

Full Stack Deployment, Monitoring, and CI/CD Automation

Project Overview

Deployed a full-stack application (frontend + backend) on a single AWS server, implemented observability using Prometheus, Grafana, Node Exporter, and automated deployment with Jenkins CI/CD pipeline.

1. Full Stack Deployment

Steps Taken:

1. Cloned repository: fusionpact-devops-challenge.
2. Built Docker images for backend and frontend:
 - backend → Python 3.10 application.
 - frontend → Nginx serving HTML.
3. Verified Docker images:
docker images
4. Ran containers using docker run:
 - Backend exposed on port 8000.
 - Frontend exposed on port 80.
5. Confirmed application is accessible on public IP.
6. Captured screenshots for SOP.

2. Monitoring & Observability

Tools Installed:

- Prometheus – Scraping backend and node metrics.
- Node Exporter – Installed on server for system metrics.
- Grafana – Dashboards for application and infrastructure metrics.

Steps Taken:

1. Installed Prometheus, Node Exporter, and Grafana on the server.
2. Configured Prometheus to scrape:
 - localhost:9090 (Prometheus metrics)
 - localhost:9100 (Node Exporter metrics)
3. Created Prometheus service and started it.

4. Created Node Exporter service and started it.
5. Installed Grafana and started Grafana service.
6. Connected Grafana to Prometheus as data source.
7. Created dashboards for:
 - Infrastructure Metrics: CPU, Memory, Disk, Container usage.
 - Application Metrics: Request rate, latency, error counts.
8. Verified real-time data collection.
9. Captured screenshots for SOP.

3. CI/CD Automation

Steps Taken:

1. Installed Jenkins on the server.
2. Created a Jenkins pipeline (Jenkinsfile) with stages:
 - Code checkout from GitHub.
 - Build Docker images for frontend and backend.
 - Stop existing containers.
 - Run new containers.
3. Executed the pipeline successfully.
4. Verified frontend and backend after deployment.
5. Documented pipeline execution screenshots.

4. Verification & Evidence

- Application accessible via public IP:
 - Frontend: `http://<public-ip>`
 - Backend: `http://<public-ip>:8000`
- Prometheus showing metrics: verified.
- Grafana dashboards showing real-time metrics.
- CI/CD pipeline logs in Jenkins: verified successful builds and deployment

SOP: Full Stack Deployment, Monitoring, and CI/CD Automation

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Fusionpact DevOps Internship Program 2026

Become Industry-Ready DevOps Professionals | Hands-on Cloud, Containers, CI/CD & Monitoring

Month 1Month 2Month 3Month 4Month 5Month 6Full-Time Offer

Month 1 – Foundations

Linux CLI, Bash Scripting, Git Version Control

Learn & Practice:

- Master Linux navigation & commands
- Automate tasks using Bash scripts
- Setup Git repositories & track projects
- Linux [Linux CLI Guide](#)
- Git [Git Documentation](#)
- Real-world problem: Automate daily file backup

Month 2 – Cloud & IaC

AWS/GCP, Terraform Modules

Learn & Practice:

- Provision virtual machines & storage using Terraform
- Deploy static websites with infrastructure as code
- AWS [AWS Training](#)
- Terraform [Terraform Tutorials](#)
- Real-world problem: Automate infrastructure provisioning for multiple environments

Month 3 – Containerization

Docker Images & Compose

Learn & Practice:

- Containerize applications & databases
- Setup multi-container environments with Docker Compose
- Docker [Docker Guide](#)
- Real-world problem: Containerize a web + DB stack and deploy

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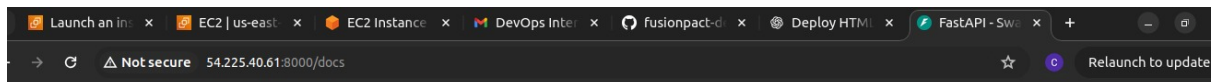
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Month 1Month 2Month 3Month 4Month 5Month 6Full-Time Offer

Full-Time Opportunity – Junior DevOps Engineer

- Eligibility: Completion of 6-month internship with strong performance
- Compensation: Competitive package & performance bonuses
- Benefits:
 - Health & Dental Insurance
 - Paid Leaves & Holidays
 - Flexible Work Hours & Remote Options
 - Learning & Certification Support
 - Team Events & Wellness Programs
 - Mentorship & Career Growth Roadmap
- Work Culture: Collaborative, supportive, innovation-driven
- Life at Fusionpact: Work-life balance, team outings, tech talks, hackathons

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FastAPI 0.1.0 OAS3

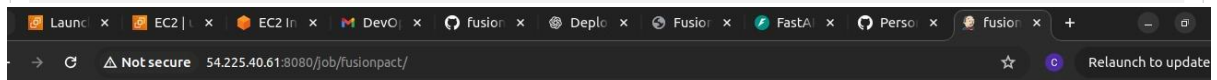
/openapi.json

default

GET	/metrics	Metrics	▼
GET	/	Index	▼
GET	/users	Get Users	▼
POST	/users	User Create	▼

