DOCKER COMPOSE

WHAT IS IT?

FEATURES

- Spin up multiple containers with one simple API
- Network containers together
- Simple YAML-based configuration language
- Easy interface for working with Docker
- Most of the common Docker commands supported in docker-compose

USE CASES

Simplify running Docker commands

- **Turn this:**

```
docker network create my-net
docker volume create my-vol
docker build -t myapp/app1:0.0.1 \
       --build-arg DEBUG=True --build-arg SITE_DIR=/site/ \
       -f Dockerfile.custom .
docker run --rm —name app1 —-port 80 \
       -v `pwd`/media/:/htdocs/media/ \
       -v my-vol:/data/ \
       —-env DB_USER=myuser —-env DB_PASS=1234 —-env DB_HOST \
       --network my-net
       myapp/app1:0.0.1
docker run --name web1 -d -p 8080:80 --network my-net nginx:13-alpine
```

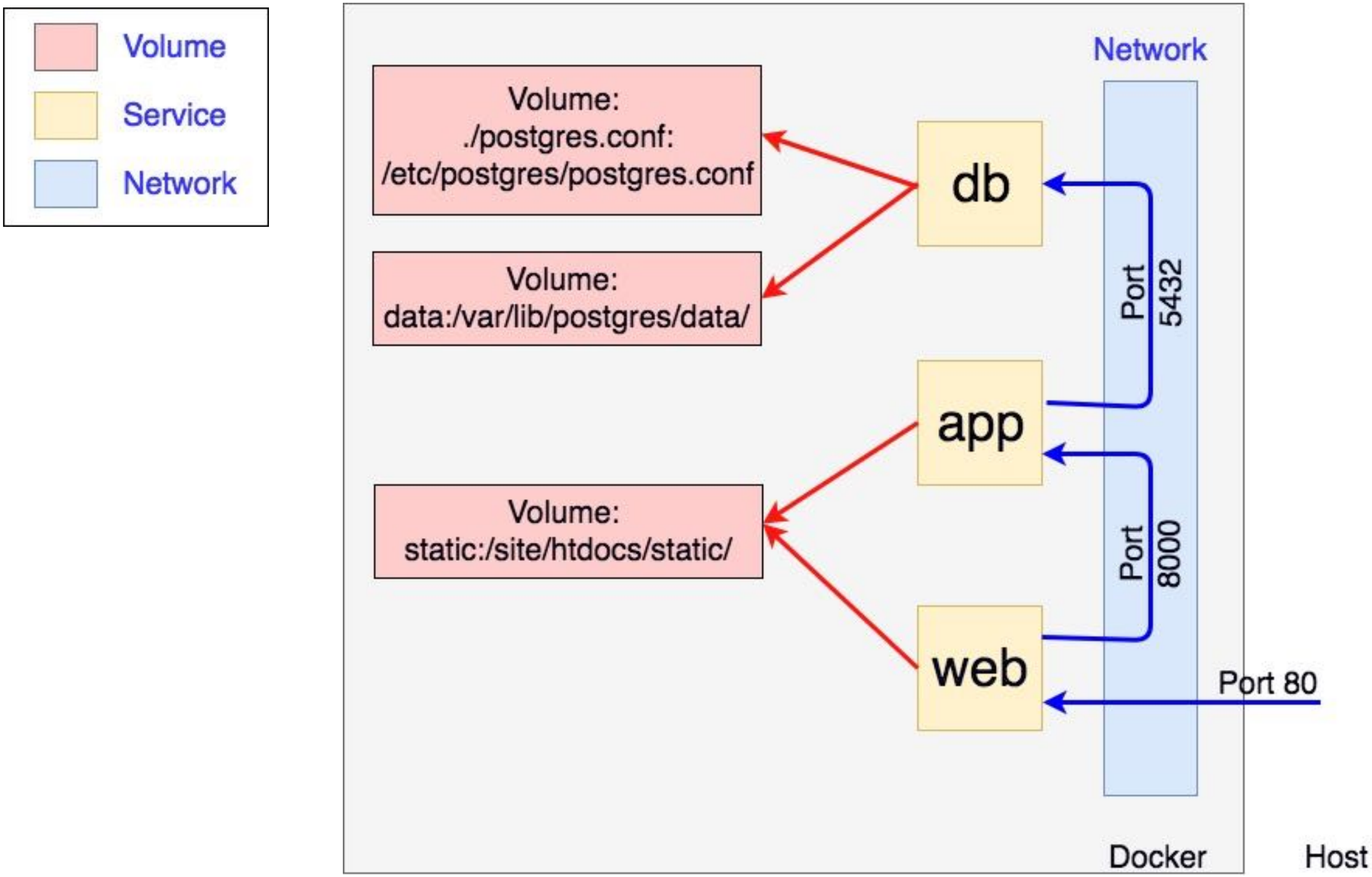
- **Into:**

  docker-compose up --build

USE CASES

- Spin up a local development environment with all required services (db, webserver, etc)
- Run run your unit tests on an actual services similar to production.
- Deploy to Prod with Docker Swarm

SIMPLE COMPOSE CONFIG



INSTALL

- Install / Run Docker
- Mac:
  - Installed with "Docker for Mac"
- Windows:
  - Installed with "Docker for Windows"
- Linux:
  - Download Link:
    - sudo curl -L https://github.com/docker/compose/releases/download/1.19.0/docker-compose-`uname -s`-`uname -m` -o /usr/local/bin/docker-compose
    - Or "sudo pip install docker-compose"

YAML

YAML

```yaml
---
first_name: joe
last_name: jasinski
age: 35
fav_colors:
  - red
  - blue
pets:
  - dog1:
      name: Toby
      age: 12
  - dog2:
      name: Max
      age: 8
```

Python

```python
{'age': 35,
 'fav_colors': ['red', 'blue'],
 'first_name': 'joe',
 'last_name': 'jasinski',
 'pets': [{'dog1': {'age': 12, 'name': 'Toby'}},
          {'dog2': {'age': 8, 'name': 'Max'}}]}
```

