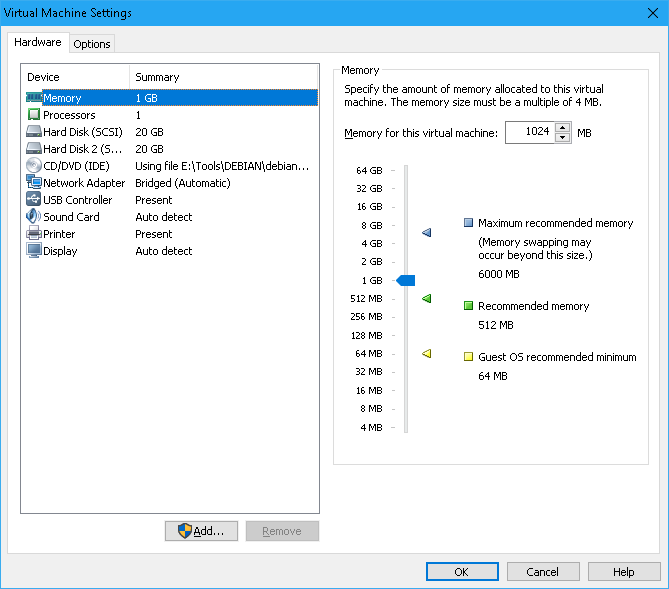
**Maqueta de DVS**

Se utiliza VMWARE Workstation 15.

# Creación de NODE0

El primer nodo será NODE0. Crear una VM y utilizar como disco virtual el suministrado en partes.



La configuración del Network Adapter está en Bridge porque yo lo tengo conectado a mi modem ADSL. Esto me permite salir a internet desde la VM para instalar actualizaciones y buscar nuevo software y utilizar el GIT.

Además, la propia PC host, también pertenece a la misma LAN por lo cual puedo utilizar SSH tanto para disponer de una terminal SSH como de transferencia de archivos entre la PC host y cualquiera de las VMs.

La dirección IP del NODE0 es 192.168.0.100 y para NODE1 debe ser 192.168.0.101 y asi sucesivamente. La dirección IP se encuentra configurada en:

root@node0:/usr/src/dvs/dvs-apps# cat /etc/network/interfaces

# The loopback network interface

auto lo

iface lo inet loopback

# The primary network interface

auto eth0

iface eth0 inet static

address 192.168.0.100

netmask 255.255.255.0

network 192.168.1.0

broadcast 192.168.1.255

IMPORTANTE. No borrar la interface de LOOPBACK!!

En el archivo /etc/hosts están registrados todos los nodos del cluster de hasta 32 nodos.

192.168.0.100 node0

192.168.0.101 node1

192.168.0.102 node2

192.168.0.103 node3

192.168.0.104 node4

……..

Esto permite usar el nombre del nodo en lugar de su IP.

En /etc/hostname esta registrado el nombre del nodo.

root@node0:~# cat /etc/hostname

node0

En /etc/spread.conf están registrados todos los nodos que conforman el cluster spread.

root@node0:~# cat /etc/spread.conf | grep node

node0

node1

node2

node3

node4

…….

Pruebe:

* hacer ping desde su PC al NODO0 y viceversa usando direcciones IP.
* hacer SSH desde su PC al NODO0 mediante la dirección IP.
* Para transferencias de archivos se puede utilizar desde Windows WinSCP.
* Probar la salida a internet y la resolución de nombres.

root@node0:/usr/src/dvs/dvs-apps# ping www.linux.org

PING www.linux.org (104.27.166.219) 56(84) bytes of data.

64 bytes from 104.27.166.219: icmp\_seq=1 ttl=57 time=211 ms

--- www.linux.org ping statistics ---

1 packets transmitted, 1 received, 0% packet loss, time 0ms

rtt min/avg/max/mdev = 211.928/211.928/211.928/0.000 ms

root@node0:/usr/src/dvs/dvs-apps#

Esta es la versión de kernel que utilizaremos.

root@node0:~# uname -a

Linux node0 4.9.88 #12 SMP Sat Sep 15 13:28:24 -03 2018 i686 GNU/Linux

Y esta la version de Debian

root@node0:~# cat /etc/debian\_version

9.6

Que se denomina “***stretch***” (https://www.debian.org/releases/index.es.html)

# CREACION DEL NODOx A PARTIR DEL NODE0

* Crear otro directorio con el nombre del nodo correspondiente.
* Apagar la VM de NODE0, para evitar conflictos.
* Copiarle los archivos de disco (.vmdk) de la VM de NODE0 al directorio de NODEx
* Crear la VM de NODEx apuntando al directorio correspondiente.
* Encender la VM de NODEx
* Modificar los archivos
  + /etc/network/interfaces
  + /etc/hostname
* Rebootear y comprobar que el nombre y la dirección IP son correctas.

root@node0:/usr/src/dvs/dvs-apps# **hostname**

node0

root@node0:/usr/src/dvs/dvs-apps# **ifconfig**

**eth0**: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

**inet 192.168.0.100 netmask 255.255.255.0 broadcast 192.168.1.255**

inet6 fe80::20c:29ff:fe9a:7aa4 prefixlen 64 scopeid 0x20<link>

ether 00:0c:29:9a:7a:a4 txqueuelen 1000 (Ethernet)

RX packets 675 bytes 70779 (69.1 KiB)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 410 bytes 46237 (45.1 KiB)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

device interrupt 19 base 0x2000

**lo:** flags=73<UP,LOOPBACK,RUNNING> mtu 65536

**inet 127.0.0.1 netmask 255.0.0.0**

inet6 ::1 prefixlen 128 scopeid 0x10<host>

loop txqueuelen 1 (Local Loopback)

RX packets 0 bytes 0 (0.0 B)

RX errors 0 dropped 0 overruns 0 frame 0

TX packets 0 bytes 0 (0.0 B)

TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

Luego arrancar la VM de NODE0 probar:

* Ping desde NODE0 a NODEx y viceversa.
* Ping desde NODEx al Host y viceversa.
* SSH y SCP desde el Host a NODEx
* Probar la salida a internet y la resolución de nombres.

root@node0:/usr/src/dvs/dvs-apps# ping www.linux.org

PING www.linux.org (104.27.166.219) 56(84) bytes of data.

64 bytes from 104.27.166.219: icmp\_seq=1 ttl=57 time=211 ms

--- www.linux.org ping statistics ---

1 packets transmitted, 1 received, 0% packet loss, time 0ms

rtt min/avg/max/mdev = 211.928/211.928/211.928/0.000 ms

root@node0:/usr/src/dvs/dvs-apps#

# LOCALIZACION DE LOS ARCHIVOS DE SUB-PROYECTOS

Y el código Fuente está organizado de la siguiente forma en **/usr/src**

dvs

├── chardev-ioctl << example of a char device and IOCTL usage

├── dvk-lib << library of dvk\_calls

├── dvk-loops << series of microbenchmarks for local IPC

├── dvk-mod << the dvk kernel module

├── dvs-apps << Native DVS applications

├── dvk-proxies << proxies

│   └── test << microbenchmarks for remote IPC

├── dvk-tests << dvk\_calls test programs

├── vos << dvk\_calls test programs

│   ├── uk << unikernel VOS source code

│   └── mol << MoL source code

├── include

│   ├── com << common header files (for kernel, lib, users)

│   ├── dvk << header only used by the dvk

│   └── **dvs** << to be used other dvs header files

├── lkm\_example << example of kernel module

├── lz4-1.8.2 << LZ4 to be used by proxies, VOS or apps.

