DCOS - mini szkolenie

Page Index

DCOS

DC/OS wedug twórców jest to *distributed operatiing system based on Apache Mesos*. Z naszej perspektywy jest to oprogramowanie pozwalajce na uruchamianie tasków (zada, aplikacji, kontenerów ...) na clustrze maszyn. Oprogramowanie dba o odpowiedni przydzia zasobów, umieszczenie tasków na waciwych serwerach oraz ich monitoring i reagowanie na sytuacje wyjtkowe. W jego skad wchodz dodatkowe komponenty odpowiedzialne za tzw. service discovery czyli odnajdywanie usug w clustrze (marathon-lb, mesos-dns, minuteman ...).

Gówne komponenty

https://dcos.io/docs/1.7/overview/architecture/	Opis architektury DCOS
https://dcos.io/docs/1.7/overview/components/	Opis komponentów gównych

serwery mesos master

Serwery agregujce informacje o dostpnych zasobach (CPU, RAM, HDD, GPU) w clustrze i udostpniajce je do fremeworków (np Marathona). Dodatkowo na tych serwerach dziaaj:

- frameworki
- zookeeper wraz z jego systemem zarzdzajcym exihibitor'em
- admin router - web UI clustra i frameworków
- inne podstawowe komponenty clustra

serwery mesos slave

Nazywane agentami, workerami lub poprostu slave'ami. S to serwery uruchamiajce w imieniu frameworków zadania (taski). Element uruchamiajcy taska nazywa si executorem. Taski mog by kontenerami (dockerowymi lub natywnimi kontenerami mesosa) jak równie innymi zadaniami które cluster umie uruchamia (elastic search, jenkins, cassandra ...)

Frameworks

Framework jest kawakiem oprogramowania odpowiedzialnym za planowanie (Scheduler) gdzie ma zosta uruchomiony task, oraz za jego uruchomienie (Executor). Rozdzielenie zarzdzania zasobami od zarzdzania taskami pozwala uruchamianie wielu rónych typów workflow jak równie na czciowe poradzenie sobie z bardzo zoonym (NP-hard) problemem zarzdzania zasobami w clustrze.

marathon

Jest frameworkiem sucym do zarzdzanniem kontenerami w clustrze mesosa. Odpowiada za uruchamianie kontenerów na waciwych serwerach slave, monitorowanie ich stanu i reagowanie na sytuacje wyjtkowe typu awaria sprzetu lub samego kontenera.

System components

marathon-lb

Balancer HTTP (ha-proxy) który korzystaj z marathon event bus potrafi na bierzco modyfikowa swoj konfiguracj dziki czemu jest w stanie skierowa ruch do usugi/kontenera niezalenie na którym wle slave zostanie on uruchomiony.

minuteman

Balancer sieciowy poczony z funkcjonalnoci service discovery. Pozwala na nadanie usudze *virtualnego* adresu IP pod którym bdzie ona dostpna dla wszystkich innych usug w clustrze. Jest to rozwizanie analogiczne do marathon-lb ale dziaajce w warstwie 4 i pozwlajce na rozrzucanie ruchu dla protokoów tcp i udp. UWAGA: adresy udostpniane przez minuteman'a s dostpne tylko w obrbie clustra i nie pwinny si pokrywa z uywanymi gdzie indziej klasami adresowymi.

mesos-dns

Serwer dns z funkcjonalnoci service discovery. Domylnie obsuguje TLD *.mesos* i w niej dynamicznie tworzy wpisy dla uruchamianych aplikacji. Przykady uycia mona znale tutaj: cluster tst.dcos.avantis.pl#samplequeries

Docker

Docker jest platform do konteneryzacji aplikacji. Pozwala na budowanie obrazów systemów operacyjnych dedykowanych dla danej aplikacji i uruchamianie ich za pomoc natywnych dla Linuxa (niedugo równie OS X i Windows) mechanizmów konteneryzacji.

Wicej informacji mona znale w Docker - mini szkolenie

kontenery

O kontenerze najlepiej myle jak o wydzielonym rodowisku `chroot` lub virtualnej maszynie korzystajcej z kernela hosta a nie swojego wasnego. Jest to w peni odseparowane rodowisko (moe to by np inna dystrybucja linuxa ni ta dziaajca na hocie) korzystajce z kernela i zasobów hosta. Zot regu przy uruchamianiu kontenerów Dockera jest 'jeden proces per kontenenr'. Jest to gówna rónica w stosunku do kontenerów LXC.

obrazy

Obrazy s specjalnie przygotowanymi "mini dystrybucjami" zawierajcymi niezbdne dla dziaania aplikacji komponenty. Np. obraz dla statycznej strony www moe bazowa na Ubuntu minimal i mie zainstalowany pakiet nginx. Obrazy s zazwyczaj budowane w oparciu o definicj zwan Dockerfile

```
FROM ubuntu:14.04.4
MAINTAINER Ric Harvey <ric@ngineered.co.uk>
# Surpress Upstart errors/warning
RUN dpkg-divert --local --rename --add /sbin/initctl
RUN ln -sf /bin/true /sbin/initctl
# Let the conatiner know that there is no tty
ENV DEBIAN_FRONTEND noninteractive
# Update base image
# Add sources for latest nginx
# Install software requirements
RUN apt-get update && \
apt-get install -y software-properties-common && \
apt-add-repository -y ppa:gluster/glusterfs-3.7 && \
nginx=stable && \
add-apt-repository ppa:nginx/$nginx && \
apt-get update && \
apt-get upgrade -y && \
BUILD_PACKAGES="supervisor nginx php5-fpm php5-mysql php-apc php5-curl php5-gd
php5-intl php5-mcrypt php5-memcache php5-sqlite php5-tidy php5-xmlrpc php5-xsl
php5-pgsql php5-mongo php5-ldap glusterfs-client pwgen wget zip" && \
apt-get -y install $BUILD_PACKAGES && \
apt-get remove --purge -y software-properties-common && \
apt-get autoremove -y && \
apt-get clean && \
apt-get autoclean && \
echo -n > /var/lib/apt/extended_states && \
rm -rf /var/lib/apt/lists/* && \
rm -rf /usr/share/man/?? && \
rm -rf /usr/share/man/??_*
# tweak nginx config
RUN sed -i -e"s/worker_processes  1/worker_processes 5/" /etc/nginx/nginx.conf && \
#sed -i -e"s/keepalive_timeout\s*65/keepalive_timeout 30/" /etc/nginx/nginx.conf && \
sed -i -e"s/keepalive_timeout 65/keepalive_timeout 30;\n\tclient_max_body_size 100m/"
/etc/nginx/nginx.conf && \
echo "daemon off;" >> /etc/nginx/nginx.conf
# tweak php-fpm config
RUN sed -i -e "s/;cgi.fix_pathinfo=1/cgi.fix_pathinfo=0/g" /etc/php5/fpm/php.ini && \
sed -i -e "s/upload_max_filesize\s*=\s*2M/upload_max_filesize = 100M/g"
/etc/php5/fpm/php.ini && \
sed -i -e "s/post_max_size\s*=\s*8M/post_max_size = 100M/g" /etc/php5/fpm/php.ini && \
sed -i -e "s/;daemonize\s*=\s*yes/daemonize = no/g" /etc/php5/fpm/php-fpm.conf && \
sed -i -e "s/;catch_workers_output\s*=\s*yes/catch_workers_output = yes/g"
/etc/php5/fpm/pool.d/www.conf && \
sed -i -e "s/pm.max_children = 5/pm.max_children = 9/g" /etc/php5/fpm/pool.d/www.conf
&& \
sed -i -e "s/pm.start_servers = 2/pm.start_servers = 3/g"
/etc/php5/fpm/pool.d/www.conf && \
sed -i -e "s/pm.min_spare_servers = 1/pm.min_spare_servers = 2/g"
/etc/php5/fpm/pool.d/www.conf && \
sed -i -e "s/pm.max_spare_servers = 3/pm.max_spare_servers = 4/g"
/etc/php5/fpm/pool.d/www.conf && \
sed -i -e "s/pm.max_requests = 500/pm.max_requests = 200/g"
/etc/php5/fpm/pool.d/www.conf && \
sed -i -e "s/short_open_tag =.*/short_open_tag = On/g" /etc/php5/fpm/php.ini
# fix ownership of sock file for php-fpm
```

```
RUN sed -i -e "s/;listen.mode = 0660/listen.mode = 0750/g"
/etc/php5/fpm/pool.d/www.conf && \
find /etc/php5/cli/conf.d/ -name "*.ini" -exec sed -i -re 's/^(\s*)#(.*)/\1;\2/g' {}
\;
# mycrypt conf
RUN php5enmod mcrypt
# nginx site conf
RUN rm -Rf /etc/nginx/conf.d/* && \
rm -Rf /etc/nginx/sites-available/default && \
mkdir -p /etc/nginx/ssl/
ADD conf/nginx-site.conf /etc/nginx/sites-available/default.conf
RUN ln -s /etc/nginx/sites-available/default.conf
/etc/nginx/sites-enabled/default.conf
# Supervisor Config
ADD conf/supervisord.conf /etc/supervisord.conf
# Start Supervisord
ADD scripts/start.sh /start.sh
RUN chmod 755 /start.sh
# Setup Volume
VOLUME ["/usr/share/nginx/html"]
# add test PHP file
ADD src/index.php /usr/share/nginx/html/index.php
RUN chown -Rf www-data.www-data /usr/share/nginx/html/
# add libraries [A]
ADD src/Zend /usr/local/phplibs/Zend
# install working git linked with openssl instead of gnutls
(http://askubuntu.com/questions/186847/error-gnutls-handshake-failed-when-connecting-t
o-https-servers)
#ADD src/git_1.9.1-1ubuntu0.3_amd64.deb /root/git_1.9.1-1ubuntu0.3_amd64.deb
#RUN dpkg -i  /root/git_1.9.1-1ubuntu0.3_amd64.deb
# Expose Ports
```

```
EXPOSE 443
EXPOSE 80
CMD ["/bin/bash", "/start.sh"]
```

