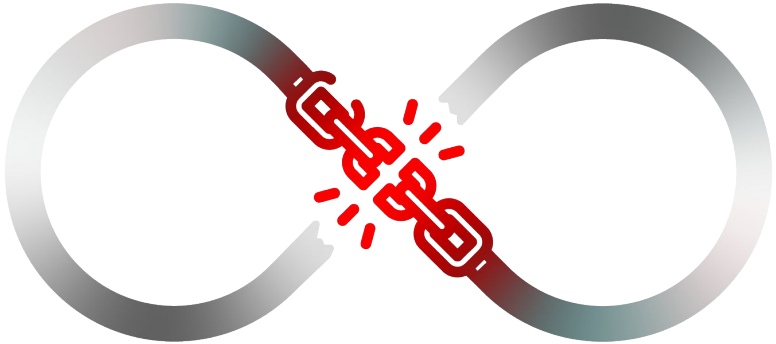
CWL
CyberWarFare Labs

INTRODUCTION TO DEVOPS RED TEAMING



ABOUT CYBERWARFARE LABS :

CW Labs is a Global Infosec company specializing in cybersecurity practical learning situated across UK, US & India. The company has 2 primary divisions :

1. Niche Cyber Range Labs
2. Continuous Learning : Infinity Platform

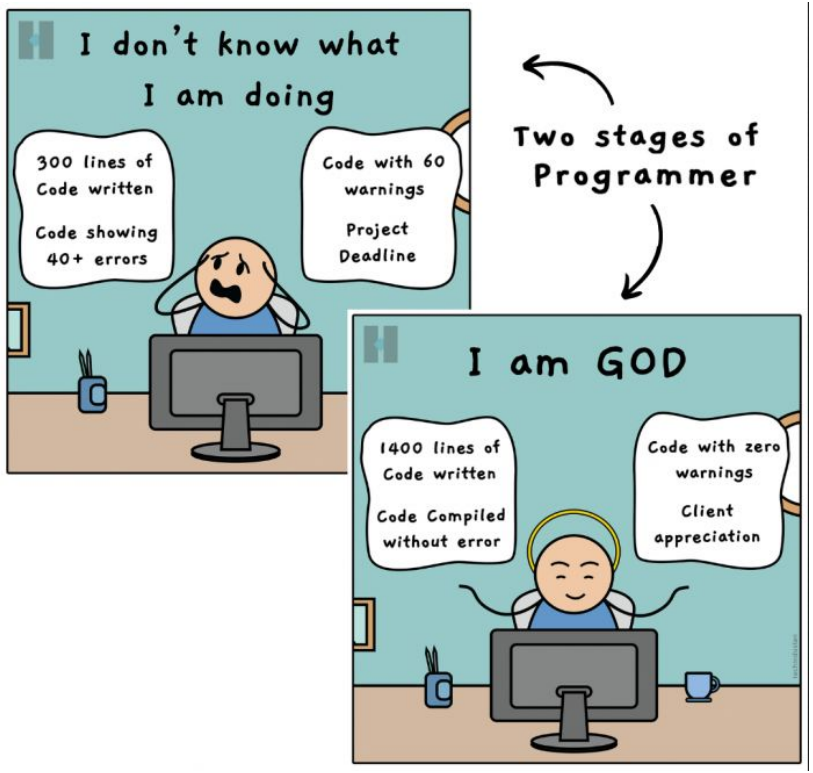
ABOUT SPEAKER

Abhijeet Kumar
(Security Researcher)

