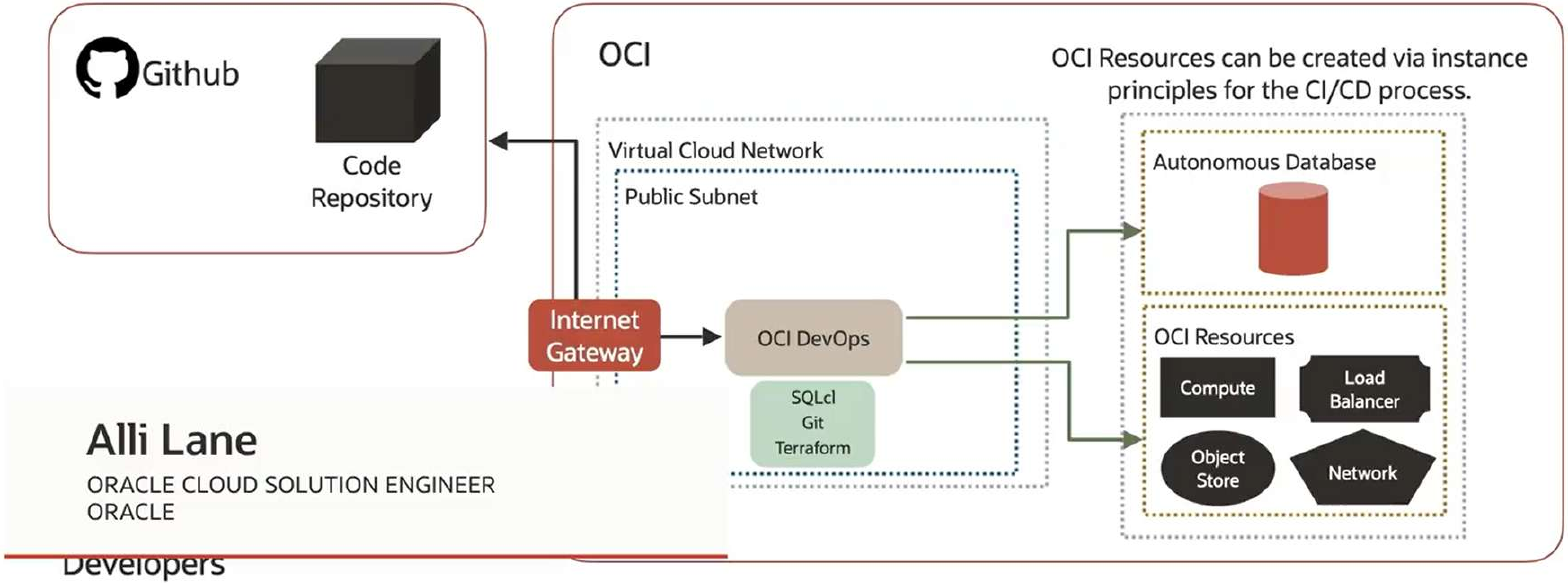
Sample Environment

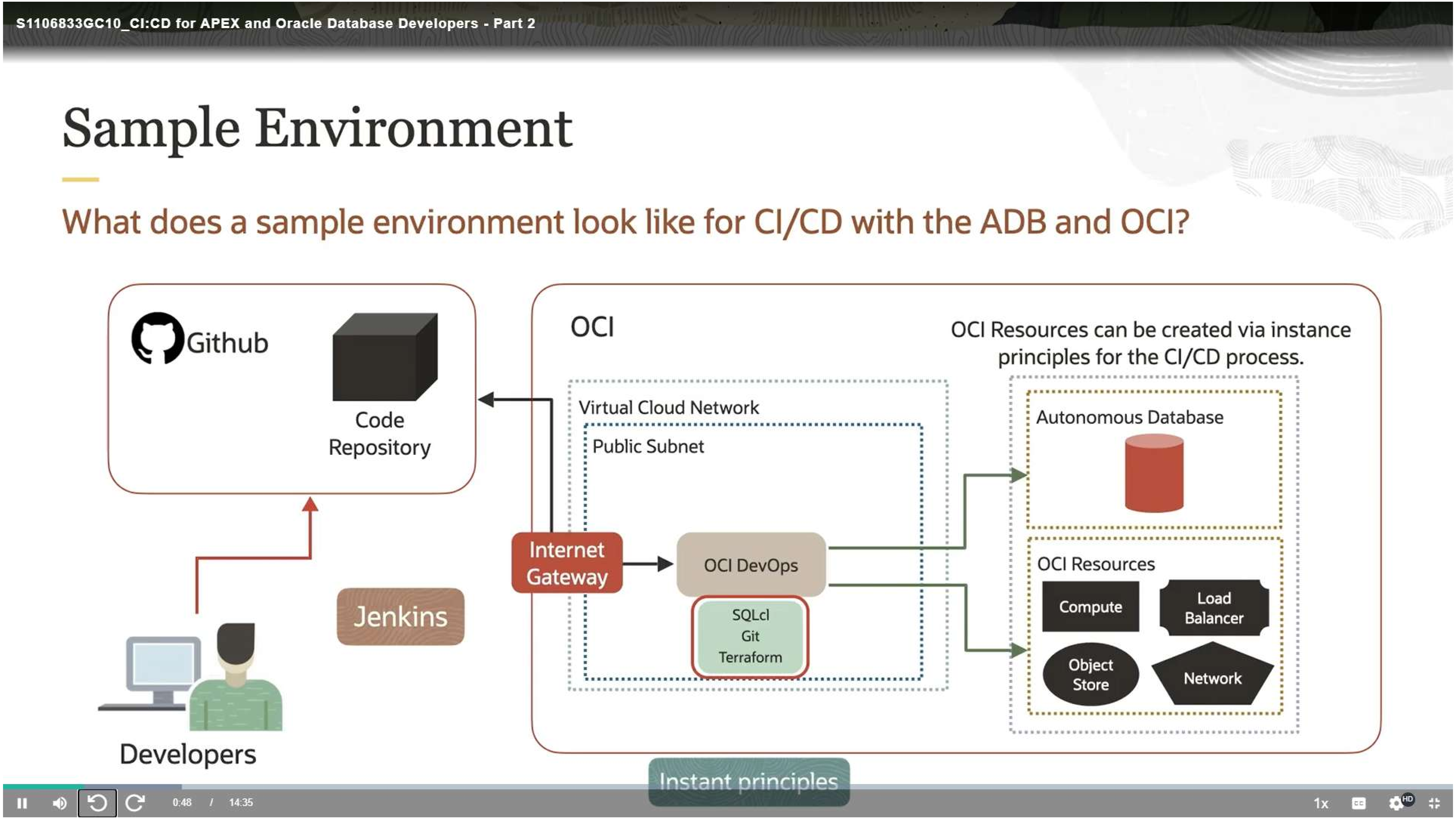
What does a sample environment look like for CI/CD with the ADB and OCI?



