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in Mahmoud Mohamed

🖱 portfolio

Education

Bachelor in Information Technology

Cairo University - Faculty of Computers and Artificial Intelligence ☑

Professional Experience

Cisco CyberOps Associate Trainee

National Telecommunication Institute ☑

Incident Response

cybertalents

Reverse Engineering, Digital Forensics

Skills

Linux Administration

Version Control

Git / Git LFS / GitHub / GitLab

containers

Docker / podman / Kubernetes

Tools

AWS/Helm/Ansible/vagrant/vim/neovim/grafana

Penetration Testing

Programming & Scripting

C/C++/ java / python / Bash Scripting / PowerShell

CI/CD & Pipelines

Jenkins / GitHub Actions / GitLab CI

Data Serialization & DSL

JSON / YAML / Terraform

Projects

Exodia OS ☑

Exodia OS is an Arch-based distribution designed for all cybersecurity fields. It also offers other special editions, such as the Home edition for daily use and the Acer Predator edition tailored for Acer Predator laptops, enabling control over CPU/GPU fans and keyboard RGB settings.

Ransomware ☑

This is a basic implementation of ransomware using Python, consisting of two programs: a server and a client.

The server is used to control the client (ransomware) and is hosted on the attacker's machine.

The client, which functions as the ransomware, connects to the server and awaits commands to encrypt/decrypt files. The client is deployed on the victim's machine.

AWS Lift & Shift For VProfile ☑

Here, we will deploy the VProfile app on AWS instead of locally, utilizing the following tech stack for services:

- EC2 Instances for MySQL, Tomcat, Memcache, RabbitMQ
- ELB in place of Nginx LB - AutoScaling for EC2 scaling
- S3/EFS Storage for Shared Storage - Route 53 for private DNS service

Steps:

1. Configure Security Group & Keypairs.
2. Create EC2 Instances for all services.
3. Build & Deploy the VProfile App.
4. Set up ELB & 53.
5. Add AutoScaling Group.

AWS PAAS & SAAS VProfile

Tech Stack (Services):

- Elastic Beanstalk for Tomcat (App Server), Nginx Load Balancer, EC2 AutoScaling
- S3/EFS Storage for Shared Storage
- RDS Instance for Databases
- Amazon ElastiCache instead of Memcached
- ActiveMQ instead of RabbitMQ
- Route 53 for private DNS service
- CloudFront for content delivery network

Steps:

1. Configure Security Group & Keypairs.
2. Create RDS Instances.
3. Set up Amazon ElastiCache.
4. Set up Amazon Route 53.
5. Configure the Database.
6. Set up Elastic Beanstalk.
7. Build & Deploy the VProfile App.
8. Set up CloudFront.

VProfile - Jenkins(using CI/CD) [↗](#)

Deploy VProfile on AWS using Jenkins CI/CD

Steps:

1. Fetch the code from GitHub.
2. Build the code using Maven.
3. Test the code using Maven Unit Test.
4. Analyze the code using Maven Checkstyle.
5. Analyze the code using SonarQube and upload it to the SonarQube Server, then wait for the Quality Gate.
6. Build Docker images.
7. Deploy images to the AWS ECR Registry.

VProfile - Kubernetes [↗](#)

Deploying VProfile on K8s Cluster

Steps:

1. Install Kops to launch a Kubernetes cluster.
2. Containerize the VProfile app.
3. Create an EBS volume for the DB Pod to handle the database.
4. Label nodes with zone names.

VProfile-GitOps [↗](#)

There are two Git repositories: Terraform Workflow and Application Workflow.

- It consists of two branches: Stage Branch and main Branch.
- If any changes are added to the Stage Branch, workflows will detect these changes.
- Then, Terraform will test these changes in AWS Cloud and validate them.
- If the code is validated successfully, the changes will be merged into the main Branch via a Pull Request.
- The Pull Request will then be validated and approved (approved by the owner of the main Branch).
- Finally, this code will be applied to the infrastructure level (applied to AWS Cloud).
- It fetches the code, builds it using Maven.
- Tests and analyzes the code using SonarCloud.
- Builds Docker images if validated successfully and uploads them to Amazon ECR (AWS Docker registry).
- Then, using Helm to fetch the Docker images to the EKS Cluster and run the application.

Courses

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|--|--|---|
| • DevOps with Projects ↗ | • 20RealTime DevOps Projects ↗ | • PNPT ↗ |
| • Terraform ↗ | • Docker & Kubernetes ↗ | • GitLab CI ↗ |
| • GitHub Actions ↗ | • Helm Masterclass ↗ | • HashiCorp - Terraform ↗ |

Certificates

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| • Incident Response ↗ | • NTI CyberOps Associa ↗ |
| • CCNA ↗ | • C Programming With linux ↗ |
| • DevOps ↗ | • PNPT ↗ |