

Why DevOps?

Earlier, developers and operations teams worked separately. Developers only focused on writing code, and operations teams only focused on servers and deployment. They did not work together.

Because of this:

- Work became slow
- More mistakes happened
- Software often failed in production
- Teams blamed each other instead of solving problems
- Communication was poor

DevOps was created to fix this problem.

DevOps helps both teams work together as one team with a shared goal. It makes software delivery faster, reduces errors, improves communication, and makes the whole process smooth and reliable.

DevOps exists to help people work together, remove confusion, reduce mistakes, and deliver software faster and better using teamwork and automation.

Real-life example:

Earlier:

Developer: “My code works on my system.”

Operations: “It’s failing on the server.”

With DevOps:

Both teams work together, use the same tools, follow the same process, and solve problems together instead of blaming each other.

What is DevOps?

DevOps is a combination of:

- **Dev** = Development
- **Ops** = Operations

But DevOps is **not just a tool or job role**.

DevOps is:

Thinking and working together

Teamwork instead of separation

Helping each other instead of working alone

Using automation to make work easier

Following one common way of working

In simple words:

DevOps means building, testing, deploying, and maintaining software together as one smooth process using teamwork and automation instead of separate steps and separate teams.

How DevOps Works

DevOps works in a **continuous cycle**, not a one-time process.

Work keeps moving in a loop so improvement never stops.

DevOps Lifecycle:

Plan → Code → Build → Test → Release → Deploy → Operate → Monitor → Feedback → Plan again

This loop helps teams improve software continuously instead of waiting for long release cycles.

Step-by-Step Flow

1. Plan – Requirements and tasks are planned
2. Code – Developers write and store code safely
3. Build – Code becomes a working application
4. Test – Automated testing finds bugs early
5. Release – Software is prepared for users
6. Deploy – Application is deployed automatically
7. Operate – System runs in the real environment
8. Monitor – Performance and errors are tracked
9. Feedback – User feedback improves the system

Then the cycle starts again from Plan.

DevOps Benefits

Faster Delivery: Software reaches users quickly

High Quality: Continuous testing reduces bugs

Automation: Manual work is minimized

Better Collaboration: Teams work as one unit

Faster Bug Fixing: Problems are detected early

Reliability: Systems are more stable

Scalability: Easy to scale applications

Cost Reduction: Less downtime and less manual effort

Security Integration: Security is part of the process (DevSecOps)

DevOps Principles

Collaboration: Development and operations work as one team

Automation: Repetitive tasks are automated

Build, Test, Deploy, Monitoring

Continuous Integration (CI): Developers regularly push and merge code

Continuous Delivery (CD): Software is always ready for deployment

Continuous Testing: Testing happens at every stage

Continuous Monitoring: Systems are always observed for issues

Feedback Loop: User feedback improves the product

Security (DevSecOps): Security is integrated from the beginning