



ed-fi[®]
ALLIANCE

Tech & Learning Webinar: Ed-Fi On Containers

March 31st, 2021

Welcome!

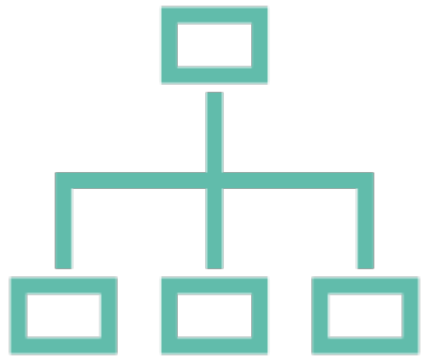
- 30-minute webinar, 10-min Q&A
- Ask questions any time through the chat or Q&A feature on the Webex interface
- The webinar is being recorded and will be posted to ed-fi.org

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

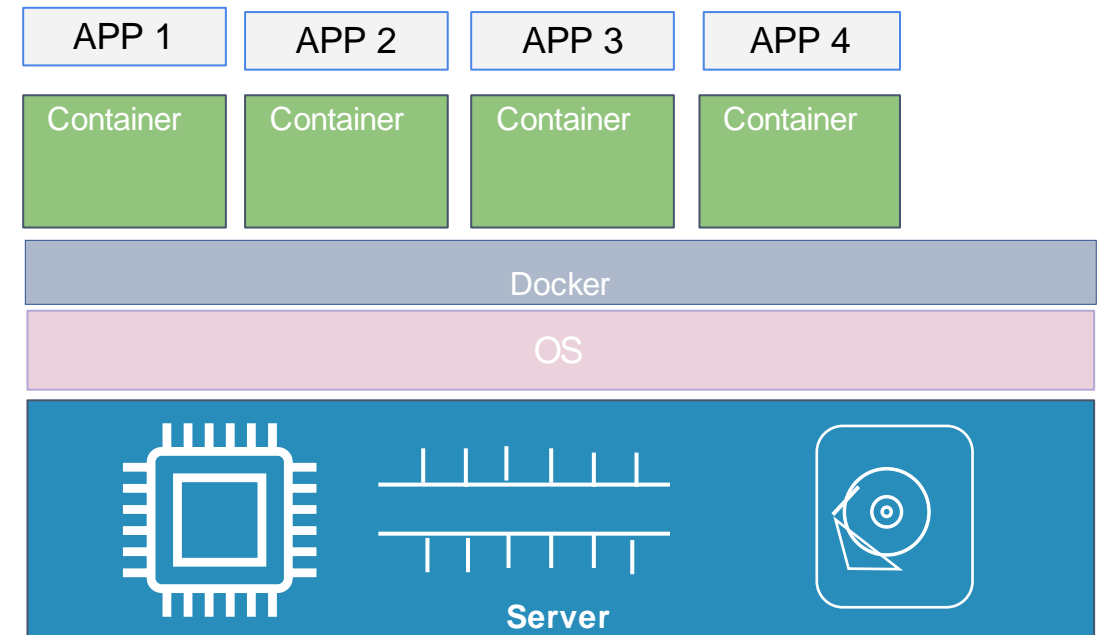
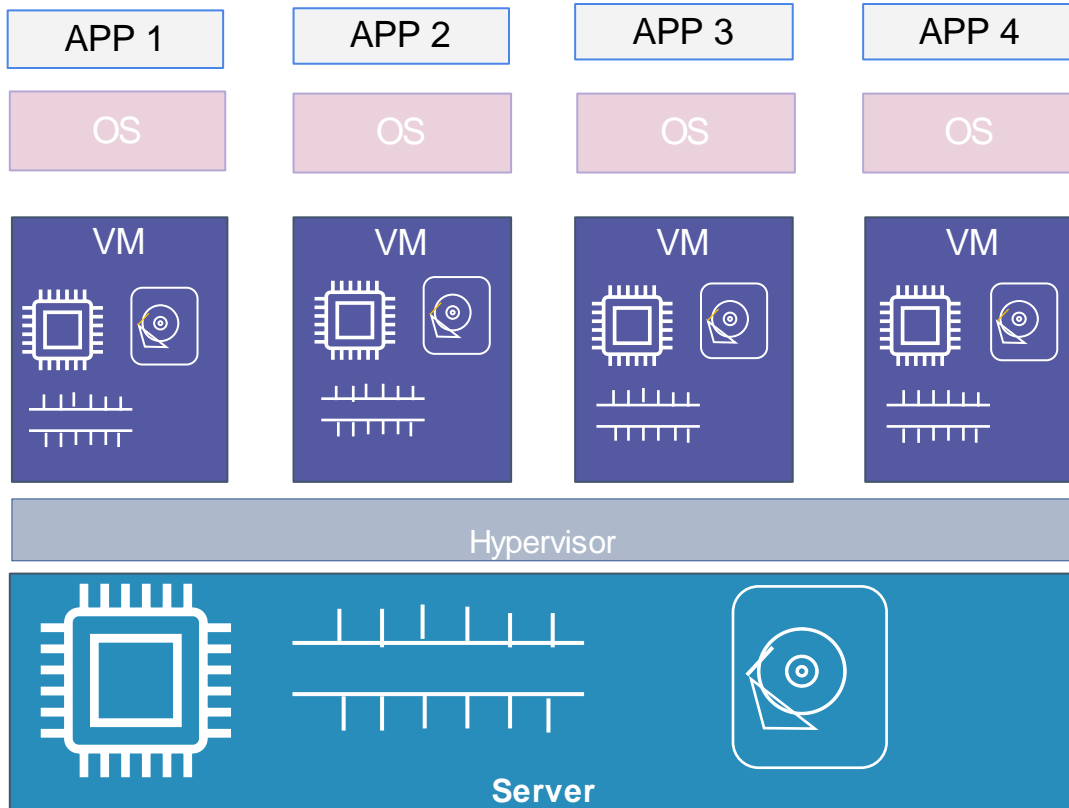
Migration to .NET Core	Cross Platform	<ul style="list-style-type: none">• Full cross-platform support.• Docker deployment for ODS/API running on Linux containers backed by PostgreSQL 11.
PostgreSQL Backend	Open Source, Enterprise Database Platform	<ul style="list-style-type: none">• Full support for PostgreSQL backend in addition to SQL Server
Apache License	Open Source	<ul style="list-style-type: none">• Facilitated publishing docker images to Docker Hub without licensing concerns.
Bulk Load	Tech Debt	<ul style="list-style-type: none">• 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

