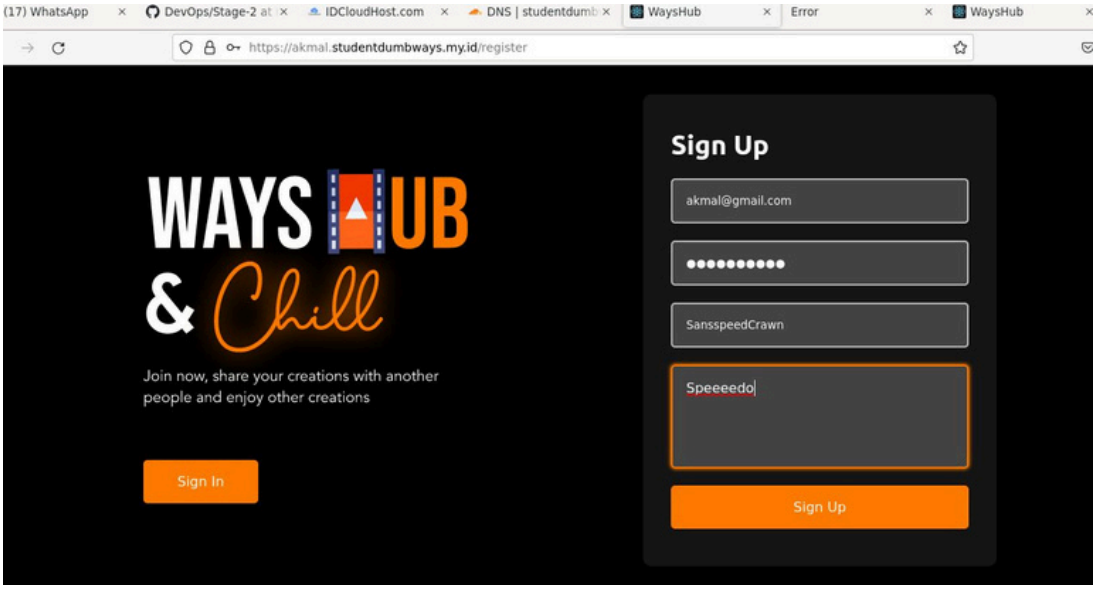
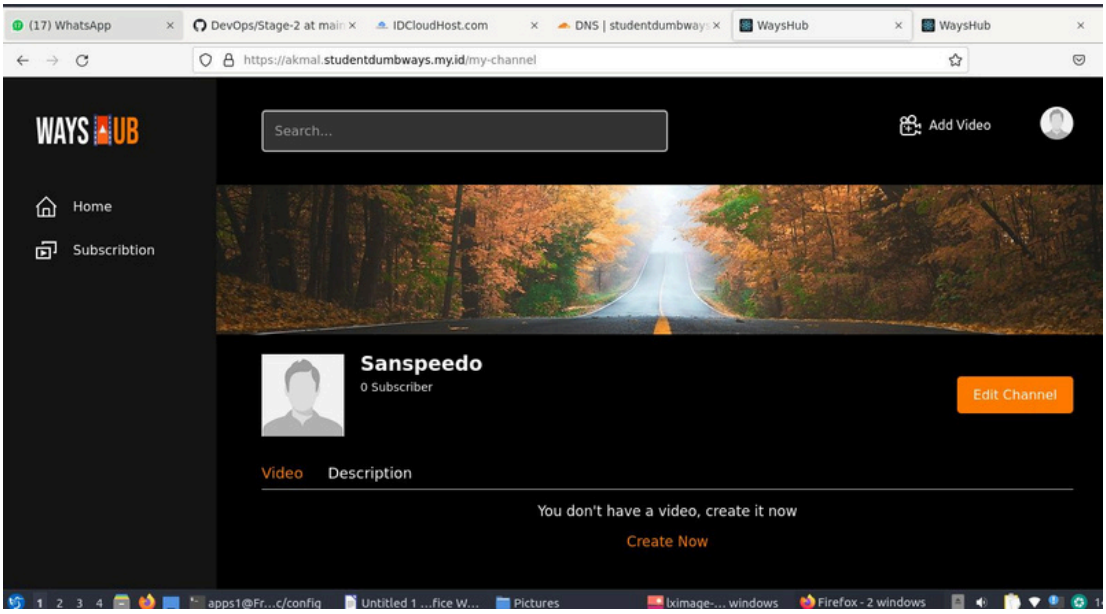
# PORTOFOLIO

