ZEND SERVER IN DOCKER SWARM: DEPLOYMENT AND MORE

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Rogue Wave Software

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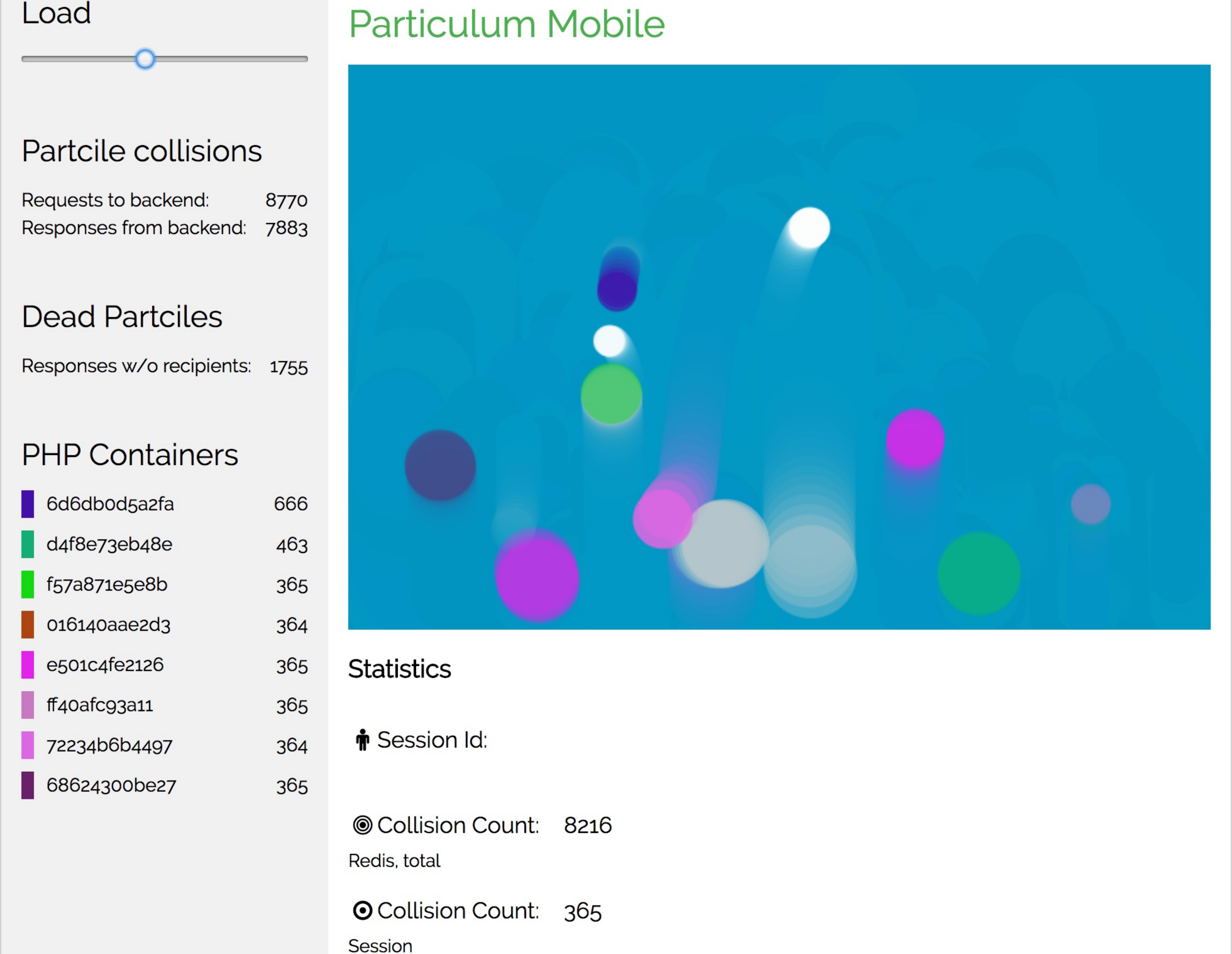


Load

Partcile collisions

Requests to backend:	8770
Responses from backend:	7883

Dead Partciles

Responses w/o recipients:	1755

PHP Containers

🟪	6d6db0d5a2fa	666
🟩	d4f8e73eb48e	463
🟩	f57a871e5e8b	365
🟫	016140aae2d3	364
🟪	e501c4fe2126	365
🟪	ff40afc93a11	365
🟪	72234b6b4497	364
🟪	68624300be27	365

Particulum Mobile

Statistics

Session Id:

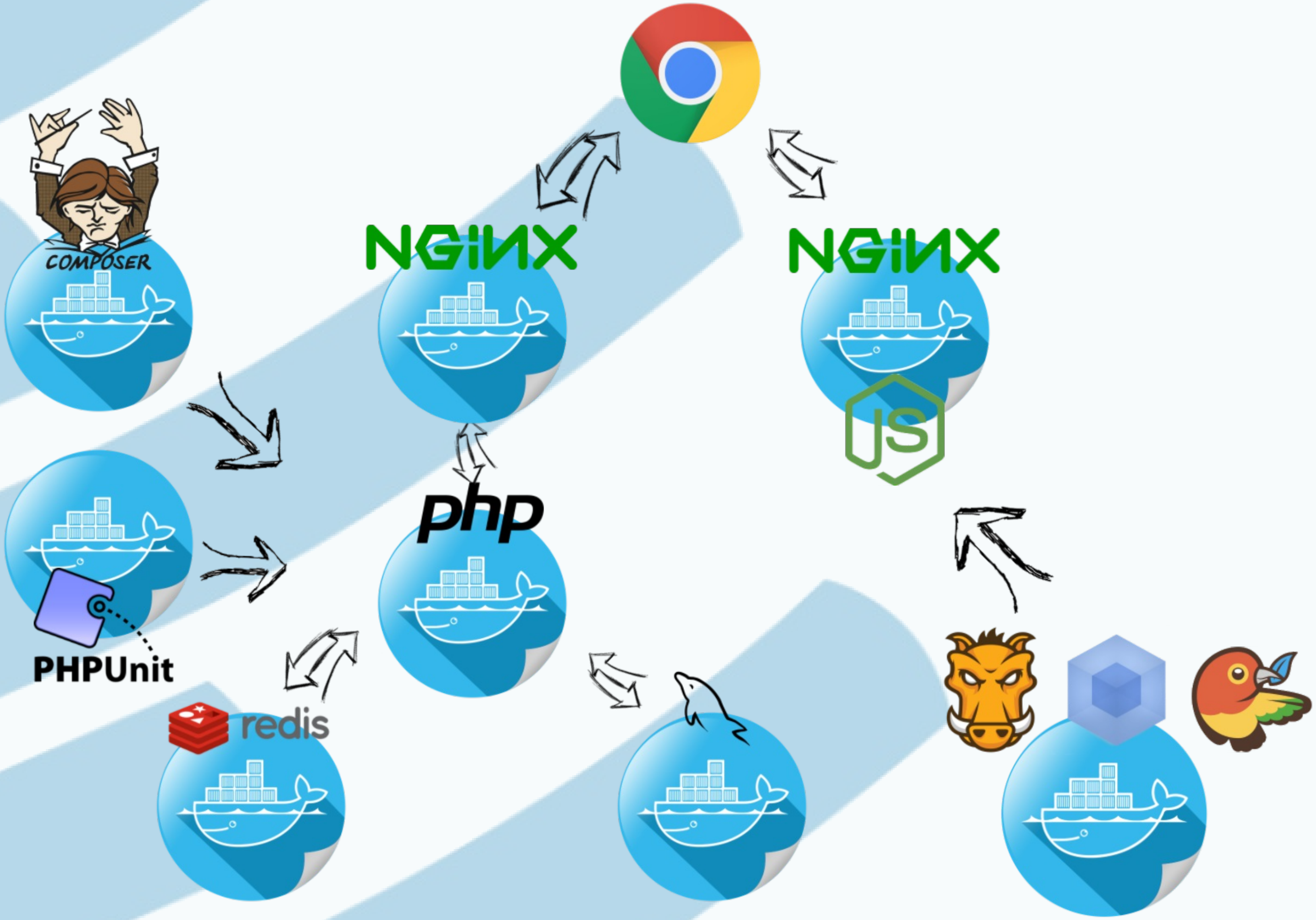
◎ Collision Count: 8216

Redis, total

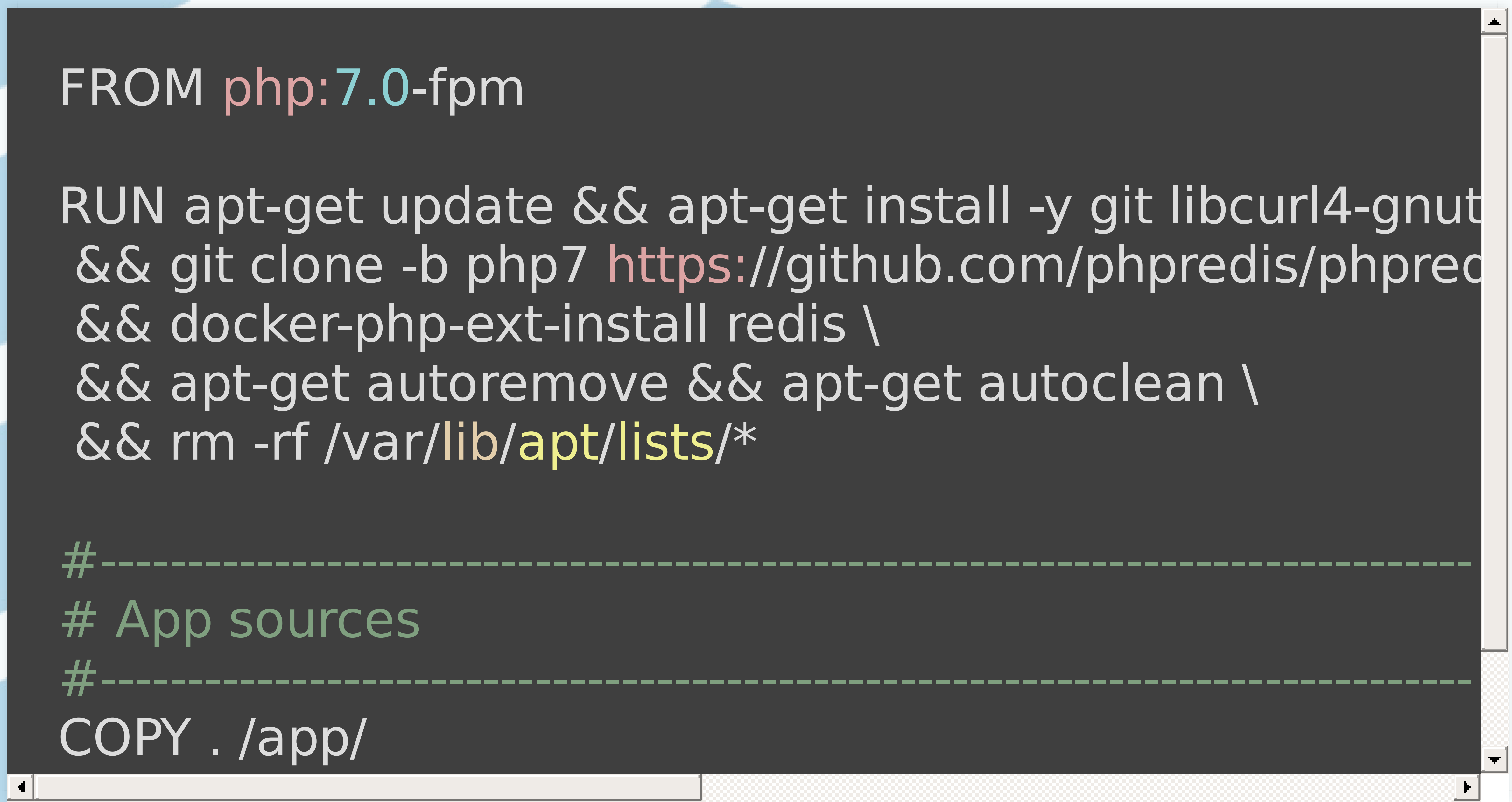
⦿ Collision Count: 365

Session

DOCKER

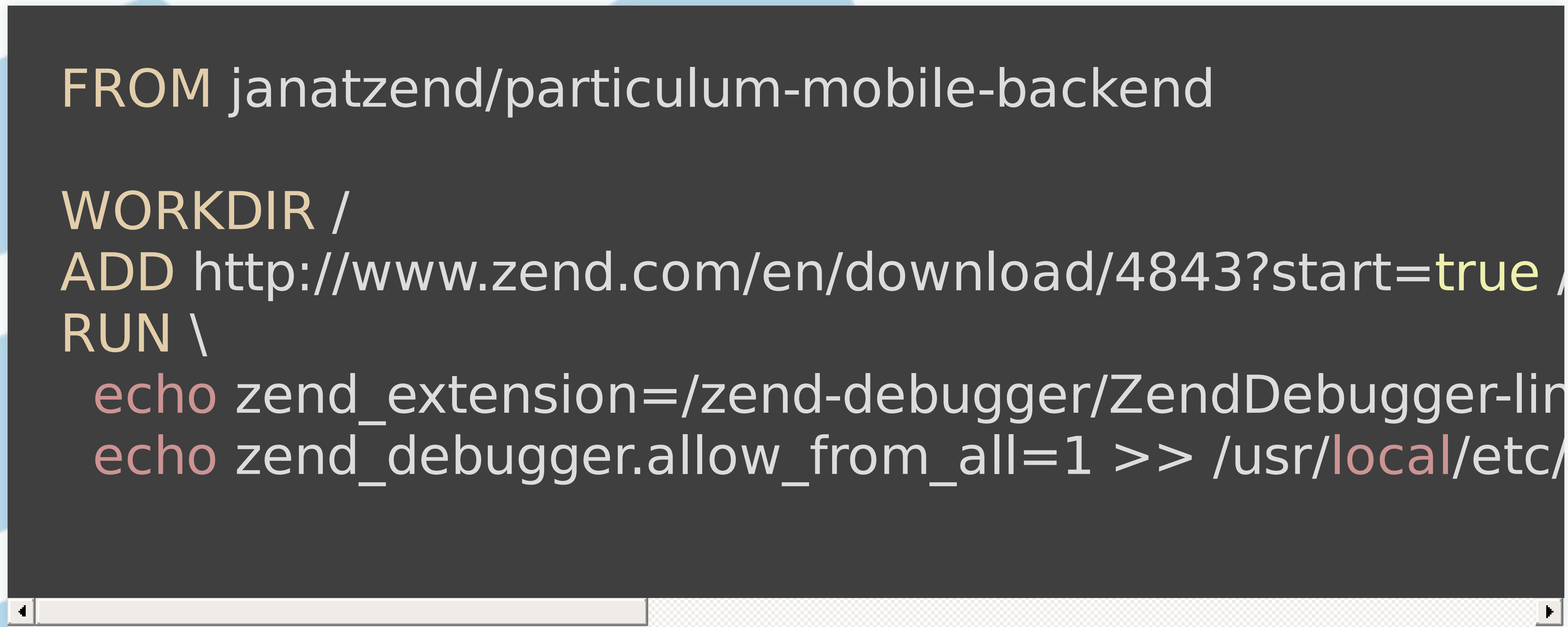

COMPOSER
NGINX
NGINX
php
PHPUnit
redis
JS

DOCKERFILE (PROD)

