

PickAPoint



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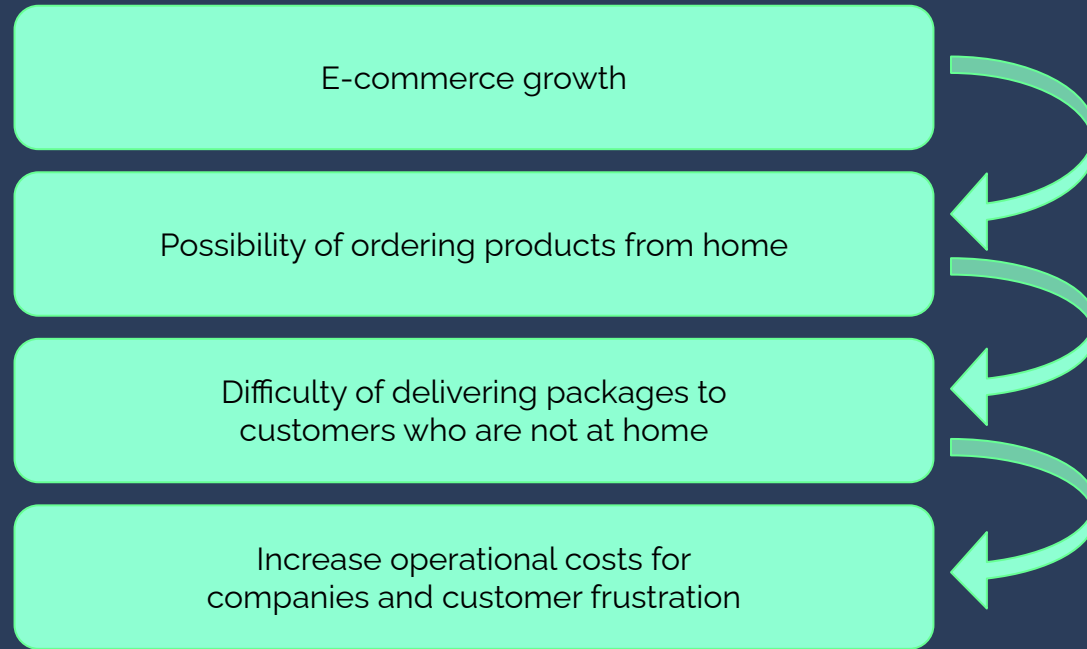
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Context



Project concept

End-users:

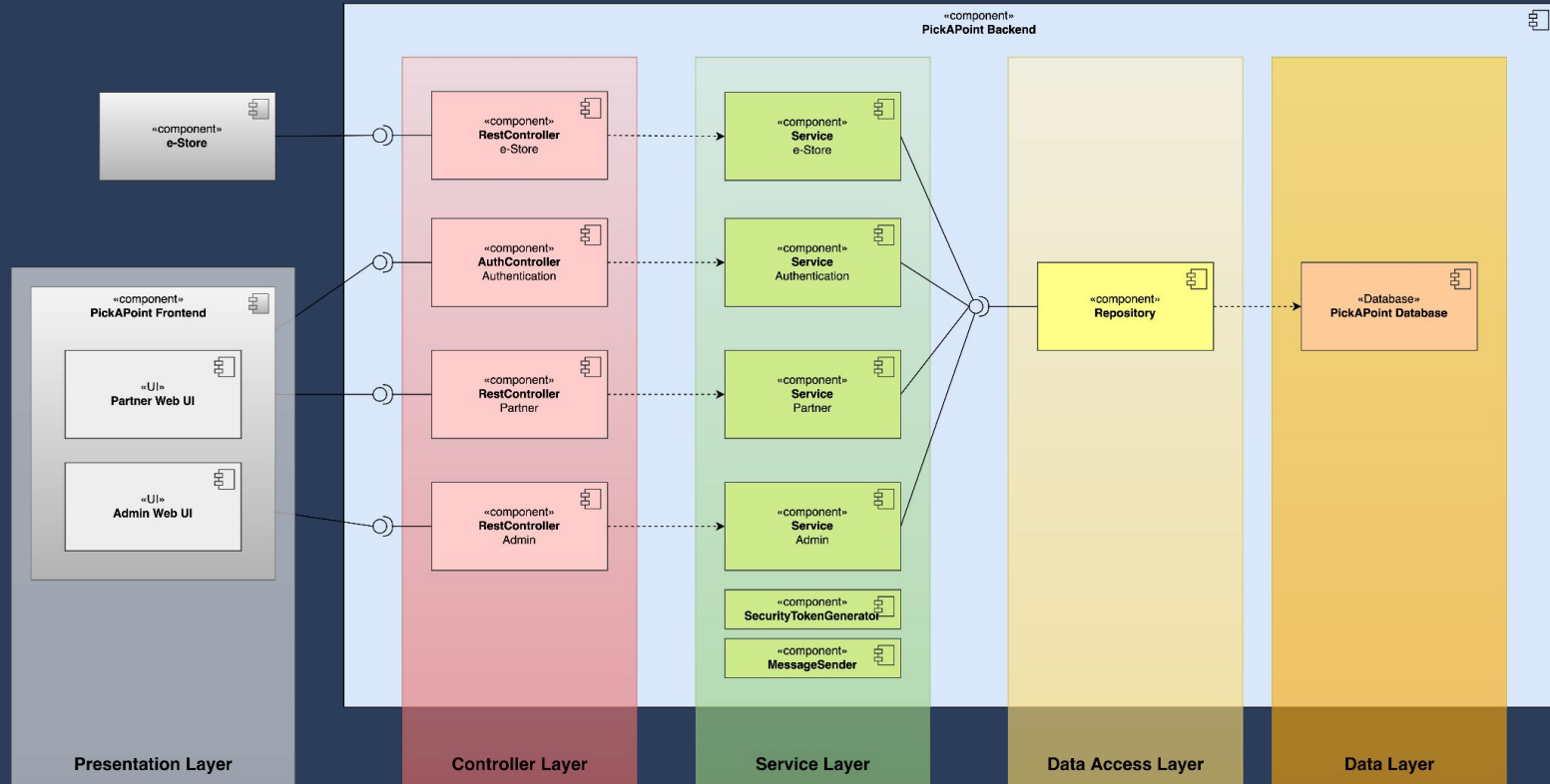
- System administrators
- Partners
- eStores
- Clients

Additional feature:

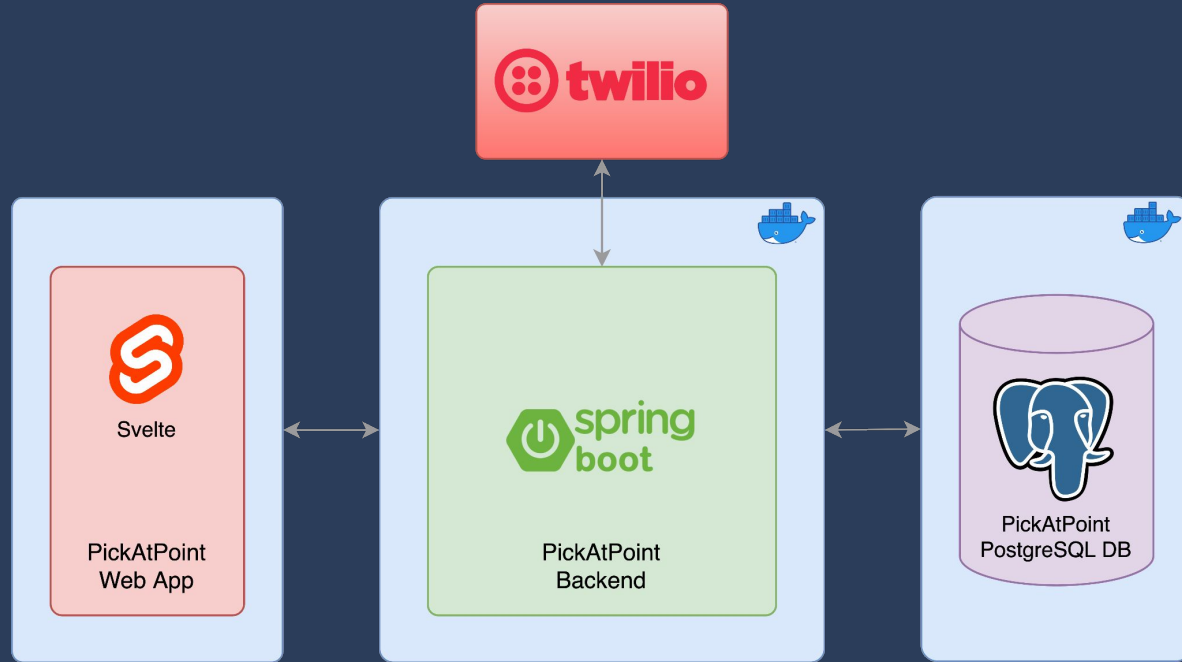
- SMS notification when package is delivered



