

# How to autoprovision a NetScaler VPX on SDX for load balancing OpenStack workloads

## Introduction

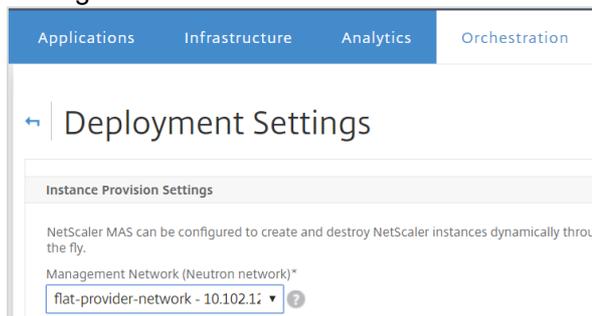
The on demand consumption model has become a de facto standard in cloud computing. To support this model in the OpenStack cloud environment, NetScaler MAS supports autoprovisioning of NetScaler VPX instances on a NetScaler SDX appliance to load balance applications deployed in OpenStack clouds.

For example, if a cloud service provider has built a cloud using OpenStack and serving their customers by providing on demand computing, storage and networking services, the networking services can include allocation of NetScaler instance on demand to customers who are deploying applications in the cloud. With NetScaler VPX instances provisioned on NetScaler SDX, customers can get the benefits of NetScaler MPX, such as high scale and performance, and the benefits of NetScaler VPX, such as flexibility.

## Preconfiguration

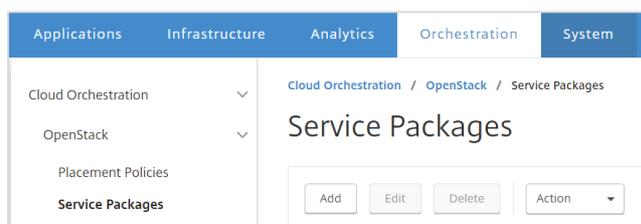
Before autoprovisioning a NetScaler VPX instance on NetScaler SDX, verify that the following prerequisites have been met:

1. NetScaler LBaaS v2 drivers are installed in OpenStack.
2. NetScaler MAS is installed and registered with OpenStack.
3. NetScaler SDX has been added to MAS.
4. In MAS, navigate to **Orchestration > OpenStack > Deployment** and select the management network to which NetScaler SDX is connected.



## Configuration Steps:

1. Log on to MAS, go to **Orchestration > Cloud Orchestration > Service Packages**, and click **Add** to create a new Service Package.



2. Enter the name of the package, and set **NetScaler Instance Allocation** to **Dedicated** or **Partition**, **NetScaler Instance Provisioning** to **create instance OnDemand**, and **Auto-provision platform** to **NetScaler SDX**.

← Service Package

**Service Level Agreement**

NetScaler MAS allocates NetScaler Appliances for tenants during the

Name\*

NetScaler Instance Allocation\*  
 Dedicated  Partition  Shared

NetScaler Instance Provisioning\*  
 Existing Instance  Create Instance OnDemand

Auto Provision Platform  
 NetScaler SDX  OpenStack Compute

NetScaler Instance Type  
**NetScaler VPX**

3. Enter the values for **Bandwidth**, **Number of connections**, **Maximum number of instances to Auto provision**, **CPU cores per instance**, **total Memory per instance**, **SSL chips per instance**, **throughput required**, and **NetScaler VPX version**.

← Service Package

**Service Level Agreement**

Name	Auto-provision VPX	NetScaler Instance Allocation	partition
		NetScaler Instance Type	NetScaler VPX
		Platform Type	NetScalerSDX

**Auto Provision Settings**

**Partition Spec**

Bandwidth (Kbps)\*

Number of Connections\*

Number of Networks

**Resources**

Maximum Number of Instances to Auto Provision\*

CPU Cores\*

Total Memory (MB)\*

SSL Chips\*

Throughput (Mbps)\*

NetScaler Version (Please make sure image is present on SDX)  
 If a specific image name is to be entered, please select New\*

**High Availability**

A high availability (HA) deployment can provide uninterrupted operation in any transaction. It ensures a non-interrupted traffic during instance provisioning and fail-over.