Zbudowany obraz jest przechowywany w docker registry. W naszym wypadku jest to prywatne registry dostpne pod adresem https://hub.docker.com/u/digitalvirgo

skrypty uruchomieniowe i zmienne

Czsto zdarza si e przed uruchomieniem aplikacji w kontenerze chcemy wykona jakie akcje typu modyfikacja domylnego pliku konfiguracyjnego czy pobranie potrzebnych danych. Do tego celu su skrypty uruchomimeniowe (zazwyczaj shellowe). To je podajemy jako gówne polecenie uruchamiane przez kontener. Do kontenera moemy te przekaza zmienne (parmetr `docker run -e`). Bd one widoczne w kontenerze jako normalne zmienne systemowe $VAR. Przykad takiego skryptu dla aplikacji java:

```
#!/bin/bash
WGET="/usr/bin/wget"
JAVA="/usr/bin/java"
BASE_DIR="/root"
GFS_MOUNT_CMD="/sbin/mount.glusterfs"
UNZIP="/usr/bin/unzip"
cd "$BASE_DIR"
# basic checks
if [ "x$APP_URL" = "x" ]; then
 echo "[!] You need to specify link to artifact repository (docker -e
APP_URL=http://...). Exiting."
 exit 1
fi
if [ "x$TYPE" = "x" ]; then
 echo "[!] You need to specify aplication type (docker -e TYPE=[jar,springboot,...]).
Exiting."
 exit 1
fi
if [ -x $WGET ]; then
 wget --no-check-certificate "$APP_URL"
else
 echo "[!] wget executable not found. Exiting"
 exit 1
fi
if [ -x $UNZIP ]; then
 echo "[?] unzip command found in $UNZIP"
else
 echo "[!] unzip command not found ($UNZIP). Check your Dockerfile. Exiting"
 exit 1
fi
if [ -x $JAVA ]; then
 echo "[?] Java dictribution found in $JAVA."
else
 echo "[!] JAVA executable not found in $JAVA. Exiting"
 exit 1
fi
# if RMI_HOSTNAME not define, use hostname from marathon-dns
RMI_HOSTNAME=${RMI_HOSTNAME:="${MARATHON_APP_ID##/}.marathon.mesos"}
# persistent storage
if [ "x$GFSSRV" != "x" ] && [ "x$GFSVOL" != "x" ] && [ "x$GFS_MOUNT_POINT" != "x" ];
then
```

```
 # chececk if glusterfs is installled in image
 if [ -x $GFS_MOUNT_CMD ]; then
  echo "[?] Got all GFS params and executable exist. Proceeding."
 else
  echo "[!] $GFS_MOUNT_CMD not found. Exiting."
  exit 1
 fi

 GFS_MOUNT_CMD="$GFS_MOUNT_CMD $GFSSRV:$GFSVOL $GFS_MOUNT_POINT"
 if [ "x$GFSOPTS" != "x" ]; then
  GFS_MOUNT_CMD="$GFS_MOUNT_CMD $GFSOPTS"
 fi
 if [ ! -d "$GFS_MOUNT_PATH" ]; then
  echo "[?] GlusterFS mount poing does not exist. Creating."
  mkdir -p "$GFS_MOUNT_POINT"
 fi
 echo "[?] All glusterFS paramas provides. mounting volume ($GFS_MOUNT_CMD)"
 $GFS_MOUNT_CMD

else
 echo "[?] GlusterFS mount not needed or not all required parameters provided."
fi
# run app if exists
APP="$BASE_DIR/${APP_URL##*/}"
if [ -f "$APP" ]; then
 if [ "$TYPE" = "jar" ]; then
  $JAVA $JAVA_OPTS -jar $APP
 elif [ "$TYPE" = "springboot" ]; then
  chmod +x "$APP"
  exec "$APP"
 elif [ "$TYPE" = "rmi-jar" ]; then
  #$JAVA $JAVA_OPTS -Drmi.server.port=$PORT -jar $APP
  echo "Waiting 45s for domain refresh"
  sleep 45
  $JAVA $JAVA_OPTS -Drmi.server.port=$PORT -Djava.rmi.server.hostname="$RMI_HOSTNAME"
-jar $APP
 elif [ "$TYPE" = "rmi-zip" ]; then
  ZIPAPP=${APP_URL##*/}
  APPDIR=`echo "$APP_URL" | sed "s/.*\///g; s/.zip//g"`
  mkdir "$BASE_DIR/$APPDIR"
  $UNZIP -o $BASE_DIR/$ZIPAPP -d $BASE_DIR/$APPDIR
  rm $BASE_DIR/$ZIPAPP
  cd $BASE_DIR/$APPDIR
  APP=`ls -1 *.jar`
  echo "Waiting 45s for domain refresh"
  sleep 45
  echo "$JAVA $JAVA_OPTS -DservicePort=$PORT1 -Drmi.server.port=$PORT
-Djava.rmi.server.hostname=$RMI_HOSTNAME -jar $APP"
  $JAVA $JAVA_OPTS -DservicePort=$PORT1 -Drmi.server.port=$PORT
-Djava.rmi.server.hostname="$RMI_HOSTNAME" -jar $APP
 else
  "[!] Application type not found. Exiting"
 fi

else
```

```
        echo "[!] app ($APP) not found. Exiting"
        exit 1
fi
```