System overview

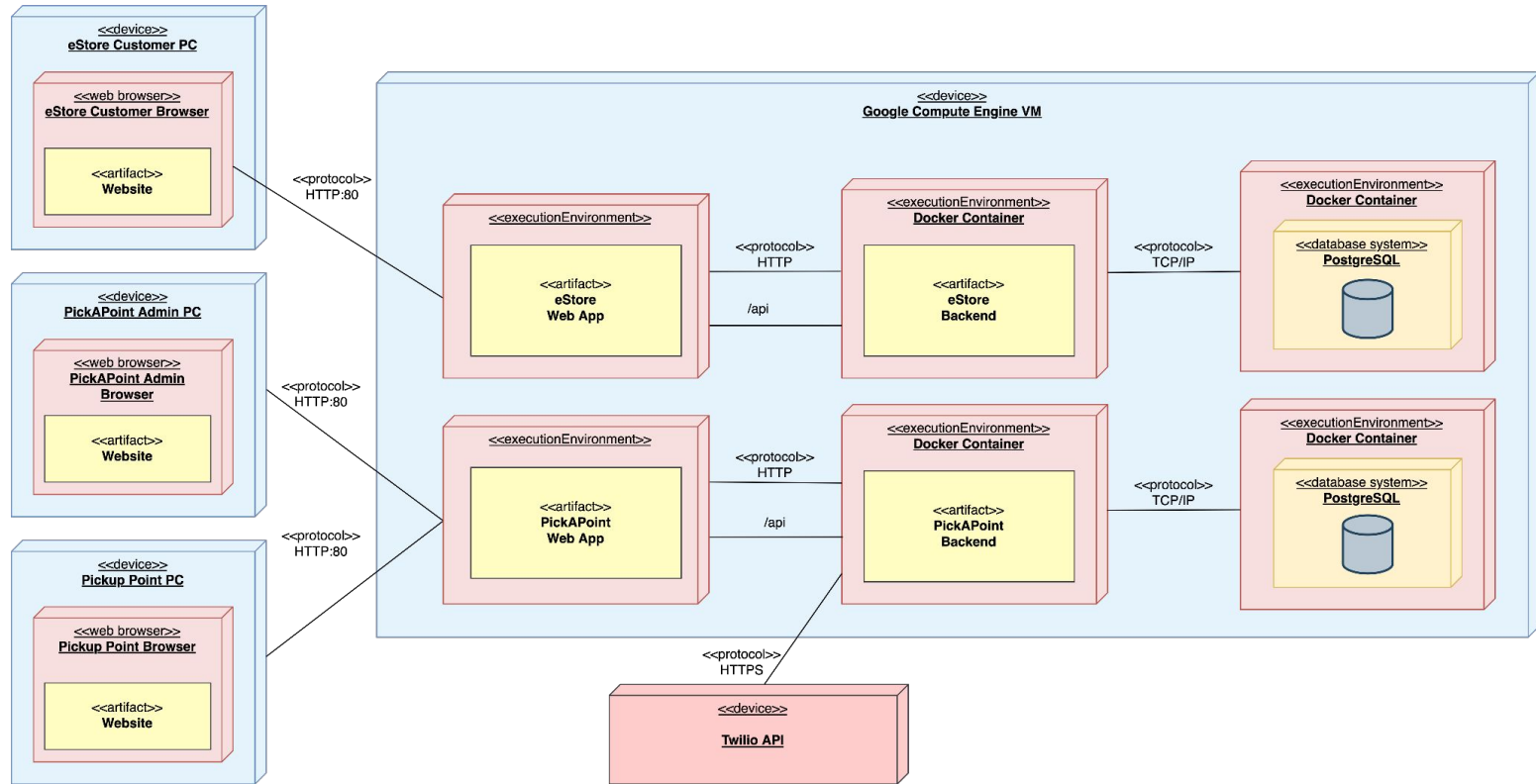


Technologies Stack



For the development of the eStore we used the same technologies

Deployment Diagram



Demos

Pick Up Point as a service
Associated partner business

PickAPoint

Login

PickAPoint

Say goodbye to missed deliveries and inconvenient trips to the post office. With our platform, stores become trusted partners, offering a convenient location for customers to collect their packages at their own convenience.

Become a Pick-up Point

PrintPlate

Home Products About

Login

Plates

Product Name

Search

Category

All

Price

All

Sort

Alphabetical (A-Z)

Results



Air plane war

Green background with air planes fighting

Fan Art

20€



Basketball

Play basketball

Sports

20€



Dark night

A dark night

Fan Art

50€



Football ball

A football ball

Sports

40€



Forest

A beautiful forest



Future city

A futuristic city



Mars view

Mars view from space



Mountain river

A place to relax

E-Store

Development Practices

Approach:

- Agile methodology
- User story as unit of work
- Feature driven development
- Early CI pipeline
- Test Driven Development (**TDD**)
- Behavior Driven Development (**BDD**)

Definition of done for user stories:

- Acceptance criteria
- Unit, Integration and Functional testing
- Quality gates
- Code Review
- Documentation



Quality Gates

Metric	Operator	Value
Coverage	is less than	85.0%
Duplicated Lines (%)	is greater than	1.0%
