

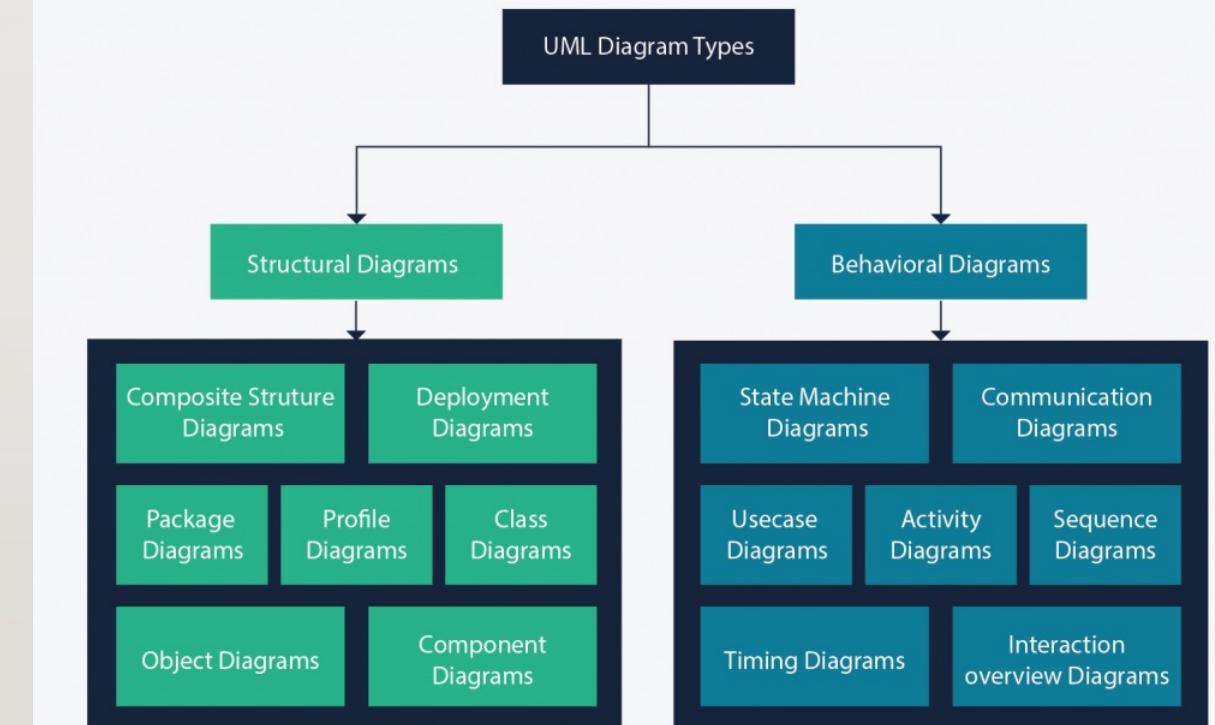
07 UML DIAGRAMS

INT210 SW ARCHITECTURE INTEGRATION AND DEPLOYMENT



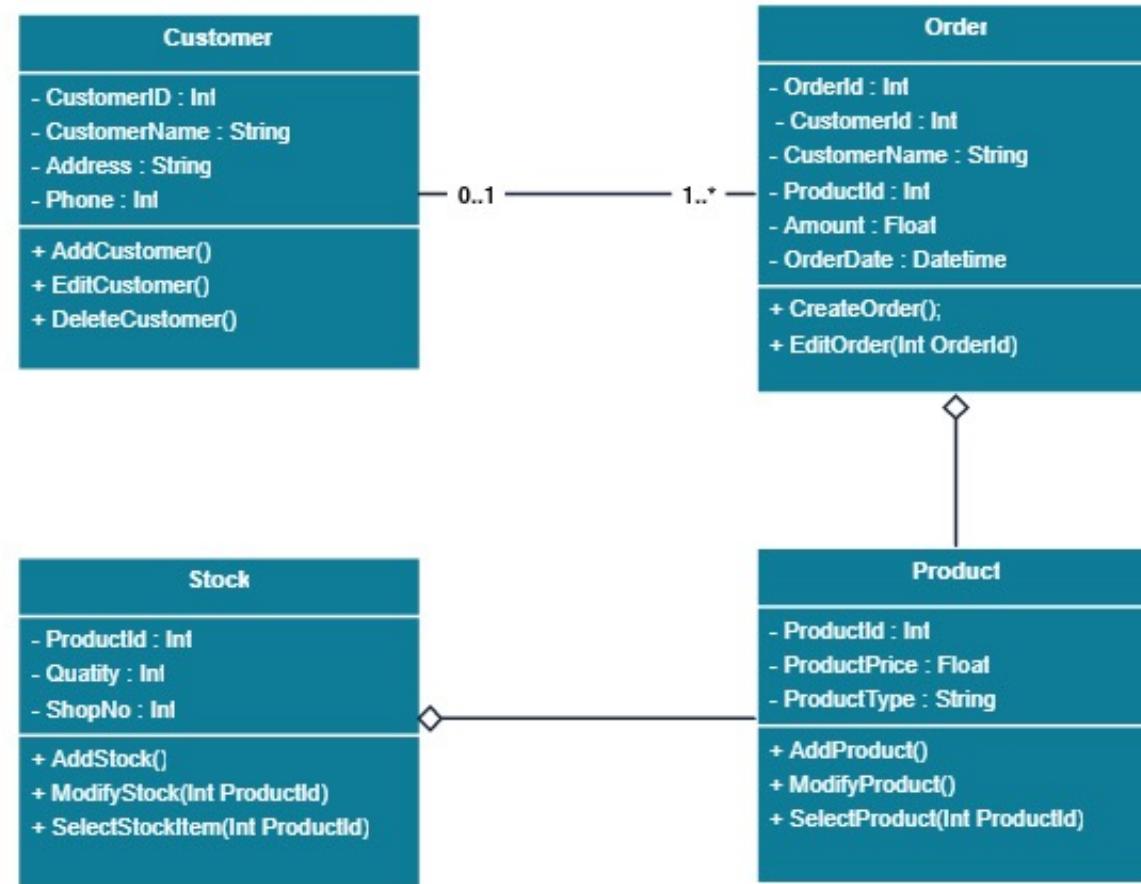
UNIFIED MODELING LANGUAGE (UML)

- Diagramming notation for visualizing software design
 - structure
 - Behavior, Interactions
- www.uml.org , [creatly \(tools, examples\)](#)
[SmartDraw](#)
- [Uml objects](#)



