

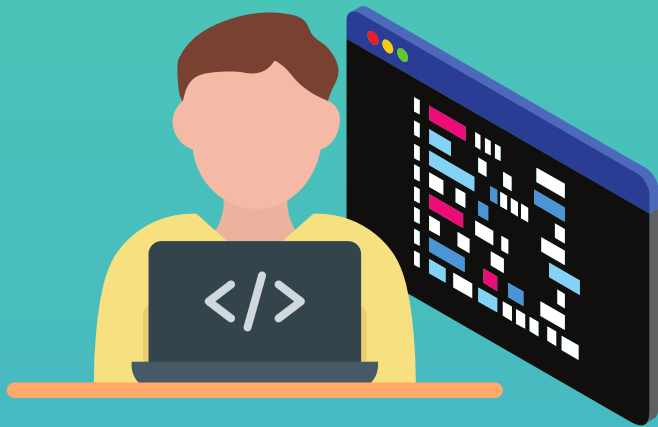


# Introduction to DevOps

## Key Takeaways

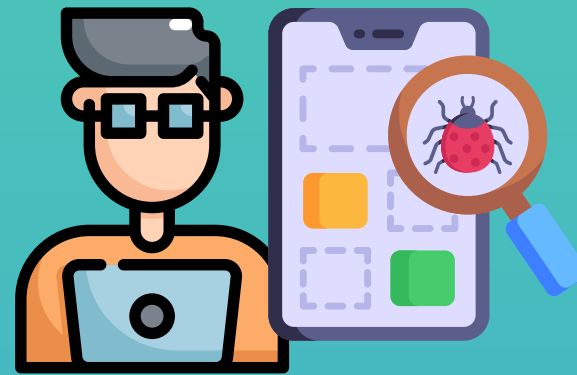
# Different IT Roles in Software Development & Delivery Process

## Software Development



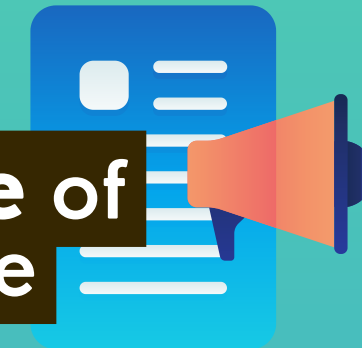
- software **programmed by developers**
- in different programming languages, like Java, Python, JavaScript
- new functionality & bugfixes

## Software Testing



- **test** new features & old functionality
- done by developers & dedicated testers
- manual & automated testing

