Docker Containers

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“Vendor lock in” with DOCKER ???

DOCKER CLIENT	DOCKER HUB
DOCKER ENGINE	DOCKER REGISTRY
DOCKER SWARM	DOCKER CLOUD
DOCKER COMPOSE	DOCKER UCP Universal Control Plane
DOCKER MACHINE	DOCKER TOOLBOX

http://blog.dennybritz.com/2015/10/01/a-brief-guide-to-the-docker-ecosystem/

Supported operating systems

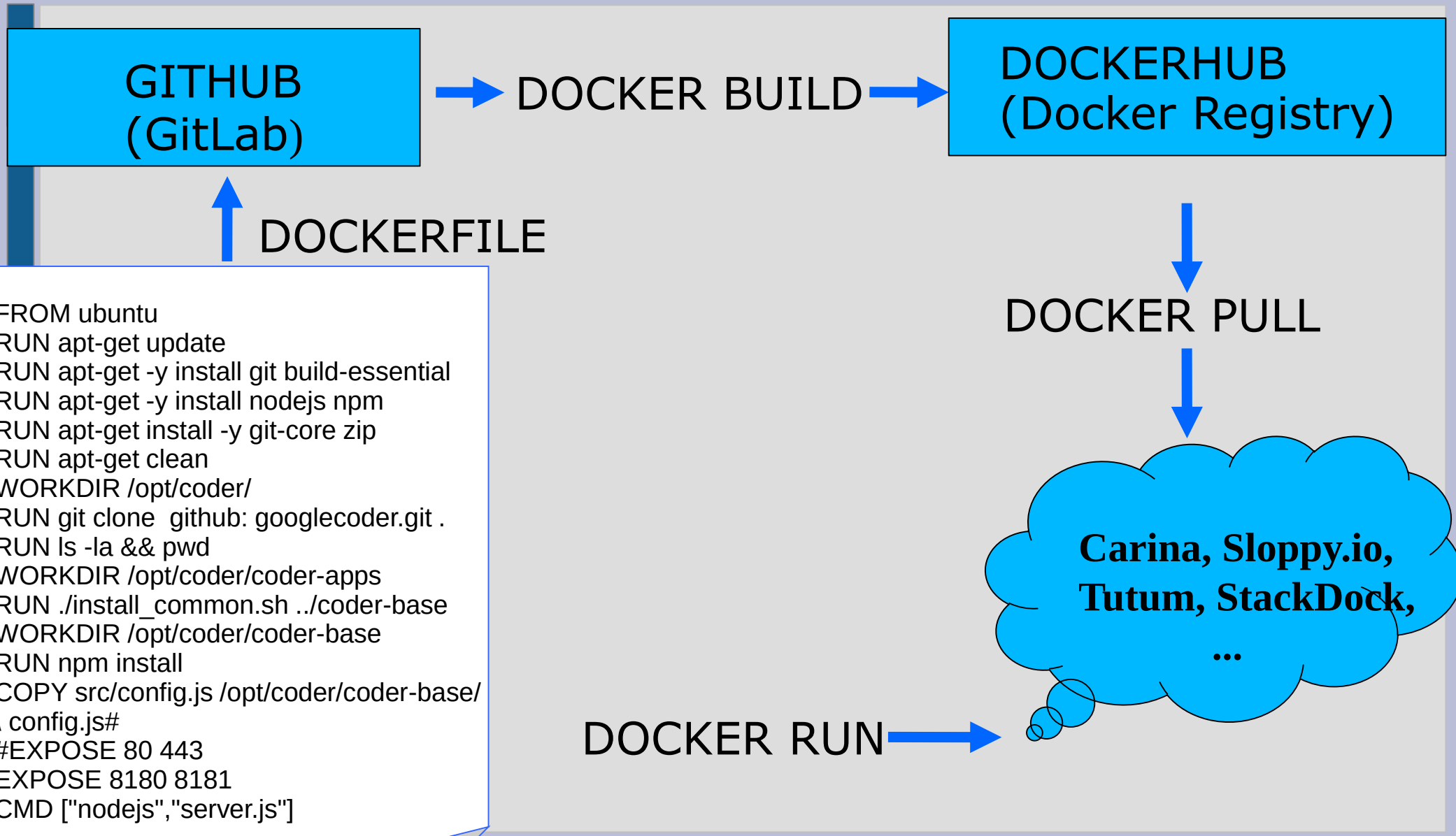
General purpose operating systems:

