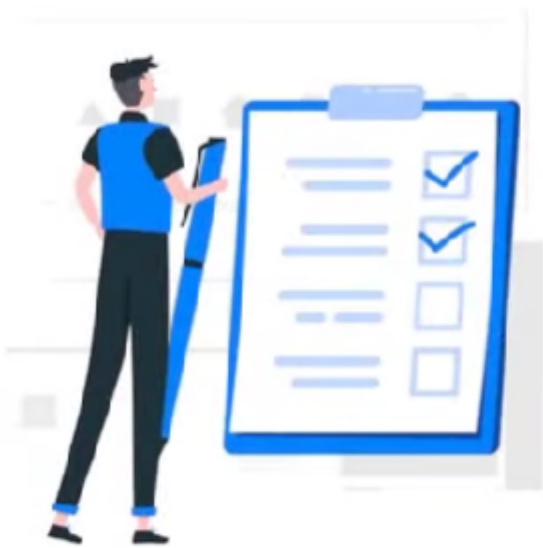

AGENDA

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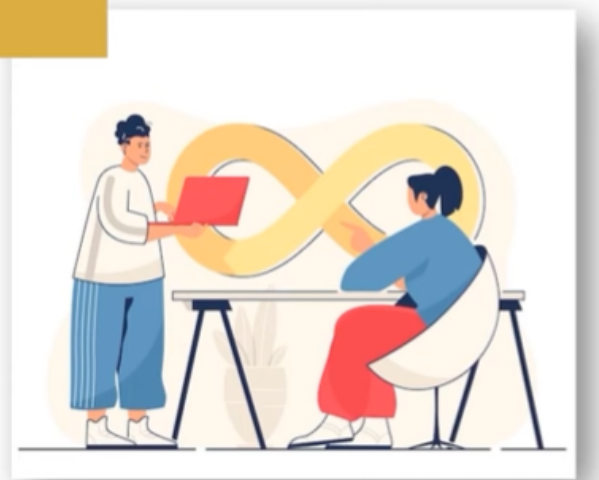
01 **What is DevOps?**

02 **Why DevOps**

03 **DevOps Lifecycle**

- Continuous Development
- Continuous Testing
- Continuous Integration
- Continuous Deployment
- Continuous Monitoring

WHAT IS DEVOPS?



What is DevOps?

DevOps is a set of cultural concepts, practices, and tools that improves an organization's ability to create applications and services with a higher velocity

DevOps is a collection of methods that bring together **software development (Dev)** and **IT operations (Ops)**

What is DevOps?

DevOps goal is to minimize the systems development life cycle and continually provide high-quality software delivery

DevOps improves software development and delivery efficiency, speed, and security

Teams work together to develop, produce, and deploy reliable software faster

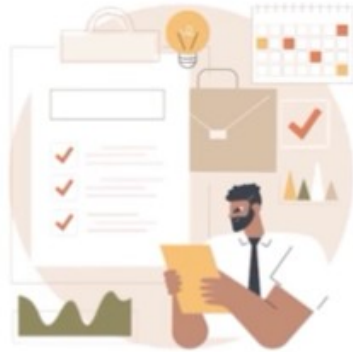
The DevOps delivery method creates & deploy faster and iterative applications

DevOps promotes a collaborative atmosphere throughout the development cycle

WHY DEVOPS?

