DevOps

A cultural movement

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Cloud and Edge Computing: Seminars

What do you expect?

How today lesson works

Interaction and opinions are welcomed

To encourage them **Pokemon Card** will be granted upon interaction

At the end of the lesson who has most **Life Points** will win prizes

What is DevOps?

What is DevOps? - companies/communities say!

DevOps is a set of practices that combines software development (Dev) and IT operations (Ops). It aims to shorten the systems development life cycle and provide continuous delivery with high software quality.[1] DevOps is complementary with Agile software development; several DevOps aspects came from the Agile way of working. (Wikipedia)

DevOps is the combination of cultural philosophies, practices, and tools that increases an organization’s ability to deliver applications and services at high velocity. (AWS)

DevOps is a set of practices, tools, and a cultural philosophy that automate and integrate the processes between software development and IT teams. It emphasizes team empowerment, cross-team communication and collaboration, and technology automation. (Atalassian)

DevOps is a combination of software developers (dev) and operations (ops). It is defined as a software engineering methodology which aims to integrate the work of software development and software operations teams by facilitating a culture of collaboration and shared responsibility. (GitLab)

What is DevOps? - academics say!

DevOps is a collaborative and multidisciplinary organizational effort to automate continuous delivery of new software updates while guaranteeing their correctness and reliability. The present survey investigates and discusses DevOps challenges from the perspective of engineers, managers, and researchers. (Leite et al, 2020)

It’s an organizational shift in which, instead of distributed siloed groups performing functions separately, cross-functional teams work on continuous operational feature deliveries (Ebert et al, 2016)

DevOps is a development methodology aimed at bridging the gap between Development (Dev) and Operations (Ops), emphasizing communication and collaboration, continuous integration, quality assurance and delivery with automated deployment utilizing a set of development practices (Jabbari et al, 2016)

DevOps book trend

Leite et al, 2019

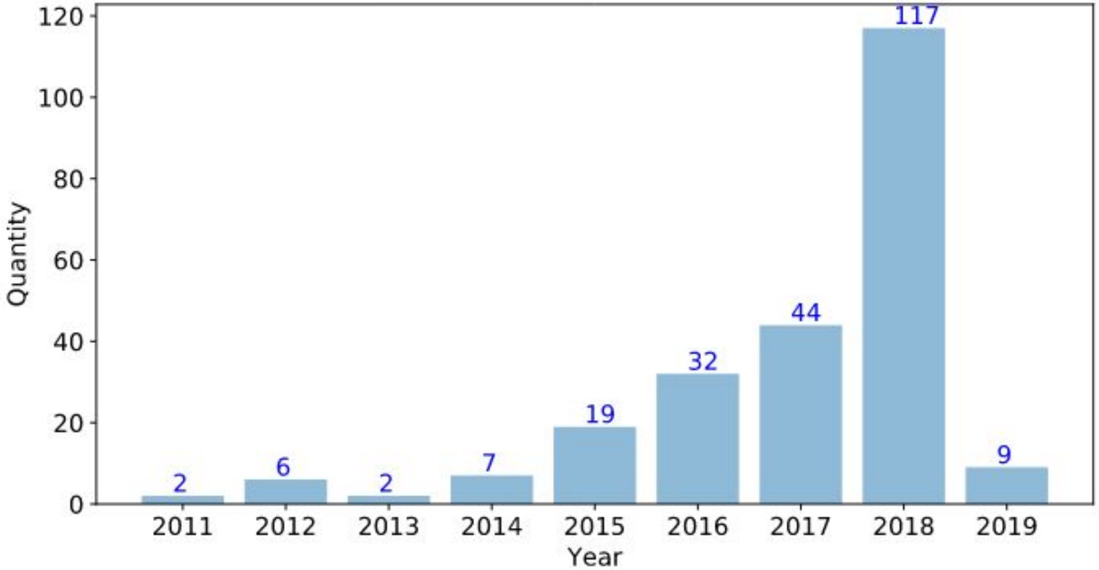


Fig. 3. Distribution of books about DevOps by publication year according to Amazon.com.

