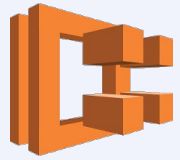
Second Breakfast

Jack Vogt
Chloe Bradley
Krushil Naik
Lynda Foster

Scope

DevOps & Microservices

- *Jenkins*
- *Terraform*
- *Docker / ECS*
- *Kubernetes / EKS*



Collaboration & Project Management

- *GitLab*
- *Jira*
- *Confluence*

smoothstack

Project Overview

Aline Financial
Online Banking Application

Technologies & Tools

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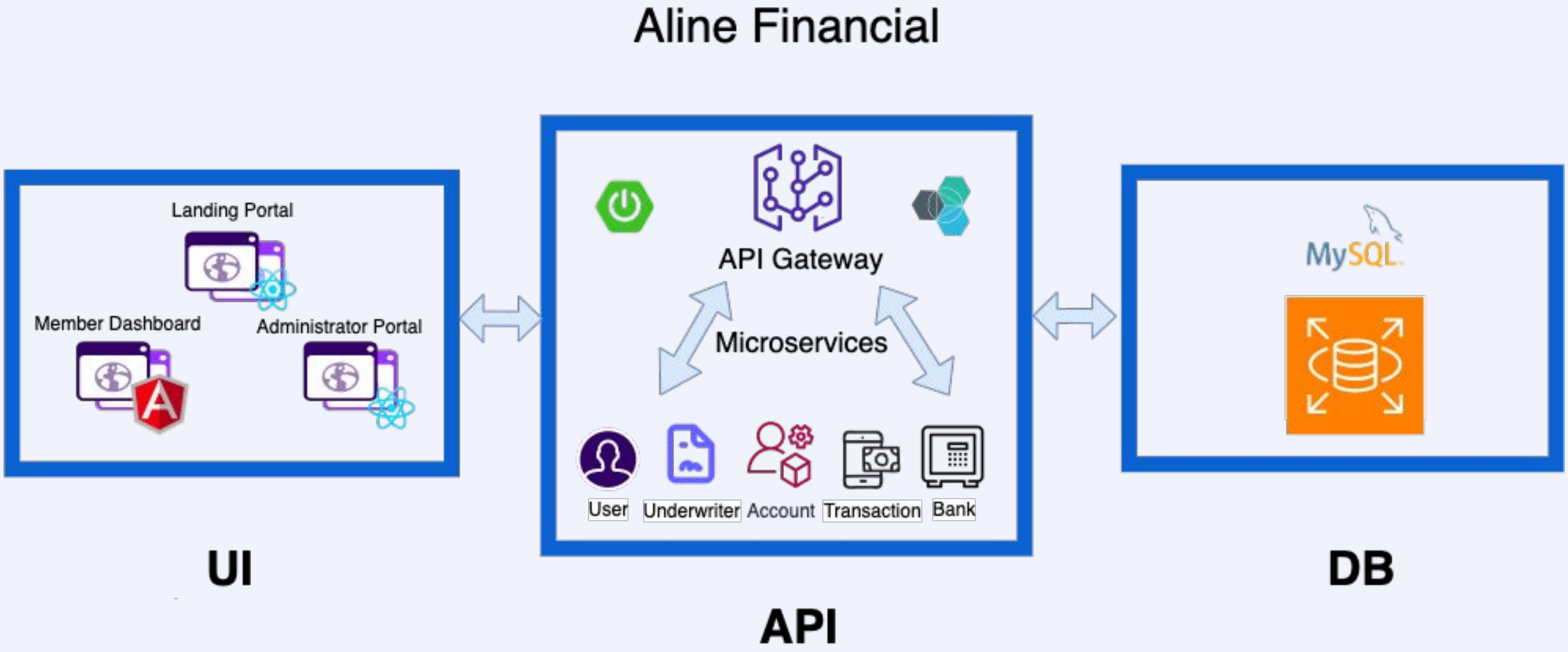
Microservice Architecture