Flow uruchomienia aplikacji

1. Uytkownik przygotowuje definicj taska jako plik w formacie .json (deployment json) i wysya go za pomoc requestu HTTP (POST/PUT) do Marathon Web API.

```
curl -i -H 'Content-Type: application/json' -d @budis-b2code-test.json
http://marathon.tst.dcos.avantis.pl:8080/v2/apps
```

2. Informacje o potrzebnych zasobach s dostarczane do marathon scheduler'a
3. Mesos master (leader) dostarcza do marathon schedulera informacje o dostpnych na kadym ze slave zasobach
4. Jeeli zasoby s odpowiednie to scheduler akceptuje ofert
5. Mesos master wysya do wza slave danie uruchomienia taska. Samym uruchomieniem zajmuje si executor.
6. Mesos slave zwraca informacje o stanie taska
7. Mesos master zwraca informacje o stanie taska do marathon schedulera

deployment .json

php

`"id": "budis-b2code",`	nazwa aplikacji w obrbie clustra, stani dns utworzon przez mesos-dns, w tym *dis-b2code.marathon.mesos*
`"instances": 2`	ilo instancji danej aplikacji która ma zc
`"constraints": [["region", "CLUSTER", "eu-west-1"],["az","GROUP_BY"],["hostname", "UNIQUE"]]`	wymagania co do uruchomienia aplika - dyrektywa `CLUSTER` mówi e serw licie argumentów musi mie zmien Tutaj jest to zmienna `region=eu` - `GROUP_BY` powoduje równomiern pomidzy slave z rónymi wartociar parametru. W tym przypadku jeli slave z `az=a` i `az=b`. To w kadej odpalona jedna instancja taska. - UNIQUE wymusza unikatowo wz atrybutu. W tym wypadku powodu taska nie zostan odpalone na tym slave Pen list mona znale pod adresem http .io/marathon/docs/constraints.html.

`"container": {`
`"type": "DOCKER",`
`"docker": {`
`"image": "digitalvirgo/frontend:php-5.5",`
`"network": "BRIDGE",`
`"privileged":true,`
`"forcePullImage":true,`
`(...)`
`}`
`}`
	Definicja kontenera. Okrela jego:
	- typ
	- obraz który zostanie uyty do uruc
	- typ sieci z jakiej skorzysta konten
	- czy ma by to kontener uprzywilejc urzdze hosta)
	- czy mesos ma za kadym razem s nowsza (ni istniejca na dysku ser obrazu kontenera

"container": {
(...)
"portMappings": [
{
"containerPort": 80,
"hostPort": 0,
"servicePort": 0,
"protocol": "tcp"
}
]
}
}
	Usuga w kontenerze moe si dowolnie wiatem zewntrznym. Inaczej ma si spr zewntrz do usugi - przebiega ona za p naszym wypadku) tworzonych przekie zewntrznego IP:portu serwera slave n kontenera.
	- `containerPort` - port na którym wewntrz kontenera
	- `hostPort` - port serwera slave p usug, warto 0 oznacza e port zos dynamicznie
	- `servicePort` - nie uywane prze wskazanie na jakim porcie powinı
	- `protocol` - typ protokou (tcp,ud

"container": {
(..)
"volumes": [{
"containerPath": "/var/log/httpd",
"hostPath": "/mnt/localstorage/logs/httpd",
"mode": "RW"
}]
},
	Definicja wolumenów dla persystentny nich myle jak o mount --bind. Montuje odpowiedni ciek zawarto katalogu hos

"env":{
"APP_URL":"https://some.url.tld/budis-b2code_services_avantis_pl-1.0.0.zip",
"ROOTDIR":"public",
"APPLICATION_ENV":"production",
"GFSSRV":"gfs-node-a.avantis.pl",
"GFSVOL":"/testVol1",
"GFS_MOUNT_POINT":"/var/log/httpd",
"GFSOPTS":"-o backupvolfile-server=gfs-node-b.avantis.pl"
}
	Definicja zmiennych przekazywanych pomoc moemy "personalizowa" prac c zmiennych tych zazwyczaj korzysta sk aplikacj. Opisy wymaganych dla naszy zmiennych mona znale w Dockerizatic

"healthChecks": [{ "protocol": "HTTP", "path": "/", "portIndex": 0, "gracePeriodSeconds": 300, "intervalSeconds": 20, "maxConsecutiveFailures": 3 }],	Definicja helath checka - na jej podsta stwierdza czy aplikacja dziaa czy nie. marathon puka requestem GET w UR *namiczniePrzyznanyPort:zawartoPath* marathon ma czeka na uruchomienie `iodSeconds`), co ile ma sprawdza cz niepoprawnych próbach uznawa e nie Jeeli healt check uzna e usuga nie dzi kontener i podejmie prób uruchomieni zgodnie z dostpnymi zasobami clustra constrain.
"labels":{ "HAPROXY_GROUP":"external", "HAPROXY_0_VHOST":"budis-b2code.mesos.avantis.pl", "HAPROXY_0_STICKY":"true" },	Labele to metadane z których mog sk w clustrze. W tym wypadku s to dane
"ports": [0], "cpus": 0.25, "mem": 512.0,	Definicja wymaganych zasobów clust - mem - definicja w MB - cpus: okrela ilo CPU wymaganyc moe by mniejsza ni 1. W odrónie core to warto 1. - lista wymaganych portów, wymag podana lista portMappings w sek domylnie
"uris": ["file:///etc/docker.tar.gz"]	Lista adresów URL z których maj by p kontenera. W tym wypadku s to powia prywatnego repozytorium obrazów Do jest z katalogu /etc serwera slave.

php

```
{
    "id": "budis-b2code",
    "instances": 2,
    "constraints": [["hostname", "UNIQUE"]],
    "container": {
        "type": "DOCKER",
        "docker": {
            "image": "digitalvirgo/frontend:php-5.5",
            "network": "BRIDGE",
            "privileged":true,
            "forcePullImage":true,
            "portMappings": [
                {
                    "containerPort": 80,
                    "hostPort": 0,
                    "servicePort": 0,
                    "protocol": "tcp"
                }
            ]
        },
        "volumes": [{
                "containerPath": "/var/log/httpd",
                "hostPath": "/mnt/localstorage/logs/httpd",
                "mode": "RW"
        }]
    },
    "env":{

"APP_URL":"https://nexus.services.avantis.pl/content/repositories/docker/pl/digitalvir
go/frontend/budis-b2code_services_avantis_pl/1.0.0/budis-b2code_services_avantis_pl-1.
0.0.zip",
        "ROOTDIR":"public",
        "APPLICATION_ENV":"production"
    },
    "healthChecks": [{
        "protocol": "HTTP",
        "path": "/",
        "portIndex": 0,
        "gracePeriodSeconds": 300,
        "intervalSeconds": 20,
        "maxConsecutiveFailures": 3
    }],
    "labels":{
        "HAPROXY_GROUP":"external",
        "HAPROXY_0_VHOST":"budis-b2code.web.tst.dcos.avantis.pl",
        "HAPROXY_0_STICKY":"true",
        "VERSION":"5"
    },
    "ports": [0],
    "cpus": 0.25,
    "mem": 512.0,
    "uris":  [
        "file:///etc/docker.tar.gz"
    ]
}
```

