

2.1 Learning Objectives

State the principles of DevOps

Explain the challenges in the traditional approach

Describe how DevOps helps overcoming the challenges faced in the traditional approach

Describe the DevOps tools

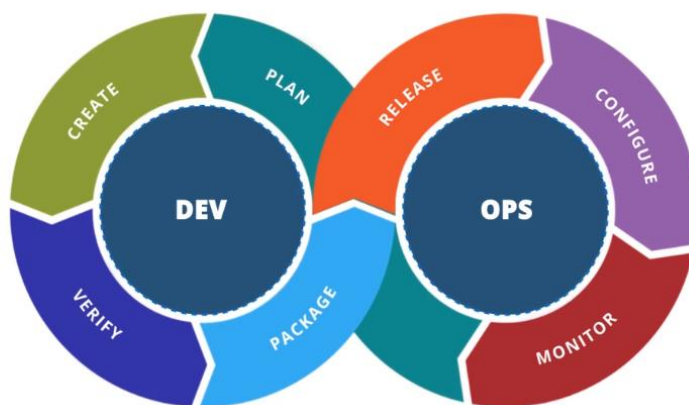
Explain DevSecOps and its importance

2.2 DevOps Overview

Definition:

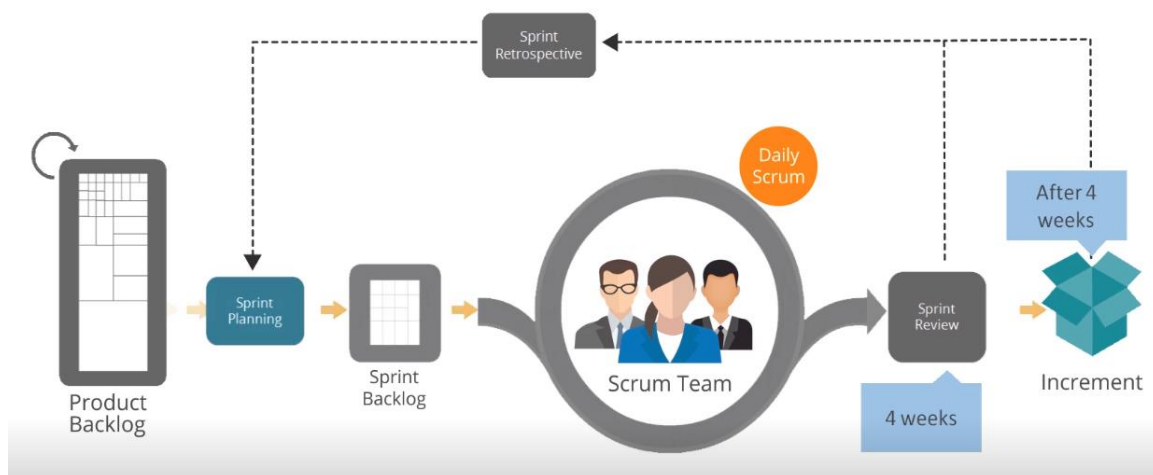
DevOps is short for **Development** and **Operations**.
It concentrates on the collaboration between developers and other parties involved in building, deploying, operating, and maintaining software systems.

Overview of DevOps:



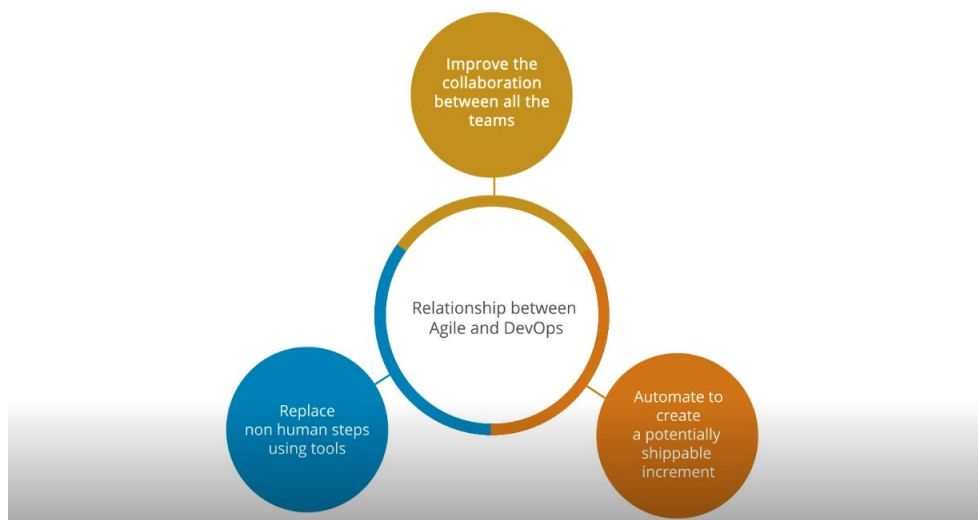
- DevOps is an agile relationship between development and IT operations
- DevOps is the abbreviation for **Development** and **Operations**
- Development includes Plan, Create, Verify, and Package
- Operations include Release, Configure, and Monitor