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Cloud Architecture

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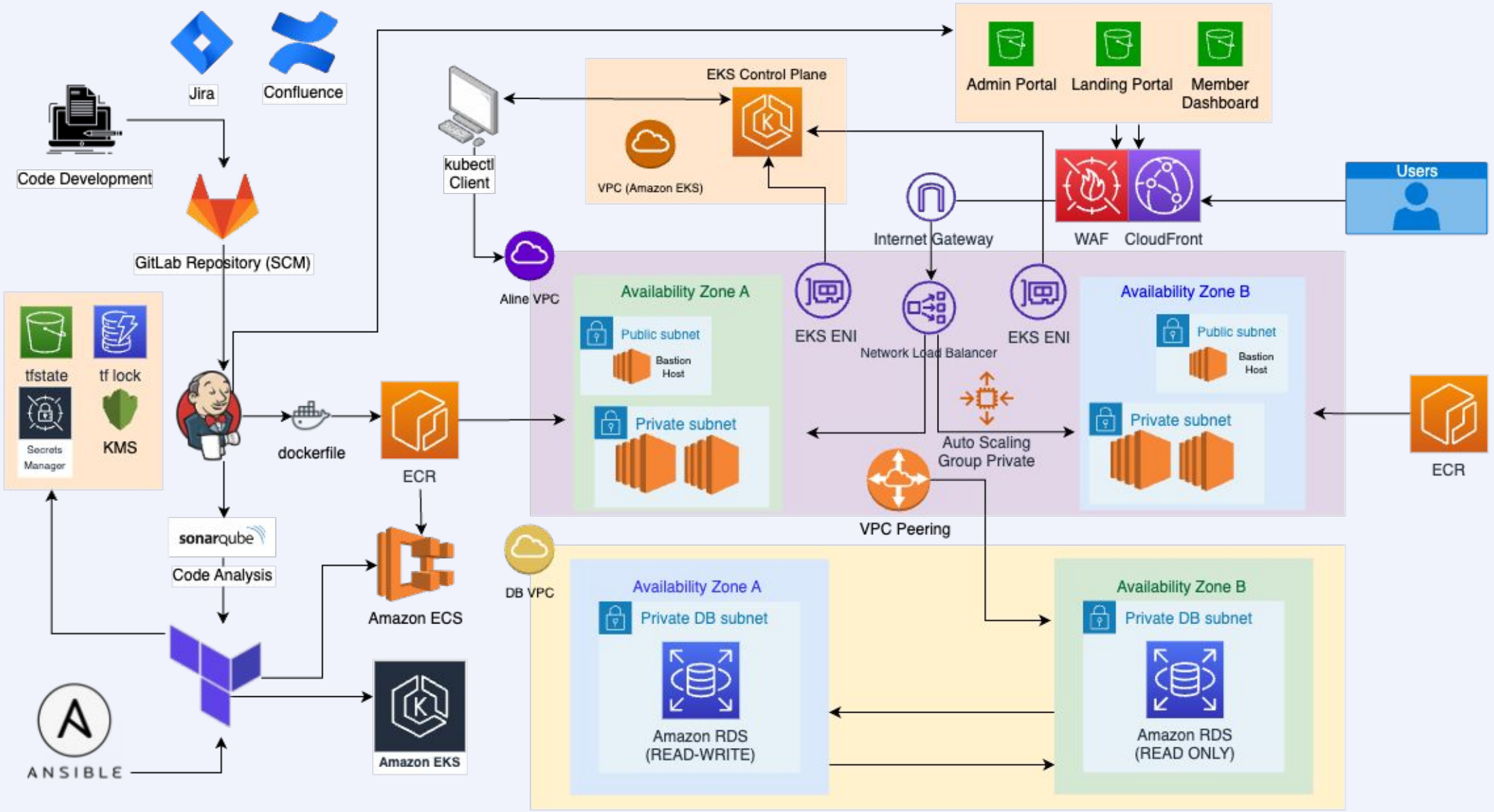
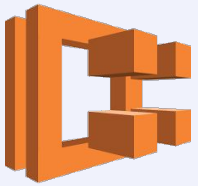


Presentation Overview

- Jenkins (Jack)
  - Automate testing, build, and deployment
- Docker / ECS (Chloe)
  - Deploy containerized services to AWS
- EKS (Krushil)
  - Establish automated scaling/updates across availability zones
- Terraform (Lynda)
  - Manage, provision, and deploy infrastructure resources



Jack Vogt

Responsibilities

- CI/CD
  - Set up Jenkins Pipelines
  - Integrate with Sonarqube
- Containerization
  - Build Docker images for each microservice (Stored in ECR)
- Container Orchestration in Cloud
  - EKS
  - ECS
- Infrastructure as Code
  - Use Terraform to provision AWS resources (allows for versioning & automatability)

