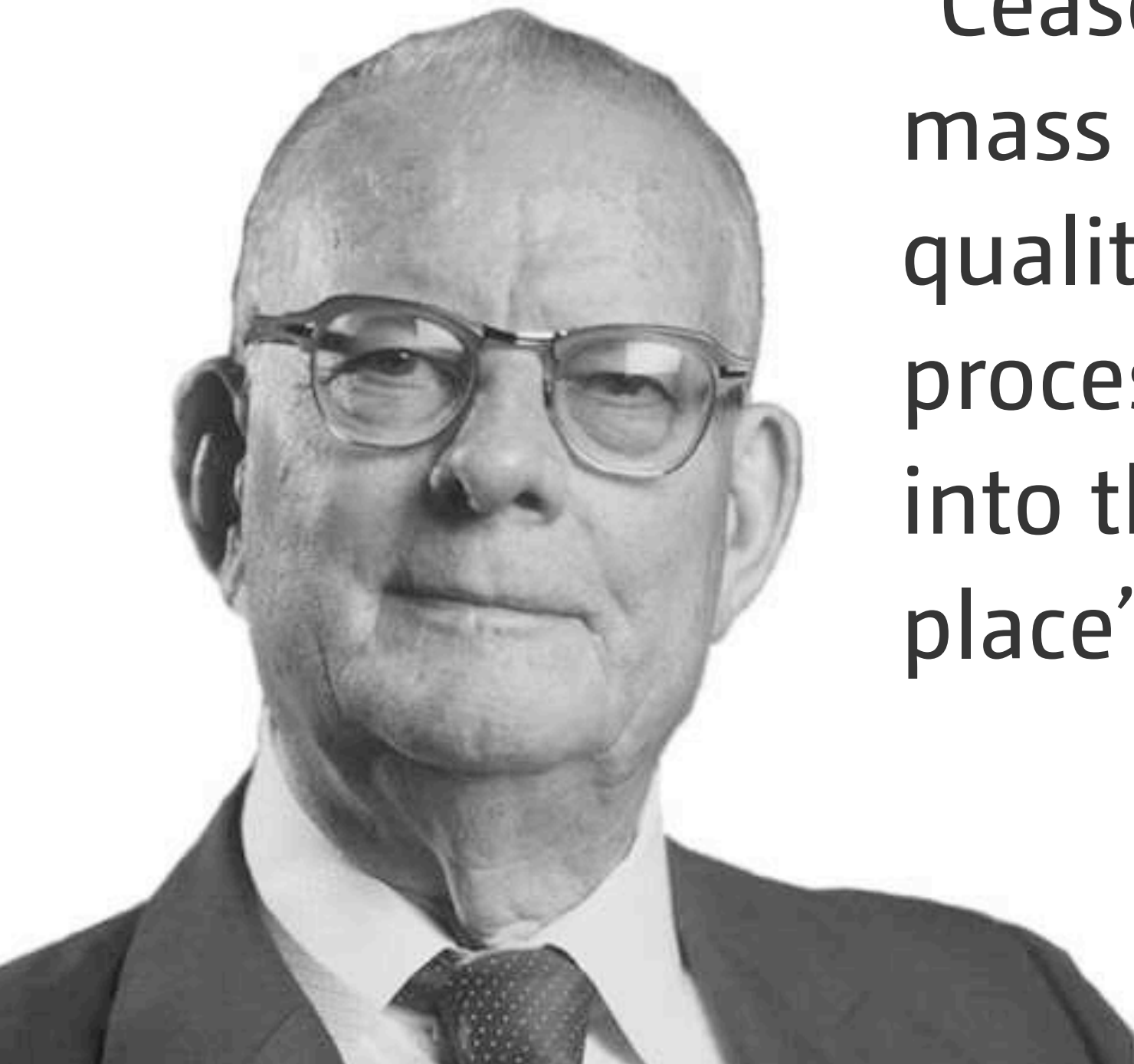


✓  
Done!



