



ISC's Cloud First Program
October
2016

ISC Cloud First Program

Lunchtime Learning - Architecture, Infrastructure, & Migration Team

OCTOBER 13, 2016

Cloud First Lunchtime Learning

Topics:

- What have we done so far
- AWS Infrastructure overview
- AWS App Design Infrastructure
- Application Infrastructure Deploy live demo
- Application DB update
- Lift and Shift VCloud Air Demo
- Q&A

What have we evaluated/tested?

IAM

AWS AD connector, KITE to the cloud, Shibboleth for AWS UI

IAM roles: users,db,ec2,ecs tasks

Infrastructure applications

Backups

monitoring, alerting – Cloudwatch/BPPM

Security

IAM roles, policies, groups

Cloud management software/ Automation tools

Rightscale, Scalr, Vcloud Air, Redhat Cloudforms, etc.

Puppet

Jenkins

Applications

Mule web application/SQS

ECS/Docker

DB

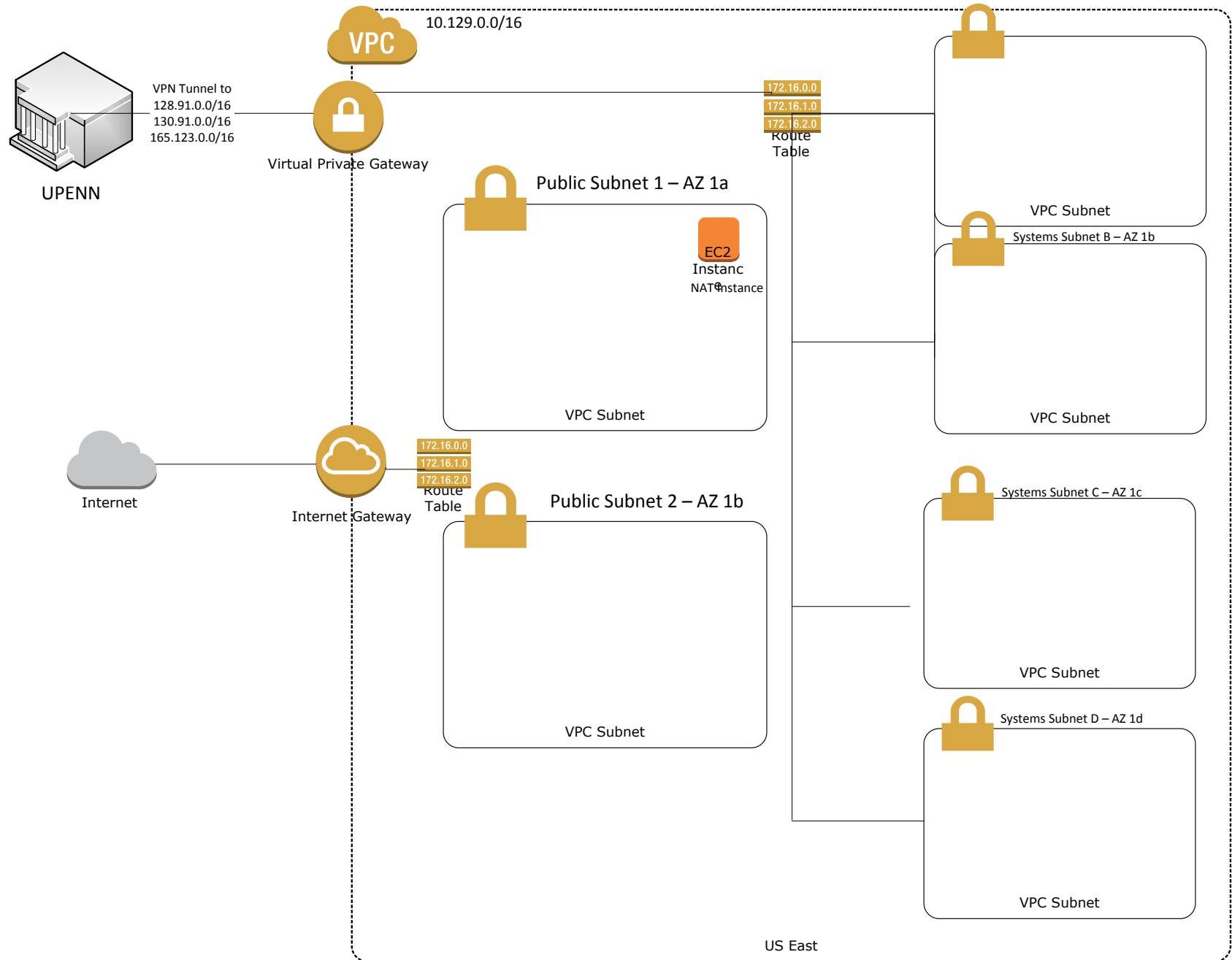
Oracle , Mongo, Aurora, PostgreSQL

Network

VPN to VPC, User VPN access

Application load balancers

AWS infrastructure



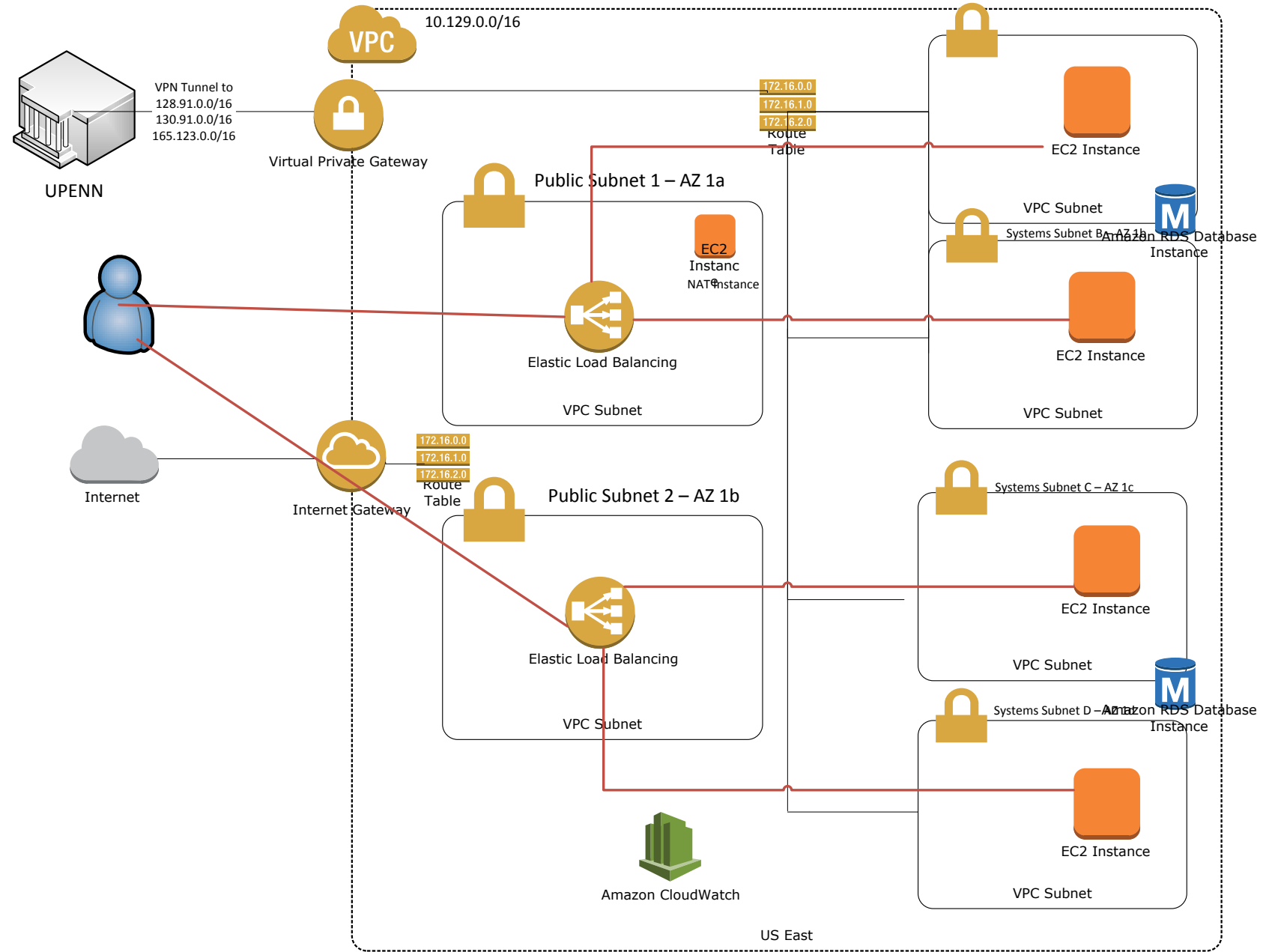
ECS Application Deployment

What is ECS? ECS is the AWS container service for Docker. It provides scalable container management for EC2 Docker instances.

