DevOps for Defense

The 3rd Way: Continuous Experimentation & Improvement

March 2018 - JD Black

See JD or Justan to get your
1st round free!!!

https://www.meetup.com/DevOps-for-Defense/
https://github.com/jondavid-black/DevOpsForDefense
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DevOps for Defense Meetup: Code of Conduct

➢ UNCLASSIFIED ONLY!!!!
➢ Treat each other with respect and professionalism.
➢ Do not talk about private, sensitive, or proprietary work.
➢ Do talk about your experiences, needs, desires to improve work in our domain.
➢ Do share your thoughts.
➢ Do learn from others.
➢ Do respect & tip your bartenders!
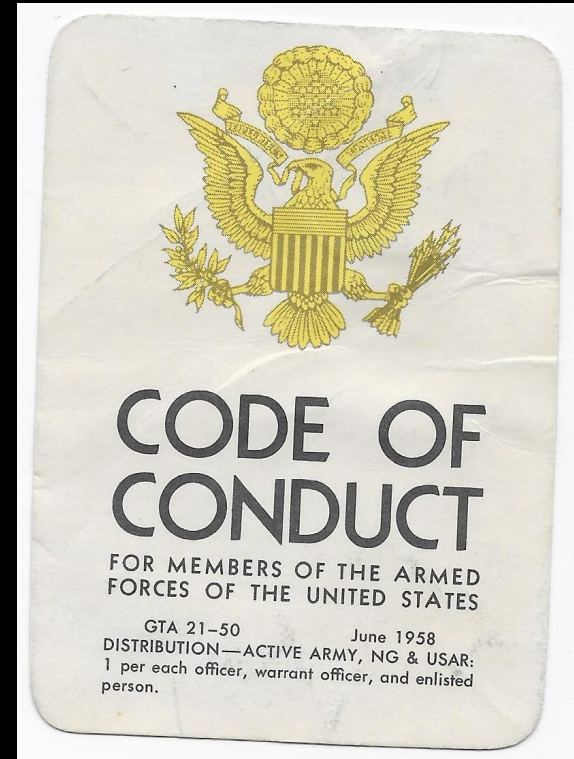
Thank You for Supporting the DevOps for Defense Meetup!
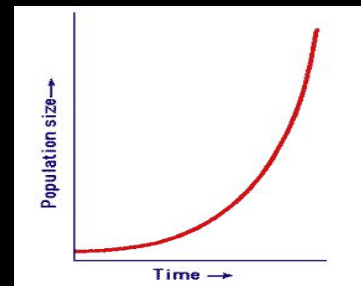
Dec 2017

Jan 2018
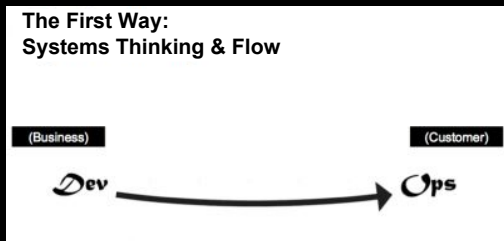
Feb 2018
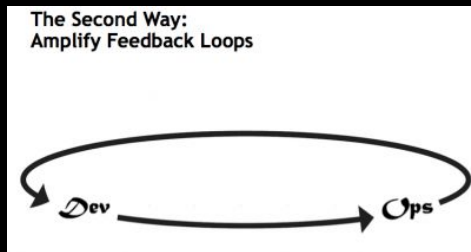
~8 People

~16 People

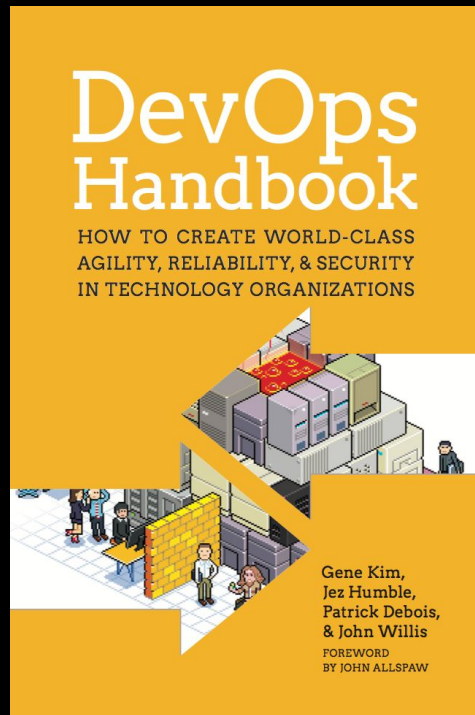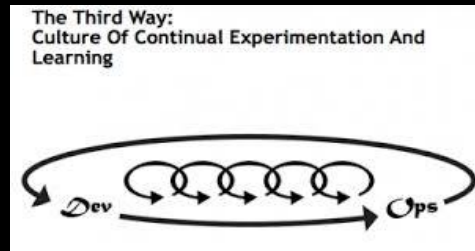~32 People

Core of DevOps

The 1st Way: Systems Thinking & Flow

The 2nd Way: Feedback

The 3rd Way: Continual Experimentation & Learning

Forbes Quote of the Day - 3 March 2018

"Dream big and be disruptive. If you're doing the same thing as everyone else, you've already failed."

