04. Nova 服务组件

系统环境准备 CentOS7 + OpenStack Rocky

参考：

https://docs.openstack.org/install-guide/environment.html

https://docs.openstack.org/nova/rocky/install/compute-install-rdo.html

5.1.配置域名解析

1）配置主机名

2）配置主机名解析

5.2.关闭防火墙和 selinux

1）关闭 iptables

2）关闭 selinux

5.3.配置时间同步

1）在在计算节点配置时间同步服务

2）编辑配置文件确认有以下配置

3）重启 chronyd 服务，并配置开机自启动

4）设置时区，首次同步时间

5.4.配置相关 yum 源

1）配置阿里云的 base 和 epel 源

2）安装 openstack-rocky 的仓库

3）更新软件包

4）安装 openstack 客户端相关软件

5.5.安装 nova 计算节点相关软件包

1）计算节点安装 nova 软件包

2）快速修改配置文件（/etc/nova/nova.conf）

3）配置虚拟机的硬件加速

4）启动 nova 相关服务，并配置为开机自启动

5）将计算节点增加到 cell 数据库

5.6.在控制节点进行验证

1）应用管理员环境变量脚本

2）列表查看安装的 nova 服务组件

3）在身份认证服务中列出 API 端点以验证其连接性

4）在镜像服务中列出已有镜像已检查镜像服务的连接性

5）检查 nova 各组件的状态

5.1. 基本环境准备 （跳过 5.1 5.2 5.3 5.4 步骤）

1）配置主机名

2）配置主机名解析

```
vi /etc/hosts
```

127.0.0.1 controller

127.0.0.1 compute

...

5.2 5.3 5.4 略

如果计算节点为新主机，需要进行基本实验环境配置，见实验：《1 实验手册 OpenStack 环境准备》

因为本实验使用 All-in-One 方式，故不需要基本环境配置。

5.5.安装 nova 计算节点相关软件包

1）计算节点安装 nova 软件包

```
yum install openstack-nova-compute python-openstackclient openstack-utils -y
```

2）快速修改配置文件（/etc/nova/nova.conf）

```
openstack-config --set  /etc/nova/nova.conf DEFAULT my_ip 127.0.0.1
openstack-config --set  /etc/nova/nova.conf DEFAULT use_neutron True
openstack-config --set  /etc/nova/nova.conf DEFAULT firewall_driver nova.virt.firewall.NoopFirewallDriver
openstack-config --set  /etc/nova/nova.conf DEFAULT enabled_apis  osapi_compute,metadata
openstack-config --set  /etc/nova/nova.conf DEFAULT transport_url  rabbit://openstack:openstack@controller
openstack-config --set  /etc/nova/nova.conf api auth_strategy  keystone
openstack-config --set  /etc/nova/nova.conf keystone_authtoken auth_url http://controller:5000/v3
openstack-config --set  /etc/nova/nova.conf keystone_authtoken memcached_servers controller:11211
openstack-config --set  /etc/nova/nova.conf keystone_authtoken auth_type password
openstack-config --set  /etc/nova/nova.conf keystone_authtoken project_domain_name default
```

```
openstack-config --set  /etc/nova/nova.conf keystone_authtoken user_domain_name default
openstack-config --set  /etc/nova/nova.conf keystone_authtoken project_name  service
openstack-config --set  /etc/nova/nova.conf keystone_authtoken username nova
openstack-config --set  /etc/nova/nova.conf keystone_authtoken password nova
openstack-config --set  /etc/nova/nova.conf vnc enabled True
openstack-config --set  /etc/nova/nova.conf vnc server_listen 0.0.0.0
openstack-config --set  /etc/nova/nova.conf vnc server_proxyclient_address  '$my_ip'
openstack-config --set  /etc/nova/nova.conf vnc novncproxy_base_url  http://controller:6080/vnc_auto.html
openstack-config --set  /etc/nova/nova.conf glance api_servers http://controller:9292
openstack-config --set  /etc/nova/nova.conf oslo_concurrency lock_path /var/lib/nova/tmp
openstack-config --set  /etc/nova/nova.conf placement region_name RegionOne
openstack-config --set  /etc/nova/nova.conf placement project_domain_name Default
openstack-config --set  /etc/nova/nova.conf placement project_name service
openstack-config --set  /etc/nova/nova.conf placement auth_type password
openstack-config --set  /etc/nova/nova.conf placement user_domain_name Default
openstack-config --set  /etc/nova/nova.conf placement auth_url http://controller:5000/v3
openstack-config --set  /etc/nova/nova.conf placement username placement
openstack-config --set  /etc/nova/nova.conf placement password placement
```