Maintainability Rating	is worse than	A
Bugs	is greater than	0
Vulnerabilities	is greater than	0
Reliability Rating	is worse than	A
Security Hotspots Reviewed	is less than	100%
Security Rating	is worse than	A

sonarcloud 



Models



Data Initializer

Quality Gates



Quality Gate ?

Passed

New Code

Overall Code

🔧 Reliability

0 Bugs ?

A

⚙️ Maintainability

0 Code Smells ?

A

🔒 Security

0 Vulnerabilities ?

A

🛡️ Security Review

0 Security Hotspots ?

A

Coverage

94.8% Coverage ?



Duplications

0.0% Duplications ?



Testing - Unit tests

Layers tested:

- Service
- Controller
- Utils

Mock external dependencies:

- Mockito
- RestAssuredMockMvc

Asserts:

- Hamcrest
- RestAssured

The purpose to unit tests is to verify that individual components work as expected

- **Service** and **utils** unit tests don't need extra setup
- **Service** mocks repository and util layers
- **Controller** unit tests need to run in a simplified and light environment, simulating the behavior of an application server, by using **@WebMvcTest** mode.
- **Controller** mocks service layer

Testing - Integration tests

The purpose of integration tests is to verify that the individual components work correctly together

Setup:

- Test the controller
- Start the full web context (**@SpringBootTest**)
- The API is deployed into the normal **SpringBoot** context
- Use a REST client to create realistic requests (**RestAssured**)



