**Work Note of RDMA Study**

Zhuangdi Zhu

zhuangdizhu@yahoo.com

2015-01-27

Target: Enable to virtualize InfiniBand adapters on containers

Progress:

Step1: install EPEL

[root@zhuangdizhu2]# wget <http://dl.fedoraproject.org/pub/epel/6/x86_64/epel-release-6-8.noarch.rpm>

[root@zhuangdizhu2]# sudo rpm -Uvh epel-release-6\*.rpm

Step2: install docker

[root@zhuangdizhu2 init.d]# yum -y install docker-io

[root@zhuangdizhu2 init.d]# cat /var/log/docker

docker - version 1.5

Copyright 2003, Ben Jansens <ben@orodu.net>

Usage: docker [OPTIONS]

Options:

-help Show this help.

-display DISLPAY The X display to connect to.

-border The width of the border to put around the

system tray icons. Defaults to 1.

-vertical Line up the icons vertically. Defaults to

horizontally.

-wmaker WindowMaker mode. This makes docker a

fixed size (64x64) to appear nicely in

in WindowMaker.

Note: In this mode, you have a fixed

number of icons that docker can hold.

-iconsize SIZE The size (width and height) to display

icons as in the system tray. Defaults to

24.

\nTue Jan 27 06:21:27 CST 2015\n

2015/01/27 06:21:27 docker daemon: 1.3.2 39fa2fa/1.3.2; execdriver: native; graphdriver:

[74c93085] +job serveapi(unix:///var/run/docker.sock)

[info] WARNING: You are running linux kernel version 2.6.32-431.el6.x86\_64, which might be unstable running docker. Please upgrade your kernel to 3.8.0.

[info] Listening for HTTP on unix (/var/run/docker.sock)

[74c93085] +job init\_networkdriver()

[74c93085] -job init\_networkdriver() = OK (0)

[info] Loading containers:

[info] : done.

[74c93085] +job acceptconnections()

[74c93085] -job acceptconnections() = OK (0)

[root@zhuangdizhu2 init.d]#

Step3: start docker

[root@zhuangdizhu2 init.d]# cd /etc/init.d

[root@zhuangdizhu2 init.d]# ./docker start

Starting docker: [ OK ]

[root@zhuangdizhu2 init.d]#

Step4: start a container

[root@zhuangdizhu2 init.d]# docker run -i -t --name test ubuntu /bin/bash

Status: Downloaded newer image for ubuntu:latest

root@526e5d1ac302:/# apt-get install openssh-server

root@526e5d1ac302:/#apt-cache search ”rdma”

Then install all of them

root@526e5d1ac302:/#apt-cache search “libib”

Then install those relevant to “infiniband”

root@526e5d1ac302:/#apt-cache search mlx

Then install all of them

root@526e5d1ac302:/#apt-cache search ibverbs-utils

root@526e5d1ac302:/#apt-cache search rdmacm-utils

root@526e5d1ac302:/#apt-cache search opensm

root@526e5d1ac302:/#apt-cache search libopensm-dev

Then install all of them

root@526e5d1ac302:~#exit

Step5: update and commit images

[root@zhuangdizhu2]# docker commit 526e5d1ac302 jude/ubuntu:jude1

[root@zhuangdizhu2]#docker ps -a

Step6: remove the older container

[root@zhuangdizhu2]#docker rm -f 526e5d1ac302

Step7: start a new container

[root@zhuangdizhu2]#docker run -i -t --privileged --name judy2 --device=/dev/infiniband/uverbs0 --device=/dev/infiniband/rdma\_cm --device=/dev/infiniband/ucm0 --device=/dev/infiniband/umad0 jude/Ubuntu:dude1 /bin/bash

root@f32d28fb7b5b:/# ibv\_rc\_pingpong

local address: LID 0x0001, QPN 0x040225, PSN 0x0f9e19, GID ::

The container on the other host:

root@116c06041b87:/# ibv\_rc\_pingpong 172.16.1.3

local address: LID 0x0002, QPN 0x040229, PSN 0x04e46e, GID ::

Couldn't connect to 172.16.1.3:**18515**

(then got a port number: 18515)

exit, commit the image to jude/ubuntu:jude2, remove the stopped container, and start a new container with the following command:

docker run -i -t --privileged --name judy2 -p: 18515:18515 --device=/dev/infiniband/uverbs0 --device=/dev/infiniband/rdma\_cm --device=/dev/infiniband/ucm0 --device=/dev/infiniband/umad0 jude/Ubuntu:dude1 /bin/bash

ibv\_rc:

root@4cfe1cdc1d78:/# ibv\_rc\_pingpong 172.16.1.2

local address: LID 0x0001, QPN 0x040226, PSN 0x16f267, GID ::

remote address: LID 0x0002, QPN 0x04022b, PSN 0xea069e, GID ::

8192000 bytes in 0.01 seconds = 10911.75 Mbit/sec

1000 iters in 0.01 seconds = 6.01 usec/iter

rdma:

root@4cfe1cdc1d78:/# rdma\_client -s 172.16.1.2

rdma\_client: start

rdma\_client: end 0

root@4cfe1cdc1d78:/#