Agile Example: Scrum



2.3 Relationship between Agile and DevOps

Relationship between Agile and DevOps:

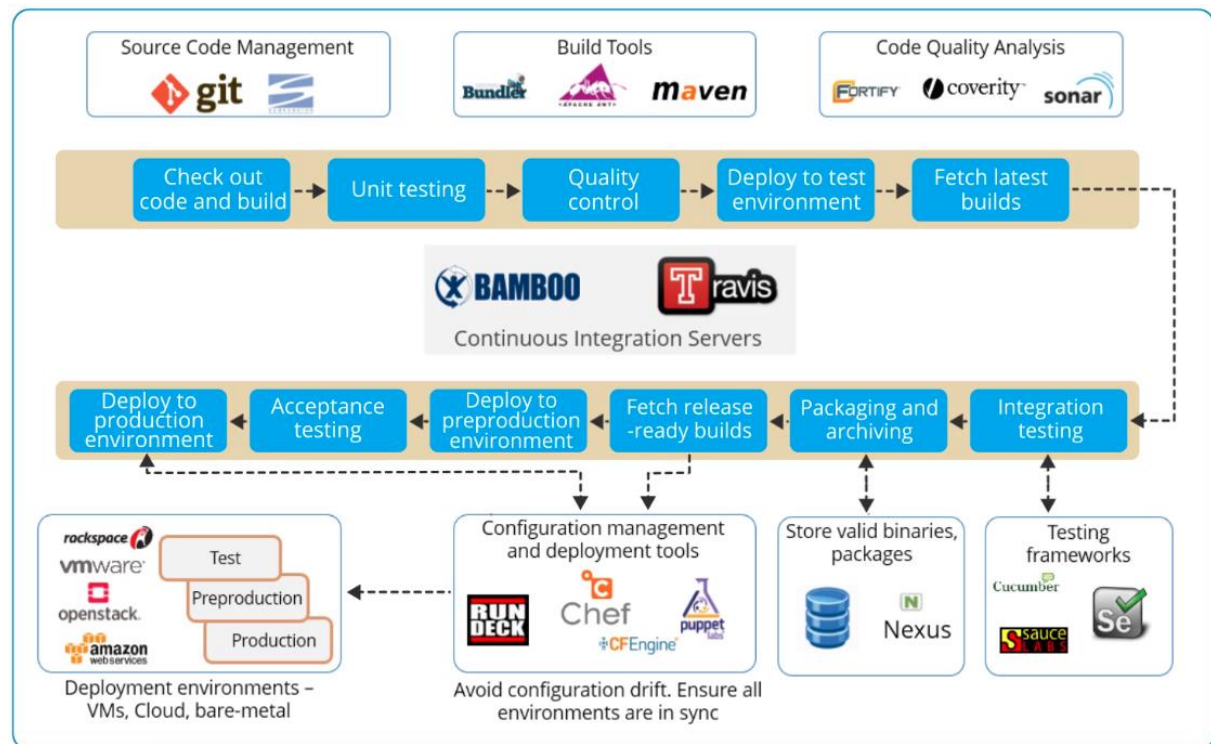


2.4 DevOps Toolchain

Overview:



Example:



2.5 DASA DevOps Principles

Principles:



Case Study:



Amazon switched to DevOps at the development phase of their web services, popularly known as AWS.