Amazon EC2
Arch Linux
Azure Microsoft
CentOS
CRUX Linux
Debian
Fedora
FrugalWare
Gentoo
Google Cloud
Joyent
Mac OS X
Oracle Linux
Rackspace Cloud
Red Hat Enterprise Linux
SoftLayer IBM
openSUSE and SUSE Linux
Ubuntu
Windows 20+

Container optimized operating systems:

RedHat Project Atomic
Boot2Docker
CoreOS
OSv
VMWare PhotonOS
RancherOS
Ubuntu Core 7+

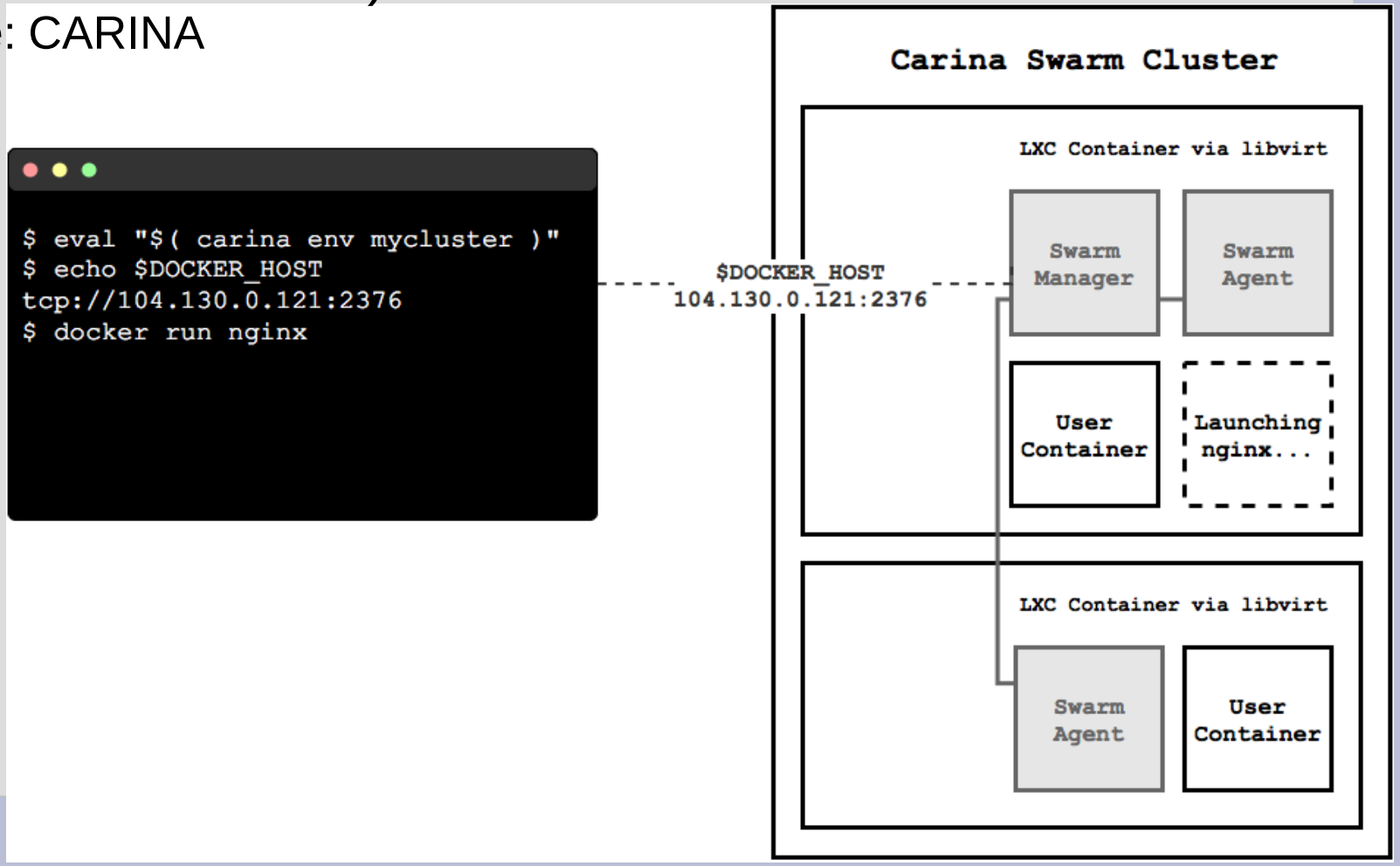
Dockerization of applications



Are Docker Containers cloud neutral?

IaaS (Infrastructure as a Service)
e.g.: DigitalOcean droplets: Ubuntu, Fedora, Debian, CoreOS, Centos

CaaS (Container as a Service)
e.g.: RackSpace: CARINA