DevOps in essence

The danger for a movement that regards itself as new is that it may try to embrace everything that is not old. (Lee Roy Beach et al, 1997)

What most people not knowing the argument think:

- starting point → usually human are blamed and punished for errors, a culture of fear derive and prevent transparency
- old view → human error as the cause of trouble
- old view solution → focus is elimination of human error

WRONG: this is not DevOps

DevOps in essence

IMHO, the great change is cultural:

- starting point → human error is a symptom of deeper trouble in the system
- new view → human error as structural rather than personal
- new view solution → focus on the context

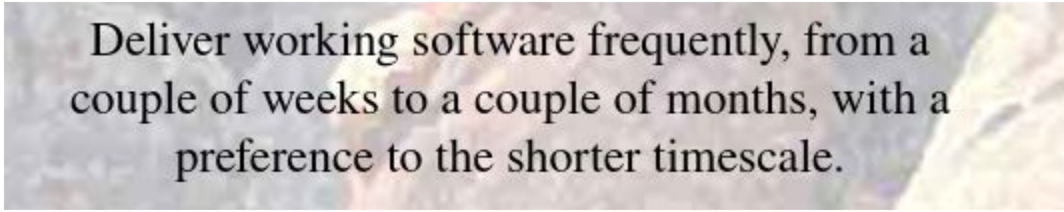
It’s not only technical, it involves management

DevOps is

Debois, for many the father of DevOps, says that DevOps is the sum of:

- Lean, the Theory of Constraints and the Toyota Kata movement
- high-trust management culture
- servant leadership
- organizational change management

BUT also as a natural continuation of the Agile software movement (2001)



Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

DevOps was born

Citing from Debois book:

“At the 2008 Agile conference in Toronto, Canada, Patrick Debois and Andrew Shafer held a “bird of feather” session on applying Agile principles to infrastructure as opposed to application code.”

Despite being the only people who showed up, they rapidly gained a following of like-minded thinkers.

In 2009 at Velocity conference, John Allspaw and Paul Hammond held “10 Deploys per Day: Dev and Ops Cooperation at Flickr”

The term DevOps was born.

DevOps Myth

DevOps is only for startup → Big companies has gained more from DevOps than any startup

DevOps replace Agile → DevOps is the natural continuation of Agile

Real DevOps is “NoOps” →given that the nature of IT Operations change, Ops gain even more importance, it became more like Dev

DevOps is “Infrastructure as a Code” or Automation → Christopher Little, one of the earliest chroniclers of DevOps, said: “DevOps isn’t about automation, just as astronomy isn’t about telescopes.”

Value Stream

Karen Martin and Mike Osterling define it as “the sequence of activities an organization undertakes to deliver upon a customer request” or “the sequence of activities required to design, produce, and deliver a good or service to a customer, including the dual flows of information and material.”

Same principles of physical processes apply to technology work (and all knowledge work)

Input is the formulation of business objective, then Development takes on, usually with Agile technique, a lot of stuff happens but the value is created only when service is running in production.

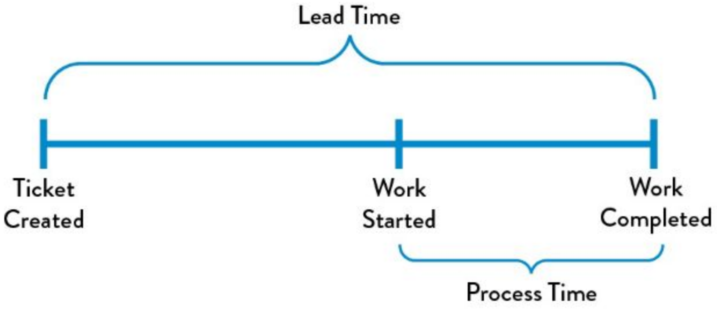
So the focus is Deployment Lead Time.

Lead Time vs Process Time

Lead Time starts when a request is made and ends when is fulfilled.