2.6. Challenges with the traditional Approach

Waterfall Method:



Most of the development teams use waterfall method which is time-consuming because of the large size of the developer team, testers, and the code involved.

Productivity:



Lines of code that are large and bundled into release will result in jammed production and lower the productivity.

Difficult to Achieve Goal:



Less investment on resources and constant work make it difficult for the developers to achieve any goals or outcomes.

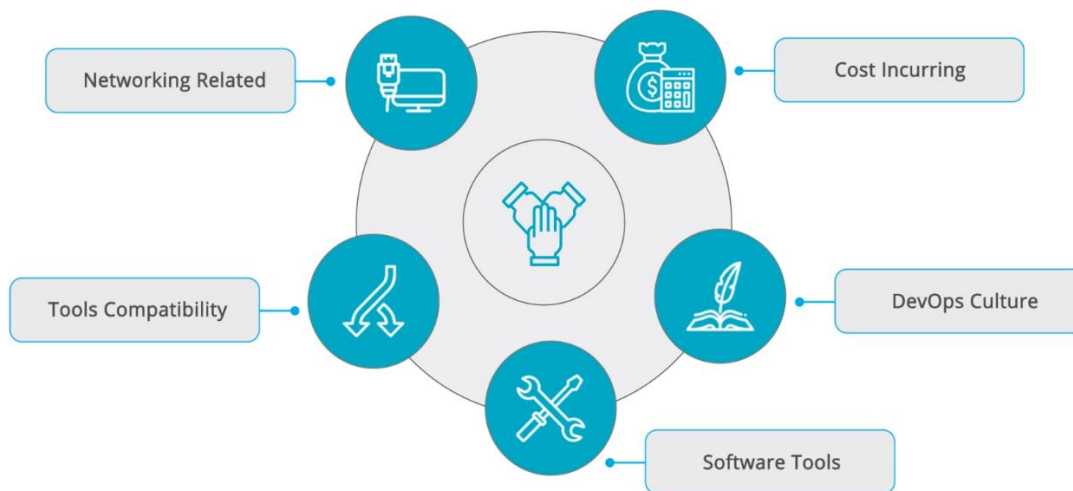
Investment in Schedule Planning System:



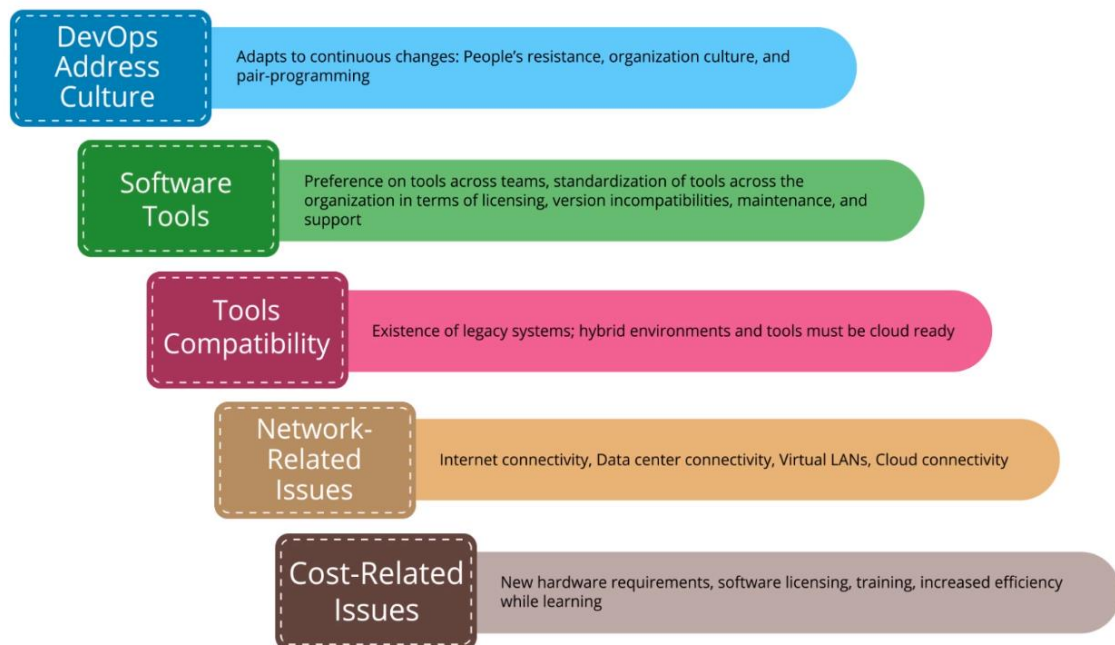
More money is invested in schedule planning systems which are sensitive and inaccurate. As a result, it consumes more time to manage the systems.