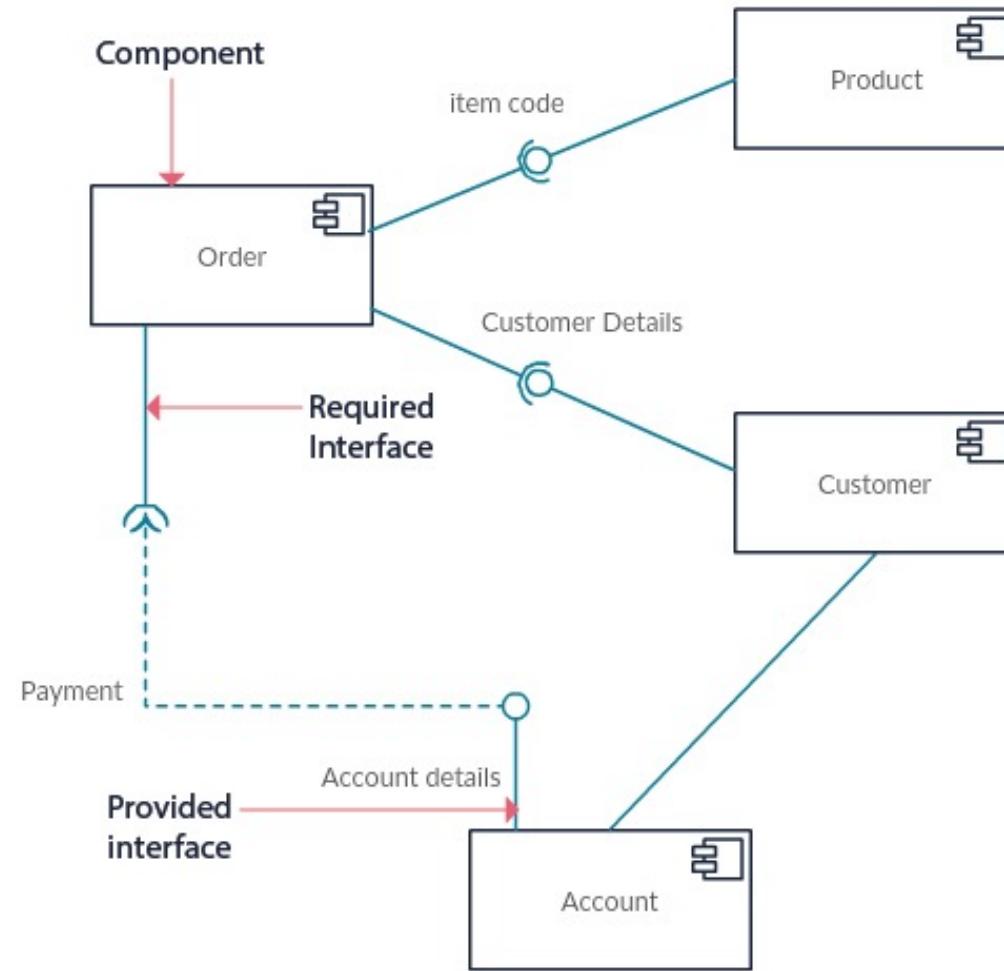
CLASS DIAGRAM

Class Diagram for Order Processing System

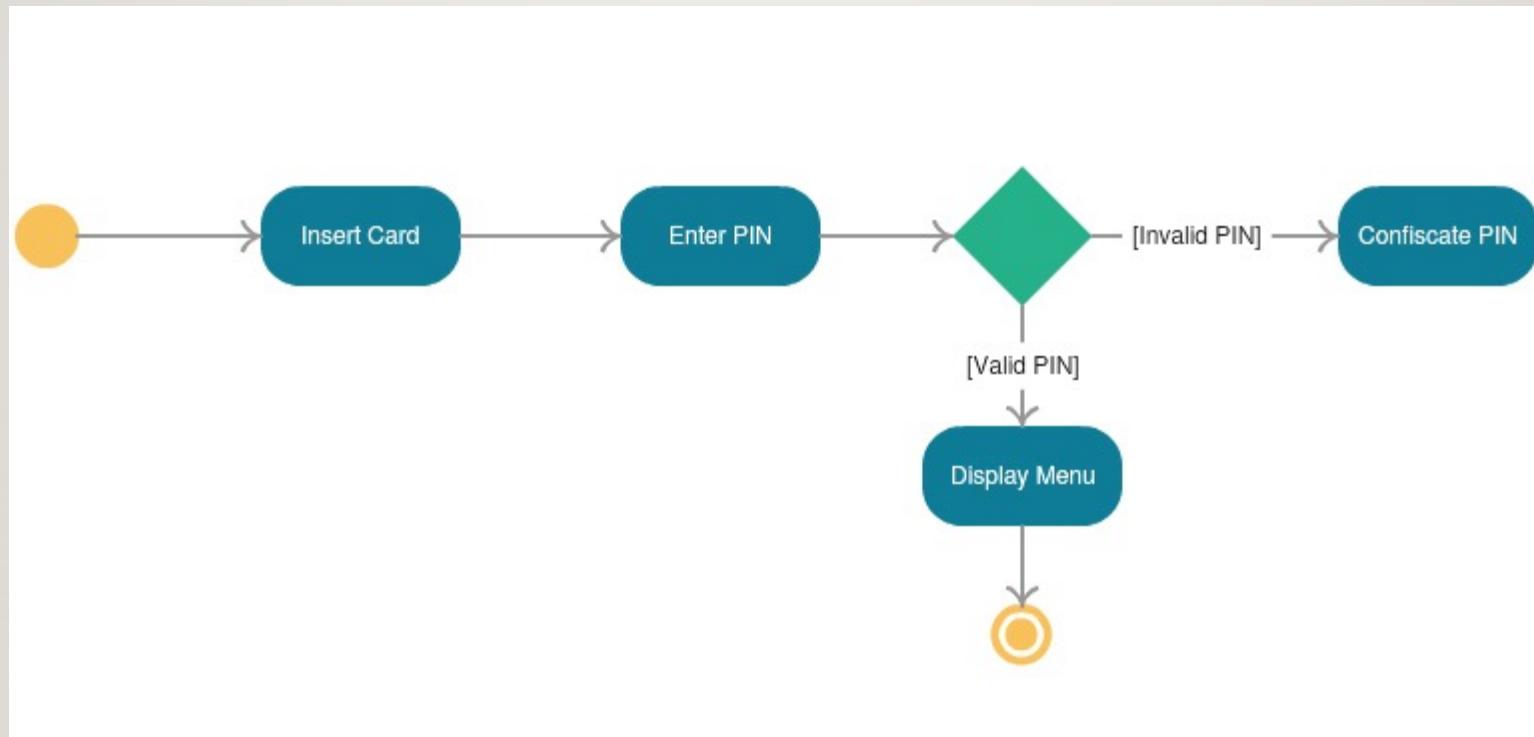


COMPONENT DIAGRAM

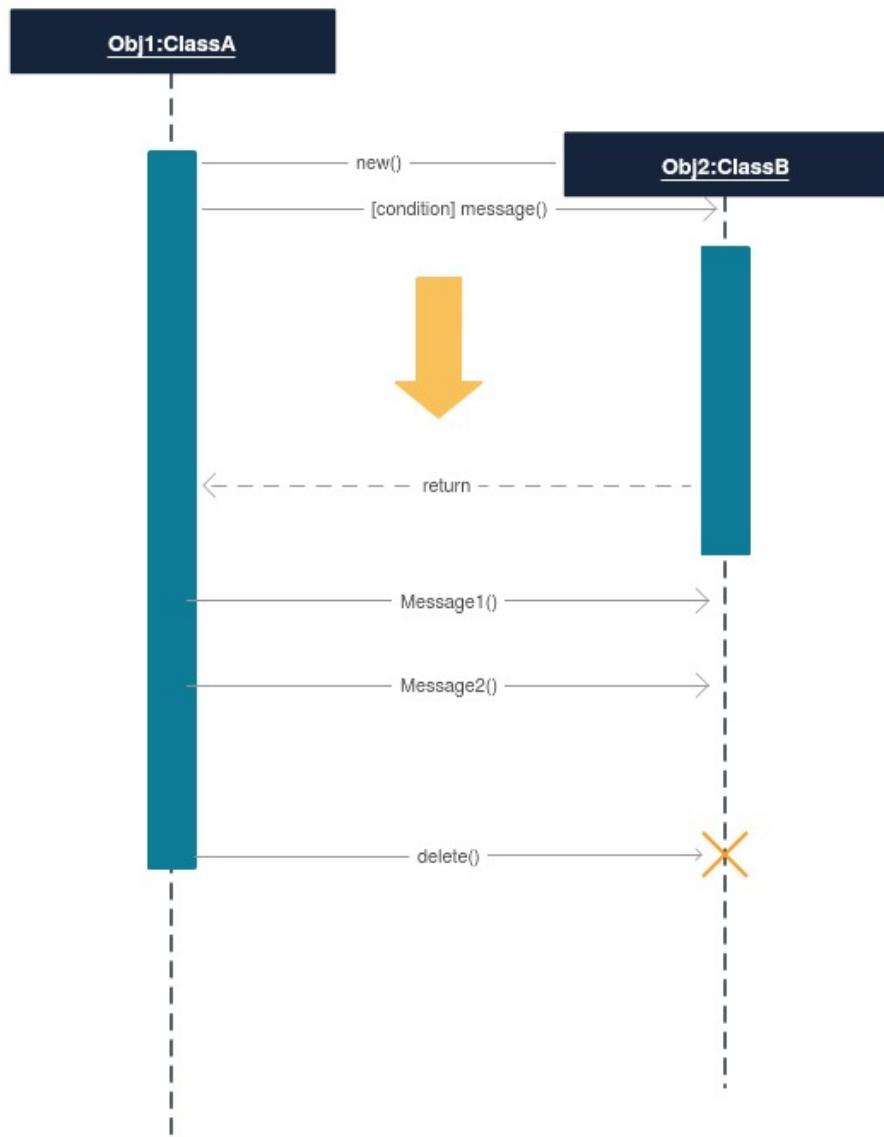
[SmartDrawhttp://www.smartdraw.com/component-diagram/](http://www.smartdraw.com/component-diagram/)



ACTIVITY DIAGRAM



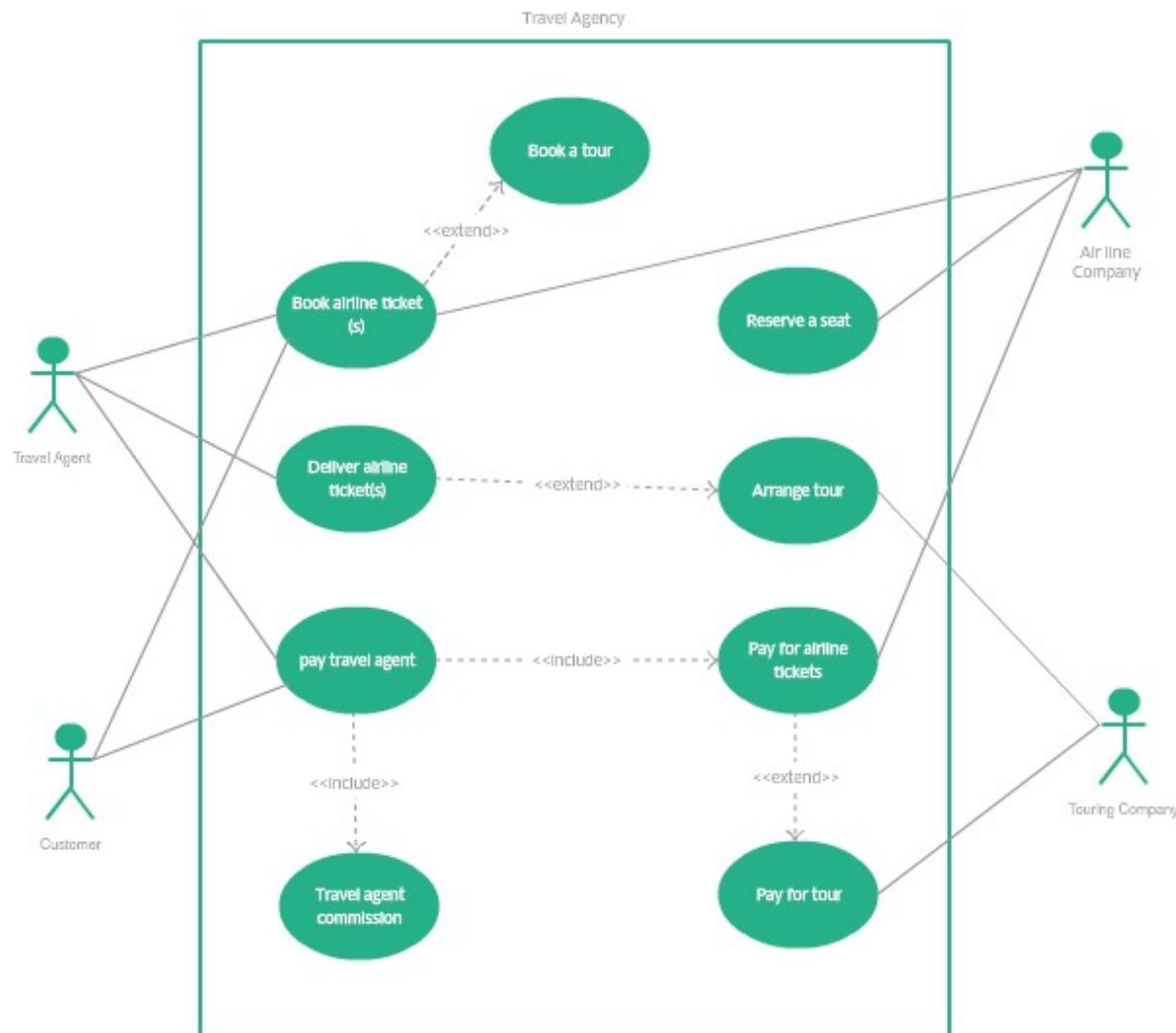
SEQUENCE DIAGRAM



USECASE DIAGRAM

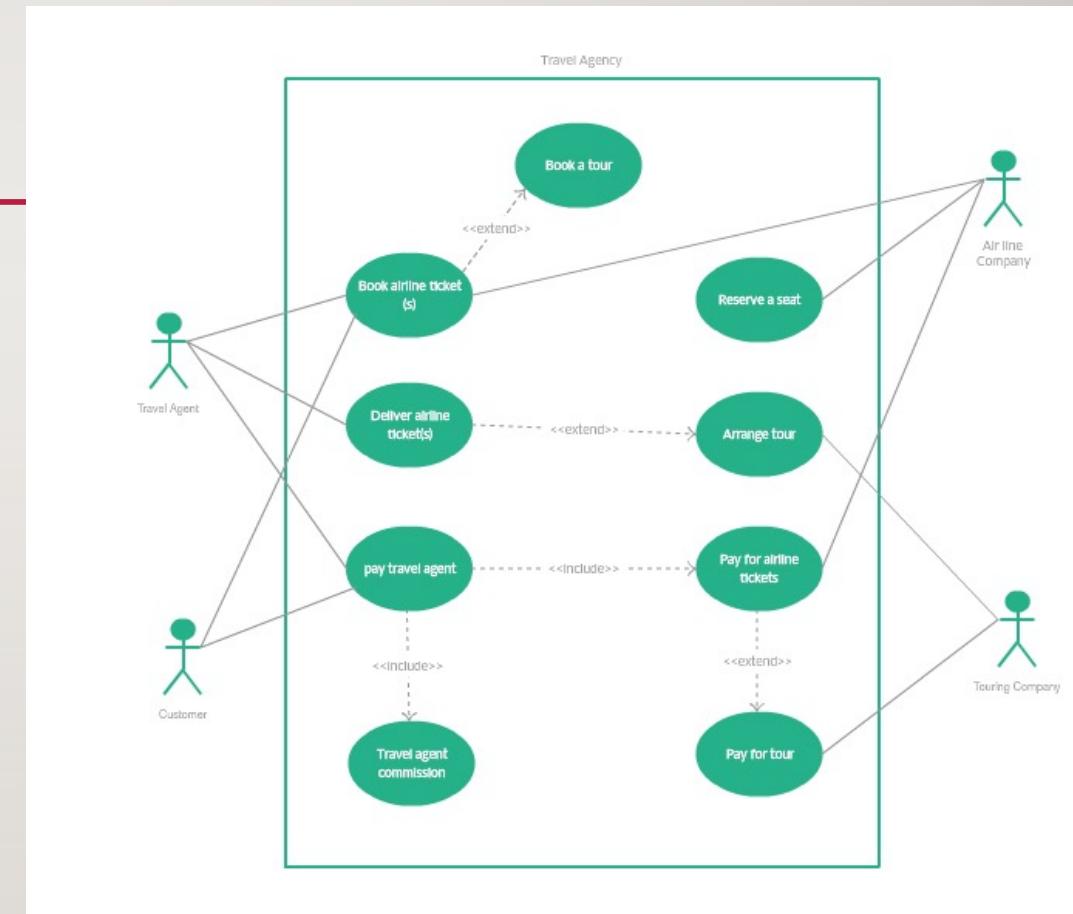
<https://www.smartdraw.com/use-case-diagram/>