Alli Lane

ORACLE CLOUD SOLUTION ENGINEER
ORACLE

Developers



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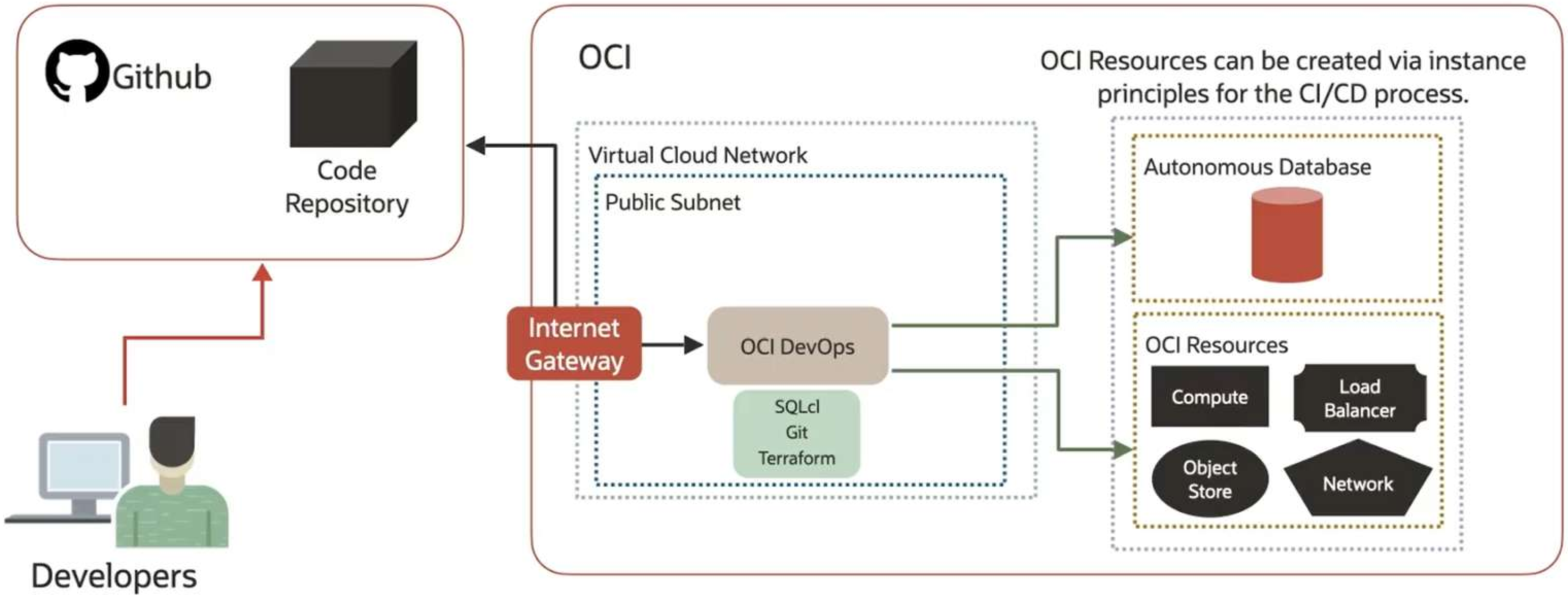
Sample Environment

What does a sample environment look like for CI/CD with the ADB and OCI?

Instant principles

Sample Environment

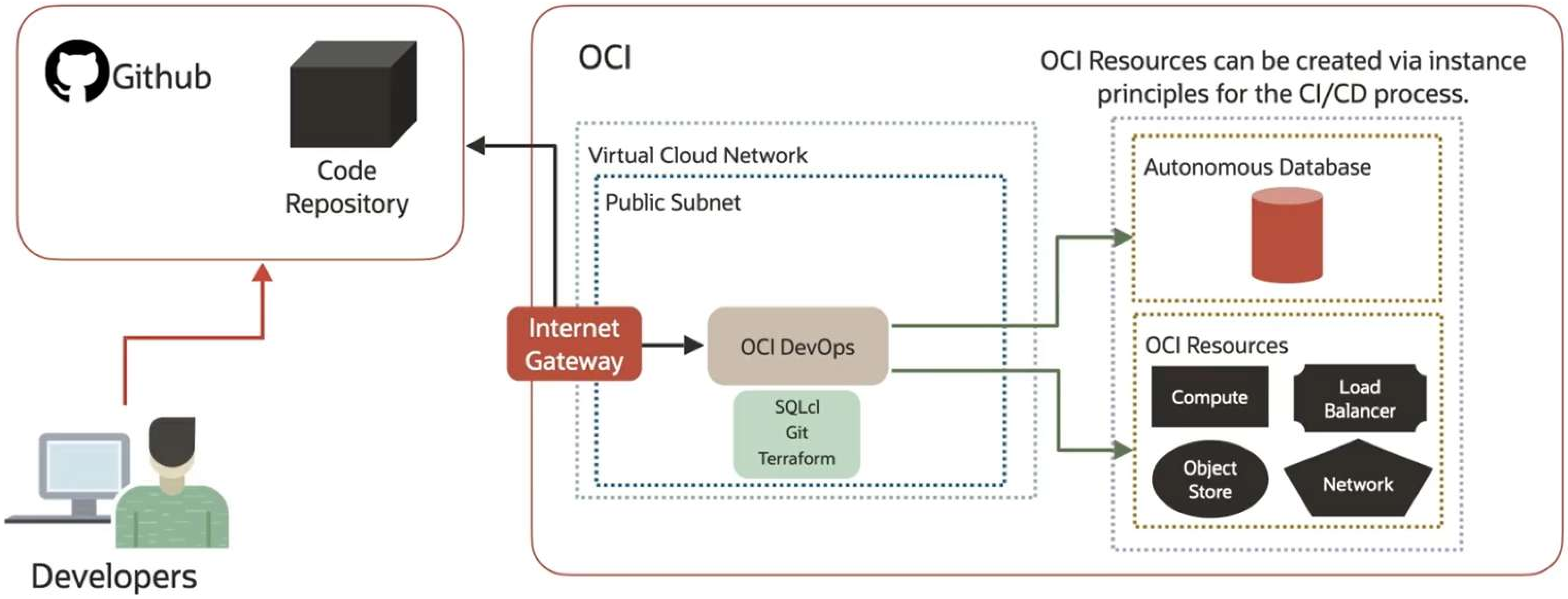
What does a sample environment look like for CI/CD with the ADB and OCI?



