

Continuous Deployment Pipeline

Andrei Savu @ OpenAgile Timisoara 2012

Me

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Overview

- Agile & Lean Methodology
- Build-Measure-Learn Loop
- Implementation Steps
- Success stories
- Key points

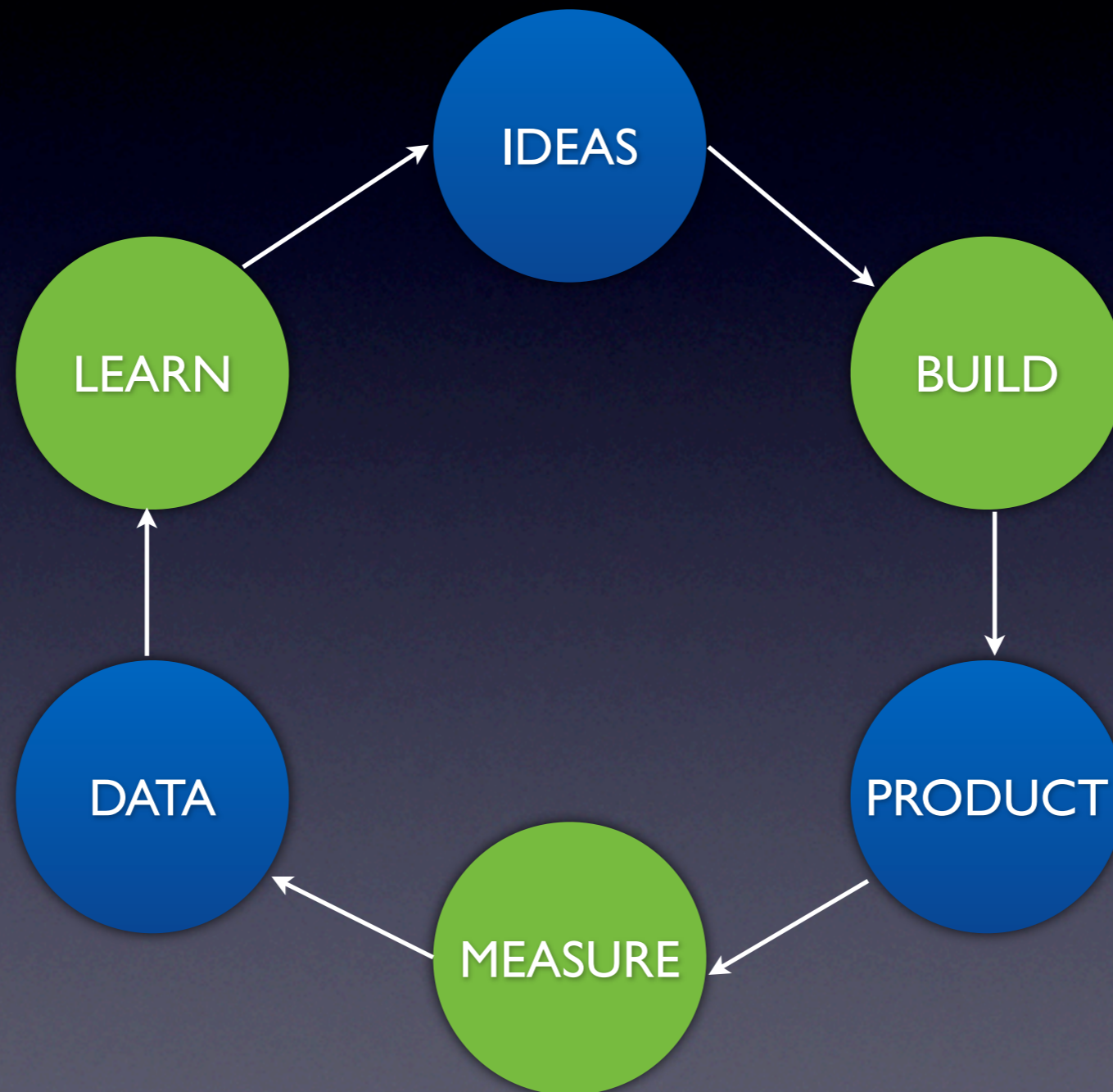
Q: How fast can you push
a change in production?