java

```
{
  "id": "/mesos-test-service-prod",
  "cmd": null,
  "cpus": 0.25,
  "mem": 512,
  "disk": 0,
  "instances": 1,
  "constraints": [ [ "region", "CLUSTER", "eu-west-1" ], [ "az", "GROUP_BY" ], [
"hostname", "UNIQUE" ] ],
  "container": {
    "type": "DOCKER",
    "volumes": [],
    "docker": {
      "image": "digitalvirgo/java:1.7.latest",
      "network": "BRIDGE",
      "portMappings": [
        {
          "containerPort": 0,
          "hostPort": 0,
          "servicePort": 10003,
          "protocol": "tcp",
          "labels": {}
        },
        {
          "containerPort": 0,
          "hostPort": 0,
          "servicePort": 10005,
          "protocol": "tcp",
          "labels": {}
        }
      ],
      "privileged": true,
      "forcePullImage": true
    }
  },
  "env": {
    "JAVA_OPTS": "-server -Xmx256m -Xms256m -Xmn128m
-DregistryHost=november.avantis.pl -DregistryPort=5000",
    "GFS_MOUNT_POINT": "/mnt/data",
    "APPNAME": "mesos-test-service-prod",
    "GFSSRV": "gfs-node-a.avantis.pl",
    "APPLICATION_ENV": "production",
    "APP_URL":
"https://nexus.services.avantis.pl/service/local/artifact/maven/redirect?r=staging&g=p
l.dv.mesos-test&a=mesos-test-service&v=LATEST&c=bin&p=zip",
    "GFSOPTS": "-o backupvolfile-server=gfs-node-b.avantis.pl",
    "GFSVOL": "/testVol1",
    "RMI_HOSTNAME": "mesos-test-service-prod.marathon.mesos",
    "TYPE": "rmi-zip"
  },
  "labels": {
    "HAPROXY_GROUP": "external",
    "HAPROXY_0_VHOST": "mesos-test-service-prod.mesos.avantis.pl",
    "HAPROXY_0_STICKY": "true",
    "TIMESTAMP": "2016-07-14T13:31:53+0000"
  },
  "uris": [
    "file:///etc/docker.tar.gz"
  ]
```

```
}
```

nasze docker images

aktualnie posiadamy 3 podstawowe repozytoria obrazów + 1 repozytorium testowe

digitalvirgo/java	:1.7.latest 1.8.latest	repozytorium z obrazami sucymi do uruchamiania wszystkich aplikacji java (mpservice, springboot, etc)
digitalvirgo/frontend	:php-5.5 :static	repozytorium z obrazami sucymi do uruchamiania aplikacji frontendowych napisannych w php(php-5.5) lub angular (static)
digitalvirgo/tomcat	:release-6 :release-7 :wildfly	obrazy dla aplikacjji tomcatowych
digitalvirgo/test	*	repozytorium do testów

Maintenance and troubleshooting

web UI and web API/Endpoints

production

cluster dcos.avantis.pl#webGUI

test/dev

cluster tst.dcos.avantis.pl#webGUI

Logs

Journal

Journal jest komponentem systemd. Suy do zbierania, skadowania oraz przetwarzania logów systemowych (kernela, usug, stdout/stderr usug systemowych). Dane zapisywane s w formacie binarnym i indexowane co przypiesza ich przetwarzanie. Logi wszystkich usug skadowych clustra DC/OS dostpne s w journal. Do ich przegldania uywamy polecenia `journalctl`.

journalctl

command	description	example

<table>
<tr>
<td>journalctl -u <UNIT|PATERN&gt;</td>
<td>Wywietla logi dla danego UNIT (np serwisu systemowego) lub UNIT-ów zdefiniowanych za pomoc wzorca.</td>
<td>
<pre>
[root@master1.tst.dcos.avantis.pl ~]# systemctl |
dcos-adminrouter.service
loaded active   running   Admin Router: A
and a reverse proxy server
dcos-cosmos.service
loaded active   running   Package Service:
dcos-ddt.service
loaded active   running   Diagnostics: DC/
Tool Master API and Aggregation Service
dcos-epmd.service
loaded active   running   Erlang Port Mapp
Mapping Daemon
dcos-exhibitor.service
loaded active   running   Exhibitor: Zooke
dcos-history-service.service
loaded active   running   Mesos History: D
Service/API
dcos-marathon.service
loaded active   running   Marathon: DC/OS
dcos-mesos-dns.service
loaded active   running   Mesos DNS: DNS b
dcos-mesos-master.service
loaded active   running   Mesos Master: DC
dcos-minuteman.service
loaded active   running   Layer 4 Load Bal
Balancing Service
dcos-oauth.service
loaded active   running   OAuth: OAuth Aut
dcos-spartan-watchdog.service
loaded activating start-pre start DNS Dispatcher W
running
dcos-spartan.service
loaded active   running   DNS Dispatcher:
Forwarder
dcos.target
loaded active   active   dcos.target
dcos-adminrouter-reload.timer
loaded active   waiting   Admin Router Rel
reload admin router nginx config to pickup new dns
dcos-gen-resolvconf.timer
loaded active   waiting   Generate resolv.
update systemd-resolved for mesos-dns
dcos-logrotate.timer
loaded active   waiting   Logrotate Timer:
minutes
dcos-signal.timer
loaded active   waiting   Signal Timer: Ti
dcos-spartan-watchdog.timer
loaded active   running   DNS Dispatcher W
check is Spartan is working
[root@master1.tst.dcos.avantis.pl ~]# journalctl -
</pre>
<pre>
# journalctl -u dcos-marathon.service
</pre>
</td>
</tr>
</table>

# journalctl -u dcos-marathon.service -n 10	Wywietla ostatnie 10 linii logów dla usugi *dcos-marathon.service*	# journalctl -u dcos-marathon.service -n 10 -- Logs begin at Thu 2016-07-14 11:01:49 CEST, enc CEST. -- Jul 16 19:53:48 master1.tst.dcos.avantis.pl java[2 19:53:48,981] INFO Proxying request to GET http://192.168.251.12:8080/v2/apps?_timestamp=1468 192.168.251.11:8080 (mesosphere.marathon.api.JavaUrlConnectionRequestF Jul 16 19:53:48 master1.tst.dcos.avantis.pl java[2 19:53:48,986] INFO 192.168.251.11 - - [16/Jul/2016 //master1.tst.dcos.avantis.pl/v2/apps?_timestamp=1 12900 "http://master1.tst.dcos.avantis.pl/" "Mozil Jul 16 19:53:54 master1.tst.dcos.avantis.pl java[2 19:53:54,980] INFO Proxying request to GET http://192.168.251.12:8080/v2/apps?_timestamp=1468 192.168.251.11:8080 (mesosphere.marathon.api.JavaUrlConnectionRequestF Jul 16 19:53:54 master1.tst.dcos.avantis.pl java[2 19:53:54,985] INFO 192.168.251.11 - - [16/Jul/2016 //master1.tst.dcos.avantis.pl/v2/apps?_timestamp=1 12900 "http://master1.tst.dcos.avantis.pl/" "Mozil Jul 16 19:54:00 master1.tst.dcos.avantis.pl java[2 19:54:00,981] INFO Proxying request to GET http://192.168.251.12:8080/v2/apps?_timestamp=1468 192.168.251.11:8080 (mesosphere.marathon.api.JavaUrlConnectionRequestF Jul 16 19:54:00 master1.tst.dcos.avantis.pl java[2 19:54:00,987] INFO 192.168.251.11 - - [16/Jul/2016 //master1.tst.dcos.avantis.pl/v2/apps?_timestamp=1 12900 "http://master1.tst.dcos.avantis.pl/" "Mozil Jul 16 19:54:06 master1.tst.dcos.avantis.pl java[2 19:54:06,984] INFO Proxying request to GET http://192.168.251.12:8080/v2/apps?_timestamp=1468 192.168.251.11:8080 (mesosphere.marathon.api.JavaUrlConnectionRequestF Jul 16 19:54:06 master1.tst.dcos.avantis.pl java[2 19:54:06,991] INFO 192.168.251.11 - - [16/Jul/2016 //master1.tst.dcos.avantis.pl/v2/apps?_timestamp=1 12900 "http://master1.tst.dcos.avantis.pl/" "Mozil Jul 16 19:54:08 master1.tst.dcos.avantis.pl java[2 19:54:08,809] INFO Proxying request to GET http://192.168.251.12:8080/v2/apps?embed=apps.task from 192.168.251.11:8080 (mesosphere.marathon.api.JavaUrlConnectionRequestF Jul 16 19:54:08 master1.tst.dcos.avantis.pl java[2 19:54:08,814] INFO 127.0.0.1 - - [16/Jul/2016:17:5 //127.0.0.1/v2/apps?embed=apps.tasks&label=DCOS_SE "-" "Resty/HTTP-Simple 0.1.0 (Lua)" (mesosphere.c

`journalctl -u dcos-marathon.service -b -f dcos-marathon.service`	Wywietla logi: - -u - usugi dcos-marathon.service - - b - dotyczce aktualnego uruchomienia systemu (-b) - -f - pozwala na ich przegldanie w trybie cigym (tak jak `tail -f`)

/var/log

Tradycyjne logi mona te znale w:

- */var/log/mesos/**
- */var/log/syslog*

Ze wzgldu na obecno logów z wielu usug na raz ich przegldanie jest mniej przyjemne ni korzystanie z `journalctl`.

