DevOps, short for Development and Operations, is an approach that brings together people, processes, and technology to streamline various stages of application planning, development, delivery, and operations. It fosters collaboration among traditionally isolated roles, such as developers, IT operations, quality engineers, and security experts.

Why DevOps? Teams adopt DevOps principles, practices, and tools to enhance their confidence in the applications they create, respond more effectively to customer needs, and achieve business objectives at a faster pace. DevOps empowers teams to consistently deliver high-quality products, thereby providing ongoing value to customers and improving overall reliability.

How does it work?

1. **Agile Software Development**: DevOps aligns with Agile software development, emphasizing teamwork, customer feedback, and adaptability. Agile teams release updates frequently, gather user feedback, and make adjustments based on customer preferences and requirements.
2. **Version Control**: Version control involves managing code in a systematic way, tracking changes and revisions to facilitate code review and recovery. Popular version control systems like Git enable collaboration among developers, managing code changes, resolving conflicts, and reverting to earlier code states if necessary.
3. **Continuous Integration and Continuous Delivery (CI/CD)**: CI involves automating code integration, testing, and validation. This practice helps identify and rectify bugs early in the development process, reducing the cost of fixing issues. CD extends the process by automating code deployment to various test and production environments, improving software quality. Automated release processes enable the deployment of new versions and updates.
4. **Continuous Monitoring**: Continuous monitoring ensures real-time visibility into the performance and health of the entire application stack, from underlying infrastructure to software components. It relies on collecting telemetry data, including event logs and metrics, and setting alerts for specific conditions that require attention. This data is analyzed to maintain system health and efficiency.

In summary, DevOps is a holistic approach that promotes collaboration, automation, and continuous improvement across the software development and operations lifecycle. It enhances agility, quality, and reliability in delivering software products and services.

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