Tech & Learning Webinar: Ed-Fi On Containers

March 31st, 2021

Welcome!

- 30-minute webinar, 10-min Q&A
- Ask questions any time through the chat or Q&A feature on the Webex interface
- The webinar is being recorded and will be posted to ed-fi.org

What We'll Cover

- Ed-Fi technology deployment journey
- Introduction to Containers and why it is a game changer
- Basics of Docker container technology, and its toolbox.
- Docker Files, Images and Docker Compose Orchestration

Ed-Fi Overview
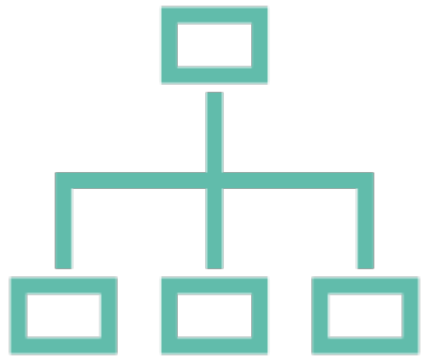
Ed-Fi Data Standard

Ed-Fi ODS / API

Ed-Fi Tools

Ed-Fi Deployments

- Source Code Installation

- Azure ARM Templates

- AWS Cloud Formation Templates

- PowerShell and GUI installers

Docker Containers

Light weight

Secure

Portable

Infrastructure as code

Containers on Google Cloud

- Google Compute Engine
- Cloud Run

Containers on AWS

- Amazon EC2 Container Service

Containers on Azure

- Azure Container Service
- Azure Container Instance

Containers on Prem/VMs on Cloud

Key Enablers

Migration to .NET Core	Cross Platform	• Full cross-platform support. • Docker deployment for ODS/API running on Linux containers backed by PostgreSQL 11.
PostgreSQL Backend	Open Source, Enterprise Database Platform	• Full support for PostgreSQL backend in addition to SQL Server
Apache License	Open Source	• Facilitated publishing docker images to Docker Hub without licensing concerns.
Bulk Load	Tech Debt	• Legacy MSMQ based server-side bulk would have required major rewrite to make it cross platform.

Basic Container Concepts

What is a Container

- Docker describes a container as a "standardized unit of software." that packages up code and all its dependencies (runtime, settings, system tools) so the application runs quickly and reliably from one computing environment to another.

