Dana Pylayeva

Introduction to DevOps with “Chocolate, LEGO and Scrum” Game.
A Little Bit About Me...

@DanaPylayeva
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Agile Coach
Scrum Master
DBA Manager
Systems Architect
Java Developer
Conference Co-Chair
Speaker, Volunteer, Reviewer

I’m speaking @
NEW ORLEANS
MAY 5-7, 2014

I’m speaking@
BERLIN
SEPT. 22-24, 2013

I’m speaking @
Big Apple
Scrum Day 2015

I’m speaking@
Prague
November 16-18, 2015

Certified ScrumMaster®
About You...
DevOps Definitions

“A mix of patterns intended to improve collaboration between development and operations. DevOps addresses shared goals and incentives as well as shared processes and tools.”

- Michael Hüttermann

“A movement of people who care about developing and operating reliable, secure, high performance systems at scale.”

- Jez Humble
Customers in 2015

• Expect **innovation** and **speed**.
• Expect service providers to deliver **value** continuously.
Problem with a Cyclical Value Delivery
Conflict of Interests?

Development Team: Focus on Speed

Operations Team: Focus on Reliability

Customers: Ever-changing demands
Low Trust Creates Extra Steps

It doesn’t have to be this way!

Source: Lee Reid http://devops.com/2015/06/22/the-simple-math-of-devops/
### Increased Speed and Reliability with DevOps

<table>
<thead>
<tr>
<th>Metric</th>
<th>2015 Super High performing IT vs. low)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deployment frequency</td>
<td>30x</td>
</tr>
<tr>
<td>Deployment Lead Time</td>
<td>200x</td>
</tr>
<tr>
<td>Mean Time to Recover</td>
<td>168x</td>
</tr>
<tr>
<td>Change Success Rate</td>
<td>60x</td>
</tr>
</tbody>
</table>

Any idea?

2011.
Amazon Deployment Stats. Mean time between deployments (on weekdays)

11.6 sec

Source: http://assets.en.oreilly.com/1/event/60/Velocity%20Culture%20Presentation.pdf
2015. No Longer For Unicorns Only...

Macy’s, Nordstrom, GE Capital, Disney, US Department of Homeland Security, IBM, Microsoft, Barclays Capital, Capital One, Fidelity Investments, ADP, Target, Walmart...
Sprint 1: Cyclical value delivery with Scrum.

Sprint 2: Optimizing Scrum team.

Sprint 3: DevOps transformation – optimizing the flow of value.
ChocolateLEGOScrum.com
Enterprise

Feedback loop, Market demand

Operations Team

Customer

Scrum Team

User Story

Scrum Team

User Story

Scrum Team

User Story

User Story
Game Characters:

**Operations Team**
- Sara Security
- Adam Admin
- Robert Release

**Patricia**
- Product

**Benjamin**
- Business

**Harry**
- Hacker

**Observer**

**Scrum Team**
- Danny
- Developer (4)
- Tim Tester (2)
- Samuel Scrum

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**AGILE 2015**
**WASHINGTON, D.C.**

**Aug 3-7**
## Role Cards

### Danny Developer
**Goal:** Build software products first
- Works in a Scrum team.
- Builds software (a small package with a LEGO animal and a chocolate candy).
- Pastes a label with a number on each LEGO animal.
- Unit tests the product.

<table>
<thead>
<tr>
<th>Depends on</th>
<th>Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam Admin</td>
<td>Build and patch the environments (dev, staging, prod).</td>
</tr>
<tr>
<td>Robert Release</td>
<td>Build a deployment package and release it into production.</td>
</tr>
<tr>
<td>Sara Security</td>
<td>Know about latest vulnerabilities, find security bugs, perform security scans in the environments.</td>
</tr>
<tr>
<td>Patricia Product</td>
<td>Create user stories and get feedback from users.</td>
</tr>
</tbody>
</table>

### Adam Admin
**Goal:** Stable production environment
- Works in the Operations team.
- Builds environments for each developer/tester (makes a square with masking tape).
- Installs security patches (a new layer of tape).
- Monitors and safeguards prod environment.
- Authorizes prod deployments.

<table>
<thead>
<tr>
<th>Depends on</th>
<th>Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scrum team</td>
<td>Build products (small packages with LEGO and Chocolate).</td>
</tr>
<tr>
<td>Robert Release</td>
<td>Build a deployment package and release it into production. He is the only person who can deploy.</td>
</tr>
<tr>
<td>Sara Security</td>
<td>Know about latest vulnerabilities, find security bugs, perform security scans in the environments.</td>
</tr>
</tbody>
</table>
### LEGO Animal Stock Exchange

<table>
<thead>
<tr>
<th>Animal</th>
<th>Desired quantity</th>
<th>Batch size (min 3)</th>
<th>Sprint 1 Price per batch</th>
<th>Sprint 2 Price per batch</th>
<th>Sprint 3 Price per batch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dogs</td>
<td>15</td>
<td>5</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cats</td>
<td>9</td>
<td>3</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lions</td>
<td>3</td>
<td>3</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snakes</td>
<td>10</td>
<td>5</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fishes</td>
<td>6</td>
<td>3</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giraffes</td>
<td>5</td>
<td>5</td>
<td>200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
• Each package contains:
  • one Lego animal
  • one chocolate candy
• Type of an animal as per the user story.
• Each animal has a label with a number.