# build quality in

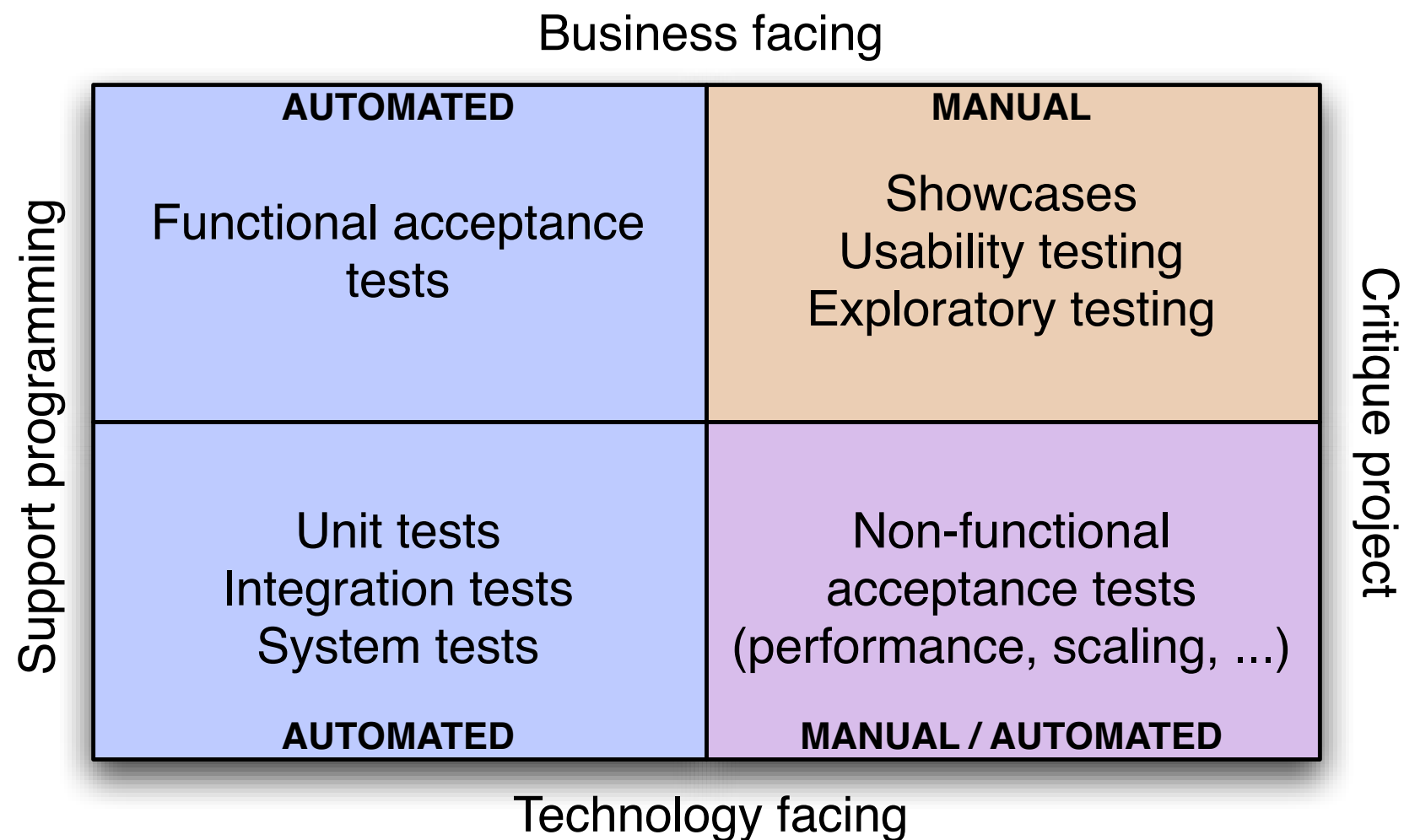
---



“Cease dependence on mass inspection to achieve quality. Improve the process and build quality into the product in the first place”

