# DevOps

DevOps is a collaborative approach that brings together software development (Dev) and IT operations (Ops) to improve the speed and quality of software delivery. Instead of working in separate silos, developers and operations teams collaborate throughout the entire development lifecycle from planning to deployment and monitoring.

One of the key goals of DevOps is to deliver software more frequently and reliably. To achieve this, teams use automation tools such as Jenkins, GitLab CI/CD, and Docker to build, test, and deploy applications more efficiently. This not only speeds up delivery but also minimizes human error.

DevOps also encourages a concept known as Infrastructure as Code (IaC). Tools like Terraform or Ansible allow teams to manage and configure infrastructure using code, making deployments more repeatable, consistent, and traceable.

A major pillar of DevOps is Continuous Integration and Continuous Delivery (CI/CD). Developers can integrate code frequently, which is automatically tested and deployed in small, manageable batches. This reduces risk and ensures faster feedback.

Another component is monitoring and feedback. Tools such as Prometheus and Grafana help teams track system performance in real-time. When something goes wrong, issues can be detected and resolved quickly, often before end-users even notice.

Lastly, DevOps is not just about tools, it's a cultural shift. It emphasizes teamwork, shared responsibility, and continuous improvement. Organizations that adopt DevOps not only release better software but also improve internal workflows and adaptability.