Project Report: Real-Time Cryptocurrency Analytics Dashboard

Title: Real-Time Cryptocurrency Analytics Using Python, InfluxDB, and Grafana

Author: Arc Wolf

GitHub: https://github.com/arc-wolf

Date: July 2025

Objective:

The purpose of this project is to build a real-time, open-source cryptocurrency analytics dashboard using public APIs and fully open infrastructure. The solution enables live monitoring of Bitcoin (BTC), Ethereum (ETH), and Dogecoin (DOGE) prices using an efficient time-series architecture.

Technology Stack:

- Data Source: CoinGecko API
- Backend: Python
- Time-Series DB: InfluxDB 2.7
- Dashboard: Grafana
- Deployment: Docker, Docker Compose
- OS: Debian-based Linux (Parrot OS)

System Architecture:

1. Python script fetches BTC, ETH, and DOGE prices every minute from CoinGecko.
2. Data is written to InfluxDB with a timestamp and fields for each coin.
3. Grafana visualizes data in time-series panels and live metrics.
4. Docker Compose orchestrates Grafana and InfluxDB.

Dashboard Overview:

- Separate panels for BTC, ETH, DOGE.
- Combined comparison view.
- Auto-refresh and dynamic time range filters.

Key Features:

- Real-time data ingestion (every 60s)
- Fully open-source and containerized
- Easy to deploy, extend, and monitor

Open Source Licensing:

Built using:

- Python
- InfluxDB
- Grafana
- Docker
- CoinGecko API

License: MIT

Permission is granted to use, copy, modify, and distribute the software.

Repository:

https://github.com/arc-wolf/Crypto_Analytics_Dashboard

Conclusion:

This internship project demonstrates how open-source tools can be integrated into a robust real-time analytics system, providing hands-on experience in DevOps, data engineering, and dashboard

design.