W. Edwards Deming

# different kinds of testing



# deployment pipeline

---

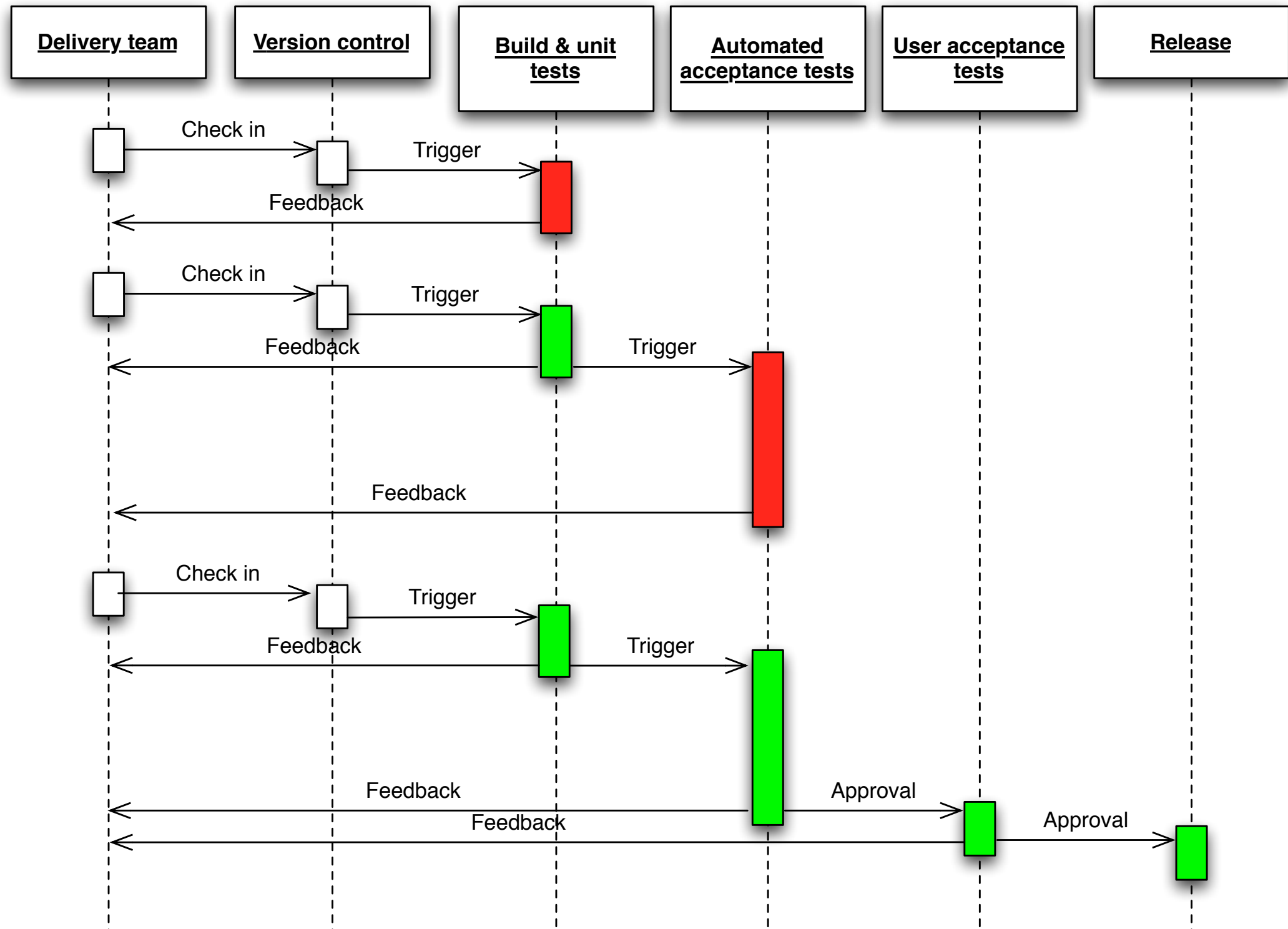
an automated implementation of your system's build, deploy, test, release process

