链滴

生产环境 Kubernetes 搭建 Elasticsearch 7.6 集群（无认证版本）

作者：jenphyjohn
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来源网站：链滴

环境

- Kubenetes 1.16.4 集群
- 用于安装ES集群的Node磁盘空间：200GB

选择节点创建目录

1. 我们的方案是选择单独1个Node部署ES集群的全部节点，这里选择的Node是 iz2zeiaaq1cifk1tfx7z9z，使用SSH登入这个Node进行操作。
2. 创建3个目录用来做K8S的本地卷：

```
mkdir -p /mnt/localpv/es7-0 /mnt/localpv/es7-1 /mnt/localpv/es7-2
```

3. 目录授权:

```
chmod -R 777 /mnt/localpv/
```

创建LocalVolume资源

1. 回到K8S集群的master上或使用容器Paas平台进行下一步操作。
2. 创建命名空间文件 logging-ns.yml：

```
apiVersion: v1
kind: Namespace
metadata:
  name: logging
```

3. 执行文件:

```
kubectl create -f logging-ns.yml
```

4. 创建StorageClass文件 localstorage-storageclass.yml:

```
kind: StorageClass
apiVersion: storage.k8s.io/v1
metadata:
  name: local-storage
provisioner: kubernetes.io/no-provisioner
volumeBindingMode: WaitForFirstConsumer
```

5. 执行文件:

```
kubectl create -f localstorage-storageclass.yml
```

6. 创建三组PersistentVolume、PersistentVolumeClaim资源文件 localstorage-pv0.yml:

```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: local-storage-pv-0
  labels:
    name: local-storage-pv-0
spec:
  capacity:
    storage: 60Gi
  accessModes:
  - ReadWriteOnce
  persistentVolumeReclaimPolicy: Retain
  storageClassName: local-storage
  local:
    path: /mnt/localpv/es7-0
  nodeAffinity:
    required:
      nodeSelectorTerms:
      - matchExpressions:
        - key: kubernetes.io/hostname
          operator: In
          values:
          - iz2zeiaaq1cifk1tfxu7z9z # 此处需替换为文档开始选定的Node名
---
kind: PersistentVolumeClaim
apiVersion: v1
metadata:
  name: local-storage-pv-es7-cluster-0
spec:
  accessModes:
  - ReadWriteOnce
  storageClassName: local-storage
  selector:
    matchLabels:
      name: local-storage-pv-0
  resources:
    requests:
```

```
      storage: 60Gi
```

localstorage-pv1.yml:

```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: local-storage-pv-1
  labels:
    name: local-storage-pv-1
spec:
  capacity:
    storage: 60Gi
  accessModes:
  - ReadWriteOnce
  persistentVolumeReclaimPolicy: Retain
  storageClassName: local-storage
  local:
    path: /mnt/localpv/es7-1
  nodeAffinity:
    required:
      nodeSelectorTerms:
      - matchExpressions:
        - key: kubernetes.io/hostname
          operator: In
          values:
          - iz2zeiaaq1cifk1tfxu7z9z # 此处需替换为文档开始选定的Node名
---
kind: PersistentVolumeClaim
apiVersion: v1
metadata:
  name: local-storage-pv-es7-cluster-1
spec:
  accessModes:
  - ReadWriteOnce
  storageClassName: local-storage
  selector:
    matchLabels:
      name: local-storage-pv-1
  resources:
    requests:
      storage: 60Gi
```

localstorage-pv2.yml:

```
apiVersion: v1
kind: PersistentVolume
metadata:
  name: local-storage-pv-2
  labels:
    name: local-storage-pv-2
spec:
  capacity:
    storage: 60Gi
```

```
  accessModes:
  - ReadWriteOnce
  persistentVolumeReclaimPolicy: Retain
  storageClassName: local-storage
  local:
    path: /mnt/localpv/es7-2
  nodeAffinity:
    required:
      nodeSelectorTerms:
      - matchExpressions:
        - key: kubernetes.io/hostname
          operator: In
          values:
          - iz2zeiaaq1cifk1tfxu7z9z # 此处需替换为文档开始选定的Node名
---
kind: PersistentVolumeClaim
apiVersion: v1
metadata:
  name: local-storage-pv-es7-cluster-2
spec:
  accessModes:
  - ReadWriteOnce
  storageClassName: local-storage
  selector:
    matchLabels:
      name: local-storage-pv-2
  resources:
    requests:
      storage: 60Gi
```