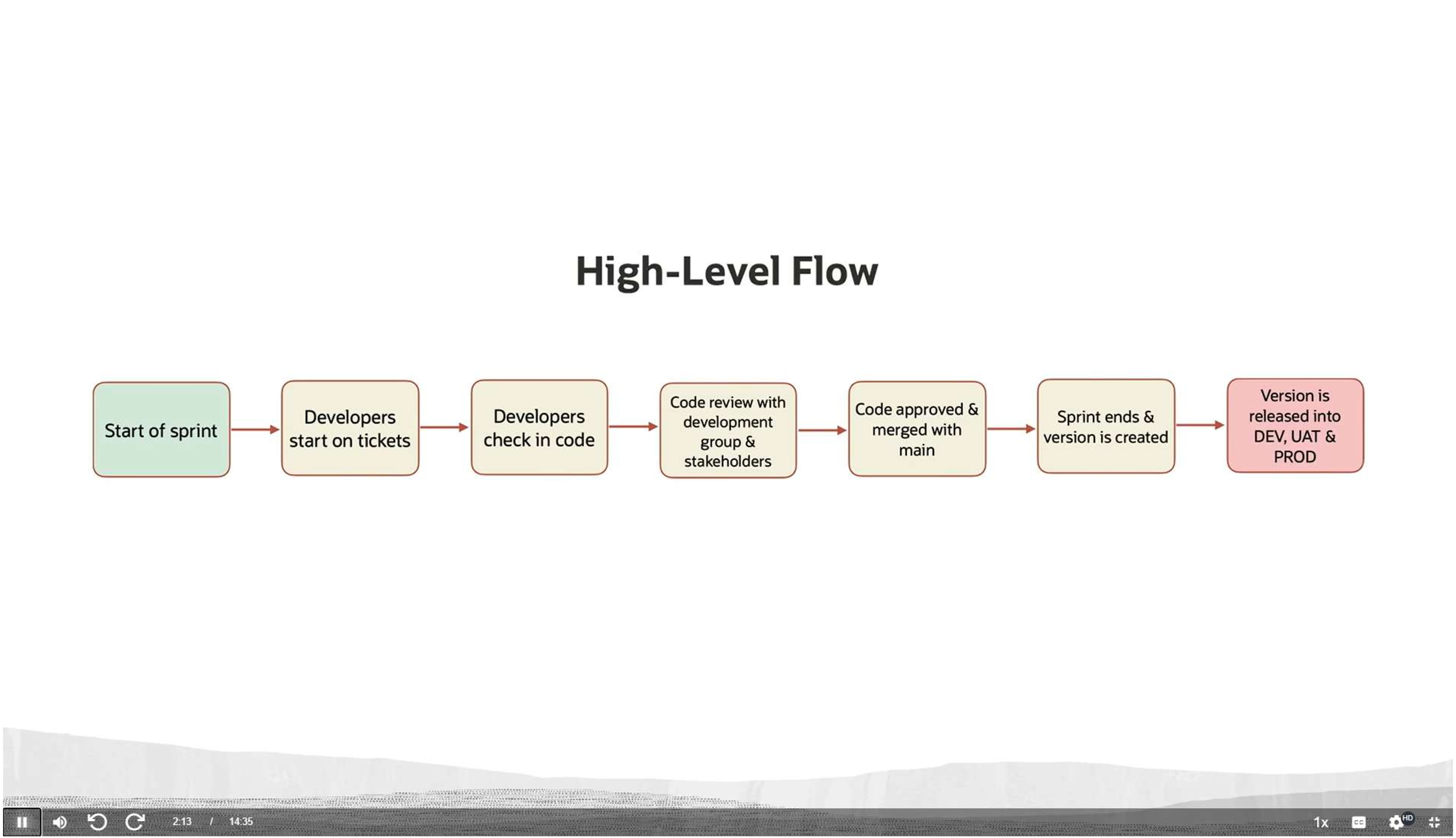
Terraform makes easy to deploy infrastructures

Sample Environment

What does a sample environment look like for CI/CD with the ADB and OCI?

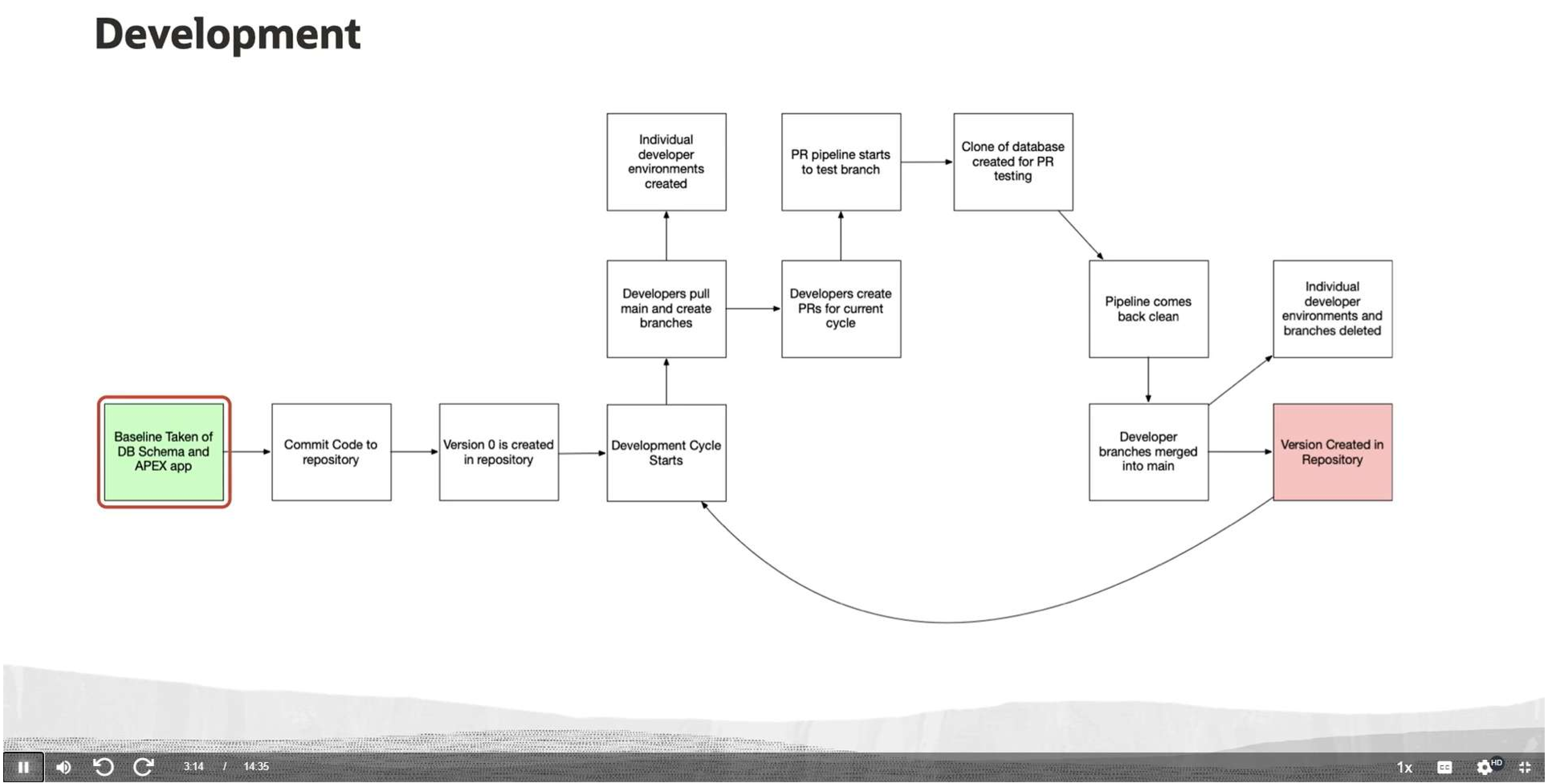


Oracle, AWS, Microsoft all have Terraform hooks



High-Level Flow

Start of sprint → Developers start on tickets → Developers check in code → Code review with development group & stakeholders → Code approved & merged with main → Sprint ends & version is created → Version is released into DEV, UAT & PROD