DEVOPS

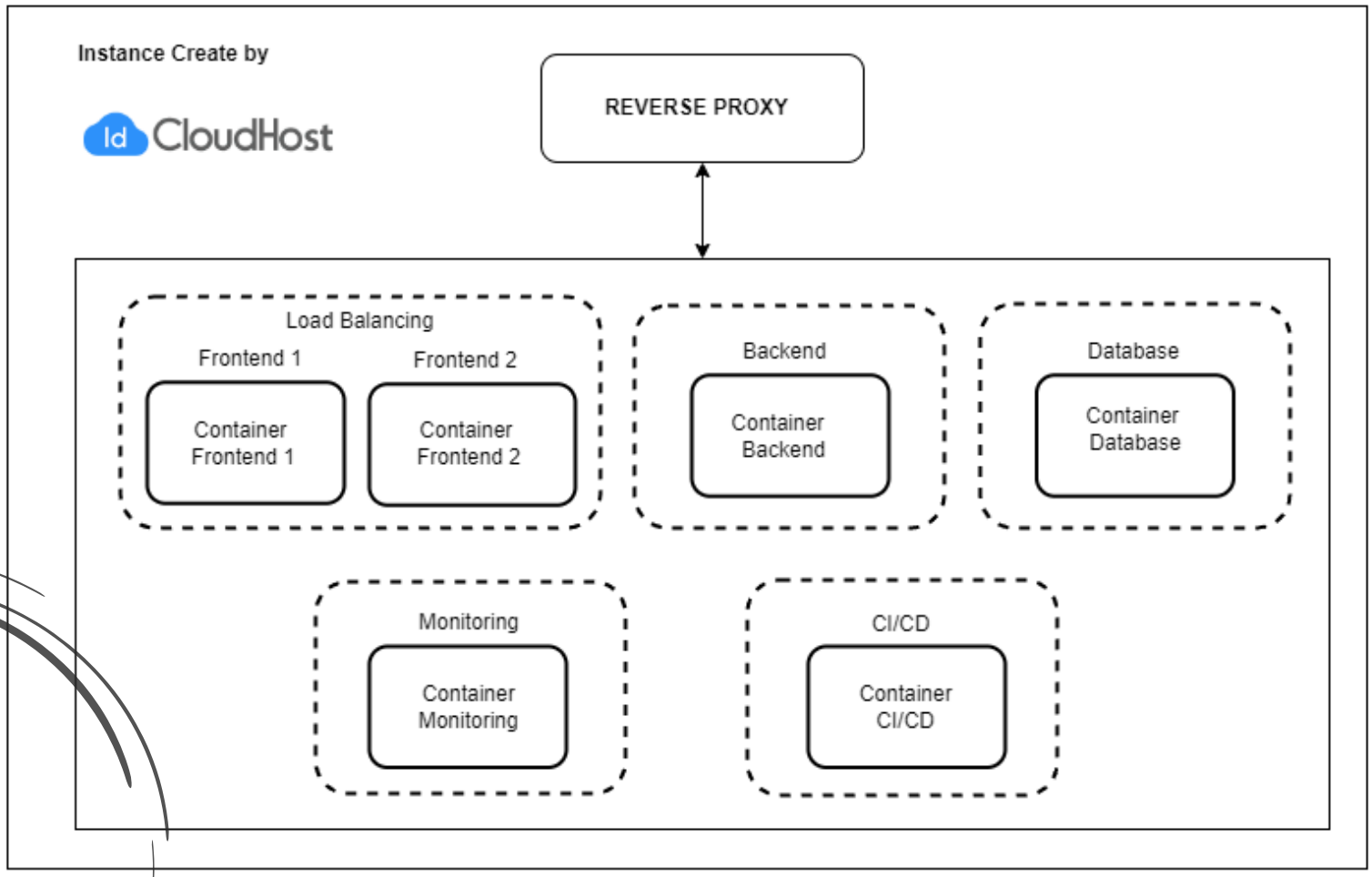
## Wayshub app deployment



# Architecture

**Application is running at IDCloudhost server. Implementing load balancing for frontend server, so the server will share load and stabilize server and also if a server is down the others can work as backup server.**
**All application are packed in container using Docker. Automated updates using CI/CD Jenkins. Server is monitored by Prometheus and Grafana.**



# ANSIBLE

**Created ansible configuration will be executed to apply all server requirements like installation docker, making docker container for node exporter, prometheus, jenkins, and grafana.**

nginx.yml | Inventory | docker.yml

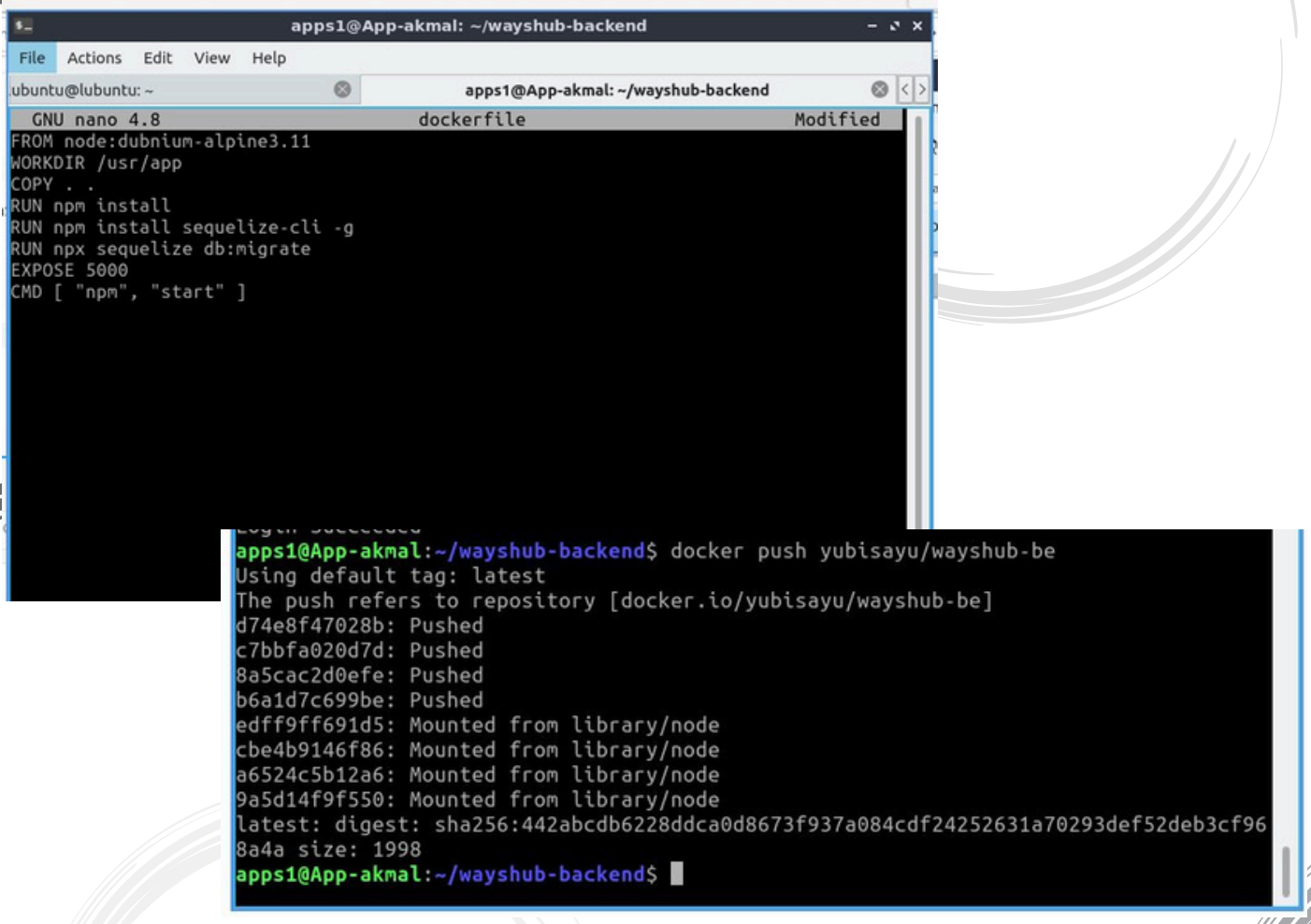
home > are > ansible-ku > docker.yml

```yaml
- hosts: all
  become: yes
  gather_facts: yes
  tasks:
        - name: 'update'
          apt:
           update_cache: yes

        - name: 'upgrade'
          apt:
           upgrade: dist

        - name: 'install dependencies'
          apt:
            name:
            - ca-certificates
            - curl
            - gnupg
            - lsb-release

        - name: 'add docker gpg key'
          apt_key:
           url: https://download.docker.com/linux/ubuntu/gpg

        - name: 'add repository docker'
```

```
TASK [Gathering Facts] *********************************************************
ok: [103.55.37.194]

TASK [update] ******************************************************************
changed: [103.55.37.194]

TASK [upgrade] *****************************************************************
ok: [103.55.37.194]

TASK [install dependencies] ****************************************************
ok: [103.55.37.194]

TASK [add docker gpg key] ******************************************************
changed: [103.55.37.194]

TASK [add repository docker] ***************************************************
changed: [103.55.37.194]

TASK [install docker engine] ***************************************************
changed: [103.55.37.194]

TASK [update] ******************************************************************
changed: [103.55.37.194]

TASK [install docker-compose] **************************************************
changed: [103.55.37.194]
```