├── reljmp-master << to get unpublished kernel functions and vars

├── **linux-4.9.88 << Linux kernel modified source programs**

└── spread-src-5.0.1 << the spread toolkit

En el directorio **include/com** están las definiciones de constantes, estructuras de datos, códigos de error, etc. que son COMUNES a todas las aplicaciones de DVS.

Estos archivos no se deberían modificar dado que impactarían en todas las aplicaciones.

Ahora hay un directorio denominado ***vos*** específico para los Virtual Operating Systems (VOS).

Actualmente existen 2 subdirectorios: ***mol***, para Minix Over Linux y ***uk*** para un unikernel basado el Lightweight IP (LwIP - este no fue migrado aún a esta versión de DVS)

Para los siguientes proyectos deberían crearse nuevos directorios bajo ***vos***/, como por ejemplo:

* Directorio ***rk***: para Rumpkernel
* Directorio ***uml***: para User Mode Linux
* Directorio ***vrouter*** : para Contrail dpdk Vrouter

En tanto que para los proyectos de aplicaciones del DVS utilizaremos el directorio ***dvs-apps***:

* Directorio ***radar***: para RADAR
* Directorio ***webmin***: para lo requerido por el módulo webmin de gestión del DVS.
* Directorio ***dvsd***: para el demonio de monitoreo general del DVS.

# ARRANQUE DEL DVS EN NODE0 y NODE1

Se va a arrancar el DVS en el NODE0 utilizando un script que puede ser distinto según el proyecto. Por ahora se arrancará usando un script genérico.

Se arranca el DVS, se inicia un DC (Distributed Container) , se arranca un proxy TCP para comunicar con el NODEx.

El script se encuentra en /usr/src/dvs/dvk-tests, y se usa de la siguiente forma:

usage: ./tests.sh <lcl\_nodeid> <dcid>

***lcl\_nodeid***: es el ID del nodo local, si estamos en NODE0 el valor será 0.

***dcid*** :El ID del DC a registrar en este nodo.

La siguiente es la salida por pantalla de ejecutar tests.sh en el NODE0 y registrar el DC0 en el. Durante su ejecución realizará varias detenciones para poder ir viendo el resultado de sus acciones. Solo dar ENTER.

root@node0:/usr/src/dvs/dvk-tests# **./tests.sh 0 0**

**lcl\_nodeid=0 dcid=0**

Enter para continuar...

Spread Enter para continuar...

partition 5

mount Enter para continuar...

local\_nodeid=0 Enter para continuar...

DEBUG 758:dvk\_open:40: Open dvk device file /dev/dvk

Initializing DVS. Local node ID 0...

DEBUG 758:dvk\_dvs\_init:261: nodeid=0

DEBUG 758:dvk\_dvs\_init:265: ioctl ret=0 errno=0

d\_nr\_dcs=32 d\_nr\_nodes=32 d\_nr\_procs=221 d\_nr\_tasks=35 d\_nr\_sysprocs=64

d\_max\_copybuf=65536 d\_max\_copylen=1048576

d\_dbglvl=FFFFFF version=2.1 sizeof(proc)=0

Get DVS info

DEBUG 758:dvk\_getdvsinfo:113:

DEBUG 758:dvk\_getdvsinfo:115: ioctl ret=0

local node ID 0...

d\_nr\_dcs=32 d\_nr\_nodes=32 d\_nr\_procs=221 d\_nr\_tasks=35 d\_nr\_sysprocs=64

d\_max\_copybuf=65536 d\_max\_copylen=1048576

d\_dbglvl=FFFFFFFF version=2.1 sizeof(proc)=512

DC0 Enter para continuar...

configfile.c:config\_read:459:file=DC0.cfg flags=400

configfile.c:read\_file:412:file=DC0.cfg

configfile.c:allocate:65:size=16

configfile.c:read\_list:357:

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=23

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=24

configfile.c:allocate:65:size=20

configfile.c:read\_list:357:

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=25

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=22

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=29

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=24

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=29

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=23

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=32

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=23

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=29

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=23

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=30

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=22

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=28

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=22

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=28

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=35

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=27

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=24

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=26

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=85

configfile.c:allocate:65:size=56

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=26

configfile.c:read\_word:179:

configfile.c:allocate:65:size=53

configfile.c:allocate:65:size=48

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:allocate:65:size=20

configfile.c:read\_line:315:

configfile.c:allocate:65:size=32

dc\_read\_config.c:search\_dc\_config:282:search\_dc\_config[0] line=2

dc\_read\_config.c:search\_dc\_tkn:246:token dc dc\_read\_config.c:search\_dc\_tkn:249:DC0

