Deploying MQ RDQM with Floating IP Address on VSphere

This is the instructions for deploying RDQM and configuring a HA Queue Manager with floating ip address.

Requirements:

Platform: VSphere 6.7
- 3 Virtual Machines

VM OS: RHEL 9.2
- Need a second disk 100 GB on all 3 VM's
- 2 CPU x 16GB of Mem
- Public IP Address

Software: IBM MQ 9.3.0.2
- Download the software from IBM's Internal DSW Downloads Site (Software XL) https://w3-03.ibm.com/software/xl/download/ticket.wss

Sites of Interest:

- https://www.ibm.com/docs/en/ibm-mq/9.3?topic=configurations-rdqm-high-availability
- https://www.royalcyber.com/blog/middleware/high-availability-of-replicated-data-queue-manager/

Preparing for RDQM
- https://www.ibm.com/docs/en/ibm-mq/9.3?topic=configurations-rdqm-high-availability
- https://community.ibm.com/community/user/integration/blogs/prema-laxmanachar1/2022/08/10/detailed-procedure-of-migrating-regular-ibm-mq-que
- https://www.ibm.com/docs/en/ibm-mq/9.3?topic=availability-requirements-rdqm-ha-solution
- https://www.redhat.com/sysadmin/create-physical-volume

General Commands that were of use during my attempts to install

yum upgrade
yum update
yum update kernel

hostnamectl <-- Verify Kernel version matches on all 3 machines.

Installing RDQM

- https://www.ibm.com/docs/en/ibm-mq/9.3?topic=multiplatforms-installing-rdqm-replicated-data-queue-managers

1.) Provision 3 (2CPU x 16GB mem) machines in VSphere
2.) Install packages (on all 3 boxes)

sudo yum -y install libxslt net-snmp-libs nfs-utils nfs-utils-coreos perl-TimeDate python3-lxml python-unversioned-command

3.) SCP the install file (to all three servers)

scp <file>@<ipaddress of target>:<location on target to place file>

EXAMPLE:
scp ./IBM_MQ_9.3.0.2_LINUX_X86-64.tar.gz bastion@10.67.42.177:/home/bastion/

4.) Untar the file (on all 3 servers)
tar -xvf IBM_MQ_9.3.0.2_LINUX_X86-64.tar.gz

5.) install kernal

NOTE: I ran into issues when trying to use the drbd kernel that is provided with the IBM MQ 9.3.0.2 download. I had to download a NEWER one because the RHEL OS was at a higher version than what was expected.

********** Ran into Kernel Issues **********
***** Upgraded to this one below **********
*** Look on this page for a download for RHEL 9.2
**** Interim kernel module releases

- https://www.ibm.com/support/pages/ibm-mq-replicated-data-queue-manager-kernel-modules#LTS9_2

- https://www.ibm.com/support/fixcentral/swg/downloadFixes?parent=ibm%2FWebSphere&product=ibm/WebSphere/WebSphere+MQ&release=All&platform=All&function=fixId&fixids=9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14&includeRequisites=1&includeSupersedes=0&downloadMethod=http&source=SAR

***** THIS IS THE FILE → interim fix: 9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14

Steps to install (On all 3 machines)

wget https://ak-delivery04-mul.dhe.ibm.com/sdfdl/v2/sar/CM/WS/0bfrk/0/Xa.2/Xb.jusyLTSp44S03o2r0ALI9rdnHzZDQ4Pdhenqod7cCfzE79MnOWh_uumEiKA/Xc.CM/WS/0bfrk/0/9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14.tgz/Xd./Xf.LPR.D1VK/Xg.12320491/Xi.habanero/XY.habanero/XZ.toSiALXjCZMNaORuZis7fBS2qXvKsM_3/9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14.tgz

tar -xvf 9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14.tgz

cd 9-IBM-MQ-LAIT43724-kmod-drbd-9.1.14

yum install ./yum install ./kmod-drbd-9.1.14+ptf.2_5.14.0_284.11.1-1.x86_64.rpm

6.) Install DRBD Utils

*yum install /home/bastion/MQServer/Advanced/RDQM/PreReqs/el9/drbd-utils-9/**

7.) Install Pacemaker

*yum install /home/bastion/MQServer/Advanced/RDQM/PreReqs/el9/pacemaker-2/**

8.) Accept the license

/home/bastion/MQServer/mqlicense.sh

9.) Install MQ

cd /home/bastion/MQServer
yum install MQSeriesGSKit MQSeriesServer* MQSeriesRuntime**