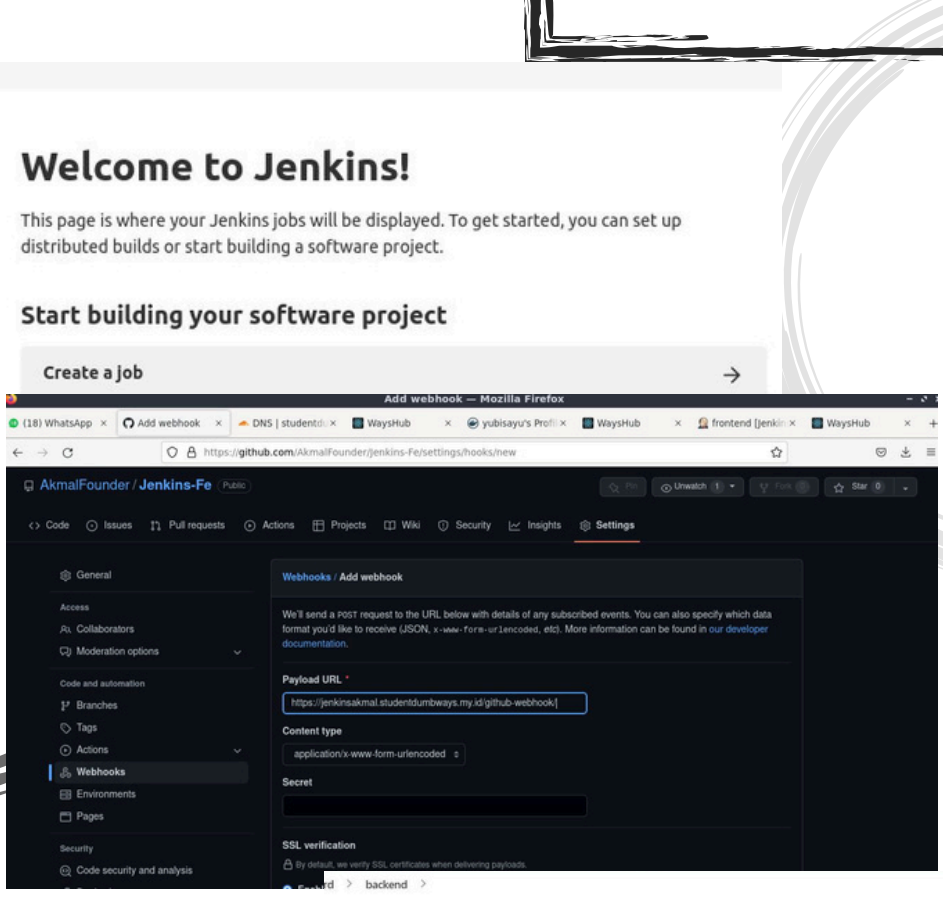
# DOCKER

**make it easy to develop, build, deploy, run, update and manage containers dependencies required to run that code in any environment..**



# JENKINS

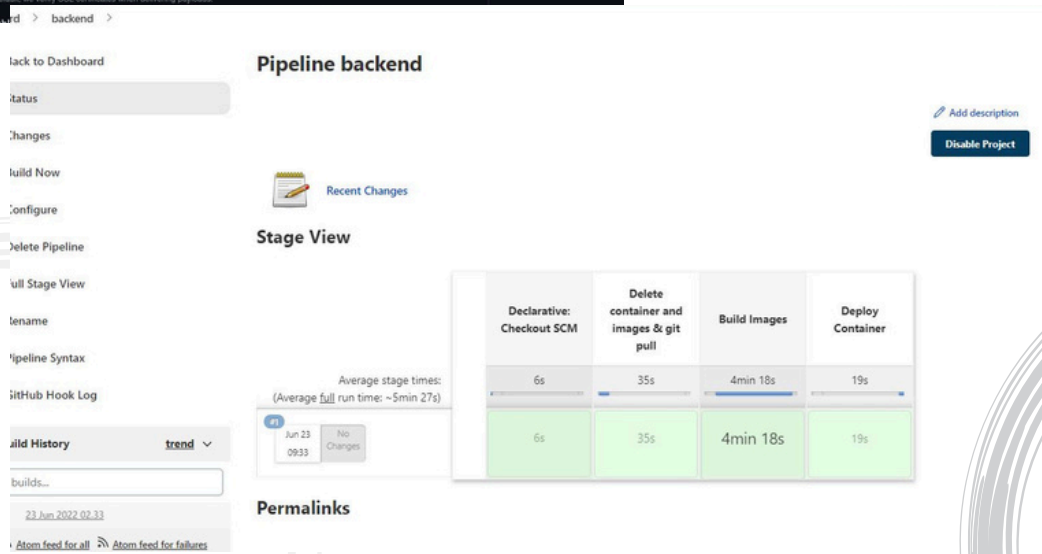
**And for making applications to avoid failure, here we also use CI/CD Jenkins.**





