DevOps

Software Architecture

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Question

Who has heard of *DevOps*?

Question

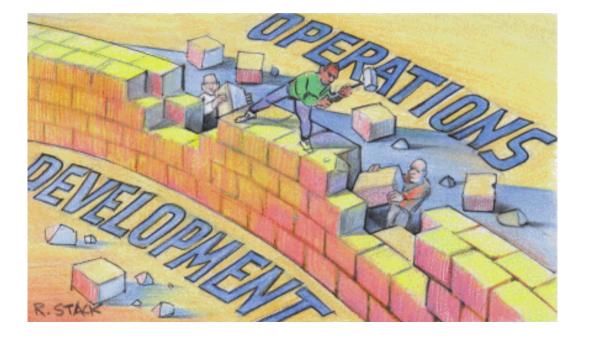
Who has used DevOps?

The larger story

Server Config Config Management
Application Config Config Files
Provisioning Infrastructure Code
Building Continuous Integration
Deployment Continuous Deployment
Testing Automated Tests
Database Administration Schema Migration
Specifications Behaviour Driven Development

Question

What is *DevOps*?



What is DevOps? [Senapathi et al., 2018]

• A combination of software development and IT operations skills

What is DevOps? [Senapathi et al., 2018]

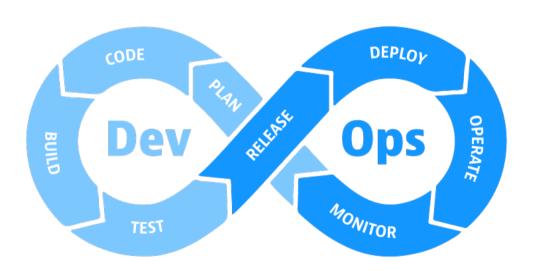
- A combination of software development and IT operations skills
- A *cultural movement* that enables rapid development with four defining characteristics: open communication, incentive and responsibility alignment, respect, and trust

Important

Continuous *

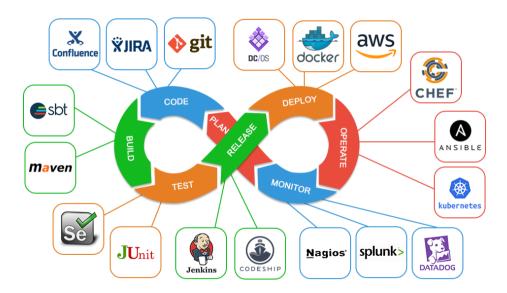
Also Important

If it hurts, do it more often



Tooling

- 1. Continuous development
- 2. Continuous integration
- 3. Continuous *testing*
- 4. Continuous deployment
- 5. Continuous *operations*
- 6. Continuous monitoring
- 7. Continuous feedback



Discussion

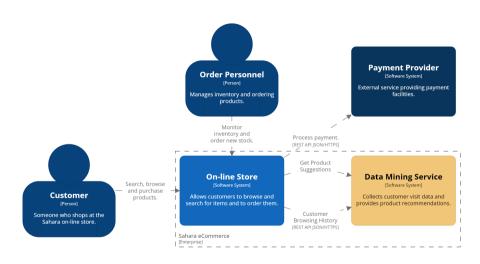
Do the seven necessary DevOps practices map perfectly to the enablers in the article by Senapathi et al [Senapathi et al, 2018]?

Technological Enablers

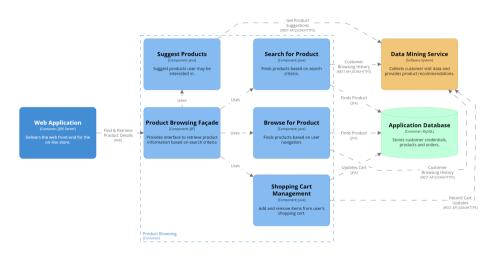
- Build automation
- *Test* automation
- Deployment automation
- Monitoring automation
- Recovery automation
- Infrastructure automation
- Configuration management for code and infrastructure
- *Metrics* automation

Today

Design a DevOps pipeline for *Sahara*



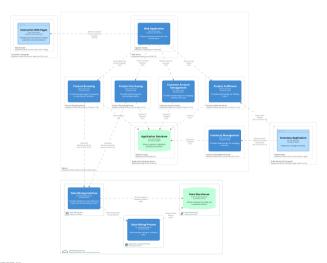
[System Context] On-line Store



[Component] On-line Store - Product Browsing

Sunday, 20 March 2022, 21:51 Australian Eastern Standard Time





$Sahara\ Pipeline$

1. What *types of tools* would be required?

Sahara Pipeline

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- 2. Which *specific tools* would you choose?

Sahara Pipeline

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- 2. Which *specific tools* would you choose?
- 3. On which type of *computing infrastructure* would you deliver the system?

Sahara Pipeline

- 1. What *types of tools* would be required?
- 2. Which *specific tools* would you choose?
- 3. On which type of *computing infrastructure* would you deliver the system?
- 4. What parts of the deployment and operations processes could be *automated*?

References

[Senapathi et al., 2018] Senapathi, M., Buchan, J., and Osman, H. (2018). DevOps capabilities, practices, and challenges: Insights from a case study. In Proceedings of the 22nd International Conference on evaluation and assessment in software engineering 2018, volume 137700 of EASE'18, pages 57–67. ACM.