VM vs Container
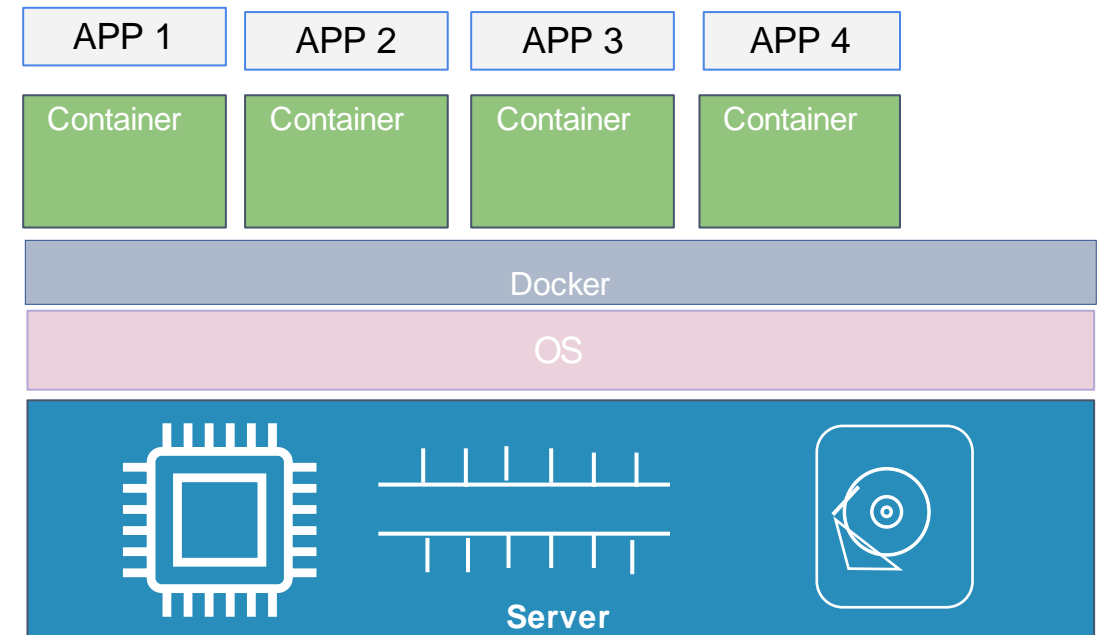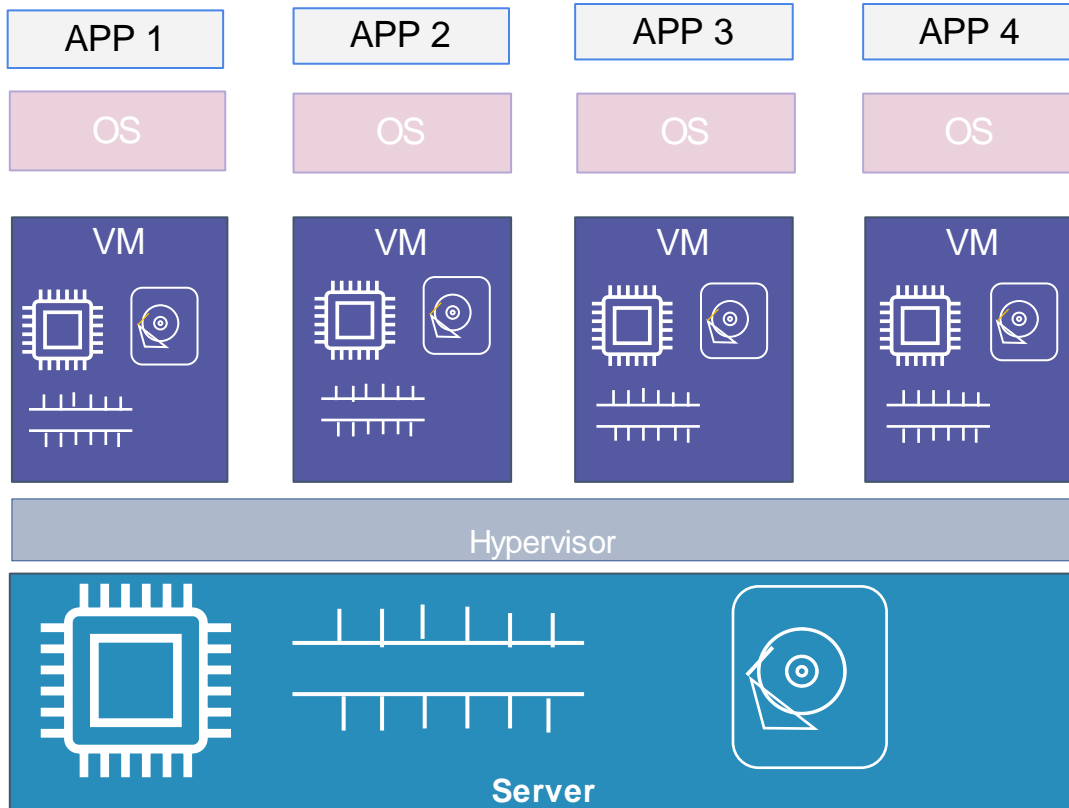
