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First Phase

- Tools Installation
- DeathStarBench Understanding
- .yaml Extension
- First try with Kubernetes

Tools Installation

Enviroment: Windows with WLS2 (Windows Subsystem for Linux) to be able to use Docker containers. Visual Studio Code installed with Docker and Kubernetes extension that seems to work fine on Ubuntu environment.

DeathStarBench Understanding

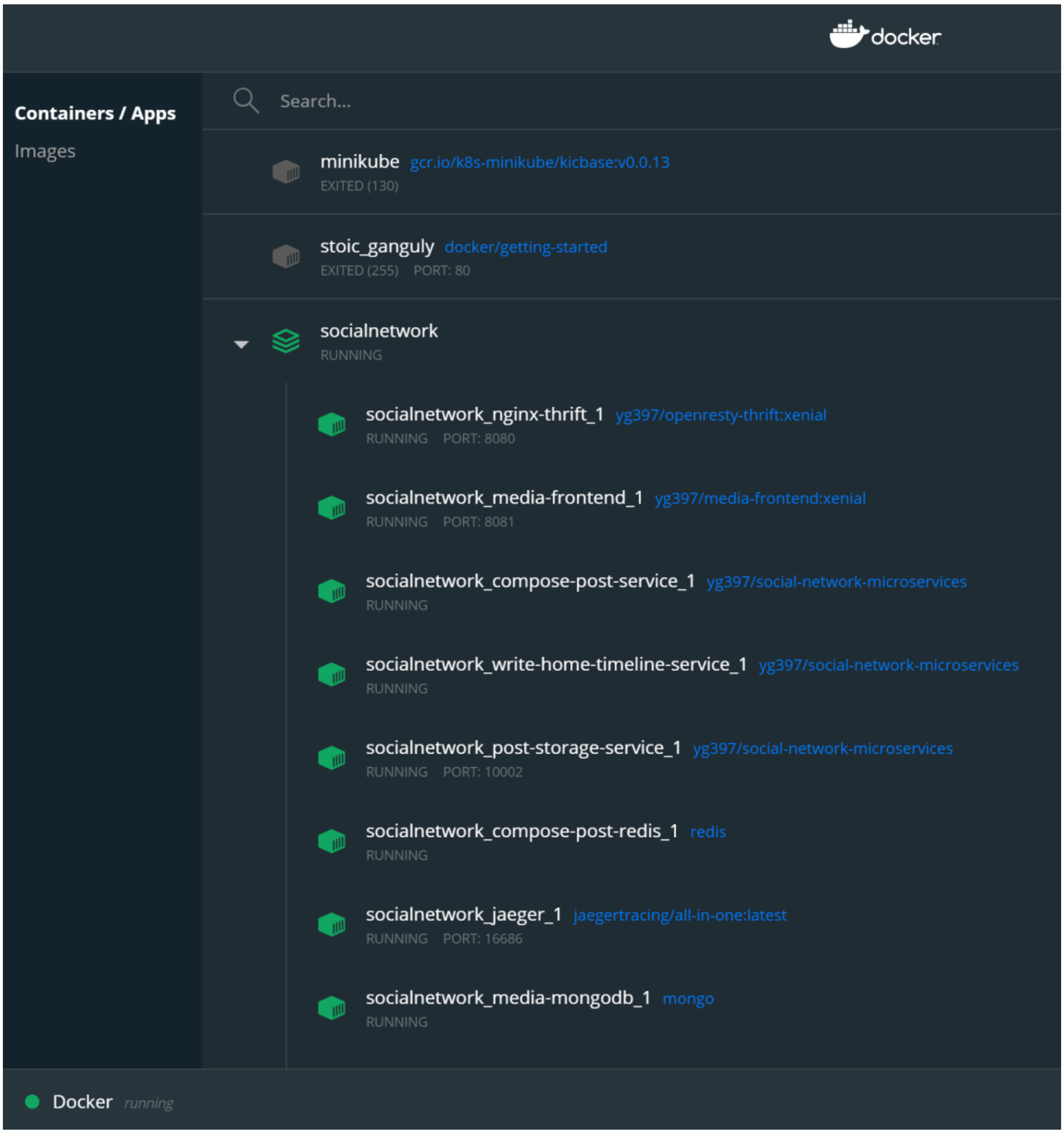
Analysis of the paper done. I've imported the repository in VSCode and I am working on the Social Network example trying to do a first evaluation of the benchmark.

After discovering that the wrk folder of the project does not work, I've taken another implementation of it directly from docker.

```
docker pull williamyeh/wrk
```

It seems to work fine but the recommended command from the github repository of DeathStarBrench are completely useless.