## Release of Software

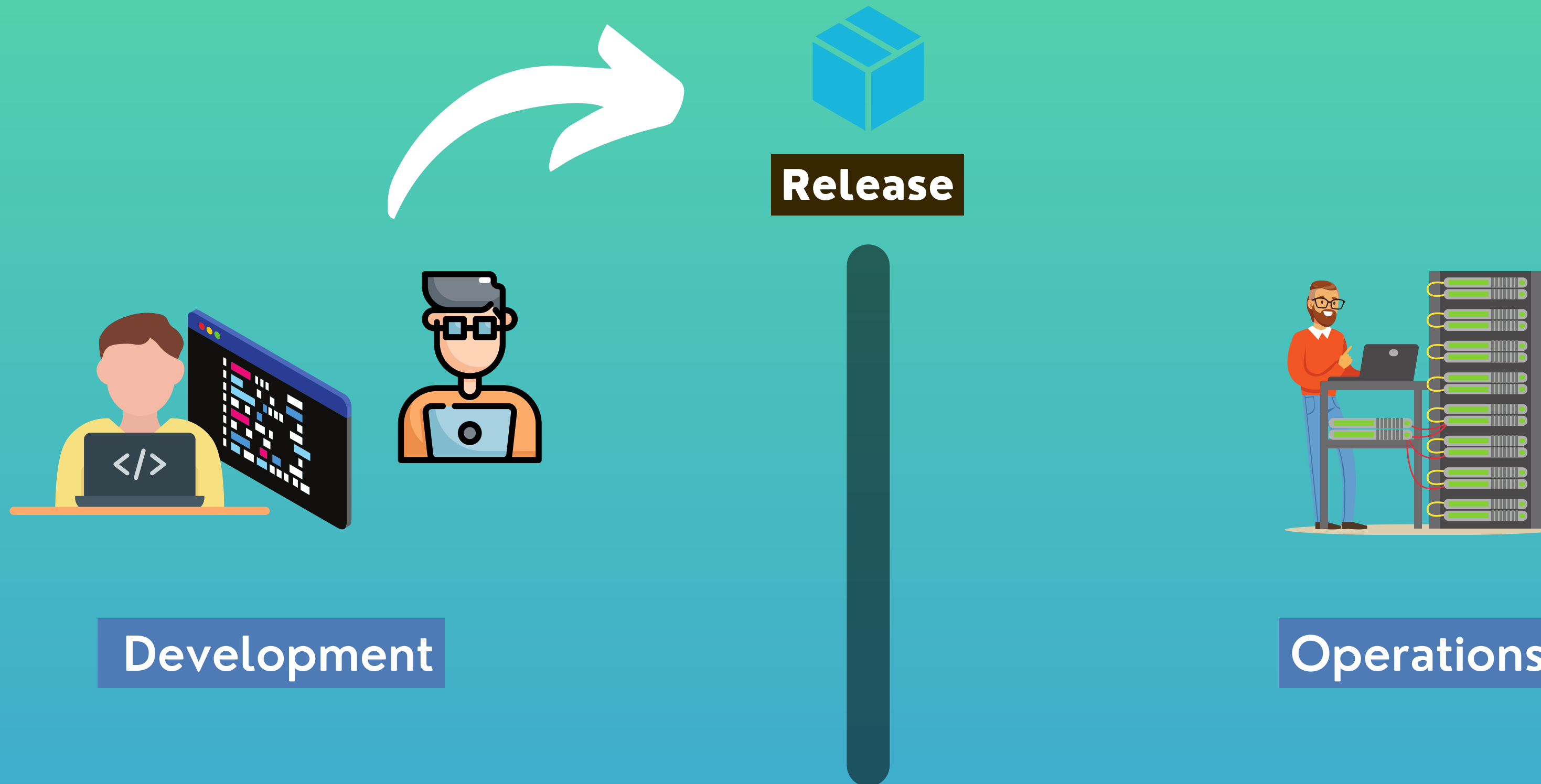


## Operations



- **build** application
- **deploy** on servers
- **upgrade** existing software
- run software in production
- done by operations team

# Traditional: Development vs Operations - 1



- focus on **implement new features fast**

- focus on **maintaining stability**

# Traditional: Development vs Operations - 2



Different  
Responsibilities

Different  
Technical Knowledge

Different  
Toolsets

## Development

- programming languages
- test frameworks
- databases
- version control

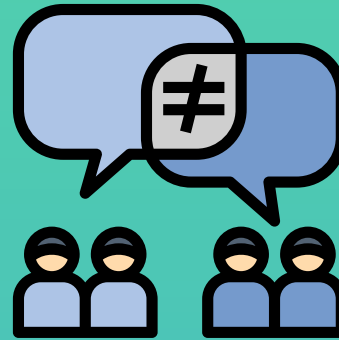
## Operations

- OS, mostly Linux
- command-line
- scripting
- monitoring tools

# Traditional: Development vs Operations - 3



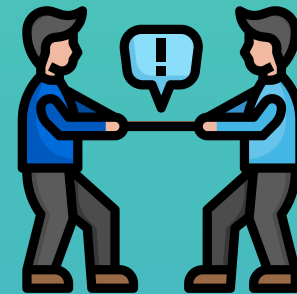
Miscommunication and Lack of Collaboration



- Deployment requires configurations & environment needs to be prepared, so communication is important
- In reality **silos between those 2 departments**



Conflict of Interest



- **DEV Focus** on releasing new features fast
- **OPS Focus** on maintaining systems' stability



Manual Work & Checklists



- **Manual checks:** does new change affect systems' stability or security
- **Manual deployment**
- **Manual configurations** of deployment environment



**Slows down the release process!!**



# Solution: DevOps Culture - 1

## Simplest Definition:

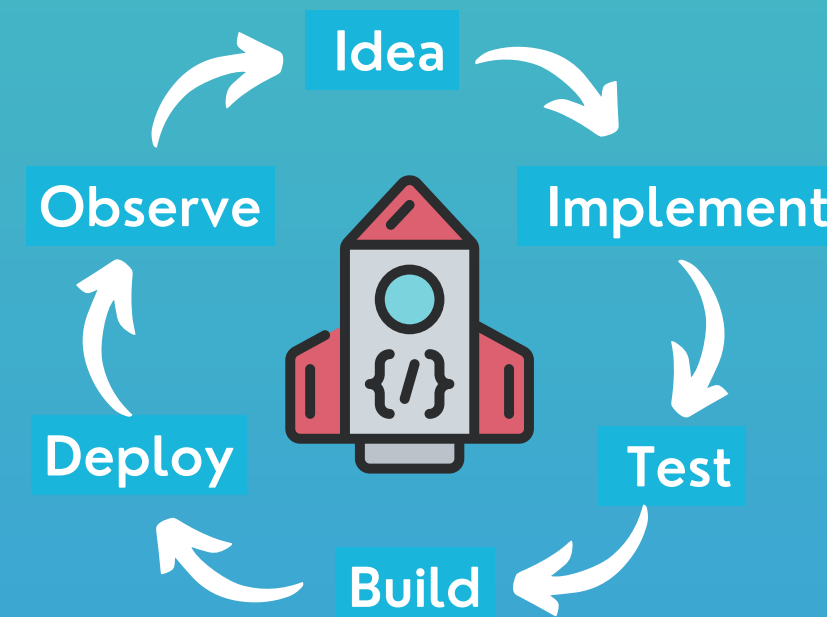
Intersection of Development & Operations