Development

Baseline Taken of DB Schema and APEX app

Commit Code to repository

Version 0 is created in repository

Development Cycle Starts

Developers pull main and create branches

Individual developer environments created

Developers create PRs for current cycle

PR pipeline starts to test branch

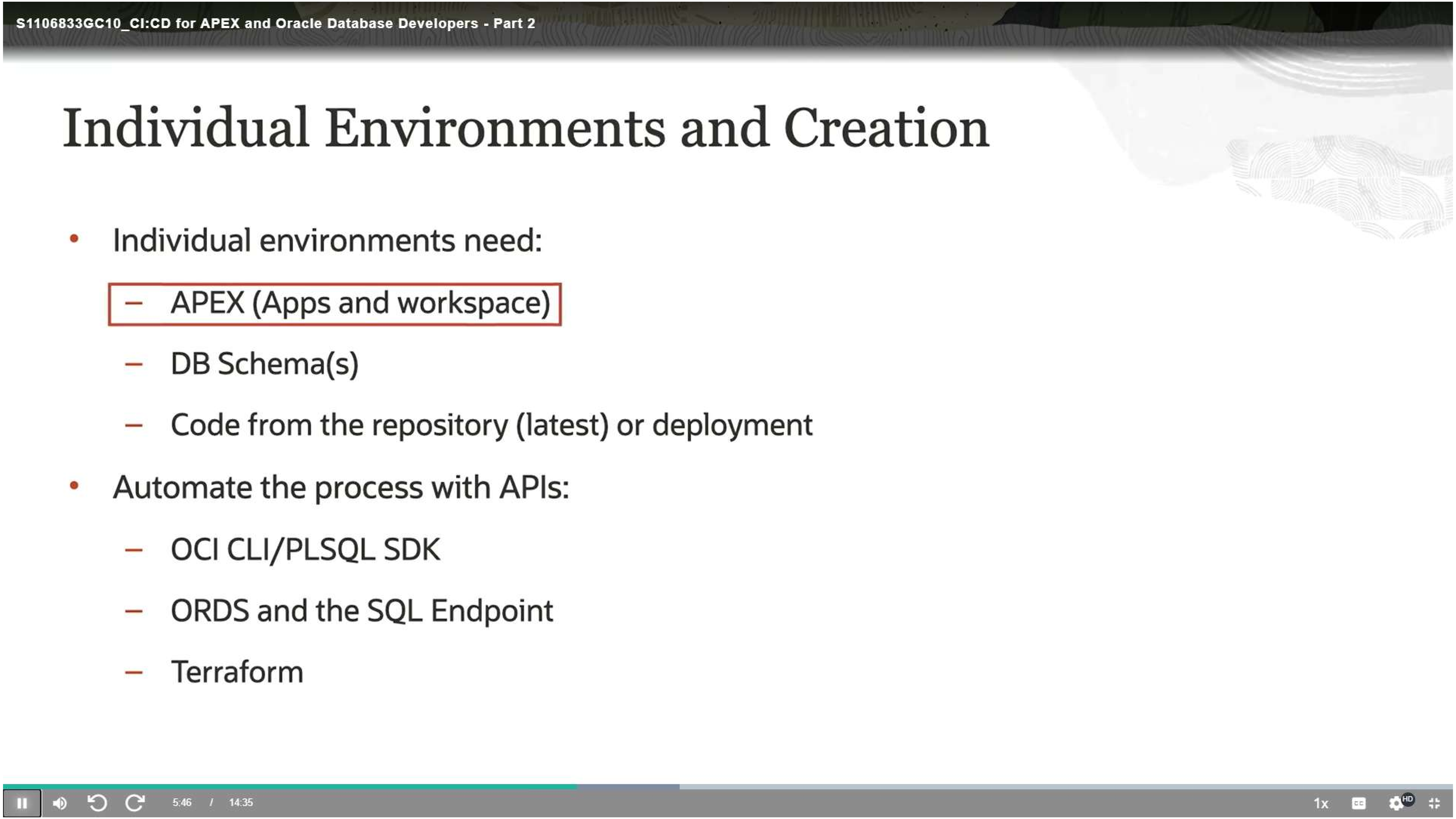
Clone of database created for PR testing

Pipeline comes back clean

Developer branches merged into main

Individual developer environments and branches deleted

Version Created in Repository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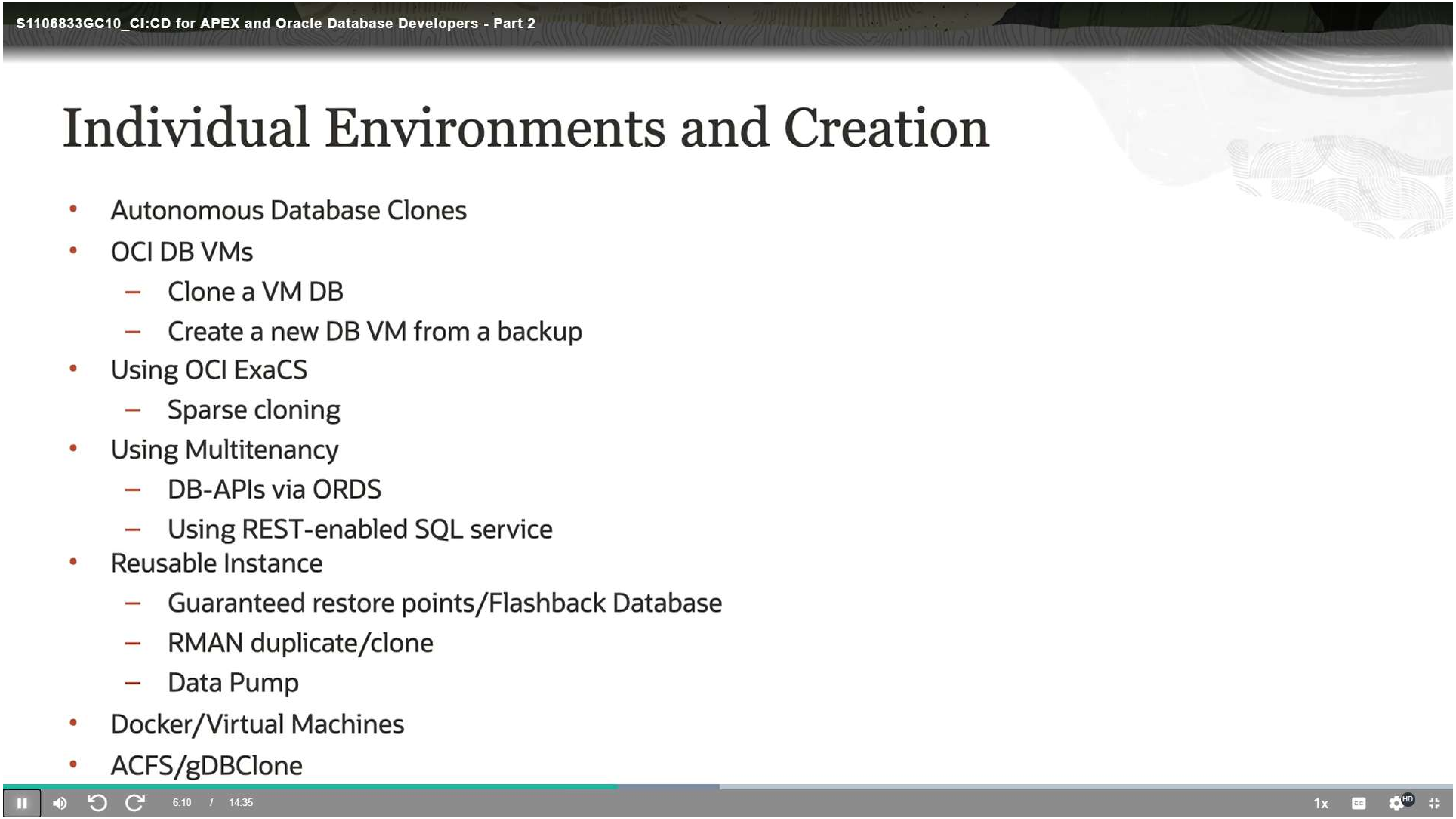
HD

