DEVOPS CULTURE AND PRACTICES TO CREATE FLOW

Jez Humble | Gene Kim

ThoughtWorks | IT Revolution Press
the production line

http://www.flickr.com/photos/toyotauk/4711057997/
the production line?
Testing and deployment can be a difficult and timeconsuming process in complex environments comprising app messaging infrastructure and interfaces to external systems. We have seen deployments take several days, even have used automated builds to ensure their code is fully tested. In this paper we describe principles and practices environments to be created, configured and deployed to at the click of a button. We show how to fully automate deployment process using a multi-stage automated workflow. Using this "deployment production line", it is possible to test code into production environments quickly and with full confidence that you can fall back to a previous state if a problem occur.
jidoka

自動化 + 人 = 自働化

automation + people = autonomation
jidoka

http://www.toyota-global.com/company/vision_philosophy/toyota_production_system/jidoka.html
Everyone Commits To the Mainline Every Day
deployment pipeline
“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?”

batch size

$L = \lambda W$

(Little’s Law)
utilization

\[
\frac{\text{Cycle time}}{\text{Value added time}} = \frac{1}{1 - \rho}
\]
improvement kata

Understand the Direction → Grasp the Current Condition → Establish the Next Target Condition → PDCA Toward the Target Condition

Planning Problem Solving and Adapting

Summary reflection

What have we learned?
What is the target condition? *(The challenge)*

What is the actual condition now?

What obstacles are preventing you from reaching it? which one are you addressing now?

What is your next step? *(Start of PDCA cycle)*

When can we go and see what we learned from taking that step?
hp laserjet firmware team

2008

10% - code integration
20% - detailed planning
25% - porting code
25% - current product support
15% - manual testing
~5% - innovation
deployment pipeline
<table>
<thead>
<tr>
<th>%</th>
<th>2008</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>code integration</td>
<td>2%</td>
</tr>
<tr>
<td>20%</td>
<td>detailed planning</td>
<td>5%</td>
</tr>
<tr>
<td>25%</td>
<td>porting code</td>
<td>15%</td>
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<td>15%</td>
<td>manual testing</td>
<td>5%</td>
</tr>
<tr>
<td>~5%</td>
<td>innovation</td>
<td>~40%</td>
</tr>
</tbody>
</table>

The remaining 23% on RHS is spent on managing automated tests.
2008 to 2011

- overall development costs reduced by ~40%
- programs under development increased by ~140%
- development costs per program down 78%
- resources now driving innovation increased by 5X
<table>
<thead>
<tr>
<th>Date</th>
<th>Name</th>
<th>Team</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 7</td>
<td>Gift Ideas browse pages</td>
<td>Buyer Experience</td>
<td>This is a gift guide browse destination. Subsections will focus on recipient (for him, for her, for kids, etc.) and price (under $25, under $100, etc.). It will work just like all other browse pages. There will be NO HAND ...</td>
</tr>
<tr>
<td>Nov 7</td>
<td>Etsy for iPhone (v2.1.1)</td>
<td>Mobile</td>
<td>Example — We submitted the app on Friday. We will be pushing it out when it’s approved by Apple; our hope is that it’s approved by Wednesday. There will be no coordination with PR or blog post. We may send ...</td>
</tr>
<tr>
<td>Nov 2</td>
<td>Winter Holidays browse pages</td>
<td>Buyer Experience</td>
<td>Example — These are browse pages for the Winter Holidays and will feature subsections for holiday decor, cards, etc. They’ll be similar to our holiday merch hub from last year, but much deeper in terms of browsing opportunities. Those in UK ...</td>
</tr>
<tr>
<td>Nov 1</td>
<td>Updated treatment of homepage browse links</td>
<td>Buyer Experience</td>
<td>Example — Over a two week period we observed 4%-5% increases in browse landing page and subsection page views. There were also slight increases in add to cart and listings viewed events. Visits with a search and search events were down ...</td>
</tr>
<tr>
<td>Oct 24</td>
<td>Next day availability of DC funds</td>
<td>Payments</td>
<td>We plan to allow established sellers to be able to deposit their funds prior the next day after a sale. Non established sellers will still need to ship items to have available funds.</td>
</tr>
<tr>
<td>Oct 23</td>
<td>Reduce one-time hold from 10 days to 5 days</td>
<td>Payments</td>
<td>Whenever a new seller signs up for direct checkout, a 10 day hold is placed on deposits. This also occurs anytime a bank account is updated. We have decided to reduce this standard hold period to 5 days. The main ...</td>
</tr>
<tr>
<td>Oct 23</td>
<td>Etsy for iPhone (v2.1)</td>
<td>Mobile</td>
<td>Example — Update: We have been approved by Apple and will be launching Tuesday, 10/23 at 8am ET. Our target submit date to Apple is Wednesday 10/10. Depending on Apple’s turnaround time, we expect the app to be ...</td>
</tr>
<tr>
<td>Oct 22</td>
<td>Recipient Query Rewriting</td>
<td>Search &amp; Destroy</td>
<td>Example — This didn’t move metrics positively or negatively. However we decided to keep it because this is the first step towards using recipient in search, and encouraging users to properly associate their listing w/ a recipient. We will reevaluate how ...</td>
</tr>
<tr>
<td>Oct 19</td>
<td>Parcel Insurance for Shipping Labels</td>
<td>Seller Team</td>
<td>Example 1, Example 2 — Rampup started 10/9. Scheduled to finish 10/19.</td>
</tr>
<tr>
<td>Oct 18</td>
<td>Search Ads respecting filters</td>
<td>Search &amp; Destroy</td>
<td>This experiment didn’t hurt inventory: <a href="https://splunk.etsycorp.com/en-US/app/search/flashtimeline?sid=1350940765.163366&amp;vs=html&amp;sk=4b">https://splunk.etsycorp.com/en-US/app/search/flashtimeline?sid=1350940765.163366&amp;vs=html&amp;sk=4b</a>. Also it looks like CTR might have improved.</td>
</tr>
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"Evaluating well–designed and executed experiments that were designed to improve a key metric, only about 1/3 were successful at improving the key metric!"

“Online Experimentation at Microsoft”, Kohavi et al  http://stanford.io/130uW6X
scientific method

create hypothesis

learn faster
Split Tests
Customer Interviews
Customer/Development
Five Whys Root Cause Analysis
Customer Advisory Board
Reference Architecture
Product Owner Accountability
Custom Archetypes
Cross-functional Teams
Smoke Tests

build

minimum viable product

data

measure faster
Split Tests
Clear Product Owner
Continuous Deployment
Usability Tests
Real-time Monitoring
Custom Liaison

funnel analysis
cohort analysis
net promoter score
search engine marketing
real-time alerting
predictive monitoring

measure

code

code faster
Unit Tests
Usability Tests
Continuous Integration
Incremental Deployment
Free & Open-Source Components
Cloud Computing
Cluster Immune System
Just-in-time Scalability
Refactoring
Developer Sandbox

repeat
three ways

systems thinking

feedback

culture of experimentation
CULTURE = "How we do things around here to succeed."

"We succeed by working together."
Affiliation, Synergy, Collaboration
Partnership, Trust, People, Diversity
People Oriented, (Personal)

We succeed by being the best.
Cultivation:
Purpose/Faith, Dedication, Grow
Let things Evolve, Subjectivity, Creativity

Competence:
Efficiency, Meritocracy, Craftsmanship, Expertise, Creativity, Be the Best

Possibility Oriented:

Reality (Actuality)
Control
Company Oriented, (Impersonal)

Michael Sahota | @MichaelSahota | http://bit.ly/13Btc5c