<https://creately.com/guides/use-case-diagram-tutorial/>



USE CASE DIAGRAMS

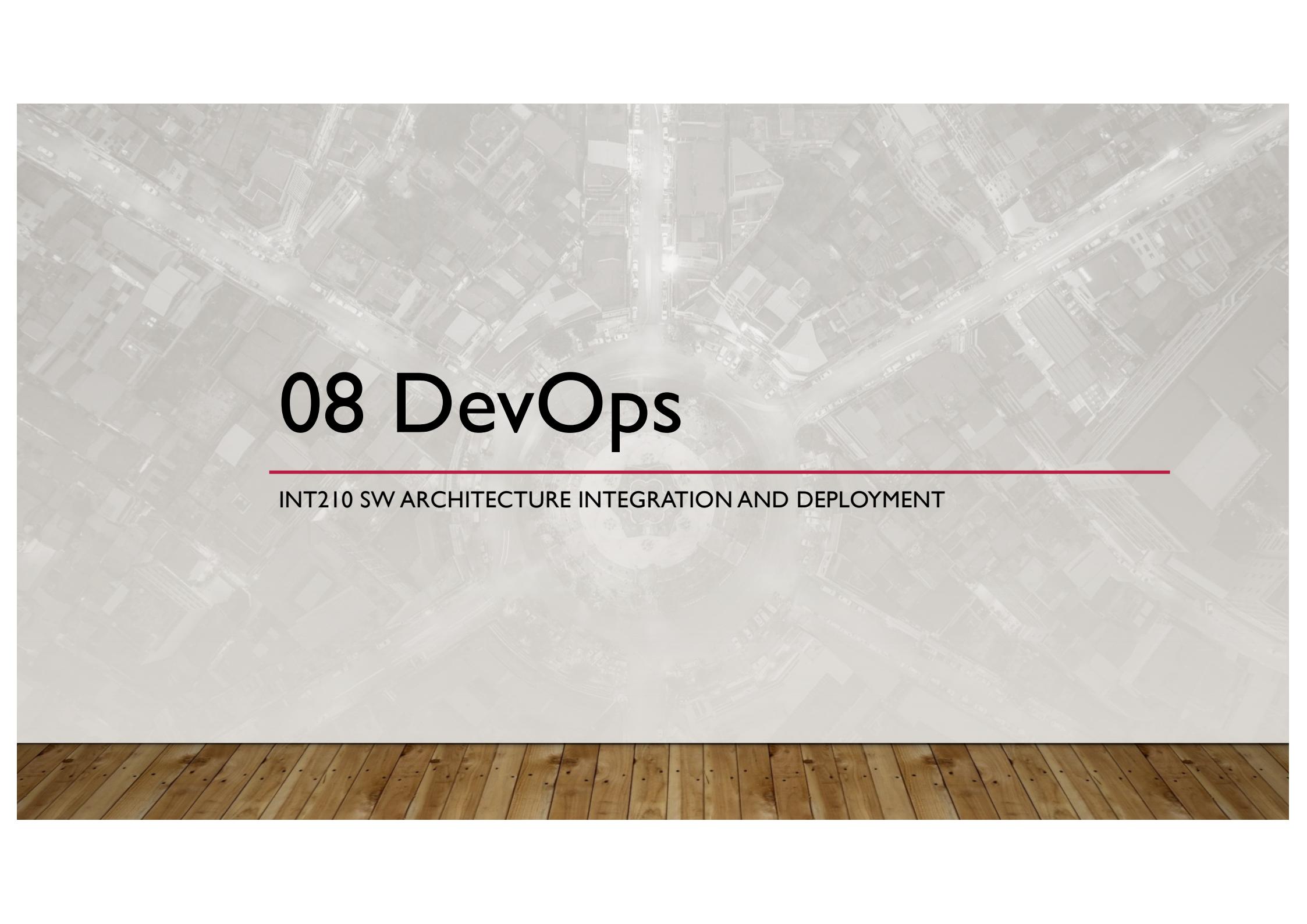
- <https://creately.com/guides/use-case-diagram-tutorial/>
- Actors – stick figures – entity that performs a role
- System – boundary box – scope of the use case
- Use case – ovals – function or action in the system
- Actor to use case – Arrow with solid line
- Relationships between use cases –
 - <<Extends>> dashed line - - - optional to perform the related use case
 - <<Includes>> dashed line - - - requires the related use case



GROUP EXERCISE: 2-3 MEMBERS, 10 MINUTES

- Draw a use caSe diagram for Uni registration system (register >> grades)
- Different Actors, relationships between actors (students, Ajarn, admin, staff)
 - Student
 - Ajarn: approve requests, fill scores/grades, view various student info, etc.
 - Chairperson: approve grades, approve some types of requests
 - Staff: create courses/sections, monitor requests, view student info
- Actions?

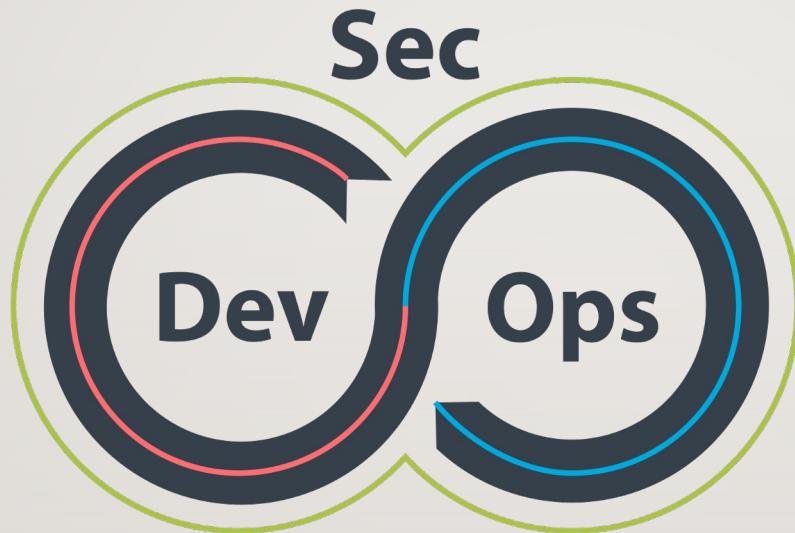




08 DevOps

INT210 SW ARCHITECTURE INTEGRATION AND DEPLOYMENT

INT 209/210



Jirayut Nimsaeng (Dear)

CEO & Founder, Opsta (Thailand) Co.,Ltd.

INT 209/210 DevOps Class @ SIT KMUTT

January 29, 2021

<https://bit.ly/sit-intro-devsecops>

INSTRUCTOR

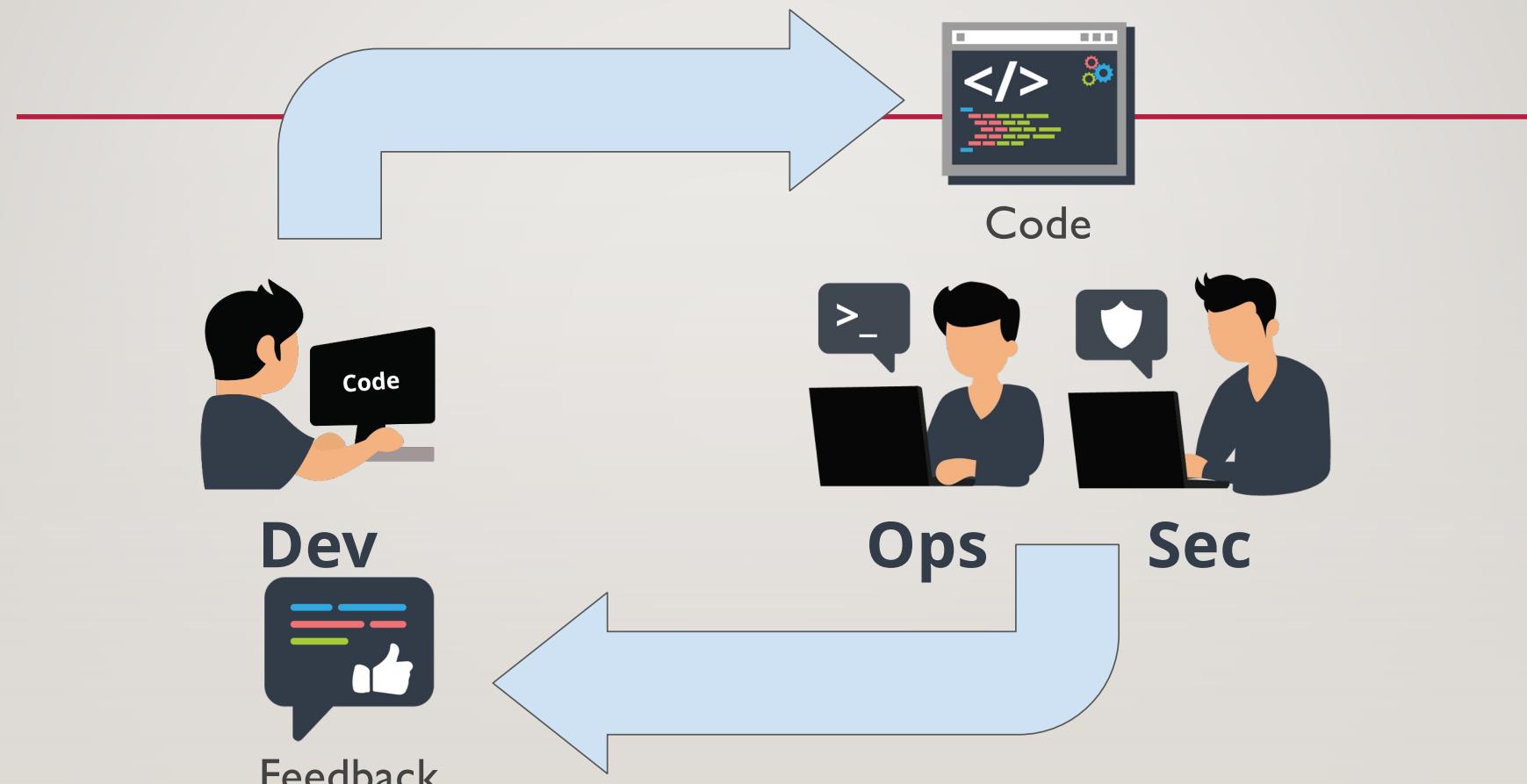
Jirayut Nimsaeng (Dear)

Jirayut has been involved in DevSecOps, Container, Cloud Technology and Open Source for over 10 years. He has experienced and succeeded in transforming several companies to deliver greater values and be more agile.