10.) Install RDQM

cd /home/bastion/MQServer
*yum install Advanced/RDQM/MQSeriesRDQM**

Preparing VM's for setup of RDQM

Useful Commands:

- **pvscan**

- **pvs**
- **pvcreate**
- **pvdisplay**
- **cfdisk**
- **lvmdiskscan**

Setup the disk volume group for DRBD

Do this on all 3 VM's

- **ls /dev/sd* <-- Find the disk device.. In my case it was /dev/sbd**
- **pvcreate /dev/sdb <-- Create the PV**
- **vgcreate drbdpool /dev/sdb <-- Create the Volume Group**

Setup Passwordless SSH Login on all 3 VM's

https://www.ibm.com/docs/en/ibm-mq/9.2?topic=solution-setting-up-passwordless-ssh

usermod -d /home/mqm mqm

mkhomedir_helper mqm

passwd mqm
(password: ibmpassword123)

su mqm

ssh-keygen -t rsa -f /home/mqm/.ssh/id_rsa -N ''

Copy Keys to all machines

ssh-copy-id -i /home/mqm/.ssh/id_rsa.pub <ip address VM1>
ssh-copy-id -i /home/mqm/.ssh/id_rsa.pub <ip address VM2>
ssh-copy-id -i /home/mqm/.ssh/id_rsa.pub <ip address VM3>

verify.. On each machine

ssh *<ip address VM1>*uname -n
ssh *<ip address VM2>*uname -n
ssh *<ip address VM3>*uname -n

NOTE: You may be prompted for fingerprint the first time, so you NEED to TEST.

Do on all machines

exit *<-- Exit out of mqm user*
su *<-- Switch to root*
passwd -d mqm
passwd -l mqm

Add mqm user to sudo file

visudo ← Run this command on all three servers and make the following edits.

<< ADD THE FOLLLOWING LINE BELOW THIS COMMENT >>
"## Allows people in group wheel to run all commands"

#%mqm ALL=(ALL) ALL

<< ADD THE FOLLLOWING LINE BELOW THIS COMMENT >>
"## Same thing without a password"

%mqm ALL=(ALL) NOPASSWD: ALL

Configure SELINUX Security

NOTE: Run these commands on all machines as ROOT

semanage permissive -a drbd_t

/opt/mqm/samp/rdqm/firewalld/configure.sh

Setup local dns

NOTE: Run these commands on all machines as ROOT

vi /etc/hosts

<<ADD THIS>>

<ip address VM1> qm1
<ip address VM2> qm2
<ip address VM3> qm3

Configure RDMQ INI File

NOTE: Run these commands on all machines as ROOT

vi /var/mqm/rdqm.ini

<< EDIT FILE LIKE THIS>>

```
Node:
 Name=qm1
   HA_Replication=10.67.42.177
   HA_Primary=10.67.42.177
   #  HA_Alternate=
   #  DR_Replication=10.67.42.177
Node:
   Name=qm2
   HA_Replication=10.67.42.155
   HA_Primary=10.67.42.155
   #  HA_Alternate=
   #  DR_Replication=10.67.42.155
Node:
   Name=qm3
    HA_Replication=10.67.42.153
    HA_Primary=10.67.42.153
    #  HA_Alternate=
    #  DR_Replication=10.67.42.153
```

Configure Pacemaker group

/opt/mqm/bin/rdqmadm -c

Configure NEW RDQM QueueManager

/opt/mqm/bin/crtmqm -sx qmgrdk1

/opt/mqm/bin/crtmqm -sxs -fs 3072M qmgrdk1