(hot-fix or security update)

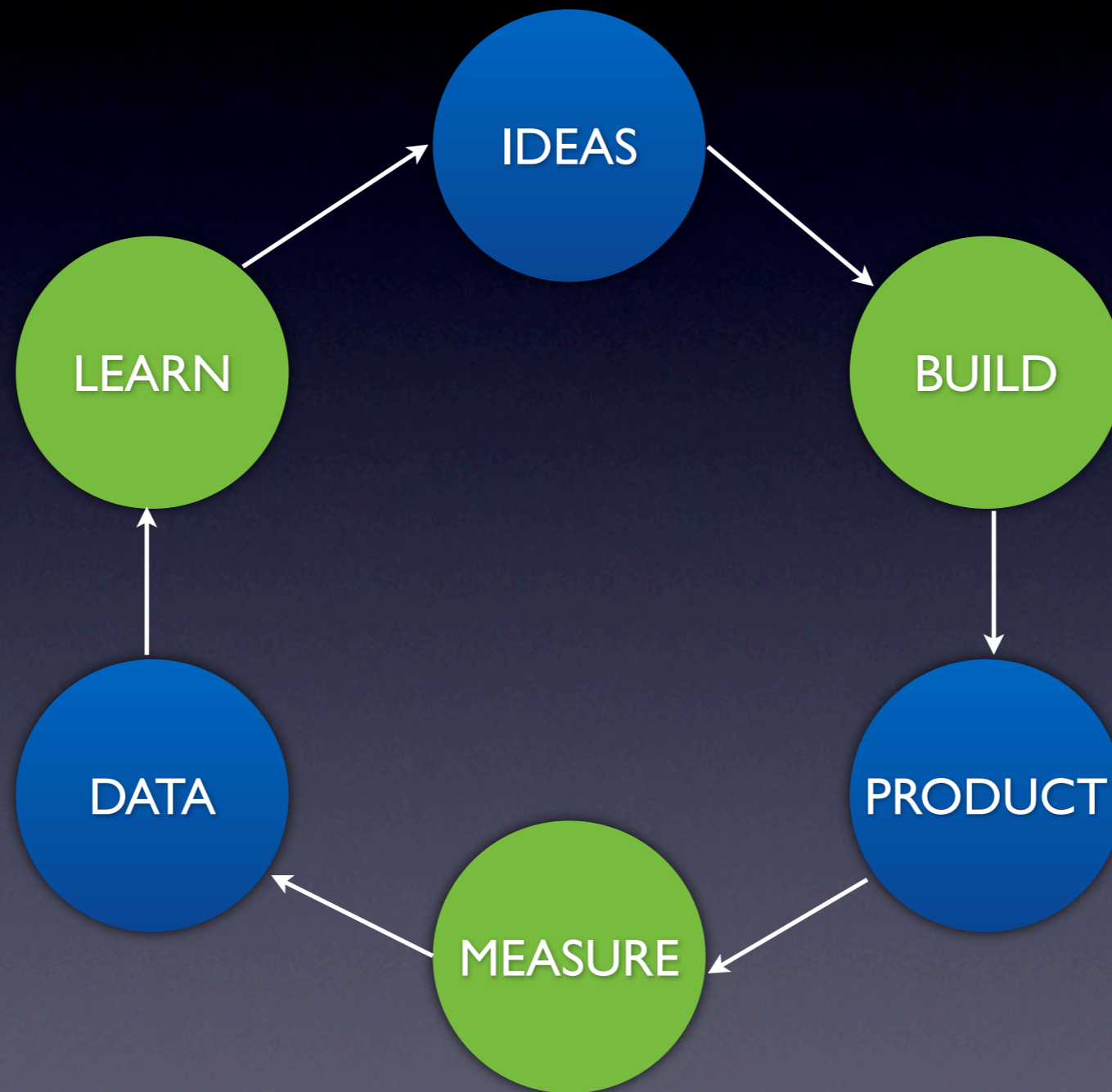
Agile & Lean

- Release early, Release often
- Maximise learning opportunities
- Build the right thing
- Client as critical component of the process

Build-Measure-Learn Loop



Speed! Quality! Cost!