The docker containers run correctly:



minikube gcr.io/k8s-minikube/kicbase:v0.0.13
EXITED (130)

stoic_ganguly docker/getting-started
EXITED (255) PORT: 80

socialnetwork
RUNNING

socialnetwork_nginx-thrift_1 yg397/openresty-thrift:xenial
RUNNING PORT: 8080

socialnetwork_media-frontend_1 yg397/media-frontend:xenial
RUNNING PORT: 8081

socialnetwork_compose-post-service_1 yg397/social-network-microservices
RUNNING

socialnetwork_write-home-timeline-service_1 yg397/social-network-microservices
RUNNING

socialnetwork_post-storage-service_1 yg397/social-network-microservices
RUNNING PORT: 10002

socialnetwork_compose-post-redis_1 redis
RUNNING

socialnetwork_jaeger_1 jaegertracing/all-in-one:latest
RUNNING PORT: 16686

socialnetwork_media-mongodb_1 mongo
RUNNING

● Docker *running*

etc..

When I try to run this implementation of wrk:

docker run --rm williamyeh/wrk -t12 -c400 -d30s --latency http://localhost:8080/wrk2-api/post/compose

It gives me the error:

unable to connect to localhost:8080 Connection refused

Of course, it will need other stuff to work so I changed my study subject. What is needed to run a Kubernetes cluster?

.yaml Extension

Looking at the code, I didn't find the .yaml extension files to run the application in Kubernetes. Under your suggestion I've found the issue folder related to the project and there I discovered an older repository with all the .yaml file:

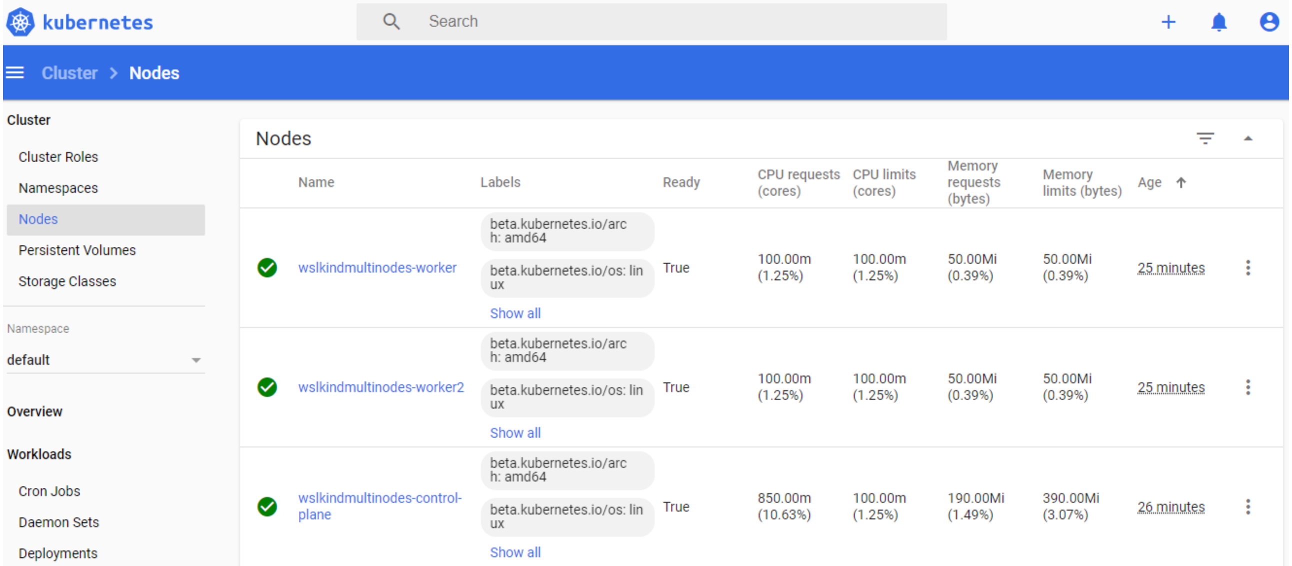
https://github.com/Panlichen/DeathStarBench/tree/dev/socialNetwork

Probably it will lead to other issues because is an older version, before open this new possibility I've decided to understand better the Kubernetes clusters.

First try with Kubernetes

I started the Kubernetes configuration in WSL+Docker (which is my personal enviroment).

I followed the guideline here: https://kubernetes.io/blog/2020/05/21/wsl-docker-kubernetes-on-the-windows-desktop/



Nodes

	Name	Labels	Ready	CPU requests (cores)	CPU limits (cores)	Memory requests (bytes)	Memory limits (bytes)	Age
✓	wslkindmultinodes-worker	beta.kubernetes.io/arch: amd64 beta.kubernetes.io/os: linux Show all	True	100.00m (1.25%)	100.00m (1.25%)	50.00Mi (0.39%)	50.00Mi (0.39%)	25 minutes
✓	wslkindmultinodes-worker2	beta.kubernetes.io/arch: amd64 beta.kubernetes.io/os: linux Show all	True	100.00m (1.25%)	100.00m (1.25%)	50.00Mi (0.39%)	50.00Mi (0.39%)	25 minutes
✓	wslkindmultinodes-control-plane	beta.kubernetes.io/arch: amd64 beta.kubernetes.io/os: linux Show all	True	850.00m (10.63%)	100.00m (1.25%)	190.00Mi (1.49%)	390.00Mi (3.07%)	26 minutes

The tutorial helped me to build a 3-node cluster that work locally.