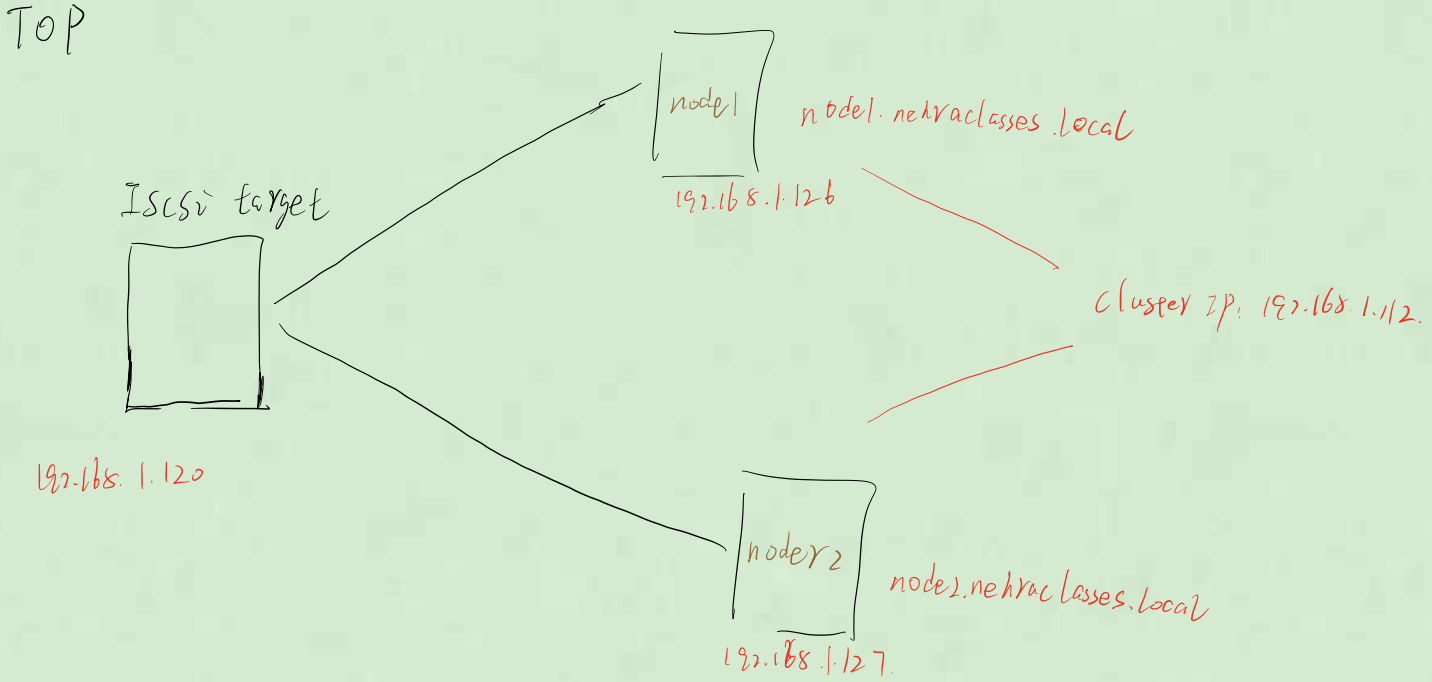
TOP




```
[root@node1 ~]# yum install -y pcs fence-agents-all pcp-zeroconf pacemaker
```

安装相关的包.

```
  rubygems-2.7.6.2-105.module_el8.1.0+214+9be47fd7.noarch
  sbd-1.4.1-3.el8.x86_64
  telnet-1:0.17-73.el8_1.1.x86_64

Complete!
[root@node2 ~]# firewall-cmd --permanent --add-service=high-availability
success
[root@node2 ~]#
[root@node2 ~]# firewall-cmd --add-service=high-availability
success
[root@node2 ~]#
[root@node2 ~]# firewall-cmd --reload
success
[root@node2 ~]# passwd hacluster
Changing password for user hacluster.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@node2 ~]# systemctl start pcsd
```

这步 node1 和 node2 都要执行.