Key Terminology
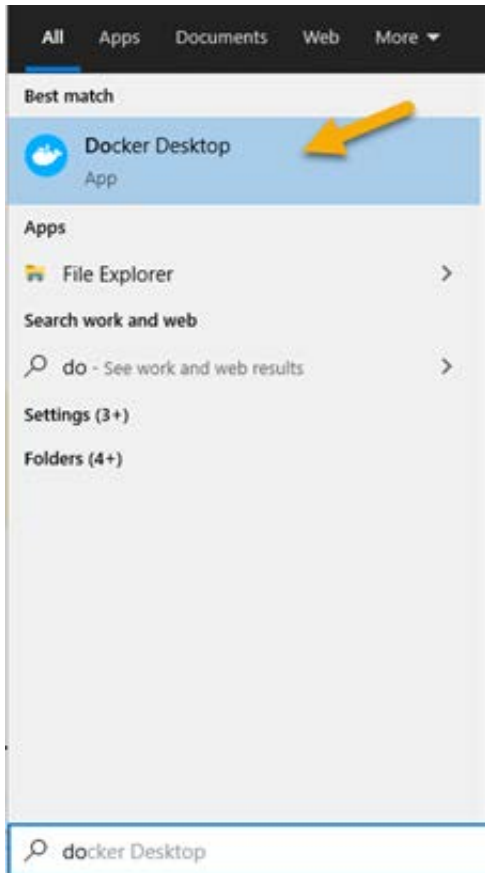
Docker