Individual Environments and Creation

- Individual environments need:
  - APEX (Apps and workspace)
  - DB Schema(s)
  - Code from the repository (latest) or deployment
- Automate the process with APIs:
  - OCI CLI/PLSQL SDK
  - ORDS and the SQL Endpoint
  - Terraform



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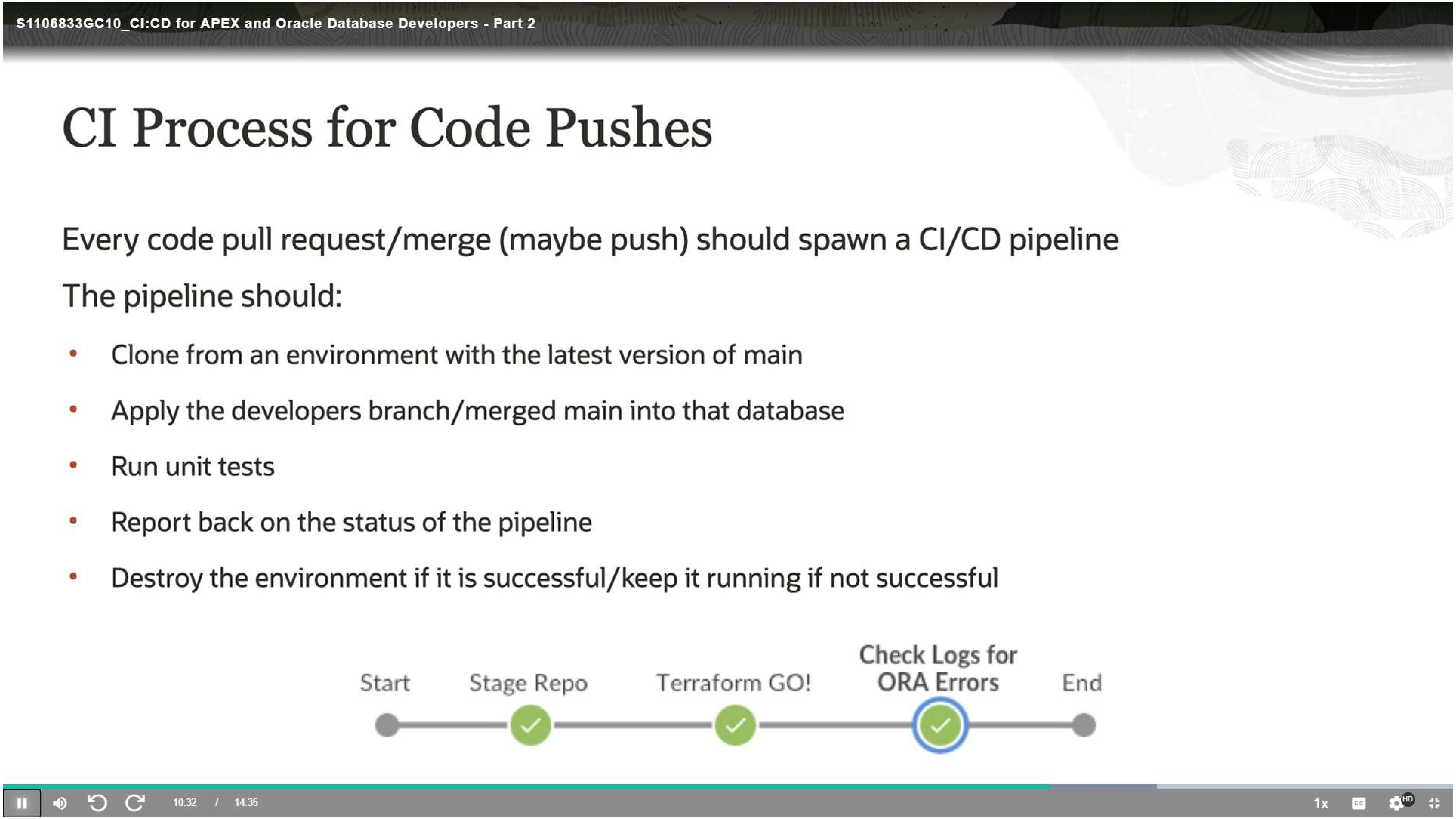
Individual Environments and Creation

- Autonomous Database Clones
- OCI DB VMs
  - Clone a VM DB
  - Create a new DB VM from a backup
- Using OCI ExaCS
  - Sparse cloning
- Using Multitenancy
  - DB-APIs via ORDS
  - Using REST-enabled SQL service
- Reusable Instance
  - Guaranteed restore points/Flashback Database
  - RMAN duplicate/clone
  - Data Pump
- Docker/Virtual Machines
- ACFS/gDBClone



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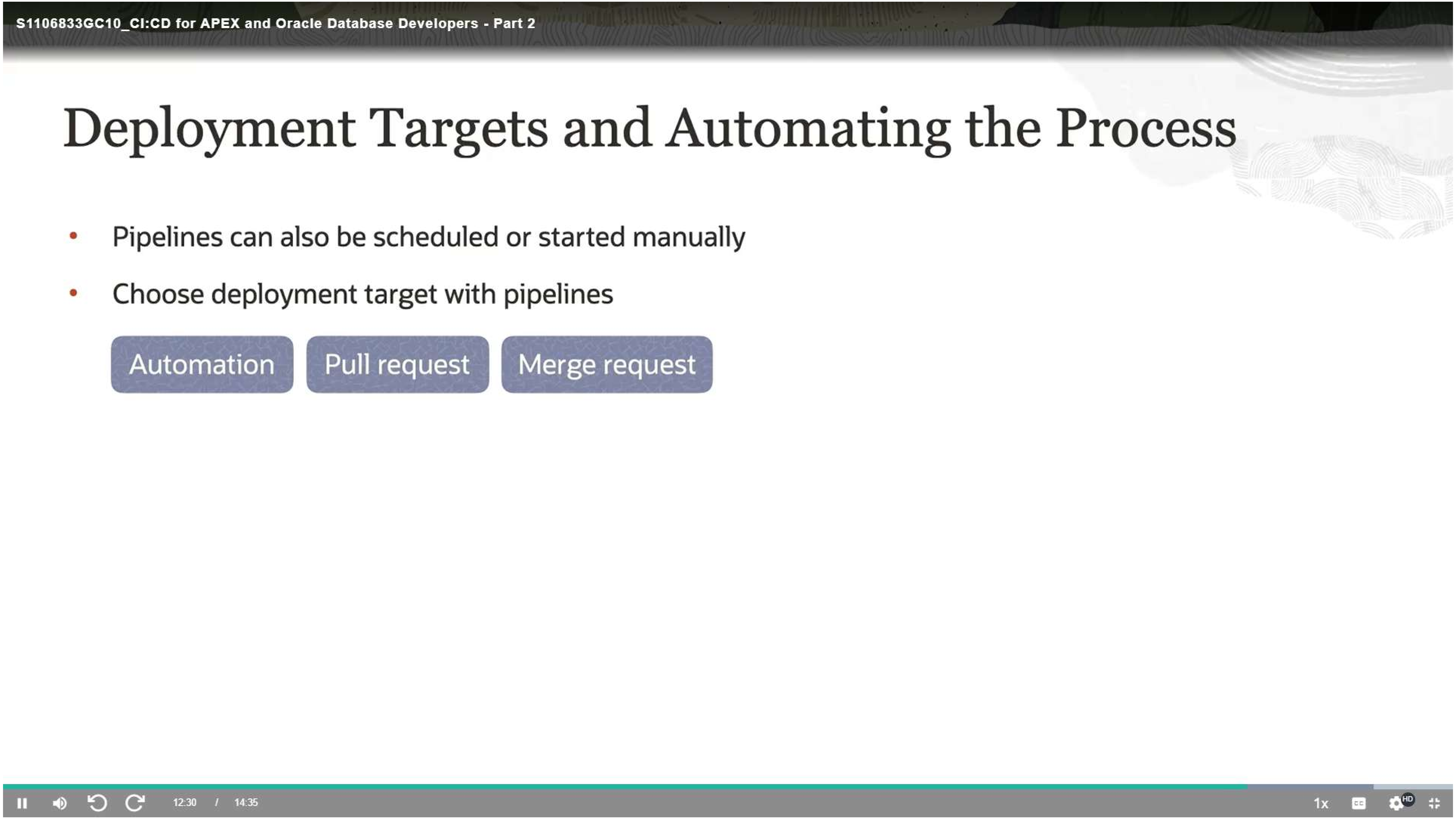
CI Process for Code Pushes

