Openstack_v10(CL-210课程)

2018年3月19日　　22:46

在Openstack组件中Telemetry Service（Ceilometer）提供了数据检测功能，这些数据可以用来做系统监控、报警、生产用户账单等。
Telemetry通过polling agent和notification agent收集数据。
Notification agents：安装在Controller控制端，负责收集数据。
Polling Agents：该组件负责收集数据发送给Notification（收集compute，keystone，glance等组件的数据）

登陆controller0查看监控数据：

[heat-admin@overcloud-controller-0 ~]$ source overcloudrc
//获取所有**监控资源**的列表
[heat-admin@overcloud-controller-0 ~]$ openstack metric resource list -c type -c id

```
+--------------------------------------+----------------------------+
| id                                   | type                       |
+--------------------------------------+----------------------------+
| 0a8b55df-f90f-491c-8cb9-7cdecec6fc26 | generic                    |
| de8ae548-3fad-465f-8ef6-caa8f30f4719 | swift_account              |
| 4c5d89ff-16c8-4130-9c93-cd67b4124ac5 | swift_account              |
| f6a86b8b-257d-4521-97df-fbfe6162aa23 | image                      |
| e3e6521e-7716-4b6c-8bd3-bfdf2e7b2aa7 | network                    |
| 65058004-9b95-5a0d-ae86-cc12ac035c25 | instance_disk              |
| c286a58f-63e6-5492-9044-f1ee5fd614de | instance_network_interface |
| 6e2734f4-c267-4ee9-9bf5-f8d826b5b4de | instance                   |
+--------------------------------------+----------------------------+
```

[heat-admin@overcloud-controller-0 ~]$ openstack metric resource show **f6a86b8b-257d-4521-97df-fbfe6162aa23**

```
+-----------------------+-------------------------------------------------------+
| Field                 | Value                                                 |
+-----------------------+-------------------------------------------------------+
| created_by_project_id | 1febd350c5994e53a0d5aec224f30d96                      |
| created_by_user_id    | 23166a38937e4ac195d1b701337a1e79                      |
| ended_at              | None                                                  |
| id                    | f6a86b8b-257d-4521-97df-fbfe6162aa23                  |
| metrics               | image.download: 7d3bb07c-db68-406d-8ecc-6b5dbda06a0a  |
|                       | image.serve: 867d22bb-62f8-4dde-a9b9-8ab3a57803cc     |
|                       | image.size: 2d81846f-146c-489a-8cf6-0771379f4bd7      |
|                       | image: 9ade6c22-e237-4b06-bf3c-6bdcc2a8aeae           |
| original_resource_id  | f6a86b8b-257d-4521-97df-fbfe6162aa23                  |
| project_id            | de8ae5483fad465f8ef6caa8f30f4719                      |
| revision_end          | None                                                  |
| revision_start        | 2018-03-19T19:18:10.454124+00:00                      |
| started_at            | 2018-03-19T19:18:10.454114+00:00                      |
| type                  | image                                                 |
| user_id               | None                                                  |
+-----------------------+-------------------------------------------------------+
```

[heat-admin@overcloud-controller-0 ~]$ openstack metric metric show \
--resource-id f6a86b8b-257d-4521-97df-fbfe6162aa23 image.serve
//查看image资源中image.serve监控项的具体数据

```
+---------------------------------+-------------------------------------------------------------------------+
| Field                           | Value                                                                   |
+---------------------------------+-------------------------------------------------------------------------+
| archive_policy/aggregation_methods | std, count, 95pct, min, max, sum, median, mean                       |
| archive_policy/back_window      | 0                                                                       |
| archive_policy/definition       | - points: 12, granularity: 0:05:00, timespan: 1:00:00                   |
|                                 | - points: 24, granularity: 1:00:00, timespan: 1 day, 0:00:00            |
|                                 | - points: 30, granularity: 1 day, 0:00:00, timespan: 30 days, 0:00:00   |
| archive_policy/name             | low                                                                     |
```

