

# 【3AR/Primera】growv 后在 Linux 层面 online resizing 的实施过程

主机相关 安装扩容 孔樱【技术大咖】 2020-08-03 发表

## 组网及说明

3PAR创建逻辑卷映射给服务器后，服务器也识别到存储映射过来的逻辑卷。但客户需要将此逻辑卷扩容，这时在操作系统及数据库侧需要做哪些操作。

可以参考以下的操作步骤

## 问题描述

3PAR创建逻辑卷映射给服务器后，服务器也识别到存储映射过来的逻辑卷。但客户需要将此逻辑卷扩容，这时在操作系统及数据库侧需要做哪些操作。

可以参考以下的操作步骤

## 过程分析

存储执行 growv 后在 Linux 层面上的操作

首先我们对 3PAR/Primera 一个VV 扩容，我们的例子中从 300G 扩容到 350G。

先确认一下当前要做调整的逻辑卷的大小：300G

```
C670_CN701503MR cli% showvv
```

```
8213 ky670vv3      tdvv Yes  Yes  base ---      8213 RW normal      0 179200 307200
```

在操作系统侧查看的磁盘容量

```
ky670vv3 (360002ac0000000000000201500025c03) dm-17 3PARdata,VV
size=300G features="2 queue_if_no_path retain_attached_hw_handler" hwhandler="1 alua" wp=rw
`-+ policy="round-robin 0" prio=0 status=active
  |- 4:0:0:2 sdak 66:64 active undef running
  |- 5:0:0:2 sdao 66:128 active undef running
  |- 4:0:2:2 sdam 66:96 active undef running
  `-- 5:0:2:2 sdaq 66:160 active undef running
```

这个多路径对应的sdX 为 sdam/sdao/sdaq/sdak

我们记录下扩容前的fdisk显示

```
sdam --ky670v3
```

```
Disk /dev/sdam: 322.1 GB, 322122547200 bytes, 629145600 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 16384 bytes / 16777216 bytes
```

=====

```
sdao --ky670vv3
```

```
Disk /dev/sdao: 322.1 GB, 322122547200 bytes, 629145600 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 16384 bytes / 16777216 bytes
```

=====

```
sdaq --ky670vv3
```

```
Disk /dev/sdaq: 322.1 GB, 322122547200 bytes, 629145600 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 16384 bytes / 16777216 bytes
```

=====  
sdak --ky670vv3

Disk /dev/sdak: 322.1 GB, 322122547200 bytes, 629145600 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 16384 bytes / 16777216 bytes

growvv 将逻辑卷扩大到350G

C670\_CN701503MR cli% growvv ky670vv3 50g

C670\_CN701503MR cli% showvv -s ky670vv3

```
-----Snp-----Usr-----Total-----  
--(MiB)-- -(% VSize)-- ----(MiB)---- -(% VSize)-- -----(MiB)----- --
```

Efficiency---

Id	Name	Prov	Compr	Dedup	Type	Rsvd	Used	Used	Wrn	Lim	Rsvd	Used	Used	Wrn	Lim	Rsvd		
8213	ky670vv3	tdvv	Yes	Yes	base	0	0	0.0	--	--	179200	176026	49.1	0	0	179200	176026	17
6026	358400	2.04	1.00															

-----  
1 total 0 0 179200 176026 179200 176026 176026 358400

C670\_CN701503MR cli%

在线扩盘需要将每个 sdX 都需要扫描

# echo 1 > /sys/block/sdak/device/rescan

# echo 1 > /sys/block/sdaq/device/rescan

# echo 1 > /sys/block/sdao/device/rescan

# echo 1 > /sys/block/sdam/device/rescan

扫描后发现这时的 sdX 的容量就扩上来了。

sdam --ky670v3

Disk /dev/sdam: 375.8 GB, 375809638400 bytes, 734003200 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 16384 bytes / 16777216 bytes

=====  
sdao --ky670vv3

Disk /dev/sdao: 375.8 GB, 375809638400 bytes, 734003200 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 16384 bytes / 16777216 bytes

=====  
sdaq --ky670vv3

Disk /dev/sdaq: 375.8 GB, 375809638400 bytes, 734003200 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 16384 bytes / 16777216 bytes

=====  
sdak --ky670vv3

Disk /dev/sdak: 375.8 GB, 375809638400 bytes, 734003200 sectors

Units = sectors of 1 \* 512 = 512 bytes

Sector size (logical/physical): 512 bytes / 512 bytes

I/O size (minimum/optimal): 16384 bytes / 16777216 bytes

但发现这时多路径聚合后的磁盘容量大小还是没有改过来

(base) [root@baremetal ~]# multipath -ll

ky670vv3 (360002ac0000000000000201500025c03) dm-17 3PARdata,VV

```
size=300G features="2 queue_if_no_path retain_attached_hw_handler" hwhandler="1 alua" wp=rw
`-+- policy="round-robin 0" prio=50 status=active
|- 4:0:0:2 sdak 66:64 active ready running
|- 5:0:0:2 sdao 66:128 active ready running
|- 4:0:2:2 sdam 66:96 active ready running
`- 5:0:2:2 sdaq 66:160 active ready running
```