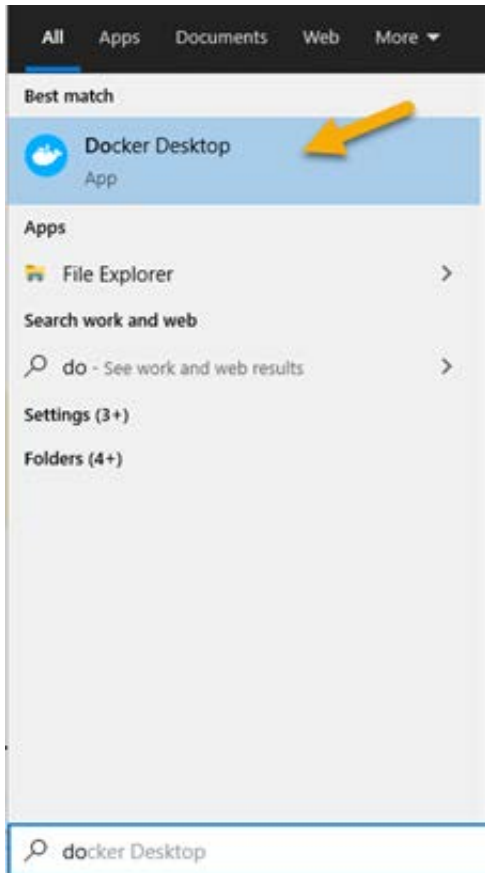
Compose

Kubernetes

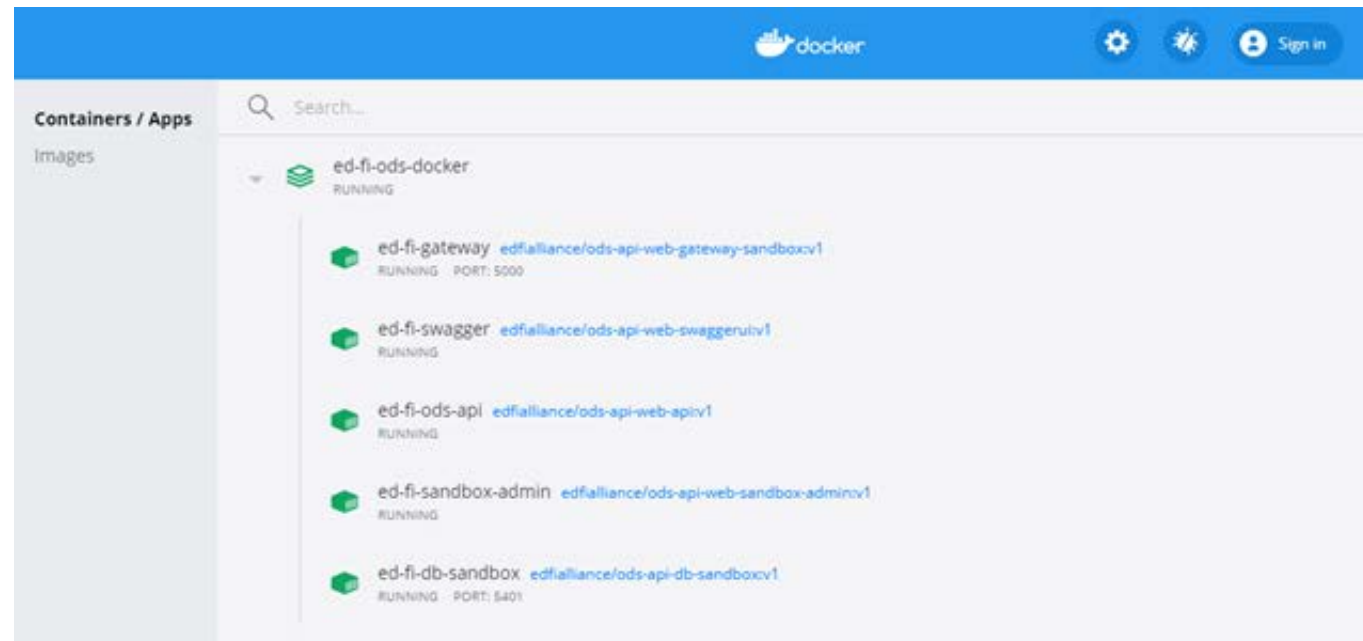
Working with Docker

Installing Docker Desktop

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



Docker Dashboard



Docker Client Command Line Tools

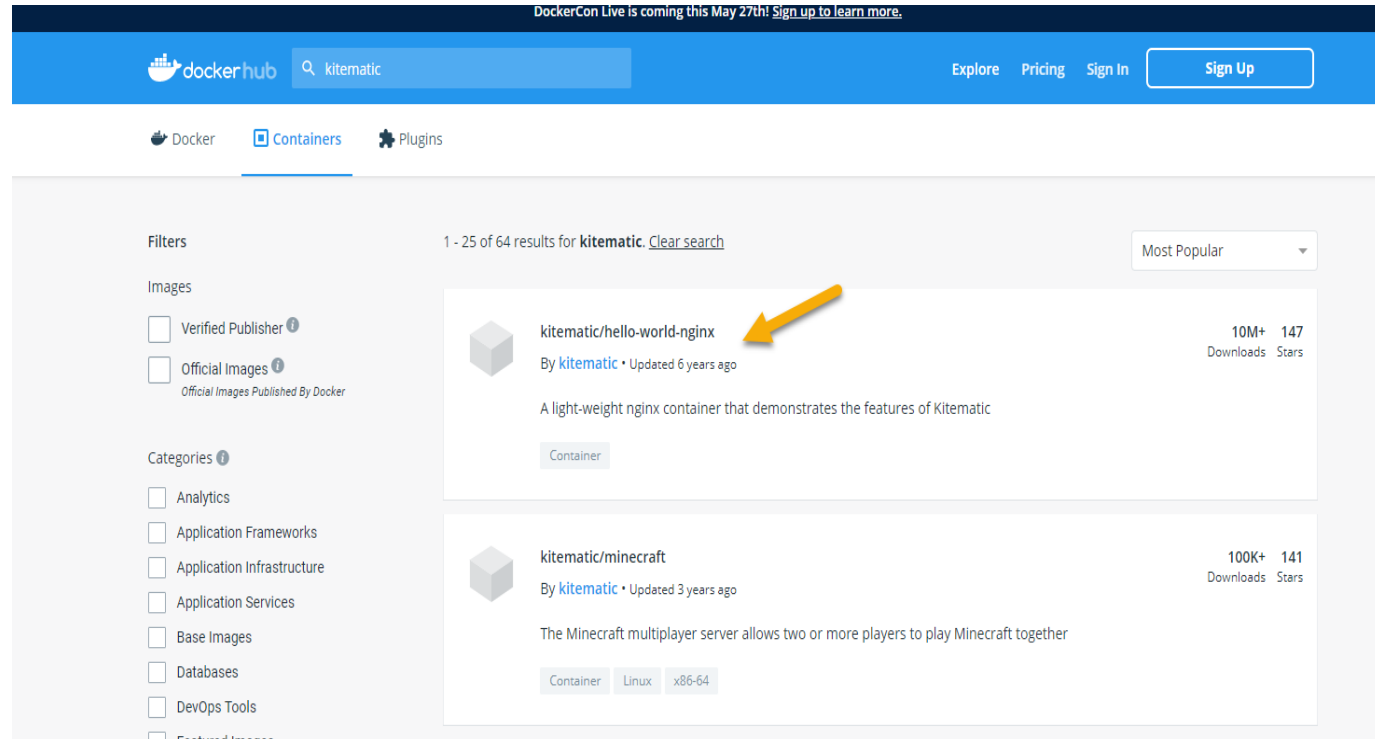
docker pull [image name]

docker run [image name]

docker images - list images

docker ps - list containers

docker rm [container id]



The screenshot shows the Docker Hub search results for the term "kitematic". The search bar at the top contains "kitematic" and the results are sorted by "Most Popular". The first result is "kitematic/hello-world-nginx", which is highlighted with a yellow arrow. The second result is "kitematic/minecraft".

Filters: 1 - 25 of 64 results for **kitematic**. [Clear search](#) Most Popular

Images

- Verified Publisher ⓘ
- Official Images ⓘ
Official Images Published By Docker

Categories ⓘ

- Analytics
- Application Frameworks
- Application Infrastructure
- Application Services
- Base Images
- Databases
- DevOps Tools
- Featured Images

kitematic/hello-world-nginx 10M+ 147
By [kitematic](#) · Updated 6 years ago
Downloads Stars
A light-weight nginx container that demonstrates the features of Kitematic
Container

kitematic/minecraft 100K+ 141
By [kitematic](#) · Updated 3 years ago
Downloads Stars
The Minecraft multiplayer server allows two or more players to play Minecraft together
Container Linux x86-64