7. 执行文件:

```
kubectl create -f localstorage-pv0.yml
kubectl create -f localstorage-pv1.yml
kubectl create -f localstorage-pv2.yml
```

创建Elasticsearch7集群

1. 创建无头Service文件 elasticsearch7-svc.yml:

```
kind: Service
apiVersion: v1
metadata:
  name: elasticsearch7
  namespace: logging
  labels:
    app: elasticsearch7
spec:
  selector:
    app: elasticsearch7
  clusterIP: None
  ports:
    - port: 9200
```

```
    name: rest
  - port: 9300
    name: inter-node
```

2. 执行文件:

```
kubectl create -f elasticsearch7-svc.yml
```

3. 创建StatefulSet文件 elasticsearch7-statefulset.yml:

```
apiVersion: apps/v1
kind: StatefulSet
metadata:
  name: es7-cluster
  namespace: logging
spec:
  serviceName: elasticsearch7
  replicas: 3
  selector:
    matchLabels:
      app: elasticsearch7
  template:
    metadata:
      labels:
        app: elasticsearch7
    spec:
      containers:
      - name: elasticsearch7
        image: docker.elastic.co/elasticsearch/elasticsearch:7.6.1
        resources:
            limits:
              cpu: 1000m
            requests:
              cpu: 100m
        ports:
        - containerPort: 9200
          name: rest
          protocol: TCP
        - containerPort: 9300
          name: inter-node
          protocol: TCP
        volumeMounts:
        - name: data
          mountPath: /usr/share/elasticsearch/data
        env:
          - name: cluster.name
            value: k8s-logs
          - name: node.name
            valueFrom:
              fieldRef:
                fieldPath: metadata.name
          - name: discovery.zen.minimum_master_nodes # 含义请参阅官方 Elasticsearch 文档
            value: "2"
          - name: discovery.seed_hosts # 含义请参阅官方 Elasticsearch 文档
```

```
          value: "es7-cluster-0.elasticsearch7,es7-cluster-1.elasticsearch7,es7-cluster-2.elasticsearch7"
        - name: cluster.initial_master_nodes # 初始化的 master 节点，旧版本相关配置 discovery.zn.minimum_master_nodes
          value: "es7-cluster-0,es7-cluster-1,es7-cluster-2" # 含义请参阅官方 Elasticsearch 文档
        - name: ES_JAVA_OPTS
          value: "-Xms2g -Xmx4g" # 根据具体资源及需求调整
      initContainers:
      - name: fix-permissions
        image: busybox
        command: ["sh", "-c", "chown -R 1000:1000 /usr/share/elasticsearch/data"]
        securityContext:
          privileged: true
        volumeMounts:
        - name: data
          mountPath: /usr/share/elasticsearch/data
      - name: increase-vm-max-map
        image: busybox
        command: ["sysctl", "-w", "vm.max_map_count=262144"]
        securityContext:
          privileged: true
      - name: increase-fd-ulimit
        image: busybox
        command: ["sh", "-c", "ulimit -n 65536"]
  volumeClaimTemplates:
  - metadata:
      name: data
    spec:
      accessModes: [ "ReadWriteOnce" ]
      storageClassName: "local-storage"
      resources:
        requests:
          storage: 60Gi
```

4. 执行文件:

```
kubectl create -f elasticsearch7-statefulset.yml
```

验证是否安装成功

1. 执行端口转发：

```
kubectl port-forward es7-cluster-0 9200:9200 --namespace=logging
```

2. 再开一个终端，执行请求测试：

```
curl http://localhost:9200/_cluster/health?pretty
```

返回结果：

```
{
  "cluster_name" : "k8s-logs",
  "status" : "green",
  "timed_out" : false,
```

```
  "number_of_nodes" : 3,
  "number_of_data_nodes" : 3,
  "active_primary_shards" : 0,
  "active_shards" : 0,
  "relocating_shards" : 0,
  "initializing_shards" : 0,
  "unassigned_shards" : 0,
  "delayed_unassigned_shards" : 0,
  "number_of_pending_tasks" : 0,
  "number_of_in_flight_fetch" : 0,
  "task_max_waiting_in_queue_millis" : 0,
  "active_shards_percent_as_number" : 100.0
}
```