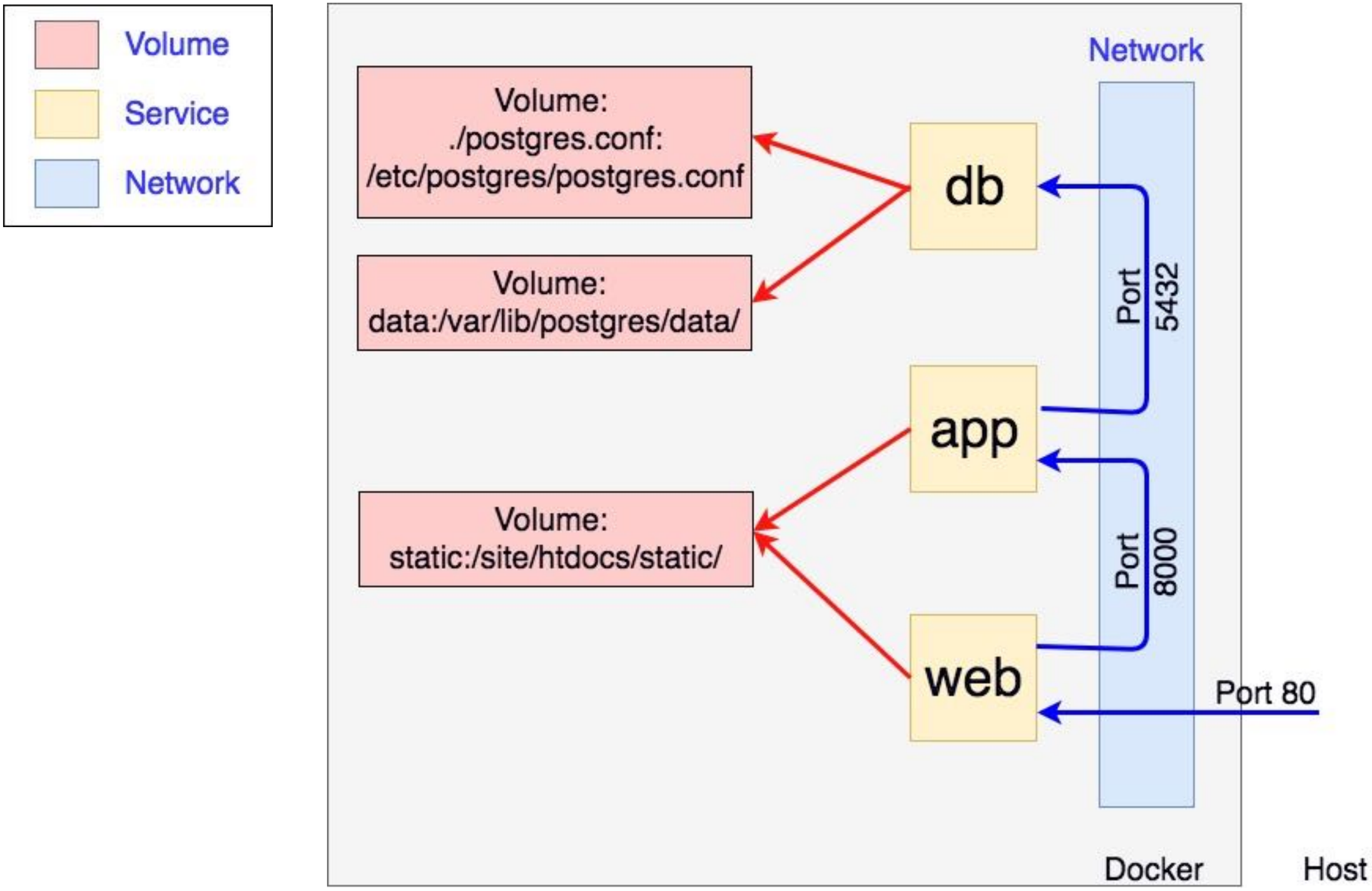
docker-compose.yml

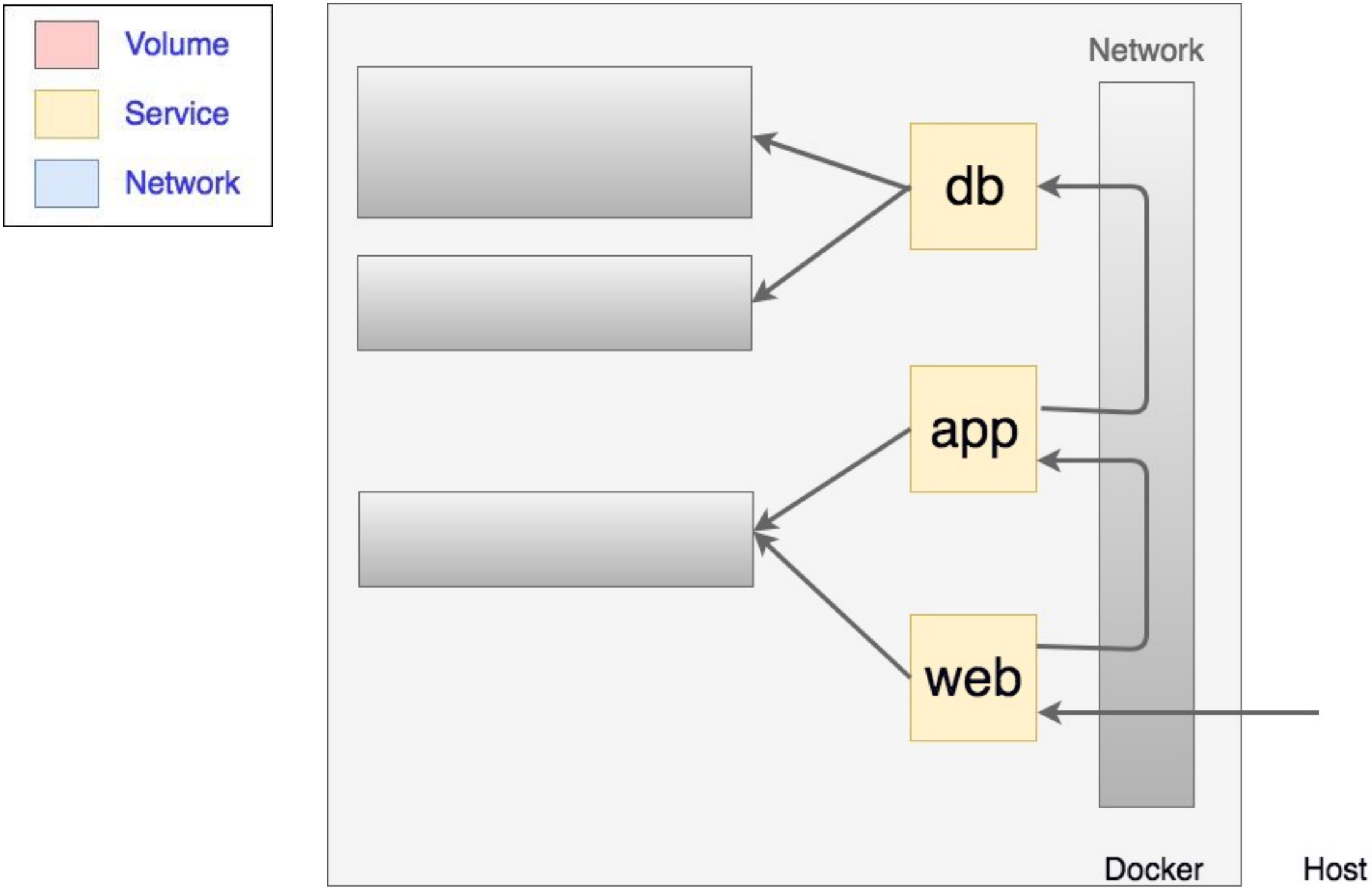
```yaml
version: '3.4'
services:

  app:
    image: docker4data/talkvoter:prod-1.0.1
    build:
      context: ./
      dockerfile: talkvoter/Dockerfile
    command: /app/docker-utils/run-app.sh
    volumes:
      - .:/app/proj/
      - static-volume:/app/htdocs/static/
    environment:
      - DATABASE_URL=postgres://postgres@db/postgres
      - SITE_DIR=/app/
      - SECRET_KEY=super secret key
      - PREDICT_ENDPOINT=http://predict:8000/predict/
    networks:
      - talkvoter_net
    depends_on:
      - db
    stdin_open: true
```

SERVICES

SERVICES

- Core building-block
- Runs a Docker Image
- Ideally should serve one purpose each
- Can be networked together
- Can mount volumes
- Examples: webserver, database, prediction app, etc.


Volume
Service
Network
Network
Volume:
./postgres.conf:
/etc/postgres/postgres.conf
Volume:
data:/var/lib/postgres/data/
Volume:
static:/site/htdocs/static/
db
app
web
Port
5432
Port
8000
Port 80
Docker
Host


Volume
Service
Network
Network
db
app
web
Docker
Host

SERVICE EXAMPLE

```yaml
version: '3.4'
services:

  web:
    image: nginx
    …

  app:
    image: myrepo/myname:mytag-0.0.1
    …

  db:
    image: postgres:10-alpine
    …
```

SIMPLEST COMPOSE FILE

```yaml
version: '3.4'
services:

  app:
    image: python:3.6.5
    command: ["python", "-mhttp.server", "8000"]
```

BUILD

BUILD

```
docker build -f Dockerfile \
   --tag myrepo/myname:mytag-0.0.1 \
   --build-arg SITE_DIR=/site/ .
```

BUILD

```
docker build -f Dockerfile \
    --tag myrepo/myname:mytag-0.0.1 \
    --build-arg SITE_DIR=/site/ .
```

```
version: '3.4'
services:

    app:
      image: myrepo/myname:mytag-0.0.1
      build:
        context: .
        dockerfile: Dockerfile
        args:
          SITE_DIR: /site/
```

DEMO (BASIC USAGE)

example01 — vim -o Dockerfile docker-compose.yml — 57×16

```
FROM python:3.6


CMD ["python", "-mhttp.server", "8000"]
~
~
~
Dockerfile
version: '3.4'
services:

  app:
    build: .

docker-compose.yml
:qa
```

DOCKER COMPOSE COMMANDS

BUILD AND RUN

```
docker-compose up --build
```

START SERVICES

```
docker-compose start
```

STOP SERVICES

```
docker-compose stop
```

RESTSRT SERVICES

```
docker-compose restart
docker-compose restart app
```

DESTROY APPLICATION

```
docker-compose down
```

RUN A CMD IN CONTAINER

```
docker-compose run app \
    /bin/bash
```

ENTER RUNNING CONTAINER

```
docker-compose exec app \
    /bin/bash
```

VIEW CONTAINER LOGS

```
docker-compose logs -f app
```

PORTS

PORTS

```
docker run \
  -p 8000 \
  -p 80:8001 \
  app:0.0.1
```

- Map a host port to a container port

PORTS

```
docker run \
  -p 8000 \
  -p 80:8001 \
  app:0.0.1
```

- Map a host port to a container port

```
version: '3.4'
services:

  app:
    ports:
      - 8000
      - 80:8001
...
```

DEMO (PORTS)

```yaml
version: '3.4'
services:

  app:
    build: .
    ports:
      - 8000:8000
```

docker-compose.yml

```dockerfile
FROM python:3.6
RUN mkdir /htdocs/
WORKDIR /htdocs/
COPY index.html /htdocs/index.html
CMD ["python", "-mhttp.server", "8000"]
```

Dockerfile

```
:qa
```

Problem loading page

localhost:8000

Unable to connect

Firefox can't establish a connection to the server at localhost:8000.

- The site could be temporarily unavailable or too busy. Try again in a few moments.
- If you are unable to load any pages, check your computer's

COMMANDS

COMMAND

```
version: '3.4'
services:

   app:
      …
       command: ./docker-utils/app-start.sh –DEBUG
       …
```

```
version: '3.4'
services:

   app:
      …
       command: ["./docker-utils/app-start.sh", "--DEBUG"]
       …
```

COMMAND

Docker CLI

```
docker run app:0.0.1 /bin/run.sh
```

Dockerfile

```
CMD ["/app/run.sh"]
```

Compose File

```
version: '3.4'
services:
    app:
      command: /app/run.sh
```

Compose CLI

```
docker-compose run app \
  /app/run.sh
```

ENVIRONMENT

ENVIRONMENT VARS

```
docker run \
  --env SITE_DIR=/site/ \
  -e DEBUG=True \
  app:0.0.1
```

- Pass in environment variables to the container
- Useful for specifying configuration

ENVIRONMENT VARS

```
docker run \
  --env SITE_DIR=/site/ \
  -e DEBUG=True \
  app:0.0.1
```

- Pass in environment variables to the container
- Useful for specifying configuration

```
version: '3.4'
services:

  app:
    environment:
      - DEBUG=True
      - ENV_ROOT=/site/
    ...

  db:
    environment:
      - PG_USER=example
      - PG_PASSWORD=change
      - PG_DB=mydb
    ...
```

ENV
VS
ENV_FILE

```yaml
version: '3.4'
services:

  app:
    env_file:
     - .env
```

```yaml
version: '3.4'
services:

  app:
    environment:
     - DEBUG=True
     - ENV_ROOT=/site/
```

```
# .env
DEBUG=True
ENV_ROOT=/site/
```

DEMO (ENV)

docker-compose.yml

```yaml
version: '3.4'
services:

  app:
    build: .
    ports:
      - 8000:8000
    command: ["flask", "run"]
    environment:
      - FLASK_APP=demo_app.py
      - DEBUG=True
      - PORT=8000
```

