tags: addons, dns, coredns

08-2. 部署 coredns 插件

如果没有特殊指明，本文档的所有操作均在 **zhangjun-k8s-01** 节点上执行；

下载和配置 coredns

```
cd /opt/k8s/work
git clone https://github.com/coredns/deployment.git
mv deployment coredns-deployment
```

创建 coredns

```
cd /opt/k8s/work/coredns-deployment/kubernetes
source /opt/k8s/bin/environment.sh
./deploy.sh -i ${CLUSTER_DNS_SVC_IP} -d ${CLUSTER_DNS_DOMAIN} | kubectl apply -f -
```

检查 coredns 功能

```
$ kubectl get all -n kube-system -l k8s-app=kube-dns
NAME                          READY    STATUS     RESTARTS   AGE
pod/coredns-76b74f549-cwm8d   1/1      Running    0          62s


NAME                TYPE        CLUSTER-IP    EXTERNAL-IP   PORT(S)
AGE
service/kube-dns    ClusterIP   10.254.0.2    <none>        53/UDP,53/TCP,9153/TCP
62s


NAME                        READY    UP-TO-DATE   AVAILABLE   AGE
deployment.apps/coredns     1/1      1            1           62s


NAME                                  DESIRED   CURRENT   READY   AGE
replicaset.apps/coredns-76b74f549     1         1         1       62s
```

新建一个 Deployment：

```
cd /opt/k8s/work
cat > my-nginx.yaml <<EOF
apiVersion: apps/v1
kind: Deployment
metadata:
  name: my-nginx
spec:
  replicas: 2
  selector:
    matchLabels:
      run: my-nginx
  template:
    metadata:
      labels:
        run: my-nginx
    spec:
      containers:
      - name: my-nginx
        image: nginx:1.7.9
        ports:
        - containerPort: 80
EOF
kubectl create -f my-nginx.yaml
```

export 该 Deployment，生成 my-nginx 服务：

```
$ kubectl expose deploy my-nginx
service "my-nginx" exposed

$ kubectl get services my-nginx -o wide
NAME       TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)   AGE   SELECTOR
my-nginx   ClusterIP   10.254.67.218   <none>        80/TCP    5s    run=my-nginx
```

创建另一个 Pod，查看 /etc/resolv.conf 是否包含 kubelet 配置的 --cluster-dns 和 --cluster-domain，是否能够将服务 my-nginx 解析到上面显示的 Cluster IP 10.254.40.167

```
cd /opt/k8s/work
cat > dnsutils-ds.yml <<EOF
apiVersion: v1
kind: Service
metadata:
  name: dnsutils-ds
  labels:
    app: dnsutils-ds
spec:
  type: NodePort
  selector:
    app: dnsutils-ds
  ports:
  - name: http
    port: 80
    targetPort: 80
---
apiVersion: apps/v1
kind: DaemonSet
metadata:
  name: dnsutils-ds
  labels:
    addonmanager.kubernetes.io/mode: Reconcile
spec:
  selector:
    matchLabels:
      app: dnsutils-ds
  template:
    metadata:
      labels:
        app: dnsutils-ds
    spec:
      containers:
      - name: my-dnsutils
        image: tutum/dnsutils:latest
        command:
          - sleep
          - "3600"
        ports:
        - containerPort: 80
EOF
kubectl create -f dnsutils-ds.yml
```

```
$ kubectl get pods -lapp=dnsutils-ds -o wide
NAME                    READY    STATUS     RESTARTS    AGE    IP                 NODE
     NOMINATED NODE     READINESS GATES
dnsutils-ds-7h9np       1/1      Running    0           69s    172.30.244.3       zhangjun-k8s-
01   <none>             <none>
dnsutils-ds-fthdl       1/1      Running    0           69s    172.30.82.131      zhangjun-k8s-
02   <none>             <none>
dnsutils-ds-w69zp       1/1      Running    0           69s    172.30.184.132     zhangjun-k8s-
03   <none>             <none>
```

```
$ kubectl -it exec dnsutils-ds-7h9np  cat /etc/resolv.conf
search default.svc.cluster.local svc.cluster.local cluster.local 4pd.io
nameserver 10.254.0.2
options ndots:5
```

```
$ kubectl -it exec dnsutils-ds-7h9np nslookup kubernetes
Server:         10.254.0.2
Address:        10.254.0.2#53

Name:   kubernetes.default.svc.cluster.local
Address: 10.254.0.1
```

```
$ kubectl -it exec dnsutils-ds-7h9np nslookup www.baidu.com
Server:         10.254.0.2
Address:        10.254.0.2#53

Non-authoritative answer:
*** Can't find www.baidu.com: No answer
```

```
$ kubectl -it exec dnsutils-ds-7h9np nslookup www.baidu.com.
Server:         10.254.0.2
Address:        10.254.0.2#53

Non-authoritative answer:
www.baidu.com   canonical name = www.a.shifen.com.
Name:   www.a.shifen.com
Address: 220.181.38.150
Name:   www.a.shifen.com
Address: 220.181.38.149
```

```
$ kubectl -it exec dnsutils-ds-7h9np nslookup my-nginx
Server:         10.254.0.2
Address:        10.254.0.2#53

Name:   my-nginx.default.svc.cluster.local
Address: 10.254.67.218
```

参考

1. https://community.infoblox.com/t5/Community-Blog/CoreDNS-for-Kubernetes-Service-Discovery/ba-p/8187
2. https://coredns.io/2017/03/01/coredns-for-kubernetes-service-discovery-take-2/
3. https://www.cnblogs.com/boshen-hzb/p/7511432.html
4. https://github.com/kubernetes/kubernetes/tree/master/cluster/addons/dns