Container

Image

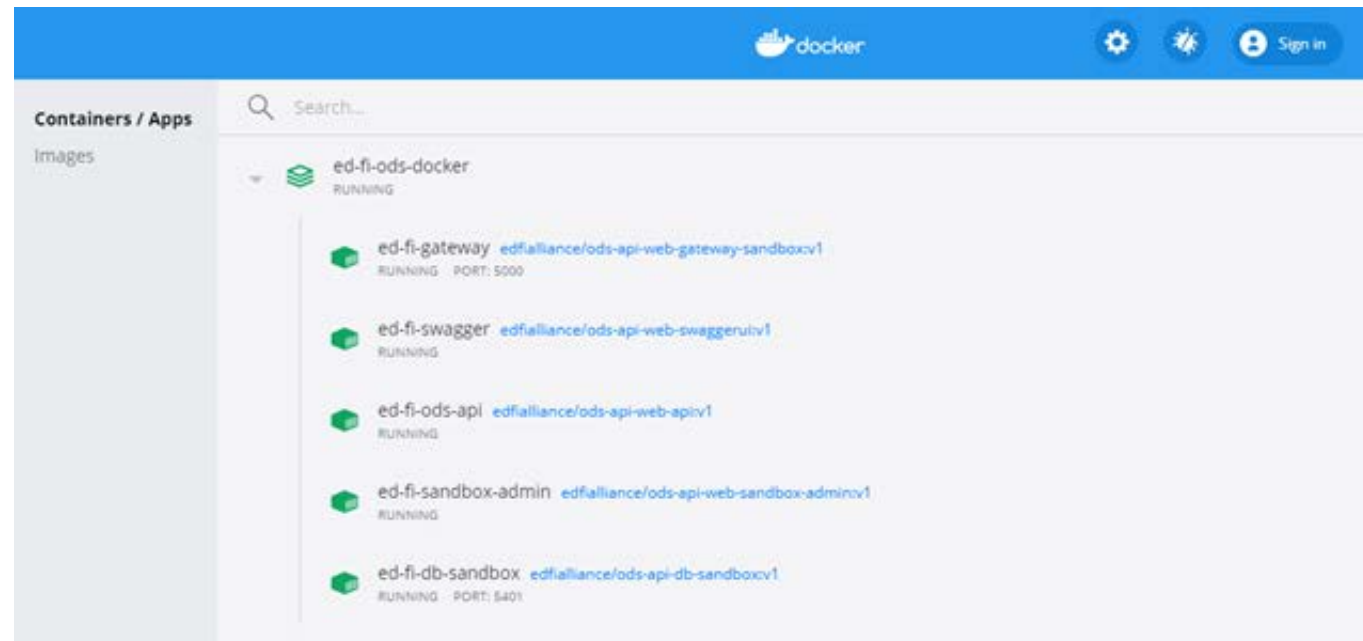Volume

Docker Registry

Build

Compose

Kubernetes

Working with Docker

Installing Docker Desktop

https://docs.docker.com/get-docker/
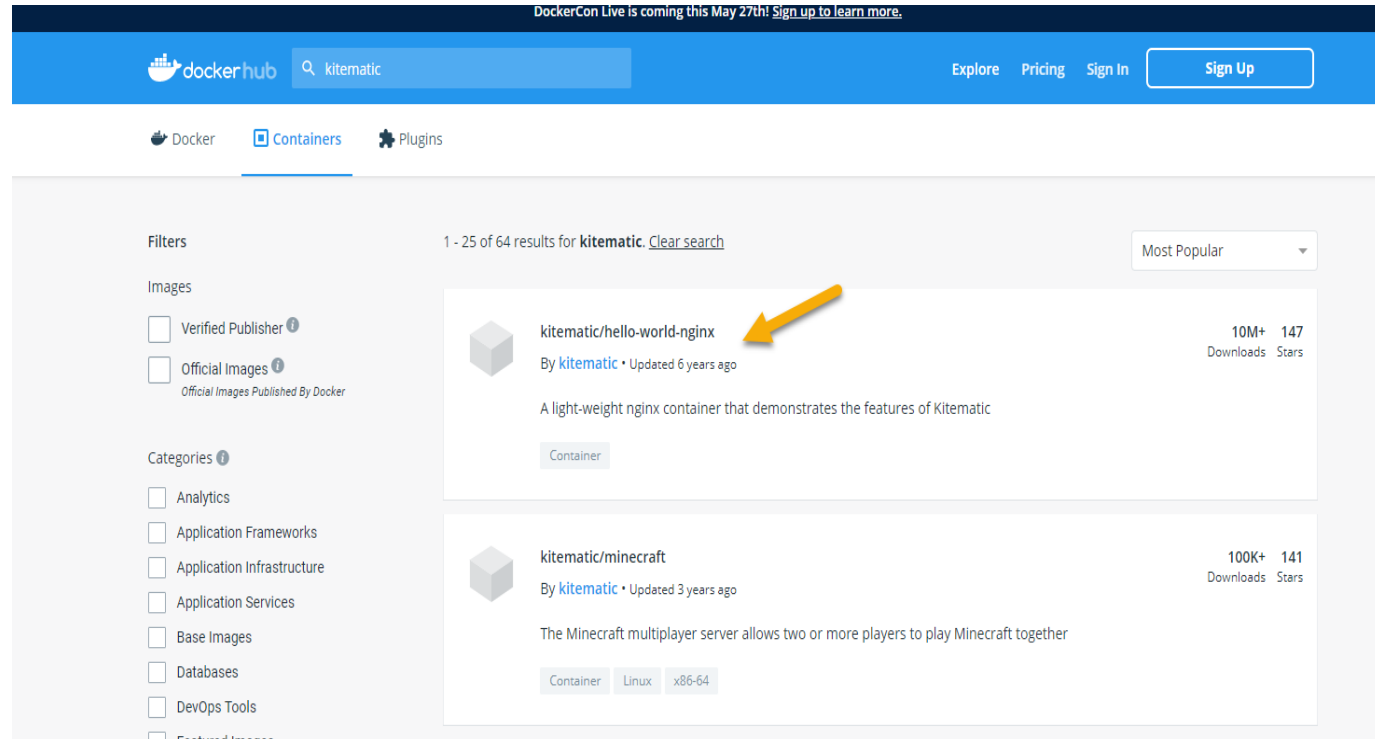

Docker Dashboard

Docker Client Command Line Tools

docker pull [image name]

docker run [image name]

docker images - list images

docker ps - list containers

docker rm [container id]