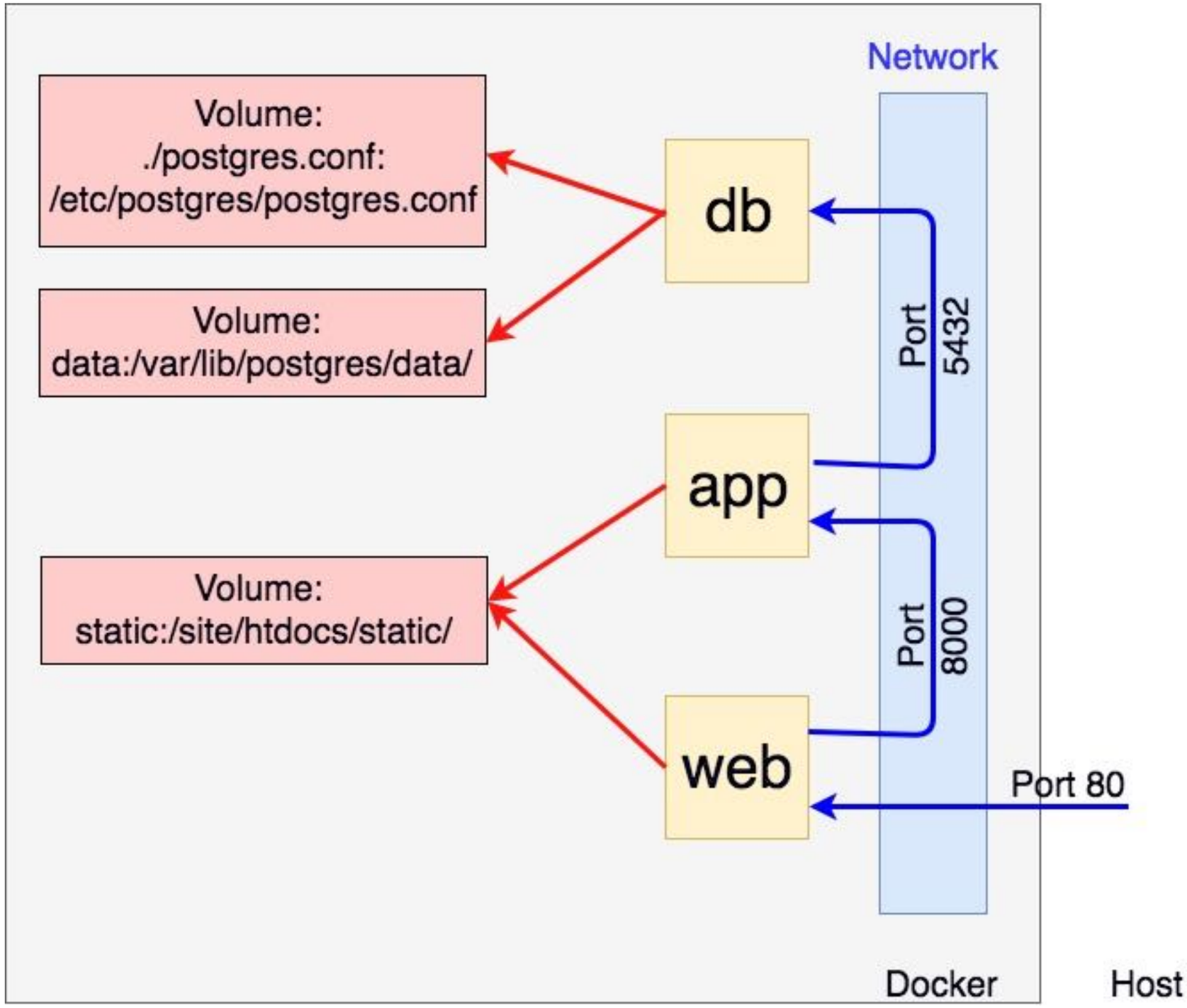
Dockerfile

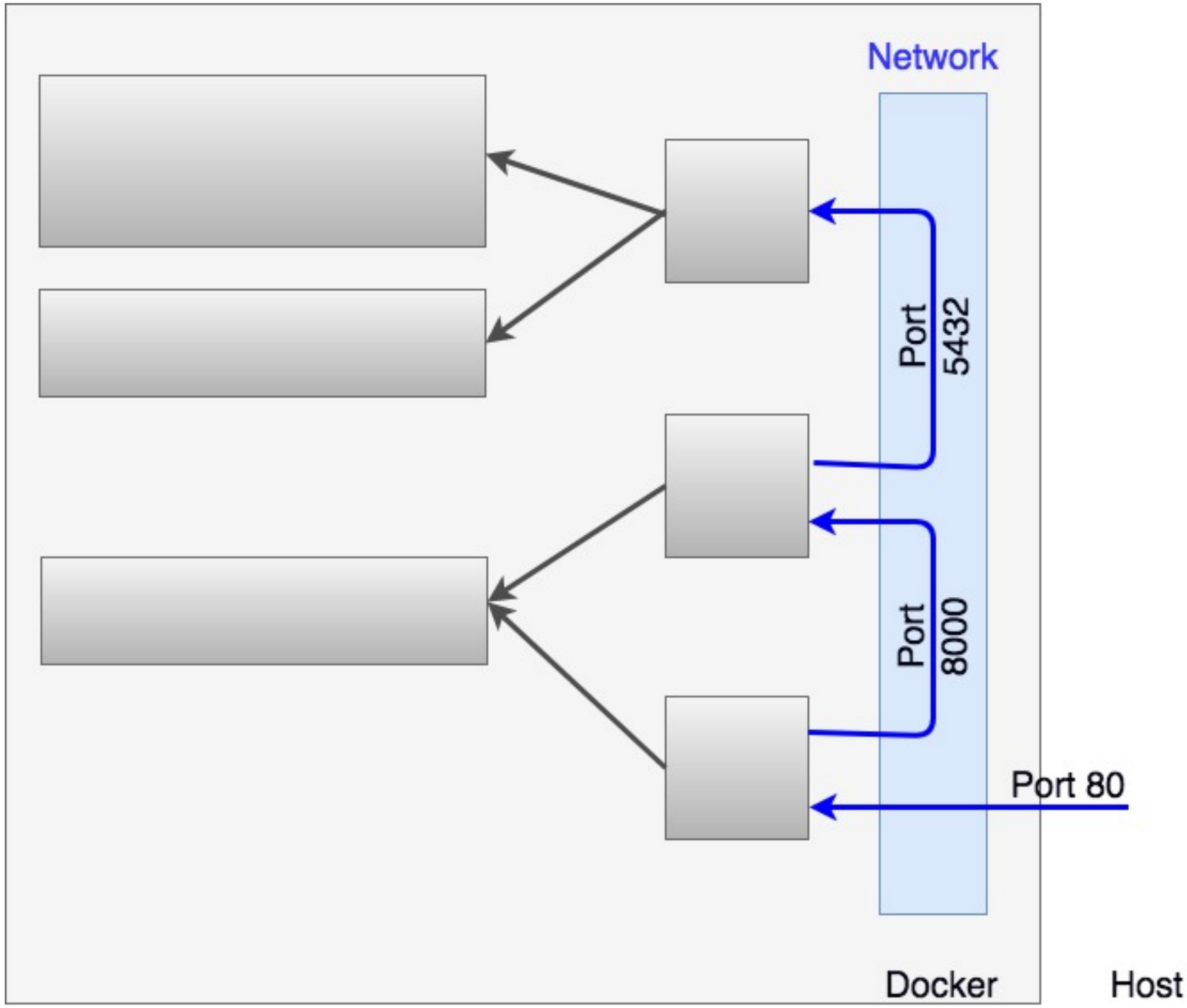
```dockerfile
FROM python:3.6
RUN pip install Flask
RUN mkdir /app/
WORKDIR /app/
COPY demo_app.py /app/demo_app.py
```

demo_app.py

```python
import os
from flask import Flask
app = Flask(__name__)

DEBUG = os.getenv("DEBUG", None)
PORT = int(os.getenv("PORT", "8000"))


@app.route("/")
def hello():
    return (
        "Hello World! "
        "DEBUG {} PORT {}".format(
            DEBUG, PORT))


app.run(
    host='0.0.0.0',
    port=PORT,
    debug=bool(DEBUG == "True"))
```

NETWORKS


Network
Volume:
./postgres.conf:
/etc/postgres/postgres.conf
Volume:
data:/var/lib/postgres/data/
Volume:
static:/site/htdocs/static/
db
app
web
Port
5432
Port
8000
Port 80
Docker
Host


Network
Port
5432
Port
8000
Port 80
Docker
Host

NETWORKS

```
docker network create internal

docker run --network internal \
  myapp:0.0.1 /bin/bash

docker run --network internal \
  postgres
```

NETWORKS

```yaml
version: '3.4'
services:

    app:
      image: myapp
      networks:
        - internal
      ...

    db:
      image: postgres
      networks:
        - internal
      ...

networks:
  internal:
```

- Services can communicate with each other if they are on the same network.
- Services can reference each other using service name as hostname
- Networks should be defined with a networks section
- You can have multiple networks per compose configuration

NETWORKS

```
version: '3.4'
services:

    app:
      image: myapp

     …

    db:
      image: postgres
      …
```

- Specifying the network in compose is optional
- A default network will be created if you do not specify one

NETWORKS

```yaml
version: '3.4'
services:

    app:
      image: myapp
      environment:
        - DB_HOST=db
        - DB_PORT=5432
     ...

    db:
      image: postgres
     ...
```

Reference other hosts using the *service name* in Docker compose

Use that name in:

- Docker Container
- Compose File

NETWORKS

```yaml
version: '3.4'
services:

  app:
    image: myapp
    environment:
      - DB_HOST=db
      - DB_PORT=5432
    ...

  db:
    image: postgres
    ...
```

Reference other hosts using the *service name* in Docker compose

Use that name in:

- Docker Container
- Compose File

Ex: from inside of the "app" container, we can ping the "db" container

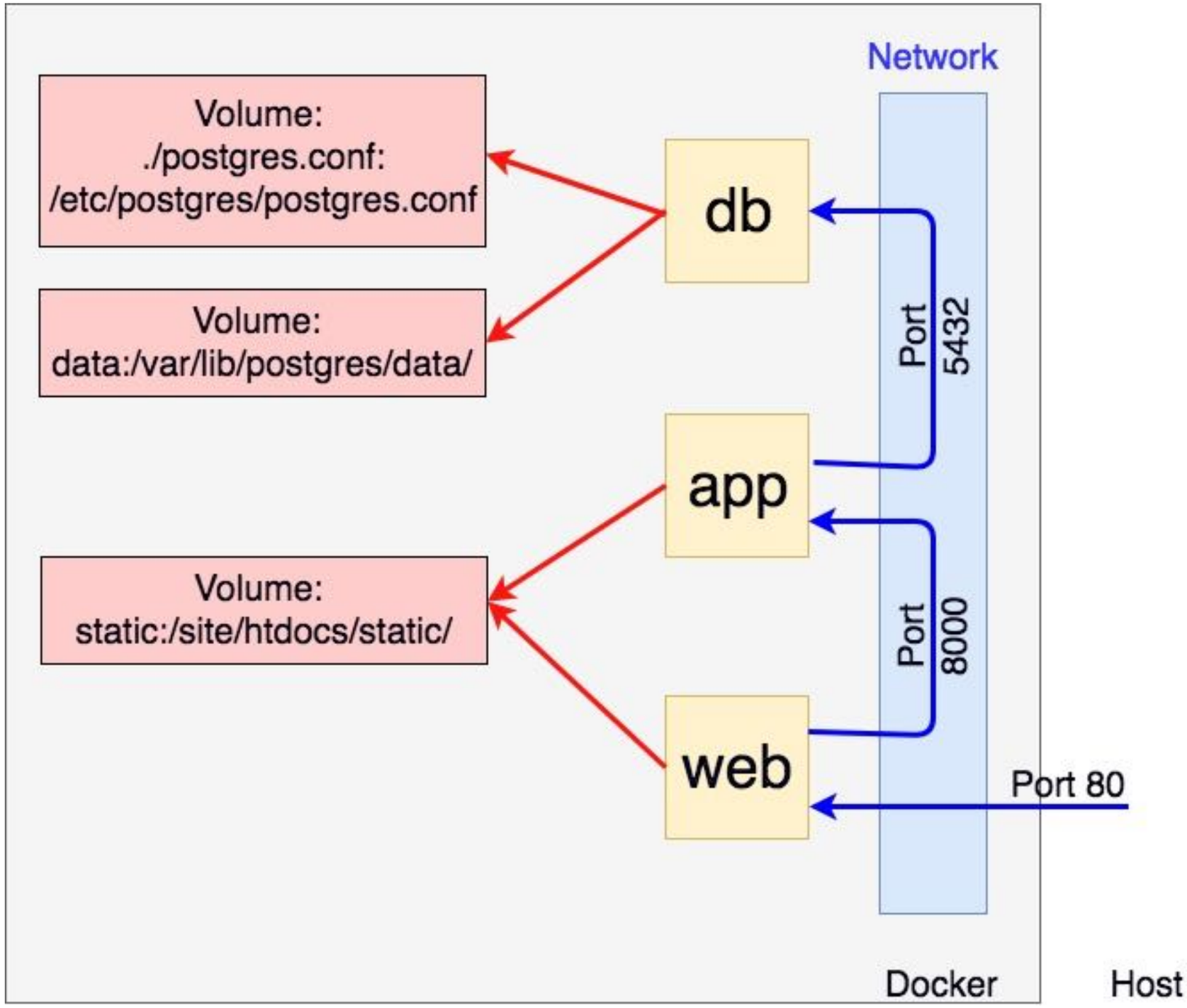
```
$ docker-compose run app /bin/bash
Starting dcdemo_db_1 ... done
root@d17597e732e3:/app# ping db
PING db (172.28.0.2): 56 data bytes
64 bytes from 172.28.0.2: icmp_seq=0 ttl=64 time=0.131 ms
64 bytes from 172.28.0.2: icmp_seq=1 ttl=64 time=0.192 ms
```