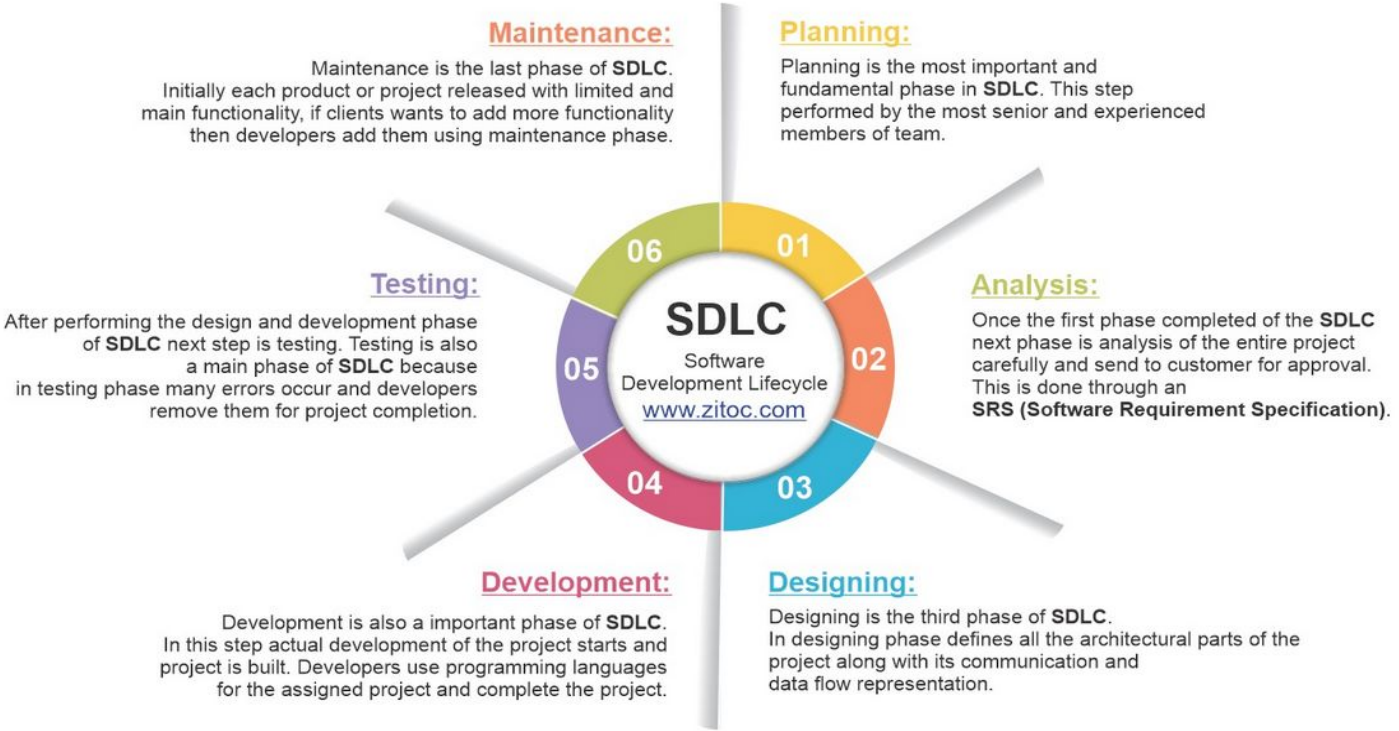
His research areas include Red Team Operations, Network Security, Cloud Infrastructure, and Linux Systems. Apart from this, he enjoys researching Adversarial TTPs and experimenting in his homelab.

SOFTWARE DEVELOPMENT 101

- ★ A set of recurring activities involved in the lifecycle of a software product
- ★ These activities include :-
  - Analysis / Plan
  - Design
  - Development
  - Test
  - Release / Deployment
  - Maintenance