为cluster这个用户设置密码.

启动集群.

```
[root@node1 ~]# pcs host auth node1.nehraclasses.local node2.nehraclasses.local
Username: hacluster
Password:
node1.nehraclasses.local: Authorized
node2.nehraclasses.local: Authorized
[root@node1 ~]#
```

验证集群主机

只用在 node1 上做.

```
[root@node1 ~]# pcs cluster setup nehraclasses_cluster --start node1.nehraclasses.local node2.nehraclasses.local
No addresses specified for host 'node1.nehraclasses.local', using 'node1.nehraclasses.local'
No addresses specified for host 'node2.nehraclasses.local', using 'node2.nehraclasses.local'
Destroying cluster on hosts: 'node1.nehraclasses.local', 'node2.nehraclasses.local'...
node1.nehraclasses.local: Successfully destroyed cluster
node2.nehraclasses.local: Successfully destroyed cluster
Requesting remove 'pcsd settings' from 'node1.nehraclasses.local', 'node2.nehraclasses.local'
node1.nehraclasses.local: successful removal of the file 'pcsd settings'
node2.nehraclasses.local: successful removal of the file 'pcsd settings'
Sending 'corosync authkey', 'pacemaker authkey' to 'node1.nehraclasses.local', 'node2.nehraclasses.local'
node1.nehraclasses.local: successful distribution of the file 'corosync authkey'
node1.nehraclasses.local: successful distribution of the file 'pacemaker authkey'
node2.nehraclasses.local: successful distribution of the file 'corosync authkey'
node2.nehraclasses.local: successful distribution of the file 'pacemaker authkey'
Sending 'corosync.conf' to 'node1.nehraclasses.local', 'node2.nehraclasses.local'
node1.nehraclasses.local: successful distribution of the file 'corosync.conf'
node2.nehraclasses.local: successful distribution of the file 'corosync.conf'
Cluster has been successfully set up.
Starting cluster on hosts: 'node1.nehraclasses.local', 'node2.nehraclasses.local'...
[root@node1 ~]#
```

创建集群名称 nehraclasses_cluser

只在node1上执行.

```
[root@node1 ~]# pcs cluster enable --all
node1.nehraclasses.local: Cluster Enabled
node2.nehraclasses.local: Cluster Enabled
[root@node1 ~]#
```

让集群自动开机启动

只在node1上执行.

```
[root@node1 ~]# pcs cluster status
Cluster Status:
 Cluster Summary:
   * Stack: corosync
   * Current DC: node1.nehraclasses.local (version 2.0.3-5.el8_2.1-4b1f869f0f) - partition with q
uorum
   * Last updated: Tue Sep 22 17:15:24 2020
   * Last change:  Tue Sep 22 17:14:33 2020 by hacluster via crmd on node1.nehraclasses.local
   * 2 nodes configured
   * 0 resource instances configured
 Node List:
   * Online: [ node1.nehraclasses.local node2.nehraclasses.local ]

PCSD Status:
  node2.nehraclasses.local: Online
  node1.nehraclasses.local: Online
[root@node1 ~]#
```

查看集群状态是否正常

只在node1上执行.

```
[root@node1 ~]# pcs property set stonith-enabled=false
[root@node1 ~]#
```

defensing -device

只在node1上做

分别在node1和node2上安装apache服务,并在node1和node2的apache配置文件中加入以下内容,用于监视服务状态:

```
<Location /server-status>
    SetHandler server-status
    Require local
</Location>
```

node1和node2上都要做.

```
[root@node1 ~]# /bin/systemctl reload httpd.service > /dev/null 2>/dev/null || true
[root@node1 ~]#
```

```
[root@node2 ~]# /bin/systemctl reload httpd.service > /dev/null 2>/dev/null || true
[root@node2 ~]# /usr/sbin/httpd -f /etc/httpd/conf/httpd.conf -c "PidFile /var/run/httpd.pid" -k
graceful > /dev/null 2>/dev/null || true
```

启动apache不通过systemd.

node1和node2都要做.