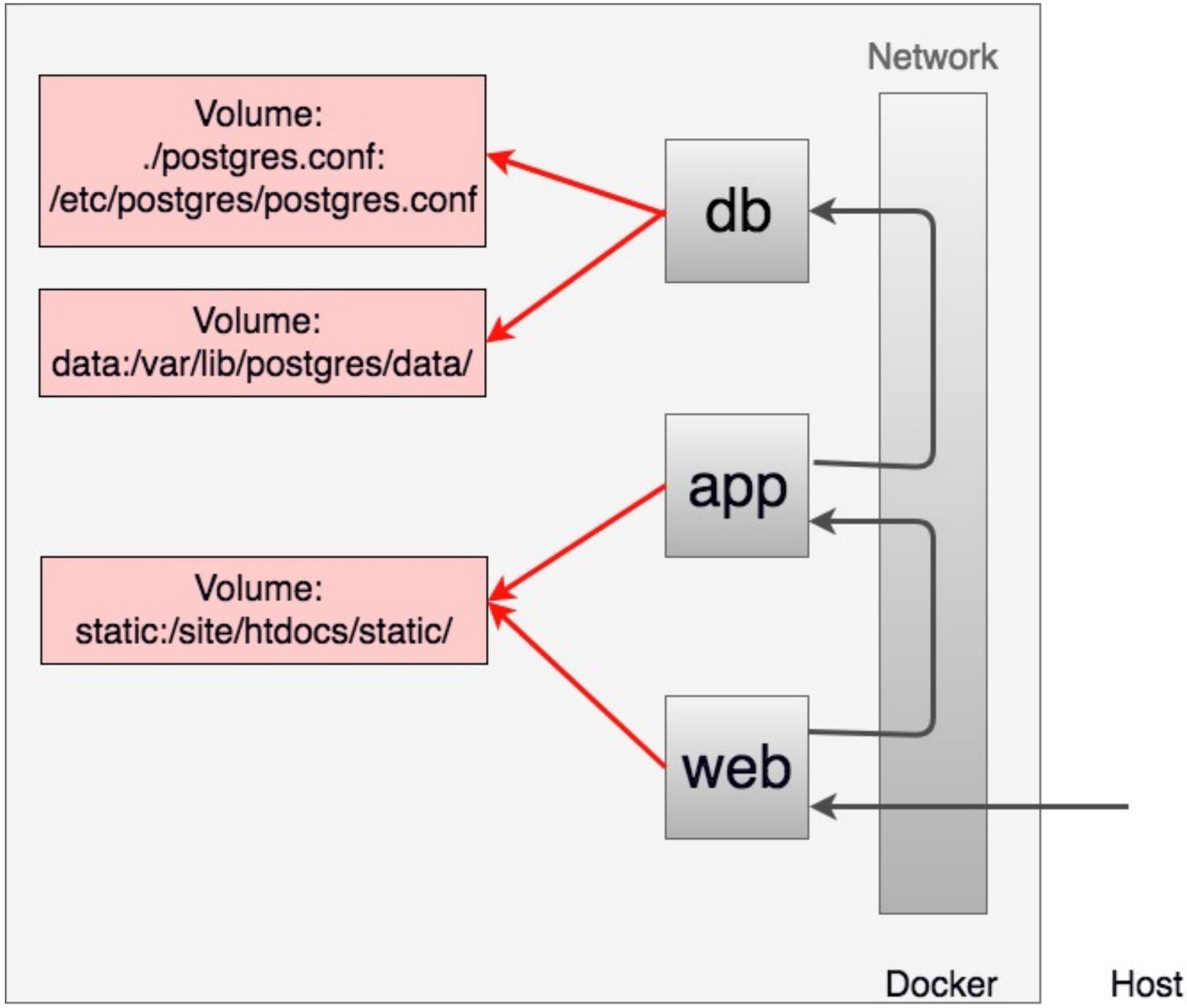
DEPENDS_ON

```
version: '3.4'
services:

    app:
      image: myapp
      environment:
        - DB_HOST=db
        - DB_PORT=5432
      depends_on:
        - db
        …
    db:
      image: postgres
      …
```

- Start app service after db service
- Does NOT wait for app command to boot

VOLUMES


Network
Volume:
./postgres.conf:
/etc/postgres/postgres.conf
Volume:
data:/var/lib/postgres/data/
Volume:
static:/site/htdocs/static/
db
app
web
Port
5432
Port
8000
Port 80
Docker
Host


Network
Volume:
./postgres.conf:
/etc/postgres/postgres.conf
db
Volume:
data:/var/lib/postgres/data/
app
Volume:
static:/site/htdocs/static/
web
Docker
Host

VOLUMES

```
docker volume create my_data

docker run \
  -v my_data:/tmp/ \
  -v .:/media/ \
  web:0.0.1 /bin/bash

docker run \
   -v my_data:/data/ \
   db:0.0.1 /bin/bash
```

VOLUMES

```
version: '3.4'
services:

    app:
      …
       volumes:
        - my_data:/data/
        - .:/source/
       …

    db:
      …
       volumes:
        - my_data:/data/
       …

volumes:
  my_data:
```

- Several Forms:
  - Bind mounts shares data on a host machine to a docker container
  - Volumes create a virtual volume to attach or share share between containers

COMPOSE FILES

MULTIPLE COMPOSE FILES

- Merge multiple compose files can be used together (-f flag)
- **docker-compose.override.yml** is a baked-in override
- One compose file with defaults; another with private settings.
- Split out different environments

MULTIPLE COMPOSE FILES

docker-compose automatically merges **override** file

```yaml
# docker-compose.yml

version: '3.4'
services:
   app:
     image: d4d/talkvoter:prod-1.0
     build:
       context: .
       dockerfile: Dockerfile
     command: /app/utils/run.sh
     volumes:
       - .:/app/proj/
       - static-vol:/app/htdocs/
     environment:
       - DATABASE_URL=
       - SITE_DIR=/app/
       - SECRET_KEY=secret key
```

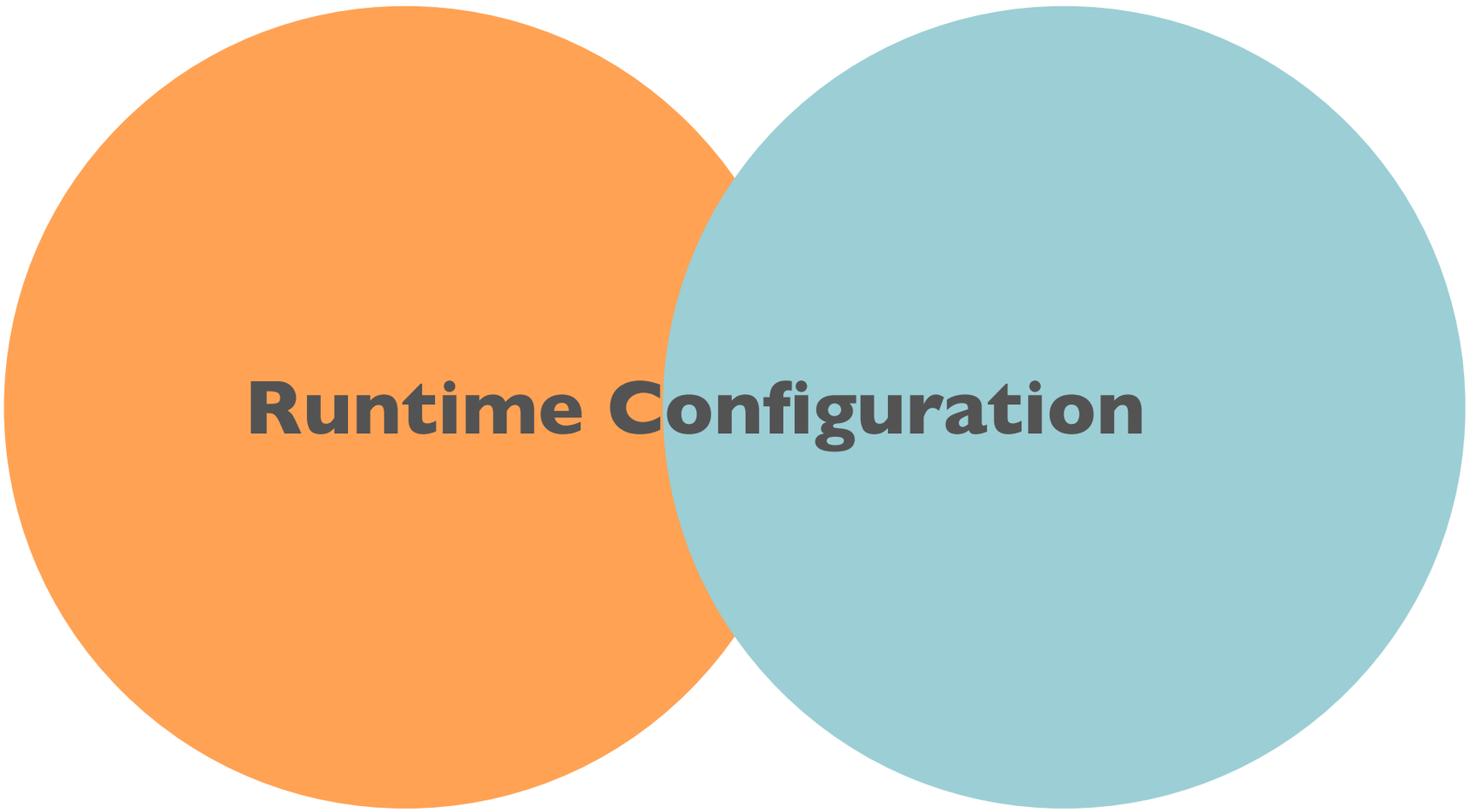
```yaml
# docker-compose.override.yml

version: '3.4'
services:
   app:
     image: experiments:0.0.1
     ports:
       - "8000:8000"
     environment:
       - DATABASE_URL=secret key
```

MULTIPLE COMPOSE FILES

docker-compose automatically merges **override** file

```
# docker-compose.yml
```