多路径大小在线修改

```
(base) [root@baremetal ~]# multipathd -k "resize map ky670vv3"
multipathd> resize map ky670vv3
ok
```

```
multipathd>
```

这时再看多路径大小就修改过来了。

```
(base) [root@baremetal ~]# multipath -ll
ky670vv3 (360002ac000000000000201500025c03) dm-17 3PARdata,VV
size=350G features="1 queue_if_no_path" hwhandler="1 alua" wp=rw
`-+- policy="round-robin 0" prio=50 status=active
|- 4:0:0:2 sdak 66:64 active ready running
|- 5:0:0:2 sdao 66:128 active ready running
|- 4:0:2:2 sdam 66:96 active ready running
`- 5:0:2:2 sdaq 66:160 active ready running
```

我们再用 grid 账号登录进去

```
[root@rac2 ~]# su - grid
```

```
Last login: Thu Jul 30 09:43:34 CST 2020
```

```
[grid@rac2:/home/grid]
```

我这里设置的环境变量可能有问题，只有进到 \$ORACLE\_HOME/bin 目录下才能执行 sqlplus

```
[grid@rac2:/home/grid]$cd $ORACLE_HOME
```

```
[grid@rac2:/home/ora12c/app/12.2.0.1/grid]$cd bin
```

```
[grid@rac2:/home/ora12c/app/12.2.0.1/grid/bin]$
```

```
[grid@rac2:/home/ora12c/app/12.2.0.1/grid/bin] ./sqlplus / as sysasm
```

```
SQL*Plus: Release 12.2.0.1.0 Production on Thu Jul 30 09:50:11 2020
```

```
Copyright (c) 1982, 2016, Oracle. All rights reserved.
```

```
Connected to:
```

```
Oracle Database 12c Enterprise Edition Release 12.2.0.1.0 - 64bit Production
```

```
SQL>
```

查看现在的 asm disk group 的大小

```
SQL> select name,state,type,total_mb,free_mb from v$asm_diskgroup;
```

```
NAME
```

```
-----
STATE          TYPE          TOTAL_MB    FREE_MB
-----
```

```
DATA
```

```
CONNECTED      EXTERN        409568     335892
```

```
OCR
```

```
MOUNTED        EXTERN        112608     112464
```

```
REDO
```

```
CONNECTED      EXTERN        102368     98500
```

```
NAME
```

```
-----
STATE          TYPE          TOTAL_MB    FREE_MB
-----
```

```
THIN_DATA
```

```
CONNECTED      EXTERN        122864     68440
```

SQL>

可以看到 THIN\_DATA 里面还是有数据的。

```
SQL> select name,state,type,total_mb,free_mb from v$asm_diskgroup where name="THIN_DATA";
```

NAME	STATE	TYPE	TOTAL_MB	FREE_MB
THIN_DATA	MOUNTED	EXTERN	122864	68440

SQL>

这时我们执行 alter diskgroup THIN\_DATA resize all

```
SQL> alter diskgroup THIN_DATA resize all;
```

Diskgroup altered.

SQL>

```
[grid@rac2:/home/grid]$cd $ORACLE_HOME
```

```
[grid@rac2:/home/ora12c/app/12.2.0.1/grid]$cd bin
```

```
[grid@rac2:/home/ora12c/app/12.2.0.1/grid/bin]$. /sqlplus / as sysasm
```

```
SQL*Plus: Release 12.2.0.1.0 Production on Thu Jul 30 10:47:53 2020
```

```
Copyright (c) 1982, 2016, Oracle. All rights reserved.
```

```
Connected to:
```

```
Oracle Database 12c Enterprise Edition Release 12.2.0.1.0 - 64bit Production
```

SQL>

```
SQL> alter diskgroup THIN_DATA resize all;
```

Diskgroup altered.

```
SQL> select name,state,type,total_mb,free_mb from v$asm_diskgroup where name="THIN_DATA";
```

NAME	STATE	TYPE	TOTAL_MB	FREE_MB
THIN_DATA	MOUNTED	EXTERN	430064	375640

SQL>

成功扩容。

#### 解决方法

这样就可以在线将3PAR/Primera存储在线扩容后，Linux 设备文件在线扩容，Oracle 的 asm disk group 实现在线扩容。