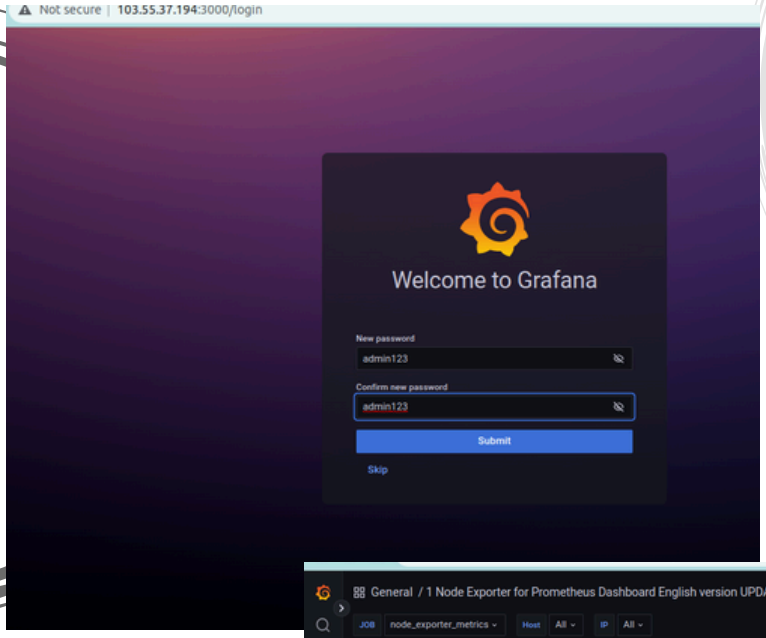


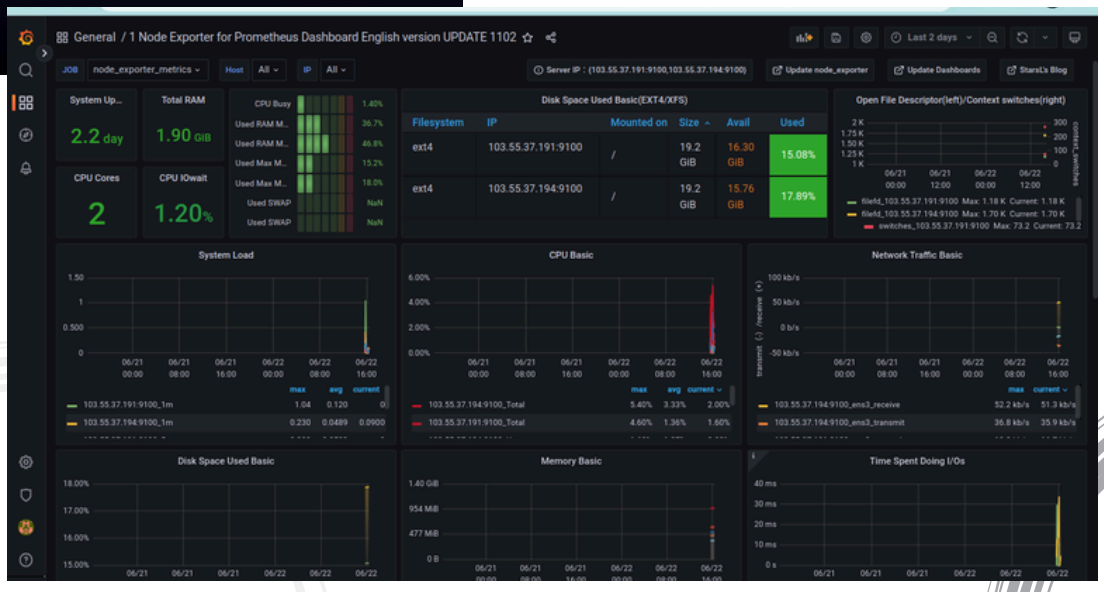
**Integrate GitHub repository with Jenkins Job, so that when source code is changed webhook will trigger Jenkins Job.**