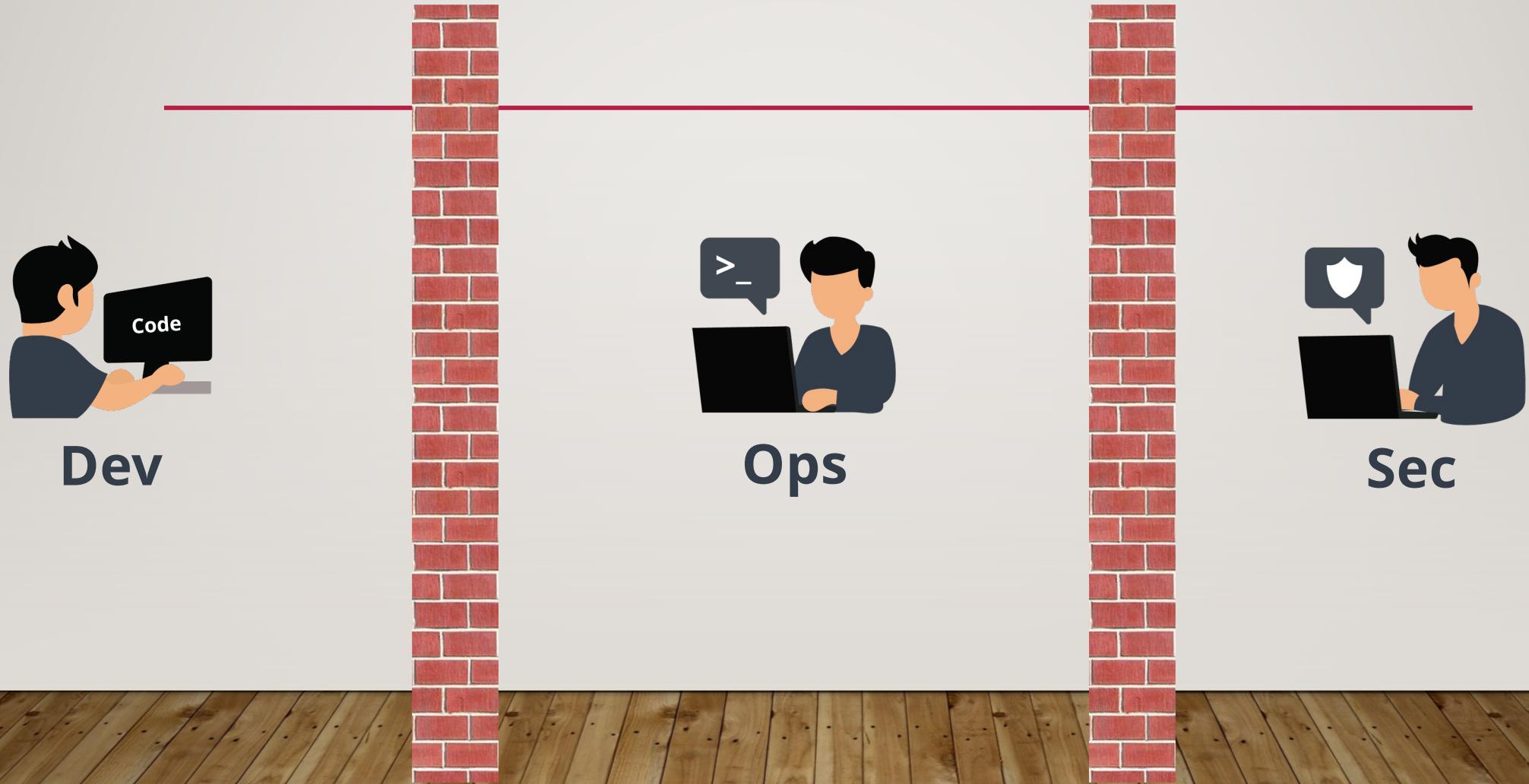
- **He is Founder and CEO of Opsta (Thailand) Co.,Ltd.**
- **He is Cloud/DevSecOps Transformation Consultant and Solution Architecture**
- **He is the first Certified Kubernetes Administrator (CKA) and Certified Kubernetes Security Specialist (CKS) in Thailand**
- **He is first Thai Google Cloud Developer Expert (GDE) in Thailand**
- **Google Cloud Certified - Professional Cloud Architect and Associate Cloud Engineer**