Troubleshooting

Co zrobi jeli ...

Nie mona zdeployowa aplikacji

1. Logujemy si na aktywny serwer master. Ustalamy który serwer jest aktywny (jest leaderem) pukajc w endpoint */v2/lead*

```
$ curl http://master1.tst.dcos.avantis.pl:8080/v2/leader
{"leader":"192.168.251.12:8080"}
$ ssh -l username 192.168.251.12
```

2. Uruchamiamy polecenie

```
$ sudo /usr/bin/journalctl -u dcos-marathon.service -b -f | grep -v GET
```

i ponownie uruchamiamy proces deploymentu bacznie wypatrujc w logach przyczyny.

```
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,062] INFO Upgrade group id:/ version:2016-07-16T18:20:23.062Z with
force:false
(mesosphere.marathon.state.GroupManager:marathon-akka.actor.default-dispatcher-33
19)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,063] INFO Take next configured free port: 10002
(mesosphere.marathon.state.GroupManager:ForkJoinPool-2-worker-27)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,063] INFO [/budis-b2code]: new app detected
(mesosphere.marathon.upgrade.GroupVersioningUtil$:ForkJoinPool-2-worker-27)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,065] INFO Computed new deployment plan:
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: DeploymentPlan
2016-07-16T18:20:23.062Z
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: step 1:
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: *
```

```
Start(App(/budis-b2code, image="digitalvirgo/frontend:php-5.5")), instances=0)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: step 2:
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: *
Scale(App(/budis-b2code, image="digitalvirgo/frontend:php-5.5")), instances=2)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]:
(mesosphere.marathon.state.GroupManager:ForkJoinPool-2-worker-27)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,065] INFO Deploy plan with force=false:
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: DeploymentPlan
2016-07-16T18:20:23.062Z
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: step 1:
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: *
Start(App(/budis-b2code, image="digitalvirgo/frontend:php-5.5")), instances=0)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: step 2:
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: *
Scale(App(/budis-b2code, image="digitalvirgo/frontend:php-5.5")), instances=2)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]:
(mesosphere.marathon.MarathonSchedulerService$$EnhancerByGuice$$61eac521:ForkJoin
Pool-2-worker-27)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,065] INFO [/budis-b2code] storing new app version
2016-07-16T18:20:23.062Z
(mesosphere.marathon.state.GroupManager:ForkJoinPool-2-worker-27)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,085] INFO Adding health check for app [/budis-b2code] and version
[2016-07-16T18:20:23.062Z]: [HealthCheck(Some(/),HTTP,Some(0),None,300 seconds,20
seconds,20 seconds,3,false,None)]
(mesosphere.marathon.health.MarathonHealthCheckManager$$EnhancerByGuice$$3625967a
:marathon-akka.actor.default-dispatcher-3325)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,085] INFO Starting health check actor for app [/budis-b2code] version
[2016-07-16T18:20:23.062Z] and healthCheck
[HealthCheck(Some(/),HTTP,Some(0),None,300 seconds,20 seconds,20
seconds,3,false,None)]
(mesosphere.marathon.health.HealthCheckActor:marathon-akka.actor.default-dispatch
er-3288)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,085] INFO Starting app /budis-b2code
(mesosphere.marathon.SchedulerActions:marathon-akka.actor.default-dispatcher-3325
)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,087] INFO Already running 0 instances of /budis-b2code. Not scaling.
(mesosphere.marathon.SchedulerActions:marathon-akka.actor.default-dispatcher-3325
)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,087] INFO Successfully started 0 instances of /budis-b2code
(mesosphere.marathon.upgrade.AppStartActor:marathon-akka.actor.default-dispatcher
-3325)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,089] INFO Started appTaskLaunchActor for /budis-b2code version
2016-07-16T18:20:23.062Z with initial count 2
(mesosphere.marathon.core.launchqueue.impl.AppTaskLauncherActor:marathon-akka.act
or.default-dispatcher-3324)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,089] INFO activating matcher
ActorOfferMatcher(Actor[akka://marathon/user/launchQueue/1/39-budis-b2code#116460
2114]).
(mesosphere.marathon.core.matcher.manager.impl.OfferMatcherManagerActor:marathon-
akka.actor.default-dispatcher-3293)
```

```
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,089] INFO Received offers WANTED notification
(mesosphere.marathon.core.flow.impl.ReviveOffersActor:marathon-akka.actor.default
-dispatcher-3293)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,089] INFO => revive offers NOW, canceling any scheduled revives
(mesosphere.marathon.core.flow.impl.ReviveOffersActor:marathon-akka.actor.default
-dispatcher-3293)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,089] INFO 2 further revives still needed. Repeating reviveOffers
according to --revive_offers_repetitions 3
(mesosphere.marathon.core.flow.impl.ReviveOffersActor:marathon-akka.actor.default
-dispatcher-3293)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,089] INFO => Schedule next revive at 2016-07-16T18:20:28.089Z in 5000
milliseconds, adhering to --min_revive_offers_interval 5000 (ms)
(mesosphere.marathon.core.flow.impl.ReviveOffersActor:marathon-akka.actor.default
-dispatcher-3293)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,095] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20271].
Considering unreserved resources with roles {*}. Not all basic resources
satisfied: cpus NOT SATISFIED (8.0 > 2.0), mem SATISFIED (512.0 <= 512.0)
(mesosphere.mesos.ResourceMatcher$:marathon-akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,095] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20271].
Insufficient resources for [/budis-b2code] (need cpus=8.0, mem=512.0, disk=0.0,
ports=(1 dynamic), available in offer: [id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-O20271" } framework_id { value:
"c37e7379-7e80-4796-89d4-c23e26870ac0-0000" } slave_id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-S24" } hostname: "192.168.251.17" resources
{ name: "ports" type: RANGES ranges { range { begin: 1025 end: 2180 } range {
begin: 2182 end: 3887 } range { begin: 3889 end: 5049 } range { begin: 5052 end:
8079 } range { begin: 8082 end: 8180 } range { begin: 8182 end: 32000 } } role:
"*" } resources { name: "disk" type: SCALAR scalar { value: 35714.0 } role: "*" }
resources { name: "cpus" type: SCALAR scalar { value: 2.0 } role: "*" } resources
{ name: "mem" type: SCALAR scalar { value: 6799.0 } role: "*" } attributes {
name: "region" type: TEXT text { value: "eu-west-1" } } attributes { name: "az"
type: TEXT text { value: "a" } } attributes { name: "logstash" type: TEXT text {
value: "true" } } url { scheme: "http" address { hostname: "192.168.251.17" ip:
"192.168.251.17" port: 5051 } path: "/slave(1)" }]
(mesosphere.mesos.TaskBuilder:marathon-akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,095] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20272].
Considering unreserved resources with roles {*}. Not all basic resources
satisfied: cpus NOT SATISFIED (8.0 > 0.0), mem NOT SATISFIED (512.0 > 0.0)
(mesosphere.mesos.ResourceMatcher$:marathon-akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,095] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20272].
Insufficient resources for [/budis-b2code] (need cpus=8.0, mem=512.0, disk=0.0,
ports=(1 dynamic), available in offer: [id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-O20272" } framework_id { value:
"c37e7379-7e80-4796-89d4-c23e26870ac0-0000" } slave_id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-S22" } hostname: "192.168.251.14" resources
{ name: "ports" type: RANGES ranges { range { begin: 1025 end: 2180 } range {
begin: 2182 end: 3887 } range { begin: 3889 end: 5049 } range { begin: 5052 end:
8079 } range { begin: 8082 end: 8180 } range { begin: 8182 end: 9089 } range {