# MONITORING

**With the Combination of Prometheus and Grafana, we can create a nice looking server monitoring**



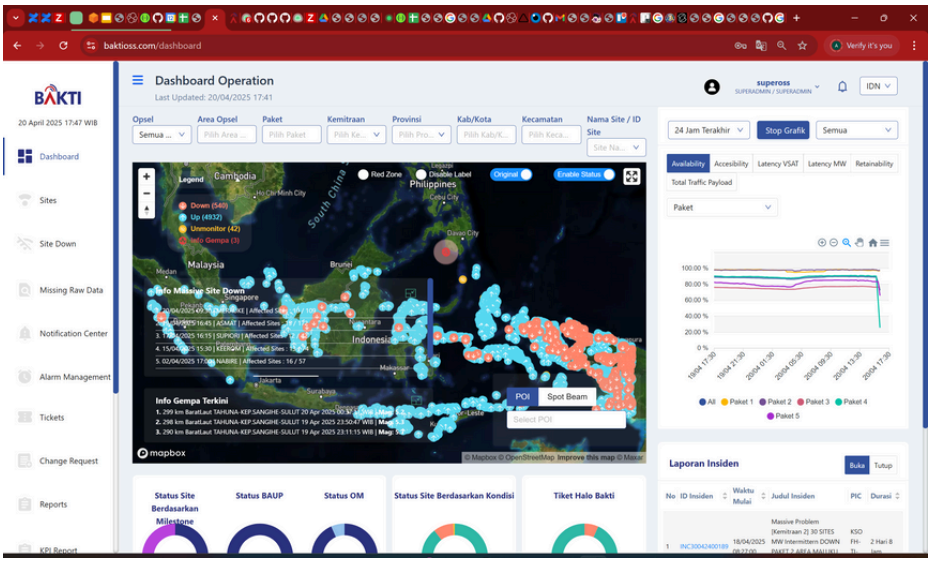
# TOOL USED


# PORTOFOLIO PROJECT

## AS PART OF OFFICE PROGRAM

This portfolio focuses on several key projects that demonstrate the scope and impact of my **work in the office**. While my experience includes managing around six projects, such as BaktiOSS, PASTI, NMSAI, BaktiNOC, ENIMS, and Monev, I've chosen to highlight three specific projects that best illustrate my skills and contributions.

# BAKTI OSS KOMINFO




BaktiOSS (https://baktioss.com/dashboard) is a platform developed by the Ministry of Communication and Informatics (Kominfo) of Indonesia to facilitate reporting and monitoring of Operational Support System (OSS) compliance in the telecommunications sector.

**Functions of BaktiOSS:**

1. OSS Reporting
   - Allows telecom operators (ISPs, mobile providers, etc.) to submit operational and technical data related to their services.
   - Ensures compliance with Kominfo regulations.
2. Monitoring & Evaluation
   - Tracks the performance of telecommunications networks across Indonesia.
   - Helps Kominfo evaluate service quality and identify issues.
3. Analytics Dashboard
   - Provides visualized data (charts, tables, etc.) for easier analysis.
   - Enables real-time monitoring of network disruptions.
4. User Registration & Management
   - Telecom service providers can register and manage accounts to access reporting features.
5. Regulatory Compliance
   - Ensures telecom operators comply with Kominfo's OSS reporting requirements.

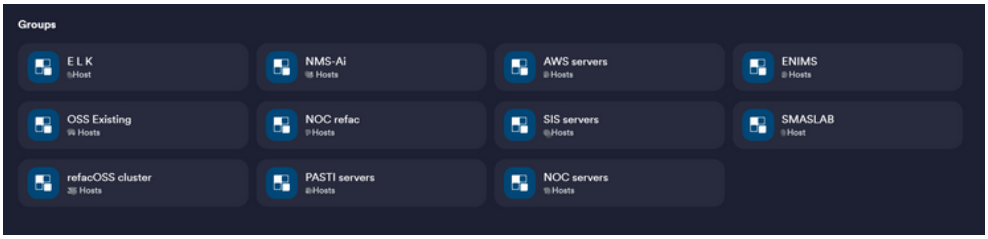
Who Uses BaktiOSS?

- Telecom Providers (Telkomsel, Indosat, XL, etc.)
- Internet Service Providers (ISPs)
- Regulators (Kominfo & Oversight Agencies)

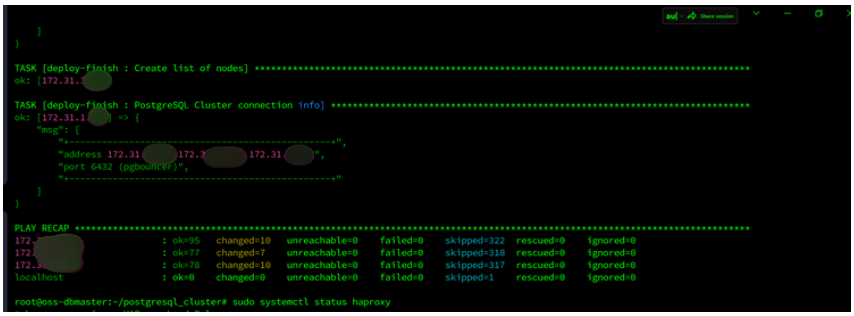
This platform enhances transparency and accountability in Indonesia's telecommunications industry. If you're a service provider, you need to log in to access reporting features.

**DevOps** plays a key role in the development and maintenance of BaktiOSS to ensure the reliability, security, and scalability of the system. Here are my main tasks as a DevOps in this project:

1. Infrastructure Setup & VM Management
Designing and managing on-premise infrastructure for hosting BaktiOSS applications.

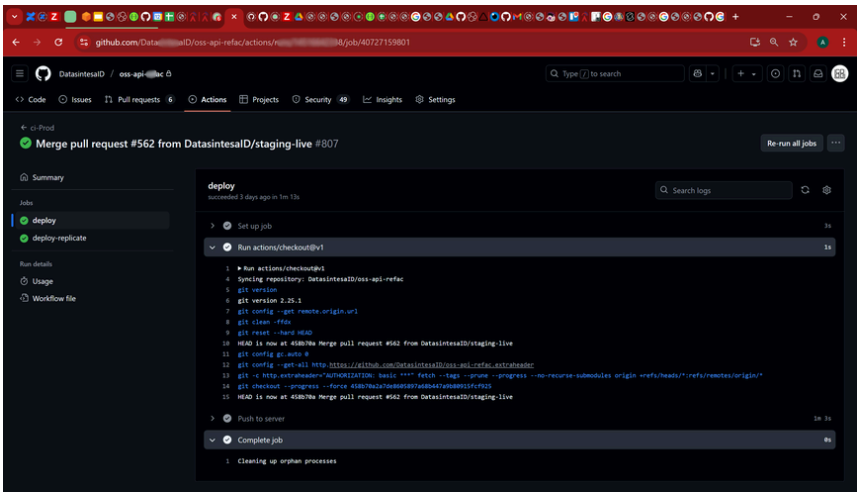



Using Infrastructure as Code (IaC) Ansible for deployment automation.