2.7 Addressing Challenges through DevOps

Constantly Changing Challenges:

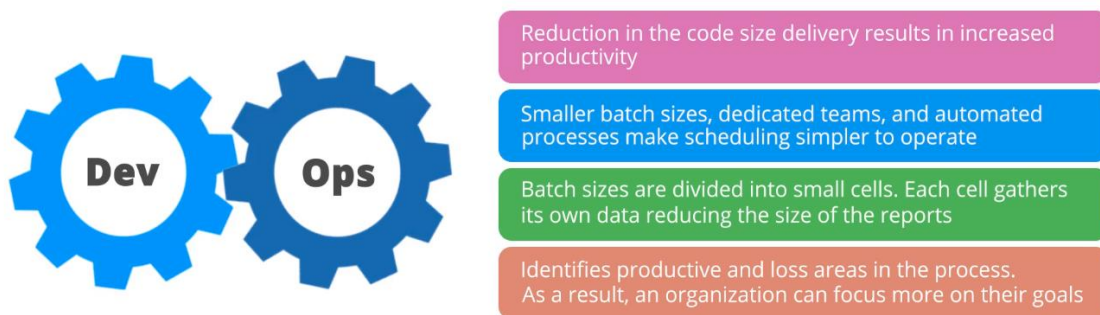


Challenges Addressed by DevOps:



2.8 DevOps Approach to the Challenges

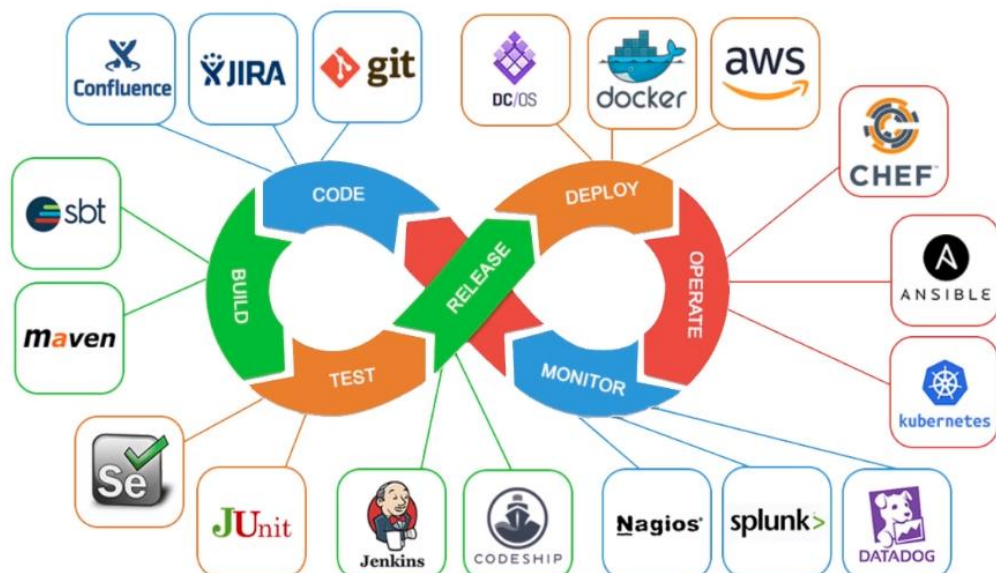
DevOps Way to Overcome Challenges:



2.9 Overview of DevOps Tools

DevOps Tools:

To implement DevOps and work within the DevOps setup, the various tools required are:

