k8s的yum源及docker镜像均在国外，由于众所周知的原因，按照官方教程会卡在网络超时的错误上

在查阅过多篇文档后，**yum源及docker镜像均选用国内阿里仓库**，速度感人

版本说明

目前k8s最高版本1.14.1（2019/04/22)

阿里yum源最高版本1.14.1

阿里镜像源最高版本1.13.2

综上考虑，选择**kubernetes 1.13.2**版本进行安装

安装环境 CentosOS7

kubernetes 版本 1.13.2

当前日期 2019/04/22

安装Docker环境

安装net-tools

```
[root@localhost ~]# yum install -y net-tools
```

关闭firewalld

```
[root@localhost ~]# systemctl stop firewalld && systemctl disable firewalld
Removed symlink /etc/systemd/system/multi-user.target.wants/firewalld.service.
Removed symlink /etc/systemd/system/dbus-org.fedoraproject.FirewallD1.service.
[root@localhost ~]# setenforce 0
[root@localhost ~]# sed -i 's/SELINUX=enforcing/SELINUX=disabled/g' /etc/selinux/config
```

安装Docker

如今Docker分为了Docker-CE和Docker-EE两个版本，CE为社区版即免费版，EE为企业版即商业版。我们选择使用CE版。

安装yum源工具包

```
[root@localhost ~]# yum install -y yum-utils device-mapper-persistent-data lvm2
```

下载docker-ce官方的yum源配置文件

```
[root@localhost ~]# yum-config-manager --add-repo https://download.docker.com/linux/centos/docker-ce.repo
```

禁用docker-c-edge源配edge是不开发版，不稳定，下载stable版

```
yum-config-manager --disable docker-ce-edge
```

更新本地YUM源缓存

```
yum makecache fast
```

安装Docker-ce相应版本的

```
yum -y install docker-ce
```

启动服务，运行hello-world

```
```

```
[root@localhost ~]# systemctl start docker
[root@localhost ~]# docker run hello-world
```

安装kubernetes

服务器配置

host	ip	system
s1	192.168.158.128	CentOS7.4
s2	192.168.158.129	CentOS7.4
s3	192.168.158.130	CentOS7.4

yum源更新为阿里源

```
cat <<EOF >/etc/yum.repos.d/kubernetes.repo
[kubernetes]
name=Kubernetes
baseurl=https://mirrors.aliyun.com/kubernetes/yum/repos/kubernetes-el7-x86_64
enabled=1
gpgcheck=1
repo_gpgcheck=1
gpgkey=https://mirrors.aliyun.com/kubernetes/yum/doc/yum-key.gpg https://mirrors.aliyun.com/kubernetes/yum/doc/rpm-package-key.gpg
EOF
```

关闭交换分区

需要关闭内存swap交换区，否则会报错

```
swapoff -a
cat /etc/fstab | grep -v '^#' | grep -v 'swap' | sudo tee /etc/fstab
```

关闭防火墙

```
setenforce 0
sed -i 's/^SELINUX=enforcing$/SELINUX=permissive/' /etc/selinux/config
systemctl stop firewalld
systemctl stop iptables
```

在三台虚拟机上安装kubeadm等组件(指定版本号)

```
yum install -y kubeadm-1.13.2 kubectl-1.13.2 kubelet-1.13.2
kubernetes-cni-0.6.0
```

查看所需镜像版本

```
kubeadm config image list
```

拉取阿里镜像并tag为google镜像

```
 images=(
    kube-apiserver:v1.13.2
    kube-controller-manager:v1.13.2
    kube-scheduler:v1.13.2
    kube-proxy:v1.13.2
    pause:3.1
    etcd:3.2.24
    coredns:1.2.6
)
for imageName in ${images[@]} ; do
    docker pull registry.cn-
hangzhou.aliyuncs.com/google_containers/${imageName}
    docker tag registry.cn-
hangzhou.aliyuncs.com/google_containers/${imageName}
```

```
k8s.gcr.io/${imageName}
    docker rmi registry.cn-hangzhou.aliyuncs.com/google_containers/${imageName}
done
```

centos需要开启下面的配置

```
cat <<EOF >  /etc/sysctl.d/k8s.conf
net.bridge.bridge-nf-call-ip6tables = 1
net.bridge.bridge-nf-call-iptables = 1
EOF
sysctl --system
```

修改kubeadm配置

```
vi /etc/systemd/system/kubelet.service.d/10-kubeadm.conf


update KUBELET_CGROUP_ARGS=--cgroup-driver=systemd to KUBELET_CGROUP_ARGS=--cgroup-driver=cgroupfs
Environment="KUBELET_CADVISOR_ARGS=--cadvisor-port=4194"
```

集群搭建

master节点初始化

```
kubeadm reset && kubeadm init --apiserver-advertise-address=192.168.0.100 --kubernetes-version=v1.7.5 --pod-network-cidr=10.200.0.0/16
```

192.168.0.100替换成[本机ip]