Schemas

BaseResponse >



Jenkins / fusionpack

Status

fusionpack

Add description

Changes

Build Now

Configure

Delete Pipeline

Full Stage View

Favorite

Open Blue Ocean

Stages

Rename

Pipeline Syntax

Credentials

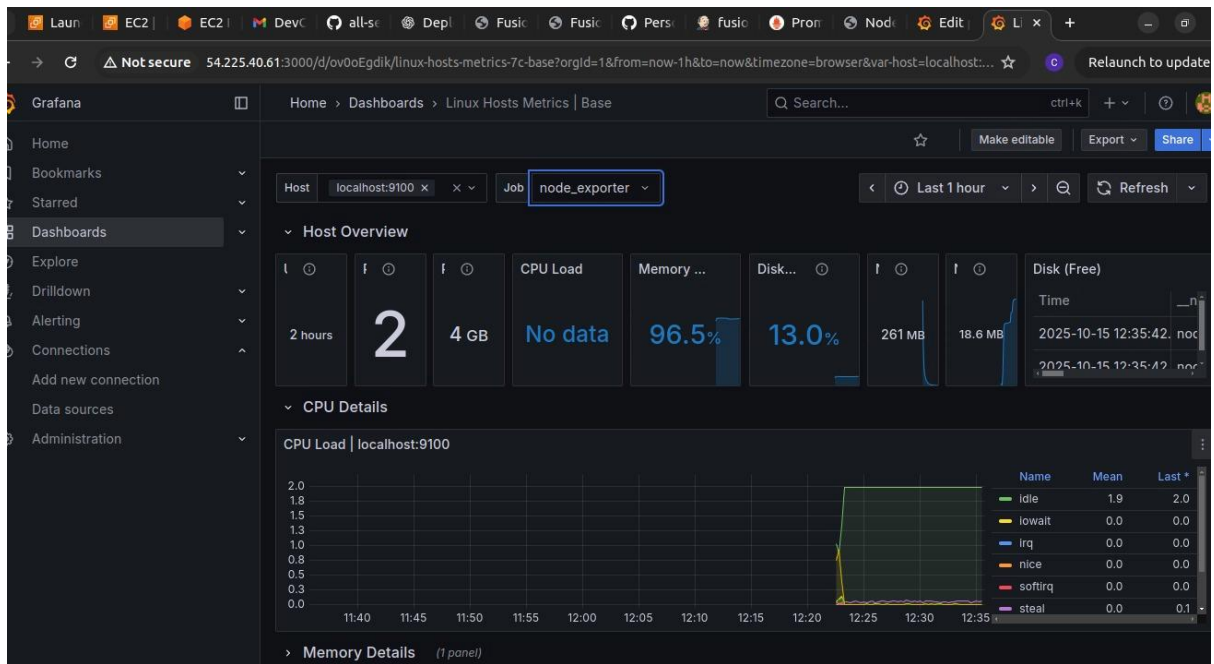
Stage View

	Checkout Code	Build Docker Images	Stop & Remove Existing Containers	Run Containers	Verify Deployment	Declarative: Post Actions
Average stage times: (full run time: ~4s)	239ms	1s	346ms	1s	343ms	74ms
#6 Oct 15 12:03 No Changes	239ms	1s	346ms	1s	343ms	74ms

Permalinks

- Last build (#6), 18 sec ago
- Last stable build (#6), 18 sec ago
- Last successful build (#6), 18 sec ago
- Last failed build (#5), 5 min 30 sec ago
- Last unsuccessful build (#5), 5 min 30 sec ago

Builds



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HELP go_gc_duration_seconds A summary of the pause duration of garbage collection cycles.

TYPE go_gc_duration_seconds summary

gc_duration_seconds{quantile="0"} 1.4036e-05

gc_duration_seconds{quantile="0.25"} 2.6157e-05

gc_duration_seconds{quantile="0.5"} 2.7123e-05

gc_duration_seconds{quantile="0.75"} 2.8038e-05

gc_duration_seconds{quantile="1"} 0.00021092

gc_duration_seconds_sum 0.00220571

gc_duration_seconds_count 73

HELP go_goroutines Number of goroutines that currently exist.

TYPE go_goroutines gauge

goroutines 8

HELP go_info Information about the Go environment.

TYPE go_info gauge

_info{version="go1.19.3"} 1

HELP go_memstats_alloc_bytes Number of bytes allocated and still in use.

TYPE go_memstats_alloc_bytes gauge

memstats_alloc_bytes 2.226016e+06

HELP go_memstats_alloc_bytes_total Total number of bytes allocated, even if freed.

TYPE go_memstats_alloc_bytes_total counter

memstats_alloc_bytes_total 1.24987096e+08

HELP go_memstats_buck_hash_sys_bytes Number of bytes used by the profiling bucket hash table.

TYPE go_memstats_buck_hash_sys_bytes gauge

memstats_buck_hash_sys_bytes 1.482675e+06

HELP go_memstats_frees_total Total number of frees.

TYPE go_memstats_frees_total counter

memstats_frees_total 1.727881e+06

HELP go_memstats_gc_sys_bytes Number of bytes used for garbage collection system metadata.

TYPE go_memstats_gc_sys_bytes gauge

memstats_gc_sys_bytes 9.440576e+06

HELP go_memstats_heap_alloc_bytes Number of heap bytes allocated and still in use.

TYPE go_memstats_heap_alloc_bytes gauge

memstats_heap_alloc_bytes 2.225016e+06

HELP go_memstats_heap_idle_bytes Number of heap bytes waiting to be used.

TYPE go_memstats_heap_idle_bytes gauge

memstats_heap_idle_bytes 4.390912e+06

HELP go_memstats_heap_inuse_bytes Number of heap bytes that are in use.

TYPE go_memstats_heap_inuse_bytes gauge

memstats_heap_inuse_bytes 3.670016e+06

HELP go_memstats_heap_objects Number of allocated objects.

TYPE go_memstats_heap_objects gauge