dc\_read\_config.c:read\_lines:228:read\_lines type=200

dc\_read\_config.c:search\_ident:80:search\_ident[0] line=3 word=dcid

dc\_read\_config.c:search\_ident:83:line[3] MATCH identifier dcid

dc\_read\_config.c:search\_ident:94:dc\_dcid=0

dc\_read\_config.c:read\_lines:228:read\_lines type=200

dc\_read\_config.c:search\_ident:80:search\_ident[0] line=4 word=nr\_procs

dc\_read\_config.c:search\_ident:83:line[4] MATCH identifier nr\_procs

dc\_read\_config.c:search\_ident:106:dc\_nr\_procs=221

dc\_read\_config.c:read\_lines:228:read\_lines type=200

dc\_read\_config.c:search\_ident:80:search\_ident[0] line=5 word=nr\_tasks

dc\_read\_config.c:search\_ident:83:line[5] MATCH identifier nr\_tasks

dc\_read\_config.c:search\_ident:118:dc\_nr\_tasks=34

dc\_read\_config.c:read\_lines:228:read\_lines type=200

dc\_read\_config.c:search\_ident:80:search\_ident[0] line=6 word=nr\_sysprocs

dc\_read\_config.c:search\_ident:83:line[6] MATCH identifier nr\_sysprocs

dc\_read\_config.c:search\_ident:130:dc\_nr\_sysprocs=64

dc\_read\_config.c:read\_lines:228:read\_lines type=200

dc\_read\_config.c:search\_ident:80:search\_ident[0] line=7 word=nr\_nodes

dc\_read\_config.c:search\_ident:83:line[7] MATCH identifier nr\_nodes

dc\_read\_config.c:search\_ident:142:dc\_nr\_nodes=32

dc\_read\_config.c:read\_lines:228:read\_lines type=200

dc\_read\_config.c:search\_ident:80:search\_ident[0] line=8 word=warn2proc

dc\_read\_config.c:search\_ident:83:line[8] MATCH identifier warn2proc

dc\_read\_config.c:search\_ident:154:dc\_warn2proc=0

dc\_read\_config.c:read\_lines:228:read\_lines type=200

dc\_read\_config.c:search\_ident:80:search\_ident[0] line=9 word=warnmsg

dc\_read\_config.c:search\_ident:83:line[9] MATCH identifier warnmsg

dc\_read\_config.c:search\_ident:168:dc\_warnmsg=1

dc\_read\_config.c:read\_lines:228:read\_lines type=200

dc\_read\_config.c:search\_ident:80:search\_ident[0] line=10 word=ip\_addr

dc\_read\_config.c:search\_ident:83:line[10] MATCH identifier ip\_addr

dc\_read\_config.c:search\_ident:177:c\_ip\_addr=192.168.10.100

dc\_read\_config.c:read\_lines:228:read\_lines type=200

dc\_read\_config.c:search\_ident:80:search\_ident[0] line=11 word=memory

dc\_read\_config.c:search\_ident:83:line[11] MATCH identifier memory

dc\_read\_config.c:search\_ident:185:c\_memory=512

dc\_read\_config.c:read\_lines:228:read\_lines type=200

dc\_read\_config.c:search\_ident:80:search\_ident[0] line=12 word=image

dc\_read\_config.c:search\_ident:83:line[12] MATCH identifier image

dc\_read\_config.c:search\_ident:197:c\_image=/usr/src/dvs/vos/images/debian0.img

dc\_read\_config.c:read\_lines:228:read\_lines type=200

dc\_read\_config.c:search\_ident:80:search\_ident[0] line=13 word=mount

dc\_read\_config.c:search\_ident:83:line[13] MATCH identifier mount

dc\_read\_config.c:search\_ident:205:c\_mount=/usr/src/dvs/vos/rootfs/DC0

dc\_init.c:main:103:nr\_containers=1

dc\_init.c:main:124:PARENT dc\_dcid=0 dc\_nr\_procs=221 dc\_nr\_tasks=34 dc\_nr\_sysprocs=64 dc\_nr\_nodes=32

dc\_init.c:main:125:PARENT flags=0 dc\_nodes=0 dc\_pid=0 dc\_name=DC0

dc\_init.c:main:126:PARENT dc\_dcid=0 dc\_warn2proc=0 dc\_warnmsg=1

DEBUG 759:dvk\_open:40: Open dvk device file /dev/dvk

dc\_init.c:main:151:PARENT c\_mount=/usr/src/dvs/vos/rootfs/DC0

dc\_init.c:create\_peer:579:PARENT set\_int=ip link add veth0 type veth peer name veth1

dc\_init.c:create\_peer:584:PARENT set\_int\_up=ip link set veth0 up

dc\_init.c:create\_peer:589:PARENT add\_to\_bridge=ip link set veth0 master br0

PARENT Sysname: Linux

PARENT Nodename: node0

PARENT Release: 4.9.88

PARENT Version: #12 SMP Sat Sep 15 13:28:24 -03 2018

PARENT Machine: i686

PARENT link\_name:/proc/759/ns/pid root\_dir=pid:[4026531836]

CHILD link\_name:/proc/773/ns/pid root\_dir=pid:[4026532504]

PARENT link\_name:/proc/759/ns/uts root\_dir=uts:[4026531838]

CHILD link\_name:/proc/773/ns/uts root\_dir=uts:[4026532502]

DEBUG 759:dvk\_open:40: Open dvk device file /dev/dvk

DEBUG 759:dvk\_getdvsinfo:113:

DEBUG 759:dvk\_getdvsinfo:115: ioctl ret=0

d\_nr\_dcs=32 d\_nr\_nodes=32 d\_nr\_procs=221 d\_nr\_tasks=35 d\_nr\_sysprocs=64

local\_nodeid=0

dc\_init.c:network\_setup:605:set\_pid\_ns=ip link set veth1 netns 773

dc\_init.c:init\_dc:247:Waiting for parent to finish setup

dc\_init.c:cgroup\_setup:518:Setting up cgroups with memory limit 512 MB (536870912)

dc\_init.c:cgroup\_setup:521:cgroup\_dir /sys/fs/cgroup/memory/773

dc\_init.c:cgroup\_setup:527:cgroup\_file /sys/fs/cgroup/memory/773/memory.limit\_in\_bytes

dc\_init.c:cgroup\_setup:545:cgroup\_file /sys/fs/cgroup/memory/773/cgroup.procs

PARENT exiting - child\_pid=773

PARENT exiting - child\_pid=773

dc\_init.c:init\_dc:253:CHILD PID=1 PPID=0

dc\_init.c:init\_dc:256:CHILD before dc\_dcid=0 dc\_nr\_procs=221 dc\_nr\_tasks=34 dc\_nr\_sysprocs=64 dc\_nr\_nodes=32

dc\_init.c:init\_dc:257:CHILD before flags=0 dc\_nodes=0 dc\_pid=0 dc\_name=DC0

dc\_init.c:init\_dc:258:CHILD before dc\_dcid=0 dc\_warn2proc=0 dc\_warnmsg=1

dc\_init.c:init\_dc:270:CHILD I am a daemon

DEBUG 1:dvk\_dc\_init:80:

DEBUG 1:dvk\_dc\_init:82: ioctl ret=0 errno=0

DC0 has been initialized on node 0

DEBUG 1:dvk\_getnodeinfo:177: nodeid=0

DEBUG 1:dvk\_getnodeinfo:181: ioctl ret=0 errno=0

dc\_init.c:init\_dc:279:CHILD n\_nodeid=0 n\_proxies=-1 n\_flags=6 n\_dcs=1 n\_name=node0

DEBUG 1:dvk\_getdcinfo:163: dcid=0

DEBUG 1:dvk\_getdcinfo:167: ioctl ret=0 errno=0

dc\_init.c:init\_dc:283:CHILD after dc\_dcid=0 dc\_nr\_procs=221 dc\_nr\_tasks=34 dc\_nr\_sysprocs=64 dc\_nr\_nodes=32

dc\_init.c:init\_dc:284:CHILD after flags=0 dc\_nodes=1 dc\_pid=773 dc\_name=DC0

dc\_init.c:init\_dc:285:CHILD after dc\_dcid=0 dc\_warn2proc=0 dc\_warnmsg=1

CHILD Sysname: Linux

CHILD Nodename: DC0

CHILD Release: 4.9.88

CHILD Version: #12 SMP Sat Sep 15 13:28:24 -03 2018

CHILD Machine: i686

CHILD chroot to: /usr/src/dvs/vos/rootfs/DC0

dc\_init.c:init\_dc:360:/proc mounted

dc\_init.c:init\_dc:372:/dev mounted

dc\_init.c:init\_dc:379:Setting env variables

dc\_init.c:init\_dc:381:unsetenv LC\_ALL

dc\_init.c:init\_dc:409:sleep looping

TCP PROXY Enter para continuar...

Enter para continuar...