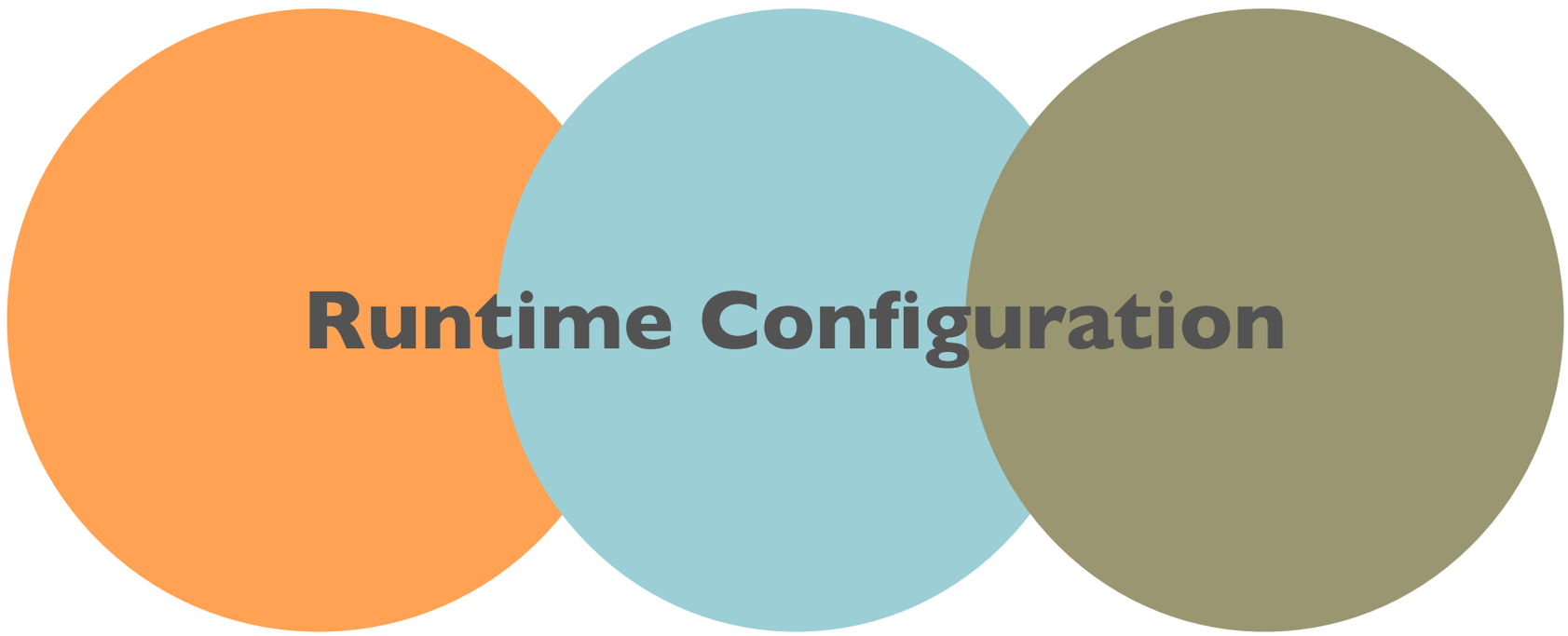
```
# docker-compose.override.yml
```



MULTIPLE COMPOSE FILES

The **-f option** allows arbitrary numbers of compose files

docker-compose.yml **docker-compose.A.yml** **docker-compose.B.yml**




```
docker-compose -f docker-compose.yml \
               -f docker-compose.A.yml \
               -f docker-compose.B.yml ...
```

MULTIPLE COMPOSE FILES

single-value options image, command, entrypoint	Value is replaced
multi-value options ports, expose, dns	Concatenates values
Key/Value options environment, labels, volumes	Concatenates values; replaces existing

MISC

RESOURCE NAMING

- Containers, Volumes, Networks are prefixed with the directory name

- This can be overridden with the project option:

  -p, --project-name NAME

- Useful if spinning up the same compose stack on a single machine.

RESOURCE NAMING

Containers

```
MacBook-Pro:docker4data jjasinski$ docker container ps
CONTAINER ID        IMAGE                          COMMAND                  CREATED             STATUS                                  PORTS                     NAMES
2bc1a9018e6f        docker4data/talkvoter:prod-1.0.1   "./docker-utils/entr…"   About a minute ago  Up About a minute (health: starting)    0.0.0.0:8000->8000/tcp    docker4data_app_1
d9026f2c69ea        postgres:10-alpine             "docker-entrypoint.s…"   2 hours ago         Up About an hour (healthy)              0.0.0.0:32779->5432/tcp   docker4data_db_1
```

```
      NAMES
p     docker4data_app_1
cp    docker4data_db_1
```

Volumes

```
$ docker volume ls | grep docker4data
local               docker4data_pgdata
local               docker4data_static-volume
```

Networks

```
$ docker network ls  | grep docker4data_talk
0d5b7379a42b        docker4data_talkvoter_net     bridge              local
```

DEBUGGING (PDB)

- For development only
- Equivalent to the -i and -t Docker command line options
- stdin_open: true
  tty: true
- docker attach to get to interactive pdb terminal
- Process managers (systemd, supervisord) get in the way
- For uwsgi, pass in `--honour-stdin`
- For gunicorn, pass in timeout option: `-t 3600`

https://blog.lucasferreira.org/howto/2017/06/03/running-pdb-with-docker-and-gunicorn.html

AUTORELOAD

- Restart app on code change
- Good for development; **not** for production
- Not something handled natively by Docker or Compose
- Volume mount needed between the host and container codebase
- Uwsgi and Gunicorn (and Django runserver) support auto reload options
  - Uwsgi: `--python-autoreload=1`
  - `Gunicorn: --reload`

DATA

EXAMPLE: POSTGRES CONFIG

```yaml
version: '3.4'
services:

  db:
    image: postgres:10-alpine
    environment:
     - POSTGRES_USER=myuser
     - POSTGRES_PASSWORD=1234
     - POSTGRES_DB=mydb
    volumes:
     - pgdata:/var/lib/postgresql/data
    ports:
     - "5432:5432"

volumes:
  pgdata:
```

POSTGRES: IMPORT/EXPORT

1) RUN DOCKER COMPOSE

```
docker-compose up --build
```

2) GET DB CONTAINER NAME

```
docker-compose ps db
```

3) DUMP DATA

```
docker exec -t -u postgres \
    db_container pg_dump dbname > dbname_db.sql
```

4) LOAD DATA

```
cat dbname_db.sql | docker exec -i -u postgres \
    db_container psql dbname
```

EXAMPLE: MYSQL CONFIG

```yaml
version: '3.4'
services:

  db:
    image: mysql:5.7
    environment:
     - MYSQL_ROOT_PASSWORD=1234
     - MYSQL_USER=myuser
     - MYSQL_PASSWORD=1234
     - MYSQL_DATABASE=mydb
    volumes:
     - mysqldata:/var/lib/mysql
    ports:
     - "3306:3306"

volumes:
  mysqldata:
```

MYSQL: IMPORT/EXPORT

1) RUN DOCKER COMPOSE

```
docker-compose up --build
```

2) GET DB CONTAINER NAME

```
docker-compose ps db
```

3) DUMP DATA

```
docker exec db_container /usr/bin/mysqldump \
    -u root --password=root dbname > dbname_db.sql
```

4) LOAD DATA

```
cat dbname_db.sql | docker exec -i db_container \
    /usr/bin/mysql -u root --password=root dbname
```

LOADING DATA INTO MONGODB

Dump Data to mongo_data/ dir
mongodump --ssl --db mongodb --host mongohost.com --port 26282 --username mongouser --password "password" -o mongo_data/

Create a "helper" container that mounts the sunlight_mongo_storage volume
docker run -v mongo_storage:/data/ --name helper busybox true

Copy Data from outside of the container to that volume (via the container)
docker cp ./mongo_data helper:/data/

Rm the "helper" container:
docker rm helper

Inside of the container, run a mongo restore
run the mongo container
docker run mongo -v mongo_storage:/data/db mongo # or run with docker compose
docker exec my_mongo_container mongorestore -d mydb /data/db/mongo_data/

Source: https://stackoverflow.com/questions/37468788/what-is-the-right-way-to-add-data-to-an-existing-named-volume-in-docker

SUMMARY

- Why it's useful
- Basic Command Usage
- Compose File Format
- Overview of Services, Networks, Volumes, Env Vars
- Helpful hints

OTHER RESOURCES

- Official Docs: https://docs.docker.com/compose/
- Blog Post with Django: http://www.djangocurrent.com/2017/06/django-docker-and-celery.html
- Kompose - Tool for converting compose files to Kubernetes-compatible configuration

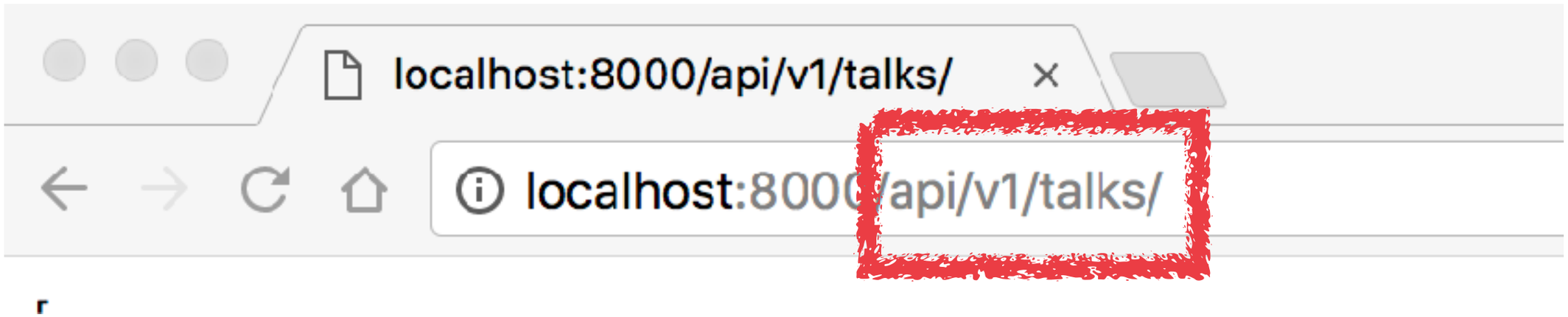
REST

(REPRESENTATIONAL STATE TRANSFER)

REST

- Standardize HTTP
- Stateless
- CRUD
- Client / Server Independence

REQUEST PATH



BAD REQUEST PATH

http://example.com/ ....

/get_people/
/person_id/?person=1
/get_children_of_person/?pid=1
/child_of_person/?pid=1&cid=2

REQUEST PATH

http://example.com/ ....

/people/
/people/<pid>/
/people/<pid>/children/
/people/<pid>/children/<child_id>/

i.e. http://example.com/people/2/children/1/

REQUEST PATH

http://localhost:8000/ ....

/talks/ - refer to all talks

/talks/<id>/ - refer to individual talk

/talks/<id>/vote/ - perform action (vote) on talk

i.e. http://localhost:8000/talks/2/vote/

VERBS

VERBS

- **GET - retrieve**
- **POST - create**
- PUT - update/replace
- **DELETE - delete**
- HEAD - get headers
- PATCH - update/modify

VERBS

GET /people/ - list people

GET /people/<*pid*>/ - get person

POST /people/<*pid*>/ - add person

PUT /person/<*pid*>/ - update person

DELETE /person/<*pid*>/ - delete person

GET /person/<id>/children/<id>/

RESPONSE

- 20x
  - 200 - OK
  - 201 - created
- 30x
  - 301 - moved permanently
  - 305 - not modified
  - 307 - moved temp
- 40x
  - 400 - bad request
  - 401 - unauthorized
  - 403 - forbidden
  - 404 - not found
  - 418 - I'm a teapot
- 50x
  - 500 - internal error
  - 501 - not implemented
  - 504 - timeout