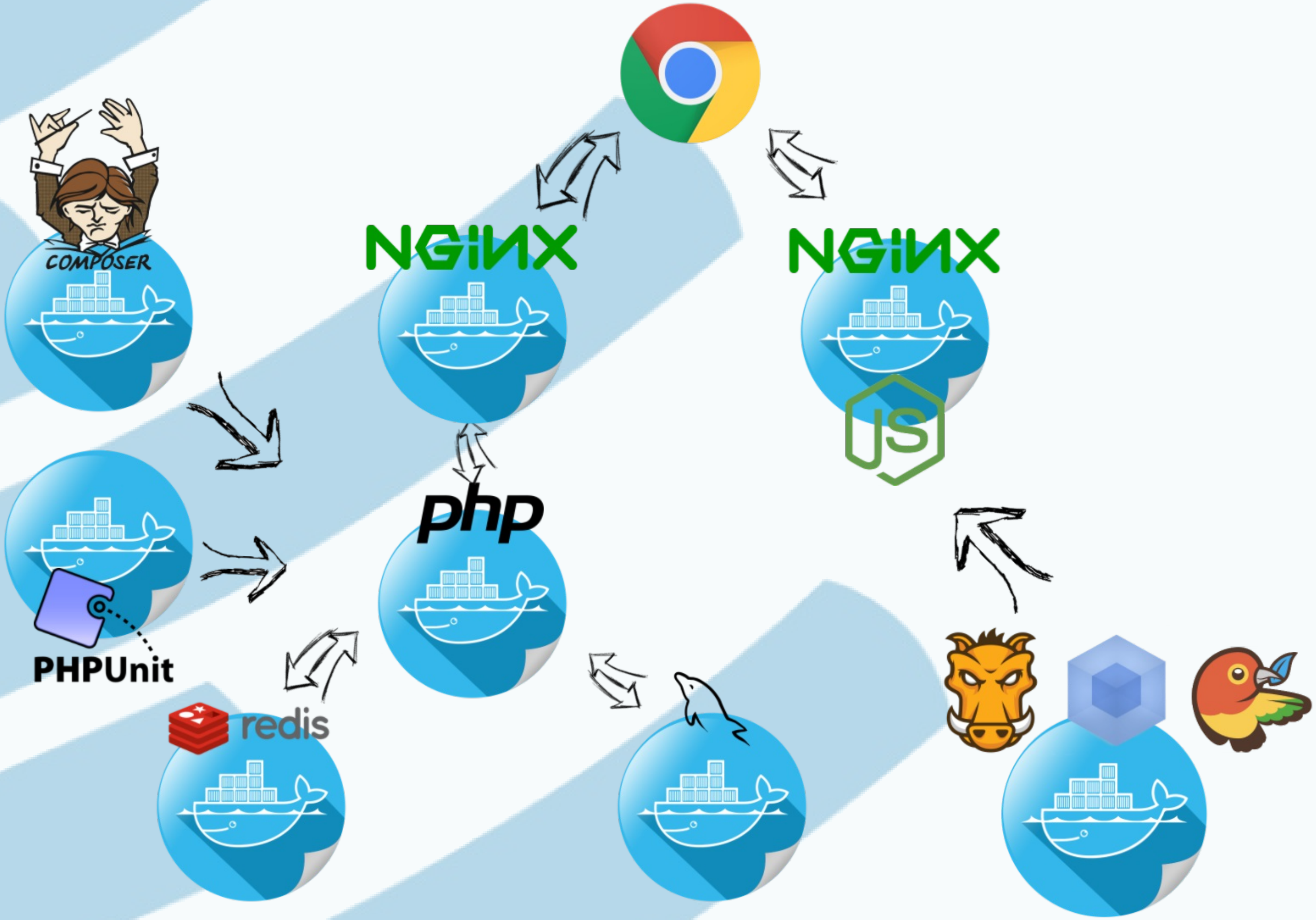


```
FROM php:7.0-fpm

RUN apt-get update && apt-get install -y git libcurl4-gnut
 && git clone -b php7 https://github.com/phpredis/phpred
 && docker-php-ext-install redis \
 && apt-get autoremove && apt-get autoclean \
 && rm -rf /var/lib/apt/lists/*

#-----------------------------------------------------------
# App sources
#-----------------------------------------------------------
COPY . /app/
```

DOCKERFILE (DEV)



```
FROM janatzend/particulum-mobile-backend

WORKDIR /
ADD http://www.zend.com/en/download/4843?start=true /
RUN \
  echo zend_extension=/zend-debugger/ZendDebugger-lin
  echo zend_debugger.allow_from_all=1 >> /usr/local/etc/
```


COMPOSER
NGiNX
NGiNX
php
JS
PHPUnit
redis

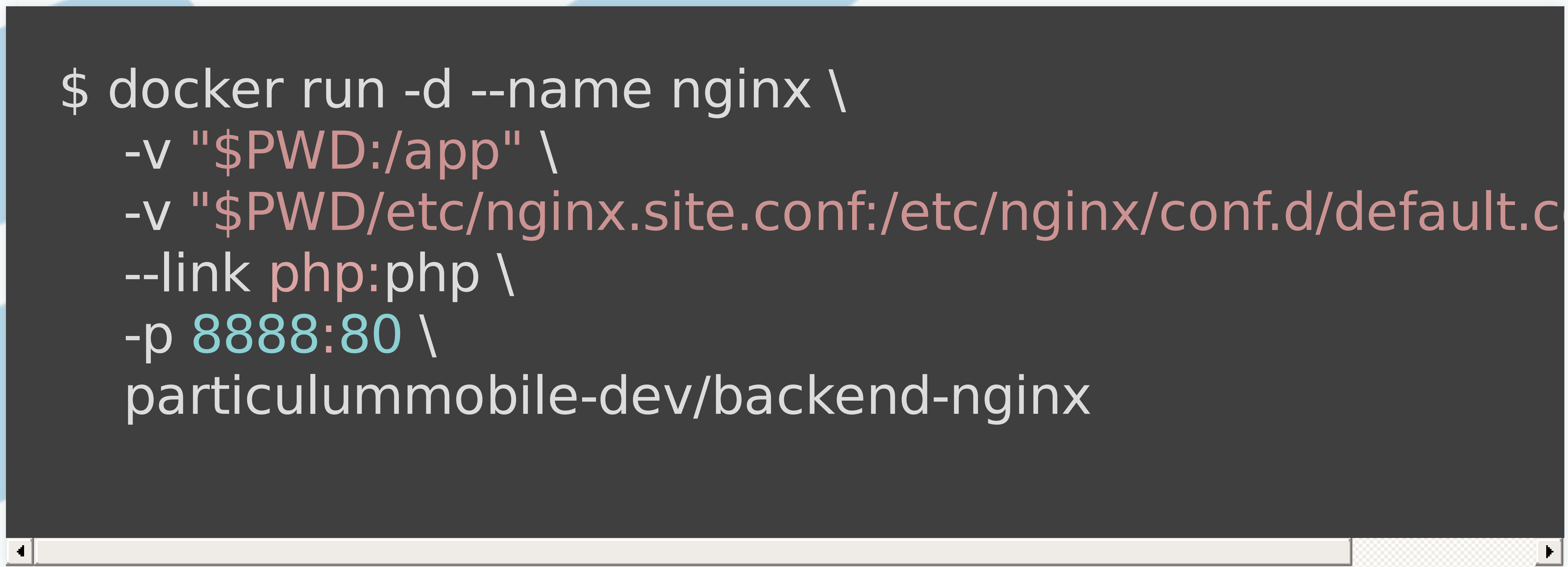
REDIS CONTAINER

```
$ docker run -d --name redis redis:3.2.7-alpine
```

PHP CONTAINER

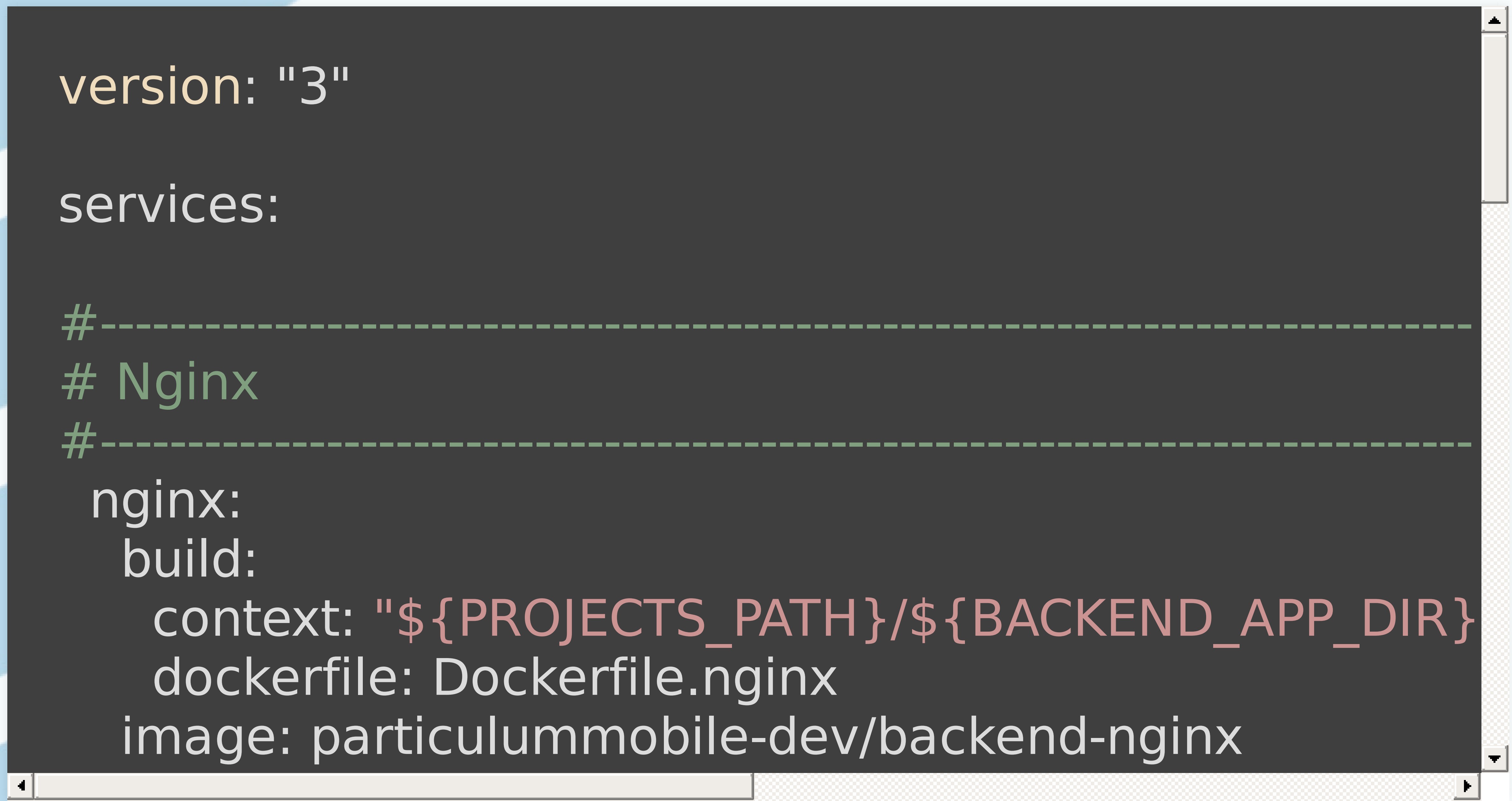
```
$ docker run -d --name php \
    -v "$PWD:/app" \
    --link redis:redis \
    particulummobile-dev/backend
```