将网页文件放到iSCSI的共享空间中:

```
[root@node1 ~]# mount /dev/vg_apache/lv_apache /var/www/
[root@node1 ~]# mkdir /var/www/html
[root@node1 ~]# restorecon -R /var/www
[root@node1 ~]# cat <<-END >/var/www/html/index.html
> <html>
> <body>Hello, Welcome!. This Page Is Served By Red Hat Hight Availability Cluster</body>
> </html>
> END
[root@node1 ~]# umount /var/www
[root@node1 ~]#
```

只在node1上做.

创建文件系统资源名称为 httpd_fs

```
[root@node1 ~]# pcs resource create httpd_fs Filesystem device="/dev/mapper/vg_apache-lv_apache"
directory="/var/www" fstype="ext4" --group apache
Assumed agent name 'ocf:heartbeat:Filesystem' (deduced from 'Filesystem')
[root@node1 ~]#
```

只在node1上做.

创建IP资源名称为 httpd_vip,集群地址为 192.168.1.112

```
[root@node1 ~]# pcs resource create httpd_vip IPaddr2 ip=192.168.1.112 cidr_netmask=24 --group ap
ache
Assumed agent name 'ocf:heartbeat:IPaddr2' (deduced from 'IPaddr2')
[root@node1 ~]#
```

只在node1做

创建选定资源名称 httpd_ser

```
[root@node1 ~]# pcs resource create httpd_ser apache configfile="/etc/httpd/conf/httpd.conf" stat
usurl="http://127.0.0.1/server-status" --group apache
Assumed agent name 'ocf:heartbeat:apache' (deduced from 'apache')
```

→ 在node1 做.

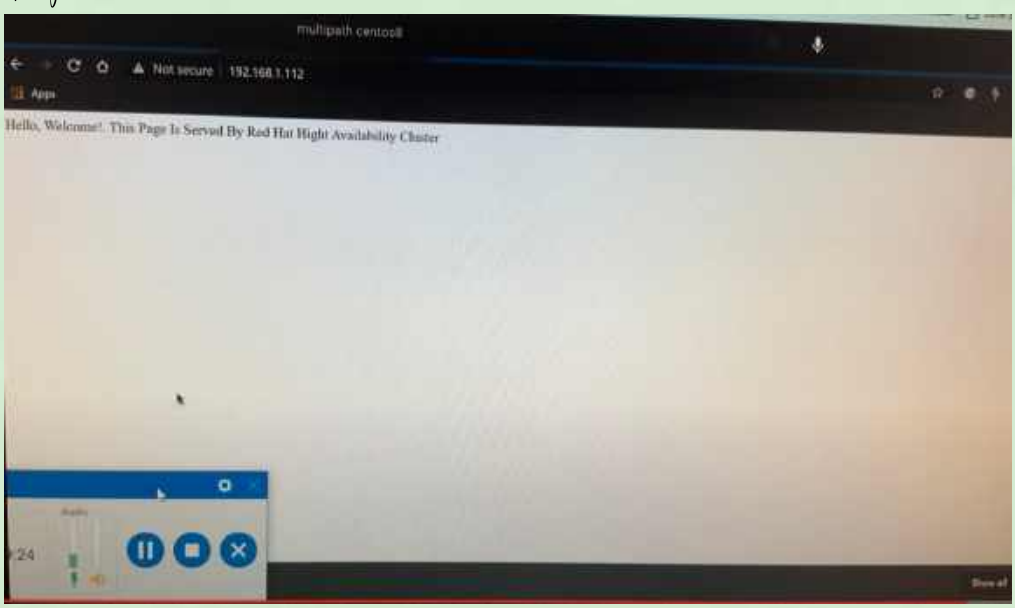
在node1上使用 PCS status 查看集群资源状态:

```
  * Last updated: Tue Sep 22 17:29:28 2020
  * Last change:  Tue Sep 22 17:29:10 2020 by root via cibadmin on node1.nehraclasses.local
  * 2 nodes configured
  * 3 resource instances configured

Node List:
  * Online: [ node1.nehraclasses.local node2.nehraclasses.local ]

Full List of Resources:
  * Resource Group: apache:
    * httpd_fs  (ocf::heartbeat:Filesystem):  Started node1.nehraclasses.local
    * httpd_vip (ocf::heartbeat:IPaddr2):     Started node1.nehraclasses.local
    * httpd_ser (ocf::heartbeat:apache):      Started node1.nehraclasses.local

Daemon Status:
  corosync: active/enabled
  pacemaker: active/enabled
  pcsd: active/enabled
[root@node1 ~]#
```

这里是 disable 也可以

一直在node1上做.