Provision pair of NetScaler appliances for high availability.

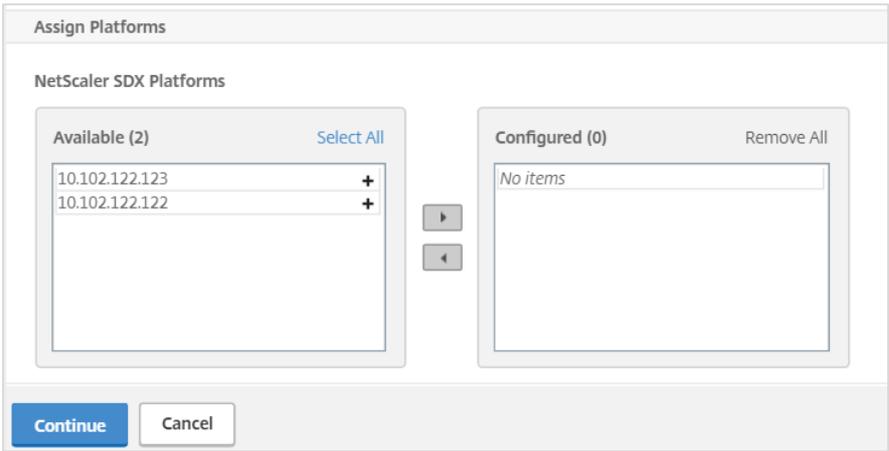
**Assign Platforms**

**NetScaler SDX Platforms**

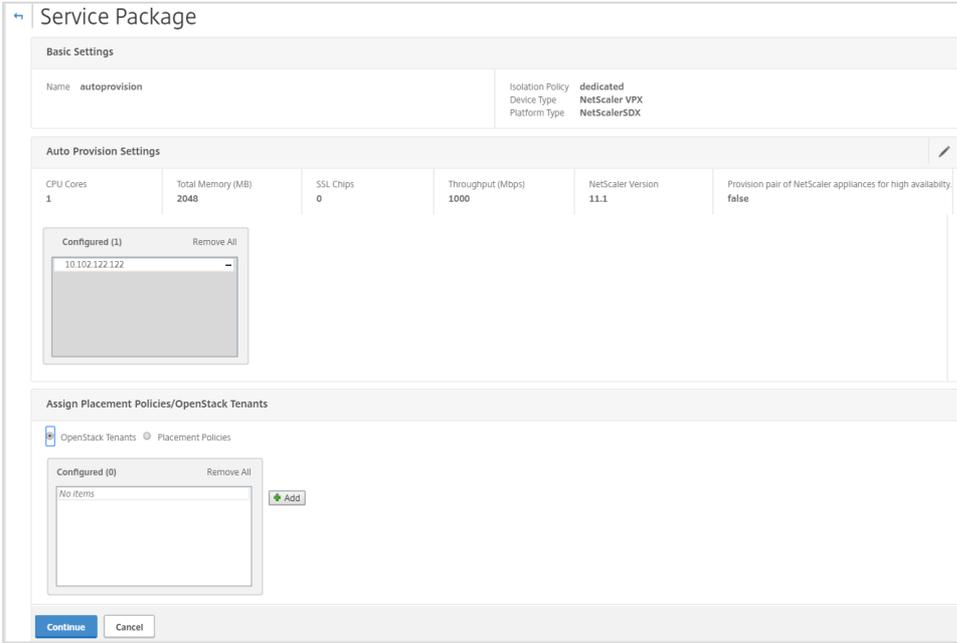
Configured (0) Remove All

No items ➕ Add

4. Click the **Add** button to populate the available SDX devices. Then, click the plus (+) icon next to each IP address, to add that NetScaler SDX appliance to the service package, and then click **Continue**.



5. Under Assign Placement Policies/OpenStack Tenants, select **OpenStack tenants** and click **Add** to populate the list of tenants



6. For each tenant, click the plus (+) icon and assign the tenant to a service package. Click **Continue**, and then click **Done** to finish the creation of a service package.

