Identify and Verify Nova Compute

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Objectives

- Nova Compute Service
- Hypervisors
- Verify Nova Services
- Verify Nova Endpoints

Nova is the OpenStack compute service and is certainly a major part of OpenStack. In essence, Nova manages the virtual machine instances running in the cloud. It relays information between the hypervisor and the cloud.

Being able to provision and manage the Virtual Machines in this way your Cloud offers IaaS, Infrastructure-as-a-Service

Hypervisor

A hypervisor is the software or firmware that runs virtual machine instances. Sometimes, hypervisors are known as the VMM or Virtual Machine Monitor

Type 1

A type 1 hypervisor is the host operation system and this is often dedicated to managing the Virtual Machines. XEN, VMWare ESXi and Hyper-V are all examples of type 1 hypervisors. A type 1 hypervisor is often called a bare metal hypervisor

Type 2

A type 2 hypervisor runs as an application in a standard OS. Examples include VMWare Player, VirtualBox and QEMU.

KVM

KVM or the Kernel-Based Virtual Machine blurs the distinction between Type 1 and Type 2 hypervisors. KVM is a kernel module meaning the OS itself is running the Virtual Machine and not an application. However, being a Kernel Module allows it to run on conventional Linux Operating Systems rather than a dedicated system.

```
# nova-manage --version
# source adminrc
# openstack compute service list
# openstack endpoint list
```

Working with Nova

The global openstack client allows us to verify the nova service agents.

Verify Nova

```
# source adminrc
# openstack server list
# openstack server show vm1
```

Instances are Servers

From the openstack client we refer to virtual machines as Servers.

```
# source adminrc

# openstack flavor list

# openstack flavor create --id auto \
    --ram 512 \
    --disk 10 \
    --vcpus 1 \
    --public \
    small-server
```

Nova Flavors

Flavors fall into the realm of the compute service. This is how we size the new virtual machines instance.

Create Flavor and Instance

Workflow Creating an Instance

Horizon / CLI

User Authenticates

Keystone-API

User Authenticated and Token Issued

Nova-API

Checks Nova DB for conflicts and records created

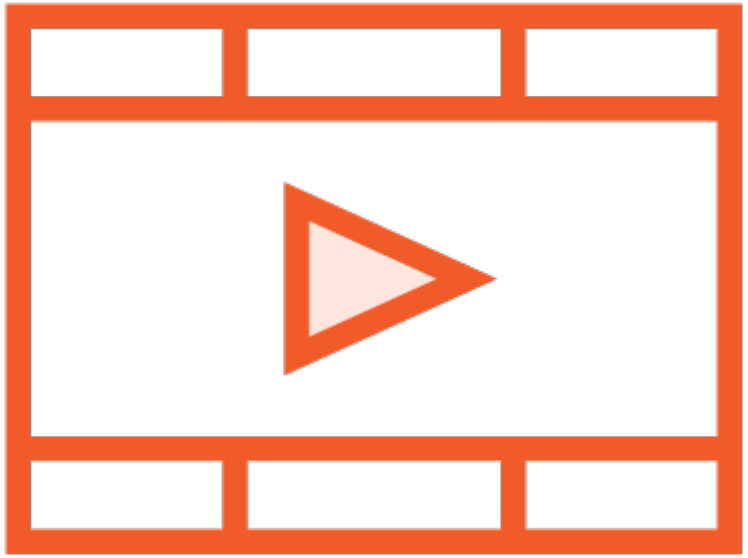
Nova-Scheduler

Request queued to available Nova Compute Node

Workflow Creating an Instance

ron-API

Neutron-API Service to collect the IP Information for Instance



Identified Compute Service: Nova is the compute service in OpenStack managing Virtual Machines lifespan and providing IaaS, Infrastructure-as-a-Service.

Listing Services: using openstack compute service list we can list the state of Nova agents in the Cloud.

Created Flavor: We created our own flavor so we have more control over the Instances we create.

Next up: Identify and Verify Neutron Networking Service