# **What is DevOps?**

DevOps is a collaboration between Development and IT Operations to make software production and deployment in an automated & repeatable way. DevOps helps to increase the organization's speed to deliver software applications and services. The word 'DevOps' is a combination of two words, 'Development' and 'Operations.'

# **Why DevOps?**

1. Before DevOps, the development and operation team worked in complete isolation.
2. Testing and Deployment were isolated activities done after design-build. Hence, they consumed more time than actual build cycles.
3. Without using DevOps, team members are spending a large amount of their time in testing, deploying, and designing instead of building the project.
4. Manual code deployment leads to human errors in production
5. Coding & operation teams have their separate timelines and are not in synch causing further delays.

#### **Why we need DevOps?**

**Predictability:** DevOps offers significantly lower failure rate of new releases

**Reproducibility:** Version everything so that earlier version can be restored anytime.

**Maintainability:** Effortless process of recovery in the event of a new release crashing or disabling the current system.

**Time to market:** DevOps reduces the time to market up to 50% through streamlined software delivery. This is particularly the case for digital and mobile applications.

**Greater Quality:** DevOps helps the team to provide improved quality of application development as it incorporates infrastructure issues.

**Reduced Risk:** DevOps incorporates security aspects in the software delivery lifecycle. It helps in reduction of defects across the lifecycle.

**Resiliency:** The Operational state of the software system is more stable, secure, and changes are auditable.

**Cost Efficiency:** DevOps offers cost efficiency in the software development process which is always an aspiration of IT companies' management.

**Breaks larger code base into small pieces:** DevOps is based on the agile programming method. Therefore, it allows breaking larger code bases into smaller and manageable chunks.

## **Benefits of DevOps:**

* Faster, better product delivery
* Faster issue resolution and reduced complexity
* Greater scalability and availability
* More stable operating environments
* Better resource utilization
* Greater automation
* Greater visibility into system outcomes
* Greater innovation

### **Disadvantages:**

* Less availability of DevOps professionals.
* Infrastructure cost is high for setting by DevOps environment.
* Lack of DevOps knowledge can lead to problems in the continuous integration of automation projects.

**Before DevOps we have used: Waterfall Methodology**

The waterfall model is a linear, sequential approach to the Software Development Life Cycle (SDLC) that is popular in software engineering and product development.

The waterfall model uses a logical progression of SDLC steps for a project, similar to the direction water flows over the edge of a cliff.

Project teams and project managers use the waterfall model to achieve goals based on the needs of their business. The model is used in many different project management contexts, such as in construction, manufacturing, IT and software development.

### **Phases of the waterfall model:**

* Requirements
* Analysis
* Design
* Coding and implementation
* Testing
* Operation and deployment
* Maintenance