DevOps

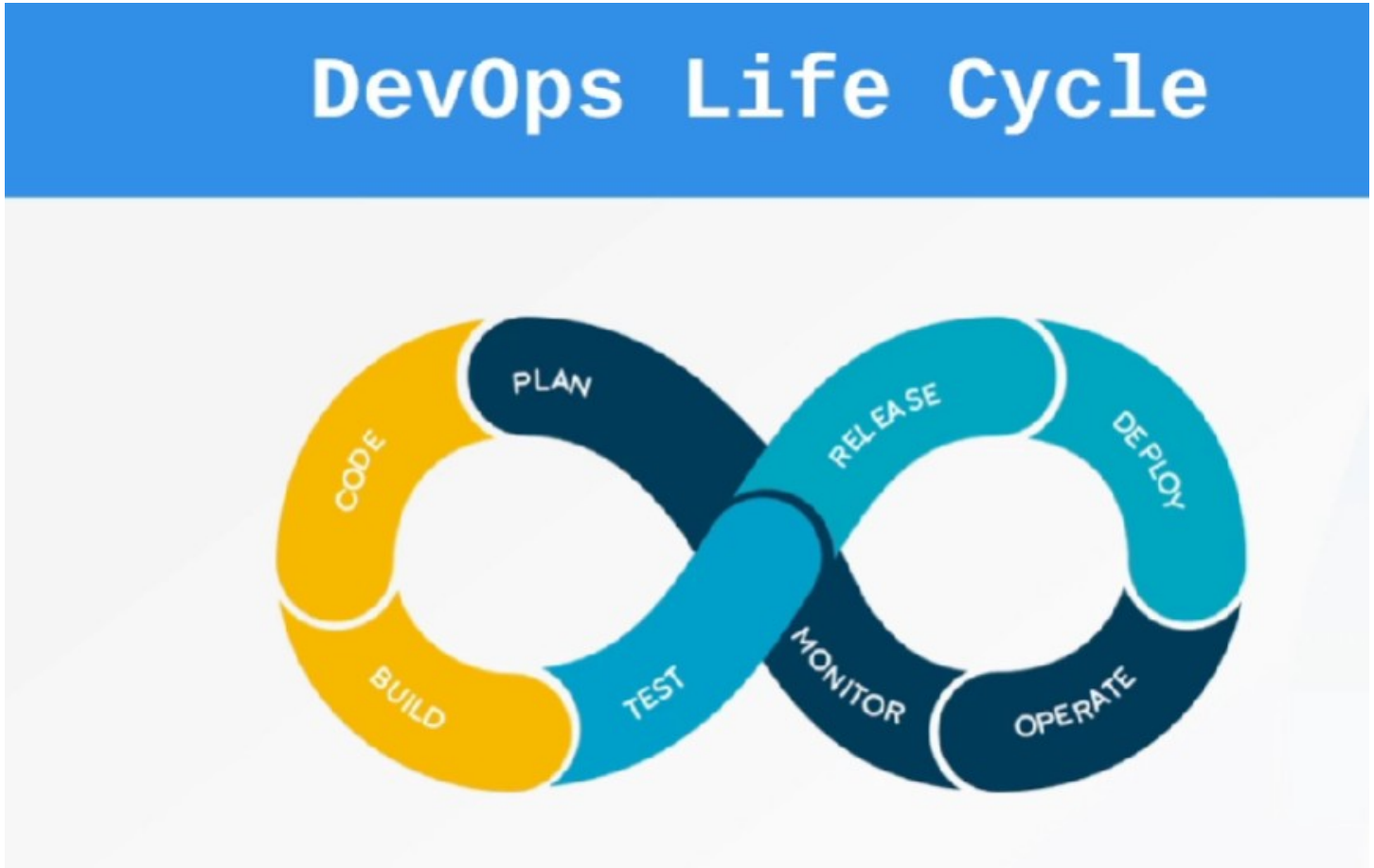
DevOps provides continuous software delivery with fewer, easier-to-fix problems, and also faster problem resolution



The Devs and Ops Team work together in DevOps Methodology, resulting in a healthy working atmosphere

DevOps practices improved the efficiency of team members, improved communication between them

Phases of DevOps



DEVOPS LIFECYCLE

Continuous Development

The **Continuous Development** phase is where program is 'planned' and 'coded. It includes all aspects of planning and coding

01 This phase includes authoring the team members with their tasks, deciding deadlines, tools to be used

02 In this phase, they use highly productive tools, automate repeated and manual tasks, and iterate in smaller production cycle

Tools used for Continuous Development

Git

Tools used for Continuous Development

Git

- Git is a distributed version control tool that helps in the development of high quality software
- Git allows each developer to keep a copy of the source code and make changes to that copy itself
- Git is used to facilitate communication between the development and operations teams