Continuous Deployment

“All new code is automatically deployed in production by using an automated pipeline”

Assumes: trunk always ready for release, one step deployment process, monitoring

Implementation Steps

Pipeline Components

0. Version Control

- Code and *Infrastructure*
- Choices: Git, SVN
- Configuration: Puppet, Chef, CFEngine

I. CI Server

- Continuous Integration Server
- Backbone. Runs all tests. Gatekeeper.
- Choices: Jenkins, BuildBot, TeamCity etc.
- Start by adding tests for bugs
- Keep the suite fast (10 - 30 minutes)

2. Commit Check

- Version control with a hook that allows the server to refuse a commit
- Enforce standards
- “stop the line” role
- Halt new changes on broken build

3. Simple Deployment

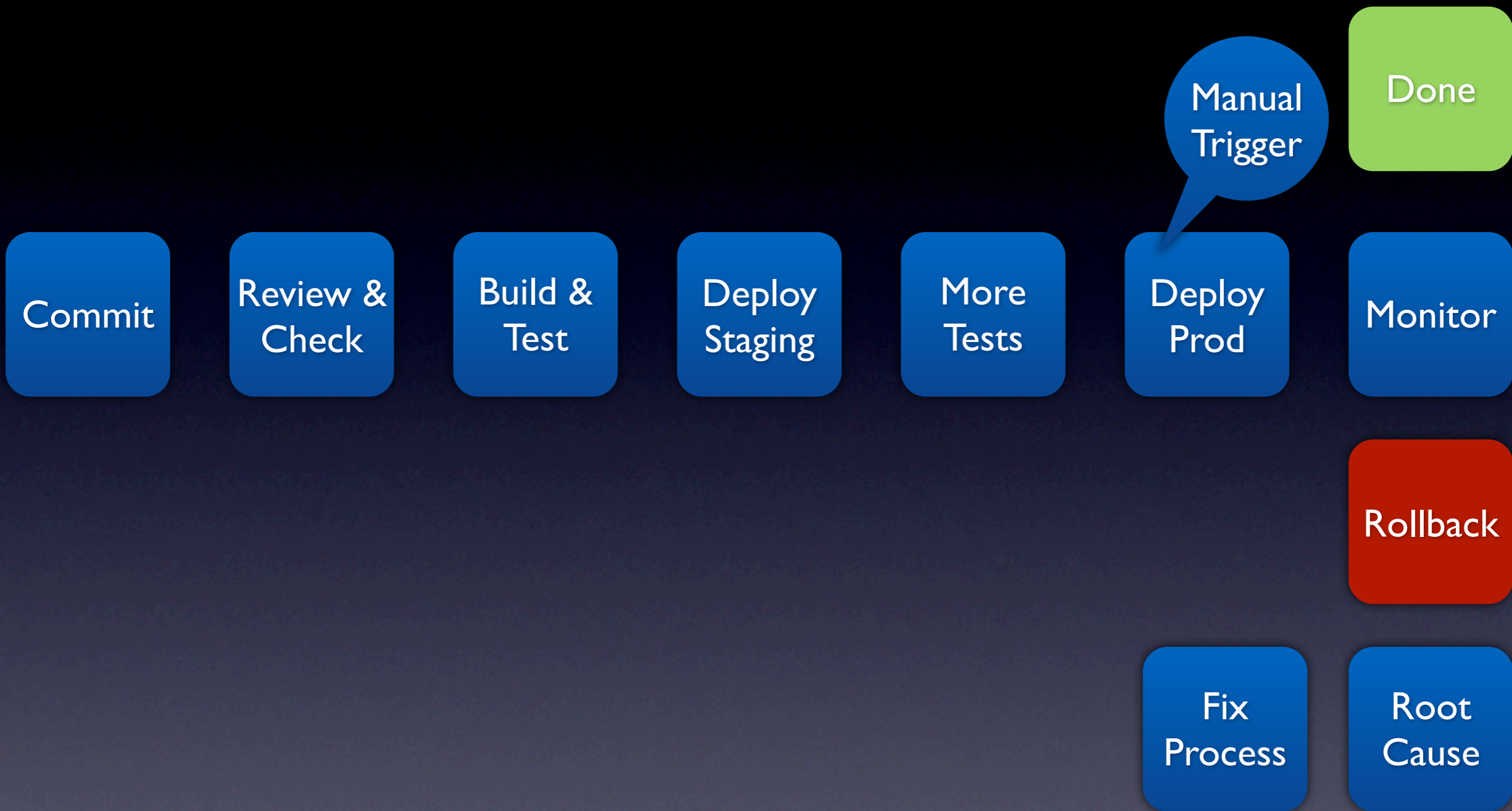
- One step from a specific revision
- Easy way to create a QA environment
- Push button deployment to production
- Leverage cloud computing technologies

