Compose and Swarm

Virtualisation

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To some extent, it just works

Make a docker-compose.yml file, then run

\$ docker-compose up

There are some issues, however¹.

¹The above won't work on our machines. Don't sweat it.

FIRST ISSUE, BUILDING

- ► We saw that you can specify that Docker build an image in a Compose file.
- ▶ But we also saw that Swarm needs images to be accessible in a registry.
- ► So, building in a compose file used for Swarm deployment is right out.
- Really, when you're deploying to a production setting, you shouldn't be building on the fly anyway.

Next issue, volumes

- ► We use volumes to let containers work directly with the host file system.
- ▶ But we don't always know what host our containers will run upon.
- ▶ If our container creates volumes, use named ones.
- ► If our containers read from volumes, have other containers that populate them, then use a volumes_from directive.

Issue three: Dependencies

- ► We can create dependencies between containers
 - ► Explicitly: depends_on
 - ► Implicitly: volumes_from
- ► In either case, Docker interprets this to mean that a container must be deployed on the same node as its dependencies.
- ► In simple cases this works fine.
- ► We need to be aware of this when scaling services. When scaling a service, we may need to scale its dependencies.

THE TRICKY CASE: MULTIPLE DEPENDENCIES

FINAL ISSUE: NETWORKS

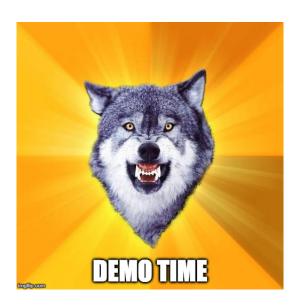
- ► We've seen that Docker can set up internal networks that allow containers to communicate and find each other by name.
- ▶ What happens when the containers are on seperate hosts?
- ▶ We can get the same result by creating *overlay networks*.

In compose

```
networks:
foo:
    driver: overlay
```

FINAL CAVEATS

- ► This stuff is highly version-dependent.
- ► Documentation is sometimes lacking and what's there can be confusing.
- ► Stack Overflow does not care about you.



Today's lab

- ▶ Redo lab 4.2, using Docker Swarm
- ▶ What changes do you need to make?
- ► Scale up your flaskapp service to 3
- ► You should only need one nginx container.