Docker File

FROM

LABEL

RUN

COPY

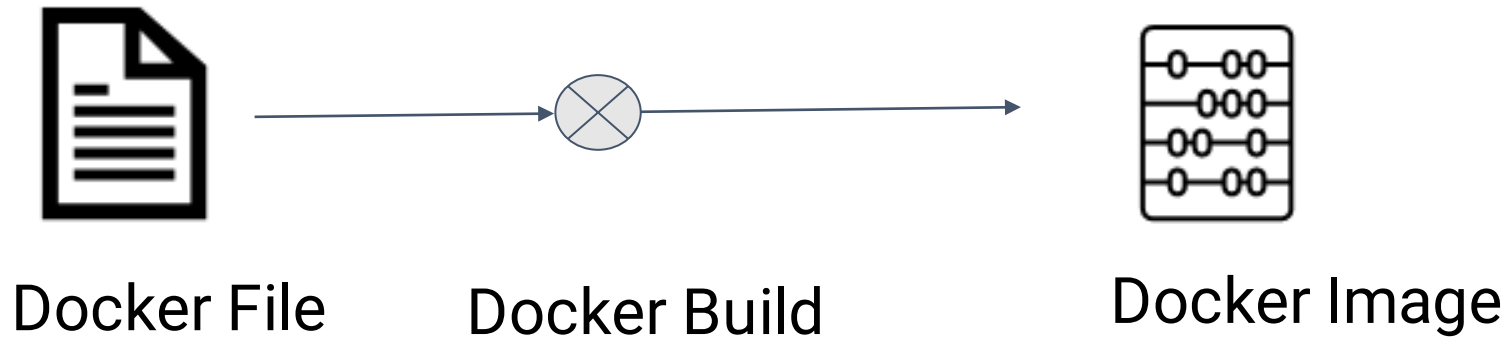
ENTRYPOINT

WORKDIR

ENV

EXPOSE

Docker File



Build, Run

View status of running services

Stream log output of running services

Docker Compose

VERSION

SERVICES

Build

Image

Enrironment

Ports

