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March 20, 2025

CSD-380 DevOps

Assignment 3

The History of DevOps

DevOps tends to be seen as just a set of technical tools for automation, but it is way more than that. It is a grassroots movement that has transformed the way software is developed and delivered. It brings together technical, architectural, and cultural practices that have been shaped by different management and philosophical ideas over time. According to Kim, Humble, Debois, Willis, and Forsgren (2021), DevOps is about breaking down barriers between development and operations teams to create a more efficient workflow. The overall idea is to improve collaboration, speed up deployments, and enhance the overall quality of software. However, DevOps did not appear out of nowhere. It evolved from several important movements, including Lean, Agile, and Continuous Delivery. Each of these movements played a critical role in shaping what DevOps is today.

Before DevOps, there was Lean. Lean thinking comes from the manufacturing world, specifically from Toyota's production system. According to Kim et al. (2021), Lean is about eliminating waste, improving efficiency, and focusing on delivering value to customers. In software development, this means removing unnecessary steps, automating repetitive tasks, and constantly improving the process. Instead of long, complicated workflows that slow things down, Lean encourages teams to work in smaller, more manageable ways. This directly influenced DevOps by promoting continuous improvement and efficiency. A quick example of this is an organization saving time and reducing errors by implementing automated testing tools instead of requiring the development team to send their code to a separate QA team for manual bug testing.

Without Lean principles, DevOps would not have the same focus on streamlining processes and reducing bottlenecks. Gupta (2023) also notes in his article that Lean thinking played a foundational role in creating fast, reliable, and scalable software development practices, which later became key in DevOps.

Another major influence on DevOps was the Agile movement. In 2001, a group of software developers created the Agile Manifesto, which emphasized flexibility, collaboration, and responding to change rather than sticking to rigid plans (Kim et al., 2021). The goal was to move away from traditional software development methods like the waterfall methodology, which can take months or even years to complete, and instead focus on delivering smaller, more frequent updates. According to Odazie and Iheanacho (2023), Agile also changed the way teams worked together by encouraging direct communication, feedback loops, and customer involvement throughout the process. DevOps took these ideas even further by ensuring that not just development teams, but also operations teams, were part of this fast-moving, adaptive way of working. On that note, Agile set the foundation for DevOps by encouraging fast updates and teamwork, while DevOps built on it by adding deployment and infrastructure management. As a result, Agile's emphasis on collaboration and quick iterations set the stage for the cross-functional teams that are central to DevOps (Gupta, 2023).

While Agile improved development speed and collaboration, another key movement helped with the delivery process, Continuous Delivery. According to Gupta (2023), Continuous Delivery focuses on making sure software can be released at any time by automating testing and deployment. Instead of waiting months or even years for a new version of a product, Continuous Delivery ensures that updates can be safely and quickly pushed to users. This is where DevOps truly shines and is commonly known for. Kim et al. (2021) explain that DevOps combines the best parts of Agile and Continuous Delivery to create an environment where code is constantly

tested, integrated, and deployed without causing major disruptions. Odazie and Iheanacho (2023) add that Continuous Delivery reduces risk and improves software stability, making it a vital piece of the DevOps puzzle. This movement helped shape DevOps into a system where teams can confidently release updates, knowing that automation and monitoring will catch any issues before they become problems.

In summary, the history of DevOps involves adopting principles from the Lean Movement, the Agile Manifesto, and the Continuous Delivery Movement. To be specific, Lean helped eliminate waste and improve efficiency, Agile made teams more adaptable and collaborative, and Continuous Delivery ensured that updates could be deployed quickly and safely. According to Kim et al. (2021), DevOps brings all of these ideas together to create a smoother and more effective software development process. Odazie and Iheanacho (2023) emphasize that DevOps is not just a technical approach but also a cultural shift that improves communication and workflow. All in all, by understanding the history of DevOps, it helps us appreciate why it exists and how it continues to evolve to this day. It is not just about technology. It is about people, culture, and improving the way we work.

References

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