SOFTWARE DEVELOPMENT LIFE CYCLE

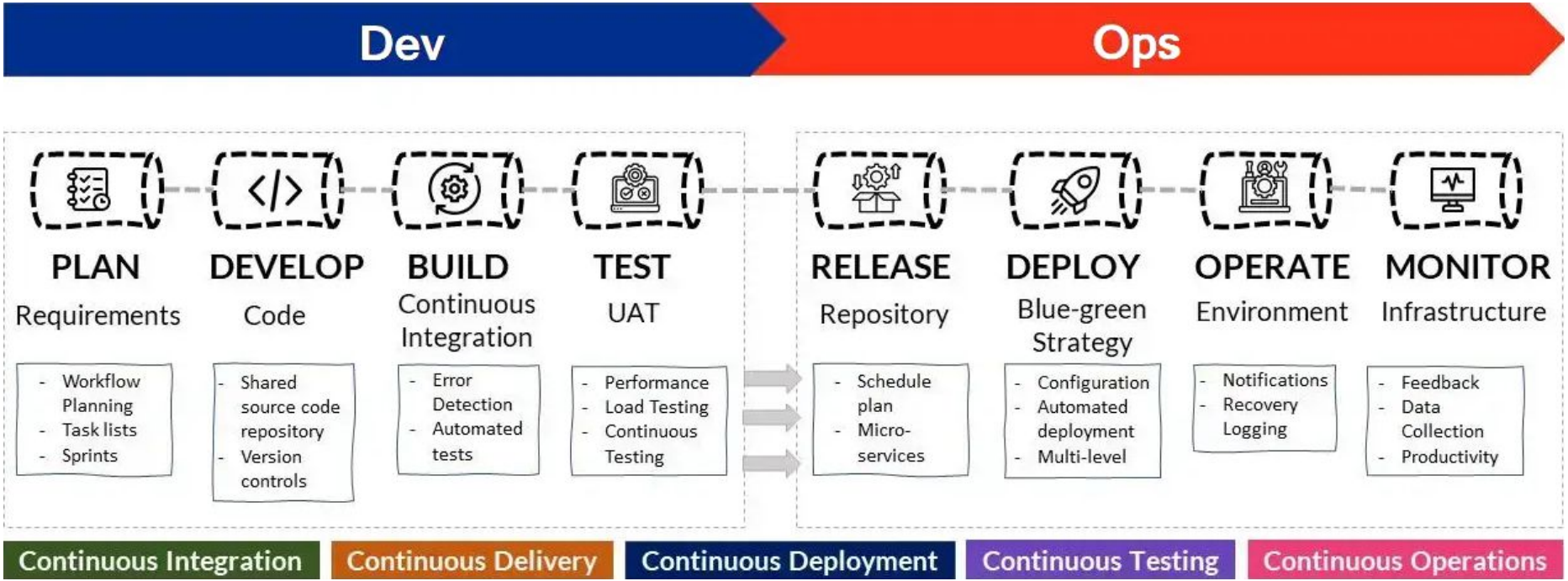


Source: *Zitoc*

DEVOPS 101

- ★ DevOps is a software development methodology that streamlines the development cycle.
- ★ It aims to combine development (**Dev**) and operations (**Ops**) tasks into a unified discipline.
- ★ DevOps includes tools and practices that enable:
  - Continuous Integration (**CI**)
  - Continuous Delivery (**CD**)
  - Automation
  - Collaboration

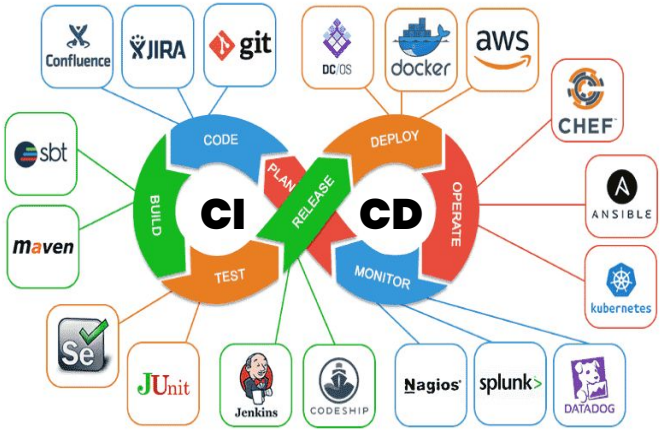
PHASES IN DEVOPS



Source: [Polestarllp]