ID Flags Proxies -pxsent- -pxrcvd- 10987654321098765432109876543210 Name

0 6 -1 0 0 -------------------------------X node0

1 2 1 0 0 -------------------------------- node1

Proxies Flags Sender Receiver --Proxies\_Name- 10987654321098765432109876543210

1 1 808 809 node1 ------------------------------X-

ID Type -lpid- -flag- -misc- -pxsent- -pxrcvd- -getf- -sendt -wmig- name

1 send 808 0 1 0 0 27342 27342 27342 tcp\_proxy\_bat

1 recv 809 0 1 0 0 27342 27342 27342 tcp\_proxy\_bat

ADDNODE Enter para continuar...

dcid=0

flags=0

nr\_procs=221

nr\_tasks=34

nr\_sysprocs=64

nr\_nodes=32

dc\_nodes=1

dc\_pid=773

warn2proc=0

warnmsg=1

dc\_name=DC0

nodes 33222222222211111111110000000000

10987654321098765432109876543210

-------------------------------X

cpumask=1

DEBUG 815:dvk\_open:40: Open dvk device file /dev/dvk

Adding node 1 to DC 0...

DEBUG 815:dvk\_add\_node:233: dcid=0 nodeid=1

DEBUG 815:dvk\_add\_node:237: ioctl ret=0 errno=0

ID Flags Proxies -pxsent- -pxrcvd- 10987654321098765432109876543210 Name

0 6 -1 0 0 -------------------------------X node0

1 2 1 0 0 -------------------------------X node1

dcid=0

flags=0

nr\_procs=221

nr\_tasks=34

nr\_sysprocs=64

nr\_nodes=32

dc\_nodes=3

dc\_pid=773

warn2proc=0

warnmsg=1

dc\_name=DC0

nodes 33222222222211111111110000000000

10987654321098765432109876543210

------------------------------XX

cpumask=1

En el NODE1 arrancar el script con los siguientes argumentos

root@node1:/usr/src/dvs/dvk-tests# ./tests.sh 1 0

Salida similar..

Para verificar el estado de la comunicacion entre ambos.

root@**node0**:/usr/src/dvs/dvk-tests# cat /proc/dvs/nodes

ID Flags Proxies -pxsent- -pxrcvd- 10987654321098765432109876543210 Name

0 6 -1 0 0 -------------------------------X node0

1 2 1 0 0 -------------------------------X node1

root@**node1**:/usr/src/dvs/dvk-tests# cat /proc/dvs/nodes

ID Flags Proxies -pxsent- -pxrcvd- 10987654321098765432109876543210 Name

0 E 0 0 0 -------------------------------X node0

1 6 -1 0 0 -------------------------------X node1

Esto nos dice que el node0 y node1 contienen proceso del DC0 (columna con X)

Los siguientes archivos nos dan información respecto a los proxies y los nodos que comunican.

root@**node0**:/usr/src/dvs/dvk-tests# cat /proc/dvs/proxies/info

Proxies Flags Sender Receiver --Proxies\_Name- 10987654321098765432109876543210

1 1 808 809 **node1** ------------------------------**X**-

root@**node1**:/usr/src/dvs/dvk-tests# cat /proc/dvs/proxies/info

Proxies Flags Sender Receiver --Proxies\_Name- 10987654321098765432109876543210

0 7 651 650 **node0** -------------------------------**X**

# INICIO DEL DC0

El **DC0** está configurado con los siguientes parámetros que se encuentran definidos en el archivo **DC0.cfg** el cual es creado “*al vuelo*” por el **script tests.sh** que ya ejecutamos.

root@node1:/usr/src/dvs/dvs-apps/dc\_init# more DC0.cfg

# dc\_init config file

dc DC0 {

dcid 0;

nr\_procs 221;

nr\_tasks 34;

nr\_sysprocs 64;

nr\_nodes 32;

memory 512;

image "/usr/src/dvs/vos/images/debian0.img";

mount "/usr/src/dvs/vos/rootfs/DC0";

};

El script tests.sh a través del programa **dc\_init** crea el archivo **DC0.sh** el cual contiene instrucciones para setear y exportar variables de entorno como el **NODEID** y el **DC0**.

El valor almacenado en la variable de entorno **DC0** es el del PID del proceso **dc\_init** (demonio) que queda ejecutando mientras el **DC0** viva. Es fundamental conservar ese valor para que otros procesos puedan compartir el mismo Contenedor utilizando el comando nsenter.

root@node1:/usr/src/dvs/dvs-apps/dc\_init# more /dev/shm/DC0.sh

#!/bin/bash

NODEID=1

DC0=503

export NODEID

export DC0

**EN NODE0**

root@node0:~# cd /usr/src/dvs/dvs-apps/dc\_init

root@node0:/usr/src/dvs/dvs-apps/dc\_init# . /dev/shm/DC0.sh

root@node0:/usr/src/dvs/dvs-apps/dc\_init# echo $DC0

**536**

root@node0:/usr/src/dvs/dvs-apps/dc\_init# ps -ef | grep dc\_init

root 536 1 0 08:43 ? 00:00:00 ./dc\_init DC0.cfg

root 897 494 0 08:48 pts/0 00:00:00 grep dc\_init

**EN NODE 1**

root@node1:/usr/src/dvs/dvk-tests# cd ../dvs-apps/dc\_init/

root@node1:/usr/src/dvs/dvs-apps/dc\_init# . /dev/shm/DC0.sh

root@node1:/usr/src/dvs/dvk-proxies/test# echo $DC0

**503**

root@node1:/usr/src/dvs/dvk-proxies/test# ps -ef | grep dc\_init

root **503** 1 0 10:00 ? 00:00:00 **./dc\_init DC0.cfg**

root 528 480 0 10:06 pts/0 00:00:00 grep dc\_init

# TRANSFERENCIA DE MENSAJES Y DATOS LOCALES

**TRANSFERENCIA DE MENSAJES**

root@node0:/usr/src/dvs/dvs-apps/dc\_init# cd /usr/src/dvs/dvk-loops

root@node0:/usr/src/dvs/dvk-loops# nsenter -p -t$DC0 ./loop\_dvk\_ipc.sh 50

Test send-receive vs receive-send

loop\_dvk\_ipc1 1

loop\_dvk\_ipc1 2

loop\_dvk\_ipc1 3

loop\_dvk\_ipc1 4

loop\_dvk\_ipc1 5

loop\_dvk\_ipc1 6

loop\_dvk\_ipc1 7

loop\_dvk\_ipc1 8

loop\_dvk\_ipc1 9

loop\_dvk\_ipc1 10

Test sendrec vs receive-send

loop\_dvk\_ipc2 1

loop\_dvk\_ipc2 2

loop\_dvk\_ipc2 3

loop\_dvk\_ipc2 4

loop\_dvk\_ipc2 5

loop\_dvk\_ipc2 6

loop\_dvk\_ipc2 7

loop\_dvk\_ipc2 8

loop\_dvk\_ipc2 9

loop\_dvk\_ipc2 10

Test notify-receive vs receive-notify

loop\_dvk\_ipc3 1

loop\_dvk\_ipc3 2

loop\_dvk\_ipc3 3

loop\_dvk\_ipc3 4

loop\_dvk\_ipc3 5

loop\_dvk\_ipc3 6

loop\_dvk\_ipc3 7

loop\_dvk\_ipc3 8

loop\_dvk\_ipc3 9

loop\_dvk\_ipc3 10

Test sendrec vs rcvrqst-reply

loop\_dvk\_ipc4 1

loop\_dvk\_ipc4 2

loop\_dvk\_ipc4 3

loop\_dvk\_ipc4 4

loop\_dvk\_ipc4 5

loop\_dvk\_ipc4 6

loop\_dvk\_ipc4 7

loop\_dvk\_ipc4 8

loop\_dvk\_ipc4 9

loop\_dvk\_ipc4 10

**COPIA DE BLOQUES DE DATOS**

Esta prueba verifica la copia de datos de procesos coubicados. Realiza 5 copias de un buffer de 1024 bytes.

