What The Hack – Proctor’s Guide

Kubernetes as Infrastructure

**This document holds new challenges that we are working on but aren’t ready for primetime.**

# Challenge Set 12: Security

## Lecture

* PersistentVolumes
* PersistentVolumeClaims

## Challenges

* X

## Proctor Notes & Guidelines

* X

# Challenge Set 13: Container Patterns

## Lecture

* **Sidecar Pattern**
  + One or more containers running within the same pod as the primary container for the purpose of enhancing the primary container.
* **Adapter Pattern**
  + One or more containers running within the same pod as the primary container for the purpose of providing a compatible interface to the primary container for external clients or actors interacting with the primary container.
* **Ambassador Pattern**
  + One or more containers running within the same pod as the primary container for the purpose of providing a consistent interface to external resources



## Challenges

* Sidecar Pattern
  + App Container - a web server that serves a static text file
  + Side Car - a container that is constantly appending the current timestamp to the text file
* Ambassador/Proxy Pattern
  + App Container - a simple PHP web page accessed via HTTP
  + Ambassador - A HAProxy container that proxies database connection to different MySQL servers based on the environment. The app container will just always connect to a fixed port on the ambassador container locally while the ambassador will forward the connection to the destination database as appropriate
* Adapter Pattern
  + App Container - a simple PHP web page accessed via HTTP
  + Adapter - an NGINX container that provides HTTPS access to the app container

## Proctor Notes & Guidelines

* X

# Challenge Set 14: Geo-Redundancy

## Lecture

* PersistentVolumes
* PersistentVolumeClaims

## Challenges

* X

## Proctor Notes & Guidelines

* X

# Challenge Set 15: Azure Dev Space

## Lecture:

* Advanced deployments

## Challenges

* Cluster - Multiple worker pools
* Applications - Helm Charts
* Different storage, NFS, SMB, Ceph, Cinder, Swift, etc…

## Proctor Notes & Guidelines

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