NGINX CONTAINER



```
$ docker run -d --name nginx \
    -v "$PWD:/app" \
    -v "$PWD/etc/nginx.site.conf:/etc/nginx/conf.d/default.c
    --link php:php \
    -p 8888:80 \
    particulummobile-dev/backend-nginx
```

DOCKER COMPOSE



```
version: "3"

services:

#----------------------------------------------------------------------------
# Nginx
#----------------------------------------------------------------------------
  nginx:
    build:
      context: "${PROJECTS_PATH}/${BACKEND_APP_DIR}
      dockerfile: Dockerfile.nginx
    image: particulummobile-dev/backend-nginx
```

RUN

```
$ docker-compose up
```

```
$ docker-compose -d -p $(PROJECT) -f $(DOCKER_COMPOS
```

SCALING

```
$ docker-compose up -d --scale php=5
```

```
$ docker-compose scale php=5
```

Load Balancer?

DOCKER SWARM (MODE)

“Current versions of Docker include swarm mode for natively managing a cluster of Docker Engines called a swarm. Use the Docker CLI to create a swarm, deploy application services to a swarm, and manage swarm behavior.”

CLOUD.DOCKER.COM

- Beta
- Service Provider
  - AWS
  - Azure
  - On Premise

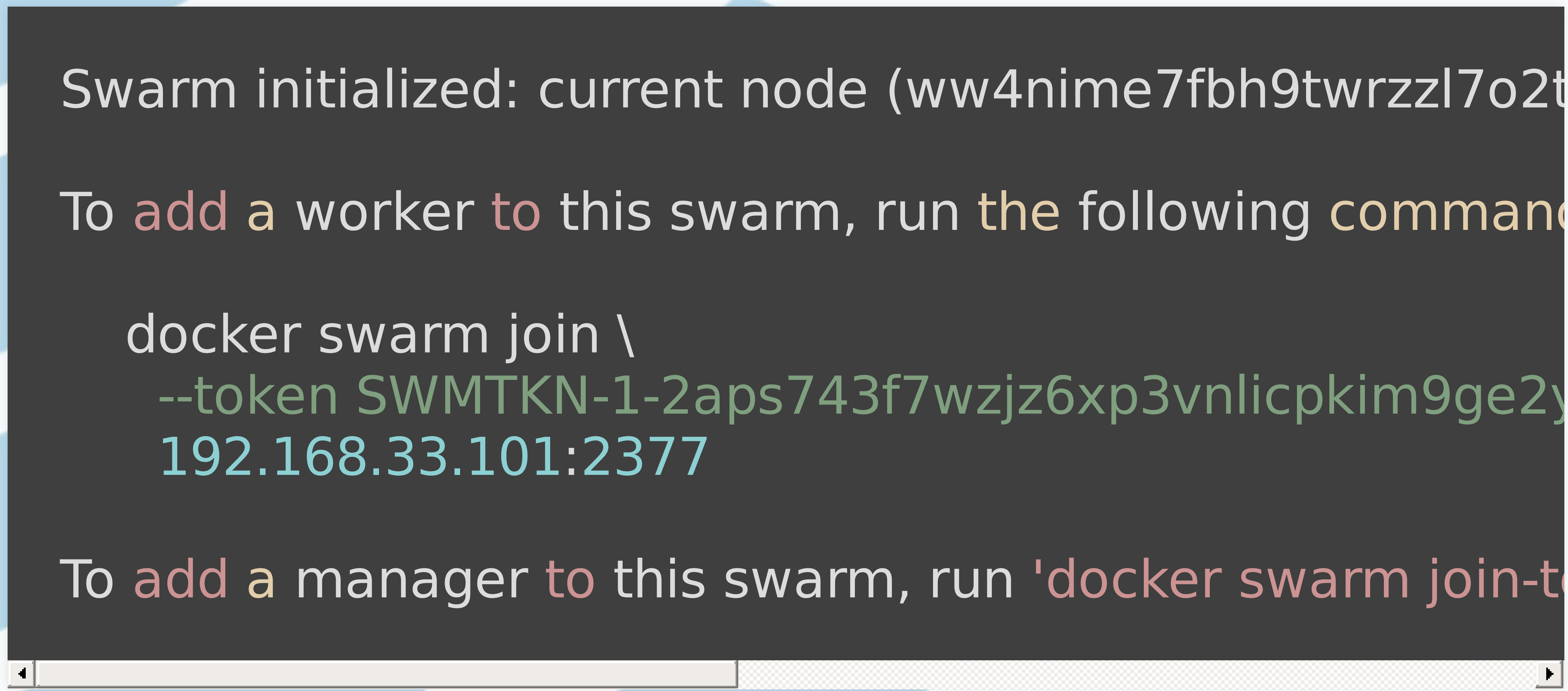
PLAY-WITH-DOCKER.COM

MY LOCAL SETUP

- VirtualBox
- Vagrant
- 3 Nodes
- Ubuntu 16.04

INIT / MANAGER

```
$ docker swarm init --advertise-addr 192.168.99.121
```



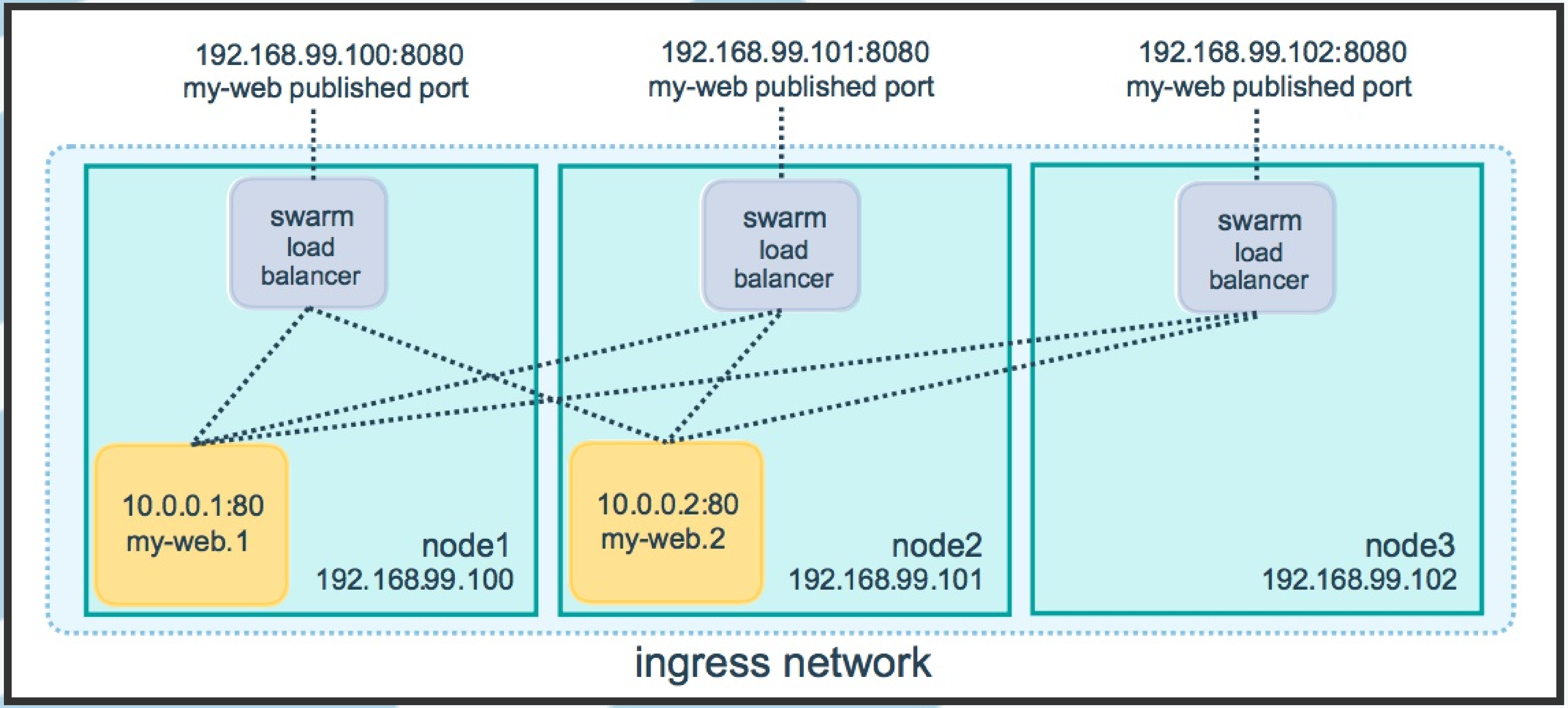
```
Swarm initialized: current node (ww4nime7fbh9twrzzl7o2t

To add a worker to this swarm, run the following comman

    docker swarm join \
      --token SWMTKN-1-2aps743f7wzjz6xp3vnlicpkim9ge2y
      192.168.33.101:2377

To add a manager to this swarm, run 'docker swarm join-t
```

