Extend volume for Elasticsearch cluster

This page is for ticket https://wiredcraft.atlassian.net/browse/DEVOPS-4 .

Add extra volume

1. add block device into the es node in qingyun cloud platform. @ Kaleo Cheng
2. ssh login in es node, take `es-1` for example
3. check current linux partition type is legacy or lvm

```
# run `lsblk` , check the output if contain "lvm" characters.
lsblk
# from the ouput , we can confirm current partition type is
legacy, we need to create
lvm partition type (for scablelity in the future)
```

4. format the new disk as LVM, remove old mount point and add new mount point in `fstab`

```
# use lsblk to find the new block device name,eg. /dev/vdd
lsblk
# use `fdisk` command to create lvm partition
fdisk /dev/vdd
# then operate in fdisk shell environment:
# basic steps as follows:
# create new partition(n) -> create primary partition-> set partition
id-> modify partition type
to `lvm`-> save setting->create new pv volume->create new vg volume-
>specify partition size

shell> fdisk /dev/vdd                                  #### select disk
Command (m for help): m                                  #### help
Command action
   a   toggle a bootable flag
   b   edit bsd disklabel
   c   toggle the dos compatibility flag
   d   delete a partition
   l   list known partition types
   m   print this menu
   n   add a new partition
   o   create a new empty DOS partition table
   p   print the partition table
   q   quit without saving changes
```

```
   s   create a new empty Sun disklabel
   t   change a partition's system id
   u   change display/entry units
   v   verify the partition table
   w   write table to disk and exit
   x   extra functionality (experts only)
Command (m for help): n                                  #### create new
partition
Command action
   e   extended
   p   primary partition (1-4)
p                                                        #### create
primary partition
Partition number (1-4):1                                 #### partition ID
First cylinder (1-65270, default 1):
Using default value 1
Last cylinder, +cylinders or +size{K,M,G} (1-65270, default 65270):
Using default value 65270

Command (m for help):t                                    #### modify
partition type
Command (m for help):8e                                   #### Linux lvm
Command (m for help):w                                    #### save
shell> pvcreate /dev/vdd1/                               #### create new
pv volume
shell> pvs                                                #### view pv
volume
shell> vgcreate es /dev/vdd1/                  #### create new vg volume
shell> vgs                                                #### view vg
volume
shell> lvcreate -L 999.99G -n data-1   es  ### we add 1T block
device
shell> mkfs.ext4 /dev/es/data-1
shell> mount /dev/es/data-1 /data/es
shell> vi /etc/fstab                                      #### add mount
point in fstab
#
# /etc/fstab
# Created by anaconda on Thu Aug 14 21:16:42 2014
#
# Accessible filesystems, by reference, are maintained under '/dev/disk'
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more
info
#
UUID=94e4e384-0ace-437f-bc96-057dd64f42ee / ext4 defaults,barrier=0 1 1
tmpfs                   /dev/shm                tmpfs   defaults
0 0
devpts                  /dev/pts                devpts  gid=5,mode=620
0 0
sysfs                   /sys                    sysfs   defaults
```

```
0 0
proc                    /proc                   proc    defaults
0 0
/dev/es/data-1          /data/es         ext4    defaults        0 0
:wq
```

Stop ES node

disable data sync between all nodes

disable shard allocation to avoid on the high IO . ref https://www.elastic.co/guide/en/elasticsearch/reference/current/restart-cluster.html#restart-cluster-rolling

```
# on es-1 node
$ curl -X PUT "localhost:9200/_cluster/settings?pretty" -H 'Content-
Type: application/json' -d'
{
  "persistent": {
    "cluster.routing.allocation.enable": "none"
  }
}
'
```

synced flush

Stop indexing and perform a synced flush.

```
$ curl -X POST "localhost:9200/_flush/synced?pretty"
```

stop elasticsearch container

```
[wcladmin@es-1 ~]$ docker ps
CONTAINER ID        IMAGE                                                  COMMAND                  CREATED             STATUS
   PORTS                                       NAMES
cfc396a05f20        docker.elastic.co/elasticsearch/elasticsearch-oss:7.3.1   "/usr/local/bin/dock…"   8 months ago        Up 8 months
   0.0.0.0:9200->9200/tcp, 0.0.0.0:9300->9300/tcp   elasticsearch
```

```
# step 1: stop elasticsearch container , on es-1 server
$ docker stop elasticsearch
```

migrate data

```
# on es-1 server
$ mkdir /data/es-new
$ mount /dev/es/data-1 /data/es-new
# please notice all directory and files in /data belongs to user
"wcladmin"
$ cp -rpf /data/es/* /data/es-new
$ umount /data/es
$ umount /data/es-new
$ mount /dev/es/data-1 /data/es
```

start elasticsearch container and re-enable the data sync

```
# on es-1
$ docker start elasticsearch
$ curl -X PUT "localhost:9200/_cluster/settings?pretty" -H 'Content-
Type: application/json' -d'
{
  "persistent": {
    "cluster.routing.allocation.enable": null
  }
}'
```

verify

```
# check nodes
$ curl localhost:9200/_cat/nodes
# check cluster health
$ curl localhost:9200/_cluster/health?pretty
```

do the next one