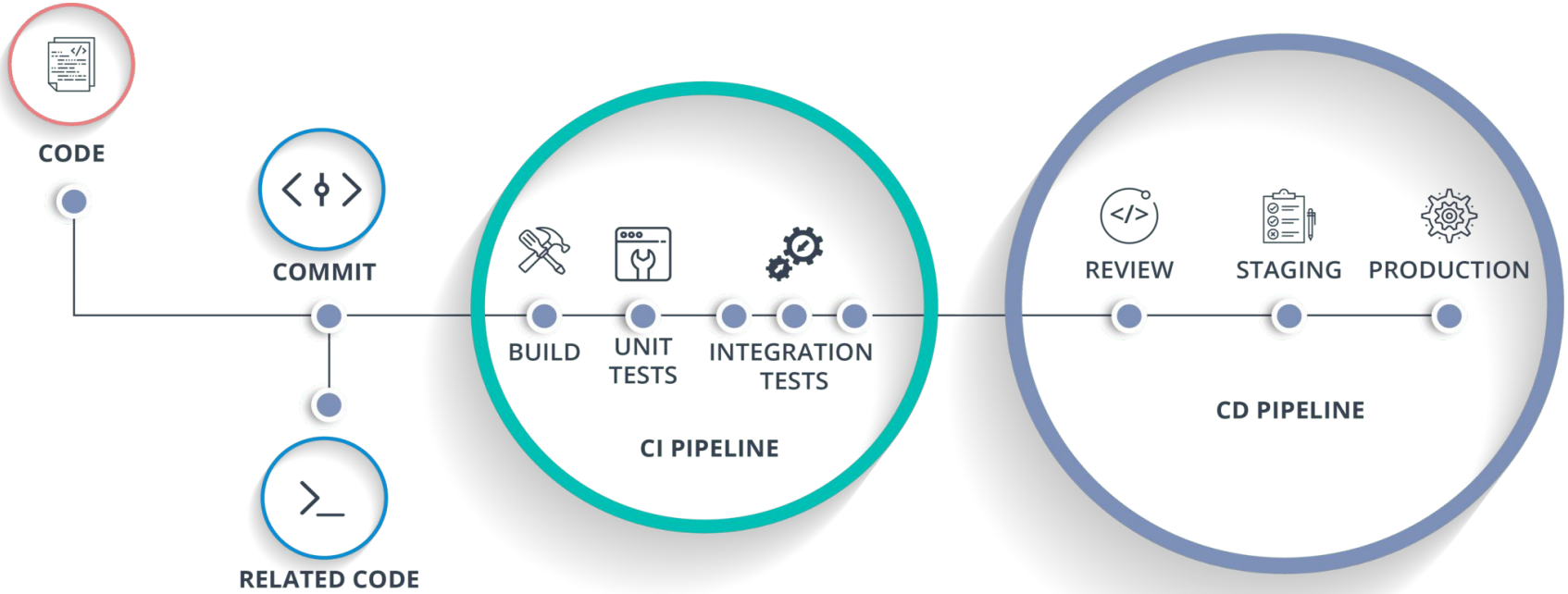
CONTINUOUS INTEGRATION AND CONTINUOUS DELIVERY (CI/CD)

- ★ It’s an essential phase within the DevOps framework which automates the code integration and delivery process.
- ★ Bridges the gap between development and operations through automation.



Source: *Dev Genius*

CONTINUOUS INTEGRATION AND CONTINUOUS DELIVERY (CI/CD)



Source: [Browserstack]

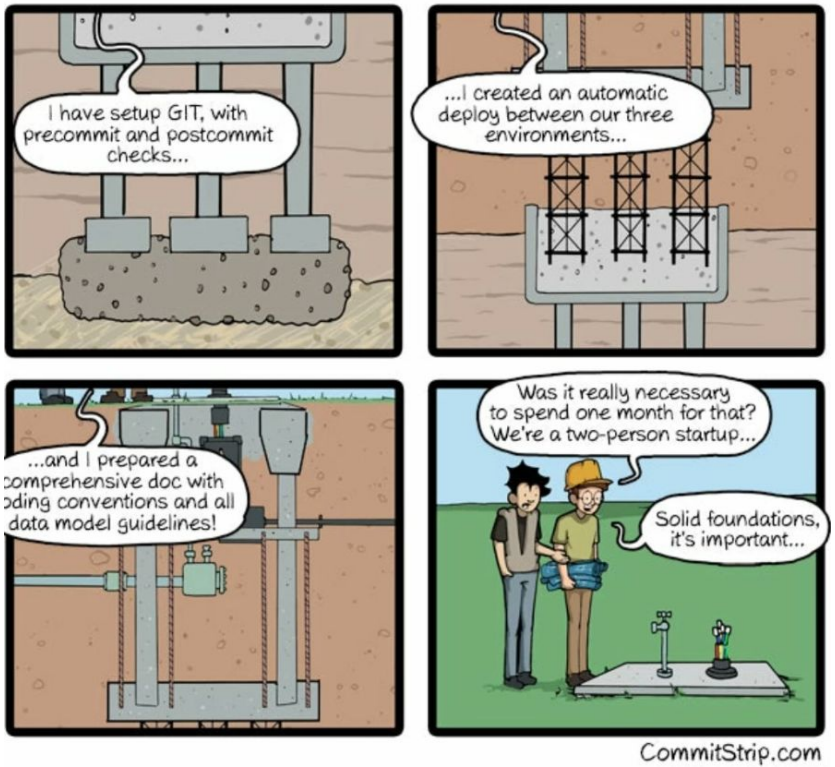
CONTINUOUS INTEGRATION AND CONTINUOUS DELIVERY (CI/CD)

