

# DevOps

CSSE6400

Brae Webb

March 21, 2022

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*? [1]

- A combination of *software development* and *IT operations* skills

## What is *DevOps*? [1]

- 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* [1]?

## 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



## 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

- [1] Mali Senapathi, Jim Buchan, and Hady Osman.  
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, 2018.