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Jack
Vogt

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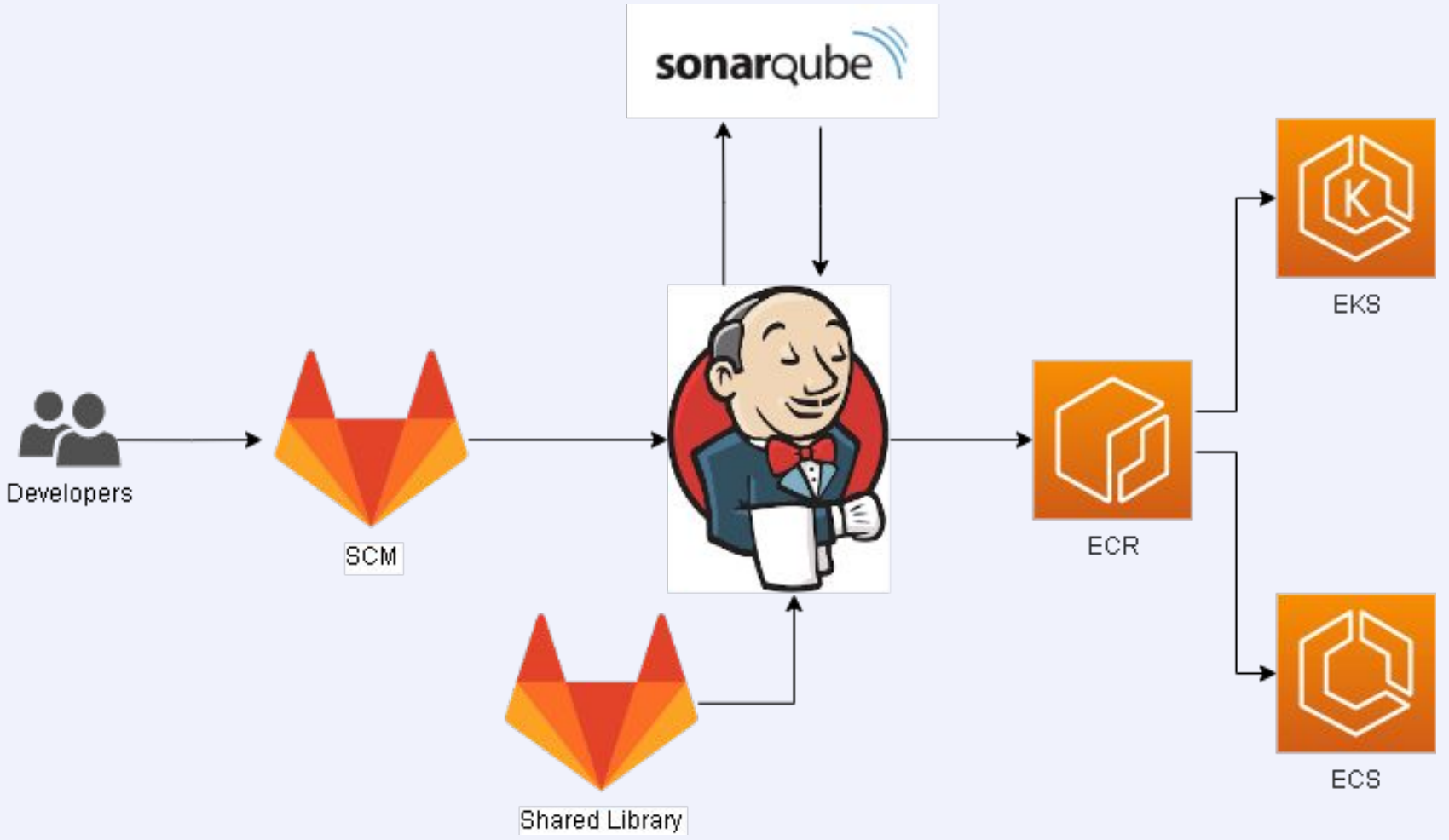
Jack Vogt

Use Case

- Automation
  - Increase consistency and reduce human error
- Ease of use for Developers
  - Create seamless process for integrating and deploying changes
- Establish Code Quality Standards
  - Analyze code to prevent suboptimal code being used in production
- Create Rollback strategy
  - Allow for rollback to specific deployment