If the demo fails you can swim with:

GoogleCoder in a Container at DigitalOcean:

https://188.166.34.228:7443

Password: SInog32016

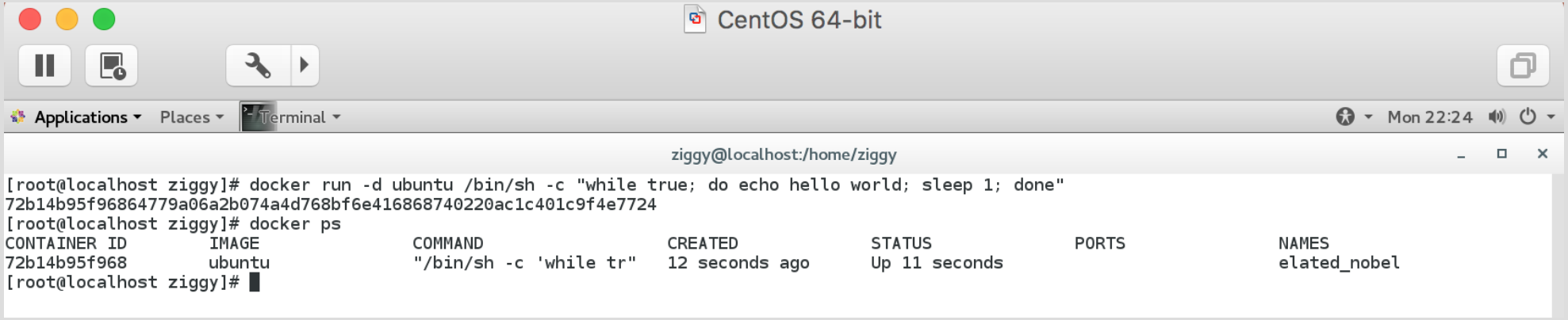
Demonstration

Example 1

- Goal: Create a container running as a deamon and a command that print hello world on screen every second
- In this example we will use
  - docker run; runs the container
  - -d; flag runs the container in the background
  - ubuntu; is the image you would like to run
  - docker logs; looks inside the container
- Finally we specify a command to run:
  - /bin/sh -c "while true; do echo hello world; sleep 1; done”