begin: 9092 end: 32000 } } role: "slave_public" } resources { name: "cpus" type:
SCALAR scalar { value: 1.75 } role: "slave_public" } resources { name: "mem"
type: SCALAR scalar { value: 5775.0 } role: "slave_public" } resources { name:
```

```
"disk" type: SCALAR scalar { value: 35705.0 } role: "*" } attributes { name:
"region" type: TEXT text { value: "eu-west-1" } } attributes { name: "az" type:
TEXT text { value: "a" } } attributes { name: "marathon-lb" type: TEXT text {
value: "true" } } url { scheme: "http" address { hostname: "192.168.251.14" ip:
"192.168.251.14" port: 5051 } path: "/slave(1)" }]
(mesosphere.mesos.TaskBuilder:marathon-akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,095] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20273].
Considering unreserved resources with roles {*}. Not all basic resources
satisfied: cpus NOT SATISFIED (8.0 > 1.2999999999999998), mem SATISFIED (512.0 <=
512.0)
(mesosphere.mesos.ResourceMatcher$:marathon-akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,096] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20273].
Insufficient resources for [/budis-b2code] (need cpus=8.0, mem=512.0, disk=0.0,
ports=(1 dynamic), available in offer: [id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-O20273" } framework_id { value:
"c37e7379-7e80-4796-89d4-c23e26870ac0-0000" } slave_id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-S23" } hostname: "192.168.251.16" resources
{ name: "ports" type: RANGES ranges { range { begin: 1025 end: 2180 } range {
begin: 2182 end: 3069 } range { begin: 3072 end: 3887 } range { begin: 3889 end:
5049 } range { begin: 5052 end: 8079 } range { begin: 8082 end: 8180 } range {
begin: 8182 end: 19079 } range { begin: 19081 end: 24503 } range { begin: 24506
end: 27431 } range { begin: 27433 end: 32000 } } role: "*" } resources { name:
"disk" type: SCALAR scalar { value: 35705.0 } role: "*" } resources { name:
"cpus" type: SCALAR scalar { value: 1.3 } role: "*" } resources { name: "mem"
type: SCALAR scalar { value: 5135.0 } role: "*" } attributes { name: "region"
type: TEXT text { value: "eu-west-1" } } attributes { name: "az" type: TEXT text
{ value: "a" } } attributes { name: "logstash" type: TEXT text { value: "true" }
} url { scheme: "http" address { hostname: "192.168.251.16" ip: "192.168.251.16"
port: 5051 } path: "/slave(1)" }]
(mesosphere.mesos.TaskBuilder:marathon-akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,096] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20274].
Considering unreserved resources with roles {*}. Not all basic resources
satisfied: cpus NOT SATISFIED (8.0 > 0.0), mem NOT SATISFIED (512.0 > 0.0)
(mesosphere.mesos.ResourceMatcher$:marathon-akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,096] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20274].
Insufficient resources for [/budis-b2code] (need cpus=8.0, mem=512.0, disk=0.0,
ports=(1 dynamic), available in offer: [id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-O20274" } framework_id { value:
"c37e7379-7e80-4796-89d4-c23e26870ac0-0000" } slave_id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-S21" } hostname: "192.168.251.15" resources
{ name: "ports" type: RANGES ranges { range { begin: 1025 end: 2180 } range {
begin: 2182 end: 3887 } range { begin: 3889 end: 5049 } range { begin: 5052 end:
8079 } range { begin: 8082 end: 8180 } range { begin: 8182 end: 9089 } range {
begin: 9092 end: 32000 } } role: "slave_public" } resources { name: "cpus" type:
SCALAR scalar { value: 1.75 } role: "slave_public" } resources { name: "mem"
type: SCALAR scalar { value: 5775.0 } role: "slave_public" } resources { name:
"disk" type: SCALAR scalar { value: 34205.0 } role: "*" } attributes { name:
"region" type: TEXT text { value: "eu-west-1" } } attributes { name: "az" type:
TEXT text { value: "a" } } attributes { name: "marathon-lb" type: TEXT text {
value: "true" } } url { scheme: "http" address { hostname: "192.168.251.15" ip:
"192.168.251.15" port: 5051 } path: "/slave(1)" }]
(mesosphere.mesos.TaskBuilder:marathon-akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,096] INFO Finished processing
9699872c-2d8e-43cd-ba9d-d400ea38213c-O20271. Matched 0 ops after 1 passes.
```

```
ports(*) 1025->2180,2182->3887,3889->5049,5052->8079,8082->8180,8182->32000;
disk(*) 35714.0; cpus(*) 2.0; mem(*) 6799.0 left.
(mesosphere.marathon.core.matcher.manager.impl.OfferMatcherManagerActor:marathon-
akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,096] INFO Finished processing
9699872c-2d8e-43cd-ba9d-d400ea38213c-O20272. Matched 0 ops after 1 passes.
ports(slave_public)
1025->2180,2182->3887,3889->5049,5052->8079,8082->8180,8182->9089,9092->32000;
cpus(slave_public) 1.75; mem(slave_public) 5775.0; disk(*) 35705.0 left.
(mesosphere.marathon.core.matcher.manager.impl.OfferMatcherManagerActor:marathon-
akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,096] INFO Finished processing
9699872c-2d8e-43cd-ba9d-d400ea38213c-O20273. Matched 0 ops after 1 passes.
ports(*)
1025->2180,2182->3069,3072->3887,3889->5049,5052->8079,8082->8180,8182->19079,190
81->24503,24506->27431,27433->32000; disk(*) 35705.0; cpus(*) 1.3; mem(*) 5135.0
left.
(mesosphere.marathon.core.matcher.manager.impl.OfferMatcherManagerActor:marathon-
akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,096] INFO Finished processing
9699872c-2d8e-43cd-ba9d-d400ea38213c-O20274. Matched 0 ops after 1 passes.
ports(slave_public)
1025->2180,2182->3887,3889->5049,5052->8079,8082->8180,8182->9089,9092->32000;
cpus(slave_public) 1.75; mem(slave_public) 5775.0; disk(*) 34205.0 left.
(mesosphere.marathon.core.matcher.manager.impl.OfferMatcherManagerActor:marathon-
akka.actor.default-dispatcher-3319)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,098] INFO Updated groups/apps according to deployment plan
310f1d94-564f-4375-88fc-774038314709
(mesosphere.marathon.state.GroupManager:ForkJoinPool-2-worker-3)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,098] INFO Deployment acknowledged. Waiting to get processed:
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: DeploymentPlan
2016-07-16T18:20:23.062Z
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: step 1:
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: *
Start(App(/budis-b2code, image="digitalvirgo/frontend:php-5.5")), instances=0)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: step 2:
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: *
Scale(App(/budis-b2code, image="digitalvirgo/frontend:php-5.5")), instances=2)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]:
(mesosphere.marathon.state.GroupManager:ForkJoinPool-2-worker-3)
Jul 16 20:20:23 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:23,100] INFO 192.168.255.5 - - [16/Jul/2016:18:20:23 +0000] "POST
//marathon.tst.dcos.avantis.pl:8080/v2/apps HTTP/1.1" 201 1714 "-" "curl/7.47.0"
4
(mesosphere.chaos.http.ChaosRequestLog$$EnhancerByGuice$$671419b5:qtp1130153977-4
9402)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,102] INFO Received TimedCheck
(mesosphere.marathon.core.flow.impl.ReviveOffersActor:marathon-akka.actor.default
-dispatcher-3310)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,102] INFO => revive offers NOW, canceling any scheduled revives
(mesosphere.marathon.core.flow.impl.ReviveOffersActor:marathon-akka.actor.default
-dispatcher-3310)
```

```
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,102] INFO 1 further revives still needed. Repeating reviveOffers
according to --revive_offers_repetitions 3
(mesosphere.marathon.core.flow.impl.ReviveOffersActor:marathon-akka.actor.default
-dispatcher-3314)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,102] INFO => Schedule next revive at 2016-07-16T18:20:33.102Z in 5000
milliseconds, adhering to --min_revive_offers_interval 5000 (ms)
(mesosphere.marathon.core.flow.impl.ReviveOffersActor:marathon-akka.actor.default
-dispatcher-3319)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,105] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20275].
Considering unreserved resources with roles {*}. Not all basic resources