visibility

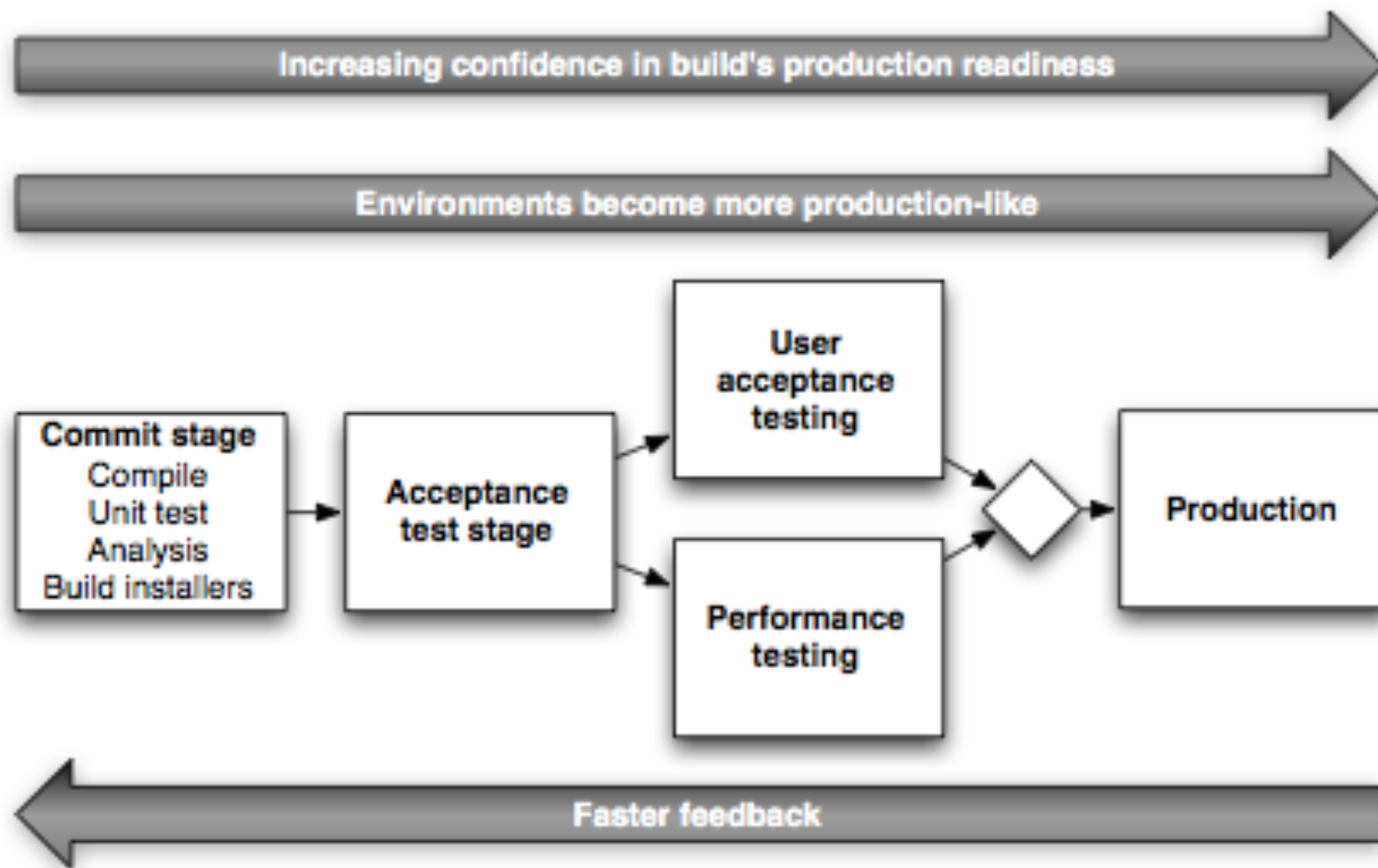
feedback

control

# deployment pipeline



# deployment pipeline



# deployment pipeline

	Build	Container	Browser	UAT	Prod				
<b>1.2.33</b> revision: 35 1 day ago by demo		auto		auto		manual		manual	
<b>1.2.32</b> revision: 34 1 day ago by demo		auto		auto		manual		manual	
<b>1.2.31</b> revision: 33 6 days ago by demo		auto		auto		manual		manual	
<b>1.2.30</b> revision: 32 7 days ago by demo		auto		auto		manual		manual	
<b>1.2.29</b> revision: 31		auto		auto		manual		manual	
<div>Subversion - http://chistdcrsdmo01/svn/demo/trunk/</div> <div><div>demo</div><div>#12 Made some changes to import</div><div>30</div></div>									
<b>1.2.28</b> revision: 30 13 days ago by demo		auto		auto		manual		manual	