Example 1: docker run

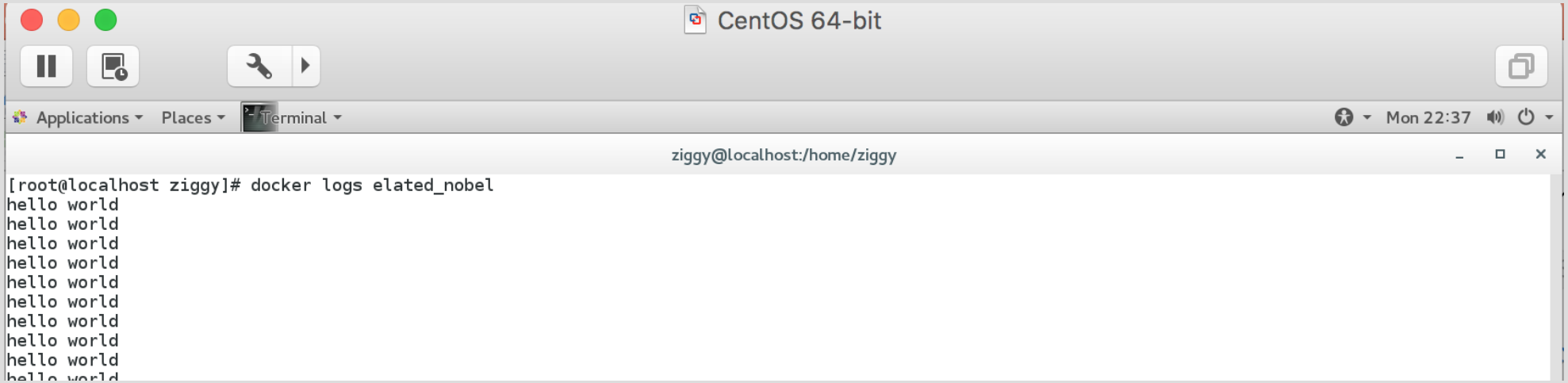
- docker run -d ubuntu /bin/sh -c "while true; do echo hello world; sleep 1; done”



- This long string “72b14b95f96864779a06a2b...” is called a container ID
- docker ps command queries the Docker daemon for information about all the containers.

Example 1: docker logs

- To see what is going on inside the container we use the docker logs command



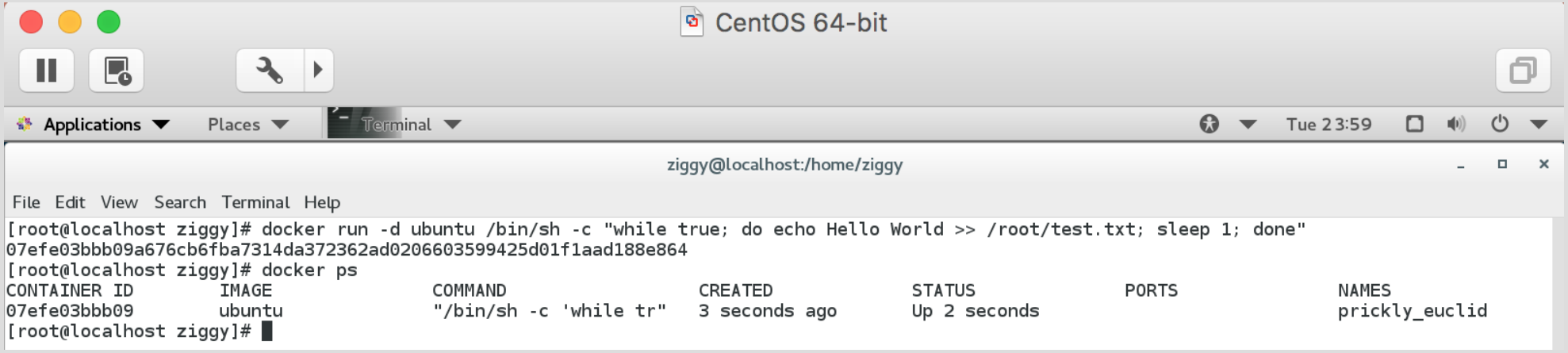
- docker stop command tells Docker to politely stop the running container and returns the name of the container it stopped in our case “elated_nobel”

Example 2

- Goal: Create a container running as a deamon and a command that print Hello World every second and write it in a specific file
- In this example we will use
  - docker run; runs the container
  - -d; flag runs the container in the background
  - ubuntu; is the image you would like to run
  - docker exec; runs a new bash session in a running container
- Finally we specify a command to run an write result in a file