CI/CD Flow



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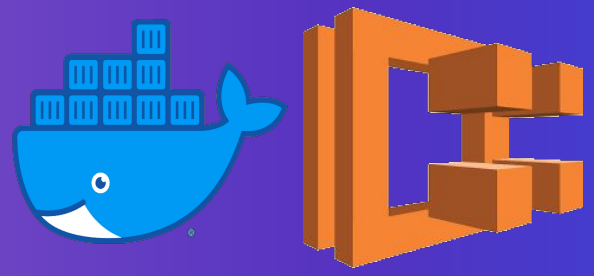
Questions?

Thank You!

Chloe Bradley



Responsibilities

- Jenkins
  - Build images, Sonarqube analysis, deploy to ECS/EKS
- Kubernetes / EKS
  - Deploy microservices and frontends
- AWS
  - Manage resources, especially using terraform
- **ECS**

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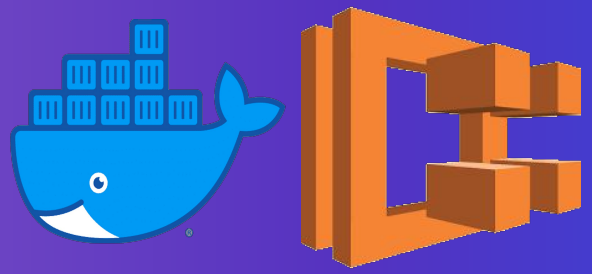
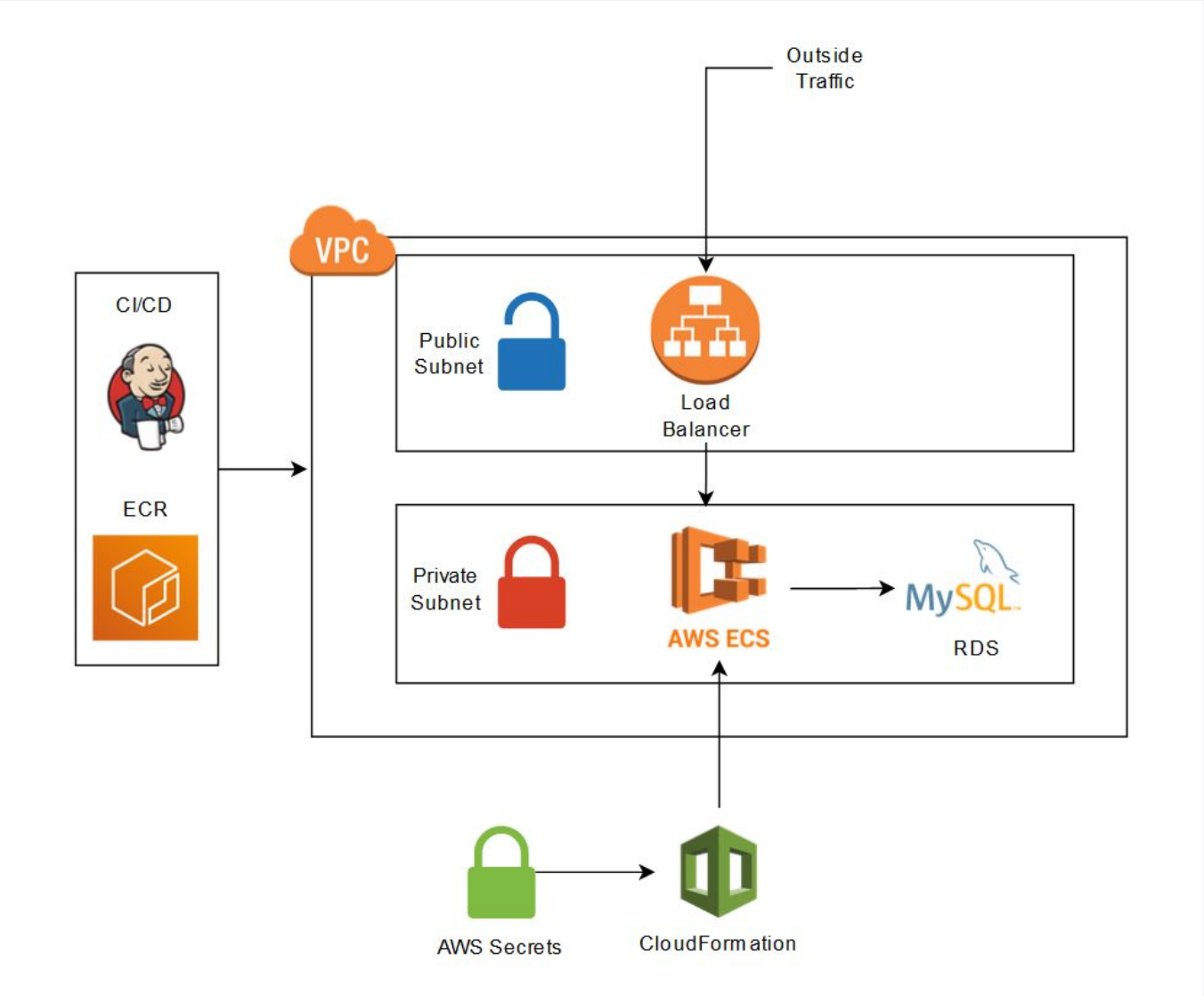
Chloe Bradley