NETWORKING

ROUTING MESH

“The routing mesh enables each node in the swarm to accept connections on published ports for any service running in the swarm, even if there’s no task running on the node.”

INGRESS NETWORK

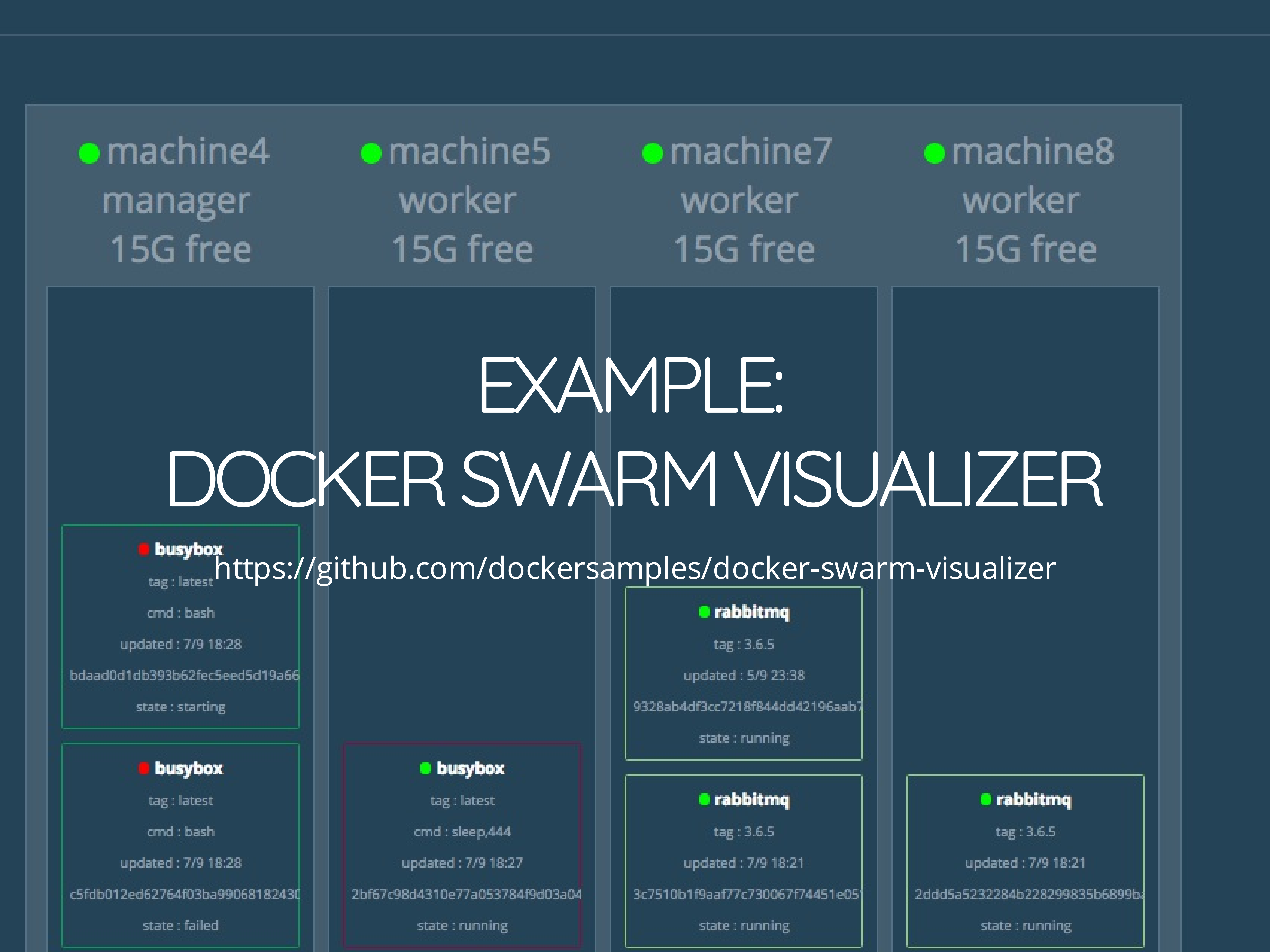


https://docs.docker.com/engine/swarm/ingress/

SERVICES

EXAMPLE:
DOCKER SWARM VISUALIZER

https://github.com/dockersamples/docker-swarm-visualizer



● machine4
manager
15G free

● busybox
tag : latest
cmd : bash
updated : 7/9 18:28
bdaad0d1db393b62fec5eed5d19a66
state : starting

● busybox
tag : latest
cmd : bash
updated : 7/9 18:28
c5fdb012ed62764f03ba99068182430
state : failed

● machine5
worker
15G free

● busybox
tag : latest
cmd : sleep,444
updated : 7/9 18:27
2bf67c98d4310e77a053784f9d03a04
state : running

● machine7
worker
15G free

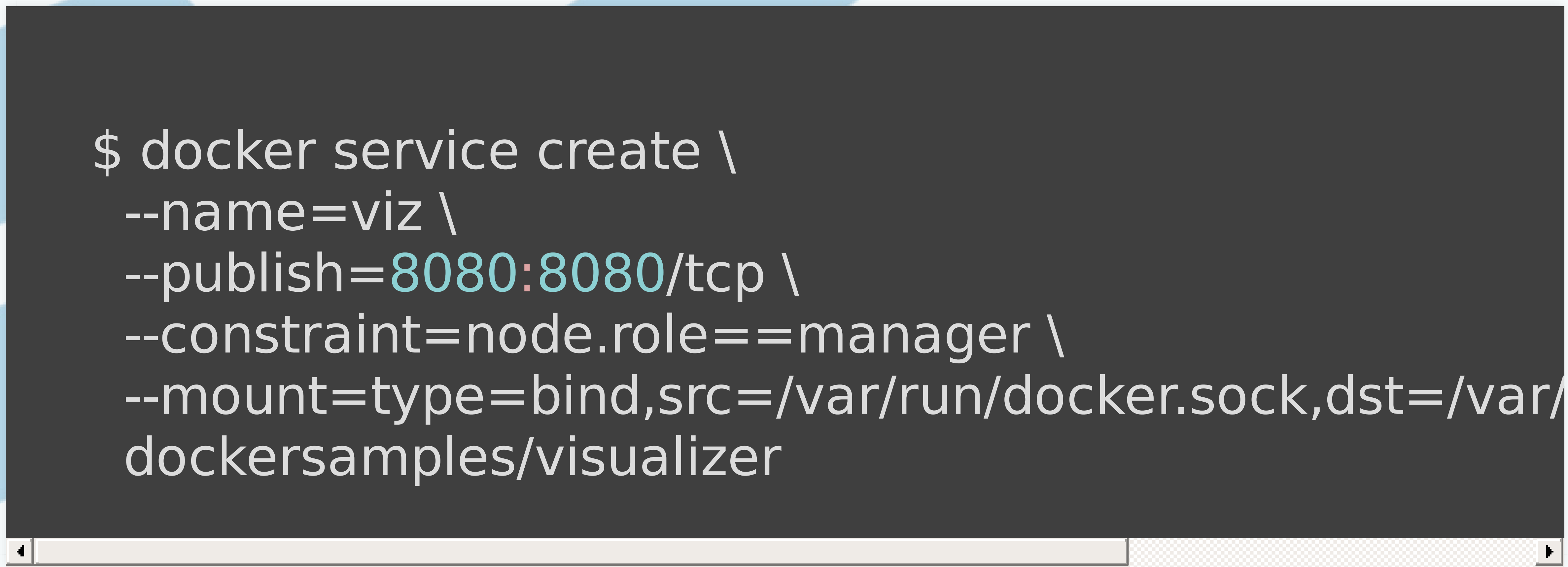
● rabbitmq
tag : 3.6.5
updated : 5/9 23:38
9328ab4df3cc7218f844dd42196aab7
state : running