★ Commonly used CI/CD platforms include :-

- AWS Codepipeline
- Azure DevOps
- GCP DevOps
- Jenkins
- Circle CI
- Travis CI

COMPONENTS OF INTEREST

- ★ Components of interest include :-
  - Version Control System
    - GIT
  - Build Tools
    - Compilers
  - Artifacts
    - Artifact Storage
    - Cloud Storage
  - Deploy Tools
    - Virtual Machines
    - Containers



NEED FOR DEVOPS RED TEAMING

- ★ More industry focus on DevSecOps and few organized study materials for Hacking DevOps.
  - With the exception of threat intel reports of APT groups compromising CI/CD pipelines.
  - Some interesting talks by security researchers.
  - Independent blogs

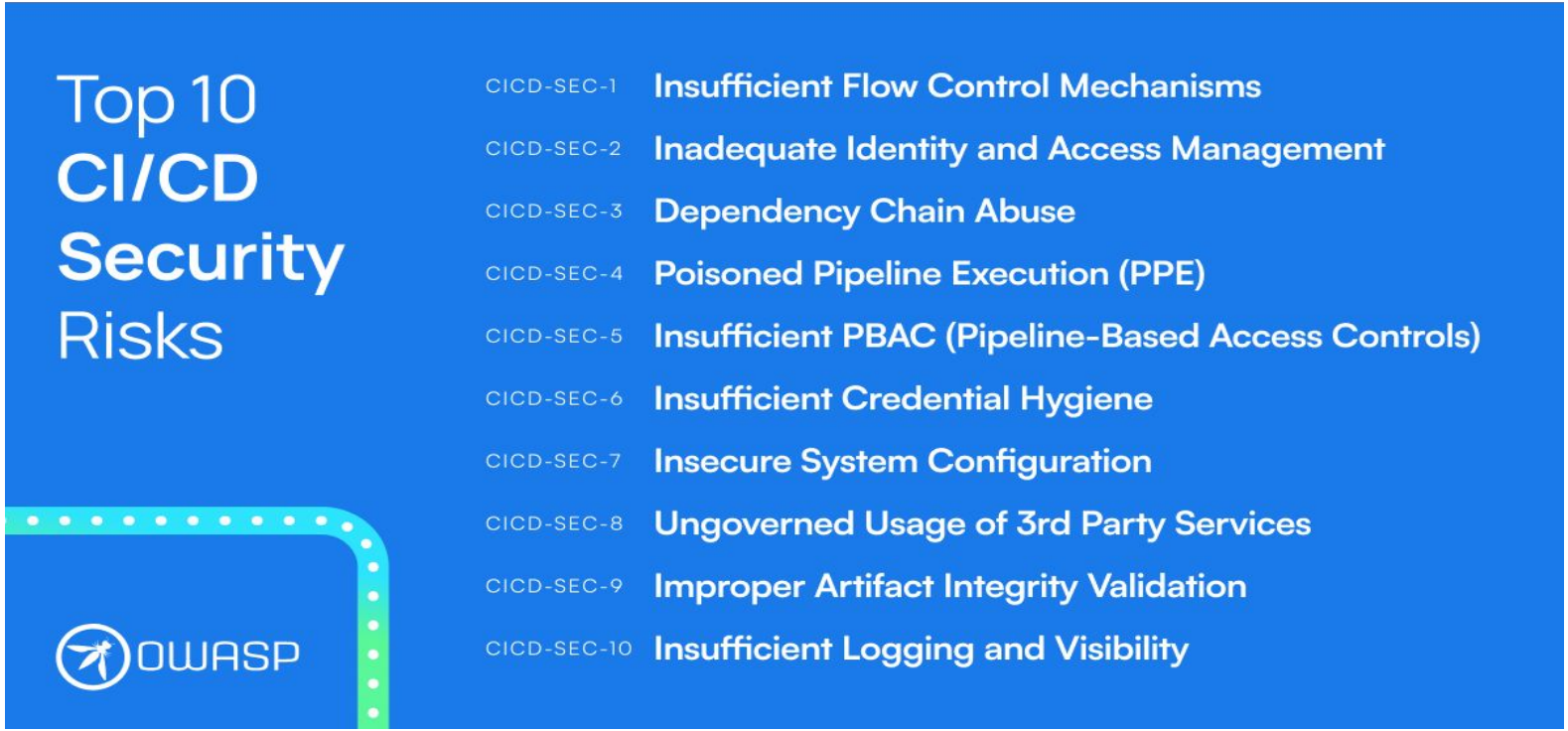
Source: [Trolleye Security]