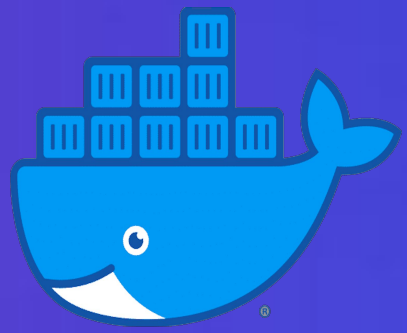


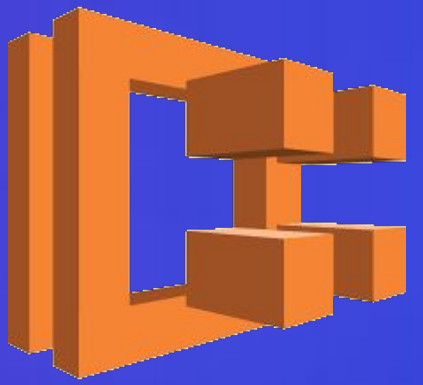
Use Case

- You need a scalable service
  - Similar idea to Kubernetes
  - Appropriate for smaller scale microservice applications
- Integrated with Docker Compose
  - Simpler than deploying with Kubernetes
- Strong security baked in
  - Can have multiple IAM roles assigned depending on needs
- Deeply integrated with AWS
  - ECS is proprietary

Solution


Outside
Traffic
VPC
CI/CD
ECR
Public
Subnet
Load
Balancer
Private
Subnet
AWS ECS
MySQL
RDS
AWS Secrets
CloudFormation





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Questions?

Thank You!

Krushil Naik

Responsibilities

- **Containerization**
  - Build and optimize Docker images
- **Jenkins**
  - Scheduled to run during business hours only with AWS Lambda and EventBridge
  - Shared library usage for DRYness
- **Orchestration**
  - ECS and EKS
- **AWS Provisioning**
  - Terraform