root@node0:/usr/src/dvs/dvk-loops# **nsenter -p -t$DC0 ./loop\_dvk\_copy1 5 1024**

m\_ptr 0x1f32000

DEBUG 221:dvk\_open:40: Open dvk device file /dev/dvk

DEBUG 221:dvk\_bind\_X:536: cmd=0 dcid=0 pid=221 endpoint=2 nodeid=-1

DEBUG 221:dvk\_bind\_X:544: ioctl ret=2 errno=0

BIND DESTINATION dcid=0 dst\_pid=221 dst\_nr=2 dst\_ep=2

RECEIVER pause before RECEIVE

DEBUG 222:dvk\_bind\_X:536: cmd=0 dcid=0 pid=222 endpoint=1 nodeid=-1

DEBUG 222:dvk\_bind\_X:544: ioctl ret=1 errno=0

BIND SOURCE dcid=0 src\_pid=222 src\_nr=1 src\_ep=1

SEND msg: source=0 type=1 m1i1=0 m1i2=2 m1i3=3 m1p1=(nil) m1p2=(nil) m1p3=(nil)

DEBUG 222:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 221:dvk\_getep:102: pid=222

DEBUG 221:dvk\_getep:104: ioctl ret=1 errno=0

DEBUG 221:dvk\_receive\_T:362: endpoint=31438 timeout=-1

DEBUG 221:dvk\_receive\_T:367: ioctl ret=76 errno=0

DEBUG 221:dvk\_vcopy:52: src\_ep=2 dst\_ep=1 bytes=1024

DEBUG 221:dvk\_vcopy:60: ioctl ret=1024 errno=0

DEBUG 221:dvk\_vcopy:52: src\_ep=2 dst\_ep=1 bytes=1024

DEBUG 221:dvk\_vcopy:60: ioctl ret=1024 errno=0

DEBUG 221:dvk\_vcopy:52: src\_ep=2 dst\_ep=1 bytes=1024

DEBUG 221:dvk\_vcopy:60: ioctl ret=1024 errno=0

DEBUG 221:dvk\_vcopy:52: src\_ep=2 dst\_ep=1 bytes=1024

DEBUG 221:dvk\_vcopy:60: ioctl ret=1024 errno=0

DEBUG 221:dvk\_vcopy:52: src\_ep=2 dst\_ep=1 bytes=1024

DEBUG 221:dvk\_vcopy:60: ioctl ret=1024 errno=0

DEBUG 221:dvk\_send\_T:345: endpoint=1 timeout=-1

DEBUG 221:dvk\_send\_T:350: ioctl ret=76 errno=0

UNBIND DESTINATION dcid=0 dst\_pid=221 dst\_nr=2 dst\_ep=2

DEBUG 221:dvk\_unbind\_T:329: dcid=0 endpoint=2 timeout=-1

DEBUG 221:dvk\_unbind\_T:334: ioctl ret=0 errno=0

t\_start=1550404485.90 t\_stop=1550404485.90 t\_total=0.00

transfer size=1024 #transfers=5 loopbysec=16552.107340

Throuhput = 16949357.916338 [bytes/s]

DEBUG 222:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

UNBIND SOURCE dcid=0 src\_pid=222 src\_nr=1 src\_ep=1

DEBUG 222:dvk\_unbind\_T:329: dcid=0 endpoint=1 timeout=-1

DEBUG 222:dvk\_unbind\_T:334: ioctl ret=0 errno=0

# TRANSFERENCIA DE MENSAJES Y DATOS REMOTOS

**TRANSFERENCIA DE MENSAJES**

**EN NODE0**

**cd /usr/src/dvs/dvk-proxies/test**

**nsenter -p -t$DC0 ./loop\_r-s\_server 1 10 0**

**LUEGO QUEDA ESPERANDO QUE SE CONECTE EL PROCESO DE NODE1**

DEBUG 3:dvk\_open:40: Open dvk device file /dev/dvk

DEBUG 3:dvk\_getdcinfo:163: dcid=0

DEBUG 3:dvk\_getdcinfo:167: ioctl ret=0 errno=0

loop\_r-s\_server.c:main:118:dc\_dcid=0 dc\_nr\_procs=221 dc\_nr\_tasks=34 dc\_nr\_sysprocs=64 dc\_nr\_nodes=32

loop\_r-s\_server.c:main:119:flags=0 dc\_nodes=3 dc\_pid=524 dc\_name=DC0

loop\_r-s\_server.c:main:140:MAIN SERVER m\_ptr=0x1797000

DEBUG 3:dvk\_bind\_X:536: cmd=0 dcid=0 pid=-1 endpoint=0 nodeid=-1

DEBUG 3:dvk\_bind\_X:544: ioctl ret=0 errno=0

loop\_r-s\_server.c:main:149:BIND MAIN SERVER dcid=0 svr\_pid=3 SVR\_NR=0 svr\_ep=0

DEBUG 3:dvk\_bind\_X:536: cmd=2 dcid=0 pid=-1078253004 endpoint=1 nodeid=1

DEBUG 3:dvk\_bind\_X:544: ioctl ret=1 errno=0

loop\_r-s\_server.c:main:160:MAIN SERVER dvk\_rmtbind 1: process client1 on node 1

loop\_r-s\_server.c:main:164:child fork 0

loop\_r-s\_server.c:main:169:MAIN SERVER child\_pid[0]=4

loop\_r-s\_server.c:main:173:MAIN SERVER: START synchronization from 1 children: REQUEST

DEBUG 3:dvk\_receive\_T:362: endpoint=2 timeout=-1

DEBUG 3:dvk\_receive\_T:367: ioctl ret=-1 errno=108

ERROR: 3:dvk\_receive\_T:368: rcode=-108

loop\_r-s\_server.c:child\_function:19:child 0: loops=10 child\_nr=2

DEBUG 4:dvk\_bind\_X:536: cmd=0 dcid=0 pid=-1 endpoint=2 nodeid=-1

DEBUG 4:dvk\_bind\_X:544: ioctl ret=2 errno=0

loop\_r-s\_server.c:child\_function:25:CHILD child=0 child\_nr=2 child\_ep=2 child\_pid=4

