New Social Theory, Devops Engineer Role.

UseCase

New Social Theory is developing an application which is going to provide following features to end customers:

1. The application will use OAuth authentication provided by Google or Facebook to allow users to sign up and sign in to the platform.
2. When users first log in, they can view profiles of the most popular celebrities on the internet.
3. Users can filter their feeds to only show content from the celebrities they are following.
4. In the feeds, users can view the social activities of celebrities on platforms like Facebook, Instagram, and Twitter.
5. The feeds will also display merchandise that celebrities are selling or endorsing on e-commerce platforms like Etsy or StockX.
6. For security reasons, the application will block access from certain countries like Iraq and Somalia.
7. To prevent brute force attacks, the application will implement rate limiting on certain API endpoints.
8. User settings and personal profiles will be persistently stored.
9. Data aggregated from various social platforms can be utilized for data analytics purposes.
10. The front-end will be developed using React Native technologies and deployed on the Google Play Store and Apple App Store.
11. The back-end will be built using Java Spring-Boot microservices.
12. All services will be stateless and multi-instance to support zero-downtime deployment.
13. API calls from outside the network must use HTTPS.
14. The application will be monitored, and alerts will be triggered in the event of service disruptions.

Assessment

Based on above functional requirements, please advise on following aspects from Devops perspective:

1. Describe the CI/CD process for the project in terms of workflow diagrams.
   You can provide a general, high-level workflow diagram that illustrates the typical CI/CD process without going into the specific implementation details.

2. Draw the architecture diagram based on the functional requirements and what AWS services are you going to use and why?

You can sketch a high-level architecture diagram that showcases the key AWS services and components, without delving into the specifics of how they will be implemented.

3. What tools are you going to use for monitoring and alerting purposes, and how they are going to be integrated with the infrastructure?
   You can suggest a few popular monitoring and alerting tools, and provide a general overview of how they could be integrated with the infrastructure, without getting into the technical implementation.

4. Advise strategies or tools you are going to use to provide the desired security features.
   You can recommend some general security strategies and tools that could be considered, without providing a comprehensive security plan.

5. If you can suggest some tools or strategies for the management and maintenance of the data and infrastructure from a longer-term perspective.
   You can suggest some high-level approaches and tools for managing and maintaining the data and infrastructure over the long term, without going into the specific implementation details.

Solution Design

Graphical Representation: Use open-source tools to create visual diagrams, such as architecture, infrastructure, workflow, or deployment diagrams.
Written Description:
Solution Overview: Provide a high-level summary of the proposed solution.
Strategy: Explain the rationale behind the design decisions, including the choice of tools and technologies.
Key Features: Discuss the solution's scalability, reliability, security, monitoring, CI/CD, and maintenance.
Submission:

Graphical representations created using open-source tools.
A written document (e.g., PDF, Markdown) containing the solution overview and strategy.