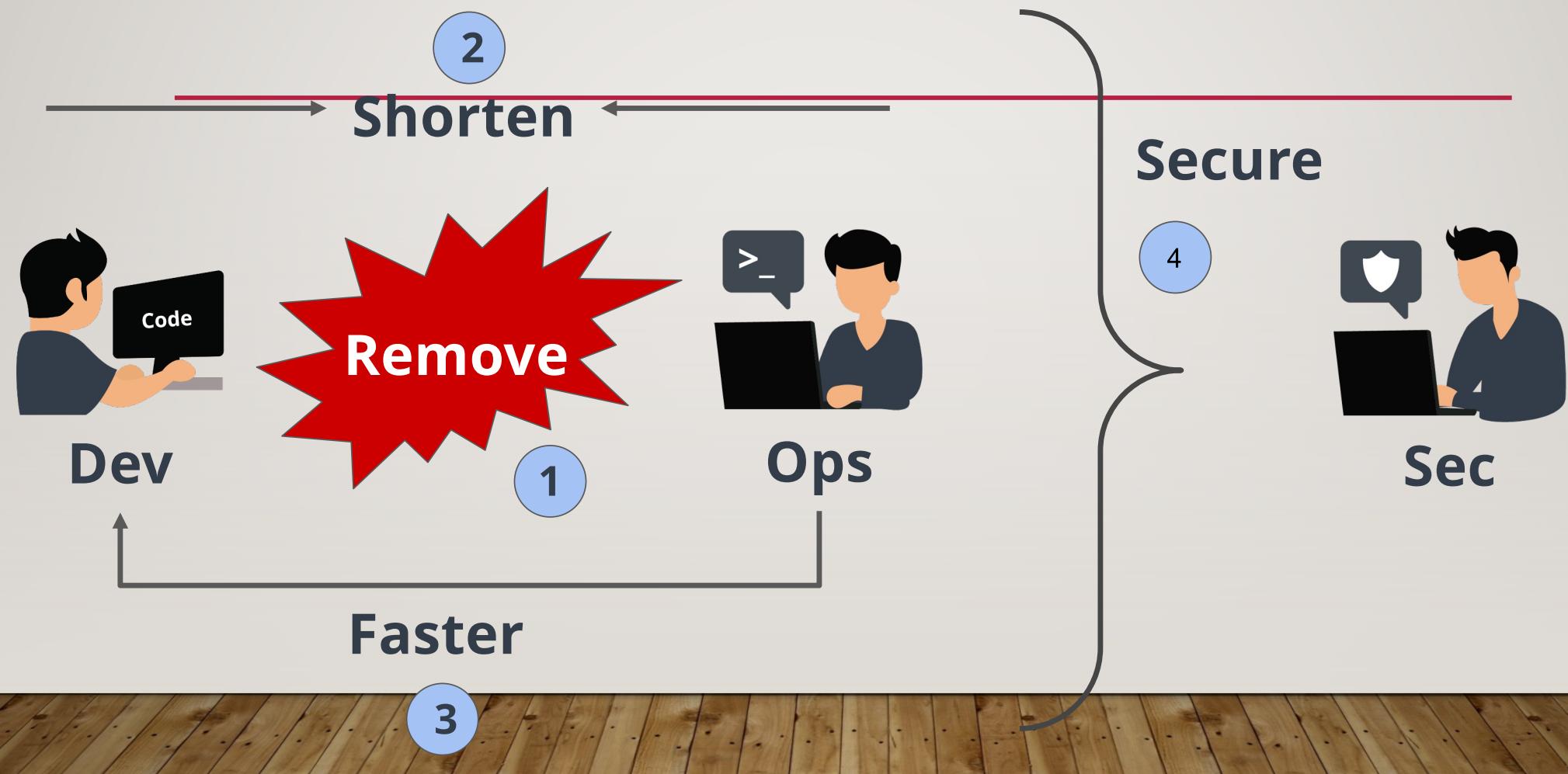
IDEAL DEVELOPMENT CYCLE



The Wall

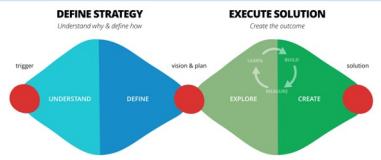


DevSecOps Culture



Making an IT product

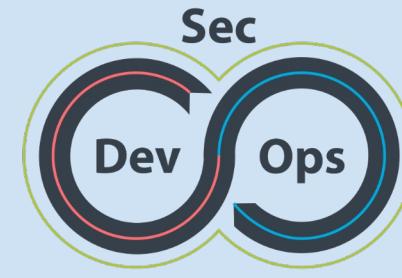
Discovery
Design Thinking



Delivery
Scrum
Kanban



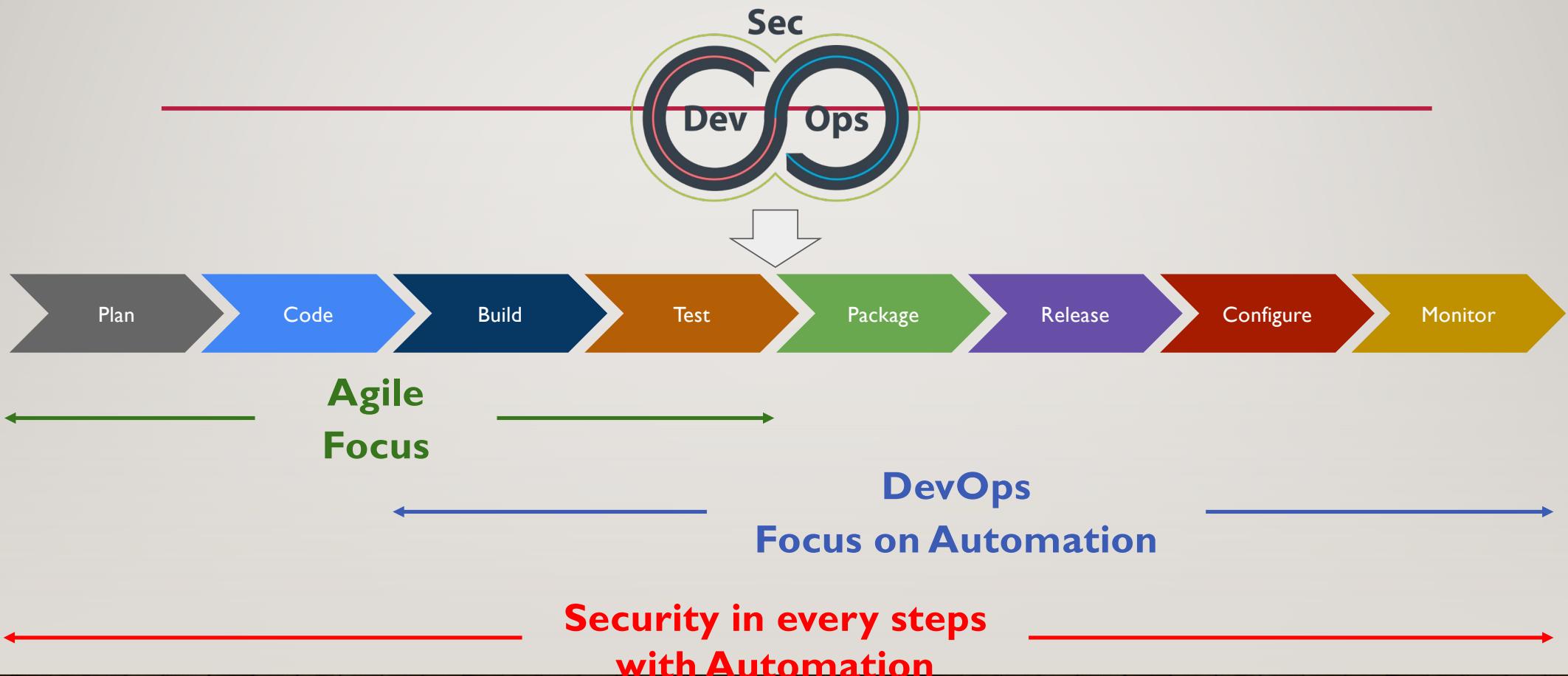
Operation
DevOps
DevSecOps



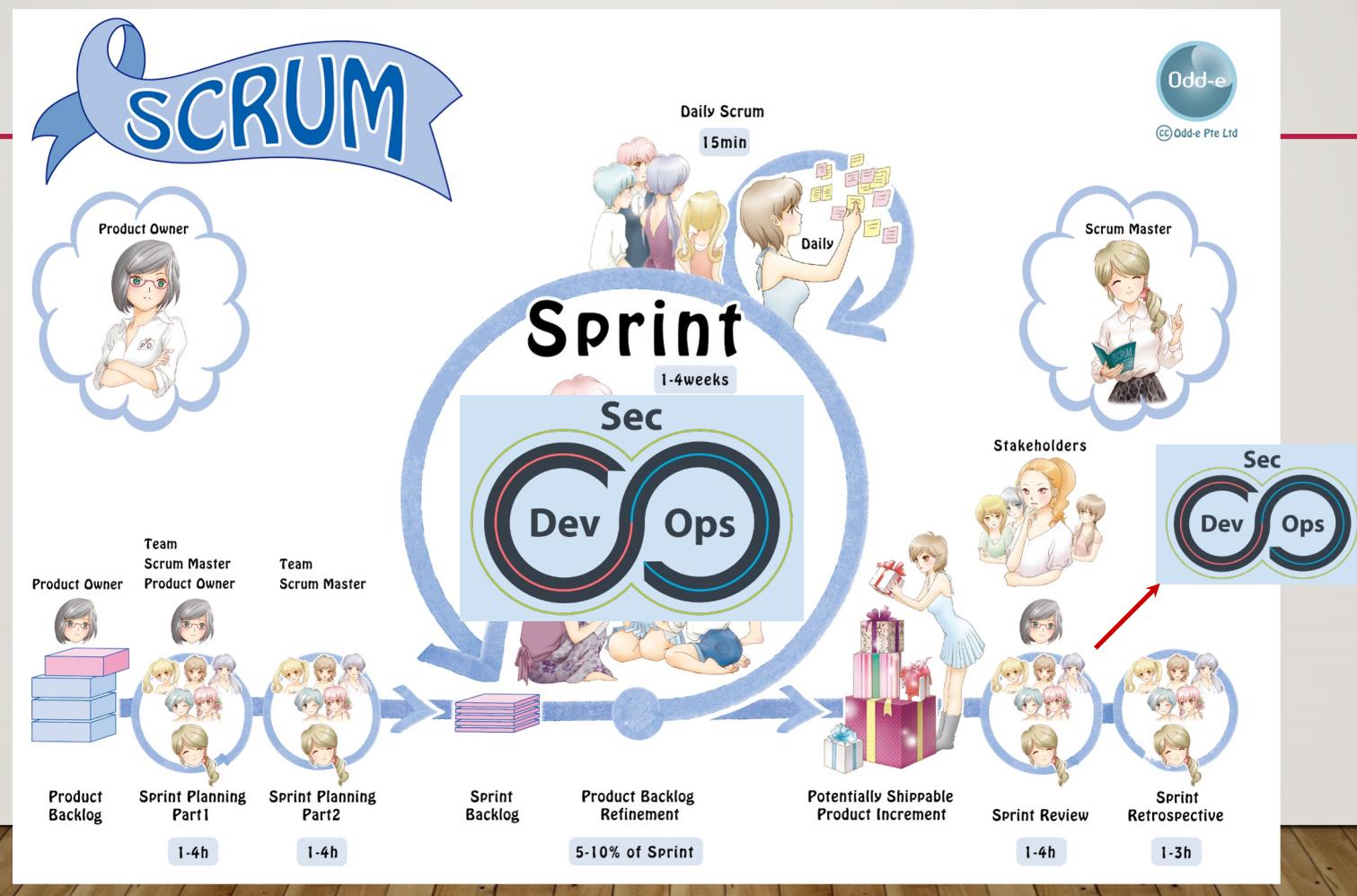
Data
Data Lake
Data Mesh



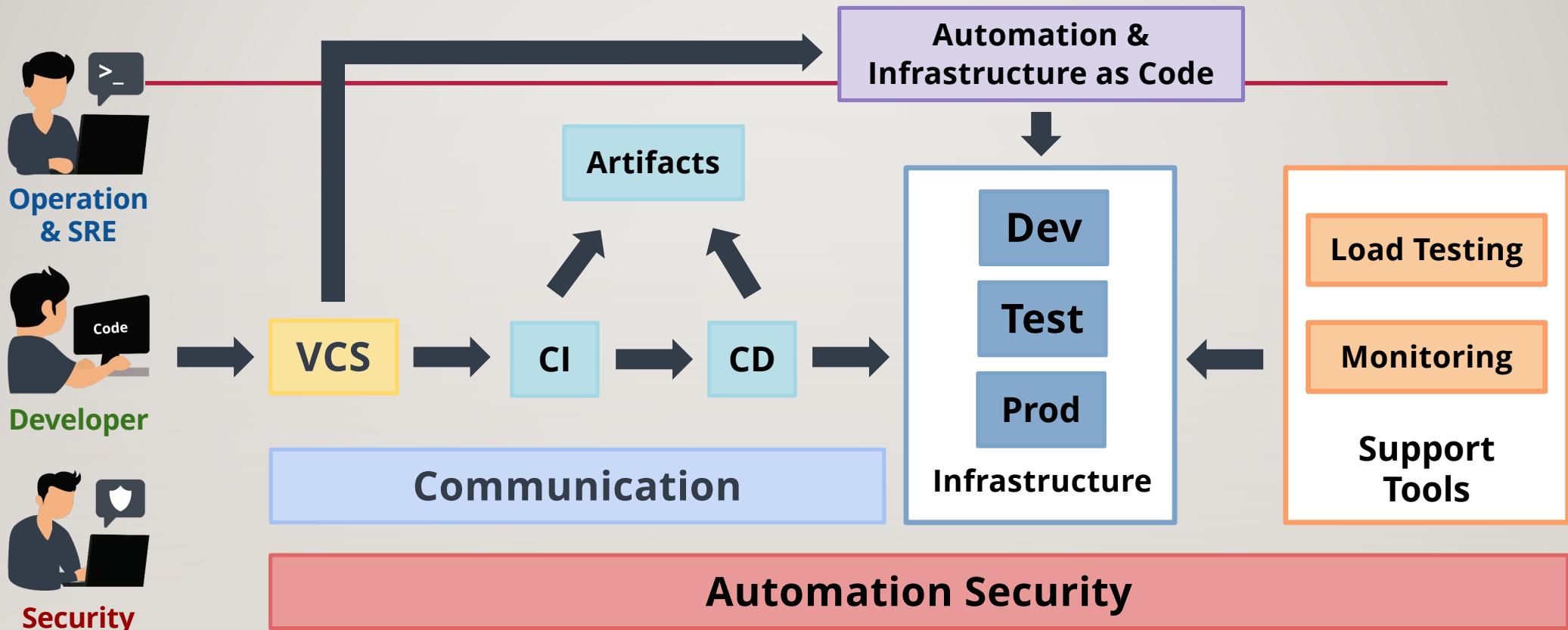
DevSecOps and Agile



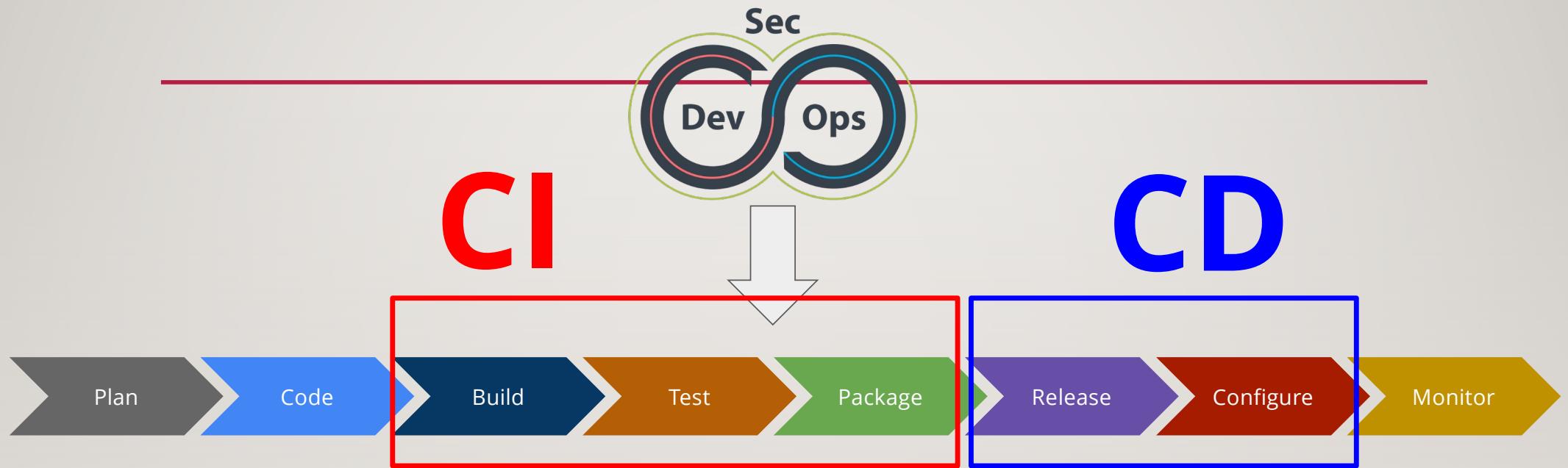
DevSecOps and Scrum



Generic DevSecOps Flow & Components



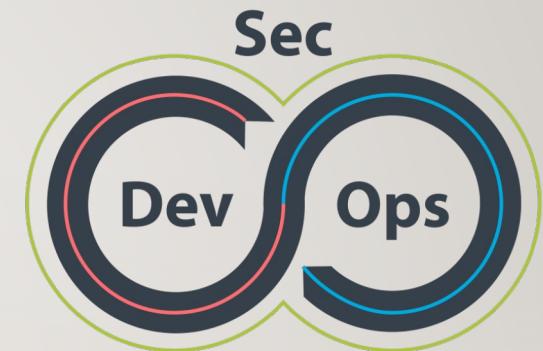
Continuous Integration and Continuous Delivery (CI/CD) Flow