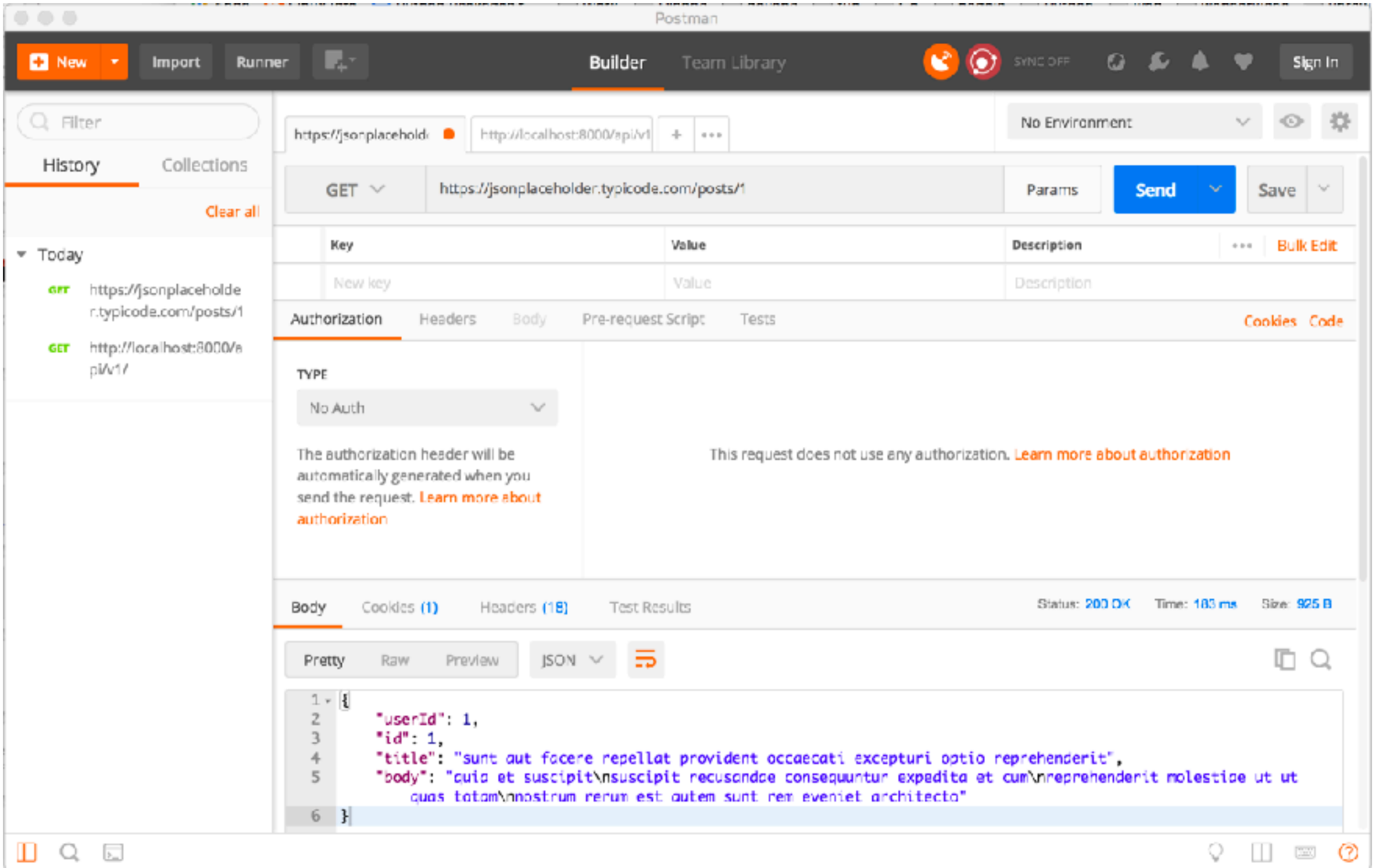
https://httpstatuses.com/

CLIENTS

CLIENTS: CURL

- curl -X GET http://example.com/posts/1/
- curl -X POST http://example.com/posts/2/ \
  -d "param1=value1&param2=value2"

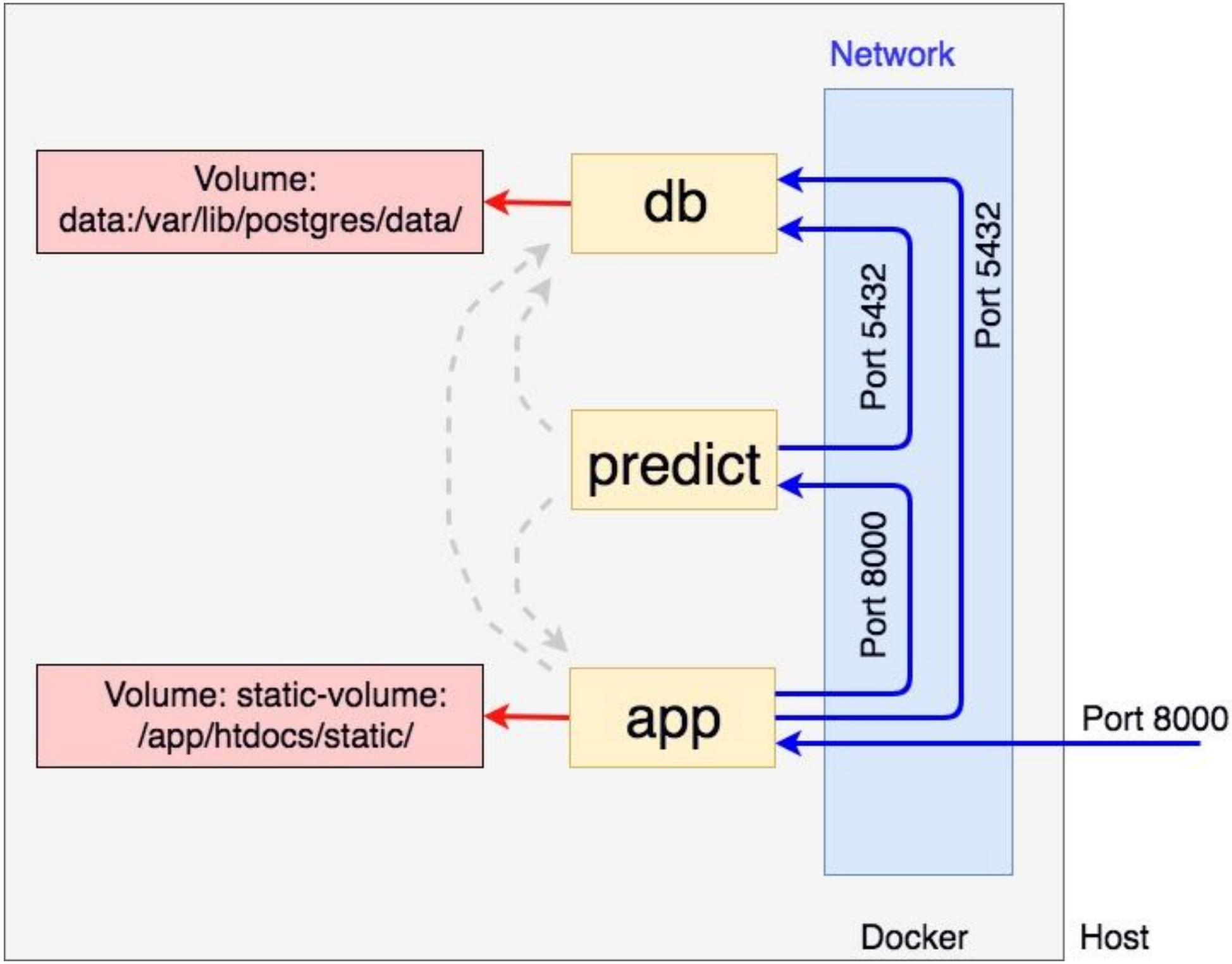
CLIENTS: POSTMAN



CLIENTS: REQUESTS

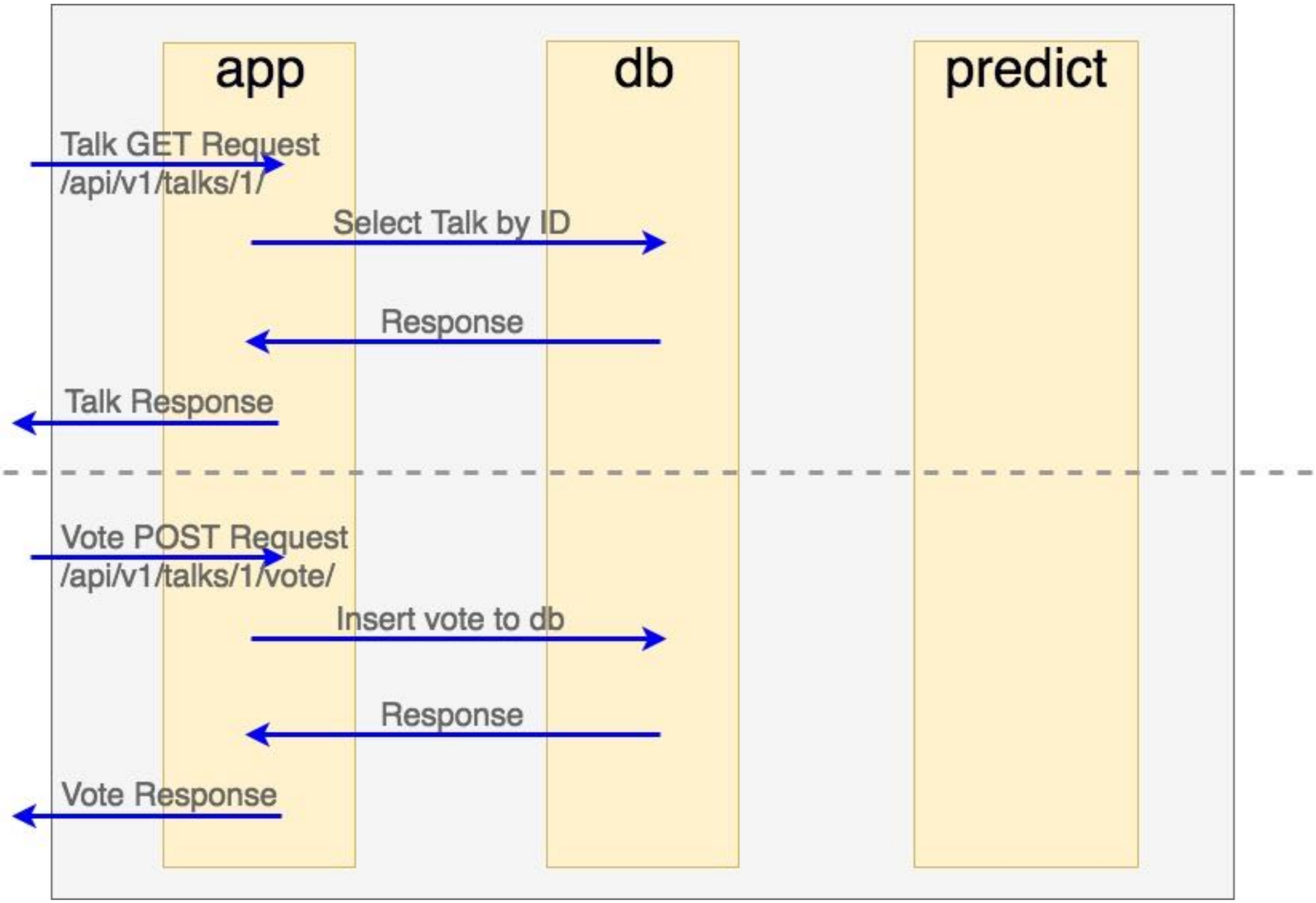
```
import requests
r = request.get("http://localhost:8000/api/talks/2/")
r.status_code
r.text
r.json()
```