satisfied: cpus NOT SATISFIED (8.0 > 0.0), mem NOT SATISFIED (512.0 > 0.0)
(mesosphere.mesos.ResourceMatcher$:marathon-akka.actor.default-dispatcher-3288)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,105] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20275].
Insufficient resources for [/budis-b2code] (need cpus=8.0, mem=512.0, disk=0.0,
ports=(1 dynamic), available in offer: [id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-O20275" } framework_id { value:
"c37e7379-7e80-4796-89d4-c23e26870ac0-0000" } slave_id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-S21" } hostname: "192.168.251.15" resources
{ name: "ports" type: RANGES ranges { range { begin: 1025 end: 2180 } range {
begin: 2182 end: 3887 } range { begin: 3889 end: 5049 } range { begin: 5052 end:
8079 } range { begin: 8082 end: 8180 } range { begin: 8182 end: 9089 } range {
begin: 9092 end: 32000 } } role: "slave_public" } resources { name: "cpus" type:
SCALAR scalar { value: 1.75 } role: "slave_public" } resources { name: "mem"
type: SCALAR scalar { value: 5775.0 } role: "slave_public" } resources { name:
"disk" type: SCALAR scalar { value: 34205.0 } role: "*" } attributes { name:
"region" type: TEXT text { value: "eu-west-1" } } attributes { name: "az" type:
TEXT text { value: "a" } } attributes { name: "marathon-lb" type: TEXT text {
value: "true" } } url { scheme: "http" address { hostname: "192.168.251.15" ip:
"192.168.251.15" port: 5051 } path: "/slave(1)" }]
(mesosphere.mesos.TaskBuilder:marathon-akka.actor.default-dispatcher-3288)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,105] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20276].
Considering unreserved resources with roles {*}. Not all basic resources
satisfied: cpus NOT SATISFIED (8.0 > 0.0), mem NOT SATISFIED (512.0 > 0.0)
(mesosphere.mesos.ResourceMatcher$:marathon-akka.actor.default-dispatcher-3288)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,105] INFO Finished processing
9699872c-2d8e-43cd-ba9d-d400ea38213c-O20275. Matched 0 ops after 1 passes.
ports(slave_public)
1025->2180,2182->3887,3889->5049,5052->8079,8082->8180,8182->9089,9092->32000;
cpus(slave_public) 1.75; mem(slave_public) 5775.0; disk(*) 34205.0 left.
(mesosphere.marathon.core.matcher.manager.impl.OfferMatcherManagerActor:marathon-
akka.actor.default-dispatcher-3319)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,105] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20276].
Insufficient resources for [/budis-b2code] (need cpus=8.0, mem=512.0, disk=0.0,
ports=(1 dynamic), available in offer: [id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-O20276" } framework_id { value:
"c37e7379-7e80-4796-89d4-c23e26870ac0-0000" } slave_id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-S22" } hostname: "192.168.251.14" resources
{ name: "ports" type: RANGES ranges { range { begin: 1025 end: 2180 } range {
begin: 2182 end: 3887 } range { begin: 3889 end: 5049 } range { begin: 5052 end:
8079 } range { begin: 8082 end: 8180 } range { begin: 8182 end: 9089 } range {
begin: 9092 end: 32000 } } role: "slave_public" } resources { name: "cpus" type:
SCALAR scalar { value: 1.75 } role: "slave_public" } resources { name: "mem"
```

```
type: SCALAR scalar { value: 5775.0 } role: "slave_public" } resources { name:
"disk" type: SCALAR scalar { value: 35705.0 } role: "*" } attributes { name:
"region" type: TEXT text { value: "eu-west-1" } } attributes { name: "az" type:
TEXT text { value: "a" } } attributes { name: "marathon-lb" type: TEXT text {
value: "true" } } url { scheme: "http" address { hostname: "192.168.251.14" ip:
"192.168.251.14" port: 5051 } path: "/slave(1)" }]
(mesosphere.mesos.TaskBuilder:marathon-akka.actor.default-dispatcher-3288)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,106] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20277].
Considering unreserved resources with roles {*}. Not all basic resources
satisfied: cpus NOT SATISFIED (8.0 > 2.0), mem SATISFIED (512.0 <= 512.0)
(mesosphere.mesos.ResourceMatcher$:marathon-akka.actor.default-dispatcher-3288)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,106] INFO Finished processing
9699872c-2d8e-43cd-ba9d-d400ea38213c-O20276. Matched 0 ops after 1 passes.
ports(slave_public)
1025->2180,2182->3887,3889->5049,5052->8079,8082->8180,8182->9089,9092->32000;
cpus(slave_public) 1.75; mem(slave_public) 5775.0; disk(*) 35705.0 left.
(mesosphere.marathon.core.matcher.manager.impl.OfferMatcherManagerActor:marathon-
akka.actor.default-dispatcher-3325)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,106] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20277].
Insufficient resources for [/budis-b2code] (need cpus=8.0, mem=512.0, disk=0.0,
ports=(1 dynamic), available in offer: [id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-O20277" } framework_id { value:
"c37e7379-7e80-4796-89d4-c23e26870ac0-0000" } slave_id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-S24" } hostname: "192.168.251.17" resources
{ name: "ports" type: RANGES ranges { range { begin: 1025 end: 2180 } range {
begin: 2182 end: 3887 } range { begin: 3889 end: 5049 } range { begin: 5052 end:
8079 } range { begin: 8082 end: 8180 } range { begin: 8182 end: 32000 } } role:
"*" } resources { name: "disk" type: SCALAR scalar { value: 35714.0 } role: "*" }
resources { name: "cpus" type: SCALAR scalar { value: 2.0 } role: "*" } resources
{ name: "mem" type: SCALAR scalar { value: 6799.0 } role: "*" } attributes {
name: "region" type: TEXT text { value: "eu-west-1" } } attributes { name: "az"
type: TEXT text { value: "a" } } attributes { name: "logstash" type: TEXT text {
value: "true" } } url { scheme: "http" address { hostname: "192.168.251.17" ip:
"192.168.251.17" port: 5051 } path: "/slave(1)" }]
(mesosphere.mesos.TaskBuilder:marathon-akka.actor.default-dispatcher-3288)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,106] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20278].
Considering unreserved resources with roles {*}. Not all basic resources
satisfied: cpus NOT SATISFIED (8.0 > 1.2999999999999998), mem SATISFIED (512.0 <=
512.0)
(mesosphere.mesos.ResourceMatcher$:marathon-akka.actor.default-dispatcher-3288)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,106] INFO Offer [9699872c-2d8e-43cd-ba9d-d400ea38213c-O20278].
Insufficient resources for [/budis-b2code] (need cpus=8.0, mem=512.0, disk=0.0,
ports=(1 dynamic), available in offer: [id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-O20278" } framework_id { value:
"c37e7379-7e80-4796-89d4-c23e26870ac0-0000" } slave_id { value:
"9699872c-2d8e-43cd-ba9d-d400ea38213c-S23" } hostname: "192.168.251.16" resources
{ name: "ports" type: RANGES ranges { range { begin: 1025 end: 2180 } range {
begin: 2182 end: 3069 } range { begin: 3072 end: 3887 } range { begin: 3889 end:
5049 } range { begin: 5052 end: 8079 } range { begin: 8082 end: 8180 } range {
begin: 8182 end: 19079 } range { begin: 19081 end: 24503 } range { begin: 24506
end: 27431 } range { begin: 27433 end: 32000 } } role: "*" } resources { name:
"disk" type: SCALAR scalar { value: 35705.0 } role: "*" } resources { name:
"cpus" type: SCALAR scalar { value: 1.3 } role: "*" } resources { name: "mem"
type: SCALAR scalar { value: 5135.0 } role: "*" } attributes { name: "region"
type: TEXT text { value: "eu-west-1" } } attributes { name: "az" type: TEXT text
{ value: "a" } } attributes { name: "logstash" type: TEXT text { value: "true" }
} url { scheme: "http" address { hostname: "192.168.251.16" ip: "192.168.251.16"
port: 5051 } path: "/slave(1)" }]
(mesosphere.mesos.TaskBuilder:marathon-akka.actor.default-dispatcher-3288)
Jul 16 20:20:28 master2.tst.dcos.avantis.pl java[30330]: [2016-07-16
20:20:28,106] INFO Finished processing
9699872c-2d8e-43cd-ba9d-d400ea38213c-O20277. Matched 0 ops after 1 passes.
ports(*) 1025->2180,2182->3887,3889->5049,5052->8079,8082->8180,8182->32000;
```

```
disk(*) 35714.0; cpus(*) 2.0; mem(*) 6799.0 left.
(mesosphere.marathon.core.matcher.manager.impl.OfferMatcherManagerActor:marathon-
akka.actor.default-dispatcher-3288)
```