● rabbitmq
tag : 3.6.5
updated : 7/9 18:21
3c7510b1f9aaf77c730067f74451e05
state : running

● machine8
worker
15G free

● rabbitmq
tag : 3.6.5
updated : 7/9 18:21
2ddd5a5232284b228299835b6899b
state : running

CREATE SERVICE



```
$ docker service create \
  --name=viz \
  --publish=8080:8080/tcp \
  --constraint=node.role==manager \
  --mount=type=bind,src=/var/run/docker.sock,dst=/var/
  dockersamples/visualizer
```

BUILDING IMAGES

MAKEFILE

CI AAS

- Codehip
- Wercker
- Codefresh
- etc...

~~APP SERVICES~~
DOCKER COMPOSE V3

[redacted]

INSTALL AND UPDATE

```
$ docker stack deploy --compose-file stack.yml pm
```

ZEND SERVER

https://github.com/5square/docker-zendserver

HELPERS

/run.sh

```
source /shell_functions.rc

trap "remove_from_cluster; exit" SIGINT SIGTERM SIGHUP
```

WEB API

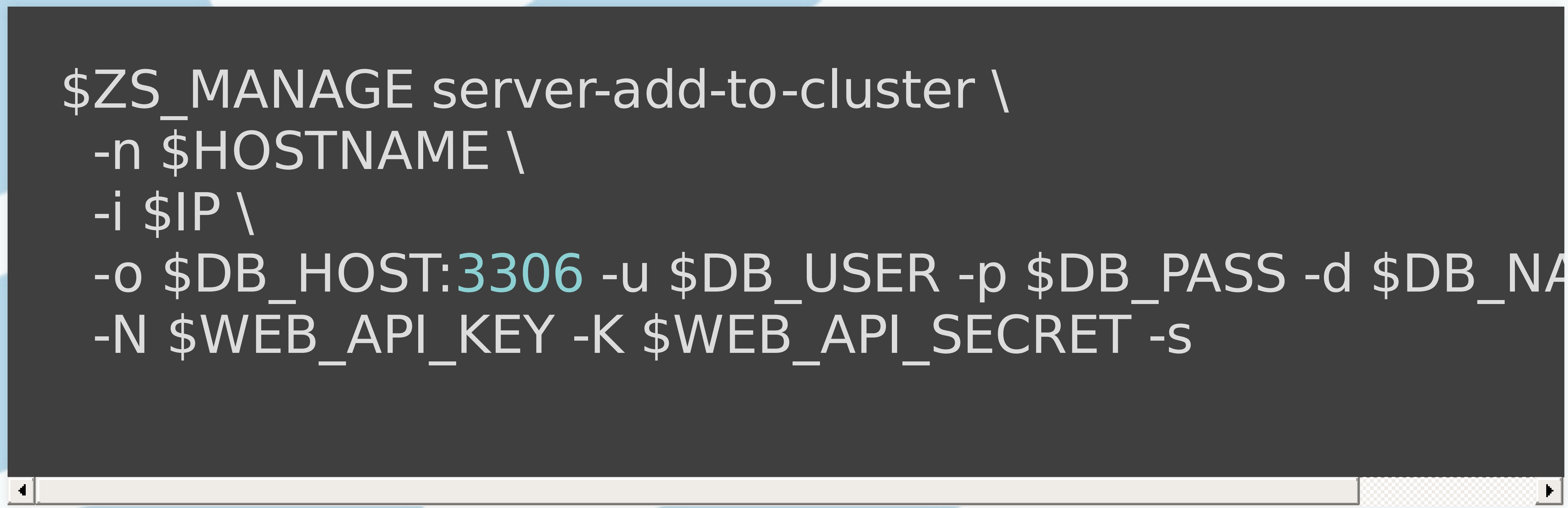
./etc/shell_functions.rc

```
WEB_API_KEY=docker
WEB_API_SECRET=$(cat /webapi/secret)

ZS_MANAGE=/usr/local/zend/bin/zs-manage
```

CONFIG IMPORT (BUILD TIME)

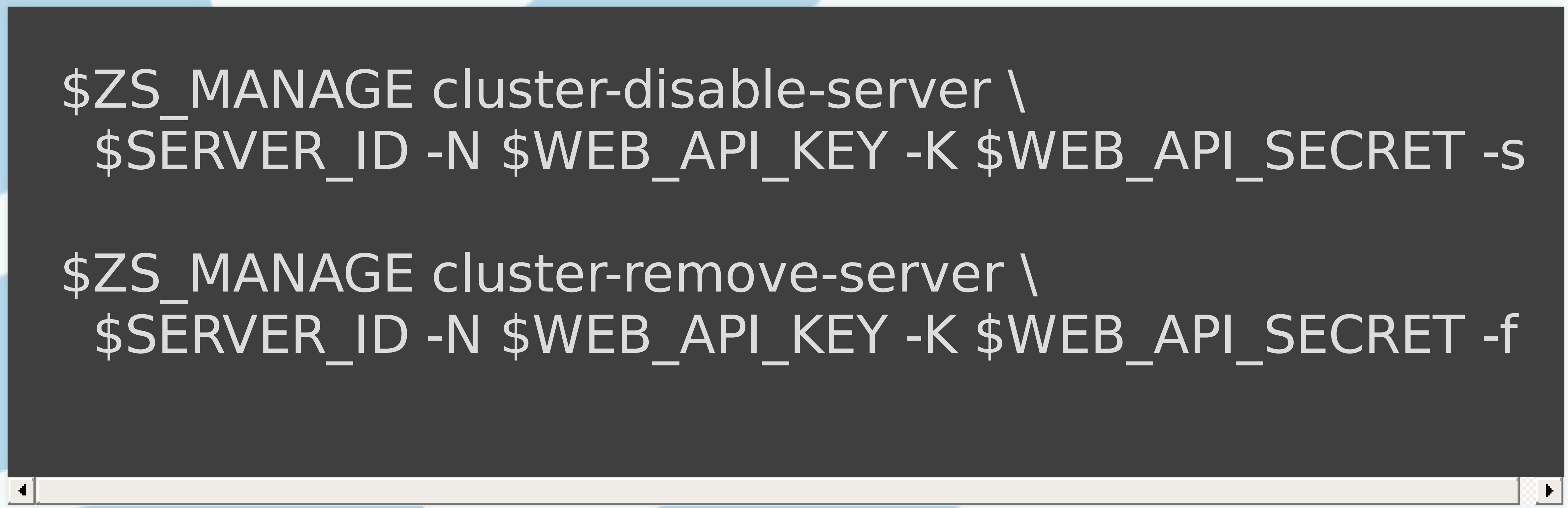
```
$ZS_CLIENT_A configurationImport \
  --configFile="/zs_config.zip" \
  --output-format="kv"
```