Example 2: docker run

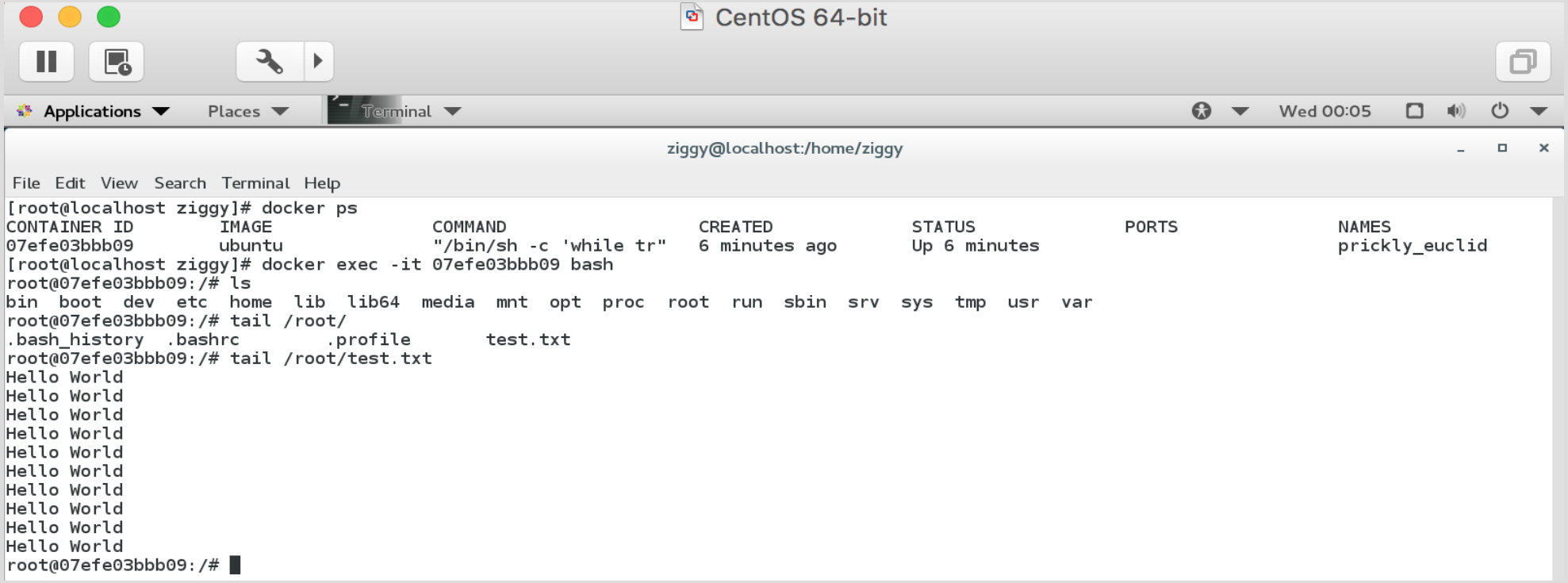
- docker run -d ubuntu /bin/sh -c "while true; do echo Hello World >> /root/test.txt; sleep 1; done”



- This long string “07efe03bbb09a676cb6fba73...” is called a container ID
- docker ps command queries the Docker daemon for information about all the containers.