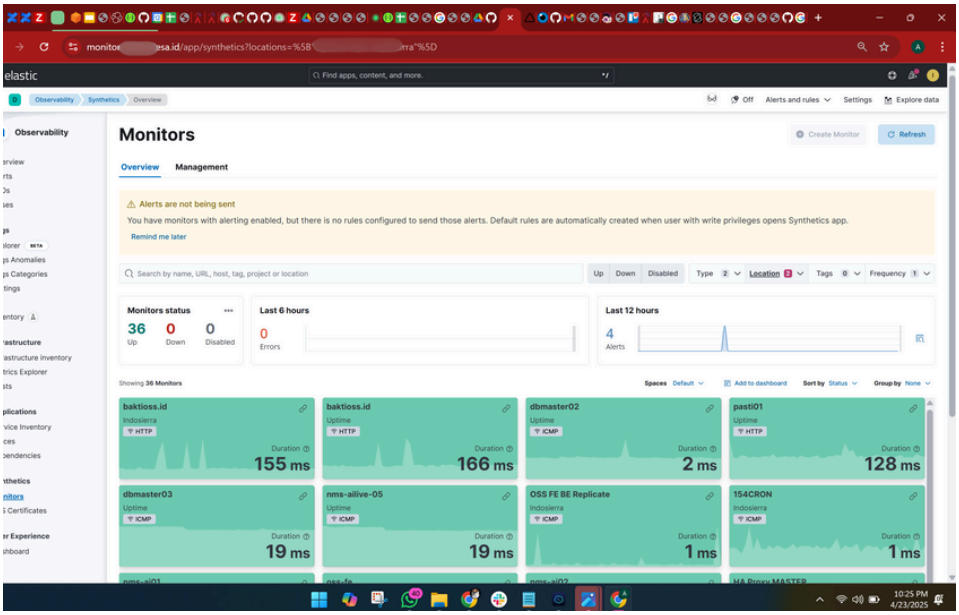

Ensuring high availability with load balancing, scaling, and failover systems.

2. CI/CD Pipeline
Build Continuous Integration/Continuous Deployment (CI/CD) pipelines using tools such as:
a. Github Action for automation of build, test, and deploy.



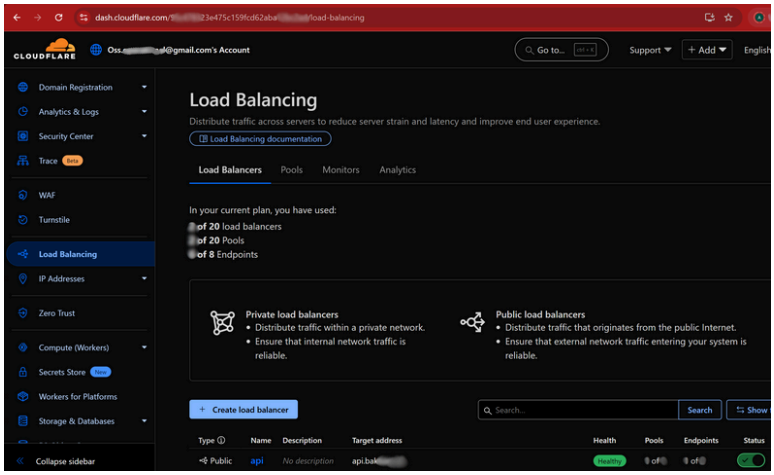

b. Docker for containerization and orchestration.
Ensure application updates can be released quickly and stably.

3. Monitoring & Logging
Make monthly report and implementing real-time monitoring (Grafana, Zabbix, ELK Stack) to:




Track server, database, and application performance.
Detect issues (downtime, latency, error rates).
Manage system logs using Fluentd/Logstash for auditing and troubleshooting.

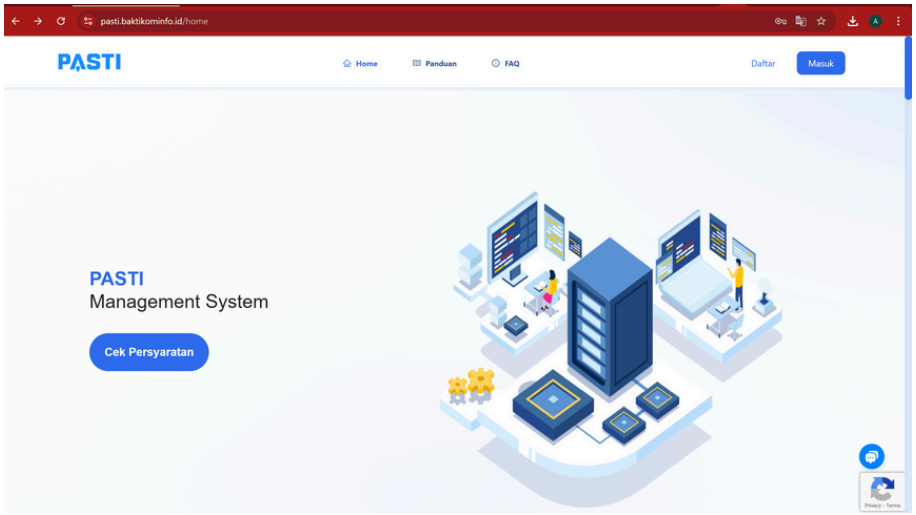
4. Security & Compliance
Perform server hardening and implement firewall/WAF (Cloudflare).
Manage secrets & credentials.
Ensure compliance with Kominfo regulations (data protection, encryption, audit logging).
Implementing load balancer via Cloudflare to ensure high availability and traffic distribution across multiple servers.




5. Database & Backup Management
Optimize databases (PostgreSQL) for OSS report query performance.
Set up automated backups & disaster recovery (snapshot, replication).

6. Collaboration with Dev & Ops Teams
Collaborate with developers to ensure the application is deployment-ready.
Coordinate with Kominfo's operations team for scaling and maintenance needs.

# PASTI BAKTI KOMINFO




Pasti Bakti Kominfo(https://pasti.baktikominfo.id) is the official platform of BAKTI Kominfo (Telecommunication and Information Accessibility Agency) which functions as an information system for submitting and monitoring telecommunications infrastructure applications digitally. This platform is designed to make it easier for government agencies and community organizations to submit applications for internet access, construction of BTS (Base Transceiver Station), relocation, and bandwidth changes.