Specialization - EKS

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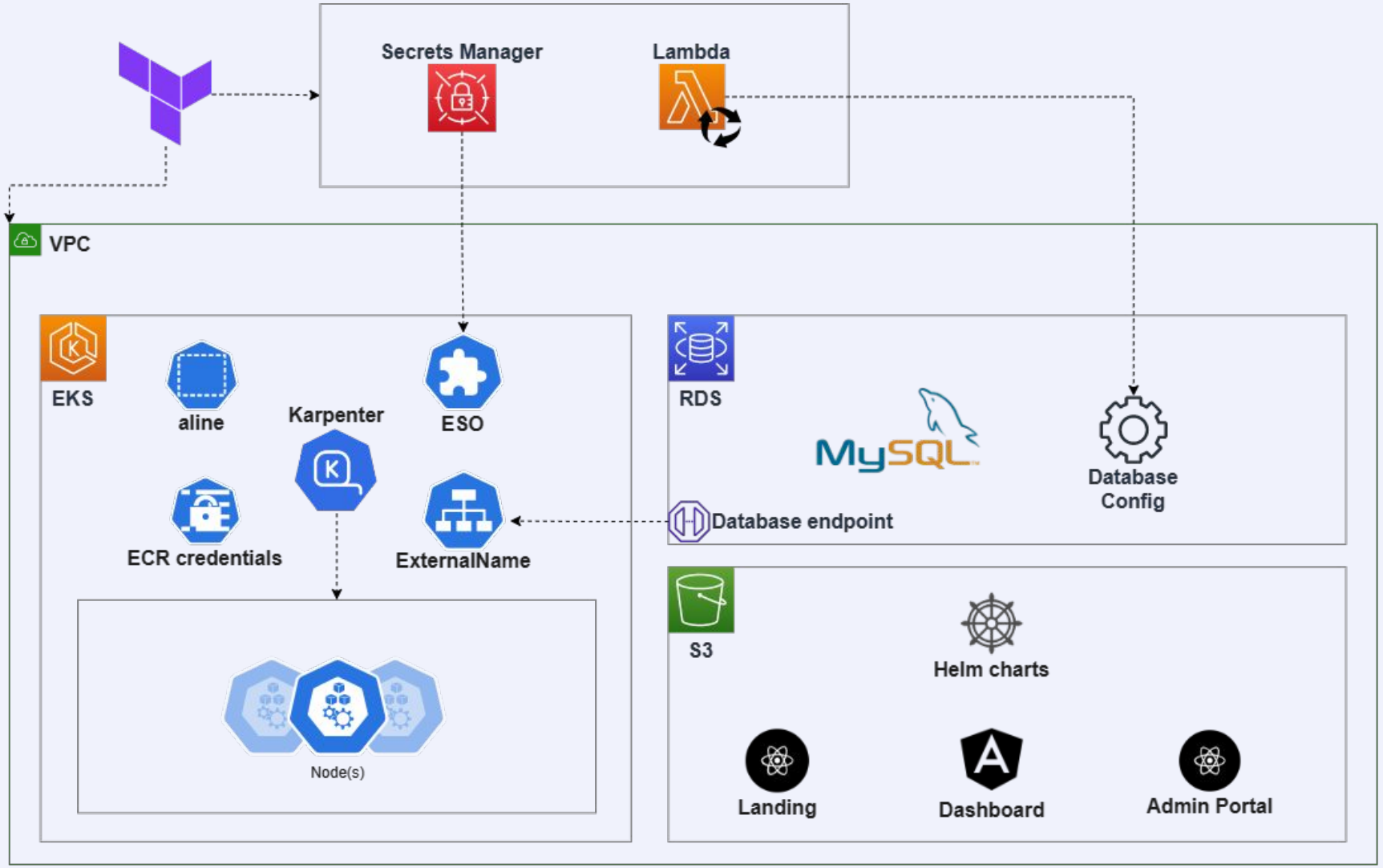
Krushil Naik

Use Case

- Platform agnostic way to deploy your app
- Rich community support and documentation
- Automatic maintenance of microservices

Solution (infrastructure)



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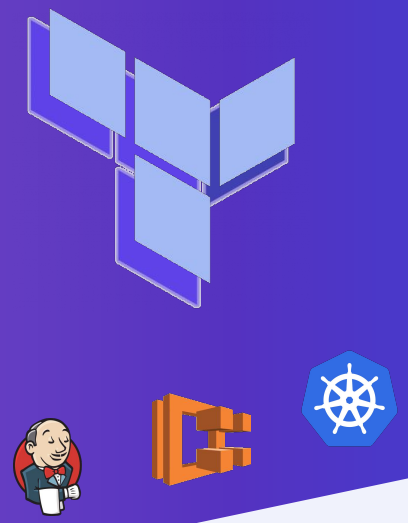
Questions?

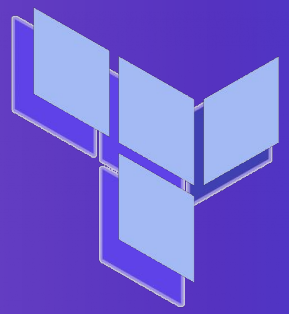
Lynda Foster



Responsibilities

- **Jenkins**
  - Configured and deployed the team's Jenkins instance with distributed architecture
- **Containerization**
  - Optimized container images to improve resource utilization and increase security
- **Orchestration**
  - Orchestrate containers and deploy services to ECS and EKS
- **Terraform**
  - Manage and provision infrastructure resources to ensure consistency and make scaling predictable
- **Ansible / CloudFormation**
  - Automate infrastructure management and configuration

