DevOps   Software Architecture

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1   Brief

DevOps is a portmanteau[1] of development and operations. It is intentionally a portmanteau to emphasise that the approach requires a close integration of development and operations behaviours in one team. In a proper DevOps environment the development team is responsible for the infrastructure on which their software runs, not just for the software itself. This can include considering infrastructure costs in their development budget and estimates.

This week we will

1. provide an overview of DevOps,

2. consider best practices,

3. review some DevOps tools, and

4. let you explore how you might implement DevOps processes.

2   Introduction to DevOps

You should be familiar with the concepts of automated testing and continuous integration. We will now extend that to include continuous testing and deployment, and then expand on these to provide a full DevOps process.

For an introduction to DevOps read the article "DevOps"[2] published in IEEE Software.

Skim through the description of implementing DevOps at Wotif[3] in "DevOps: Making it Easy to Do the Right Thing."[4] Focus on the section titled "Making it Easy." This is where they discuss how they provided the environment to support DevOps.

3   Best Practices

4   DevOps Tools

You should be familiar with some of the tools used in a DevOps process. We will summarise the types of tools that enable DevOps. We expect that you will do a quick Google search to get a summary of tools that are available.

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[1] https://www.britannica.com/topic/portmanteau-word
[2] https://search.library.uq.edu.au/permalink/f/tbms52/TN_cdi_webofscience_primary_000383092600018
[3] Now Expedia
[4] https://search.library.uq.edu.au/permalink/f/tbms52/TN_cdi_webofscience_primary_000383092600012CitationCount

5 DevOps in Practice

Read "DevOps Capabilities, Practices, and Challenges: Insights from a Case Study,"[5] published in the 2018 Evaluation and Assessment in Software Engineering conference proceedings.

For the Sahara eCommerce case study, describe the process of delivering the system using DevOps.

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

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[5]https://search.library.uq.edu.au/permalink/f/tbms52/TN_cdi_arxiv_primary_1907_10201