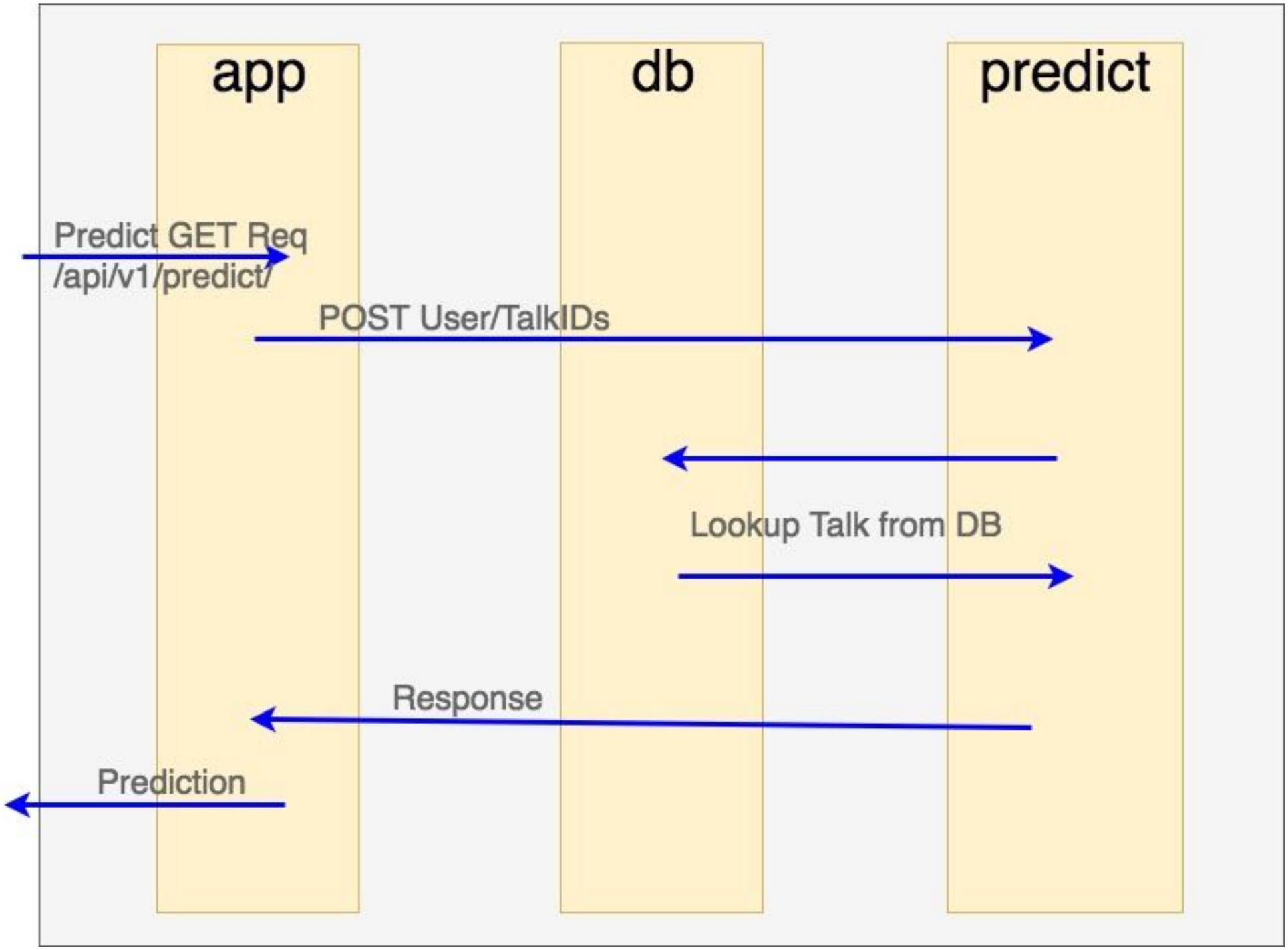
PROJECT COMPOSE DIAG



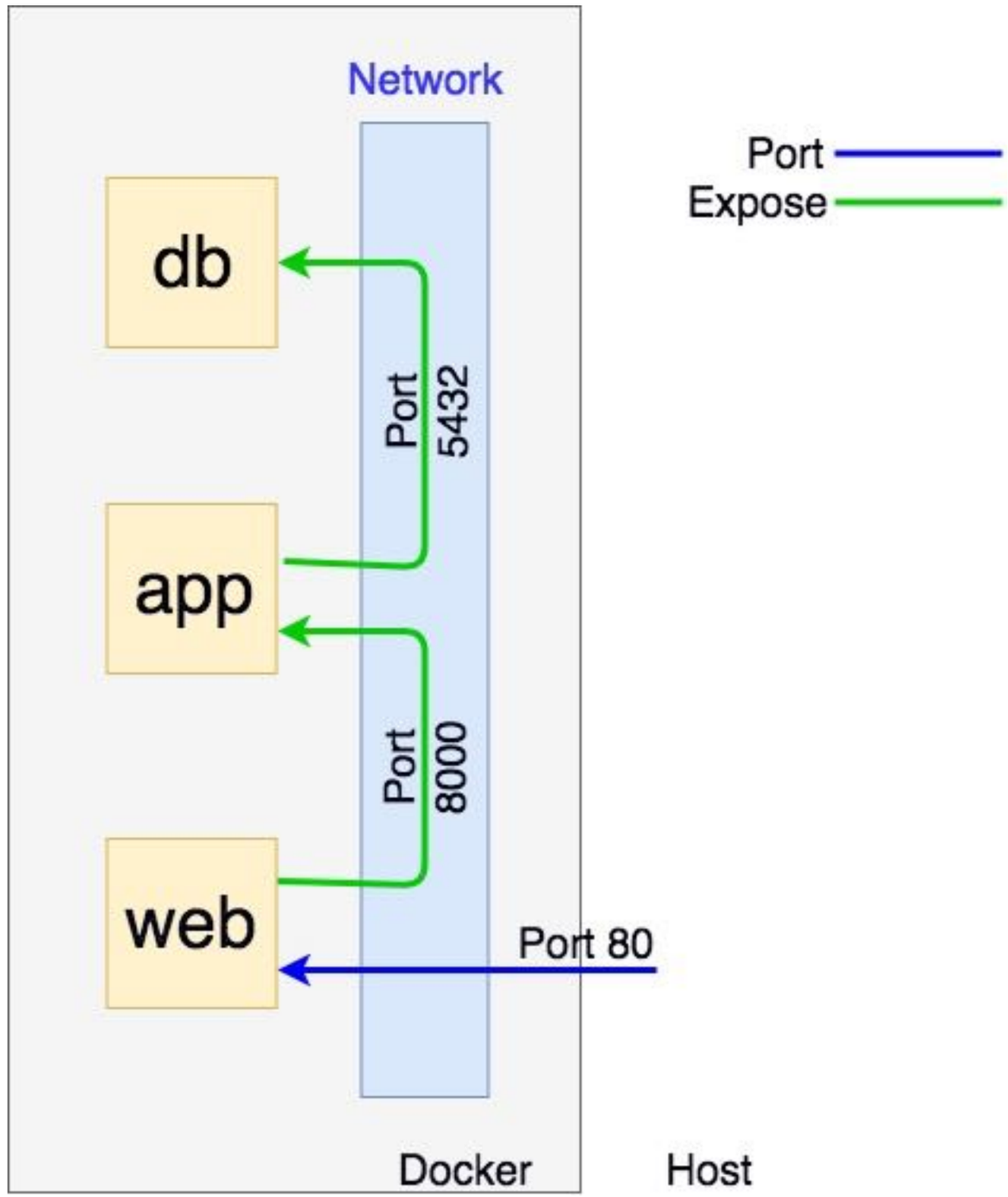
PROJECT ENDPOINTS

- /api/v1/talks/ - list talks
  /api/v1/talks/<id>/ - talk detail
  /api/v1/talks/random/ - random talk
  /api/v1/talks/vote/ - vote on talk
  /api/v1/predict/ - predict


app
db
predict
Talk GET Request
/api/v1/talks/1/
Select Talk by ID
Response
Talk Response
Vote POST Request
/api/v1/talks/1/vote/
Insert vote to db
Response
Vote Response


app
db
predict
Predict GET Req
/api/v1/predict/
POST User/TalkIDs
Lookup Talk from DB
Response
Prediction

EXPOSE VS PORTS



EXPOSE

```
docker run \
  -p 80 \
  nginx

docker run \
  --expose 8000 \
  app
```

- Expose will NOT publish the port to the host machine

```
version: '3.4'
services:

   web:
      image: nginx
      port:
       - "80"
       ...

   app:
      expose:
       - "8000"
       ...
```

VERSIONS

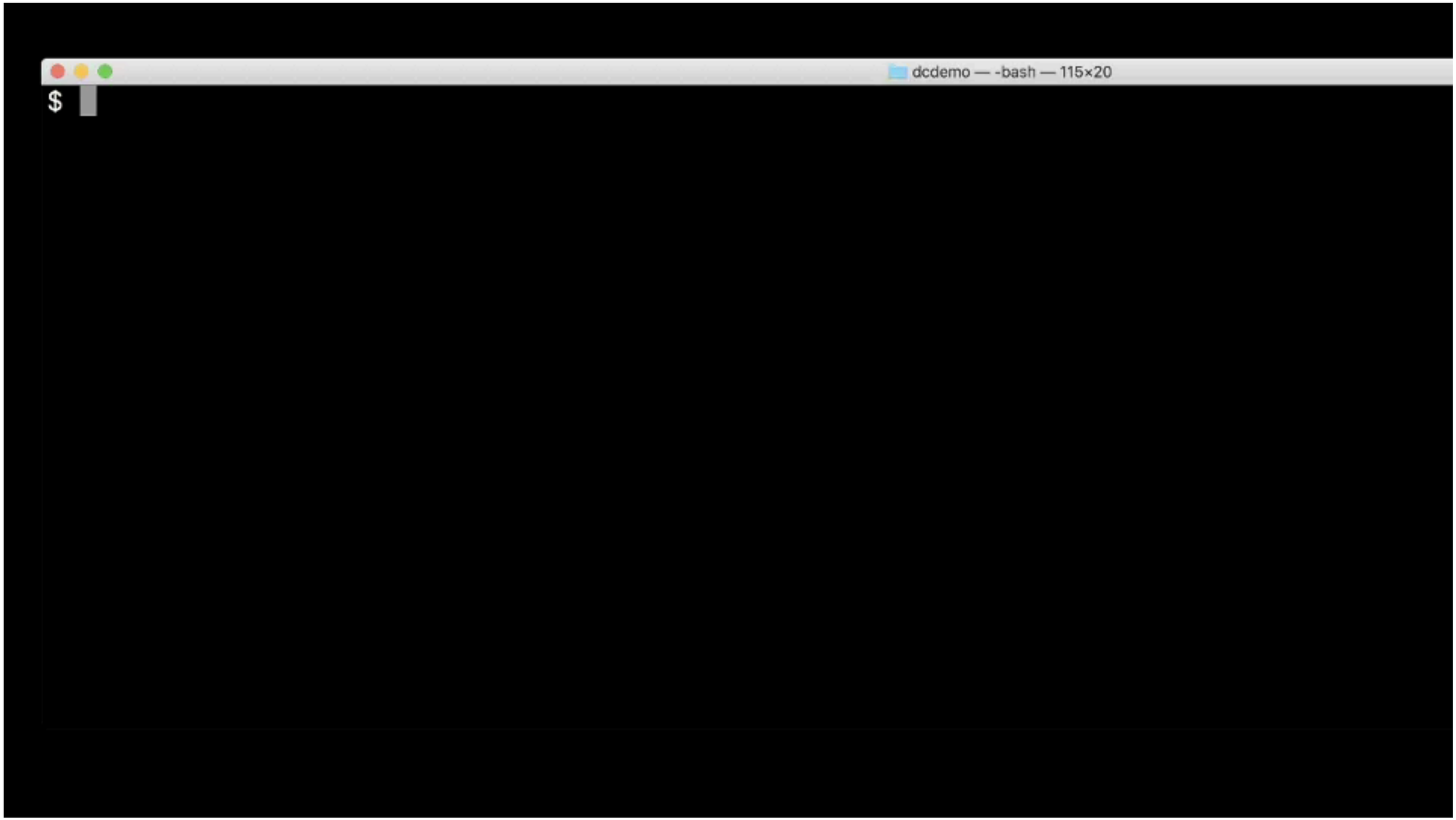
- Version 2.x (latest 2.4)
- Version 3.x (latest 3.6)

