DevOps
Software Architecture

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Question

Who has heard of *DevOps*?

Question

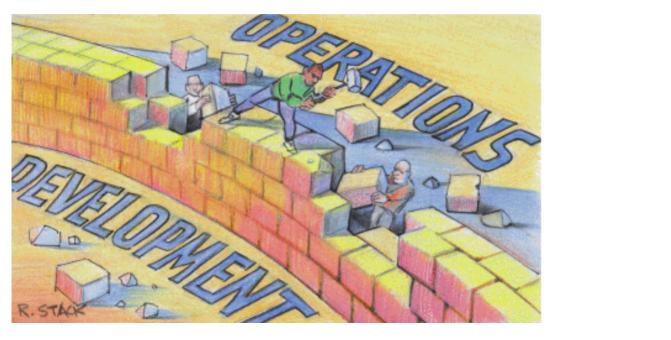
Who has used *DevOps*?

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

• A *cultural movement* that enables rapid

characteristics: open communication,

incentive and responsibility alignment,

development with four defining

IT operations skills

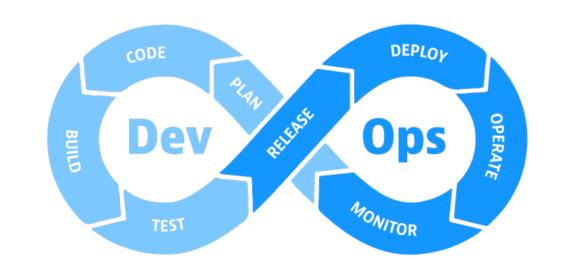
respect, and trust

• A combination of *software development* and

Important
Continuous *

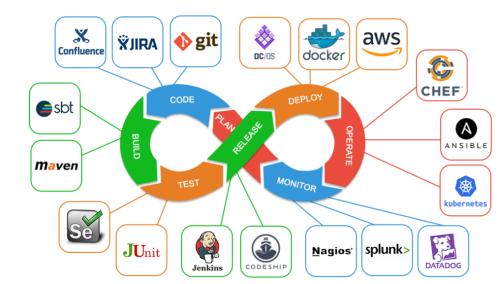
Also Important

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

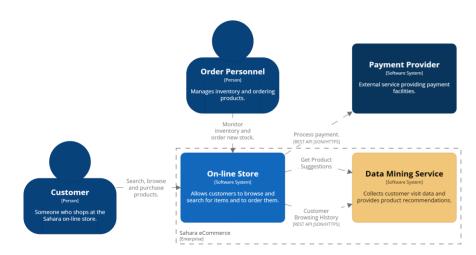
Do the seven necessary *DevOps practices* map perfectly to the *enablers* in the article by Senapathi *et al.*, 2018/?

Technological Enablers

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

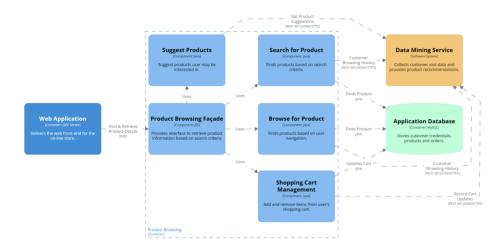
Today

Design a DevOps pipeline for *Sahara*



[System Context] On-line Store

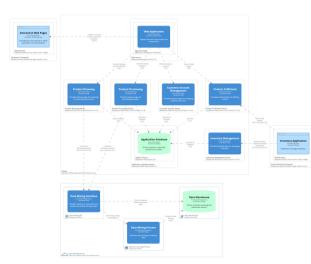
Friday, 18 March 2022, 23:38 Australian Eastern Standard Time



[Component] On-line Store - Product Browsing Sunday, 20 March 2022, 21:51 Australian Eastern Standard Time

Sunday, 20 March 2022, 21.31 Australian castern standard fillie





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

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

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- 3. On which type of *computing infrastructure*
- - would you deliver the system?

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- 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

57–67. ACM.

[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