Docker File

FROM LABEL RUN COPY

ENTRYPOINT WORKDIR ENV EXPOSE

Docker File

Docker File   Docker Build   Docker Image
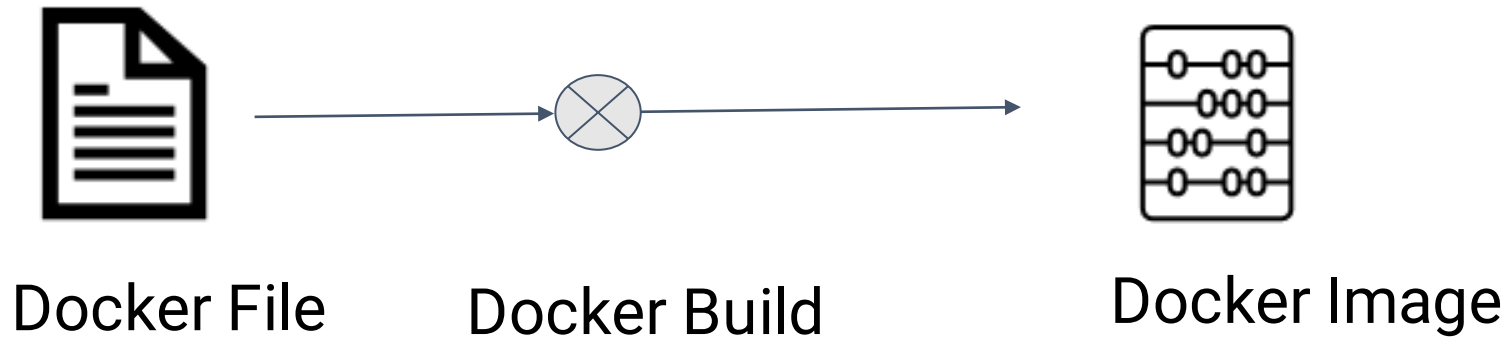
Build, Run
View status of running services
Stream log output of running services

Docker Compose

VERSION

SERVICES

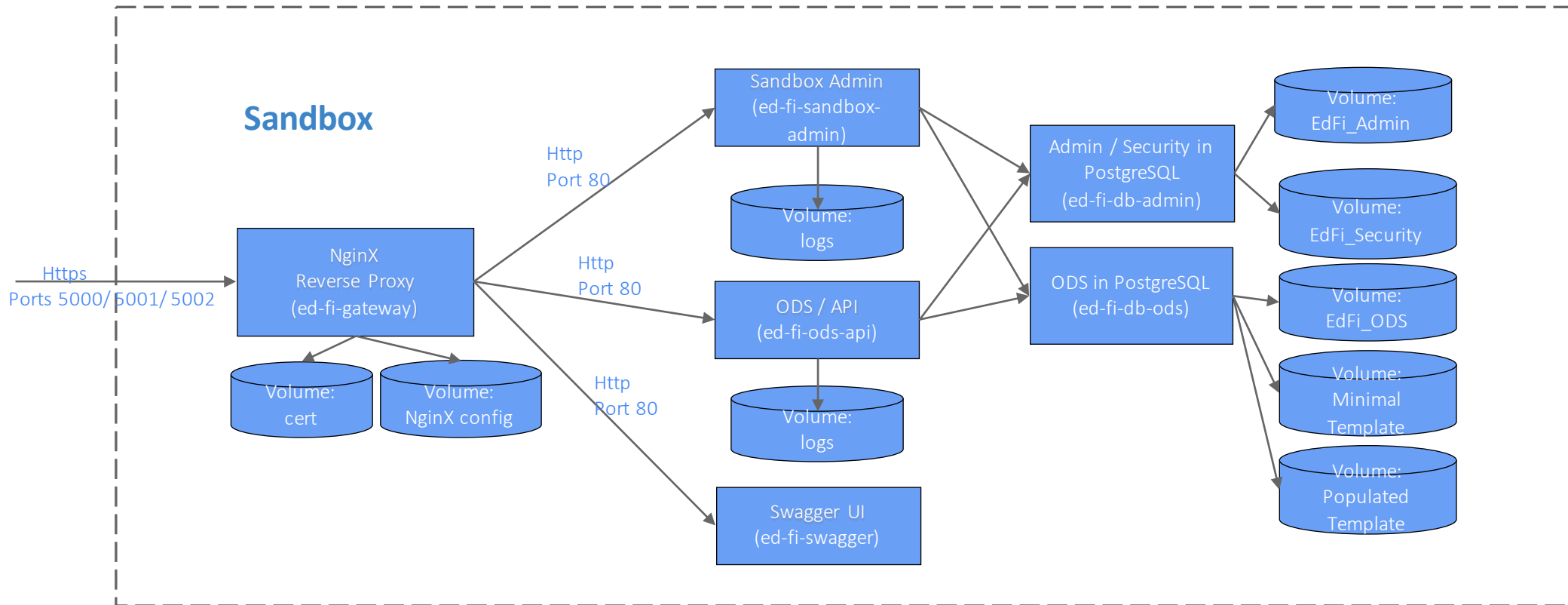   Build   Image   Enrironment   Ports   Volumes