Lynda Foster



Use Case

Security - automate security practices and ensure compliance with industry regulations

Stability - will only make changes if it needs to, versioning to allow rollbacks

Scalability - manages dependencies across architecture tiers

EKS Provisioning

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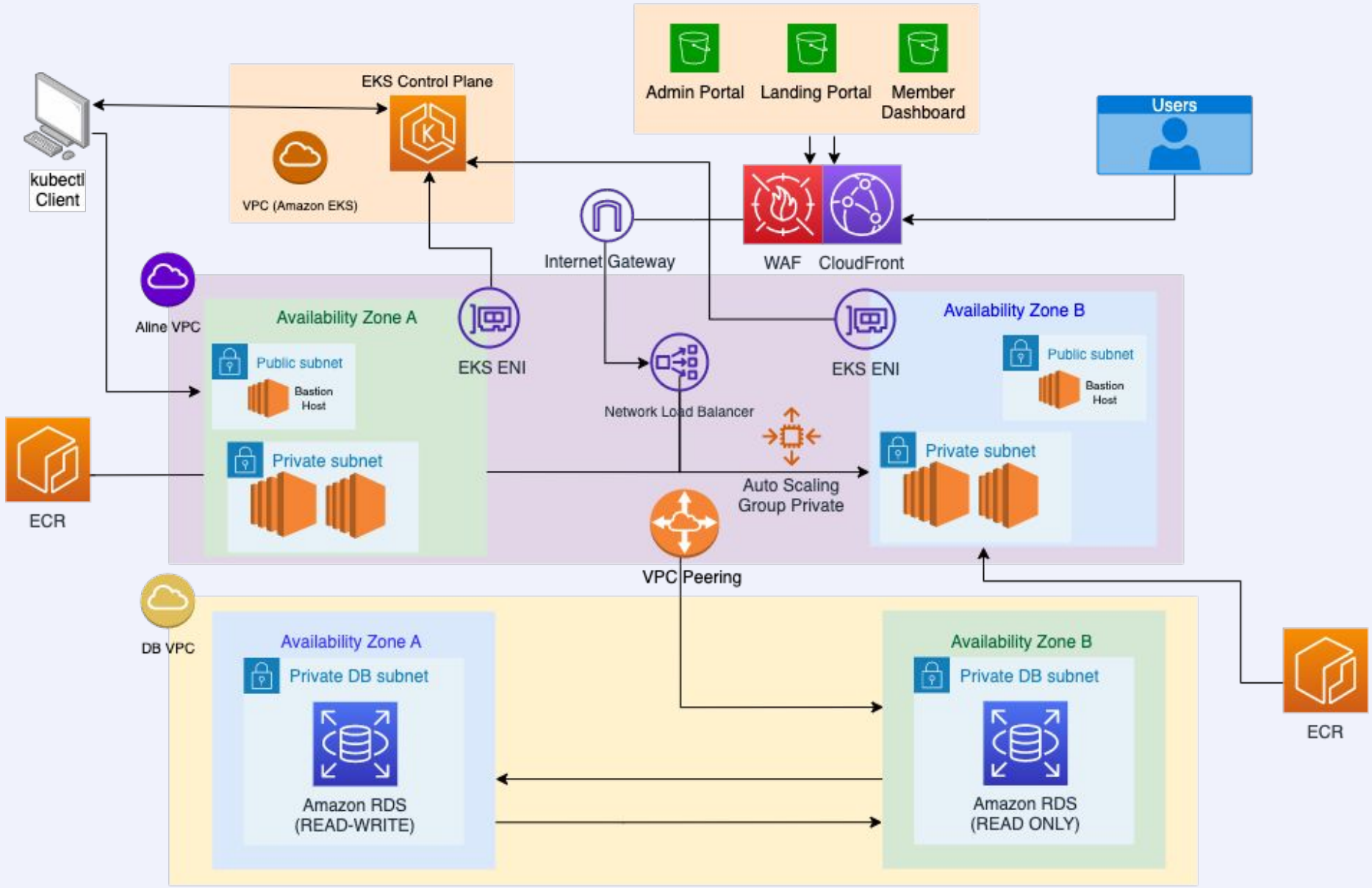

Collaboration & Project Management

Teams

Discord

Jira

Confluence

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Questions?

Thank You!

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