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DevOps Courses by IBM on Coursera

Course 1

Week 1: Introduction to DevOps

21.11.2022:

1.1. Course Introduction

→ Devops is practice of Engineers working together through full SLDC, in a rapid and continuous manner. This is the heart of the DevOps Culture.

1.2. Business Case for DevOps

→ Since the Year 2000 52% of Fortune 500 Companies are gone due to disruption.
→ If it takes a bank 6 months to deploy updates to software a lot of customers might get lost.
→ Speed is very important in CI/CD
→ Uber disrupted Taxi industry with Open Source Software.



A ridesharing service is 40% cheaper than a regular cab for a 5-mile trip into Los Angeles

\$\$\$ Ridesharing

\$\$\$\$\$ Taxi

→ Netflix disrupted Blockbuster
→ Technology enables innovation, doesn't drive it by itself.

1.3. DevOps Adoption

→ fail fast, roll back quickly
→ A/B testing
→ Microservices are usable and recommended for this
→ January 2011 Etsy deploys every ~25min, in 1 month they:

- Code committed by 76 people
→ a total of 517 times

2016 DevOps Enterprise Summit

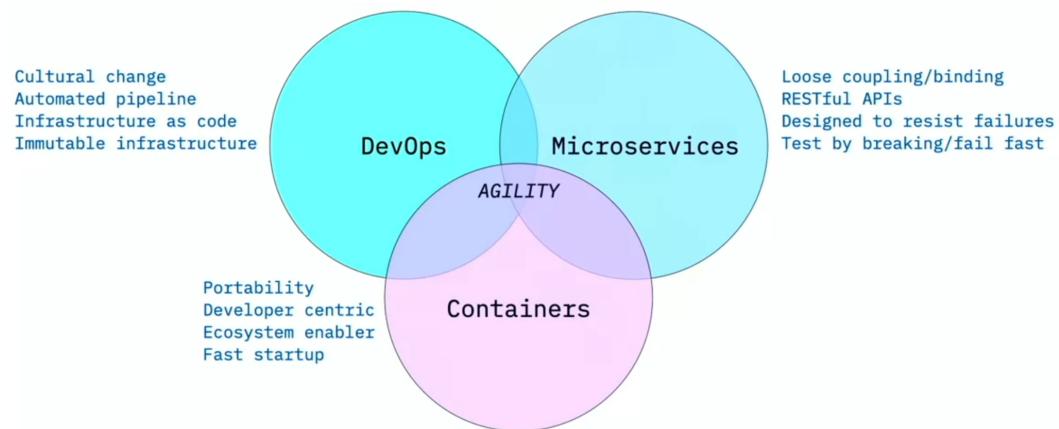
Ticketmaster – 98% reduction in MTTR
Nordstrom – 20% shorter lead time
Target – Full Stack Deploy three months to minutes
USAA – Release from 28 days to 7 days
ING – 500 application teams doing DevOps
CSG – From 200 incidents per release to 18
 → 2016:

1.4. Definition of DevOps

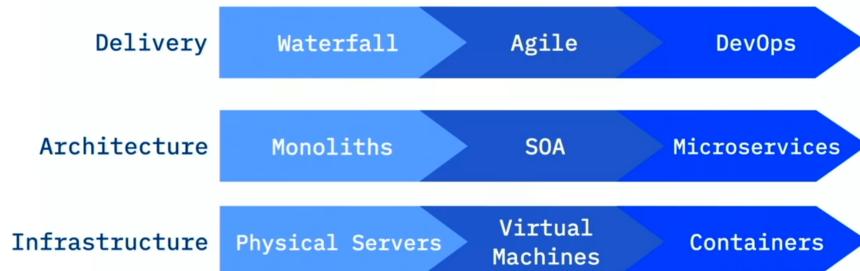
- “Development Operation is an extension of agile development that aims to enhance the process of software delivery as a whole” - Patrick Debois, 2009
- DevOps is Devs and Ops working together in full SLDC following agile principles
- DevOps requires a new application design, leveraging automation for microservices and a defined programmable platform to deploy on to.