Testing - Functional tests

- Cucumber
- Selenium
- Page oriented pattern
- Hamcrest
- Features are a readable way to test and represent the acceptance criteria



Feature: Login

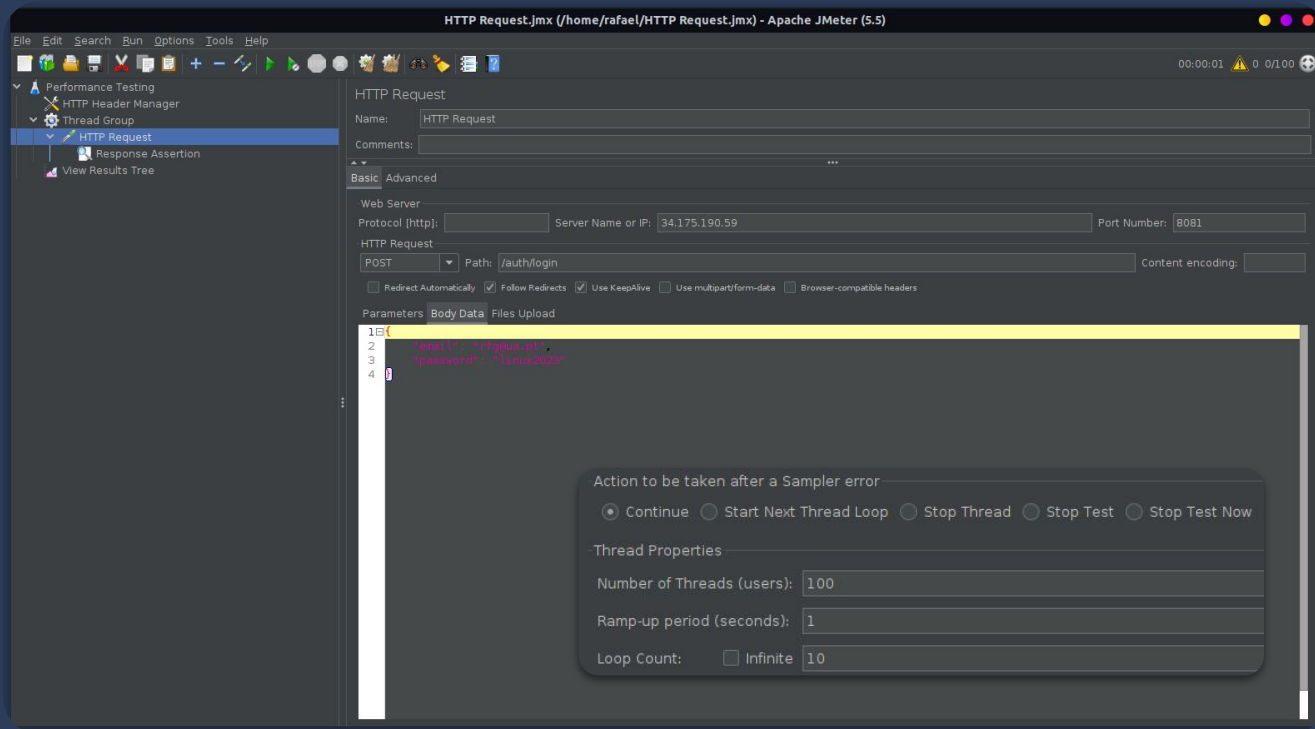
Scenario: Administrator logs in with valid credentials

```
Given I am on the 'http://34.175.190.59:5173/' website
Then I should be on the 'Home' page
When I click on Login button in the home page
Then I should be on the 'Login' page
And The page title should be 'Sign in to our platform'
When I enter 'admin@pap.com' as the email on the login page
And I enter 'admin' as the password on the login page
And I click on Login to your account button in the login page
Then I should be on the 'Administrator Dashboard' page
Then The test is completed
```