[heat-admin@overcloud-controller-0 ~]$ openstack metric resource show 6e2734f4-c267-4ee9-9bf5-f8d826b5b4de

```
[heat-admin@overcloud-controller-0 ~]$ openstack metric resource show 6e2734f4-c267-4ee9-9bf5-f8d826b5b4de
+-----------------------+-----------------------------------------------------------------+
| Field                 | Value                                                           |
+-----------------------+-----------------------------------------------------------------+
| created_by_project_id | 1febd350c5994e53a0d5aec224f30d96                                |
| created_by_user_id    | 23166a38937e4ac195d1b701337a1e79                                |
| ended_at              | None                                                            |
| id                    | 6e2734f4-c267-4ee9-9bf5-f8d826b5b4de                            |
| metrics               | cpu.delta: fb5104ec-ce72-4cbd-821c-27ff9d3c3623                 |
|                       | cpu: 85467e95-bfa8-4cfb-8a82-9b03aea0b85b                       |
|                       | cpu_util: f24d5aef-fbe8-435d-aa99-db46d94efa61                  |
|                       | disk.allocation: 289a90d4-3072-416e-a6ec-432eb2e5e81b           |
|                       | disk.capacity: 09713cbd-38b2-4b6c-bf12-4429d3f772ed             |
|                       | disk.ephemeral.size: d0cd25d4-bcbd-487a-b75a-f870297255a9       |
```

[heat-admin@overcloud-controller-0 ~]$ openstack metric metric show \
--resource-id 6e2734f4-c267-4ee9-9bf5-f8d826b5b4de cpu_util

```
+----------------------------------+-------------------------------------------------------------------------+
| Field                            | Value                                                                   |
+----------------------------------+-------------------------------------------------------------------------+
| archive_policy/aggregation_methods | std, count, 95pct, min, max, sum, median, mean                        |
| archive_policy/back_window       | 0                                                                       |
| archive_policy/definition        | - points: 12, granularity: 0:05:00, timespan: 1:00:00                   |
|                                  | - points: 24, granularity: 1:00:00, timespan: 1 day, 0:00:00            |
|                                  | - points: 30, granularity: 1 day, 0:00:00, timespan: 30 days, 0:00:00   |
| archive_policy/name              | low                                                                     |
```

使用模板部署虚拟机：

Orchestration Service(Heat)组件为开发与运维人员提供了一种可以很轻松地重复创建和管理Openstack资源的方式。用户通过创建Heat Orchestration Template（HOT）模板去描述资源与相关参数，HOT模板使用YAML格式书写。YAML文件使用**缩进**表示数据结构

登陆workstation初始化环境

[student@workstation ~]$ lab orchestration-heat-templates setup

[student@workstation ~]$ mkdir ~/heat-templates

[student@workstation ~]$ cd ~/heat-templates

[student@workstation ~]$ wget http://materials.example.com/heat/finance-app1.yaml

[student@workstation ~]$ cat finance-app1.yaml

```
heat_template_version: 2016-10-14
description: spawning a custom web server

parameters:
  image_name:                    变量名（镜像名称）
    type: string                 类型：字符串
    default: web-image           默认值:web-image
    description: Image used for servers   描述信息
    constraints:
      - custom_constraint: glance.image
  instance_name:                 变量名（虚拟机实例名称）
    type: string                 类型：字符串
    default: web-server          默认值:web-server
    description: Name for the web server
  key_name:                      变量名（密钥名称）
    type: string                 类型：字符串
    default: web-keypair         默认值：keb-keypair
    description: SSH key to connect to the servers
    constraints:
      - custom_constraint: nova.keypair
  instance_flavor:               变量名（主机箱）
    type: string
    default: m2.small            默认值：m2.small
```

```
instance_flavor:        变量名（主机箱）
  type: string
  default: m2.small          默认值：m2.small
  description: flavor used by the servers
  constraints:
    - custom_constraint: nova.flavor
public_net:                 变量名：public_net
  type: string
  default: public           默认值：public
  description: Name of public network into which servers get deployed
  constraints:
    - custom_constraint: neutron.network
private_net:                变量名:private_net
  type: string
  default: private          默认值:private
  description: Name of private network into which servers get deployed
  constraints:
    - custom_constraint: neutron.network
private_subnet:             变量名:private_subnet
  type: string
  default: private_subnet       默认值private_subnet
  description: Name of private subnet into which servers get deployed
  constraints:
    - custom_constraint: neutron.subnet

resources:          定义需要使用模板启动的资源有哪些?
  wait_handle:
    type: OS::Heat::WaitConditionHandle

  wait_condition:
    type: OS::Heat::WaitCondition
    properties:
      handle: { get_resource: wait_handle }
      count: 1
      timeout: 600

  web_server:                       需求的资源名称
    type: OS::Nova::Server          需求的资源类型，必须的内置的特定类型
    properties:                     属性
      name: { get_param: instance_name }  虚拟机名称（获取前面的变量）
      image: { get_param: image_name }    镜像名称（获取前面的变量）
      flavor: { get_param: instance_flavor }  主机箱名称（获取前面的变量）
      key_name: { get_param: key_name }  密钥名称（获取前面的变量）
      networks:
        - port: { get_resource: web_net_port }  网络（获取前面的变量）

  web_net_port:
    type: OS::Neutron::Port
    properties:
      network: { get_param: private_net }
      fixed_ips:
        - subnet: { get_param: private_subnet }
      security_groups: [{ get_resource: web_security_group }]

  web_floating_ip:
    type: OS::Neutron::FloatingIP
    properties:
      floating_network: { get_param: public_net }
      port_id: { get_resource: web_net_port }

  web_security_group:
    type: OS::Neutron::SecurityGroup
    properties:
      description: Add security group rules for the multi-tier architecture
```