测试:



将node1设为使用节点., 查看集群是否工作正常.

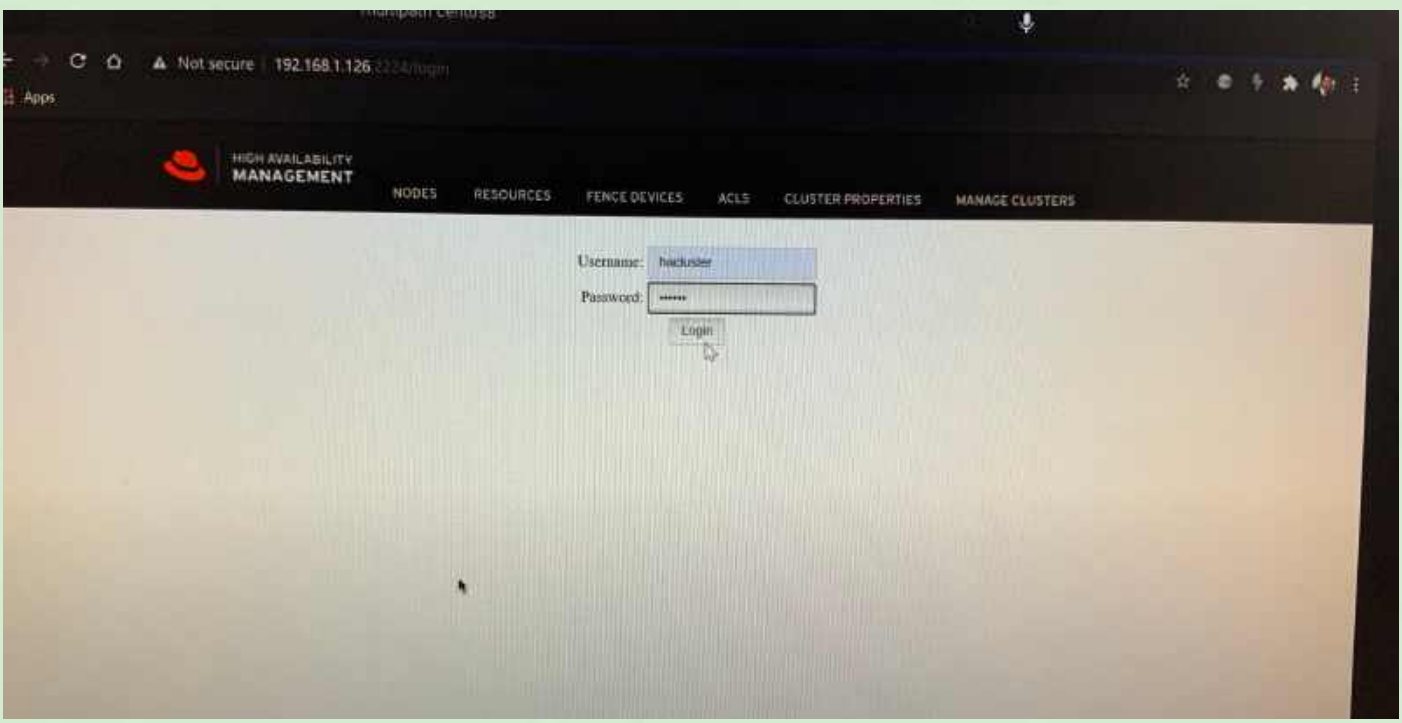
```
[root@node1 ~]# pcs node standby node1.nehraclasses.local
```