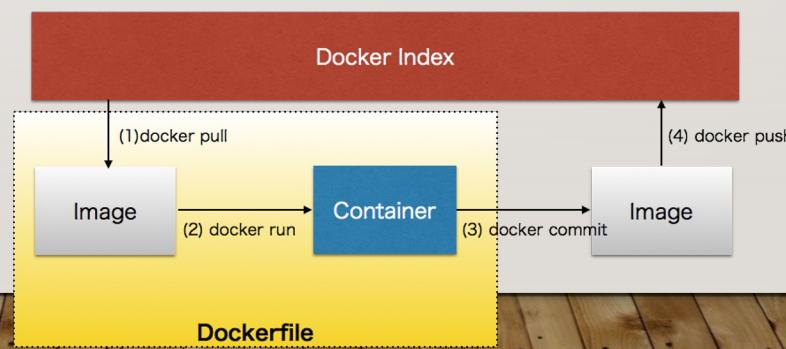
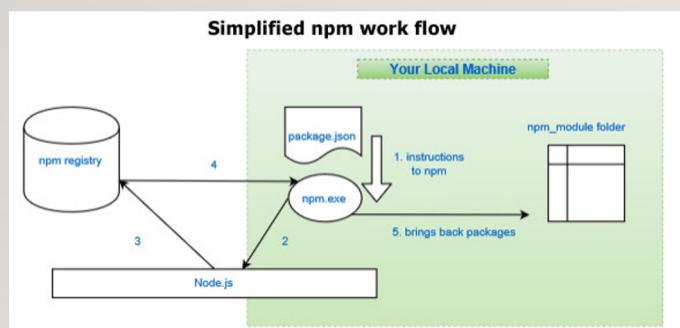
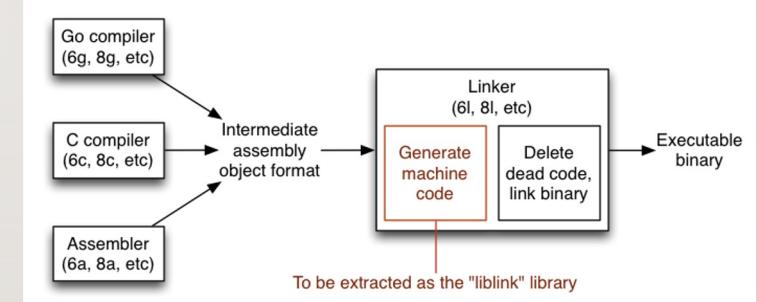
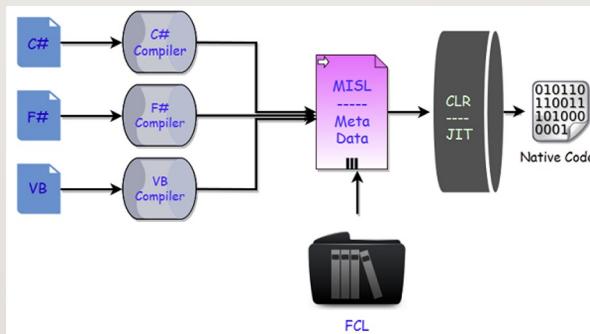
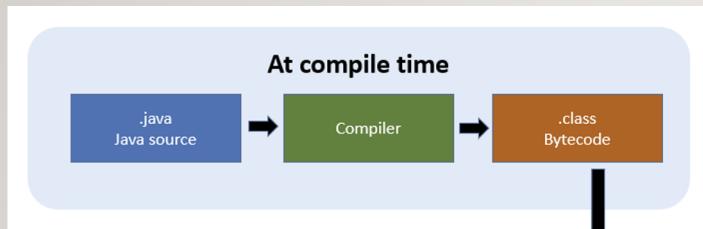
CONTINUOUS INTEGRATION

Introduction to DevSecOps

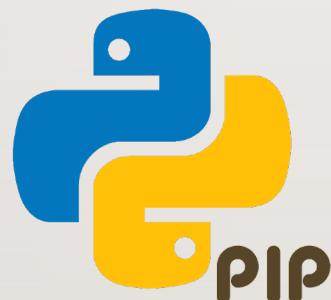
Introduction to



Build



Package Managers



Types of Testing



Unit Test

Integration Test

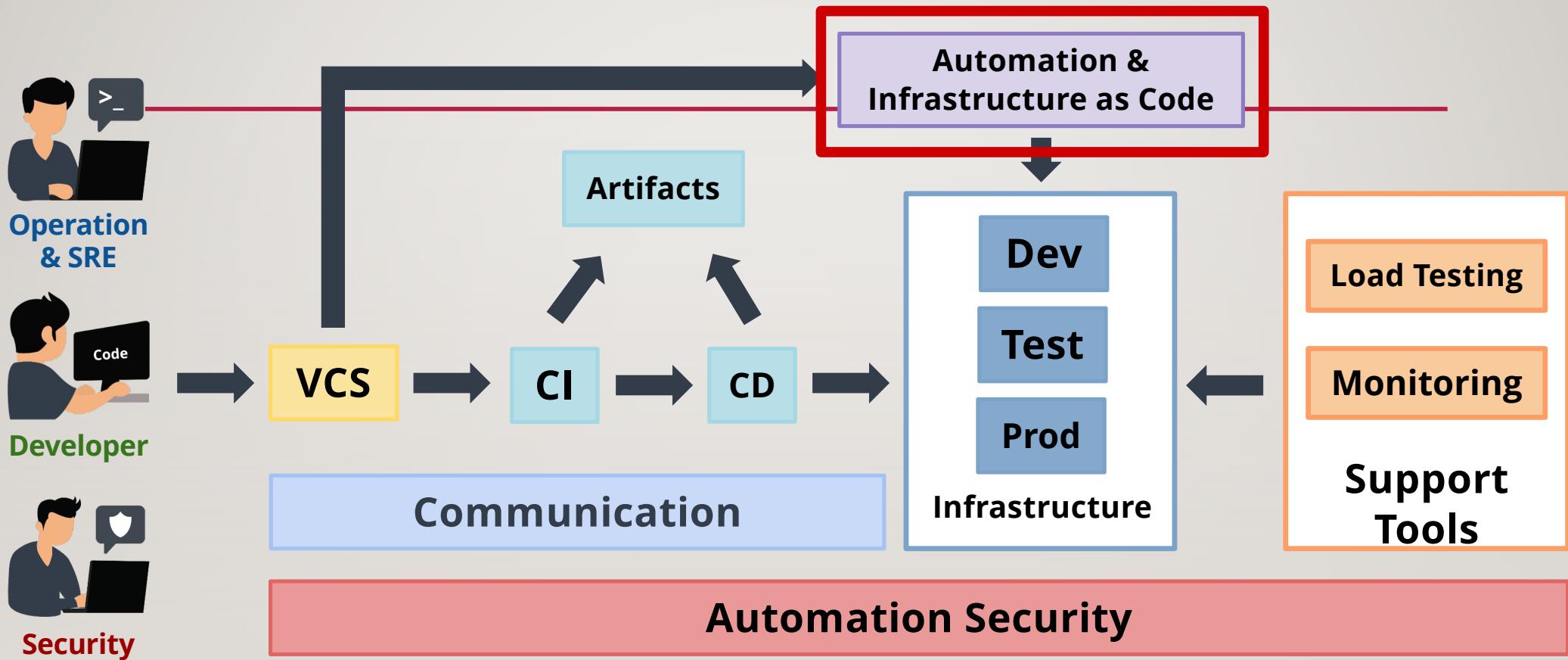
Functional Test

Performance Test

Acceptance Test

UI Test

Infrastructure Automation



Test Automation Tools



Unit Test

JUnit 5  

 Jest

nose
is nicer testing for python

**Browser
Simulation Test**



cypress



Release Strategies



Deployment

- Recreate / Replace
- Rolling Deployment
- Blue-Green or Red-Black Deployment
- Canary Deployment

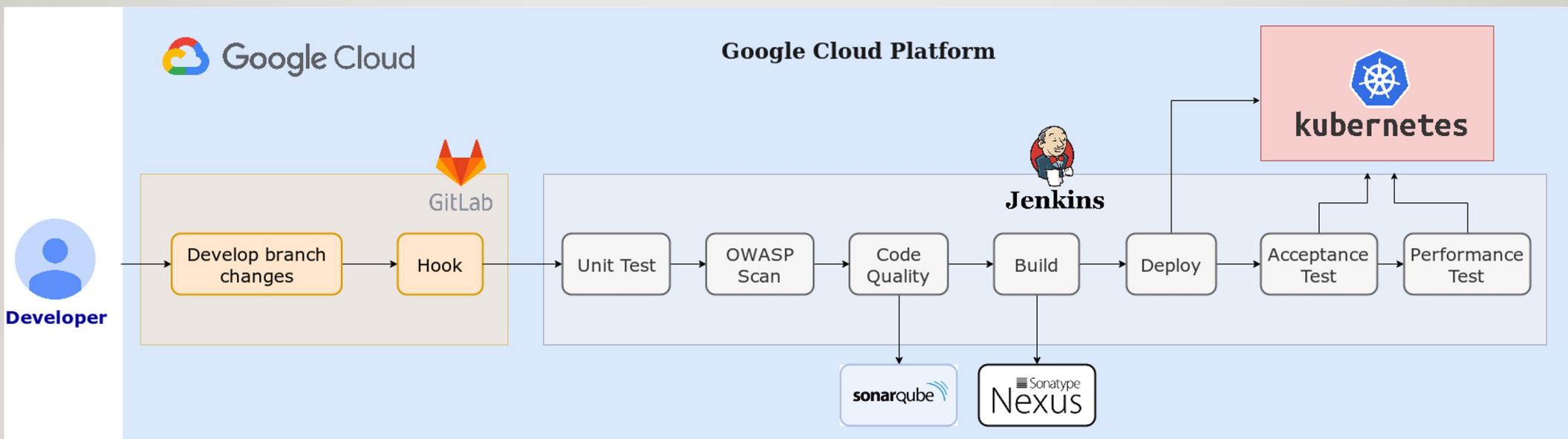
Feature

- A/B Testing
- Environment Separation
- Feature Toggles or Feature Flag
- User Targeted Testing

<https://cloud.google.com/architecture/application-deployment-and-testing-strategies>