DEVOPS THREAT MODEL

Initial access	Execution	Persistence	Privilege escalation	Credential access	Lateral movement	Defense evasion	Impact	Exfiltration
SCM authentication	Poisoned pipeline execution (3)	Change code/pipeline configuration in repository (3)	Secrets stored in private repositories	User credentials	Compromise build artifacts	Service logs manipulation	DDoS using pipeline compute resources	Clone for private repositories
CI/CD service authentication	Dependencies tampering (3)	Inject in artifacts	Commit from pipeline to protected branches	Service credentials	Registry injection	Compilation manipulation (2)	Crypto mining over pipeline compute resources	Access to pipelines logs
Configured webhooks	DevOps resources compromise	Modify images in registry	Certificates and identities from metadata services		Spread from pipeline into deployment resources	Reconfigure branch protections	Local DoS to CI/CD pipelines	Exfiltrate data from production resources
Organization's public repositories	Control of common registry	Create service credentials					Resource deletion	
Endpoint compromise								

Source: [Microsoft DevOps Threat Matrix]

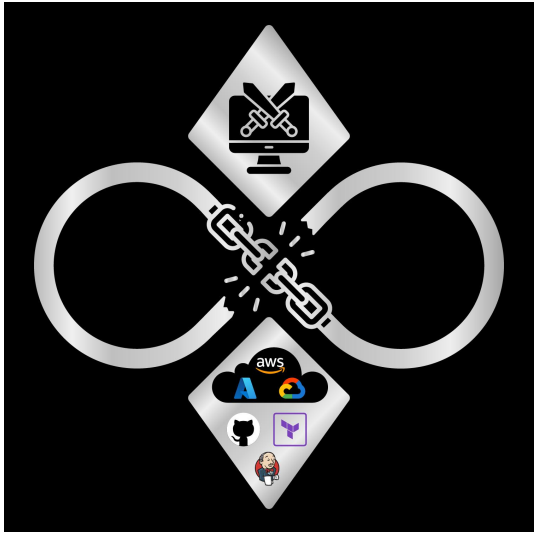
CI/CD SECURITY RISKS



Source: [OWASP Top 10 CI/CD Security Risks]

DEVOPS RED TEAM ANALYST

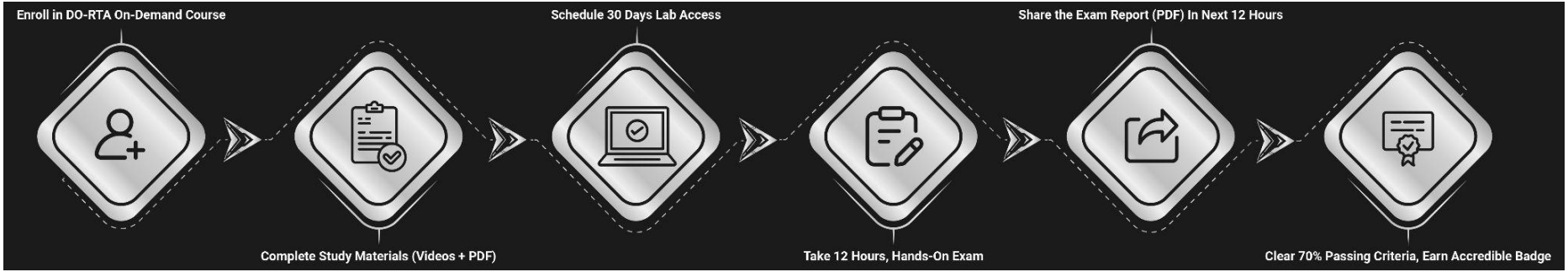
- ★ DevOps Red Team Analyst (DO-RTA) course focuses on offensive operations across cloud-native & on-premises CI/CD platforms.
- ★ Course is designed across multiple DevOps pipelines with realistic attack scenarios.