DEMO (COMMAND)

docker-compose.yml

```yaml
version: '3.4'
services:

  app:
    build: .
    ports:
      - 8000:8888
    command: ["python", "-mhttp.server", "8888"]

  db:
    image: postgres:10-alpine
```

DEMO (RUN)



ENTRYPOINT

Docker CLI

```
docker run \
  --entrypoint /app/ep.sh \
  app:0.0.1
```

Dockerfile

```
ENTRYPOINT ["/app/ep.sh"]
```

Compose File

```
version: '3.4'
services:
  app:
    entrypoint: /app/ep.sh
```

Compose CLI

```
docker-compose run app \
  --entrypoint /app/ep.sh
```

CONNECT TO DOCKER HOST

As of Docker 18.03

host.docker.internal

gateway.docker.internal

NOTES

brew install highlight
highlight -O rtf myfile.php | pbcopy

https://github.com/pmsipilot/docker-compose-viz

RESPONSE

Headers

Request

Response

Body

```
$ curl -v http://localhost:8000/api/v1/talks/1/
*   Trying ::1...
* TCP_NODELAY set
* Connected to localhost (::1) port 8000 (#0)
> GET /api/v1/talks/1/ HTTP/1.1
> Host: localhost:8000
> User-Agent: curl/7.54.0
> Accept: */*
>
< HTTP/1.1 200 OK
< Content-Type: application/json
< Content-Length: 1100
<
{"description": "You\u2019ve built a fine Python web application
 and now you\u2019re ready to share it with the world. But what\
u2019s the best way to deploy your app in 2017?  This talk will
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cific topics covered include:  Exposing your local dev environm
ent with ngrok Using a Platform-as-a-Service (PaaS) like Heroku
Going \u201cserverless\u201d with AWS Lambda Configuring your ow
n VM with Google Compute Engine Thinking inside the box using Do
```

RESPONSE HEADERS

Headers

Request

Response

Body

```
$ curl -v http://localhost:8000/api/v1/talks/1/
*   Trying ::1...
* TCP_NODELAY set
* Connected to localhost (::1) port 8000 (#0)
> GET /api/v1/talks/1/ HTTP/1.1
> Host: localhost:8000
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n VM with Google Compute Engine Thinking inside the box using Do
```

RESPONSE

Headers

Request

Response

Body

```
$ curl -v http://localhost:8000/api/v1/talks/1/
*   Trying ::1...
* TCP_NODELAY set
* Connected to localhost (::1) port 8000 (#0)
> GET /api/v1/talks/1/ HTTP/1.1
> Host: localhost:8000
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n VM with Google Compute Engine Thinking inside the box using Do
```

RESPONSE CODE

Headers

Request

Response

Body

```
$ curl -v http://localhost:8000/api/v1/talks/1/
*   Trying ::1...
* TCP_NODELAY set
* Connected to localhost (::1) port 8000 (#0)
> GET /api/v1/talks/1/ HTTP/1.1
> Host: localhost:8000
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> Accept: */*
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n VM with Google Compute Engine Thinking inside the box using Do
```

REQUEST VERB

Headers

Request

Response

Body

```
$ curl -v http://localhost:8000/api/v1/talks/1/
*   Trying ::1...
* TCP_NODELAY set
* Connected to localhost (::1) port 8000 (#0)
> GET /api/v1/talks/1/ HTTP/1.1
> Host: localhost:8000
> User-Agent: curl/7.54.0
> Accept: */*
>
< HTTP/1.1 200 OK
< Content-Type: application/json
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```

REQUEST VERB

Headers

Request

Response

Body

```
$ curl -v http://localhost:8000/api/v1/talks/1/
*   Trying ::1...
* TCP_NODELAY set
* Connected to localhost (::1) port 8000 (#0)
> GET /api/v1/talks/1/ HTTP/1.1
> Host: localhost:8000
> User-Agent: curl/7.54.0
> Accept: */*
>
< HTTP/1.1 200 OK
< Content-Type: application/json
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```

REQUEST PATH

Headers

Request

Response

Body

```
$ curl -v http://localhost:8000/api/v1/talks/1/
*   Trying ::1...
* TCP_NODELAY set
* Connected to localhost (::1) port 8000 (#0)
> GET /api/v1/talks/1/ HTTP/1.1
> Host: localhost:8000
> User-Agent: curl/7.54.0
> Accept: */*
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< HTTP/1.1 200 OK
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n VM with Google Compute Engine Thinking inside the box using Do
```

REQUEST PATH

Headers

Request

Response

Body

```
$ curl -v http://localhost:8000/api/v1/talks/1/
*   Trying ::1...
* TCP_NODELAY set
* Connected to localhost (::1) port 8000 (#0)
> GET /api/v1/talks/1/ HTTP/1.1
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Going \u201cserverless\u201d with AWS Lambda Configuring your ow
n VM with Google Compute Engine Thinking inside the box using Do
```

DEMO (BASIC USAGE)

dcdemo — vim Dockerfile — 126×29

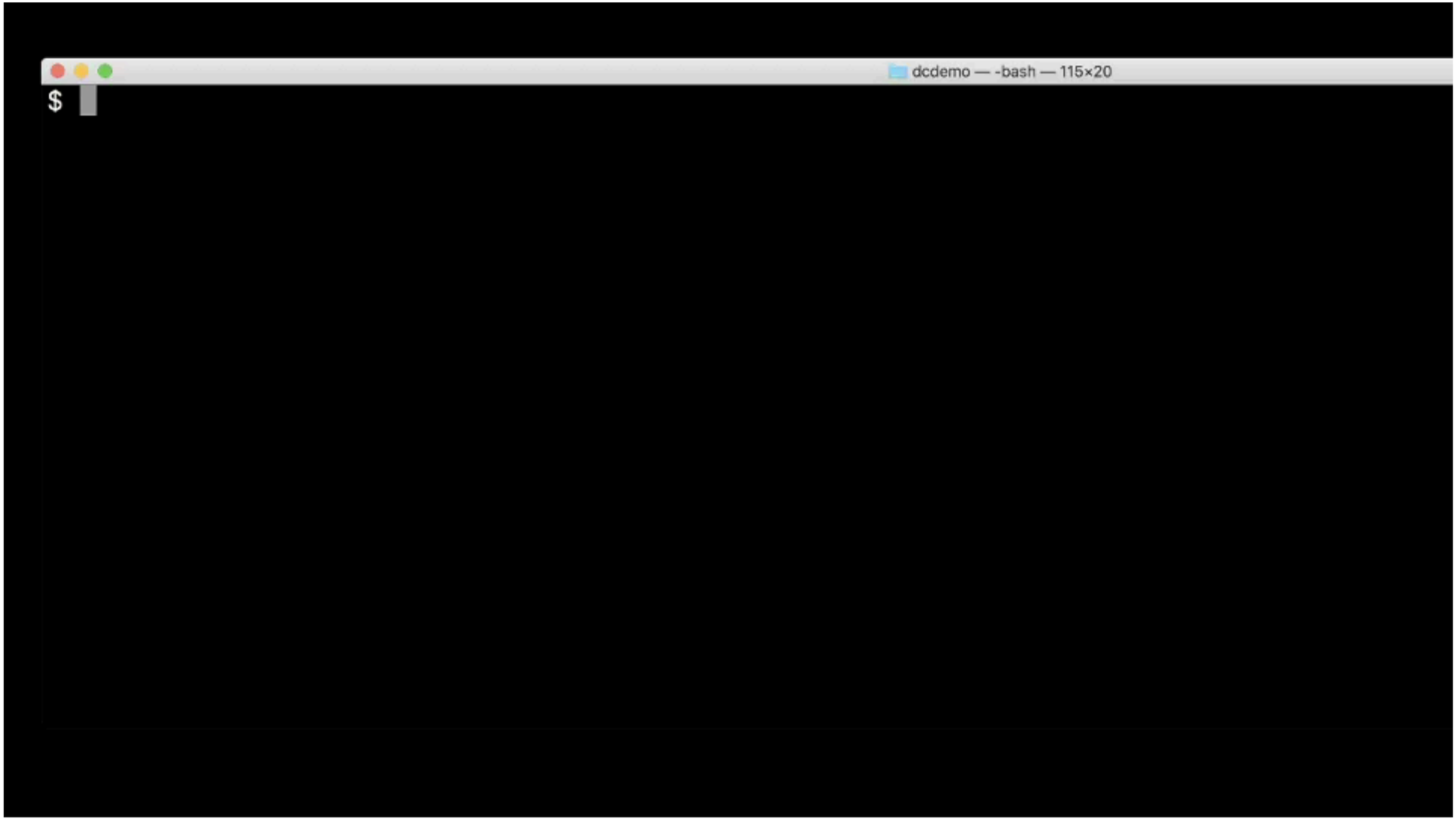
```
ersion: '3.4'
services:

  app:
     build: .

  db:
     image: postgres:10-alpine
~
~
~
~
~
~/Sites/pycon_tut/proj/dcdemo/docker-compose.yml
FROM python:3.6


CMD ["python", "-mhttp.server", "8000"]
~
~
~
~
~
~
~
~
~
Dockerfile
"~/Sites/pycon_tut/proj/dcdemo/docker-compose.yml" 8L, 85C
```

DEMO (BASIC USAGE 2)



DEMO (PORTS)

```
FROM python:3.6

RUN mkdir /htdocs/
WORKDIR /htdocs/
COPY index.html /htdocs/index.html
CMD ["python", "-mhttp.server", "8000"]
~
~
~
~
~
Dockerfile
```

```
version: '3.4'
services:

  app:
     build: .
     ports:
       - 8000:8000

  db:
     image: postgres:10-alpine
~
docker-compose.yml
"docker-compose.yml" 10L, 116C
```

Problem loading page

localhost:8000

Unable to connect

Firefox can't establish a connection to the server at localhost:8000.

- The site could be temporarily unavailable or too busy. Try again in a few moments.
- If you are unable to load any pages, check your computer's network connection.
- If your computer or network is protected by a firewall or proxy, make sure that Firefox Developer Edition is permitted to access the Web.

Try Again