DEBUG 4:dvk\_bind\_X:536: cmd=2 dcid=0 pid=-1078253112 endpoint=3 nodeid=1

DEBUG 4:dvk\_bind\_X:544: ioctl ret=3 errno=0

DEBUG 4:dvk\_sendrec\_T:379: endpoint=0 timeout=-1

DEBUG 3:dvk\_receive\_T:362: endpoint=2 timeout=-1

DEBUG 3:dvk\_receive\_T:367: ioctl ret=76 errno=108

loop\_r-s\_server.c:main:186:MAIN SERVER: START synchronization from 1 children: REPLY

DEBUG 3:dvk\_send\_T:345: endpoint=2 timeout=-1

DEBUG 3:dvk\_send\_T:350: ioctl ret=76 errno=0

loop\_r-s\_server.c:main:197:MAIN SERVER: Waiting START message from remote CLIENT

DEBUG 3:dvk\_receive\_T:362: endpoint=31438 timeout=-1

DEBUG 4:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

loop\_r-s\_server.c:child\_function:48:CHILD 0: Starting loop

DEBUG 4:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 3:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 3:dvk\_send\_T:345: endpoint=1 timeout=-1

DEBUG 4:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 4:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 3:dvk\_send\_T:350: ioctl ret=0 errno=0

loop\_r-s\_server.c:main:207:MAIN SERVER: Waiting STOP message from remote MAIN CLIENT

DEBUG 3:dvk\_receive\_T:362: endpoint=1 timeout=-1

DEBUG 4:dvk\_send\_T:350: ioctl ret=0 errno=0

DEBUG 4:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 4:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 4:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 4:dvk\_send\_T:350: ioctl ret=0 errno=0

DEBUG 4:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 4:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 4:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 4:dvk\_send\_T:350: ioctl ret=0 errno=0

DEBUG 4:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 4:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 4:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 4:dvk\_send\_T:350: ioctl ret=0 errno=0

DEBUG 4:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 4:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 4:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 4:dvk\_send\_T:350: ioctl ret=0 errno=0

DEBUG 4:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 4:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 4:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 4:dvk\_send\_T:350: ioctl ret=0 errno=0

DEBUG 4:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 4:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 4:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 4:dvk\_send\_T:350: ioctl ret=0 errno=0

DEBUG 4:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 4:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 4:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 4:dvk\_send\_T:350: ioctl ret=0 errno=0

DEBUG 4:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 4:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 4:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 4:dvk\_send\_T:350: ioctl ret=0 errno=0

DEBUG 4:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 4:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 4:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 4:dvk\_send\_T:350: ioctl ret=0 errno=0

loop\_r-s\_server.c:child\_function:62:CHILD 0:source=2 type=0 m1i1=9 m1i2=9 m1i3=0 m1p1=(nil) m1p2=(nil) m1p3=(nil)

DEBUG 4:dvk\_sendrec\_T:379: endpoint=0 timeout=-1

DEBUG 3:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 3:dvk\_send\_T:345: endpoint=1 timeout=-1

DEBUG 3:dvk\_send\_T:350: ioctl ret=0 errno=0

t\_start=1550406494.66 t\_stop=1550406494.85 t\_total=0.19

Children = 1

Loops = 10

Total msg transfers = 10

Time for a pair of SENDREC/RECEIVE-SEND= 19.216704[ms]

Throuhput = 52.038059 [SENDREC/RECEIVE-SEND/s]

loop\_r-s\_server.c:main:223:MAIN SERVER: STOP synchronization from 1 children: REQUEST

DEBUG 3:dvk\_receive\_T:362: endpoint=2 timeout=-1

DEBUG 3:dvk\_receive\_T:367: ioctl ret=76 errno=0

loop\_r-s\_server.c:main:236:MAIN SERVER: STOP synchronization from 1 children: REPLY

DEBUG 3:dvk\_send\_T:345: endpoint=2 timeout=-1

DEBUG 3:dvk\_send\_T:350: ioctl ret=76 errno=0

loop\_r-s\_server.c:main:248:MAIN SERVER: Waiting for children exit

DEBUG 4:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

loop\_r-s\_server.c:child\_function:76:CHILD 0: exiting

loop\_r-s\_server.c:main:255:MAIN SERVER END

root@node0:/usr/src/dvs/dvk-proxies/test#

**EN NODE1**

**cd /usr/src/dvs/dvk-proxies/test**

**nsenter -p -t$DC0 ./loop\_sr\_client 1 10** 0

DEBUG 2:dvk\_open:40: Open dvk device file /dev/dvk

DEBUG 2:dvk\_getdcinfo:163: dcid=0

DEBUG 2:dvk\_getdcinfo:167: ioctl ret=0 errno=0

loop\_sr\_client.c:main:110:dc\_dcid=0 dc\_nr\_procs=221 dc\_nr\_tasks=34 dc\_nr\_sysprocs=64 dc\_nr\_nodes=32

loop\_sr\_client.c:main:111:flags=0 dc\_nodes=3 dc\_pid=500 dc\_name=DC0

MAIN CLIENT m\_ptr=0x943000

DEBUG 2:dvk\_bind\_X:535: cmd=0 dcid=0 pid=-1 endpoint=1 nodeid=-1

DEBUG 2:dvk\_bind\_X:543: ioctl ret=1 errno=0

BIND MAIN CLIENT dcid=0 clt\_pid=2 CLT\_NR=1 clt\_ep=1

child fork 0

MAIN CLIENT child\_pid[0]=3

MAIN CLIENT: START 1 children synchronization: REQUEST

DEBUG 2:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 2:dvk\_receive\_T:367: ioctl ret=-1 errno=108

ERROR: 2:dvk\_receive\_T:368: rcode=-108

child 0: loops=10 child\_nr=3

DEBUG 3:dvk\_bind\_X:535: cmd=2 dcid=0 pid=-1081954680 endpoint=2 nodeid=0

DEBUG 3:dvk\_bind\_X:543: ioctl ret=2 errno=0

DEBUG 3:dvk\_bind\_X:535: cmd=0 dcid=0 pid=-1 endpoint=3 nodeid=-1

DEBUG 3:dvk\_bind\_X:543: ioctl ret=3 errno=0

CHILD child=0 child\_nr=3 child\_ep=3 child\_pid=3

DEBUG 3:dvk\_sendrec\_T:379: endpoint=1 timeout=-1

DEBUG 2:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 2:dvk\_receive\_T:367: ioctl ret=76 errno=108

DEBUG 2:dvk\_bind\_X:535: cmd=2 dcid=0 pid=-1081954576 endpoint=0 nodeid=0

DEBUG 2:dvk\_bind\_X:543: ioctl ret=0 errno=0

MAIN CLIENT dvk\_rmtbind 0: process server0 on node 0

MAIN CLIENT: Sending START message to remote SERVER

DEBUG 2:dvk\_sendrec\_T:379: endpoint=0 timeout=-1

DEBUG 2:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

MAIN CLIENT: START 1 children synchronization: REPLY

DEBUG 2:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 2:dvk\_send\_T:350: ioctl ret=76 errno=0

