**Gridengine & NFS & NIS configuration**

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# Forward

1. #vim /etc/hosts

127.0.0.1 localhost.localdomain localhost

192.168.1.200 SCRL-MARD2-DL580.mard2nis SCRL-MARD2-DL580

192.168.1.201 SCRL-MARD2-Z820-45.mard2nis SCRL-MARD2-Z820-45

192.168.1.202 SCRL-MARD2-Z820-46.mard2nis SCRL-MARD2-Z820-46

* + - 1. PowerEdge-C4130.mard2nis PowerEdge-C4130

2. Using “mard2nis” as nisdomainname in the following steps

3. SCRL-MARD2-Z820-45.mard2nis will be set as NIS master, gridengine master

4. environment: Ubuntu 14

5. username “nisuser” will added as the default user who will using NFS,NIS,Gridengine

#adduser nisuser -u 51060 -g mard2 -d /home/nisuser

#id

uid=51060(nisuser) gid=51022(mard2) 组=51022(mard2)

All servers will using the same /home/nisuser disk by using NFS and mount.

6. By default, all the following commands run in root authority

# Install NIS

https://www.server-world.info/en/note?os=Ubuntu\_14.04&p=nis&f=1

https://www.server-world.info/en/note?os=Ubuntu\_14.04&p=nis&f=2

## Master

Installation

#apt-get install nis

提示domain输入时，输入domain mard2nis

Configuration master

#vim /etc/default/nis

NISSERVER=master

配置网络上可以加入NIS的主机IP (可以使用默认设置，允许所有)

#vim vim /etc/ypserv.securenets

配置更新用户信息脚本

#vim /var/yp/Makefile

MERGE\_PASSWD=true

MERGE\_GROUP=true

更新用户信息(每次更改用户信息后需要运行)

#cd /var/yp

#make

启动NIS server

#initctl start ypserv

ypserv start/running, process 13543

初始化数据库

#/usr/lib/yp/ypinit -m

## Client

安装

#apt-get install nis

提示domain输入时，输入domain mard2nis

配置master结点信息

#vim /etc/yp.conf

# add to the end: [domain name] [server] [NIS server's hostname]

domain mard2nis server SCRL-MARD2-Z820-45.mard2nis

#vim /etc/nsswitch.conf

passwd: compat nis

group: compat nis

shadow: compat nis

hosts: files dns nis

#vim /etc/pam.d/common-session

# add to the end

session optional pam\_mkhomedir.so skel=/etc/skel umask=077

绑定NIS client 到master上

#initctl restart ypbind

ypbind start/running, process 3677

# Install NFS

## Master

服务器安装

#apt-get install nfs-kernel-server

配置/home/nisuser为 nsf共享目录

#vim /etc/exports

/home/nisuser/ \*(sync,insecure,rw,no\_subtree\_check,no\_root\_squash)

重启rpc服务

#service rpcbind restart

重启nfs服务

#service nfs-kernel-server restart

## Client

创建挂载目录

#makedir /home/nisuser

更改/home/nisuser 拥有着为nisuser

#chown nisuser:mard2 /home/nisuser

挂载共享目录(将mount命令添加到/etc/rc.local中，使其开机运行)

#mount -t nfs 192.168.1.201: /home/nisuser /home/nisuser

# Install Gridengine

<http://kaldi-asr.org/doc/queue.html>

## Master

#apt-get install gridengine-master gridengine-client

安装过程中设置SCRL-MARD2-Z820-45.mard2nis为master node

**将nisuser 添加到manager list**

#qconf -am nisuser

下面以设置execute node 192.168.1.200 SCRL-MARD2-DL580.mard2nis SCRL-MARD2-DL580 为例

**将execute node添加到hosts，submit，execute list中**

#qconf -ah SCRL-MARD2-DL580.mard2nis

#qconf -as SCRL-MARD2-DL580.mard2nis

#qconf -ae SCRL-MARD2-DL580.mard2nis

**配置execute node**

#qconf -me SCRL-MARD2-DL580.mard2nis

complex\_values ram\_free=700G,gpu=3

**add the parallel environment**

#qconf -ap smp

pe\_name smp

slots 9999

**添加queue**

Check execute node cpu 数量

#grep proc /proc/cpuinfo | wc –l

#qconf -aq all.q

qname all.q

hostlist SCRL-MARD2-DL580.mard2nis

pe\_list make smp

slots 30,[SCRL-MARD2-DL580.mard2nis=80]