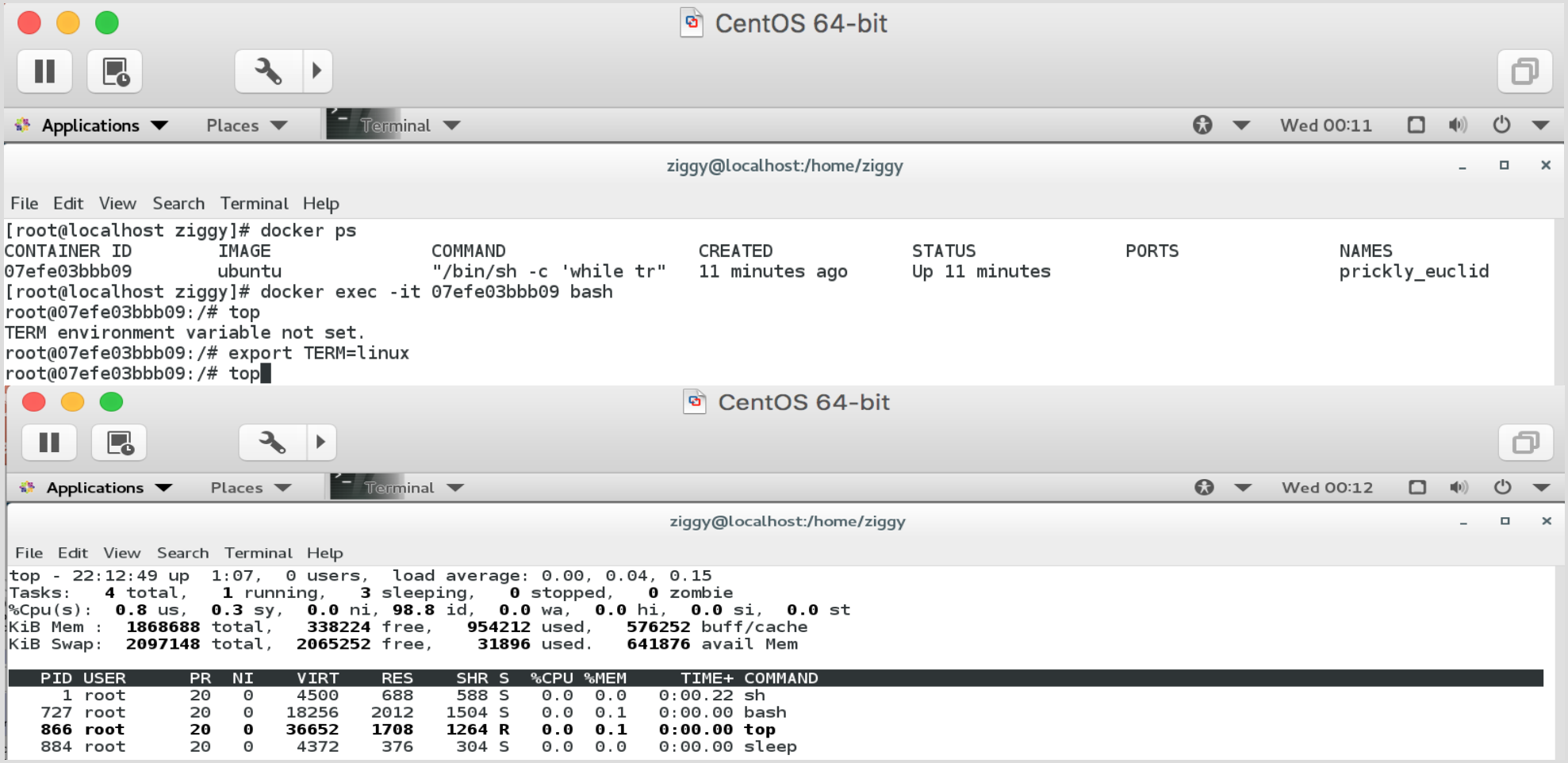
Example 2: docker exec

- With command docker exec we run a new bash session in a running container and we can check the file
  - -i -- interactive; keep STDIN open even if not attached
    -- privileged; Give extended Linux capabilities to the command
  - -t -- tty; Allocate a pseudo-TTY