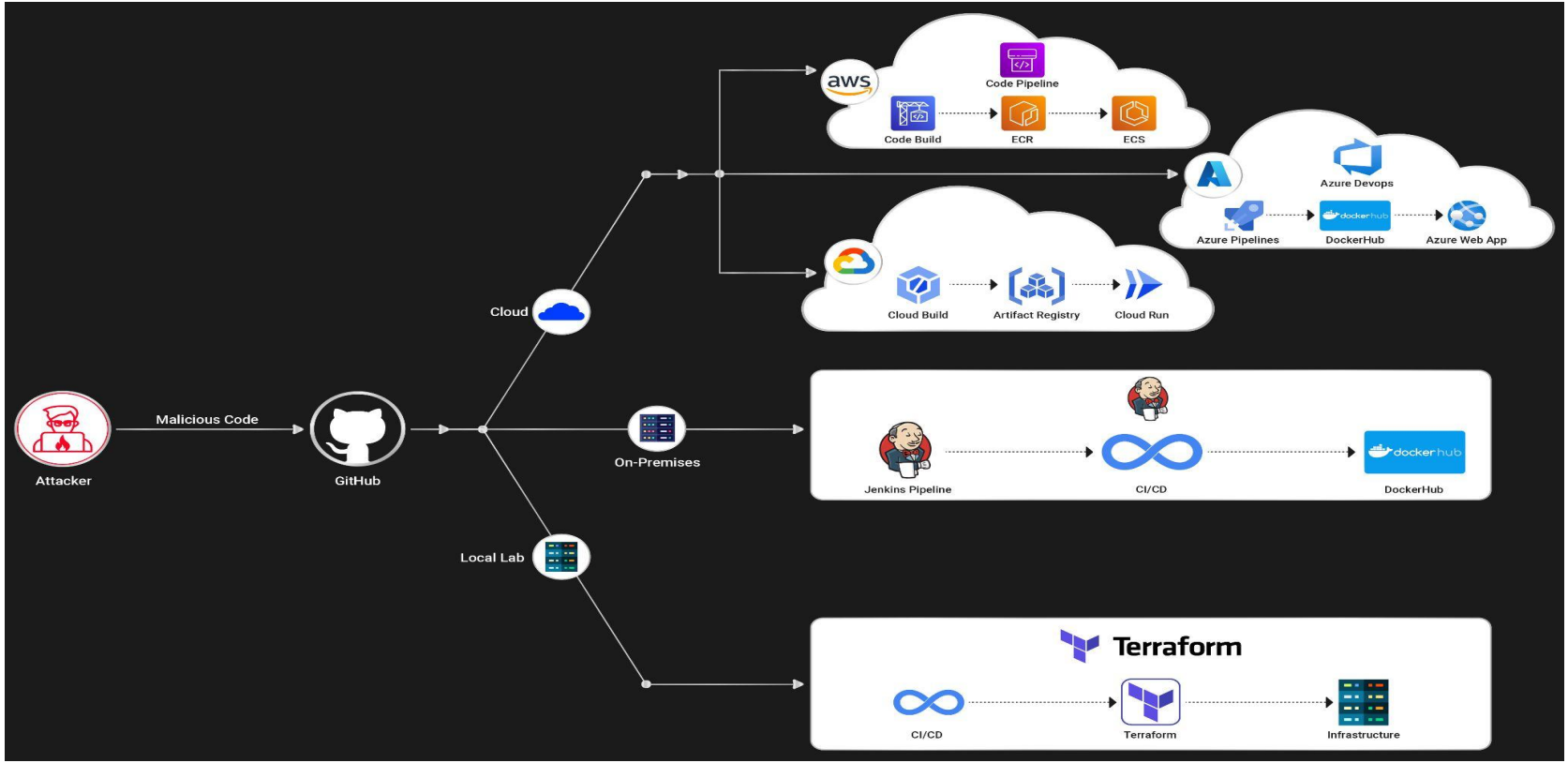
WHAT THIS COURSE IS ABOUT?

- Introduction to DevOps & DevSecOps fundamentals and :-
  - Different phases that comprise them.
  - Services & Tools used during different phases.
  - What the red team operators / penetration testers can do with the initial access with push permissions to Version Control Service (VCS).
- The course will focus on exploiting default configurations & common misconfigurations that occur during DevOps lifecycle.

DO-RTA COURSE FLOW



DO-RTA LAB ARCHITECTURE



CERTIFIED DEVOPS RED TEAM ANALYST [DO-RTA] GIVEAWAY

Thank You

For Professional Red Team / Blue Team / Purple Team / Cloud Cyber Range labs / Trainings please contact

support@cyberwarfare.live

To know more about our offerings, please visit: **https://cyberwarfare.live**