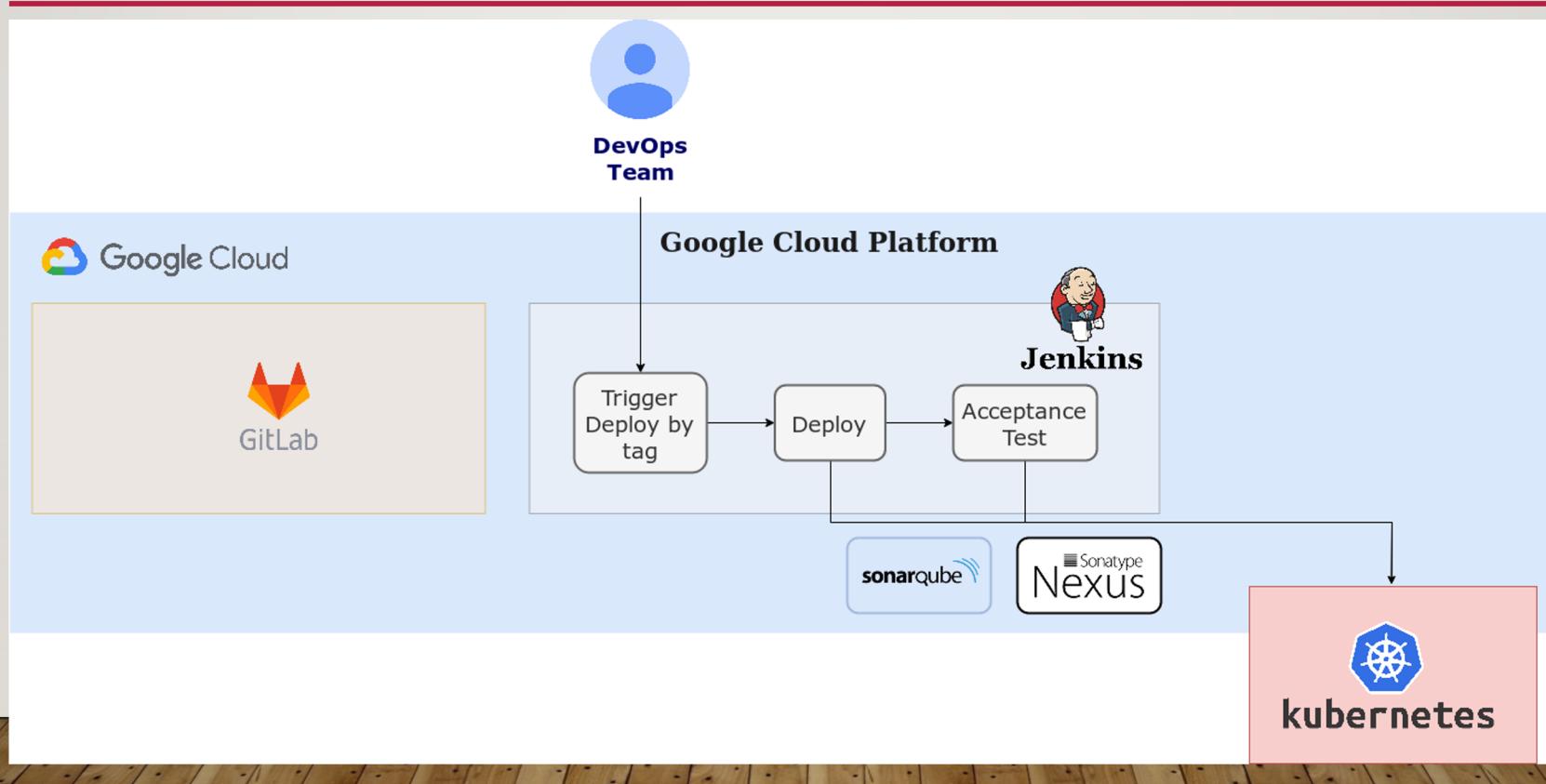
DevSecOps Process and Policy (I)

Development Environment



DevSecOps Process and Policy (2)

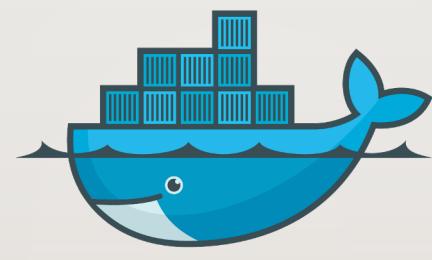
Production Environment



Modern Infrastructure



Cloud



docker



kubernetes



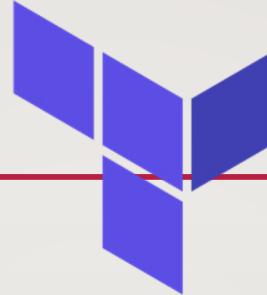
Automation Technologies



ANSIBLE



kubernetes



HashiCorp
Terraform



CHEF™



puppet
labs

Team Communication

For DevSecOps cycle to run smoothly. It lies on excellent communication between teams and team members. Teams, departments, and key stakeholders need to **collaborate** early in the cycle in order to form a suitable **feedback** loop which lies at the core of the whole value stream. At the same time, that collaboration requires **constant communication** to remain transparent, efficient, and highly productive.



Nucleus
Software project

Projects / Nucleus

Backlog



+3

Epic Label Version

Epics

> Forms

> Feedback

> Accounts

> Billing

> AWS spike

+ Create epic

▼ Sprint 3 5 issues

3/Jan/19 02:59 PM • 7/Feb/19 02:59 PM

3 2 0

Complete sprint

...

NUC-335 Affelite links integration - frontend

BILLING

NUC-342 Fast trip search

ACCOUNTS

NUC-341 Quick payment

FEEDBACK

NUC-340 Account settings defaults

ACCOUNTS

NUC-339 Billing system integration - frontend

ACCOUNTS

NUC-337 Multi-dest search UI mobileweb

ACCOUNTS

NUC-360 Onboard workout options (OWO)

ACCOUNTS

NUC-344 Optimize experience for mobile web

BILLING

NUC-338 Multi-dest search UI web

ACCOUNTS

NUC-354 Shopping cart purchasing error - quick fix required.

ACCOUNTS

NUC-343 Fluid booking on tablets

FEEDBACK

NUC-346 Adapt web app no new payments provider

ACCOUNTS

NUC-336 Quick booking for accomodations - web

ACCOUNTS

+ Create issue

<https://www.atlassian.com/software/jira>

Jira Your work Projects Filter Dashboards Teams Apps Create

Projects / Beyond Gravity Board

Planning Timeline Backlog Board Reports Issues

Development Code Releases

Project Pages Add shortcut Project settings

You're in a team-managed project Learn more

TO DO 6

- Optimize experience for mobile web (BILLING) NUC-344
- Onboard workout options (OWO) (ACCOUNTS) NUC-360

IN PROGRESS 6

- Fast trip search (ACCOUNTS) NUC-342
- Affiliate links integration - frontend (BILLING) NUC-335
- Quick booking for accommodations - website (FORMS) NUC-336
- Adapt web app no new payments provider (FORMS) NUC-346

IN REVIEW 6

- Revise and streamline booking flow (ACCOUNTS) NUC-367
- Travel suggestion experiments (ACCOUNTS) NUC-358
- BugFix BG Web-store app crashing (FORMS) NUC-337

DONE 6

- Customers reporting shopping cart purchasing issues with the BG web store (ACCOUNTS) NUC-344
- Shopping cart purchasing issues with the BG web store (ACCOUNTS) NUC-360

Plan: assign tasks

Board Reports Issues

Development Code Releases

Project Pages Add shortcut Project settings

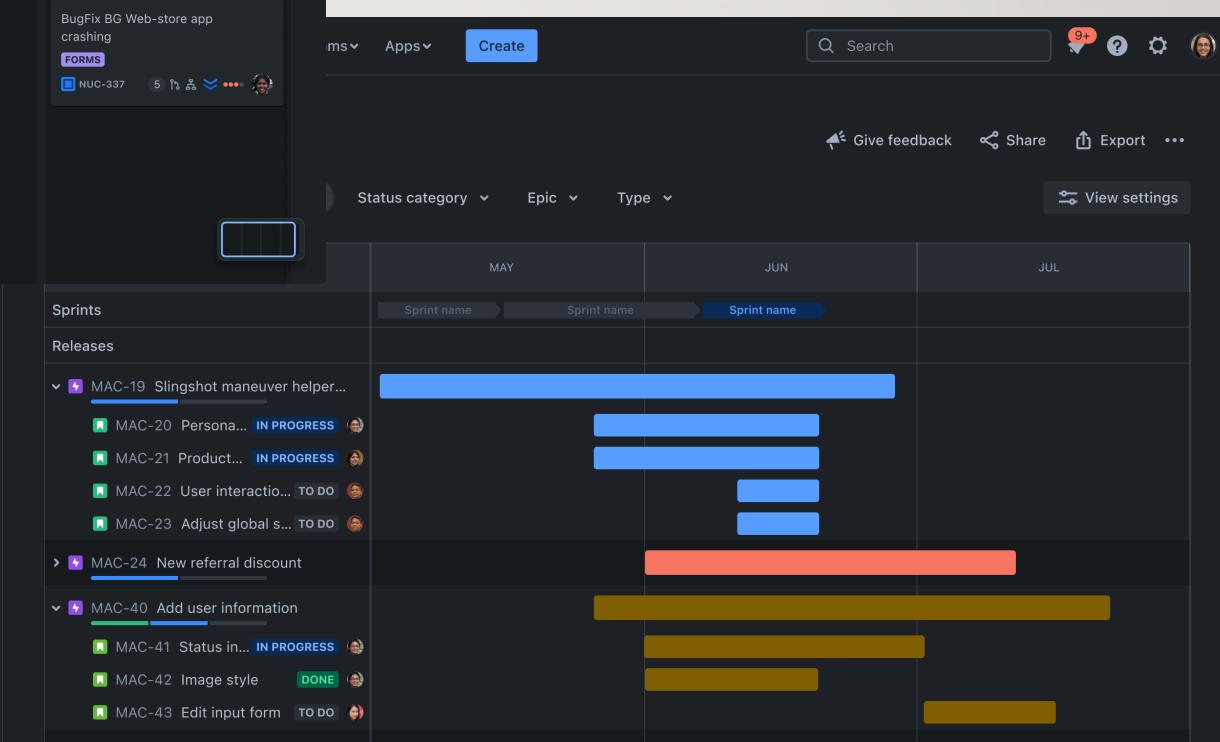
Sprints

- MAC-19 Slingshot maneuver helper... (Sprint name)
- MAC-20 Persona... (IN PROGRESS)
- MAC-21 Product... (IN PROGRESS)
- MAC-22 User interactio... (TO DO)
- MAC-23 Adjust global s... (TO DO)
- MAC-24 New referral discount (Sprint name)
- MAC-40 Add user information (Sprint name)

Releases

- MAC-19 Slingshot maneuver helper...
- MAC-20 Persona... (IN PROGRESS)
- MAC-21 Product... (IN PROGRESS)
- MAC-22 User interactio... (TO DO)
- MAC-23 Adjust global s... (TO DO)
- MAC-24 New referral discount
- MAC-40 Add user information
- MAC-41 Status in... (IN PROGRESS)
- MAC-42 Image style (DONE)
- MAC-43 Edit input form (TO DO)

Track: check progress



Beyond Gravity
Software project

PLANNING

Lunar Rover
Board

Timeline

Kanban board

Reports

Issues

Components

DEVELOPMENT

Code

Releases

Pages

Add shortcut

Project settings

You're in a company-managed project

Learn more

Projects / Beyond Gravity

Backlog



+3

Epic

Label

Type

Insights

Board 5 issues

3 2 +0

NUC-336 Quick booking for accomodations - website FORMS

1 TO DO

NUC-346 Adapt web app no new payments provider FORMS

2 TO DO

NUC-343 Fluid booking on tablets FEEDBACK

3 TO DO

NUC-354 Shopping cart purchasing error - quick fix required FORMS

4 TO DO

NUC-338 Multi-dest search UI web ACCOUNTS

2 TO DO

+ Create issue

Backlog 8 issues

3 2 +0

NUC-344 Optimize experience for mobile web BILLING

2 TO DO

NUC-360 Onboard workout options (OWO) ACCOUNTS

1 TO DO

NUC-337 Multi-dest search UI mobileweb ACCOUNTS

5 TO DO

NUC-339 Billing system integration - frontend AWS SPIKE

3 TO DO

NUC-340 Account settings defaults ACCOUNTS

4 TO DO

NUC-341 Quick payment FEEDBACK

2 TO DO

NUC-342 Fast trip search ACCOUNTS

1 TO DO

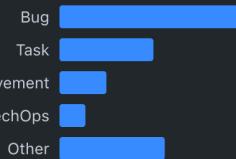
Track Issues

Backlog Insights

Use these insights to plan your next sprint.