VOLUMES

NETWORKS

Docker Compose Commands

- Build, start, stop services
- View status of running services
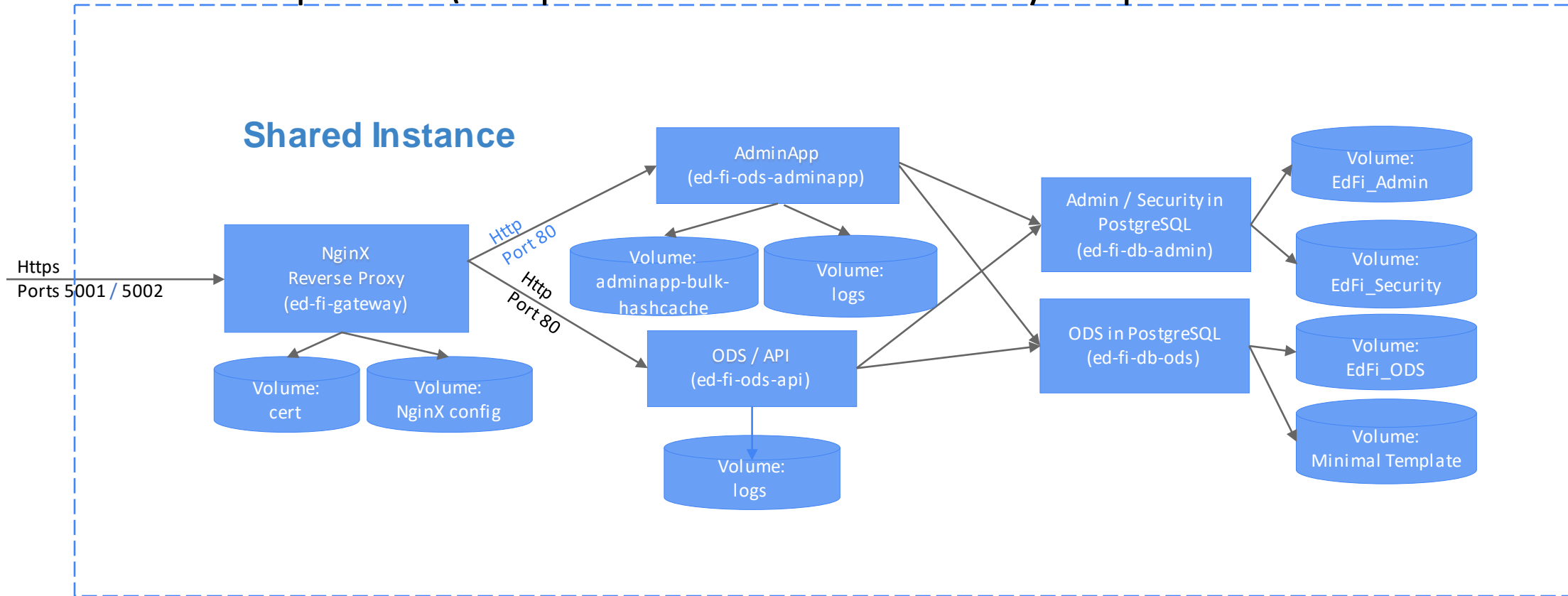- Stream log output of running services

Ed-Fi Docker Configurations

docker-compose -f ./compose-sandbox-env.yml up -d

Ed-Fi Docker Configurations

docker-compose -f .\compose-shared-instance-env.yml up -d

What is next on Ed-Fi Docker

Expand Configuration Support – SQL Server , Database partitioning options.

Replace current various installer support with Docker.

Kubernetes Orchestration.

Development configuration support.

Resources

- Tech Docs: https://techdocs.ed-fi.org/display/EDFITOOLS/Docker+Deployment

- Git Hub: https://github.com/Ed-Fi-Alliance-OSS/Ed-Fi-ODS-Docker

- Docker Docs: https://docs.docker.com/

Questions?