4. Excellent Monitoring

- Correlate w/ deployment & external events
- Monitor business metrics
- Monitor business processes
- Smoke tests included

5. Root cause analysis

- Faults will get in production
- Understand why
- Fix the process
- Avoid blame



Success Stories

IMVU

- ~50 deploys per day in batches
- 9 minutes per build across 30-40 build servers
- Doing the impossible fifty times a day
<http://timothyfitz.wordpress.com/2009/02/10/continuous-deployment-at-imvu-doing-the-impossible-fifty-times-a-day/>

Flickr

- 10 deploys per day
- “Lowering the risk of change through tools and culture” - DevOps
- Feature flags & always ship trunk
- Dev and Ops cooperation at Flickr
<http://www.slideshare.net/jallspaw/10-deploys-per-day-dev-and-ops-cooperation-at-flickr>

Etsy

- ~25 times per day
- Faster cycles, Improve morale
- “we don’t rollback, we fix the code”
- “So simple, a VC can do it” - Pete Miron

- Fred Wilson on Continuous Deployment
http://www.avc.com/a_vc/2011/02/continuous-deployment.html

Wordpress.com

- ~16 releases per day (19 / 5 / 2010)
- Optimize for perfection vs. speed
- One step deploy to 400 machines (30s)
- In praise of continuous deployment
<http://toni.org/2010/05/19/in-praise-of-continuous-deployment-the-wordpress-com-story/>

Facebook

- 1-2 push per day - 1 large per week
- 1B monthly active users
- Culture, Tools, IRC
- Pushing Millions of Lines of Code Five Days a Week <https://www.facebook.com/video/video.php?v=10100259101684977&oid=9445547199>

Key Points

- Not rocket science!
- A release should be a non-event
- Build quality in the development process
- Partial implementations can bring a lot of value

Thanks!

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Resources #1

- **Continuous Integration step by step**
<http://www.startuplessonslearned.com/2008/12/continuous-integration-step-by-step.html>
- **Five Whys**
<http://www.startuplessonslearned.com/2008/11/five-whys.html>
- **Anatomy of the Deployment Pipeline**
<http://www.informit.com/articles/article.aspx?p=1621865>
- **Building for the Cloud @ Netflix**
<http://www.infoq.com/presentations/Building-for-the-Cloud-at-Netflix>

Resources #2

- 10 deploys per day @ Flickr
<http://www.slideshare.net/jallspaw/10-deploys-per-day-dev-and-ops-cooperation-at-flickr>
- John Allspaw blog
<http://www.kitchensoap.com/>
- Jez Humble: Continuous Delivery
<http://www.slideshare.net/jezhumble/continuous-delivery-5359386>
- Deploying at Github
<https://github.com/blog/1241-deploying-at-github>

Resource #3

- **How Facebook Does Deployment**
<http://java.dzone.com/articles/how-facebook-does-deployment>
- **Asgard: Web-based Cloud Management and Deployment**
<http://techblog.netflix.com/2012/06/asgard-web-based-cloud-management-and.html>
- **Chaos Monkey Released Into The Wild**
<http://techblog.netflix.com/2012/07/chaos-monkey-released-into-wild.html>

Resource #4

- Keeping Movies Running Amid Thunderstorms!

<http://www.slideshare.net/r39132/keeping-movies-running-amid-thunderstorms>

- LinkedIn Glu

<http://linkedin.github.com/glu/docs/latest/html/index.html>

- Measure Everything @ Etsy

<http://codeascraft.etsy.com/2011/02/15/measure-anything-measure-everything/>

Questions?

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