启动成功后会

slave节点加入

```
kubeadm join 192.168.158.128:6443 --token 7e4vfo.9tpamwfhx1r6iv0m --discovery-token-ca-cert-hash sha256:cf31593538d4ba24e4f7cf0dd1ec02a8ab7fa9b063c1a0586521eed4dbf7e61
```

kubectl配置

kubectl需要配置config 否则会报错[报错 x509]

https://blog.csdn.net/baobaoxiannv/article/details/83818426

非root用户

```
[root@master ~]# mkdir -p $HOME/.kube
[root@master ~]# cp -i /etc/kubernetes/admin.conf $HOME/.kube/config
[root@master ~]# chown $(id -u):$(id -g) $HOME/.kube/config
```

root用户

```
export KUBECONFIG=/etc/kubernetes/admin.conf
```

Master节点 flunel网络配置

```
docker pull quay.io/coreos/flannel:v0.8.0-amd64
kubectl apply -f https://raw.githubusercontent.com/coreos/flannel/a70459be0084506e4ec919aa1c114638878db11b/Documentation/kube-flannel.yml
```

检查安装

```
[root@master ~]# kubectl get cs
NAME STATUS MESSAGE ERROR
scheduler Healthy ok
controller-manager Healthy ok
etcd-0 Healthy {"health": "true"}
[root@master ~]# kubectl get nodes
NAME STATUS AGE VERSION
master Ready 24m v1.7.5
node1 NotReady 45s v1.7.5
node2 NotReady 7s v1.7.5
[root@master ~]# kubectl get pods --all-namespaces
NAMESPACE NAME READY STATUS RESTARTS AGE
kube-system etcd-master 1/1 Running 0 24m
kube-system kube-apiserver-master 1/1 Running 0 24m
kube-system kube-controller-manager-master 1/1 Running 0 24m
kube-system kube-dns-2425271678-h48rw 0/3 ImagePullBackOff 0 25m
kube-system kube-flannel-ds-28n3w 1/2 CrashLoopBackOff 13 24m
kube-system kube-flannel-ds-ndspr 0/2 ContainerCreating 0 41s
kube-system kube-flannel-ds-zvx9j 0/2 ContainerCreating 0 1m
kube-system kube-proxy-qxxzr 0/1 ImagePullBackOff 0 41s
kube-system kube-proxy-shkmx 0/1 ImagePullBackOff 0 25m
kube-system kube-proxy-vtk52 0/1 ContainerCreating 0 1m
kube-system kube-scheduler-master 1/1 Running 0 24m
```

最开始集群连接可能需要一段时间，如果日志没有报错，那么耐心等待一段时间，等待节点状态刷新及DNS服务和flannel部属完毕（从READY变为Running)

```
[root@s1 ~]# kubectl get pods --all-namespaces
NAMESPACE     NAME                          READY   STATUS    RESTARTS   AGE
kube-system   coredns-86c58d9df4-97h7d      1/1     Running   1          11m
kube-system   coredns-86c58d9df4-mlm6d      1/1     Running   1          11m
kube-system   etcd-s1                       1/1     Running   0          10m
kube-system   kube-apiserver-s1             1/1     Running   0          10m
kube-system   kube-controller-manager-s1    1/1     Running   0          10m
kube-system   kube-flannel-ds-amd64-6bw6s   1/1     Running   0          8m37s
kube-system   kube-flannel-ds-amd64-nb82w   1/1     Running   0          8m37s
kube-system   kube-flannel-ds-amd64-zd2kr   1/1     Running   0          8m37s
kube-system   kube-proxy-4cqqv              1/1     Running   0          10m
kube-system   kube-proxy-hm5l4              1/1     Running   0          10m
kube-system   kube-proxy-l6l7v              1/1     Running   0          11m
kube-system   kube-scheduler-s1             1/1     Running   0          10m
```

额外的一些实用操作

日志查询

https://blog.csdn.net/shenhonglei1234/article/details/82421742

```
journalctl -f
journalctl -f -u kubelet
```

生成镜像列表

通过管道符把需要的镜像构成一个标准的列表，方便后面用脚本拉取和打标签

```
[root@xh-ali ~]# docker image list|grep -v REPOSI*|grep -v hello-world|awk '{print $1":"$2}'
k8s.gcr.io/kube-apiserver:v1.13.2
k8s.gcr.io/kube-controller-manager:v1.13.2
k8s.gcr.io/kube-proxy:v1.13.2
k8s.gcr.io/kube-scheduler:v1.13.2
k8s.gcr.io/coredns:1.2.6
k8s.gcr.io/etcd:3.2.24
k8s.gcr.io/pause:3.1
quay.io/coreos/flannel:v0.8.0-amd64
```

删除所有的k8s组件

```
yum list installed|grep kube|awk '{print $1}'|xargs yum remove -y
```

参考

https://kubernetes.io/docs/setup/independent/create-cluster-kubeadm/

https://github.com/champly/kubernetes-lib