Every code pull request/merge (maybe push) should spawn a CI/CD pipeline

The pipeline should:

- Clone from an environment with the latest version of main
- Apply the developers branch/merged main into that database
- Run unit tests
- Report back on the status of the pipeline
- Destroy the environment if it is successful/keep it running if not successful



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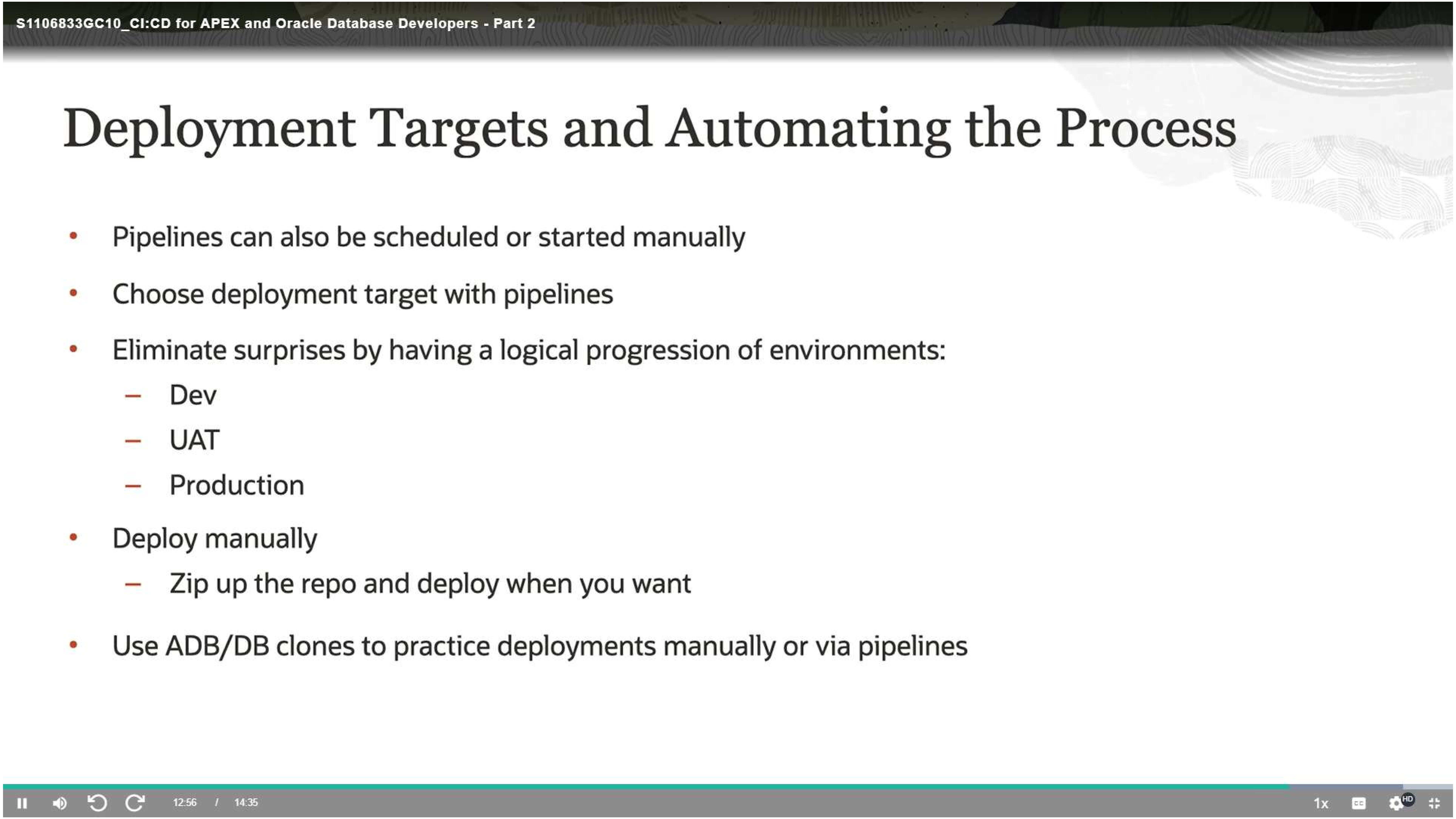
Deployment Targets and Automating the Process

- Pipelines can also be scheduled or started manually
- Choose deployment target with pipelines

Automation | Pull request | Merge request



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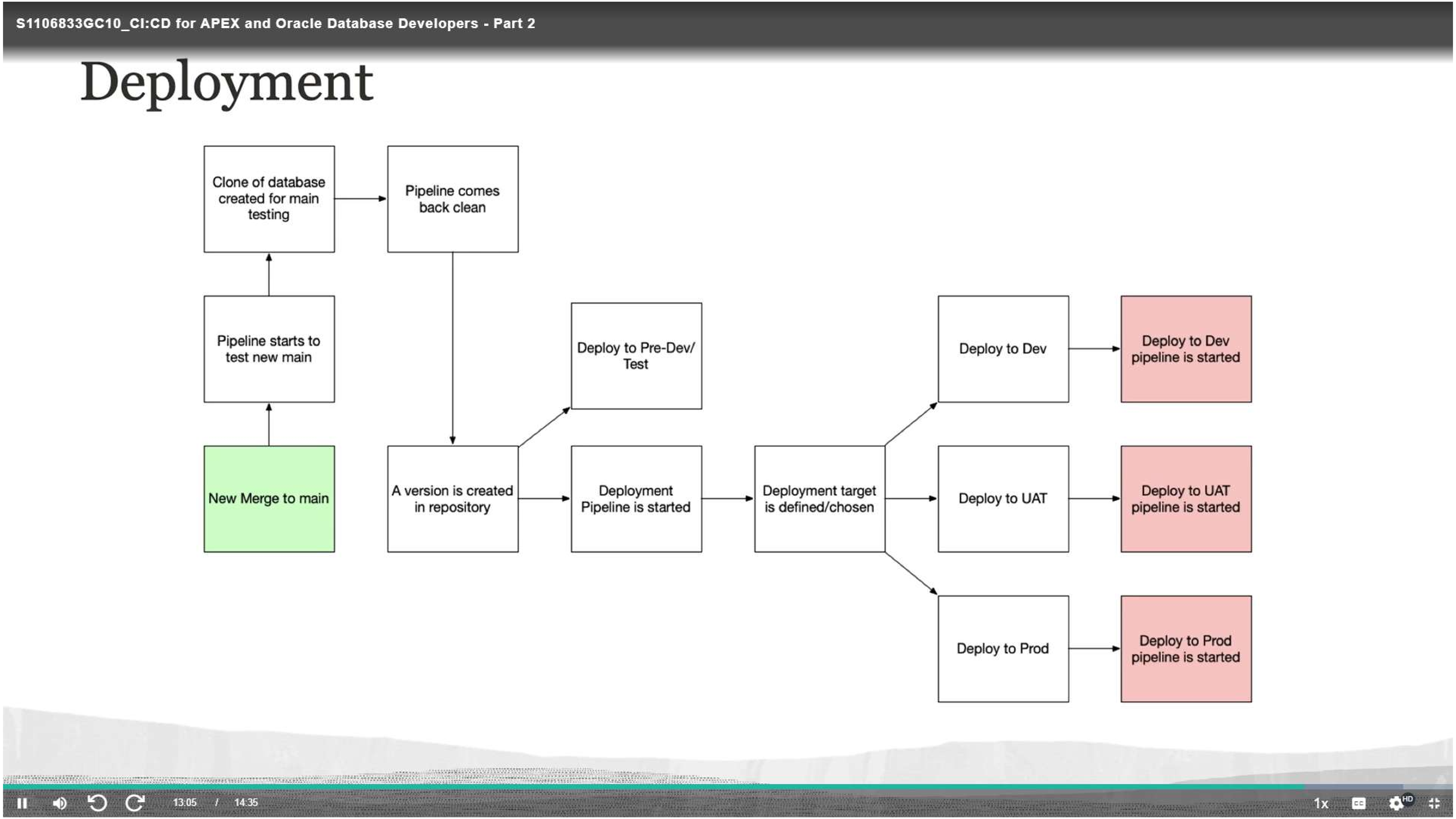
Deployment Targets and Automating the Process