- Kendra Scott, Designer & Entrepreneur

Continuous Experimentation & Learning

- Create opportunities for learning as quickly, frequently, cheaply, and as soon as possible.
- Learn from accidents and failures, which are inevitable when working within complex systems.
- Institutionalize rituals that increase safety, continuous improvement, and learning
  - Establish a just culture to make safety possible
  - Inject ~~production~~ failures to create resilience
  - Convert local discoveries into global improvements
  - Reserve time to create organizational improvements and learning

I don't recommend we do this in production for DoD weapon systems. There are too many safety concerns. We should start with our integration and test environments. But everyone should **learn about Netflix's Simian Army**!

Taken from The DevOps Handbook - Gene Kim, Jez Humble, Patrick Debois, & John Willis

Define Your Experiment

Hypothesis Template

We believe that

   [building this capability]

   [for these people]

   Will achieve **[this outcome]**.

We know we are successful when we see

   [this measure / metric / observation].

   -   adapted from Jeff Gothelf

The DevOps for Defense Meetup Hypothesis

creating a DevOps meetup

for defense industry professionals

a broad cultural transformation that improves DoD system development and mission value delivery by adapting commercial best practices to our domain

modern DevOps concepts and practices embraced by DoD and Industry to safely deliver greater value to our Warfighters

Lean Start-Up Reduces Risk & Drives Value

"*Launching a new enterprise—whether it's a* **tech start-up, a small business, or an initiative within a large corporation**—*has always been a hit-or-miss proposition. According to the decades-old formula, you write a business plan, pitch it to investors, assemble a team, introduce a product, and start selling as hard as you can. And somewhere in this sequence of events, you'll probably suffer a fatal setback. The odds are not with you: As new research by Harvard Business School's Shikhar Ghosh shows,* **75% of all start-ups fail***.*

But recently an important countervailing force has emerged, one that can make the process of starting a company **less risky***. It's a methodology called the "lean start-up," and it* **favors experimentation over elaborate planning, customer feedback over intuition, and iterative design over traditional "big design up front" development***. Although the methodology is just a few years old, its concepts—such as* **"minimum viable product"** *and* **"pivoting"**—*have quickly taken root in the start-up world, and business schools have already begun adapting their curricula to teach them.*"

- Harvard Business Review, May 2013

Lean Start-Up (by Eric Ries)