其它查看命令：

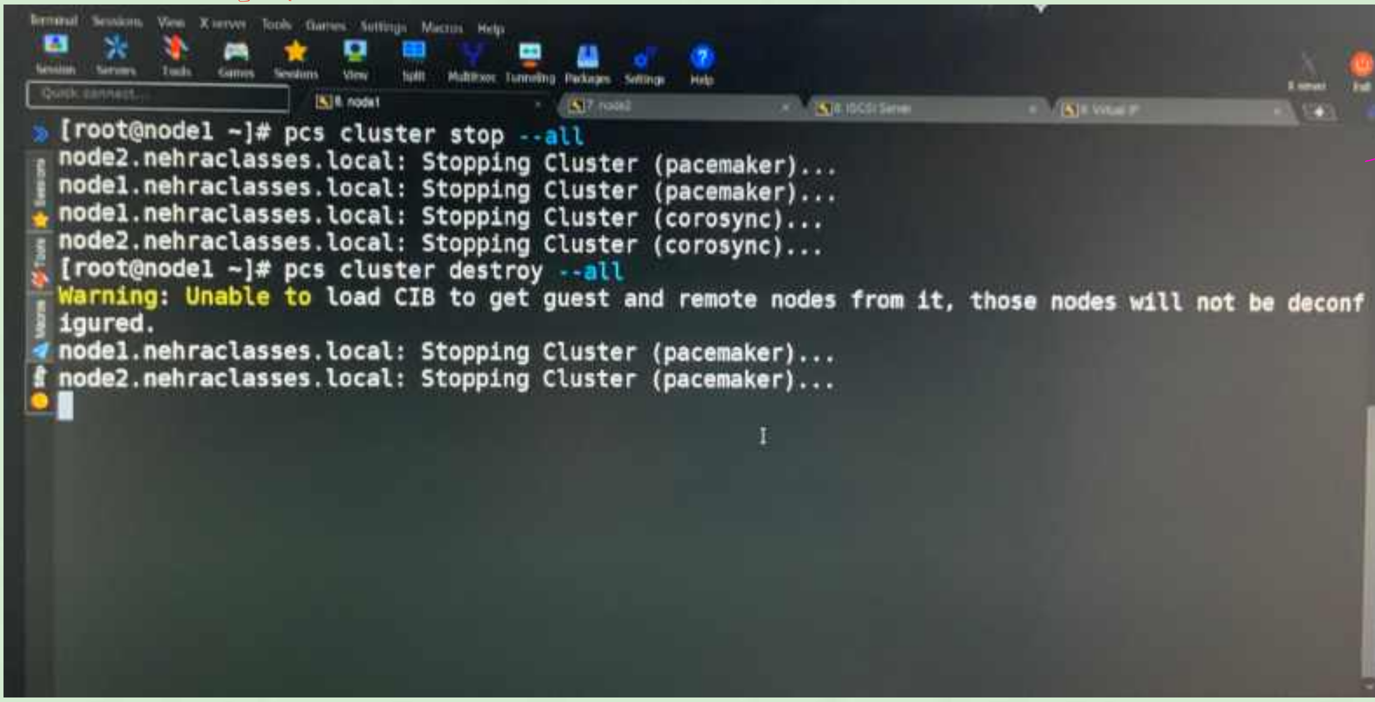
```
List cluster resources:
# pcs resource status

Restart cluster resource:
# pcs resource restart <resource_name>

Move the resource off a node:
# pcs resource move <resource_group> <destination_node_name>

Put cluster in maintenance:
# pcs property set maintenance-mode=true

Remove cluster from maintenance:
# pcs property set maintenance-mode=false

Start the cluster node:
# pcs cluster start <node_name>

Stop cluster node:
# pcs cluster stop <node_name>

Start cluster:
# pcs cluster start --all

Stop cluster:
# pcs cluster stop --all

Destroy cluster:
# pcs cluster destroy <cluster_name>
```

使用网页方式查看和配置 cluster 配置

```
Cluster Web User Interface
The pcsd web user interface helps you create, configure, and manage Pacemaker clusters.

The web interface will be accessible once you start pcsd service on the node and it is available on port number 2224.

https://node_name:2224 登陆方式.
Login with cluster administrative user hacluster and its password.
```



关闭和销毁集群



—只在node1上做