- Pipelines can also be scheduled or started manually
- Choose deployment target with pipelines
- Eliminate surprises by having a logical progression of environments:
  - Dev
  - UAT
  - Production
- Deploy manually
  - Zip up the repo and deploy when you want
- Use ADB/DB clones to practice deployments manually or via pipelines



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Deployment

New Merge to main

Pipeline starts to test new main

Clone of database created for main testing

Pipeline comes back clean

A version is created in repository

Deploy to Pre-Dev/ Test

Deployment Pipeline is started

Deployment target is defined/chosen

Deploy to Dev

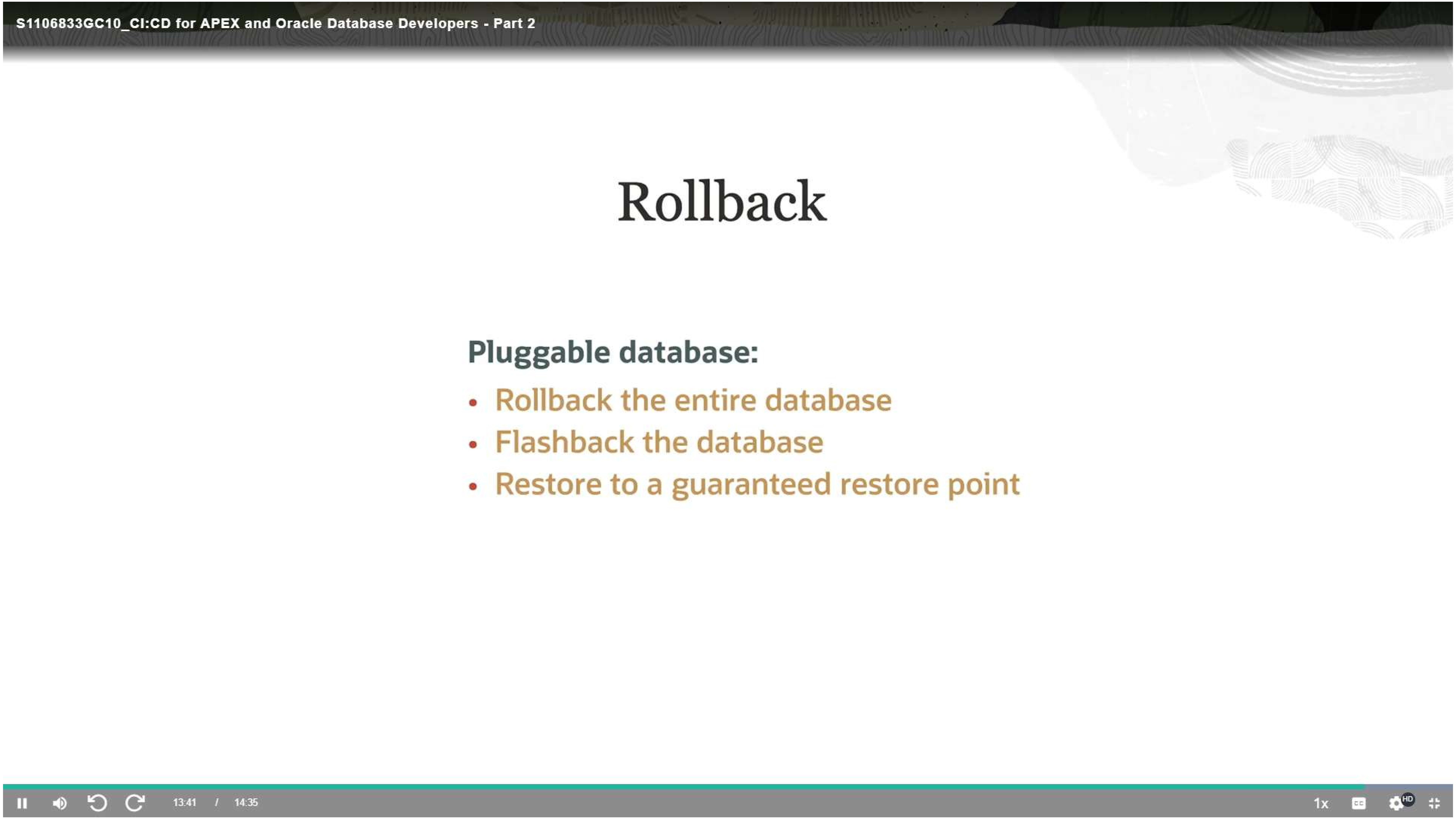
Deploy to UAT

Deploy to Prod

Deploy to Dev pipeline is started

Deploy to UAT pipeline is started

Deploy to Prod pipeline is started



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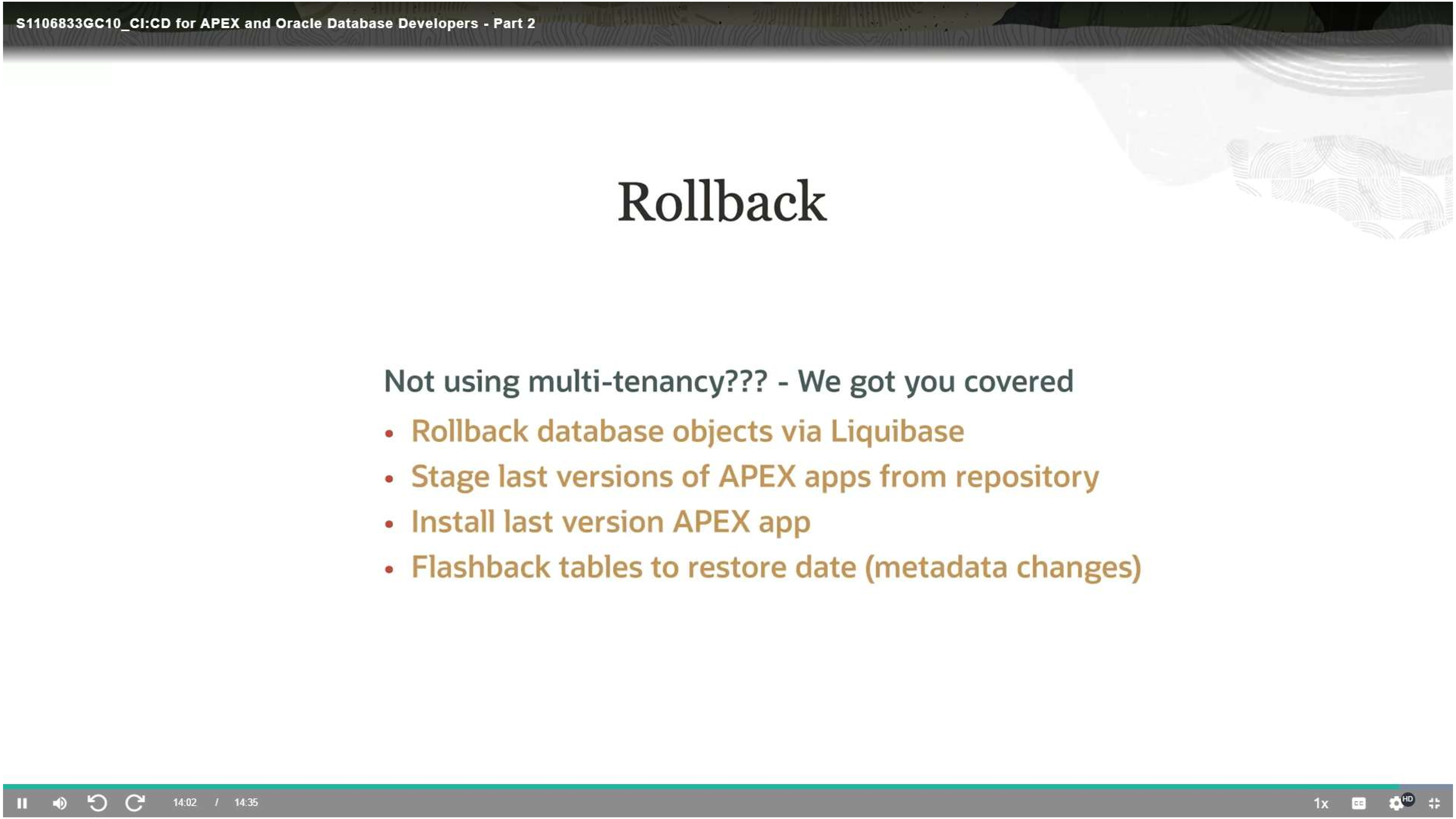