MAIN CLIENT: STOP 1 children synchronization: REQUEST

DEBUG 2:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

CHILD 0: Starting loop

DEBUG 3:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 3:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 3:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 3:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 3:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 3:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 3:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 3:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 3:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 3:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

CHILD 0:source=2 type=0 m1i1=9 m1i2=9 m1i3=0 m1p1=(nil) m1p2=(nil) m1p3=(nil)

DEBUG 3:dvk\_sendrec\_T:379: endpoint=1 timeout=-1

DEBUG 2:dvk\_receive\_T:367: ioctl ret=0 errno=0

MAIN CLIENT: Sending STOP message to remote SERVER

DEBUG 2:dvk\_sendrec\_T:379: endpoint=0 timeout=-1

DEBUG 2:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

MAIN CLIENT: STOP 1 children synchronization: REPLY

DEBUG 2:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 2:dvk\_send\_T:350: ioctl ret=76 errno=0

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

CHILD 0: exiting

MAIN CLIENT END

**COPIA DE BLOQUES DE DATOS**

**EN NODE0**

root@node0:/usr/src/dvs/dvk-proxies/test# **nsenter -p -t$DC0 ./loop\_copy\_server 1 10 1024**

DEBUG 2:dvk\_open:40: Open dvk device file /dev/dvk

DEBUG 2:dvk\_getdcinfo:163: dcid=0

DEBUG 2:dvk\_getdcinfo:167: ioctl ret=0 errno=0

loop\_copy\_server.c:main:149:dc\_dcid=0 dc\_nr\_procs=221 dc\_nr\_tasks=34 dc\_nr\_sysprocs=64 dc\_nr\_nodes=32

loop\_copy\_server.c:main:150:flags=0 dc\_nodes=3 dc\_pid=541 dc\_name=DC0

DEBUG 2:dvk\_bind\_X:536: cmd=0 dcid=0 pid=-1 endpoint=0 nodeid=-1

DEBUG 2:dvk\_bind\_X:544: ioctl ret=0 errno=0

loop\_copy\_server.c:main:178:BIND MAIN SERVER dcid=0 svr\_pid=2 SVR\_NR=0 svr\_ep=0

DEBUG 2:dvk\_bind\_X:536: cmd=2 dcid=0 pid=-1075025676 endpoint=1 nodeid=1

DEBUG 2:dvk\_bind\_X:544: ioctl ret=1 errno=0

loop\_copy\_server.c:main:189:MAIN SERVER dvk\_rmtbind 1: process client1 on node 1

loop\_copy\_server.c:main:193:child fork 0

loop\_copy\_server.c:main:198:MAIN SERVER child\_pid[0]=3

loop\_copy\_server.c:main:207:MAIN SERVER m\_ptr=0x218c000

DEBUG 2:dvk\_receive\_T:362: endpoint=2 timeout=-1

DEBUG 2:dvk\_receive\_T:367: ioctl ret=-1 errno=108

ERROR: 2:dvk\_receive\_T:368: rcode=-108

loop\_copy\_server.c:child\_function:21:CHILD child\_nr 2: loops=10 child=0

loop\_copy\_server.c:child\_function:29:CHILD child 2: m\_ptr=0x218c000

loop\_copy\_server.c:child\_function:52:CHILD child 0: buffer before=abcdefghijklmnopqrstuvwxyabcde

DEBUG 3:dvk\_bind\_X:536: cmd=2 dcid=0 pid=-1075025784 endpoint=3 nodeid=1

DEBUG 3:dvk\_bind\_X:544: ioctl ret=3 errno=0

DEBUG 3:dvk\_bind\_X:536: cmd=0 dcid=0 pid=-1 endpoint=2 nodeid=-1

DEBUG 3:dvk\_bind\_X:544: ioctl ret=2 errno=0

loop\_copy\_server.c:child\_function:68:CHILD child\_nr=2: child\_ep=2 child\_pid=3

DEBUG 3:dvk\_sendrec\_T:379: endpoint=0 timeout=-1

DEBUG 2:dvk\_receive\_T:362: endpoint=2 timeout=-1

DEBUG 2:dvk\_receive\_T:367: ioctl ret=76 errno=108

loop\_copy\_server.c:main:223:MAIN SERVER: Waiting START message from remote CLIENT

**QUEDA ESPERANDO**

DEBUG 2:dvk\_receive\_T:362: endpoint=1 timeout=-1

DEBUG 2:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 2:dvk\_send\_T:345: endpoint=2 timeout=-1

DEBUG 2:dvk\_send\_T:350: ioctl ret=76 errno=0

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 3:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 2:dvk\_send\_T:345: endpoint=1 timeout=-1

DEBUG 2:dvk\_send\_T:350: ioctl ret=0 errno=0

loop\_copy\_server.c:main:239:MAIN SERVER: Waiting STOP message from remote CLIENT

DEBUG 2:dvk\_receive\_T:362: endpoint=1 timeout=-1

DEBUG 3:dvk\_receive\_T:367: ioctl ret=0 errno=0

loop\_copy\_server.c:child\_function:79:CHILD 0: source=3 type=0 m1i1=1 m1i2=2 m1i3=3 m1p1=0xb7386000 m1p2=(nil) m1p3=(nil)

loop\_copy\_server.c:child\_function:86:CHILD child\_nr 2:Starting loop

DEBUG 3:dvk\_vcopy:52: src\_ep=2 dst\_ep=3 bytes=1024

DEBUG 3:dvk\_vcopy:60: ioctl ret=0 errno=0

DEBUG 3:dvk\_vcopy:52: src\_ep=2 dst\_ep=3 bytes=1024

DEBUG 3:dvk\_vcopy:60: ioctl ret=0 errno=0

DEBUG 3:dvk\_vcopy:52: src\_ep=2 dst\_ep=3 bytes=1024

DEBUG 3:dvk\_vcopy:60: ioctl ret=0 errno=0

DEBUG 3:dvk\_vcopy:52: src\_ep=2 dst\_ep=3 bytes=1024

DEBUG 3:dvk\_vcopy:60: ioctl ret=0 errno=0

DEBUG 3:dvk\_vcopy:52: src\_ep=2 dst\_ep=3 bytes=1024

DEBUG 3:dvk\_vcopy:60: ioctl ret=0 errno=0

DEBUG 3:dvk\_vcopy:52: src\_ep=2 dst\_ep=3 bytes=1024

DEBUG 3:dvk\_vcopy:60: ioctl ret=0 errno=0

DEBUG 3:dvk\_vcopy:52: src\_ep=2 dst\_ep=3 bytes=1024

DEBUG 3:dvk\_vcopy:60: ioctl ret=0 errno=0

DEBUG 3:dvk\_vcopy:52: src\_ep=2 dst\_ep=3 bytes=1024

DEBUG 3:dvk\_vcopy:60: ioctl ret=0 errno=0

DEBUG 3:dvk\_vcopy:52: src\_ep=2 dst\_ep=3 bytes=1024

DEBUG 3:dvk\_vcopy:60: ioctl ret=0 errno=0

DEBUG 3:dvk\_vcopy:52: src\_ep=2 dst\_ep=3 bytes=1024

DEBUG 3:dvk\_vcopy:60: ioctl ret=0 errno=0

DEBUG 3:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 3:dvk\_send\_T:350: ioctl ret=0 errno=0