Benefits of the PASTI Platform

- Process Digitalization: Reduces bureaucracy with a fully online application process.
- Transparency: Allows applicants to monitor the status of their applications in real time.
- Efficiency: Speeds up the application process and decision-making.
- Data Accuracy: Reduces the risk of overlapping infrastructure development with verified data.

Who Can Use?
This platform is intended for:

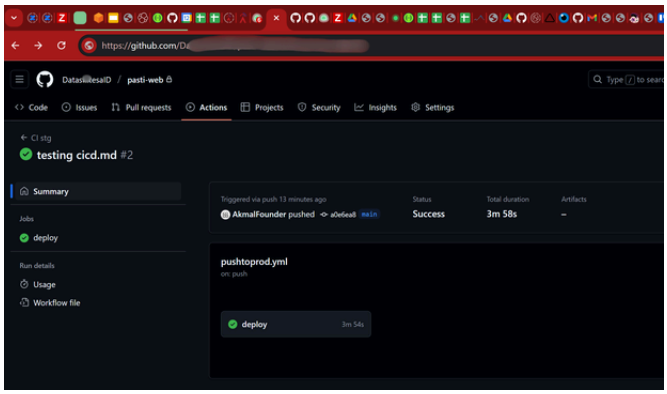
- Ministries and Government Institutions
- Local Governments
- Community Organizations

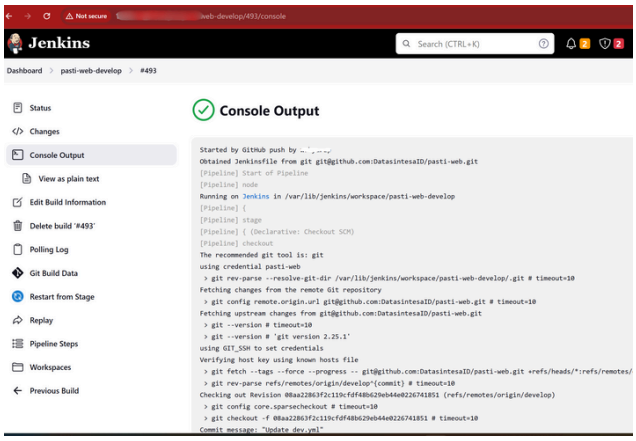
Users must register their organizations and complete the necessary administrative documents to be able to access this service.

In a project like PASTI BAKTI Kominfo, DevOps plays a vital role in managing infrastructure, deployment pipelines, and system security. Here are some of the key DevOps activities in this project:

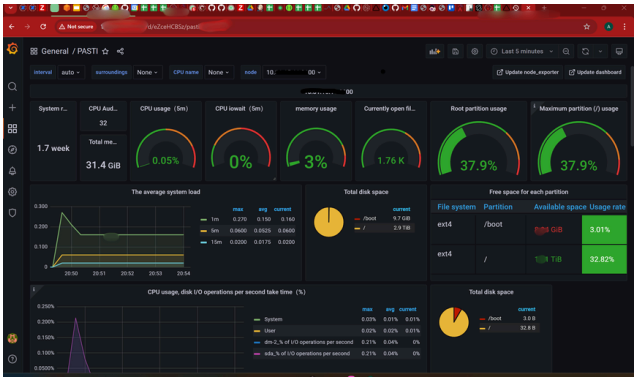
1. Infrastructure Automation
DevOps engineers use tools like Ansible to provision and configure infrastructure automatically, ensuring consistency across development, staging, and production environments.

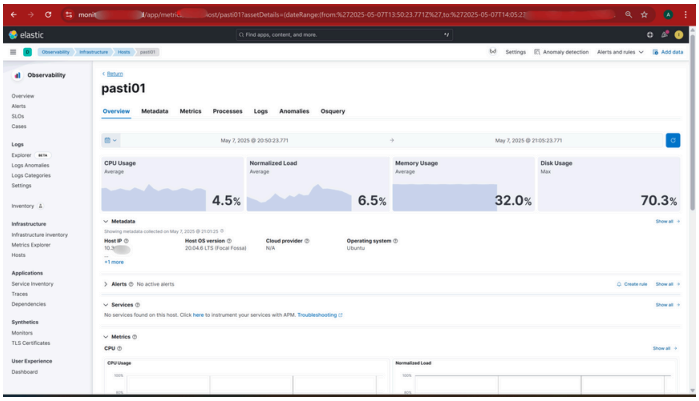
2. CI/CD Pipeline Management
We set up Continuous Integration and Continuous Deployment (CI/CD) pipelines using tools like GitHub Actions and Jenkins. This allows for automated build, testing, and deployment processes, reducing manual errors and accelerating application releases.




3. Monitoring & Logging
We implement monitoring tools such as Prometheus, Grafana, Zabbix, or the ELK Stack (Elasticsearch, Logstash, Kibana) to monitor application performance and log activity. This helps detect issues early and and also make monthly reports.