Scenario: Administrator logs in with invalid email

```
Given I am on the 'http://34.175.190.59:5173/' website
Then I should be on the 'Home' page
When I click on Login button in the home page
Then I should be on the 'Login' page
And The page title should be 'Sign in to our platform'
When I enter 'aaa@ua.com' as the email on the login page
And I enter 'admin' as the password on the login page
Then I should see the error message 'Error! Invalid credentials or account waiting for approval.'
Then The test is completed
```

Testing - Performance tests



Infrastructure monitoring

Nagios®

General

[Home](#)
[Documentation](#)

Current Status

[Tactical Overview](#)
[Map \(Legacy\)](#)
[Hosts](#)
[Services](#)
[Host Groups](#)

[Summary](#)
[Grid](#)
[Service Groups](#)
[Summary](#)
[Grid](#)

Problems

[Services \(Unhandled\)](#)
[Hosts \(Unhandled\)](#)
[Network Outages](#)

Quick Search:

Reports

[Availability](#)
[Trends \(Legacy\)](#)
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[History](#)
[Summary](#)
[Histogram \(Legacy\)](#)
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System

[Comments](#)
[Downtime](#)

Current Network Status

Last Updated: Thu Jun 1 00:17:31 UTC 2023
Updated every 90 seconds
Nagios® Core™ 4.4.6 - www.nagios.org
Logged in as nagiosadmin

Host Status Totals

Up	Down	Unreachable	Pending
1	0	0	0

All Problems	All Types
0	1

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
7	0	0	1	0

All Problems	All Types
1	8

[View History For This Host](#)
[View Notifications For This Host](#)
[View Service Status Detail For All Hosts](#)

Display Filters:

Host Status Types: All
Host Properties: Any
Service Status Types: Ok
Service Properties: Any

Limit Results:

Service Status Details For Host 'localhost'

Host	Service	Status	Last Check	Duration	Attempt	Status Information
localhost	Current Load	OK	06-01-2023 00:17:11	0d 0h 5m 20s	1/4	OK - load average: 0.00, 0.00, 0.03
	Current Users	OK	06-01-2023 00:12:49	0d 0h 4m 42s	1/4	USERS OK - 1 users currently logged in
	HTTP	OK	06-01-2023 00:13:26	0d 0h 4m 5s	1/4	HTTP OK: HTTP/1.1 200 OK - 10975 bytes in 0.001 second response time
	PING	OK	06-01-2023 00:14:04	0d 0h 8m 27s	1/4	PING OK - Packet loss = 0%, RTA = 0.05 ms
	Root Partition	OK	06-01-2023 00:14:41	0d 0h 7m 50s	1/4	DISK OK - free space: / 3497 MB (37% inode=66%):
	SSH	OK	06-01-2023 00:15:19	0d 0h 7m 12s	1/4	SSH OK - OpenSSH_8.4p1 Debian-5+deb11u1 (protocol 2.0)
	Total Processes	OK	06-01-2023 00:16:34	0d 0h 5m 57s	1/4	PROCS OK: 39 processes with STATE = RSZDT