### Assign Placement Policies/OpenStack Tenants

OpenStack Tenants
  Placement Policies

**Available (1)** Select All

demo +

**Configured (0)** Remove All

No items

### Assign Placement Policies/OpenStack Tenants

OpenStack Tenants
  Placement Policies

**Available (0)** Select All

No items

**Configured (1)** Remove All

demo -

### Service Package

**Basic Settings**

Name: autoprovision	Isolation Policy: dedicated
	Device Type: NetScaler VPX
	Platform Type: NetScalerSDX

**Auto Provision Settings**

CPU Cores: 1	Total Memory (MB): 2048	SSL Chips: 0	Throughput (Mbps): 1000	NetScaler Version: 11.1	Provision pair of: false
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**Configured (1)** Remove All

10.102.122.122 -

**Assign Tenant**

OpenStack Tenants
  Placement Policies

**Configured (1)** Remove All

demo -

7. The tenants assigned to the service package will try to consume NetScaler load balancing as a service from OpenStack. Before any LBaaS commands can be executed, you have to set the environment variables. For each tenant, open an SSH session and enter the following commands:

```
export OS_USERNAME=<username>
export OS_PASSWORD=<password>
export OS_TENANT_NAME=<projectName>
export OS_AUTH_URL=https://<KeystoneIP:portNumber>/v2.0
```

```
root@ubuntu:~# export OS_USERNAME=
root@ubuntu:~# export OS_PASSWORD=
root@ubuntu:~# export OS_TENANT_NAME=
root@ubuntu:~# export OS_AUTH_URL=http://10.105.150.129:35353/v2.0
root@ubuntu:~#
```

8. Enter the following command to create a load balancer:

```
$neutron lbaas-loadbalancer-create --name <loadbalancer-name> <subnet-name> --provider
netscaler
```

```
root@ubuntu:~# neutron lbaas-loadbalancer-create --name demolb Sub1-demo --provider netscaler
Created a new loadbalancer:
+-----+
| Field | Value |
+-----+
| admin_state_up | True |
| description | |
| id | 3effd95b-9c7a-46c5-95cf-007c2ecf4a3d |
| listeners | |
| name | demolb |
| operating_status | OFFLINE |
| pools | |
| provider | netscaler |
| provisioning_status | PENDING_CREATE |
| tenant_id | 97dcf754ad494897b55296c50ab8ad18 |
| vip_address | 30.0.0.23 |
| vip_port_id | 4c942f77-3a30-42a8-a6f0-b6b6917333e0 |
| vip_subnet_id | a66c991d-db7c-4ddb-bbdb-a9bbd53642d2 |
+-----+
```

9. Enter the following command to check the provisioning status of the newly created load balancer:

```
$neutron lbaas-loadbalancer-list
```

```
root@ubuntu:~# neutron lbaas-loadbalancer-list
+-----+-----+-----+-----+-----+
| id | name | vip_address | provisioning_status | provider |
+-----+-----+-----+-----+-----+
| 3effd95b-9c7a-46c5-95cf-007c2ecf4a3d | demolb | 30.0.0.23 | ACTIVE | netscaler |
+-----+-----+-----+-----+-----+
```

**Note:** You can verify the status of the load balancer at each stage, after the creation of listener, pool, or members.

10. Enter the following command to create a listener:

```
$neutron lbaas-listener-create --loadbalancer <loadbalancer-name> --name <listener-name> --
protocol <protocol_type> --protocol-port <port_number>
```

```

root@ubuntu:~# neutron lbaas-listener-create --loadbalancer demolb --name demolistener --protocol http --protocol-port 80
Created a new listener:
+-----+-----+
| Field | Value |
+-----+-----+
| admin_state_up | True |
| connection_limit | -1 |
| default_pool_id | |
| default_tls_container_ref | |
| description | |
| id | bda03133-29ab-45a1-abfb-3ea52bf23b66 |
| loadbalancers | {"id": "3effd95b-9c7a-46c5-95cf-007c2ecf4a3d"} |
| name | demolistener |
| protocol | HTTP |
| protocol_port | 80 |
| sni_container_refs | |
| tenant_id | 97dcf754ad494897b55296c50ab8ad18 |
+-----+-----+