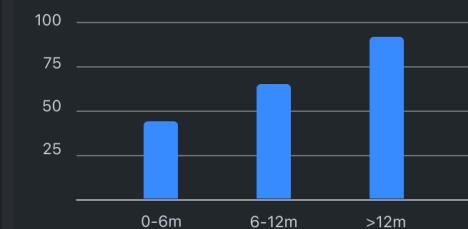
Workload by issue type

Majority of this backlog's issues are Bugs



Backlog breakdown

Count of active issues over time



Sprint progress

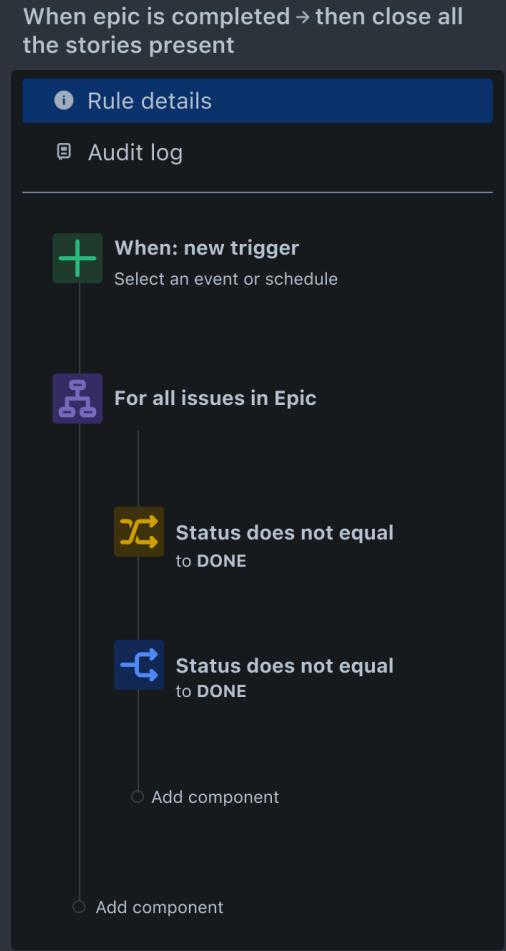


Done 74% In progress 26% Done 0%

Automation

[Return to list](#)

Automate Work Flow



Create a triggers

Triggers start the execution of a rule. Triggers can listen for events or be scheduled to run.

All compone... ▾

Start typing to filter components

Recommended



Vulnerability found

Rule executes when a new security vulnerability is found.

NEW



Issue link deleted

Rule executes when an issue is unlinked from another issue.

POPULAR



Issue commented

Rule is run when a new comment is added to an issue.

POPULAR



Issue created

Rule is run when an issue is created.

POPULAR

Issue triggers



Issue link deleted

Rule executes when an issue is unlinked from another issue.



Vulnerability found

Rule executes when a new security vulnerability is found.



Issue commented

Rule is run when a new comment is added to an issue.

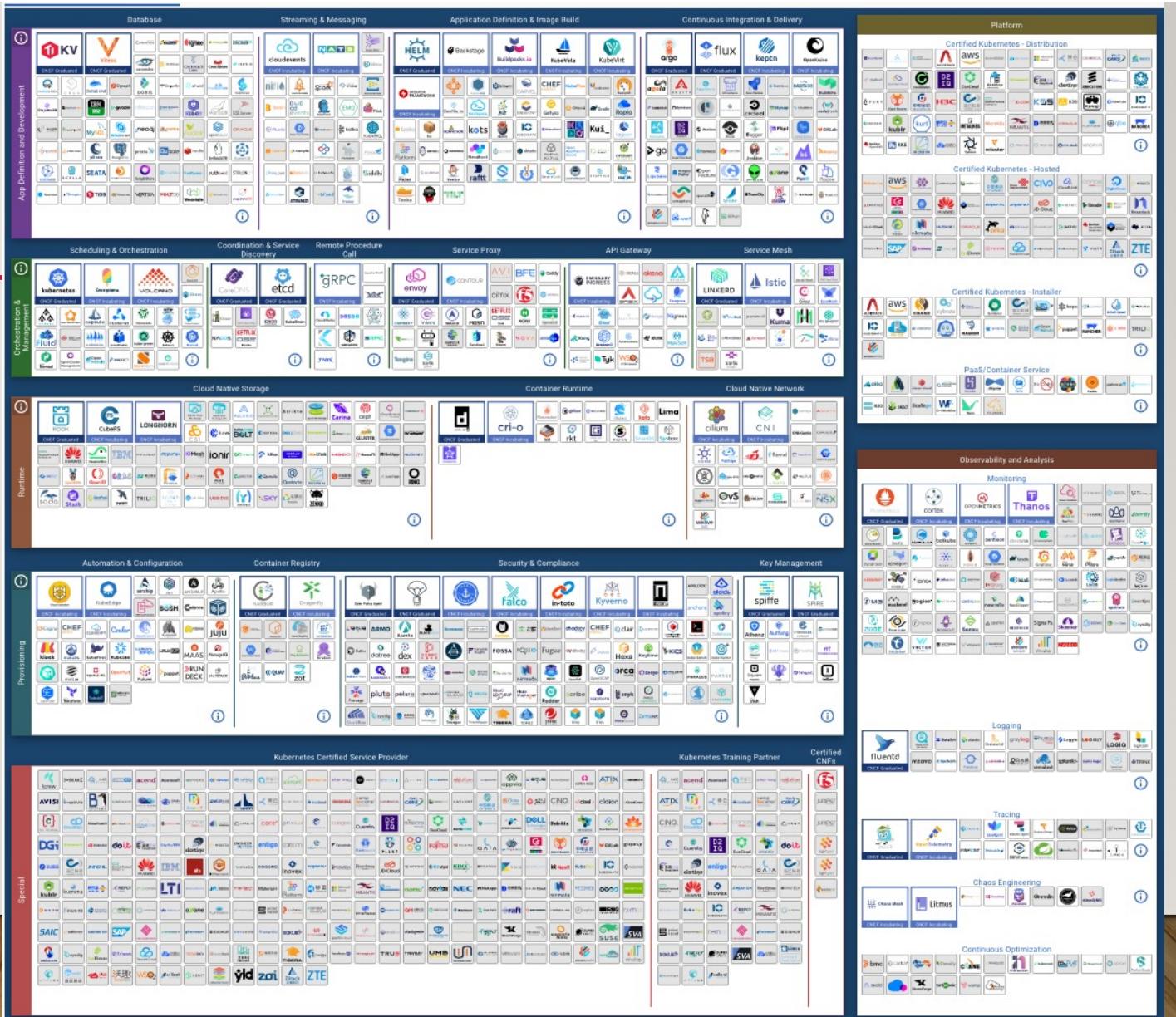


Issue created

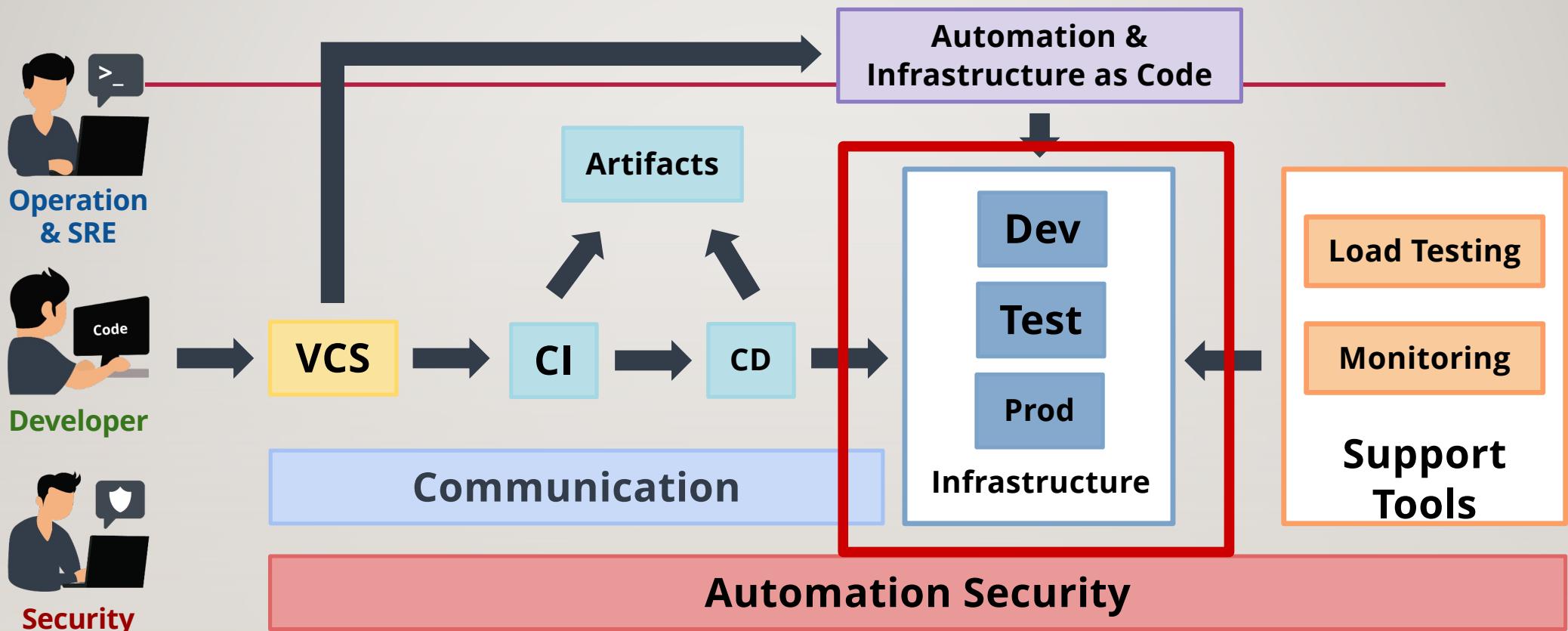
Rule is run when an issue is created.

CNCF LANDSCAPE / DEVSECOPS TECHNOLOGIES

<https://landscape.cncf.io>



Modern Infrastructure



INT209 BASIC DEVOPS



- Team communication
- Version control
- Integration and Delivery: Build, package, test
 - Development environment
 - [Test environment]
 - Production environment