Rollback

Pluggable database:

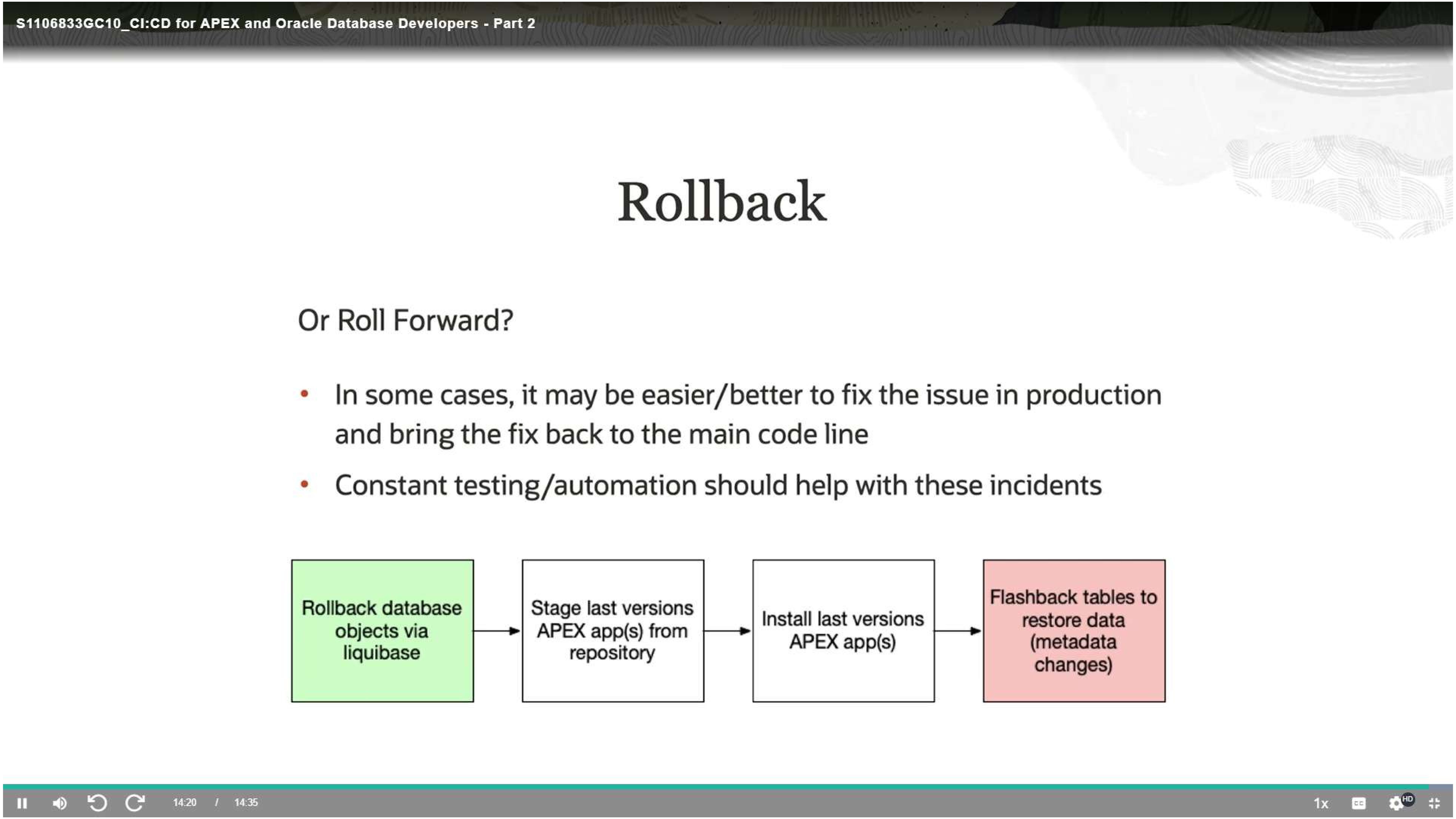
- Rollback the entire database
- Flashback the database
- Restore to a guaranteed restore point



Rollback

Not using multi-tenancy??? - We got you covered

- Rollback database objects via Liquibase
- Stage last versions of APEX apps from repository
- Install last version APEX app
- Flashback tables to restore date (metadata changes)



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Rollback

Or Roll Forward?

- In some cases, it may be easier/better to fix the issue in production and bring the fix back to the main code line
- Constant testing/automation should help with these incidents

Rollback database objects via liquibase → Stage last versions APEX app(s) from repository → Install last versions APEX app(s) → Flashback tables to restore data (metadata changes)