服务器组件监听所有的 IP 地址，而代理组件仅仅监听计算节点管理网络接口的 IP 地址。

查看生效的配置：

egrep -v "^#|^$" /etc/nova/nova.conf

[root@openstack02 nova]# egrep -v "^#|^$" /etc/nova/nova.conf

[DEFAULT]

enabled_apis = osapi_compute,metadata

transport_url = rabbit://openstack:openstack@controller

my_ip = 192.168.56.126

use_neutron = True

firewall_driver = nova.virt.firewall.NoopFirewallDriver

log_date_format=%Y-%m-%d %H:%M:%S

log_file=nova-compute.log

log_dir=/var/log/nova

[api]

auth_strategy = keystone

[api_database]

[barbican]

[cache]

[cells]

[cinder]

[compute]

[conductor]

[console]

[consoleauth]

[cors]

[database]

[devices]

[ephemeral_storage_encryption]

[filter_scheduler]

[glance]

api_servers = http://controller:9292

[guestfs]

[healthcheck]

[hyperv]

[ironic]

[key_manager]

[keystone]

[keystone_authtoken]

auth_url = http://controller:5000/v3

memcached_servers = controller:11211

auth_type = password

project_domain_name = default

user_domain_name = default

project_name = service

username = nova

password = nova

[libvirt]

virt_type = qemu

[matchmaker_redis]

[metrics]

[mks]

[neutron]

[notifications]

[osapi_v21]

[oslo_concurrency]

lock_path = /var/lib/nova/tmp

[oslo_messaging_amqp]

[oslo_messaging_kafka]

[oslo_messaging_notifications]

[oslo_messaging_rabbit]

[oslo_messaging_zmq]

[oslo_middleware]

[oslo_policy]

[pci]

[placement]

region_name = RegionOne

project_domain_name = Default

project_name = service

auth_type = password

user_domain_name = Default

auth_url = http://controller:5000/v3

username = placement

password = placement

[placement_database]

[powervm]

[profiler]

[quota]

[rdp]

[remote_debug]

[scheduler]

[serial_console]

[service_user]

[spice]

[upgrade_levels]

[vault]

[vendordata_dynamic_auth]

[vmware]

[vnc]

enabled = True

server_listen = 0.0.0.0

server_proxyclient_address = 192.168.56.126

novncproxy_base_url = http://controller:6080/vnc_auto.html

[workarounds]

[wsgi]

[xenserver]

[xvp]

[zvm]

3）配置虚拟机的硬件加速

首先确定您的计算节点是否支持虚拟机的硬件加速。

egrep -c '(vmx|svm)' /proc/cpuinfo

如果返回位 0，表示计算节点不支持硬件加速，需要配置 libvirt 使用 QEMU 方式管理虚拟机，使用以下命令：

```
openstack-config --set  /etc/nova/nova.conf libvirt virt_type  qemu
```

4）启动 nova 相关服务，并配置为开机自启动

```
systemctl start libvirtd.service openstack-nova-compute.service
systemctl status libvirtd.service openstack-nova-compute.service
systemctl enable libvirtd.service openstack-nova-compute.service
systemctl list-unit-files |grep libvirtd.service
systemctl list-unit-files |grep openstack-nova-compute.service
```

5）将计算节点增加到 cell 数据库

以下命令在控制节点操作：

```
source admin-openrc
```

检查确认数据库有新的计算节点

```
openstack compute service list --service nova-compute
```

[root@openstack01 tools]# openstack compute service list --service nova-compute

openstack compute service list

+----+-------------+-------------------------+------+---------+-------+----------------------------+

| ID | Binary | Host | Zone | Status | State | Updated At |

+----+--------------+----------------------+------+---------+-------+----------------------------+

| 6 | nova-compute | controller | nova | enabled | up | 2018-10-29T12:02:40.000000 |

+----+--------------+----------------------+------+---------+-------+----------------------------+

手动将新的计算节点添加到 openstack 集群

```
su -s /bin/sh -c "nova-manage cell_v2 discover_hosts --verbose" nova
```

[root@openstack01 tools]# su -s /bin/sh -c "nova-manage cell_v2 discover_hosts --verbose" nova

Found 2 cell mappings.