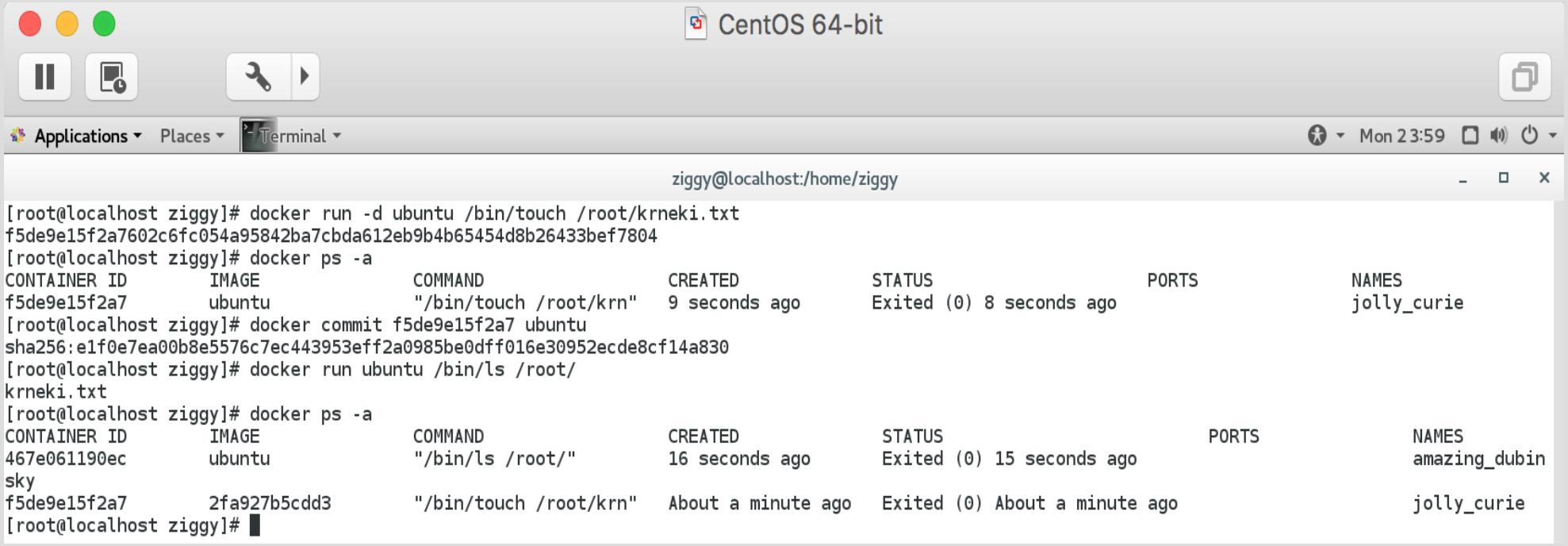
Example 2: export TERM

- We set TERM environment variable in running container



Example 3: docker commit

- Goal: update a container created from an image with a specific file and commit the result to an image
- In this example we will use
  - docker commit; create a new image from a container's changes