#openstack orchestration resource type list

```
+-----------------------------------------------+
| Resource Type                                 |
+-----------------------------------------------+
| OS::Neutron::FloatingIPAssociation            |
| OS::Neutron::MeteringLabel                    |
| OS::Neutron::MeteringRule                     |
| OS::Neutron::Net                              |
| OS::Neutron::NetworkGateway                   |
| OS::Neutron::Port                             |
| OS::Neutron::PortPair                         |
| OS::Neutron::ProviderNet                      |
| OS::Neutron::QoSBandwidthLimitRule            |
| OS::Neutron::QoSDscpMarkingRule               |
| OS::Neutron::QoSPolicy                        |
| OS::Neutron::RBACPolicy                       |
| OS::Neutron::Router                           |
| OS::Neutron::RouterInterface                  |
| OS::Neutron::SecurityGroup                    |
| OS::Neutron::SecurityGroupRule                |
| OS::Neutron::Subnet                           |
| OS::Neutron::SubnetPool                       |
| OS::Nova::Flavor                              |
| OS::Nova::FloatingIP                          |
| OS::Nova::FloatingIPAssociation               |
| OS::Nova::HostAggregate                       |
| OS::Nova::KeyPair                             |
| OS::Nova::Server                              |
| OS::Nova::ServerGroup                         |
| OS::Swift::Container                          |
+-----------------------------------------------+
```

```
    name: finance-web
    rules:
     - remote_ip_prefix: 0.0.0.0/0
       protocol: tcp
       port_range_min: 22
       port_range_max: 22
     - remote_ip_prefix: 0.0.0.0/0
       protocol: tcp
       port_range_min: 80
       port_range_max: 80
     - remote_ip_prefix: 0.0.0.0/0
       protocol: icmp

outputs:
 web_private_ip:
  description: IP address of first web server in private network
  value: { get_attr: [ web_server, first_address ] }

 web_public_ip:
  description: Floating IP address of the web server
  value: { get_attr: [ web_floating_ip, floating_ip_address ] }

 website_url:
  description: >
   This URL is the "external" URL that can be used to access the
   web server.
  value:
   str_replace:
    template: http://host/
    params:
     host: { get_attr: [web_floating_ip, floating_ip_address] }
```

```
[student@workstation ~]$ vim environment.yaml
parameters:
 image_name: finance-rhel7
 instance_name: finance-web1
 instance_flavor: m1.small
 key_name: developer1-keypair1
 public_net: provider-172.25.250
 private_net: finance-network1
 private_subnet: finance-subnet1
```

```
[student@workstation ~]$ source developer1-finance-rc
[student@workstation ~]$ openstack stack \
 create \
--environment environment.yaml \
--template finance-app1.yaml \
--dry-run -c description \
finance-app1
```

```
[student@workstation ~]$ openstack stack \
 create \
--environment environment.yaml \
--template finance-app1.yaml \
--wait \
finance-app1
```

```
[student@workstation ~]$ openstack stack \
output list finance-app1

[student@workstation ~]$ openstack stack \
output show finance-app1 website_url
```