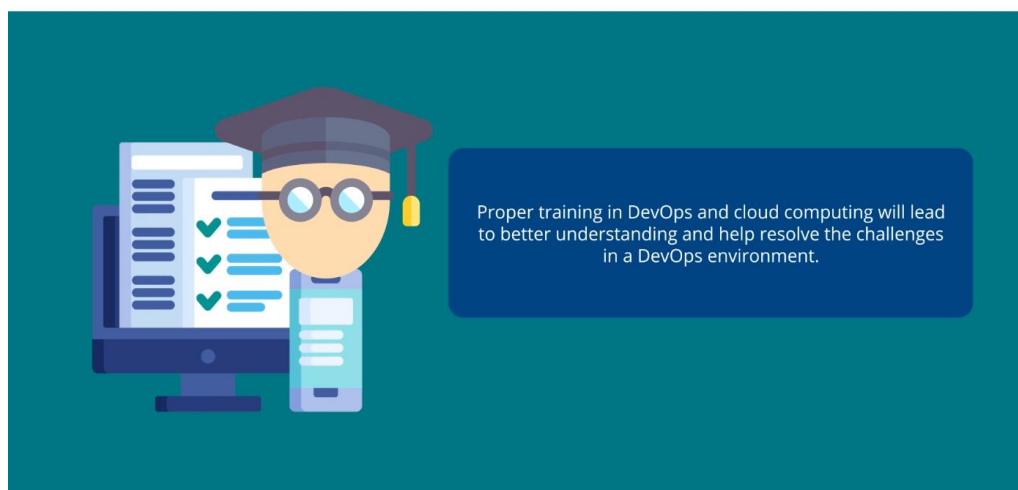


2.10 Best Practices for DevOps

Best Practices for DevOps:



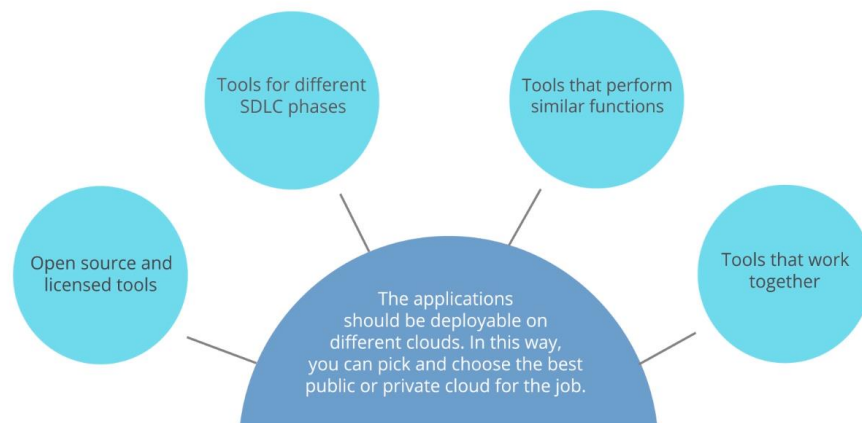
DevOps and Cloud Computing Training:



Security:



Proper DevOps Tools Selection:

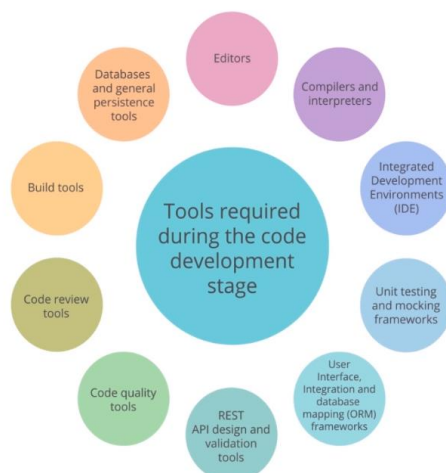


2.11 Categories of DevOps Tools

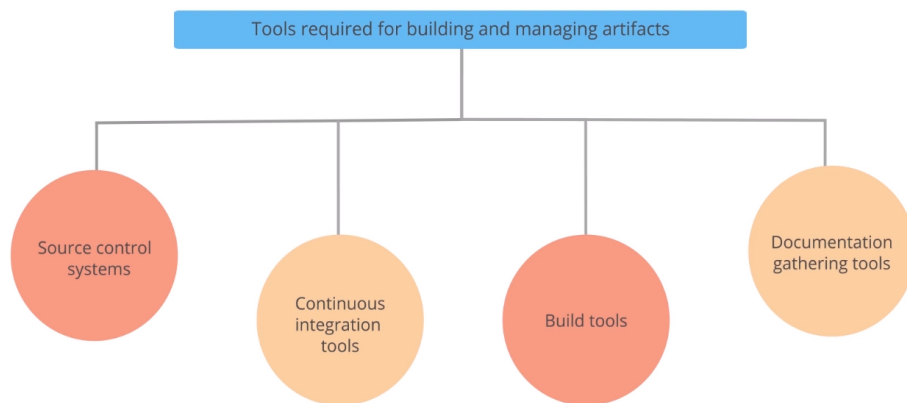
Requirements Tools:



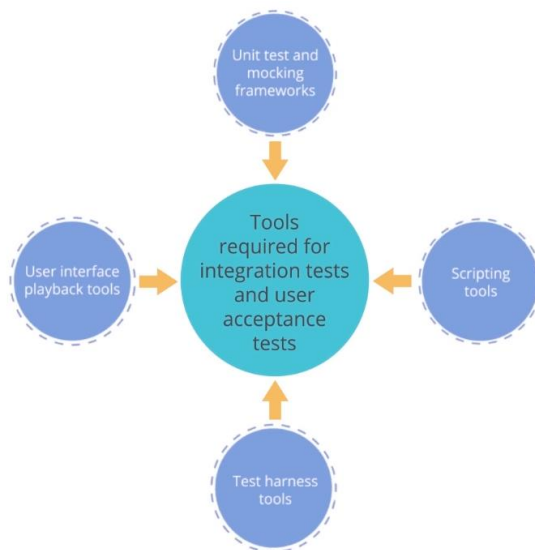
Code Development Tools:



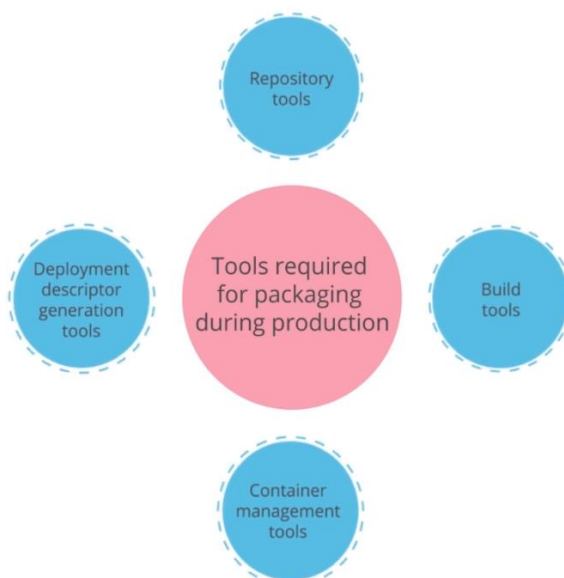
Artifact Creation Tools:



Testing Tools:



Packaging Tools:



Release Management Tools:

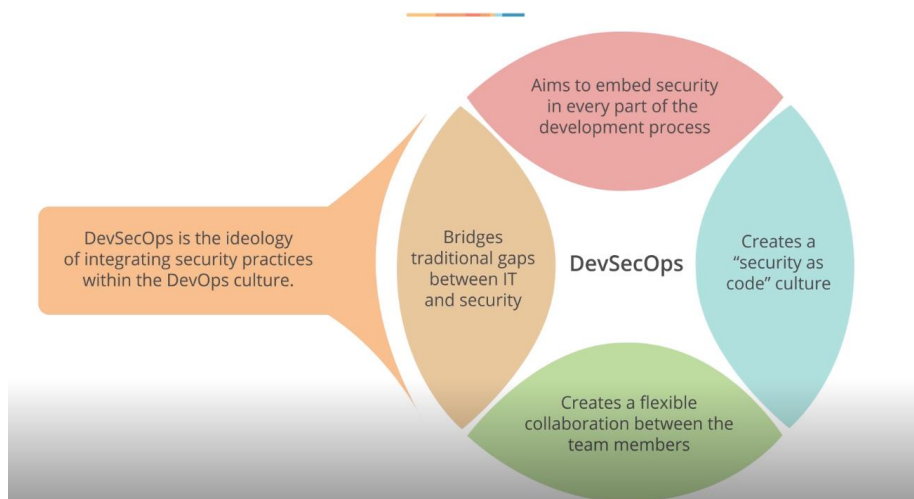


Configuration and Monitoring Tools:



2.12 DevSecOps and ist Manifesto

DevSecOps:

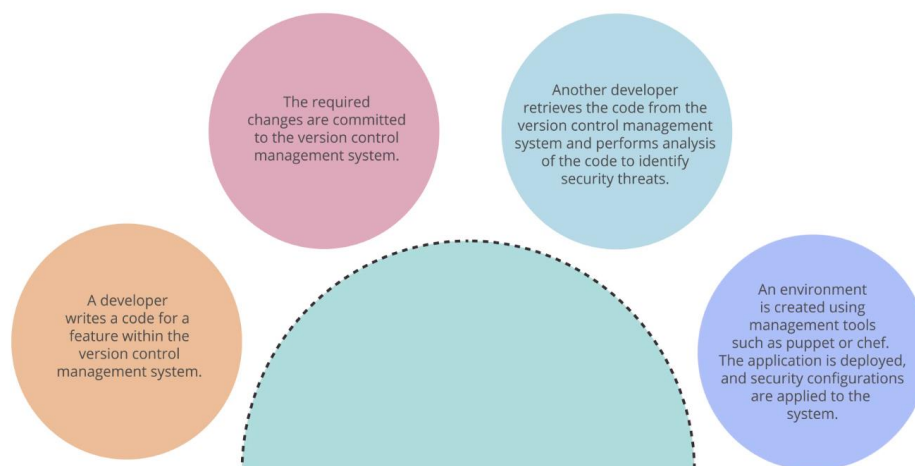


DevSecOps Manifesto:

- **Leaning in** over Always Saying “no”
- **Data & Security Science** over Fear, Uncertainty and Doubt
- **Open Contribution & Collaboration** over Security-Only Requirements
- **Consumable Security Services with APIs** over Mandated Security Controls & Paperwork
- **Business Driven Security Scores** over Rubber Stamp Security
- **Red & Blue Team Exploit Testing** over Relying on Scans & Theoretical Vulnerabilities
- **24*7 Proactive Security Monitoring** over Reacting after being informed of an incident
- **Shared Threat Intelligence** over Keeping Info to Ourselves
- **Compliance Operations** over Clipboards & Checklists

2.13 Workflow of DevOps and DevSecOps

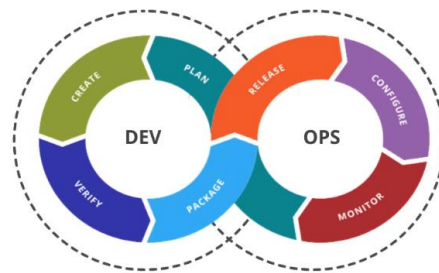
Workflow of DevOps and DevSecOps:



Workflow of DevOps and DevSecOps:



DevOps vs. DevSecOps:



Features



Speed

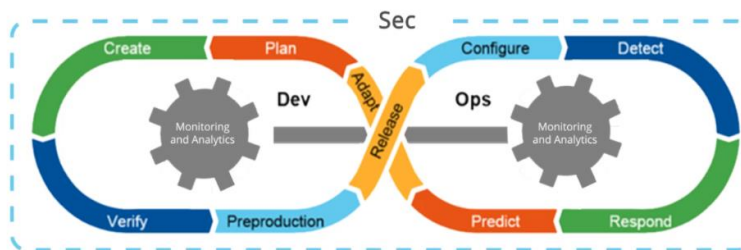


Rapid delivery



Scaled & less secured

DevOps vs. DevSecOps:



Features



Agility



Security automation



Security as code

2.14 Key Takeaways

Key Takeaways

You are now able to:

- State the principles of DevOps
- Explain the challenges in the traditional approach
- Describe how DevOps helps in overcoming the challenges faced in the traditional approach
- Describe the DevOps tools
- Explain DevSecOps and its importance