JOINING CLUSTER



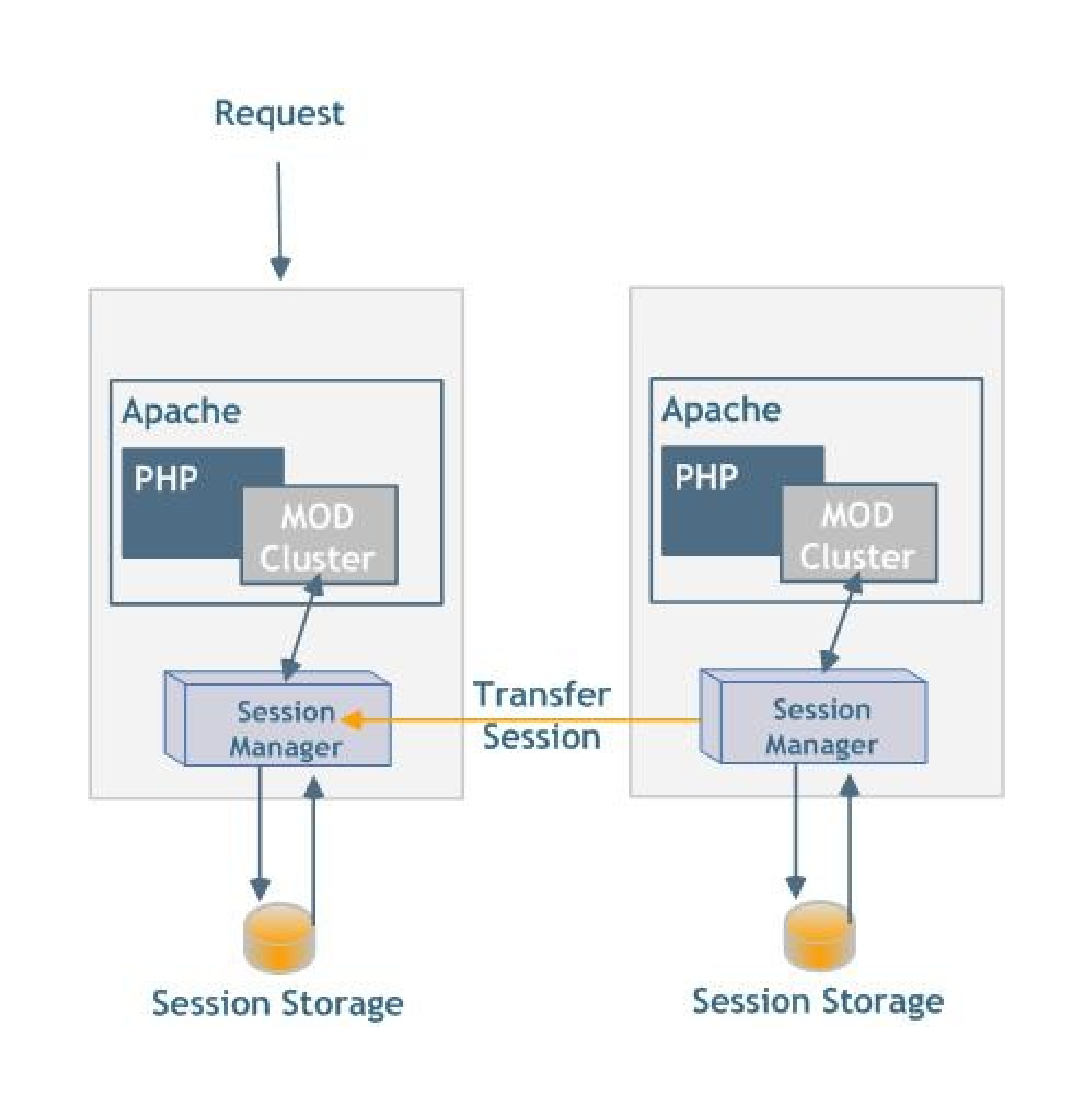
```
$ZS_MANAGE server-add-to-cluster \
  -n $HOSTNAME \
  -i $IP \
  -o $DB_HOST:3306 -u $DB_USER -p $DB_PASS -d $DB_NA
  -N $WEB_API_KEY -K $WEB_API_SECRET -s
```

LEAVING CLUSTER



```
$ZS_MANAGE cluster-disable-server \
  $SERVER_ID -N $WEB_API_KEY -K $WEB_API_SECRET -s

$ZS_MANAGE cluster-remove-server \
  $SERVER_ID -N $WEB_API_KEY -K $WEB_API_SECRET -f
```

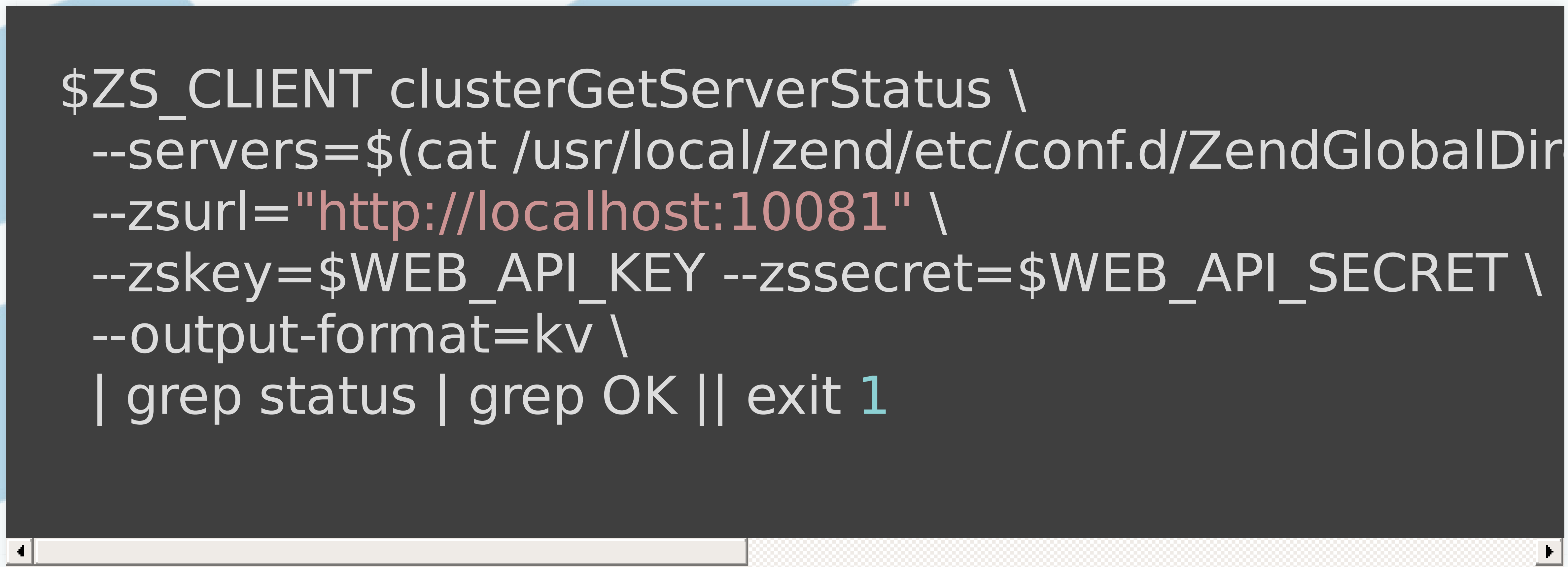
SESSION CLUSTERING



SESSION CLUSTERING

```
$ZS_MANAGE store-directive \
  -d 'session.save_handler' -v 'cluster' \
  -N $WEB_API_KEY -K $WEB_API_SECRET
```