# reducing release risk

---

devops

incrementalism

decoupling deployment and release

# devops

culture  
automation  
measurement  
sharing



feature toggles

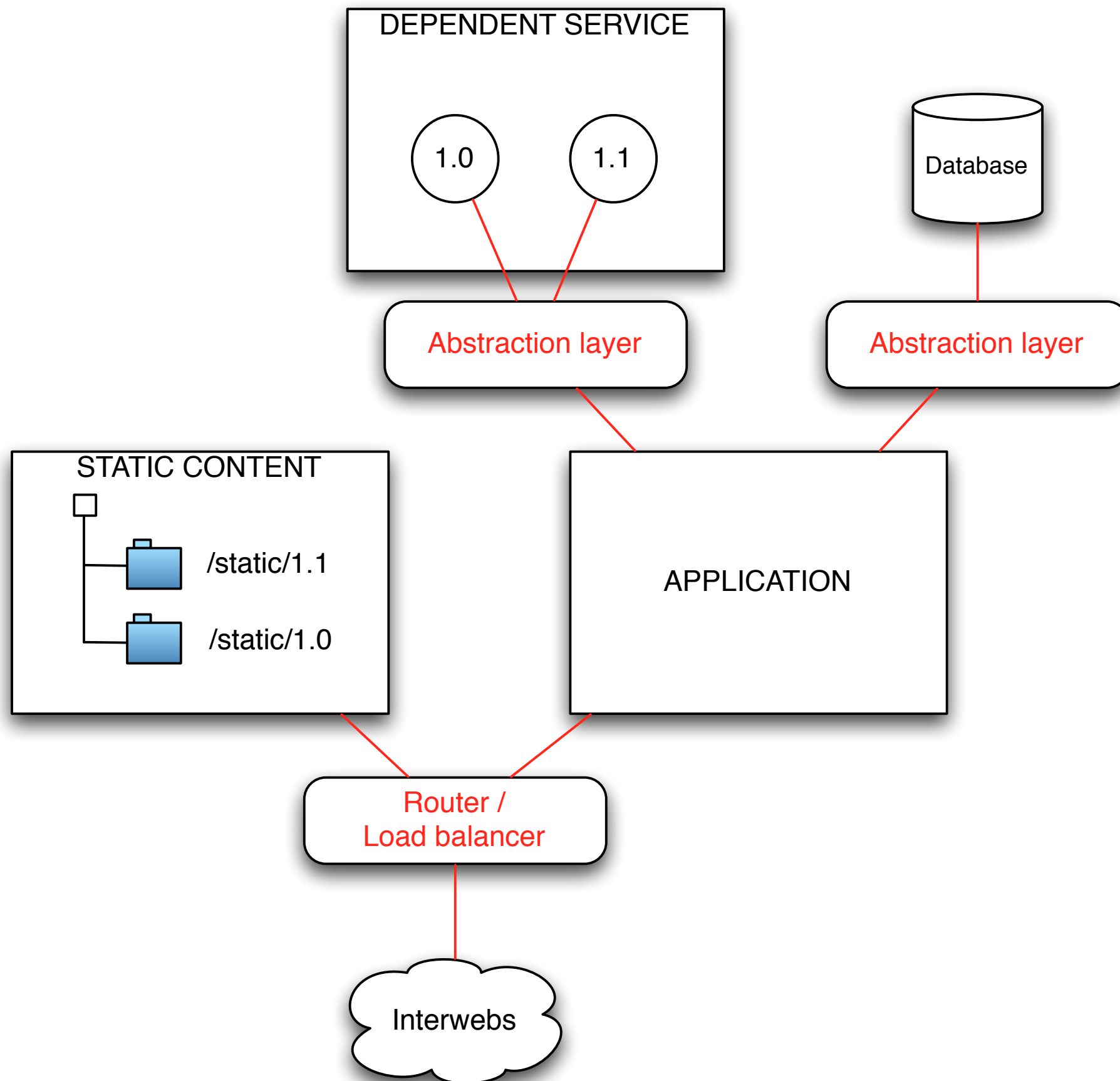
blue-green deployments

canary releases

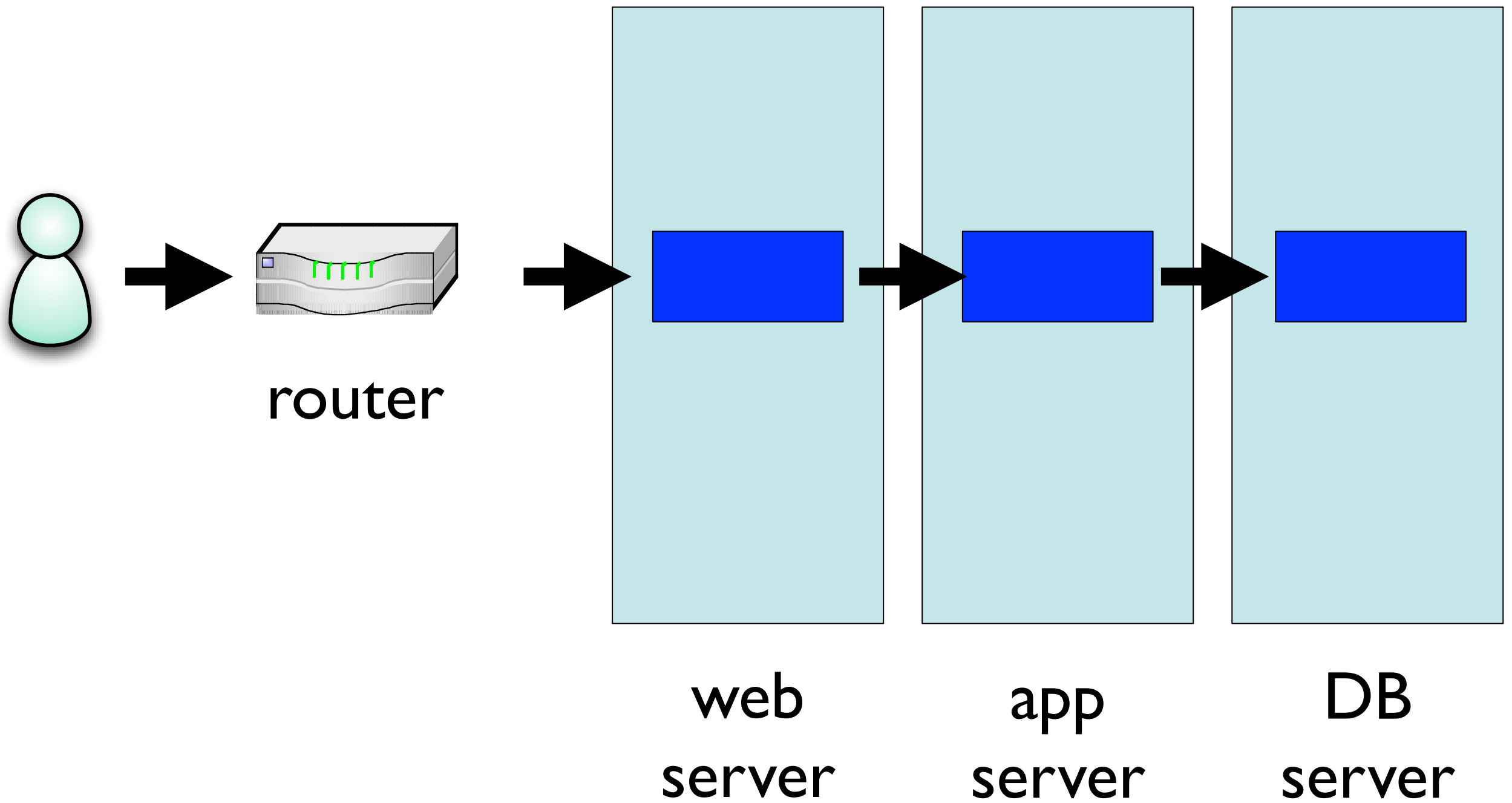
**low risk releases  
are incremental**

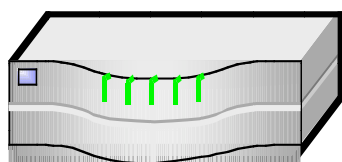
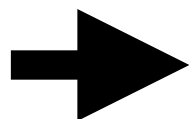
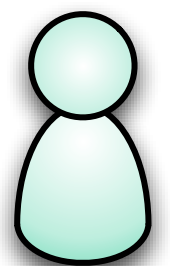
dark launching

production immune system

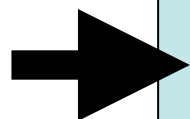


**blue-green  
deployments**

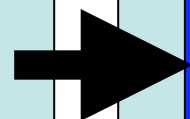




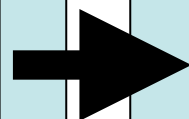
router



v1.1



v1.1

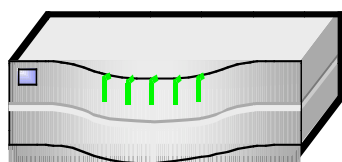
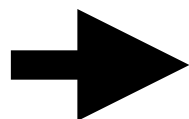
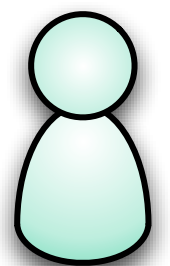