Continuous Integration

Continuous Integration is a software development approach that requires developers to submit the source code changes more often and integrate the entire process

01 Code building includes code review, unit & integration testing, and packaging

02 Teams quickly spot problems & resolve them because of frequent changes made

03 Jenkins is one of the main tools used in this phase

Tools used for Continuous Integration

Jenkins

- It is an integration DevOps tool with many plugins expansion
- It downloads the new code from the Git repository and prepares a build of that code
- Jenkins is an essential DevOps tool since it enables Continuous Integration and Continuous Delivery

Continuous Testing

The testing step examines the created code for errors and faults. It helps ensure that the generated software is usable

01 This phase ensures that the generated software is usable & has no defects in terms of functioning

02 In this phase, docker containers are used to simulate the full test environment

03 Some of the tools used to do continuous testing are JUnit, Selenium, and TestNG

Tools used for Continuous Testing

Selenium

- Selenium is a popular open-source online application testing framework
- Test automation, uses software programs to automate the execution of test cases, compare results, and identify flaws
- Selenium does the automation testing, and TestNG generates the reports

Tools used for Continuous Testing

TestNG

- Test Next Generation(TestNG) is an open-source test automation framework
- TestNG shows a summary of the failed test case and the group it was part of and the class it belonged to
- TestNG helps to manage test cases as well as generate detailed test results

Continuous Deployment

Continuous Deployment(CD) stage ensures the products are deployed smoothly, without impacting the application's performance

01 This technique eliminates the need for planned releases and speeds up the feedback system

02 It allows developers to respond to concerns faster and more accurately

03 It includes establishing & maintaining the app's functional requirements consistently

Tools used for Continuous Deployment

Puppet

- **Puppet** is an open-source system configuration, deployment, and server management DevOps tool that leverages declarative programming

- It is subdivided into reusable modules that enable quick setup of pre-configured servers and is cross-platform compatible

Tools used for Continuous Deployment

Ansible

- **Ansible** is a free and open-source DevOps solution for configuration management, automation, and orchestration
- Its Playbooks, which is basically a blueprint of the automation tasks, are written in YAML with minimum commands

Continuous Operation

Continuity is a significant aspect in DevOps in reducing phases that frequently distract development, take longer to uncover errors, and result in a better version of the product

01 This phase includes monitoring each of the phase of DevOps lifecycle & IT Operations

02 This phase ensures the health, performance and reliability of your application is up to date

Continuous Monitoring

Monitoring a software product's performance is critical for determining the overall effectiveness of the product's output

01 Developers can find general patterns and parts in the program that require more attention through constant monitoring

02 Continuous monitoring is an operational phase whose goal is to improve the software application's overall efficiency

Tools used for Continuous Monitoring

Splunk

- **Splunk** is a software platform that allows searching, analyzing, and displaying machine-generated information
- It creates graphs, alerts, dashboards, and visualizations by collecting, indexing, and correlating real-time data

Tools used for Continuous Monitoring

Nagios

- The **Nagios** tool helps in continuously monitoring systems, applications, services, and business processes
- Nagios is a server-based monitoring system that operates as a daemon or service
- It executes plugins on the same server regularly, contacting hosts or servers on your network or the internet

BENEFITS OF DEVOPS

Benefits of DevOps

Benefits of DevOps

DevOps includes a significant cultural transformation that eliminates communication barriers

Reduced Time-To-Recovery

Reliability and Scalability with Less Risk

Cost Savings

Benefits of DevOps

Improved Collaboration and Communication

DevOps approaches helps in reducing the overall efficiency effect of the overall failures

Reliability and Scalability with Less Risk

Cost Savings

Benefits of DevOps

Improved Collaboration and Communication

Reduced Time-To-Recovery

DevOps allows teams to deploy new software while securing current on-premises data

Cost Savings

Benefits of DevOps

Improved Collaboration and Communication

Reduced Time-To-Recovery

Reliability and Scalability with Less Risk

DevOps adds value to the company and save money on maintenance and upgrades