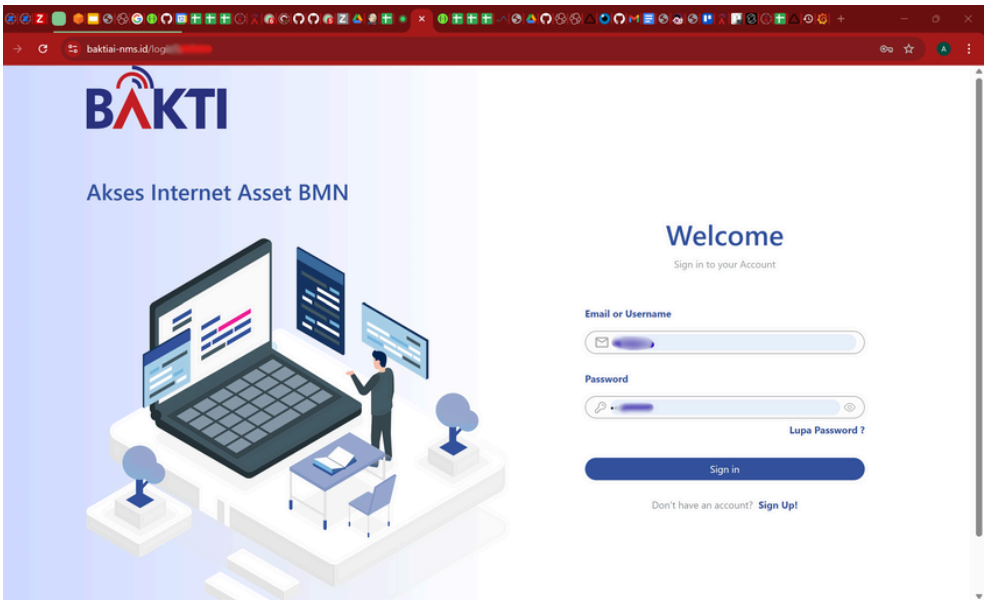



4. Security & Compliance
DevOps integrates security practices into the development process, such as SSL/TLS configuration, access control, and automated vulnerability scanning. This ensures the application remains secure and compliant with data protection standards.

5. Backup & Disaster Recovery
DevOps schedules regular backups of databases and critical configurations, and prepares disaster recovery plans to ensure service continuity in case of disruptions.

7. Collaboration & Communication
DevOps bridges development and operations teams using tools like Slack or Confluence to enable effective coordination and collaboration toward shared goals.

# NMS AI




The website https://baktiai-nms.id/login is a login portal for the Network Monitoring System (NMS) used by BAKTI Kominfo. This system functions to monitor and manage telecommunications network infrastructure, particularly in the context of providing internet services in Indonesia's remote, outermost, and underdeveloped areas (known as 3T areas).

Main Functions of the Website:

1. Real-Time Network Monitoring
The NMS enables real-time monitoring of internet service conditions, including outage detection and analysis of connectivity quality in the areas served by BAKTI.
Management of State-Owned Assets (BMN)

2. This portal is also used to manage telecommunications infrastructure assets owned by the state and provided by BAKTI, ensuring that all equipment and facilities are properly recorded and monitored.

3. Restricted Access for Registered Users
Only users with registered accounts can access the system, ensuring data security and integrity.

Who Uses It?
This portal is intended for internal BAKTI Kominfo staff and technical partners responsible for managing and monitoring telecommunications network infrastructure across various regions of Indonesia.

With this system, BAKTI Kominfo can ensure that the provided internet services operate optimally and can quickly address any issues or disruptions that arise in the field.

The Role of DevOps in Projects BAKTI NMS

In critical infrastructure projects such as baktiai-nms.id, the DevOps team plays a pivotal role in ensuring operational stability, scalability, and security. Key responsibilities include:

1. Infrastructure Automation and Deployment

DevOps teams implement Infrastructure as Code (IaC) to standardize environment provisioning, eliminating manual configuration dependencies and ensuring consistency across all stages (development, testing, production). Automated deployment pipelines enable efficient and error-minimized releases.

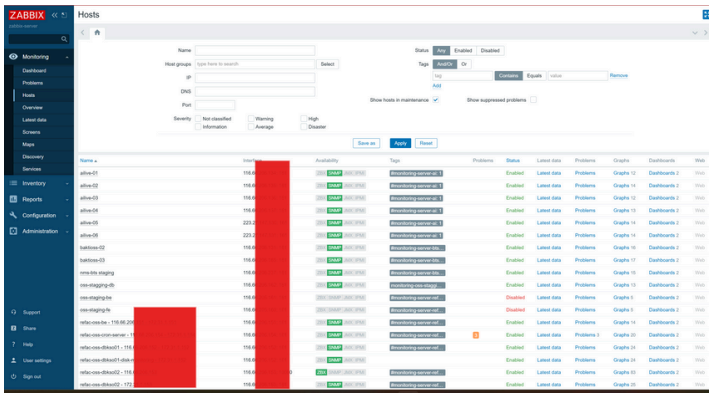
2. Continuous Integration and Delivery (CI/CD)

Through CI/CD workflows (using platforms like GitHub Actions or Jenkins), all code changes undergo rigorous testing and validation before deployment, significantly enhancing system reliability.

3. Comprehensive Monitoring System

Make monthly reports and implementation of a multi-layer monitoring solution:

Zabbix:

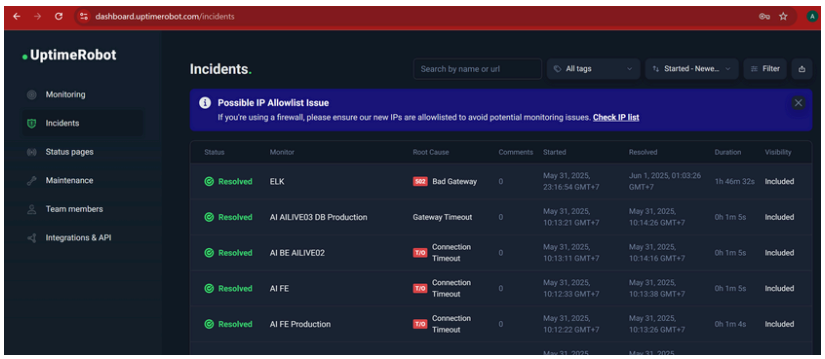



Real-time monitoring of servers, networks, and applications
Automatic Slack notifications for early issue detection
System performance trend analysis

ELK Stack (Elasticsearch, Logstash, Kibana):

Centralized log aggregation and analysis
Log data visualization for troubleshooting

Uptime Robot:



4. Security Management
The DevOps framework integrates:
Automated vulnerability scanning
Strict access controls and encryption (TLS/SSL)

5. Application Containerization
Applications are containerized using Docker to ensure environment consistency and easy scalability.

6. Backup and Disaster Recovery Strategy
Automated backup mechanisms ensure data integrity and enable rapid recovery during incidents.

7. Cross-Team Collaboration
DevOps facilitates synergy between development and operations teams through integrated communication tools (Slack) and issue tracking systems (Trello).

**and 3+ more projects**