Volumes

VOLUMES

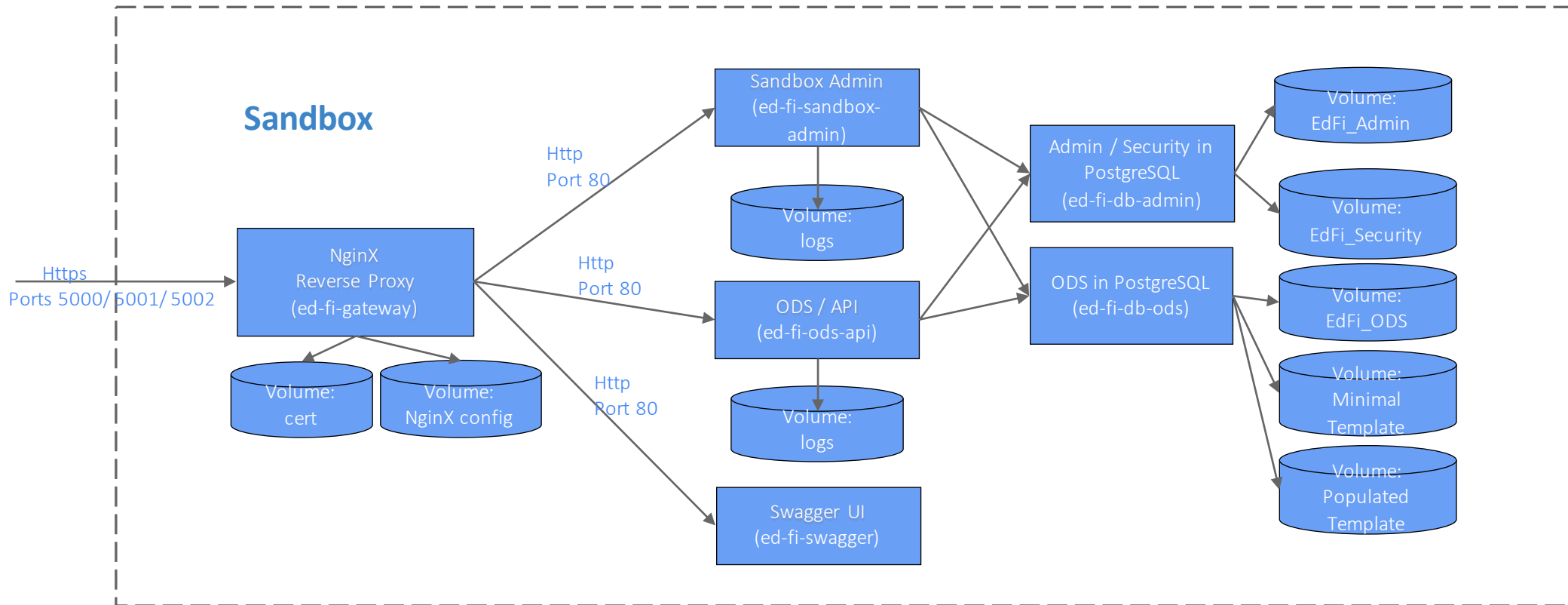
NETWORKS

Docker Compose Commands

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

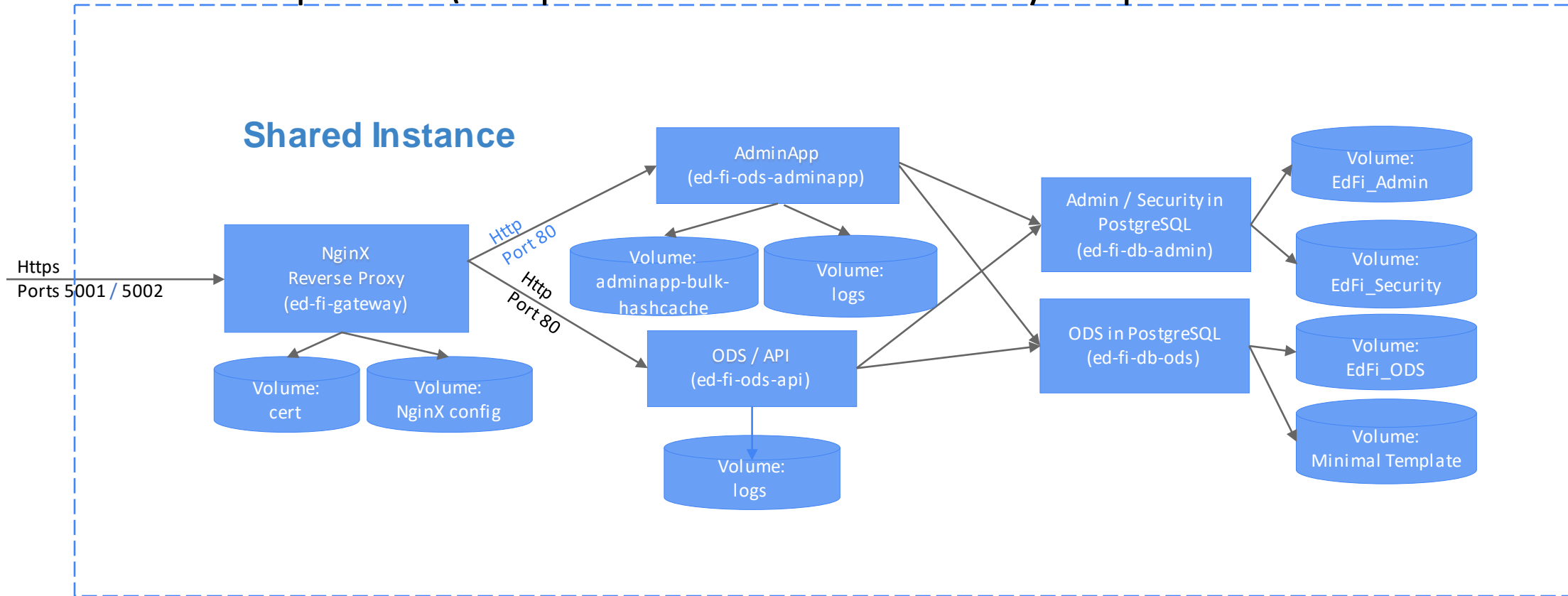
Ed-Fi Docker Configurations

```
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?