- DevOps was just a way of working between **DEV**'s and **OP**'s
- Common language to communicate

## Better Definition:

DevOps is about making the process of continuous delivery fast and with minimal errors

- DevOps tries to **remove all these roadblocks** and things that slow down the release process
- Instead of manual inefficient processes helps create fully **streamlined processes for release cycles**





## Solution: DevOps Culture - 2



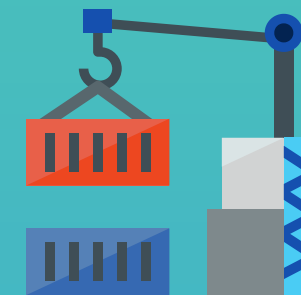
- Different companies implemented DevOps in different ways
- But, gradually it got a more concrete form with common patterns



Source Code  
Management



Continuous  
Integration/Deployment



Container  
Orchestration



Continuous  
Monitoring



Planning &  
Collaboration



Package  
Management



Treat Infrastructure  
as Code



Cloud



DevOps Engineer

# DevOps as a separate Role



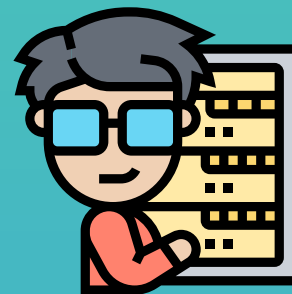
- DevOps evolved into an **actual role**: "DevOps Engineer"
- Where either Developers, Operations or a separate role is responsible for DevOps



Developers  
doing DevOps



Doing only  
DevOps



Operations  
doing DevOps

- **DevOps tools**: Set of technologies used to implement the DevOps Principles became DevOps technologies
- DevOps Engineer responsible for creating a streamlined fully automated release process

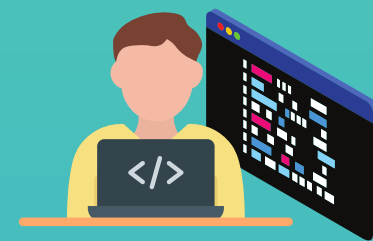




# DevOps Tasks and Responsibilities - 1



Need **some know-how from DEV and OPS team**



Development



Operations

DEV OPS



**Additional DevOps specific skills and know-how**



# DevOps Tasks and Responsibilities - 2

- DevOps tools that are known today:
- Replacing human tasks with automation tools



Source Code Management

Git



Package Management

Docker



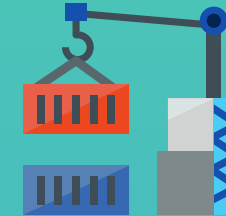
Infrastructure as Code

Terraform,  
Ansible



Continuous Integration/Delivery

Jenkins,  
Gitlab



Container Orchestration

Kubernetes



Cloud

AWS, Azure,  
Google Cloud



Continuous Monitoring

Prometheus

- At the core of DevOps: **CI/CD Pipeline for an automated release process**



Commit Code



TEST



BUILD



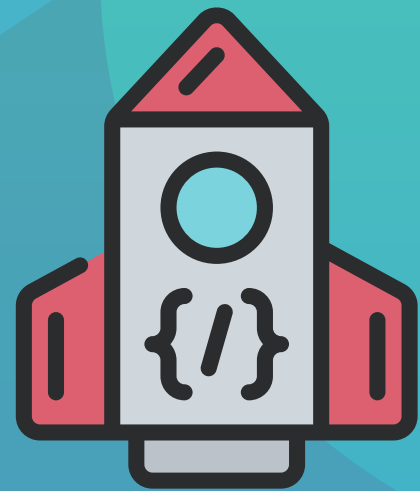
PUSH



DEPLOY



High Level Overview & Big Picture of DevOps



**Throughout Bootcamp:** Zoom in into each part and understand it in detail and be able to implement the whole DevOps process