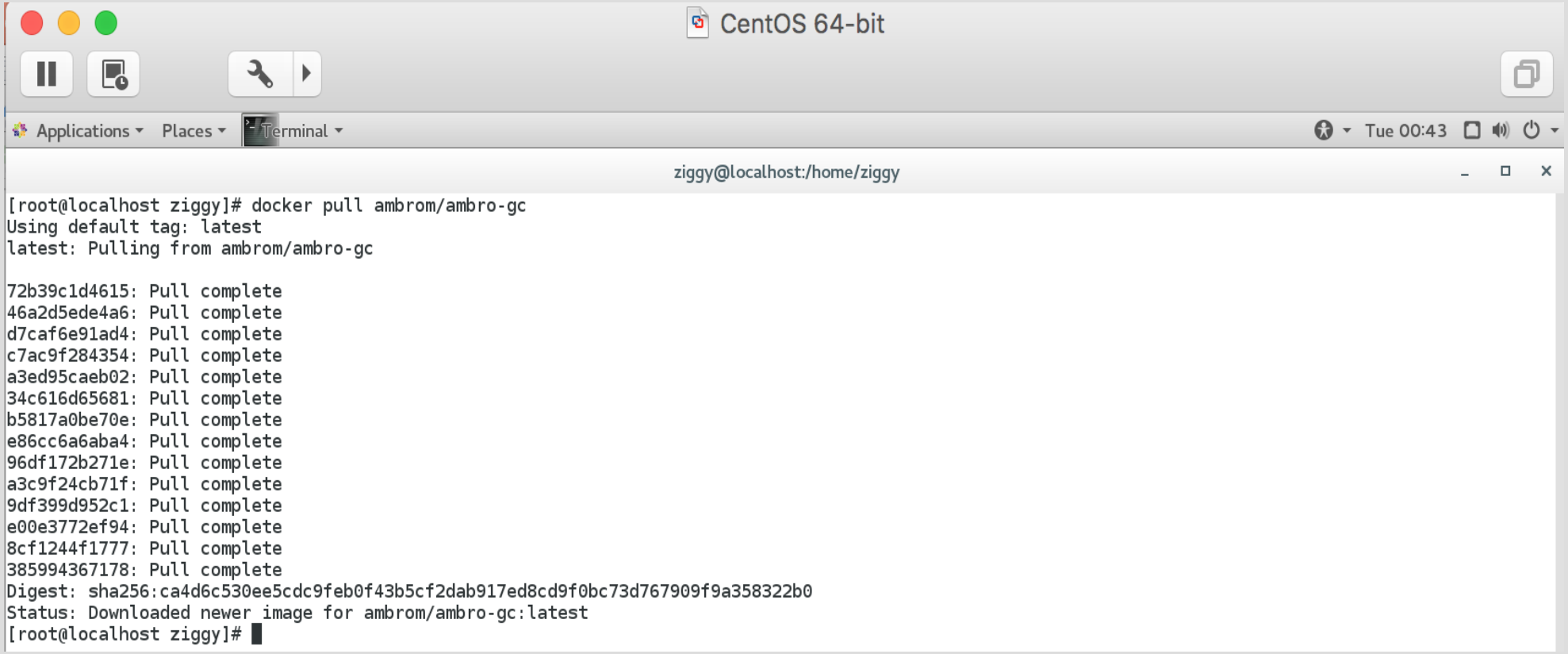


Example 4

- Goal: Install application Google Coder
- In this example we will use
  - docker pull; pull an image or a repository from the registry
  - docker images; list images
- Finally we check our application in browser

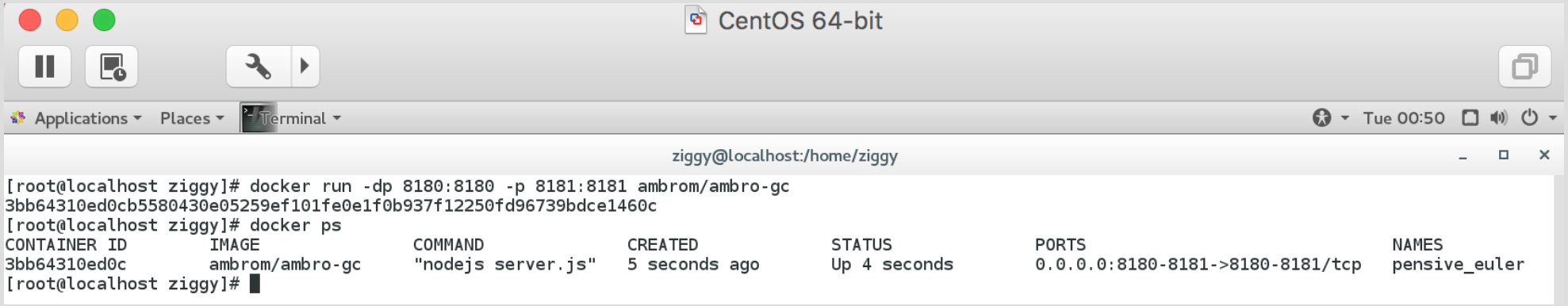
Example 4: docker pull

- We will use image from ambrom/ambro-gc repository on dockerhub



Example 4: docker run

- With command docker run we will run our application but we have to specify ports “8180 and 8181”



- We will open the browser and check if application is alive and responsible

Primer 4: test aplikacije

- https://localhost:8181