Results 1 - 7 of 7 Matching Services

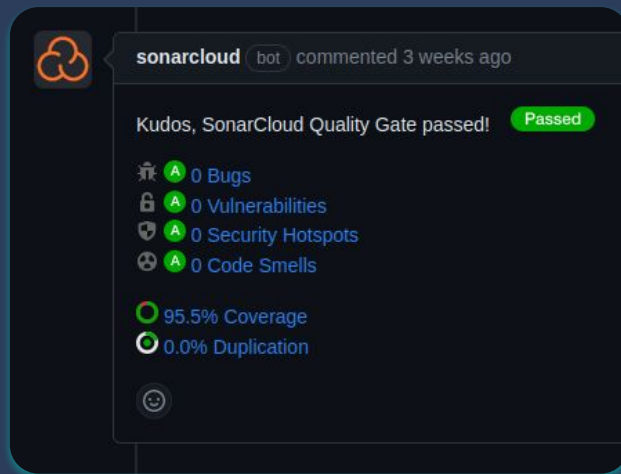
<http://34.175.190.59/nagios/>

username: nagiosadmin

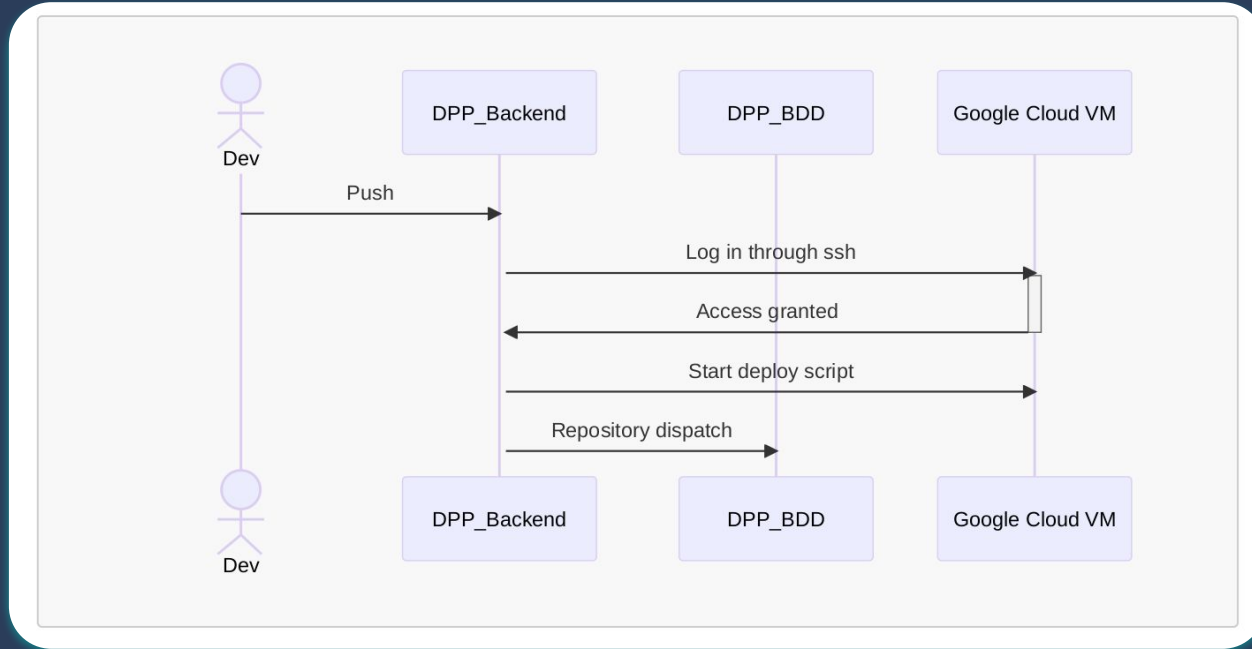
password: linux

CI/CD pipeline

- Github Actions
- Check the tests
- Sonar Cloud
- Check Quality Gates
- Review
- Gcloud (SSH)



CD pipeline



Lessons Learned

- CI in early phase motivates TDD
- TDD allow developers to remember edge cases
- Documentation is important for team work



Future work



```
#include <ESP8266WiFi.h>

#define WIFI_SSID "PT-WIFI"
#define WIFI_PASSWORD "rodrigues"

WiFiServer server(80);

const int lockersOpenLed[] = {D0, D2, D4, D6};
const int lockerCloseLed[] = {D1, D3, D5, D7};
const bool lockersOpen[] = {true, true, true, true};

void setupLeds() {
    for (int i = 0; i < 4; i++) {
        pinMode(lockersOpenLed[i], OUTPUT);
        pinMode(lockerCloseLed[i], OUTPUT);
    }
}

bool isOpen(int locker) {
    return lockersOpen[locker];
}

void openLocker(int locker) {
    lockersOpen[locker] = true;
    digitalWrite(lockersOpenLed[locker], HIGH);
    digitalWrite(lockerCloseLed[locker], LOW);
}
```