Continuous Delivery

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agile 101

"Agile" team

Analysis + Design
Development
Testing + Showcase

Iteration 0 1 2 3 4

Customer

Centralized QA
IT Operations

"The last mile"
agile 101
web 2.0

disrupting traditional businesses

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

feedback from users
innovate

If I had asked people what they wanted, they would have said faster horses.
scientific method

create hypothesis

deliver **minimum viable product**

get feedback

(repeat)

releasing frequently

feedback from users
reduce risk of release

John Allspaw: “Ops Metametrics” http://slidesha.re/dsSZIr
releasing frequently

feedback from users
reduce risk of release
real project progress
Fast, automated feedback on the production readiness of your applications every time there is a change - to code, infrastructure, or configuration
continuous delivery

Customer

Delivery team

Constant flow of new features into production

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
deployment pipeline

an automated implementation of your end-to-end software delivery process -- from source to live

visibility

feedback

control
deployment pipeline

- **Delivery team**
- **Version control**
- **Build & unit tests**
- **Automated acceptance tests**
- **User acceptance tests**
- **Release**
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

<table>
<thead>
<tr>
<th>Business facing</th>
<th>Technology facing</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTOMATED</td>
<td>MANUAL / AUTOMATED</td>
</tr>
</tbody>
</table>
| Functional acceptance tests | Non-functional acceptance tests (performance, scaling, ...)
| Unit tests Integration tests System tests | Showcases Usability testing Exploratory testing |

Diagram invented by Brian Marick
deployment pipeline
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?”

reducing release risk

automate provisioning and deployment

ensure devs, testers and ops collaborate throughout
reducing release risk

devops

incrementalism

decoupling deployment and release
devops

a cultural movement that patterns, practices, and tools have sprung out of

- automation
- measurement
- sharing
low risk releases are incremental

dark launching

feature toggles

canary releases

blue-green deployments

production immune system
blue-green deployments
decouple release from deployment
feature toggles

Config File

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

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

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

Stolen from Martin Fowler [http://martinfowler.com/bliki/FeatureToggle.html](http://martinfowler.com/bliki/FeatureToggle.html)
what about my database?!
Managing Databases

Script DB changes delta by delta

Automate these changes using DB Deploy pattern

Architectural choices
- Expand/Contract
- Event Sourcing
- CQRS
- NoSQL
Dark Launching
people are the key

Get everyone together at the beginning

Keep meeting

Make it easy for everyone to see what’s happening

Continuous improvement
thank you!

Feedback appreciated
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based on Dave & Jez’s award-winning book