Ideas

Learn

Build

Minimize
Cycle Time

Data

Code

Measure
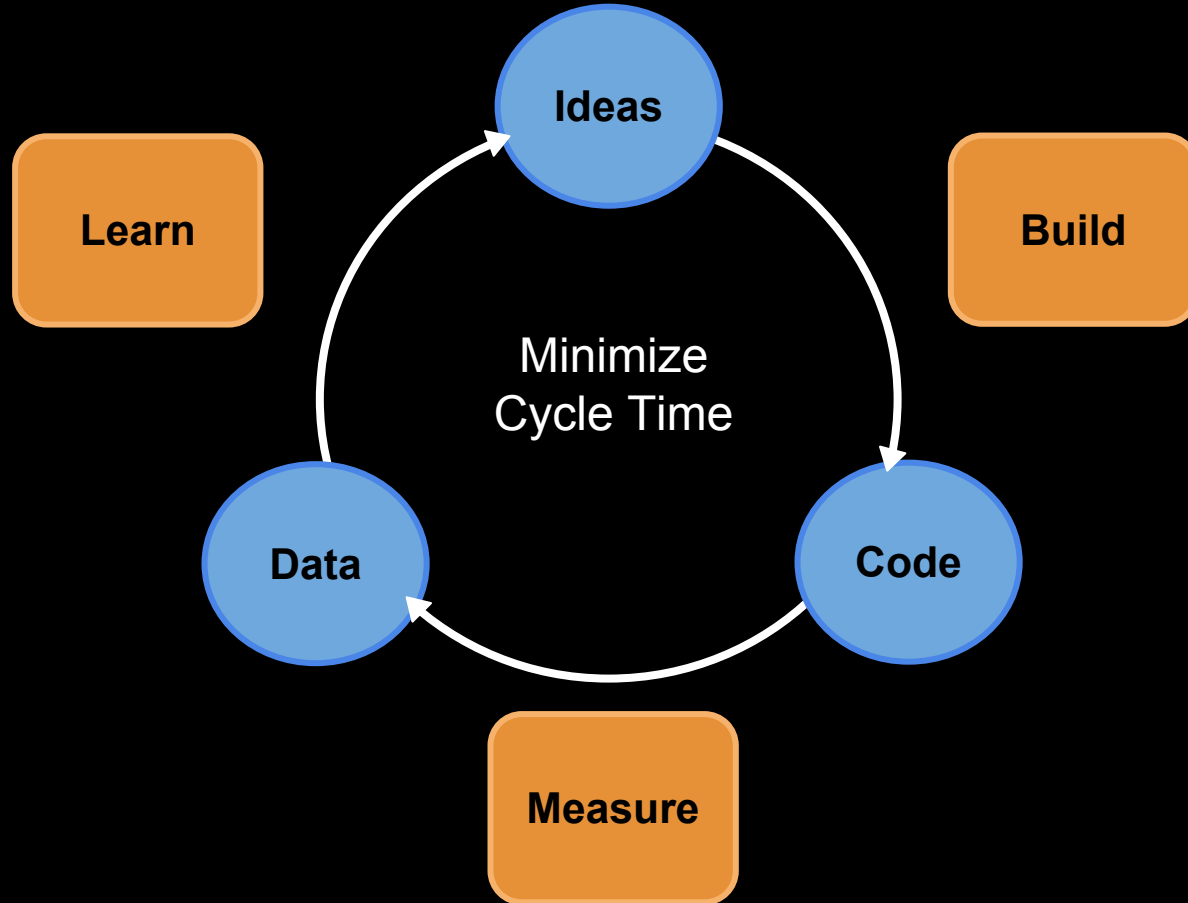
Lean Startup In Practice:
1. Define Hypothesis
2. Build the absolute smallest thing you can to test that hypothesis. This is your **Minimum Viable Product (MVP)**.
3. Collect and analyse the data to prove / refute your hypothesis.
4. If things go well, continue. If not, pivot.

In the defense domain we call this performing a **Decision Analysis Report** (DAR from CMMI) or a **Trade Study**.

Our problem is we define huge studies that take many months to complete.

Failure Is An Option - Pivot When Needed

"Evaluating well-designed and executed experiments that were designed to improve a key metric, only about ⅓ were successful at improving the key metric!"

-   Online Experimentation at Microsoft

Types of Pivots:

Zoom In	Customer Segment	Platform	Value Capture	Chanel
Zoom Out	Customer Need	Business Architecture	Engine for Growth	Technology

Forbes: Top 10 Ways Entrepreneurs Pivot a Lean Startup - https://goo.gl/KfVq5s

Limit the Blast Radius

Define in Your Backlog

Blameless Postmortems

Feature Toggles

Automate Deploy & Roll-back

Versioned Interfaces

Incremental Evolution

Canary Releases

A/B Deployments

Experiments Require a Safe Environment & Culture

"Don't try this at home. We're what you call experts."

Today: A Day of Experiments!

1. First round free
2. Remote site support (Outside Offutt AFB, US STRATCOM)
3. New Logo (Grab a card...pin it up in your break room)
4. New black & white color theme
5. New group activity - Lean Coffee

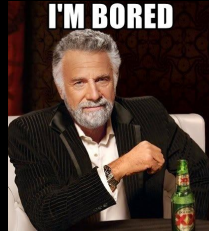Establish feedback to quantify the success of Experiments:

1
Never Again!

2

3
OK...or
Not...Whatever

4

5
OMG,
Amazing!

Group Exercise: Lean Coffee

1. Each table has a facilitator.
2. The facilitator has a short introduction to an aspect of continuous experimentation and improvement.
3. Everyone write down questions on the subject. Place them in the middle of the table.
4. The group votes on questions by placing a dot on the card. 2 votes per person.
5. Question with most dots goes first. Set a timer for 5 minutes and discuss.
6. After 5 minutes, either vote (thumbs up/down) to keep going or move on to the next question.

Choose Your Lean Coffee Table

1. Institutionalize continuous learning in your team
   a. Facilitator: JD Black
2. Establish a culture of safety
   a. Facilitator: Justan Provence
3. Experiments as Trade Studies / DARs
   a. Facilitator: Alana Gipson
4. Using Agile to facilitate experimentation and learning
   a. Facilitator: Thomas Hooper

DevOps Resources

Books / Publications:
- The Phoenix Project
- The DevOps Handbook
- Continuous Delivery
- Lean Enterprise
- Lean Startup
- The State of DevOps Report
- Turn This Ship Around!

Conference Presentations (YouTube):
- DevOps Enterprise Summit (DOES)
- Velocity
- GoTo