**配置gridengine resources**

#qconf -mc

update mem\_free and add gpu, ram\_free

mem\_free mf MEMORY <= YES YES 700G 0

gpu g INT <= YES YES 0 10000

ram\_free ram\_free MEMORY <= YES JOB 700G 0

## Client

#apt-get install gridengine-client gridengine-exec

安装过程中设置SCRL-MARD2-Z820-45.mard2nis为master node

# Add new node or queue

## Add new node

以添加192.168.1.202 SCRL-MARD2-Z820-46.mard2nis SCRL-MARD2-Z820-46为例

**Hosts:**

更新所有node的hosts，将new node添加进去

#vim /etc/hosts

127.0.0.1 localhost.localdomain localhost

192.168.1.200 SCRL-MARD2-DL580.mard2nis SCRL-MARD2-DL580

192.168.1.201 SCRL-MARD2-Z820-45.mard2nis SCRL-MARD2-Z820-45

**192.168.1.202 SCRL-MARD2-Z820-46.mard2nis SCRL-MARD2-Z820-46**

* + - 1. PowerEdge-C4130.mard2nis PowerEdge-C4130

**NFS:**

创建挂载目录

#makedir /home/nisuser

更改/home/nisuser 拥有着为nisuser

#chown nisuser:mard2 /home/nisuser

挂载共享目录(将mount命令添加到/etc/rc.local中，使其开机运行)

#mount -t nfs 192.168.1.201: /home/nisuser /home/nisuser

**NIS:**

参照安装NIS client章节 安装NIS client

在NIS master重新初始化数据库，将新的node添加到NIS中

#/usr/lib/yp/ypinit -m

**Gridengine:**

参照capture4

在execute node上安装gridengine

在masternode上 将execute node添加到hosts，submit，execute list中

配置execute node

将execute node添加到queue中

#qconf -mq all.q

qname all.q

hostlist SCRL-MARD2-DL580.mard2nis **SCRL-MARD2-Z820-46.mard2nis**

pe\_list make smp

slots 30,[SCRL-MARD2-DL580.mard2nis=80], [**SCRL-MARD2-Z820-46.mard2nis=8**]

更新gridengine resources

#qconf -mc

update mem\_free and add gpu, ram\_free

mem\_free mf MEMORY <= YES YES 900G 0

gpu g INT <= YES YES 0 10000

ram\_free ram\_free MEMORY <= YES JOB 900G 0

## Add new queue

Using following command to configure your new queue.

#qconf -aq <queue name>

qname all.q

hostlist SCRL-MARD2-DL580.mard2nis **SCRL-MARD2-Z820-46.mard2nis**

pe\_list make smp

slots 30,[SCRL-MARD2-DL580.mard2nis=80], [**SCRL-MARD2-Z820-46.mard2nis=8**]

# Using gridengine

Configure the cmd.sh in kaldi project:

export train\_cmd="queue.pl -q K40.q -l arch=\*64 --mem 2G"

export decode\_cmd="queue.pl -q K40.q -l arch=\*64 --mem 2G"

export highmem\_cmd="queue.pl -q K40.q -l arch=\*64 --mem 4G"

export mkgraph\_cmd="queue.pl -q K40.q -l arch=\*64 --mem 4G"

# Useful command

In qconf, option ‘a’ means add, ‘m’ means manage ‘s’ means show, ‘d’ means delete.

