

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*?



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- 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

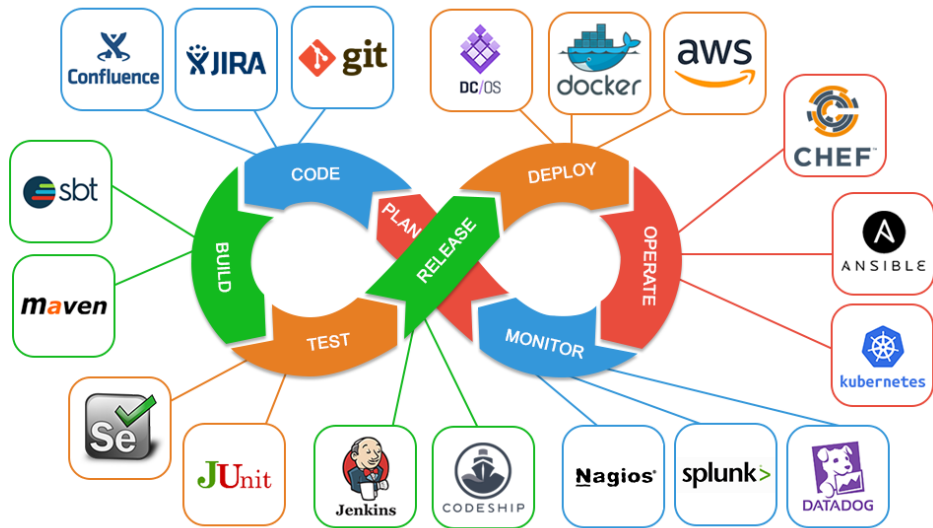
1. Continuous *development*
2. Continuous *integration*
3. Continuous *testing*
4. Continuous *deployment*
5. Continuous *operations*
6. Continuous *monitoring*
7. Continuous *feedback*

Small Group Discussion

Describe the tools you have identified for the Continuous * practices.

Class Discussion

Summarise the tools identified by each group and the practices they support.



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?

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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?
4. What parts of the deployment and operations processes could be *automated*?

Discussion

Present the DevOps pipelines that you have developed to the rest of the class.

Challenge 1: DevOps in Practice

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

References

- [Senapathi et al., 2018] Senapathi, M., Buchan, J., and Osman, H. (2018).
DevOps capabilities, practices, and challenges: Insights from a case study.
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assessment in software engineering 2018*, volume 137700 of *EASE'18*, pages
57–67. ACM.