1.5. Essential Characteristics of DevOps

- Be agile, move in market with minimum risk and maximum velocity, gain valuable insights
- Three Pillars of Agility:



- Application evolution:



1.6. Activity: Identify Categories in Application Evolution

Match categories and Application Evolution steps

Correct!

You have made the right matches.

Waterfall > Agile > DevOps: Waterfall, Agile, and DevOps are methods for software development and delivery.

Monoliths > SOA > Microservices: Monoliths, SOA, and Microservices are architecture: ways that software is built.

Physical Services > VMS > Containers: Physical Services, VMS, and Containers are used to create infrastructure: basic services such as communication and storage.

[Continue](#)

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1.7. Practice Quiz: Introduction To DevOps: Practice Quiz 1

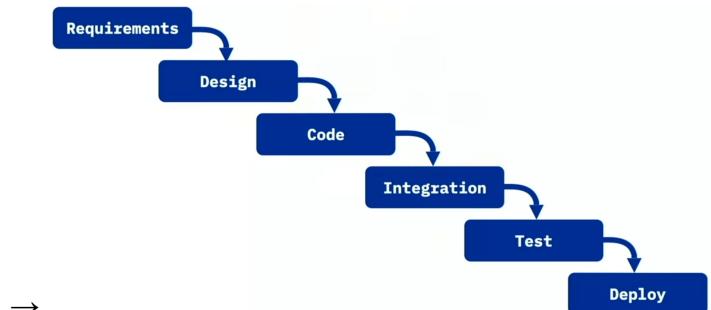
✓ Congratulations! You passed!

→ Grade received 100% To pass 70% or higher

22.11.2022

1.8. Leading Up to DevOps

→ Traditional inefficient waterfall development method:



→ ...

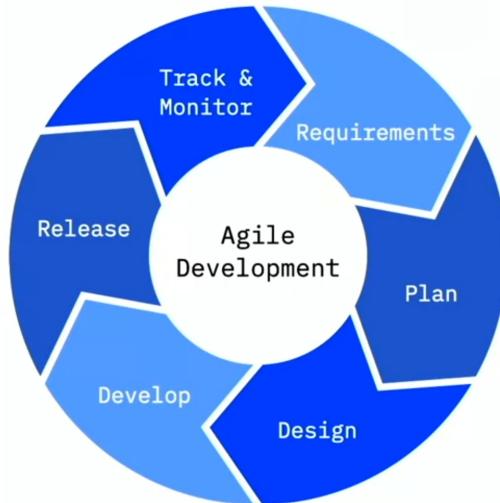
- Traditional Waterfall development creates problems such as delays, frustration, long lead times, expensive late changes, and operations managing unfamiliar code
- In the past, software developers and operations worked in silos, rather than working together

1.9. XP, Agile, and Beyond

→ The Agile Manifesto:

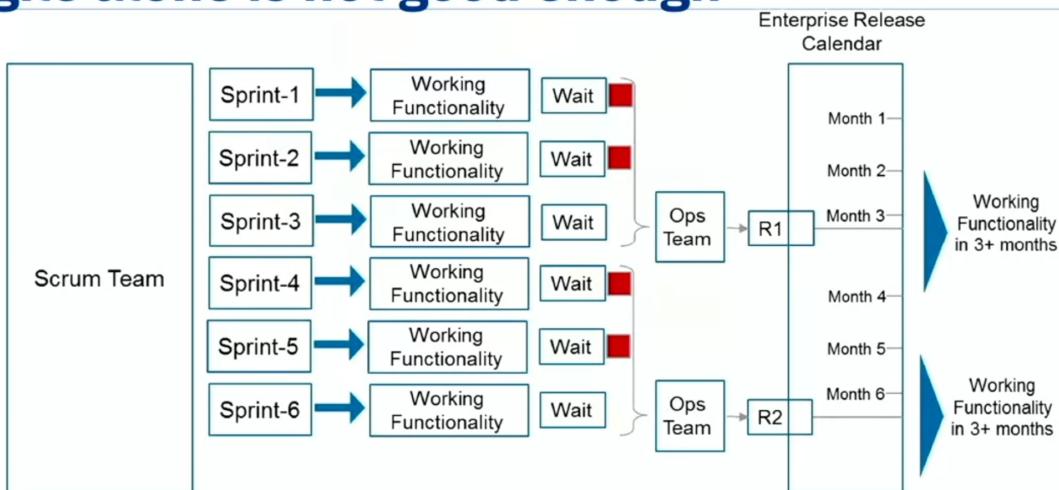
We have come to value:
Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on the right,
→ we value the items on the left more



