

Complete Guide for Implementing Devops in Healthcare

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Introduction to DevOps in Healthcare:

The US healthcare sector is continually looking for fresh ideas and advancements to enhance patient care while lowering expenses. Healthcare firms are using DevOps, a set of principles that combines development and operations teams to work cooperatively on delivering high-quality software more quickly, to meet these objectives.

This study will cover the benefits of DevOps in healthcare, including improved engagement, data management, and regulatory compliance. We will also discuss how implementing DevOps can improve release velocity and result in organizational change.

Benefits of DevOps in Healthcare:

1. Improved Engagement

Better features and solutions for patients may result from the adoption of Continuous Integration/Continuous Deployment (CI/CD) pipelines in the healthcare industry. By meeting their demands for convenient and high-quality healthcare, self-check-in systems and computerized prescription fulfillment, for instance, enhance patient satisfaction. Moreover, practitioners can programme appointments to happen automatically, increasing operational effectiveness without lowering service standards.

2. Data Management

In order to develop healthcare solutions that are both affordable and responsive, a data-driven methodology is essential. Yet, hospitals frequently produce a vast volume of data that is unable to be analysed by standard methods. Using data pipelines and big data applications, DevOps tool chains can assist in the management of this data. This makes it possible for healthcare practitioners to manage and use data from lab results, pharmacies, medical device reports, Electronic Health Records (EHRs), wearables, and insurance claims.

3. Automated Development

By incorporating automation into their existing systems, DevOps procedures enable healthcare providers to develop better applications. They are able to fulfil Service Level Agreements (SLAs) and efficiently manage resources as a result. Standardized procedures also guarantee easy deployment and prompt feature releases.

4. Data Security and Regulatory Compliance

The core principle of DevOps, "infrastructure as code," enables healthcare providers to embed security fundamentals within the application module itself. This is known as DevSecOps. Vulnerability analysis is performed concurrently with pipeline implementations in this approach. This enables engineers to address all potential vulnerabilities during the development and deployment process. Furthermore, the "least privilege" principle is used to assign access, which means that machines and people with the lowest level of privilege do not have access to critical areas of the system.

Regulatory Compliance and Security:

Security and compliance are critical in heavily regulated industries, such as healthcare. While organizations must adhere to industry standards, delaying DevOps adoption can be detrimental. Regulatory agencies frequently put pressure on organisations to close security gaps and vulnerabilities as soon as possible. It can take months to complete new software releases to address these issues. However, DevOps (and DevSecOps) automates the most time-consuming processes and enables healthcare organisations to close security gaps quickly and effectively. Security is built into the CI/CD pipeline with a shift left approach to security (static code analysis, dynamic code analysis, threat vulnerability management, DevSecOps, and so on).

Accelerating Release Velocity with DevOps

By implementing a DevOps approach, teams can boost productivity and speed up release times while still maintaining top-notch security. Faster time to market provides a competitive edge and improves customer satisfaction by delivering

timely updates and products. However, achieving better release velocity requires a shift in organizational mindset and processes. With the alignment of previously siloed teams, tools, and collaboration, DevOps can unleash the full potential of faster release velocities. The healthcare industry, exemplified by the City of Hope, has seen major gains in release velocity thanks to DevOps implementation.

Implementing DevOps in Healthcare

DevOps has grown rapidly in recent years, altering our perceptions of software development and operations management. DevOps provides rapid IT services by combining automation and agile processes. DevOps tool chains boost performance and improve collaboration across departments.

To ensure a successful transformation, the implementation of DevOps in healthcare necessitates a set of best practices. Here are some best practises for healthcare organizations to consider when implementing DevOps:

Start with a Pilot Project:

DevOps is a significant cultural and technological shift that necessitates substantial investment. Healthcare organizations should begin with a pilot project to avoid disruptions to the healthcare system. A pilot project enables an organization to test the waters, validate assumptions, and lay the groundwork for future projects. The pilot project should be low-risk, high-impact, and capable of delivering tangible results while demonstrating the benefits of DevOps.

Create a DevOps team:

The DevOps team should include experts from various departments within the organization, such as development, operations, and security. The team should collaborate closely to ensure that all aspects of the project are considered. The team should also be in charge of defining and implementing the DevOps process, as well as monitoring and measuring the project's success.

Implement Automation:

DevOps relies heavily on automation. It enables healthcare organizations to accelerate software development while maintaining quality and reducing error risk. Many processes in healthcare should be automated, including testing, deployment, and monitoring.

Emphasize Collaboration:

DevOps promotes collaboration by removing departmental barriers. Healthcare organizations should encourage developers, operations teams, and other stakeholders to work together. To foster collaboration, regular meetings, shared dashboards, and other collaborative tools should be employed.

Monitor and measure performance:

Continuous monitoring and measurement are critical for DevOps success in healthcare. Healthcare organizations should monitor the system's performance at all stages of the process, from development to deployment. This enables them to quickly identify and resolve issues, resulting in a more stable and secure system.

Challenges faced during Implementing DevOps in Healthcare:

While the benefits of DevOps in healthcare are substantial, implementing DevOps can be difficult. Some of the challenges that healthcare organizations may face when implementing DevOps are as follows:

1. Cultural Resistance:

DevOps necessitates a significant cultural shift, which some healthcare organisations may find difficult to accept. Some stakeholders may be resistant to change, as well as new tools and processes.

2. Security and Compliance:

Healthcare organisations must follow stringent regulations like HIPAA and HITECH. These regulations mandate that healthcare organisations safeguard patient data and ensure the security and privacy of patient information. DevOps has the potential to introduce new security risks, and healthcare organisations must ensure that their DevOps process complies with these regulations.

3. Legacy Systems:

Many healthcare organizations have legacy systems that make DevOps integration difficult. These systems may be obsolete, difficult to maintain, and difficult to integrate with DevOps.

4. Lack of Automation Tools:

DevOps is heavily reliant on automation, and healthcare organisations may lack the necessary automation tools to effectively implement DevOps. To support their DevOps process, healthcare organisations may need to invest in new tools or develop their own automation tools.

CONCLUSION

DevOps has the potential to transform healthcare by allowing healthcare organizations to deliver high-quality software in a timely and efficient manner. Healthcare organizations can improve patient outcomes, increase efficiency, and reduce costs by breaking down silos, promoting collaboration, and automating processes.

DevOps implementation in healthcare necessitates careful planning as well as a commitment to cultural and technical change. Healthcare organisations must also ensure that their DevOps process is regulatory compliant and that patient data is secure.

About the Author:

Mahipal is a DevOps engineer working at Change Healthcare. He is responsible for designing, implementing, and maintaining systems and processes that enable the smooth and efficient delivery of healthcare services. He has been working closely with healthcare providers, patients, and other stakeholders to understand their needs and ensure that the IT systems being developed meet those needs. By working to improve and optimize healthcare IT systems continuously, Mahipal plays a critical role in ensuring that Change Healthcare can deliver the highest quality of care to its patients.