SNS COLLEGE OF ENGINEERING

Kurumbapalayam(Po), Coimbatore – 641 107
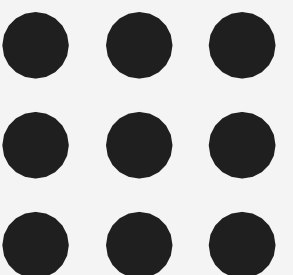**Accredited by NAAC-UGC with 'A' Grade**
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Department of Artificial Intelligence and Data Science

23ITT203 Object Oriented Software Engineering

DevOps: Motivation-Cloud as a platform-Operations

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What is DevOps?

- **DevOps** = Development + Operations

  It is a **set of practices** that combines **software development (Dev)** and **IT operations (Ops)** to:

- Shorten the development cycle

- Deliver software **faster and more reliably**

- Ensure **better collaboration** between teams

Why DevOps? (Motivation)

Problem in Traditional Model	DevOps Solution
Developers and Operations work in silos	Brings both teams together
Slow delivery of updates	Automates build, test, deploy
More bugs in production	Continuous testing and monitoring
Hard to scale	Uses tools to manage infrastructure easily

Example

Imagine a team builds a food delivery app.

- **Without DevOps**: Developers finish coding, then "throw it over the wall" to operations. This leads to delays, bugs, and blame games.

- **With DevOps**: Developers and operations work **together**, use **automated testing and deployment**, and deliver updates quickly.

Cloud as a Platform

What is Cloud?

Cloud computing = Using **remote servers via the internet** to store, manage, and process data instead of using local computers.

Cloud as a DevOps Platform

Cloud platforms like **AWS**, **Azure**, **Google Cloud** offer:

On-demand resources (you pay for what you use)

Scalable infrastructure (auto-scale when needed)

DevOps tools (CI/CD, monitoring, containers)

Example

Suppose you're building an e-commerce site.

- **Without Cloud:** You must buy and set up your own servers.

- **With Cloud:** You can deploy your app on AWS, scale up during sales, and monitor performance—all automatically.

⚙ **Cloud + DevOps = Fast & Flexible**

- Use **GitHub + Jenkins** (CI/CD tools)

- Deploy to **AWS EC2** or **Azure App Services**

- Store code and data in the cloud

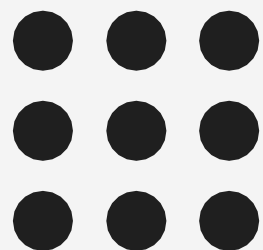- Monitor and auto-scale in real time

Operations in DevOps

What is Operations?

Operations involve the **deployment**, **monitoring**, and **maintenance** of software in the production environment.

Key Activities:

- **Configuration Management**
  Example: Use **Ansible** to configure all servers the same way.
- **Monitoring & Logging**
  Example: Use **Prometheus** or **Datadog** to watch app performance.
- **Infrastructure as Code (IaC)**
  Example: Use **Terraform** to write code that builds servers.
- **Continuous Deployment**
  Example: As soon as code passes all tests, it's deployed automatically.
- **Incident Response**
  If something crashes, Ops team **resolves and restores** service quickly.

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