

DevOps

Software Architecture

Brae Webb

March 13, 2023

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

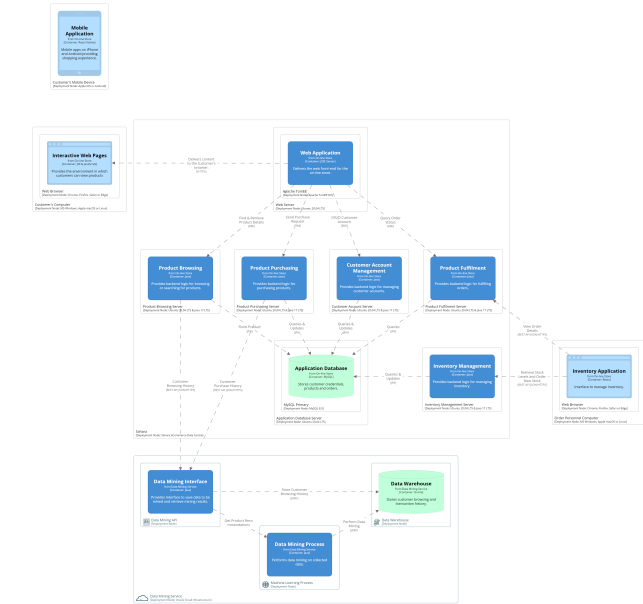
Design a DevOps pipeline for *Sahara*



[System Context] On-line Store

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





Sahara Pipeline

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

Sahara Pipeline

1. What *types of tools* would be required?
2. Which *specific tools* would you choose?

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?

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.