**添加gridengine manager**

sudo qconf -am < user-id>

**管理gridengine queue**

sudo qconf -aq <queue-name>

sudo qconf -mq <queue-name>

sudo qconf -sq <queue-name>

sudo qconf -dq <queue-name>

**管理gridengine host node**

sudo qconf -ah < node-name>

sudo qconf -sh

sudo qconf -dh < node-name>

**管理gridengine submit node**

sudo qconf -as < node-name>

sudo qconf -ss

sudo qconf -ds < node-name>

**管理gridengine execute node**

sudo qconf -ae < node-name>

sudo qconf -sel 显示execute node list

sudo qconf -se < node-name>显示execute node 详细信息

sudo qconf -me < node-name>

sudo qconf -de < node-name>

**查看gridengine 装态**

qstat

qstat -f

qstat -j <job-id>

qhost

qhost -q

**设置NIS域名**

root@SCRL-MARD2-Z820-46:~# nisdomainname

nisdomain

root@SCRL-MARD2-Z820-46:~# nisdomainname mard2nis

root@SCRL-MARD2-Z820-46:~# nisdomainname

mard2nis

root@SCRL-MARD2-Z820-46:~#vim /etc/defaultdomain

mard2nis

**Update gridengine master name**

vim /var/lib/gridengine/default/common/act\_qmaster

SCRL-MARD2-Z820-45.mard2nis

**Gridengine exec node restart：**

/etc/init.d/gridengine-exec restart

**Gridengine master node restart：**

/etc/init.d/gridengine-master restart

# Server status after installation

Servers

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Server | 44 | 45 | 46 | 47 |
| Name | SCRL-MARD2-DL580 | SCRL-MARD2-Z820-45 | SCRL-MARD2-Z820-46 | PowerEdge-C4130 |
| IP | 192.168.1.200  43.82.40.44 | 192.168.1.201  43.82.40.45 | 192.168.1.202  43.82.40.46 | 192.168.1.203  43.82.40.47 |
| GPU | GPU 0: GeForce GTX TITAN X  GPU 1: Tesla K40c  GPU 2: Tesla K40c | GPU 0: Tesla K20c  GPU 1: Tesla K20c  GPU 2: Quadro K2000 | GPU 0: Tesla K40c  GPU 1: Tesla K40c  GPU 2: Quadro K600 | GPU 0: Tesla K80 GPU 1: Tesla K80  GPU 2: Tesla K80 GPU 3: Tesla K80  GPU 4: Tesla K80 GPU 5: Tesla K80  GPU 6: Tesla K80 GPU 7: Tesla K80 |
| CPU | 80 \* 2.20GHz | 8 \* 1.80GHz | 8 \* 1.80GHz | 48 \* 2.50GHz |
| Mem | 800G | 250G | 250G | 500G |
| NIS role | client | master, client | client | client |
| NFS | mount -t nfs 192.168.1.201:/home/nisuser /home/nisuser  mount -t nfs 192.168.1.201:/disk /disk | #vim /etc/exports  /disk/ \*(sync,insecure,rw,no\_subtree\_check,no\_root\_squash)  /home/nisuser/ \*(sync,insecure,rw,no\_subtree\_check,no\_root\_squash) | mount -t nfs 192.168.1.201:/home/nisuser /home/nisuser  mount -t nfs 192.168.1.201:/disk /disk | mount -t nfs 192.168.1.201:/home/nisuser /home/nisuser  mount -t nfs 192.168.1.201:/disk /disk |
| #qconf -se complex\_values | ram\_free=700G,gpu=3 | ram\_free=250G,gpu=3 | ram\_free=200G,gpu=3 | ram\_free=400G,gpu=8 |
| /etc/hosts | 127.0.0.1 localhost.localdomain localhost  43.82.40.44 SCRL-MARD2-DL580.mard2nis SCRL-MARD2-DL580  43.82.40.45 SCRL-MARD2-Z820-45.mard2nis SCRL-MARD2-Z820-45  43.82.40.46 SCRL-MARD2-Z820-46.mard2nis SCRL-MARD2-Z820-46  43.82.40.47 PowerEdge-C4130.mard2nis PowerEdge-C4130 | | | |
| nis | Nisdomainname: mard2nis | | | |

Queue

|  |  |  |
| --- | --- | --- |
| **qname** | **qconf -sq** | **qconf -sp** |
| all.q | qname all.q  hostlist SCRL-MARD2-DL580.mard2nis SCRL-MARD2-Z820-45.mard2nis \  PowerEdge-C4130.mard2nis SCRL-MARD2-Z820-46.mard2nis  pe\_list make smp  slots 30,[SCRL-MARD2-DL580.mard2nis=80], \  [SCRL-MARD2-Z820-45.mard2nis=8], \  [SCRL-MARD2-Z820-46.mard2nis=8], \  [PowerEdge-C4130.mard2nis=48] | pe\_name smp  slots 9999 |
| K40.q | qname k40.q  hostlist SCRL-MARD2-DL580.mard2nis SCRL-MARD2-Z820-46.mard2nis  pe\_list make smp  slots 1,[SCRL-MARD2-DL580.mard2nis=80], \  [SCRL-MARD2-Z820-46.mard2nis=8] |  |
| K20.q | qname K20.q  hostlist SCRL-MARD2-Z820-45.mard2nis  pe\_list make smp  slots 1,[SCRL-MARD2-Z820-45.mard2nis=8] |  |
| K80.q | qname K80.q  hostlist PowerEdge-C4130.mard2nis  pe\_list make smp  slots 1,[PowerEdge-C4130.mard2nis=48] |  |