   W powyszym przypadku wida e aden z serwerów slave nie jest w stanie dostarczy potrzebnej iloci CPU. Naley zmodyfikowa definicj taska w pliku .json.

3. **Najczstszym powodem nieudanego deploymentu jest brak zasobów (cpu, mem, port)**

Aplikacja deploy'uje si ale nie dziaa

1. Sprawdzamy w panelu marathona na których wzach zostaa uruchomiona aplikacja. Moemy to te zrobi z konsoli

```
$ curl -s http://master1.tst.dcos.avantis.pl:8080/v2/apps/budis-b2code/tasks |
python -mjson.tool
{
    "tasks": [
        {
            "appId": "/budis-b2code",
            "healthCheckResults": [
                {
                    "alive": true,
                    "consecutiveFailures": 0,
                    "firstSuccess": "2016-07-16T18:26:50.082Z",
                    "lastFailure": null,
                    "lastFailureCause": null,
                    "lastSuccess": "2016-07-16T18:46:11.112Z",
                    "taskId": "budis-b2code.d09e0f52-4b82-11e6-9e3d-0242ae67c399"
                }
            ],
            "host": "192.168.251.16",
            "id": "budis-b2code.d09e0f52-4b82-11e6-9e3d-0242ae67c399",
            "ipAddresses": [
                {
                    "ipAddress": "172.17.0.3",
                    "protocol": "IPv4"
                }
            ],
            "ports": [
                31686
            ],
            "slaveId": "9699872c-2d8e-43cd-ba9d-d400ea38213c-S23",
            "stagedAt": "2016-07-16T18:26:29.923Z",
            "startedAt": "2016-07-16T18:26:32.864Z",
            "version": "2016-07-16T18:26:29.881Z"
        },
        {
            "appId": "/budis-b2code",
            "healthCheckResults": [
                {
                    "alive": true,
                    "consecutiveFailures": 0,
                    "firstSuccess": "2016-07-16T18:26:50.090Z",
                    "lastFailure": null,
                    "lastFailureCause": null,
                    "lastSuccess": "2016-07-16T18:46:11.113Z",
                    "taskId": "budis-b2code.d09de841-4b82-11e6-9e3d-0242ae67c399"
                }
            ],
            "host": "192.168.251.17",
            "id": "budis-b2code.d09de841-4b82-11e6-9e3d-0242ae67c399",
            "ipAddresses": [
                {
                    "ipAddress": "172.17.0.2",
                    "protocol": "IPv4"
                }
            ],
            "ports": [
                6735
            ],
            "slaveId": "9699872c-2d8e-43cd-ba9d-d400ea38213c-S24",
            "stagedAt": "2016-07-16T18:26:29.922Z",
            "startedAt": "2016-07-16T18:26:32.796Z",
            "version": "2016-07-16T18:26:29.881Z"
```

```
        }
    ]
}
```

   W otrzymanym odpowiedzi interesuj nas pola *host* mówice o tym na którym serwerze slave dziaaja kontener/kontenery oraz *ports* które pozwol nam jednoznacznie zidentyfikowa kontener

2. Logujemy si na poznanego w poprzednim punkcie hosta, z pomoc portu wyszukujemy id kontenera i wywietlamy sobie jego logi szukajc bdów

```
$ sudo /usr/bin/docker ps | grep 31686
df7d57ae2643        digitalvirgo/frontend:php-5.5   "/bin/bash /start.sh"    23
minutes ago      Up 23 minutes       443/tcp, 0.0.0.0:31686->80/tcp
mesos-9699872c-2d8e-43cd-ba9d-d400ea38213c-S23.09eef18a-84b8-4393-8624-21e1bc0555
67
$ sudo /usr/bin/docker logs -f df7d57ae2643
```

Aplikacja deployuje si 'w kóko'

Obserwujemy w panelu marathona e wci powoywane do ycia s nowe kontenery, a proces deploymentu trwa w nieskoczono. W 99% przypadków oznacza to e aplikacja w kontenerze zakoczya si przy przy próbie uruchomienia. Jeeli aplikacja koczy dziaanie to kontener znika, a marathon próbuje go odpali na nowo.

1. Postpujemy analogicznie jak w poprzednim przypadku. Znajdujemy jeden serwer slave na którym chocia przez chwil dziaa kontener i logujemy si na niego
2. Wywietlamy wszystkie kontenery (nie tylko dziaajce) i szukamy tych które niedawno si zakoczyy

```
$ sudo /usr/bin/docker ps -a | grep Exited
ae5d63c729bb        digitalvirgo/frontend:php-5.5         "/bin/bash /start.sh"
3 seconds ago       Exited (1) 2 seconds ago
mesos-9699872c-2d8e-43cd-ba9d-d400ea38213c-S23.d5361ca5-56bd-44c8-9110-356919b9f1
d7
ab05476cf25a        digitalvirgo/frontend:php-5.5         "/bin/bash /start.sh"
8 seconds ago       Exited (1) 7 seconds ago
mesos-9699872c-2d8e-43cd-ba9d-d400ea38213c-S23.8e3a13a1-1ada-4a9d-9b5f-3df30f5519
bc
$ sudo /usr/bin/docker logs  ae5d63c729bb
[!] You need to specify link to artifact repository (docker -e
APP_URL=http://...). Exiting.
```

3. W tym wypadku w definicji taska (.json) nie podalimy wymaganej przez skrypt startowy zmiennej APP_URL