```

11. Enter the following command to create a pool:

**\$neutron lbaas-pool-create --lb-algorithm <algorithm\_type> --listener <listener-name> --protocol <protocol\_type> --name <pool-name>**

```

root@ubuntu:~# neutron lbaas-pool-create --lb-algorithm LEAST_CONNECTIONS --listener demolistener --protocol http --name demopool
Created a new pool:
+-----+-----+
| Field | Value |
+-----+-----+
| admin_state_up | True |
| description | |
| healthmonitor_id | |
| id | d78b40eb-9d5e-4531-9c32-81600a321b85 |
| lb_algorithm | LEAST_CONNECTIONS |
| listeners | {"id": "d7153e9e-225f-46b0-bad9-a7cdf92e99e5"} |
| loadbalancers | {"id": "44a6b466-851b-4ff3-947c-b9ede069c631"} |
| members | |
| name | demopool |
| protocol | HTTP |
| session_persistence | |
| tenant_id | 97dcf754ad494897b55296c50ab8ad18 |
+-----+-----+

```

12. Add members to the pool. To add a member, enter the following command:

**\$neutron lbaas-member-create --subnet <subnet-name> --address <ip-address of the web server> --protocol-port <port\_number> <pool-name>**

```

root@ubuntu:~# neutron lbaas-member-create --subnet Sub1-admin --address 10.0.0.18 --protocol-port 80 demopool
Created a new member:
+-----+-----+
| Field | Value |
+-----+-----+
| address | 10.0.0.18 |
| admin_state_up | True |
| id | 1fc18cfd-0a5d-45da-834c-7d04f738d056 |
| name | |
| protocol_port | 80 |
| subnet_id | d6a449bf-1410-4f71-a126-788555e0cdf6 |
| tenant_id | 97dcf754ad494897b55296c50ab8ad18 |
| weight | 1 |
+-----+-----+

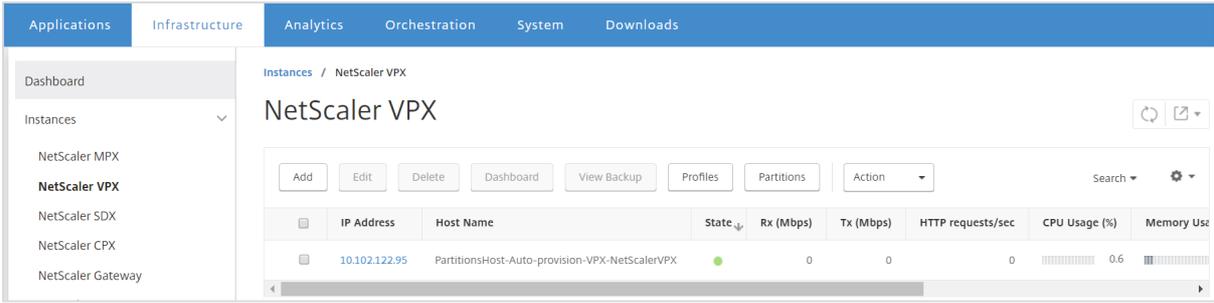
```

```

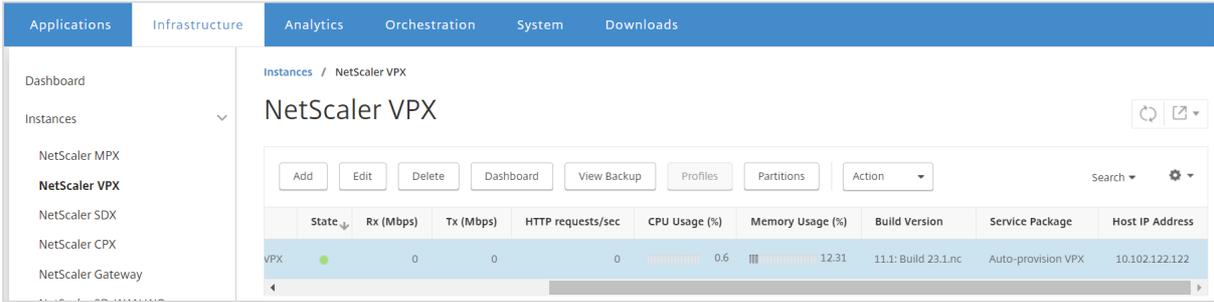
root@ubuntu:~# neutron lbaas-member-create --subnet Sub1-admin --address 10.0.0.19 --protocol-port 80 demopool
Created a new member:
+-----+-----+
| Field | Value |
+-----+-----+
| address | 10.0.0.19 |
| admin_state_up | True |
| id | 86170dac-1ff3-4c64-ae33-d3c92e4249a5 |
| name | |
| protocol_port | 80 |
| subnet_id | d6a449bf-1410-4f71-a126-788555e0cdf6 |
| tenant_id | 97dcf754ad494897b55296c50ab8ad18 |
| weight | 1 |
+-----+-----+