Sample animals: A lion and a horse
Development Environment - Sample
Deployment Package:

LEGO animal = software features
Chocolate = user documentation

Deployment package

User Story

Five small individual packages with a LEGO dog and a chocolate
What Is The Goal of The Game?
Dev and Ops are silos
Everyone operates within the boundaries of their roles.
Sys Admin controls release schedule
Debrief
1. Cross-train Developers and Testers - address dev process bottlenecks.
2. Invite Sara Security into Scrum Team – learn about security issues before implementation.
3. First release into production. Only release engineer can deploy.
Debrief
DevOps. Where Do We Start?

Figure 1. Gartner DevOps Model

- **People**
  - Full-Stack Teams
  - Job Rotation
  - Joint Meetings

- **Autonomous Teams**
  - Site Reliability Engineers
  - Platform Engineers

- **Technology**
  - Infrastructure as Code
  - Monitor Everything
  - Integrated Tool Chains
  - Developer Self-Service
  - ChatOps
  - Continuous Delivery
  - Continuous Testing

- **Process**
  - Minimum Viable Product
  - Automated Builds
  - Continuous Integration
  - Automated Testing
  - Release Automation
  - Canary Rollouts
  - Fail Forward

- **Culture**
  - Trust Culture
  - Collaborative Culture

- **Instrument Everything**
  - Feature Flags
  - Version Everything
  - Technical Debt
  - Test-Driven Development
  - Common Metrics
  - Chaos Monkey

- **Feature Flags**
  - Never Done
  - Learning Culture

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Step 1: Optimize Your Flow
1. **Identify** the system's constraint(s).
2. Decide how to **exploit** the system's constraint(s).
3. **Subordinate** everything else to the above decision (align the whole system or organization to support the decision made above).
4. **Elevate** the system's constraint(s) (make other major changes needed to increase the constraint's capacity).
5. **Rinse and Repeat!**
Different Types of Bottlenecks

- Outdated Tools
- People, unwilling to learn
- Policies
Continuously Expand Your Skills!

DON'T BE A BOTTLENECK
Step 2: Fast-Track the Feedback Loop

Dev

Ops

Scrum Team
Bring Operations In!

Dev

Ops

Scrum Team

Feedback
Simplify and Automate Manual Steps

“ANYONE CAN COOK!”

Anyone Can Deploy
Anyone Can Build And Provision Environments

DevOps
Continuous delivery is a software development strategy that optimizes your delivery process to get high-quality, valuable software delivered as quickly as possible.

~Jez Humble
"Continuous Delivery process diagram“ by Jez Humble
http://continuousdelivery.com/2010/02/continuous-delivery/
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Sprint 3: Optimizing the system with DevOps transformation.

Improving the flow:
- Building T-shaped skills
- Reducing batch sizes.

Accelerating the Feedback:
- Simplifying deployments
- Continuous Delivery
If You Only Remember Four Things:

1. DevOps is about creating a fast flow of work through organization.
2. DevOps is about amplified feedback loop.
3. DevOps is about experimentation, repetitions and practice.
4. DevOps is about changing the culture.
Recommended Reading:

- *The Phoenix Project* by Gene Kim, Kevin Behr, and John Shipman
- *Continuous Delivery* by Jez Humble and David Farley
- *Flow* by Donald G. Reinertsen
- *Look Inside the GoA* by Eliyahu M. Goldratt
- *Essential Scrum* by Kenneth S. Rubin
Web Resources:

https://www.getchef.com/blog/2010/07/16/what-devops-means-to-me/
https://www.gartner.com/doc/2847717/seven-steps-start-devops-initiative
http://www.gartner.com/technology/reprints.do?id=1-2CBV2MS&ct=150326&st=sb#f-d2e168
https://blog.newrelic.com/2014/05/16/devops-name/
http://continuousdelivery.com/

Facilitation instructions:
https://leanpub.com/chocolatelegoscrum
Thank you for playing with me today!

You’ve earned a badge!

Level 2
Chocolate, LEGO and Scrum Game
@DanaPlyayeva
Achievement unlocked!
And If Something Didn’t Work…

Not My Problem...

It worked on My machine!