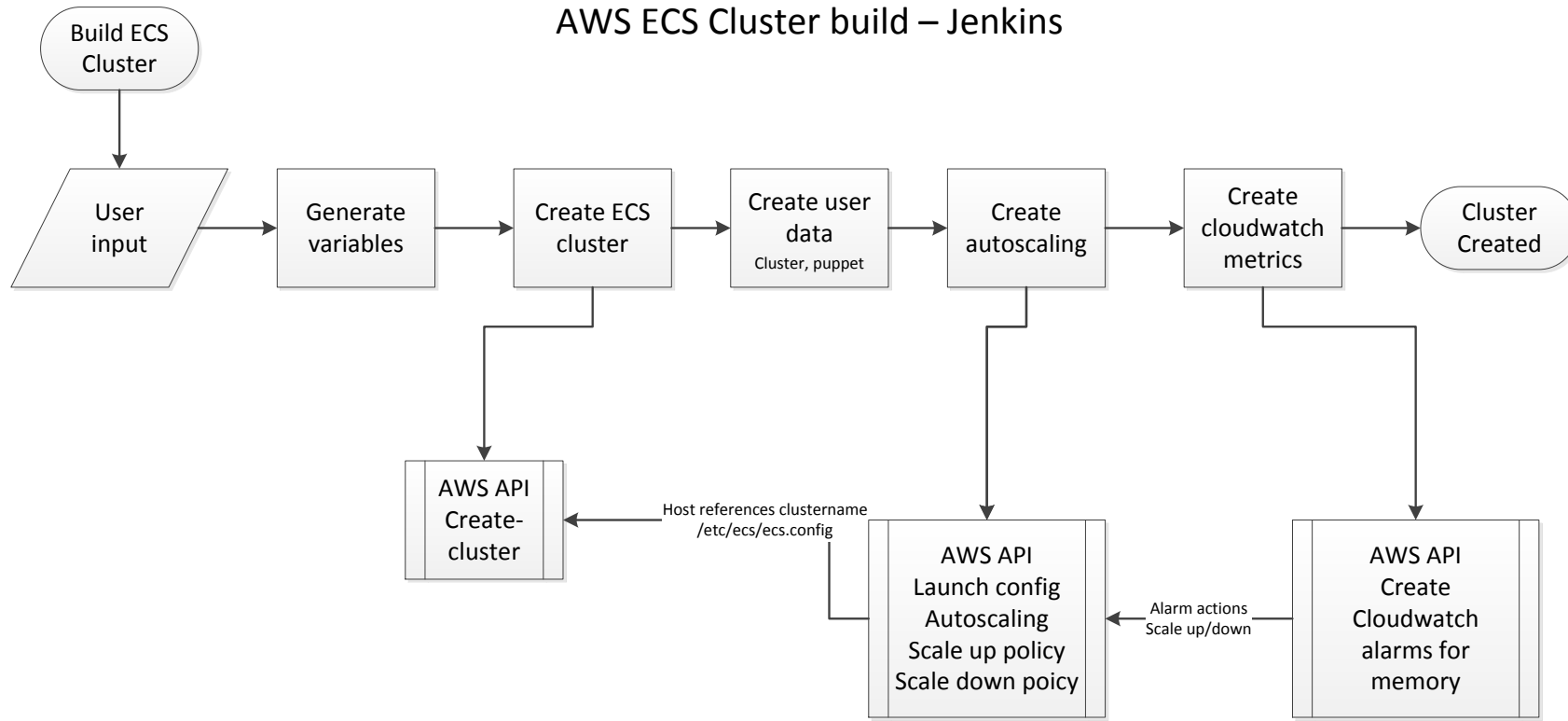
What are we going to demo?

- Deploy ECS cluster
 - Configure autoscaling
 - Deploy an EC2 docker instance
- Deploy application infrastructure.
 - Application load balancer
 - ECR repository
 - Create service
- Create application CNAME in UPenn DNS
- Create application specific database if required
- Create application CI pipeline