v1.1

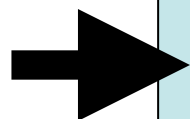
web  
server

app  
server

DB  
server



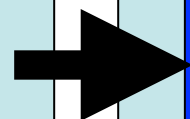
router



v1.1

v1.2

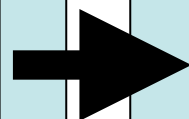
web  
server



v1.1

v1.2

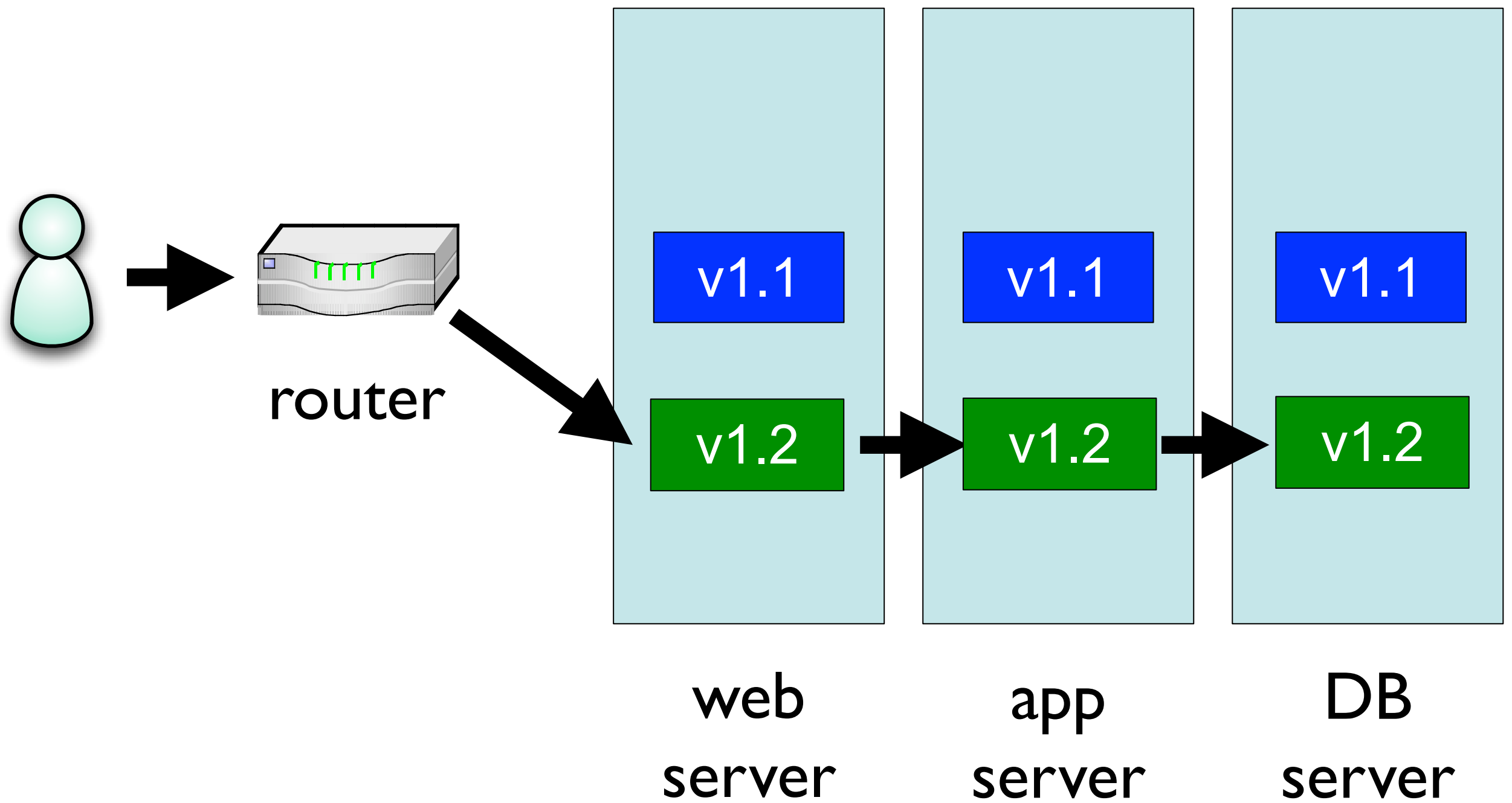
app  
server



v1.1

v1.2

DB  
server



**release !=  
deployment**



# feature toggles

---

## Config File

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

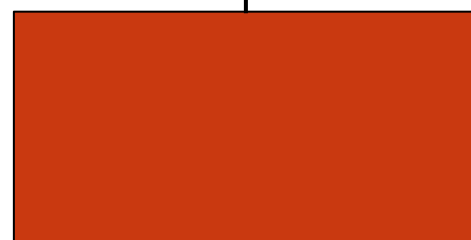
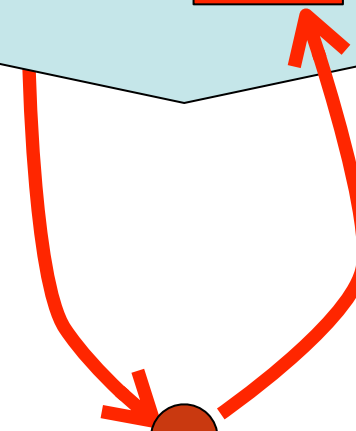
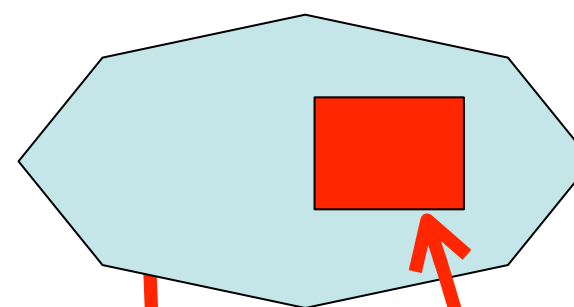
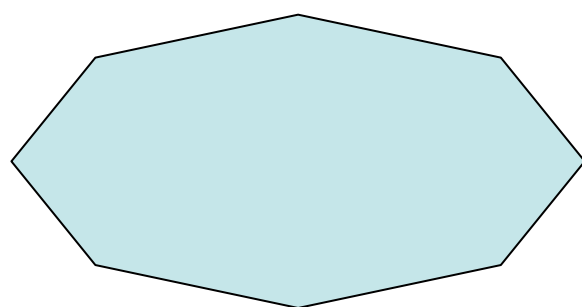
## some.php