Skipping cell0 since it does not contain hosts.

Getting computes from cell 'cell1': c078477e-cb43-40c9-ad8b-a9fde183747d

Found 0 unmapped computes in cell: c078477e-cb43-40c9-ad8b-a9fde183747d

设置新创建节点自动注册的任务

[scheduler]

discover_hosts_in_cells_interval = 300

计算节点安装完毕

5.6.在控制节点进行验证

参考：https://docs.openstack.org/nova/rocky/install/compute-install-rdo.html

1）应用管理员环境变量脚本

```
source admin-openrc
```

2）列表查看安装的 nova 服务组件

验证是否成功注册

```
openstack compute service list
```

[root@openstack01 tools]# openstack compute service list

```
+----+------------------+------------+----------+---------+-------+----------------------------+
| ID | Binary           | Host       | Zone     | Status  | State | Updated At                 |
+----+------------------+------------+----------+---------+-------+----------------------------+
|  1 | nova-scheduler   | controller | internal | enabled | up    | 2019-02-14T05:18:56.000000 |
|  3 | nova-conductor   | controller | internal | enabled | up    | 2019-02-14T05:18:58.000000 |
```

```
|  4 | nova-consoleauth | controller | internal | enabled | up    | 2019-02-14T05:18:58.000000 |
|  7 | nova-compute     | controller | nova     | enabled | up    | 2019-02-14T05:18:57.000000 |
+----+------------------+------------+----------+---------+-------+----------------------------+
```

3）在身份认证服务中列出 API 端点以验证其连接性

```
openstack catalog list
```

```
[root@openstack01 tools]# openstack catalog list
+-----------+-----------+-----------------------------------------+
| Name      | Type      | Endpoints                               |
+-----------+-----------+-----------------------------------------+
| keystone  | identity  | RegionOne                               |
|           |           |   admin: http://controller:5000/v3/     |
|           |           | RegionOne                               |
|           |           |   internal: http://controller:5000/v3/  |
|           |           | RegionOne                               |
|           |           |   public: http://controller:5000/v3/    |
```

```
|              |              |                                                |
| glance       | image        | RegionOne                                      |
|              |              |     admin: http://controller:9292              |
|              |              | RegionOne                                      |
|              |              |     internal: http://controller:9292           |
|              |              | RegionOne                                      |
|              |              |     public: http://controller:9292             |
|              |              |                                                |
| nova         | compute      | RegionOne                                      |
|              |              |     internal: http://controller:8774/v2.1 |
|              |              | RegionOne                                      |
|              |              |     admin: http://controller:8774/v2.1       |
|              |              | RegionOne                                      |
|              |              |     public: http://controller:8774/v2.1     |
|              |              |                                                |
| placement | placement | RegionOne                                     |
|              |              |     public: http://controller:8778             |
|              |              | RegionOne                                      |
```

		admin: http://controller:8778
		RegionOne
		internal: http://controller:8778

+----------+----------+--+

4）在镜像服务中列出已有镜像已检查镜像服务的连接性

```
openstack image list
```

[root@openstack01 tools]# openstack image list

ID	Name	Status
78f5671b-fb2d-494f-8da7-25dbe425cad6	cirros	active

5）检查 nova 各组件的状态

检查 placement API 和 cell 服务是否正常

```
nova-status upgrade check
```

[root@openstack01 tools]# nova-status upgrade check

```
+--------------------------------+
| Upgrade Check Results          |
+--------------------------------+
| Check: Cells v2                |
| Result: Success                |
| Details: None                  |
+--------------------------------+
| Check: Placement API           |
| Result: Success                |
| Details: None                  |
+--------------------------------+
| Check: Resource Providers      |
| Result: Success                |
| Details: None                  |
```

```
+---------------------------------+
| Check: Ironic Flavor Migration |
| Result: Success                 |
| Details: None                   |
+---------------------------------+
| Check: API Service Version      |
| Result: Success                 |
| Details: None                   |
+---------------------------------+
| Check: Request Spec Migration   |
| Result: Success                 |
| Details: None                   |
+---------------------------------+
| Check: Console Auths            |
| Result: Success                 |
| Details: None                   |
+---------------------------------+
```

nova 计算节点安装完毕并添加到 openstack 集群中。

实验扩展：可尝试 Clone 多个虚拟机，添加多个计算节点