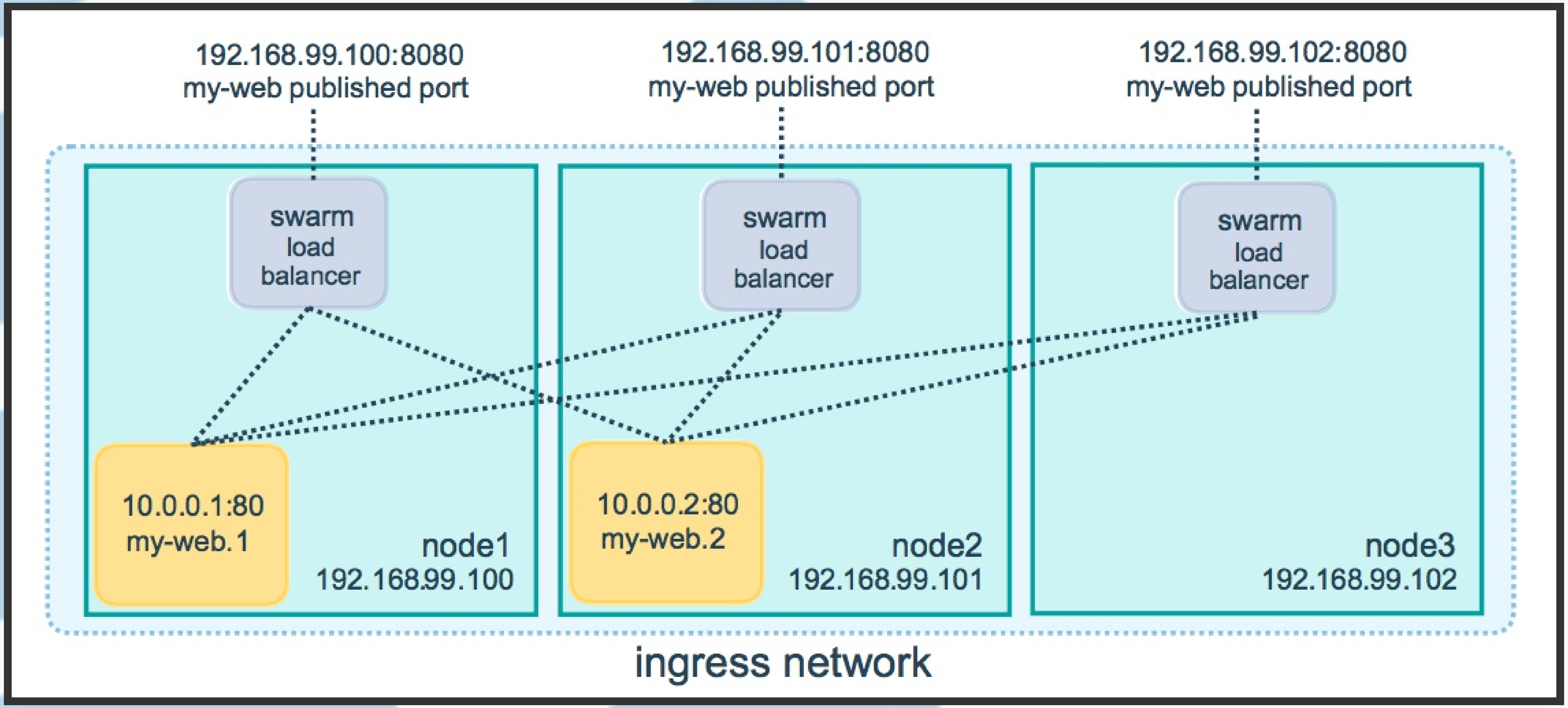
HEALTH CHECK



```
$ZS_CLIENT clusterGetServerStatus \
  --servers=$(cat /usr/local/zend/etc/conf.d/ZendGlobalDir
  --zsurl="http://localhost:10081" \
  --zskey=$WEB_API_KEY --zssecret=$WEB_API_SECRET \
  --output-format=kv \
  | grep status | grep OK || exit 1
```

[redacted]

INGRESS NETWORK - UI ISSUES

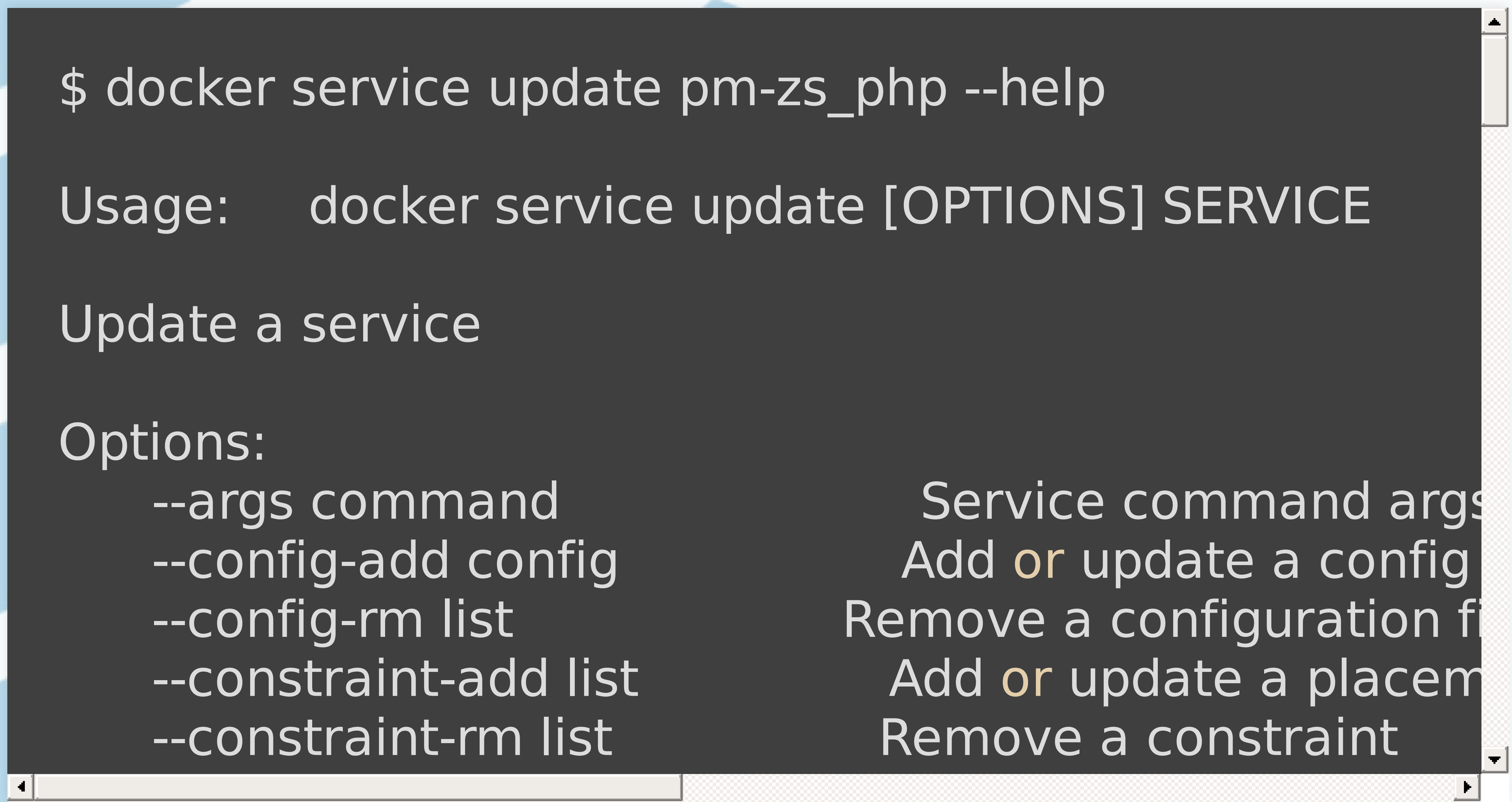


https://docs.docker.com/engine/swarm/ingress/

UPDATES

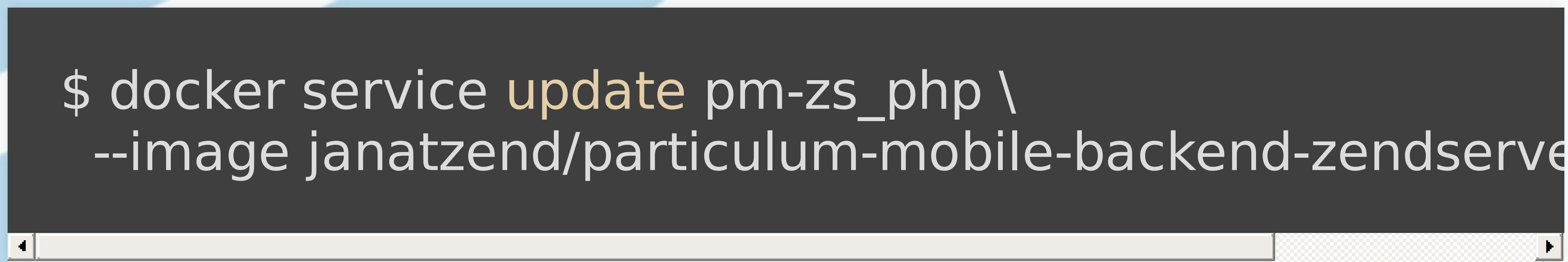
ZEND SERVER DEPLOYMENT?

UPDATE



```
$ docker service update pm-zs_php --help

Usage:    docker service update [OPTIONS] SERVICE

Update a service


Options:
      --args command                       Service command args
      --config-add config                 Add or update a config
      --config-rm list                  Remove a configuration fi
      --constraint-add list               Add or update a placem
      --constraint-rm list                 Remove a constraint
```

UPDATE



```
$ docker service update pm-zs_php \
  --image janatzend/particulum-mobile-backend-zendserve
```

OR... UI (PORTAINER)

BENEFITS

CONTAINERS SELF-CONTAINED

- Everything in VCS
- Running in every Docker env

DOCKER COMPOSE

Stack Deployment via YAML file

DANKESCHÖN

bitbucket.org/account/user/5square-rw/projects/PM

Slides: 5square.de/talks

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