→

Agile alone is not good enough



→

→ Shadow IT (Resources the business doesn't know about) comes around because of this speed Problem in Company infrastructure, people go around it.

1.10. Brief History of DevOps

- Patrick Debois started the DevOps movement in 2007 with a simple idea of getting development and operations to work better together
- DevOps grew through the efforts of influential people such as Patrick Debois, Andrew Shafer, John Allspaw, Nicole Forsgren, Bridget Kromhout, Jez Humble, Gene Kim, and John Willis

1.11. Practice Quiz: Introduction to DevOps: Practice Quiz 2

Congratulations! You passed!

→ Grade received **100%** To pass 70% or higher [Go to next item](#)

→ **Practice Quiz: Introduction to DevOps: Practice Quiz 2**
3 questions

1.12. Discussion Prompt: Module 1 Discussion

Module 1 Discussion

Please introduce yourself and share why you want to learn about DevOps. Is your organization currently practicing or considering DevOps?

→ Your response has been submitted. Engage and discuss with other learners below!

1.13. Reading: Summary and Highlights

→ Technology is the enabler of innovation, rather than the driver of innovation. You must have an innovative business idea to leverage technology.

→ In 2009, John Allspaw described an innovative approach to managing development and operations that enabled Flickr to complete over ten deploys per day, when many companies were completing fewer than one deploy every six months. This was a key moment in the growth of DevOps.

→ DevOps is the practice of development and operation engineers working together during the entire development lifecycle, following Lean and Agile principles that allow them to deliver software in a rapid and continuous manner.

→ DevOps is not just Dev and Ops working together. It is a cultural change and a different way to work. DevOps has three dimensions: culture, methods, and tools. Of these, culture is the most important.

→ The essential characteristics of DevOps include cultural change, automated pipelines, infrastructure as code, immutable infrastructure, cloud native application design, the ecosystem of containers, and how to deploy with immutable infrastructure.

→ DevOps started in 2007 when Patrick Debois and Andrew Clay Shafer began to gather like-minded people together at conferences to talk about common experiences.

→ In 2009, Allspaw delivered his now famous “10+ Deploys Per Day – Dev and Ops Cooperation at Flickr” presentation and the idea gained ground. Also in 2009, Patrick Debois started a conference called DevOpsDays that helped spread the DevOps message.

→ Books such as *Continuous Delivery* in 2011, *The Phoenix Project* in 2015, and *The DevOps Handbook* in 2016, helped practitioners understand how DevOps worked.

→ The major influential people of the early DevOps movement: Patrick Debois, Andrew Clay Shafer, John Allspaw, Jez Humble, Gene Kim, John Willis, Bridget Kromhout, and Nicole Forsgren, went out and made a difference, showing the results that could be achieved with DevOps.

→ The message spread from practitioner to practitioner until they began to realize what was possible with DevOps and that it was a better way to work.

1.14. Quiz: Overview of DevOps

→  **Congratulations! You passed!**

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|----------------------------|------------------------------|-----------------------|------------------------|
| Grade received 100% | Latest Submission Grade 100% | To pass 70% or higher | Go to next item |
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Week 2: Social Coding Principles