Process Time starts when the work on the request start, that is the work time without the time in queue.

Lead Time is what customer experiences, so the proportion between lead time and process time is a good indicator of efficiency.



The Three Ways

First Way → to maximize flow, work must be visible, reduce batch size and interval of works, constantly optimize. Practices are continuous build, integrations, test, continuous deployment, creating environment on demand, limiting work in process, building system that are safe to change.

Second Way → fast and constant flow of feedback from customer to business. It requires to shorten and amplify feedback loops, preventing problem from happening, having faster detection and recovery.

Third Way → creation of generative, high-trust culture that support a scientific approach to experimentation and risk-taking; it facilitates learning from successes and failures. Multiply the effects of local discoveries into global improvements.

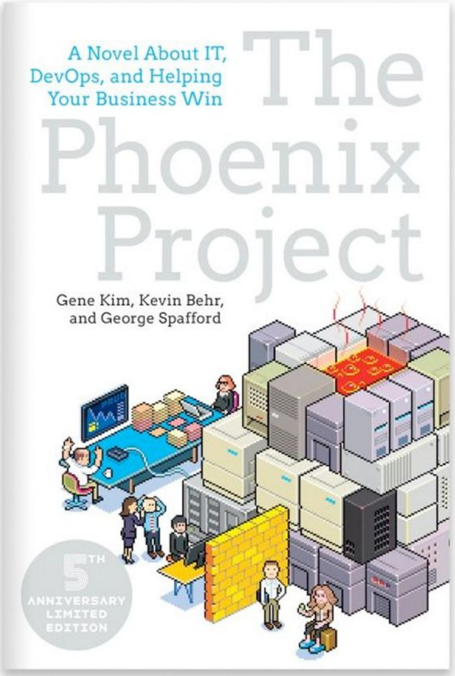
DevOps Fictional

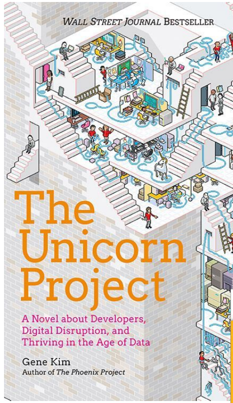
Still not clear?

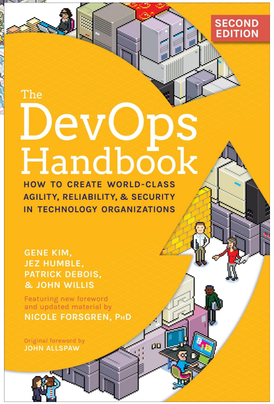
https://itrevolution.com/the-phoenix-project/

https://itrevolution.com/the-unicorn-project/

https://itrevolution.com/the-devops-handbook/


A Novel About IT, DevOps, and Helping Your Business Win
The Phoenix Project
Gene Kim, Kevin Behr, and George Spafford
5TH ANNIVERSARY LIMITED EDITION


WALL STREET JOURNAL BESTSELLER
The Unicorn Project
A Novel about Developers, Digital Disruption, and Thriving in the Age of Data
Gene Kim
Author of The Phoenix Project


SECOND EDITION
The DevOps Handbook
HOW TO CREATE WORLD-CLASS AGILITY, RELIABILITY, & SECURITY IN TECHNOLOGY ORGANIZATIONS
GENE KIM, JEZ HUMBLE, PATRICK DEBOIS, & JOHN WILLIS
Featuring new foreword and updated material by NICOLE FORSGREN, PhD
Original foreword by JOHN ALLSPAW

What a DevOps should do?

Example:

Let’s say that a company need to develop a new platform on pure commission. After first couple of requirements collection developments start.

After 1 year the product need a complete revision and a new requirements collection.

After 3 years the product requirements are still not clear and the platform is not even into an alpha release.

The company blame the absence of feedback from business client.

“I would like to understand things better, but I don’t want to understand them perfectly.”

Douglas Hofstadter – 1985, Metamagical Themas: Questing for the Essence of Mind and Pattern