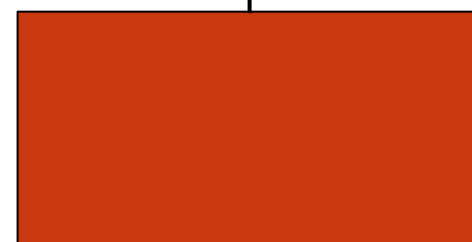
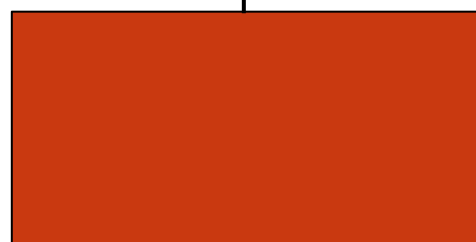
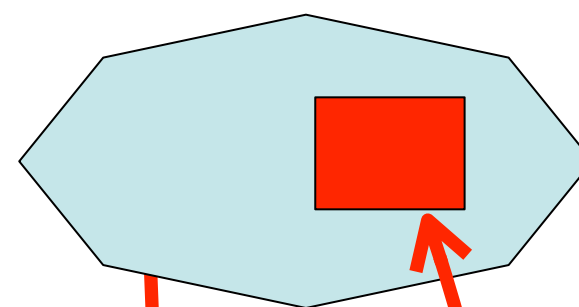
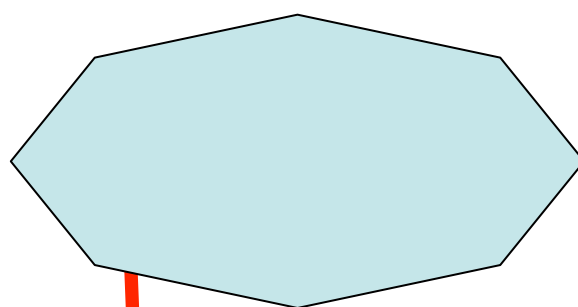
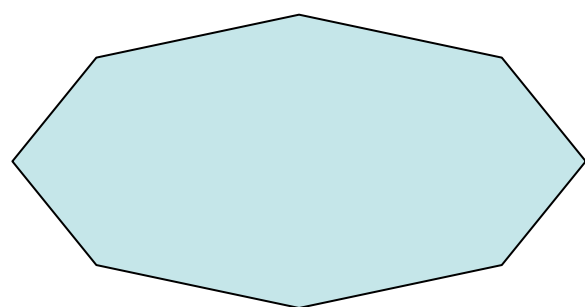
```
<?if ($wobblyFoobars) {?>
    ... various UI elements
<?}?>
```

## other.php

```
$fork_handle = ($featureConfig->isOn('flightyForkHandles')) ?
    new flightyForkHandler(aCandle) :
    new forkHandler(aCandle);
```

# Dark Launching





# enterprise governance

---

risk management

SOX, ITIL, COBIT

segregation of duties

change management

auditing and compliance

# people are the key

---

inceptions, showcases, retrospectives

rotate people, share the pain

big, visible displays

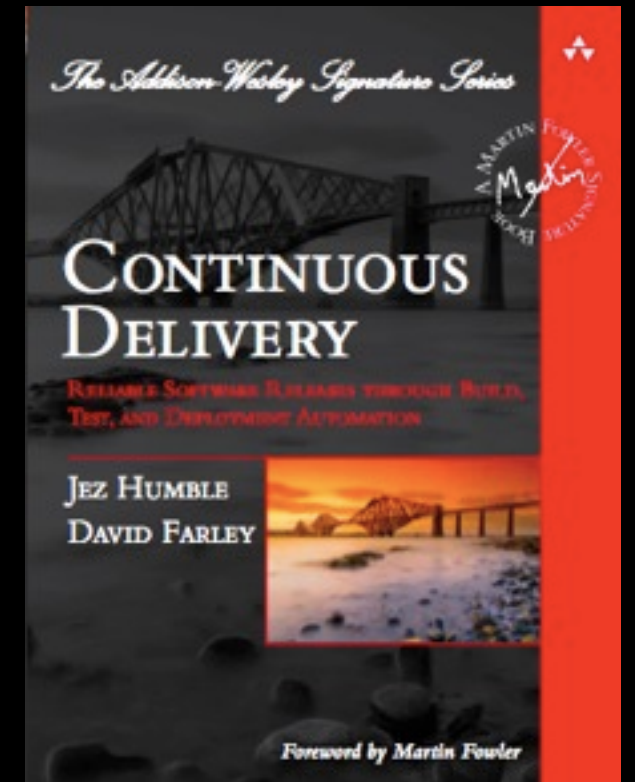
continuous improvement (kaizen)

# questions

[jez@thoughtworks.com](mailto:jez@thoughtworks.com)

<http://continuousdelivery.com/>

@jezhumble #continuousdelivery



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