MLFabric[™] Software Architecture Take Home Project: Inrastructure Architecture

The purpose of this infrastructure is to provide users with their own EC2 instances backed by our own custom AMI. When this AMI is updated (adding new packages, etc..) we need an automated mechanism to roll-out the updates to existing machines.

Given we are a Financial Services company, **security** is of the utmost importance. Address security concerns at every component to minimize the attack surface.

You are free to make technology selections at your discretion based on your expertise. Create a reference architecture using infrastructure as code and apply industry standard, best practices.

VPC Transit Gateway Monitoring stack NAT gateway access. Bonus: Create modular, re-usable, IaC. **AWS VPC** workspaces-user (us-east-1) Gateway **Prometheus** NAT gateway **AWS AMI Image AWS EC2 Instance AWS EC2 Instance AWS EC2 Instance** Ubuntu 20.04 Network Mount over Terraform g4dn.xlarge g4dn.xlarge g4dn.xlarge ANSIBLE Lustre for /workspaces Team members can pull request updates elasticsearch to the base image. AWS VPC workspaces-fsx (us-east-1) **VPC Transit** Gateway FSXA NAT gateway AWS S3 **AWS FSx** Automated /workspaces mount Backup

AWS VPC

production-support (us-east-1)

MLFabric[™] Software Architecture Take Home Project: Kubernetes Deployment

Kubernetes Cluster Assume that we need to bea able to run two docker based applications on Kubernetes. The end user should be able to reach each service by the URL path. Service A **Docker Container** Using automation, implement the method(s) required to deploy all of the components required to facilitate these requirements. Deployment Bonus: Without using helm, create modular, re-usable, IaC. Internal Port 80-Service /v1 -/service/a Docker Container Ingress Deployment /v2 Internal Port 80-Service Service B Docker Container https://yourdomain.com/.. Ingress Controller Network Load Deployment (routes traffic to containers) Balancer Internal Port 80-Service /v1 -/service/b **Docker Container** Ingress Deployment /v2 Internal Port 80-Service