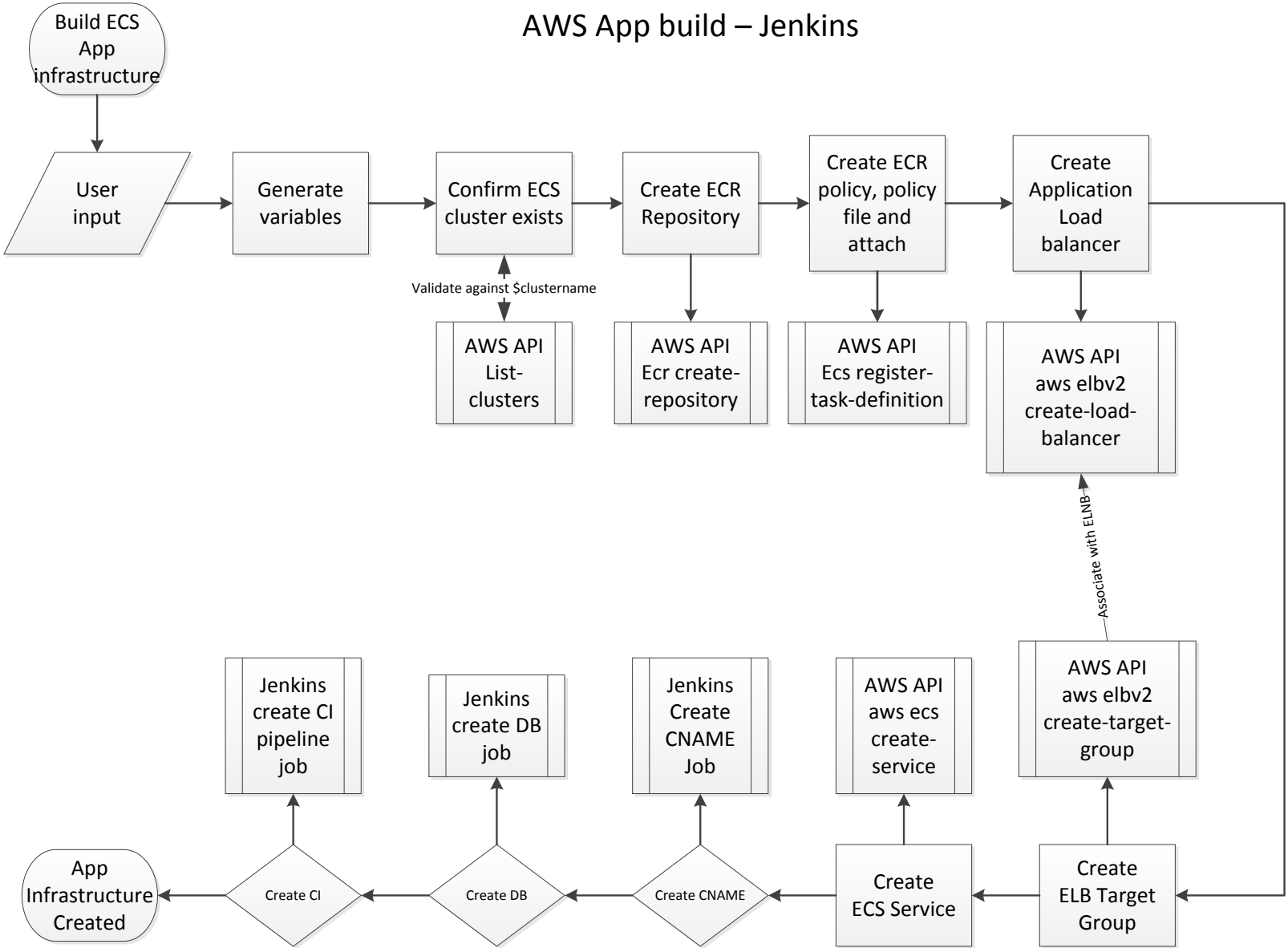
Application architecture



AWS ECS Cluster build – Jenkins



AWS App build – Jenkins



Databases Tested So Far

- EC2 instance:
 - MongoDB standalone instance
 - MongoDB with Replication on multi availability zones
- RDS:
 - Aurora
 - PostgreSQL
 - standalone instance
 - High availability multiAZ instance
- Oracle database on prem for data at rest.

MongoDB:

Classified as a [NoSQL](#) database, MongoDB avoids the traditional table-based [relational database](#) structure. It is an open-source document database that provides high performance, high availability, and automatic scaling.

Aurora on RDS:

Amazon Aurora is a [MySQL-compatible](#) relational database engine that combines the speed and availability of high-end commercial databases with the simplicity and cost-effectiveness of open source databases.

PostgreSQL on RDS:

Classified as an [object-relational database](#) (ORDBMS) – i.e. a [RDBMS](#), with additional (optional use) "object" features – with an emphasis on extensibility and standards-compliance.

System Lift and shift

Current evaluations

- AWS migration tools
- vCloud Air
 - Layer2 network extensions