DevOps

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CS 491 – TESTING AND DEVOPS
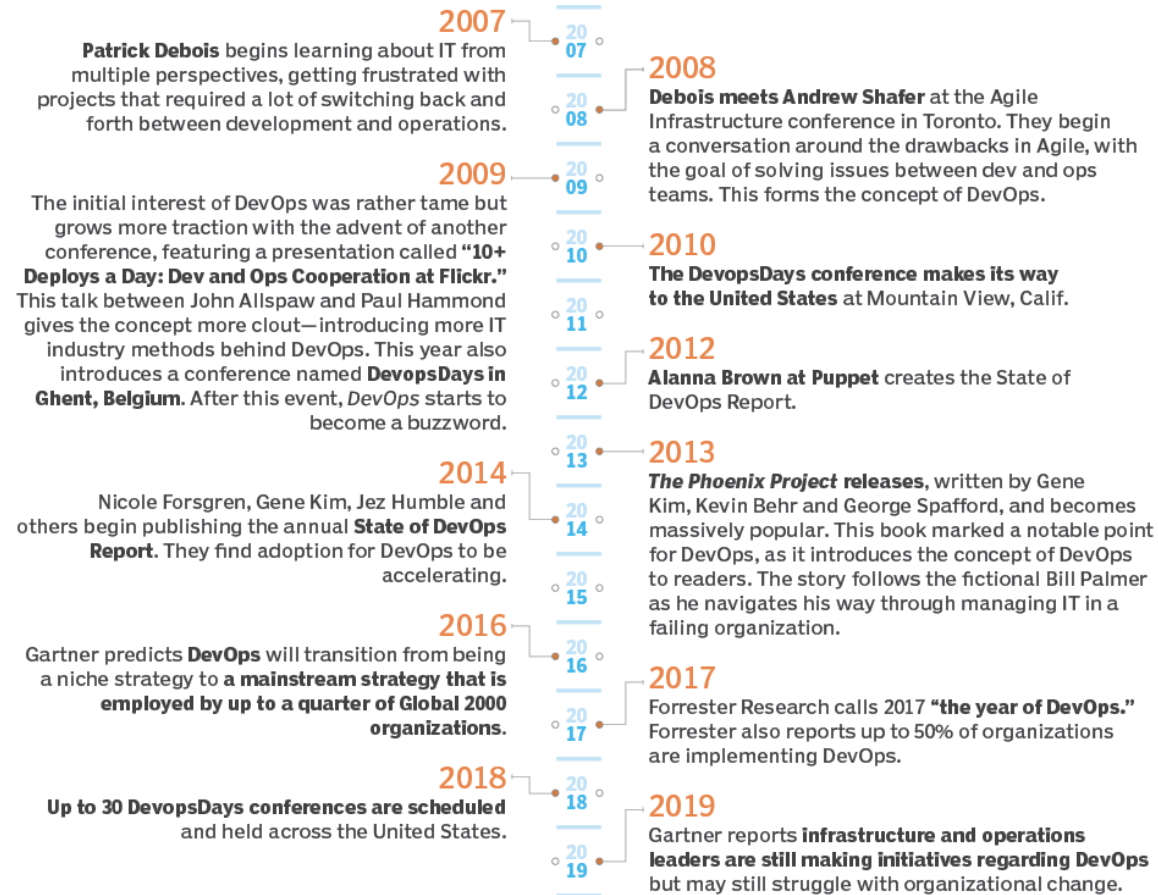
DevOps

Combining software **DEV**opment practices with information technology **OP**erations.

"infrastructure as code"

DevOps over time

2007

Patrick Debois begins learning about IT from multiple perspectives, getting frustrated with projects that required a lot of switching back and forth between development and operations.

2008

Debois meets Andrew Shafer at the Agile Infrastructure conference in Toronto. They begin a conversation around the drawbacks in Agile, with the goal of solving issues between dev and ops teams. This forms the concept of DevOps.

2009

The initial interest of DevOps was rather tame but grows more traction with the advent of another conference, featuring a presentation called **"10+ Deploys a Day: Dev and Ops Cooperation at Flickr."** This talk between John Allspaw and Paul Hammond gives the concept more clout—introducing more IT industry methods behind DevOps. This year also introduces a conference named **DevopsDays in Ghent, Belgium**. After this event, *DevOps* starts to become a buzzword.

2010

The DevopsDays conference makes its way to the United States at Mountain View, Calif.

2012

Alanna Brown at Puppet creates the State of DevOps Report.

2013

***The Phoenix Project* releases**, written by Gene Kim, Kevin Behr and George Spafford, and becomes massively popular. This book marked a notable point for DevOps, as it introduces the concept of DevOps to readers. The story follows the fictional Bill Palmer as he navigates his way through managing IT in a failing organization.

2014

Nicole Forsgren, Gene Kim, Jez Humble and others begin publishing the annual **State of DevOps Report**. They find adoption for DevOps to be accelerating.

2016

Gartner predicts **DevOps** will transition from being a niche strategy to **a mainstream strategy that is employed by up to a quarter of Global 2000 organizations**.

2017

Forrester Research calls 2017 **"the year of DevOps."** Forrester also reports up to 50% of organizations are implementing DevOps.

2018

Up to 30 DevopsDays conferences are scheduled and held across the United States.

2019

Gartner reports **infrastructure and operations leaders are still making initiatives regarding DevOps** but may still struggle with organizational change.

History of DevOps

DevOps facilitated shift from waterfall to agile development practices.

DevOps

Through automation, DevOps practices address

◦ Working in teams!
  ◦ Streamlining the process of combining individuals' work
◦ Shortening the system development lifecycle
  ◦ Faster time to market
◦ Providing high software quality
  ◦ Faster time to recovery (when bugs are discovered in production)
  ◦ Lower failure rate of new releases
◦ Providing a continuous development pipeline

Pipeline

0. Requirements Gathering

◦ Working with Subject Matter Experts and Stakeholders

◦ Establish project goals and objectives

◦ Determining project phases (MVP)

Pipeline

1. Coding
- ◦ Code development and reviews
- ◦ Source code management
- ◦ Code merging
- ◦ *not IDEs (personal development environment)

2. Building
- ◦ Continuous integration tools
- ◦ Build status

3. Testing
- ◦ Continuous testing tools

Pipeline

4. Packaging
- ◦ Artifact repository
- ◦ Application pre-deployment staging

5. Releasing
- ◦ Change management
- ◦ Release approvals
- ◦ Release automation

Pipeline

6. Configuring
- Infrastructure configuration and management
- Infrastructure as code tools

7. Monitoring
- Application performance monitoring
- End-user experience

Questions?

Let's Do Something!

- For each of the 7 pipeline phases
  - List and describe at least 3 technologies you found
    - Include citations
  - Provide your recommendation for the best choice
    - Use one or more of the following to justify your choices
      - Reliability
      - Cost
      - Learning curve
        - ease of use
        - familiarity
      - Compatibility with other technologies
- Submit a document containing your recommendations to WebCampus

	Python	Java	C++
Reliability	4	9	8
Cost	0	50	1500
Learning	2	7	9
Compatibility	7	9	9