DEBUG 3:dvk\_sendrec\_T:379: endpoint=0 timeout=-1

DEBUG 2:dvk\_receive\_T:367: ioctl ret=0 errno=0

DEBUG 2:dvk\_send\_T:345: endpoint=1 timeout=-1

DEBUG 2:dvk\_send\_T:350: ioctl ret=0 errno=0

**t\_start=1550407301.52 t\_stop=1550407301.69 t\_total=0.18**

**transfer size=1024 #transfers=10 loopbysec=56.973273**

**Throuhput = 58340.631686 [bytes/s]**

DEBUG 2:dvk\_receive\_T:362: endpoint=2 timeout=-1

DEBUG 2:dvk\_receive\_T:367: ioctl ret=76 errno=0

DEBUG 2:dvk\_send\_T:345: endpoint=2 timeout=-1

DEBUG 2:dvk\_send\_T:350: ioctl ret=76 errno=0

DEBUG 2:dvk\_unbind\_T:329: dcid=0 endpoint=1 timeout=-1

DEBUG 2:dvk\_unbind\_T:334: ioctl ret=0 errno=0

loop\_copy\_server.c:main:277:MAIN SERVER: Waiting for children exit

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

loop\_copy\_server.c:child\_function:109:CHILD child\_nr 2: unbinding 3

DEBUG 3:dvk\_unbind\_T:329: dcid=0 endpoint=3 timeout=-1

DEBUG 3:dvk\_unbind\_T:334: ioctl ret=0 errno=0

loop\_copy\_server.c:child\_function:111:CHILD child\_nr 2:: exiting

loop\_copy\_server.c:main:282:MAIN SERVER END

**EN NODE1**

**root@node1:/usr/src/dvs/dvk-proxies/test#**

**nsenter -p -t$DC0 ./loop\_copy\_client 1**

DEBUG 2:dvk\_open:40: Open dvk device file /dev/dvk

DEBUG 2:dvk\_getdcinfo:163: dcid=0

DEBUG 2:dvk\_getdcinfo:167: ioctl ret=0 errno=0

loop\_copy\_client.c:main:132:dc\_dcid=0 dc\_nr\_procs=221 dc\_nr\_tasks=34 dc\_nr\_sysprocs=64 dc\_nr\_nodes=32

loop\_copy\_client.c:main:133:flags=0 dc\_nodes=3 dc\_pid=537 dc\_name=DC0

DEBUG 2:dvk\_bind\_X:535: cmd=0 dcid=0 pid=-1 endpoint=1 nodeid=-1

DEBUG 2:dvk\_bind\_X:543: ioctl ret=1 errno=0

loop\_copy\_client.c:main:151:BIND MAIN CLIENT dcid=0 clt\_pid=2 CLT\_NR=1 clt\_ep=1

DEBUG 2:dvk\_bind\_X:535: cmd=2 dcid=0 pid=-1080488576 endpoint=0 nodeid=0

DEBUG 2:dvk\_bind\_X:543: ioctl ret=0 errno=0

loop\_copy\_client.c:main:162:MAIN CLIENT dvk\_rmtbind 0: process server0 on node 0

loop\_copy\_client.c:main:166:child fork 0

loop\_copy\_client.c:main:171:MAIN CLIENT child\_pid[0]=3

MAIN CLIENT: m\_ptr=0x55b000

DEBUG 2:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 2:dvk\_receive\_T:367: ioctl ret=-1 errno=108

ERROR: 2:dvk\_receive\_T:368: rcode=-108

CHILD child\_nr=3: child=0

CHILD child\_nr=3: m\_ptr=0x55b000

loop\_copy\_client.c:child\_function:44:CHILD child\_nr=3: buffer before = ABCDEFGHIJKLMNOPQRSTUVWXYABCDEFGHIJKLMNOPQRSTUVWXYABCDEFGHIJ

DEBUG 3:dvk\_bind\_X:535: cmd=2 dcid=0 pid=-1080488664 endpoint=2 nodeid=0

DEBUG 3:dvk\_bind\_X:543: ioctl ret=2 errno=0

DEBUG 3:dvk\_bind\_X:535: cmd=0 dcid=0 pid=-1 endpoint=3 nodeid=-1

DEBUG 3:dvk\_bind\_X:543: ioctl ret=3 errno=0

loop\_copy\_client.c:child\_function:61:CHILD child\_nr=3: child\_ep=3 child\_pid=3

DEBUG 3:dvk\_sendrec\_T:379: endpoint=1 timeout=-1

DEBUG 2:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 2:dvk\_receive\_T:367: ioctl ret=76 errno=108

loop\_copy\_client.c:main:196:MAIN CLIENT: Sending START message to remote SERVER

DEBUG 2:dvk\_sendrec\_T:379: endpoint=0 timeout=-1

DEBUG 2:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 2:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

loop\_copy\_client.c:child\_function:75:CHILD child\_nr=3:Sending message to start loop. buffer=B7386000

DEBUG 3:dvk\_sendrec\_T:379: endpoint=2 timeout=-1

DEBUG 2:dvk\_send\_T:350: ioctl ret=76 errno=0

DEBUG 2:dvk\_receive\_T:362: endpoint=3 timeout=-1

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

loop\_copy\_client.c:child\_function:82:CHILD child\_nr=3: buffer after = abcdefghijklmnopqrstuvwxyabcde

DEBUG 3:dvk\_sendrec\_T:379: endpoint=1 timeout=-1

DEBUG 2:dvk\_receive\_T:367: ioctl ret=0 errno=0

loop\_copy\_client.c:main:224:MAIN CLIENT: Sending STOP message to remote SERVER

DEBUG 2:dvk\_sendrec\_T:379: endpoint=0 timeout=-1

DEBUG 2:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

DEBUG 2:dvk\_send\_T:345: endpoint=3 timeout=-1

DEBUG 2:dvk\_send\_T:350: ioctl ret=76 errno=0

DEBUG 3:dvk\_sendrec\_T:384: ioctl ret=0 errno=0

loop\_copy\_client.c:child\_function:91:CHILD child\_nr=3: unbinding 2

DEBUG 3:dvk\_unbind\_T:329: dcid=0 endpoint=2 timeout=-1

DEBUG 3:dvk\_unbind\_T:334: ioctl ret=0 errno=0

loop\_copy\_client.c:child\_function:93:CHILD child\_nr=3:exiting

DEBUG 2:dvk\_unbind\_T:329: dcid=0 endpoint=0 timeout=-1

DEBUG 2:dvk\_unbind\_T:334: ioctl ret=0 errno=0

MAIN CLIENT END