DevOps for Crypto Exchange Platform

Introduction

This decentralized exchange, launched by a blockchain-focused community foundation, offers a secure and efficient platform for cryptocurrency trading. Its underlying infrastructure is engineered for stability, transparency, and high performance. The platform leverages a combination of technologies, including multiple AWS EC2 instances and integrations with Ethereum, EOS, and Substrate-based blockchains.

Client Details

Name: Confidential | **Industry:** Software | **Location:** Canada

Technologies

AWS, Ethereum, Grafana, Prometheus, Loki, Crypt Exchange, Smart Contract

Project Description

Infrastructure

The infrastructure is hosted on AWS and consists of:

- 5 EC2 instances for Substrate nodes
- 2 EC2 instances for Golang-based Ethereum and EOS integration
- 1 EC2 instance for the frontend
- 1 EC2 instance for the Node.js backend
- 1 EC2 instance for the Nginx
- AWS RDS for database management
- NodeOS for EOS block details storage and retrieval

The infrastructure is provisioned using **Terraform**, ensuring infrastructure as code (IaC) principles are applied for consistency and repeatability.

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Deployment Process

Currently, the deployment process is entirely manual:

- Terraform is used to create and update the infrastructure.
- Application updates are manually deployed on EC2 instances.
- Changes to smart contracts and blockchain components require a runtime upgrade or manual upgrade.

Monitoring and Logging

- **Prometheus & Grafana** for real-time monitoring and alerting.
- **Grafana, Loki, and Alloy** for logging and log analysis

Security and Data Integrity

- Storing blockchain snapshots on **IPFS** and using **Ethereum smart contracts** to maintain public state references.
- Taking Regular AMI backup of the Node instances using AWS Lifecycle Policy
- All the EC2 instances and Other services are protected in the private subnet.
- To enhance security, we only allow client access to the instances during deployment through the Bastion Host.
- At all other times, the Bastion Host is shut down to ensure there are no potential backdoors into our infrastructure.

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Architectural Diagram