```

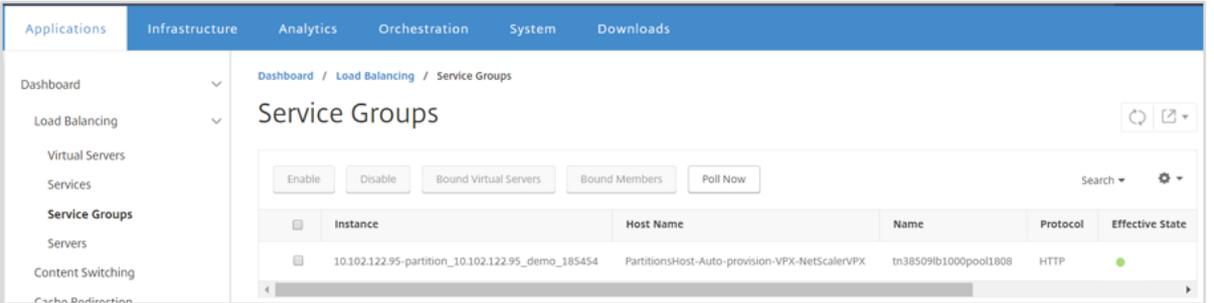
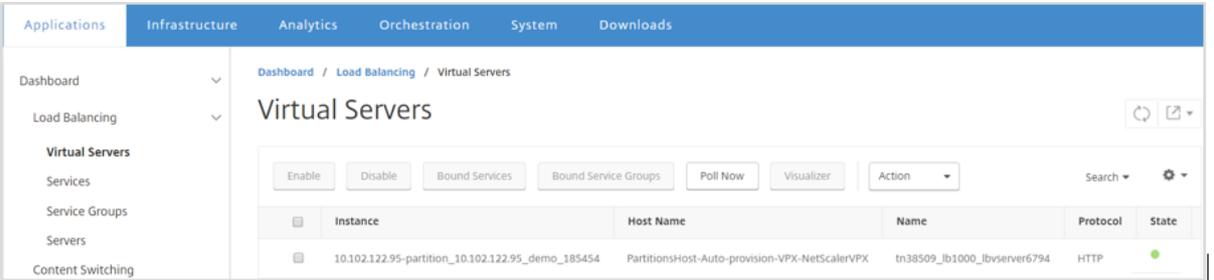
13. Log on to the NetScaler GUI and go to **Infrastructure > Instances > NetScaler VPX** to see the newly created VPX instance and the service package to which it is bound



Scroll bar to left to see the service package information.



14. Go to **Applications, Load Balancing** and verify the newly created virtual servers, Service Groups and Content Switching Servers on the VPX instance.



The screenshot shows the NetScaler management console interface. The top navigation bar includes 'Applications', 'Infrastructure', 'Analytics', 'Orchestration', 'System', and 'Downloads'. The left sidebar menu lists 'Dashboard', 'Load Balancing', 'Virtual Servers', 'Services', 'Service Groups', 'Servers', and 'Content Switching'. The main content area is titled 'Content Switching Virtual Servers' and features a breadcrumb 'Dashboard / Content Switching Virtual Servers'. Below the title are buttons for 'Enable', 'Disable', 'Visualizer', and 'Poll Now', along with a 'Search' dropdown and a settings icon. A table displays the following data:

Instance	Host Name	Name	State	IP Address
10.102.122.95-partition_10.102.122.95_demo_185454	PartitionsHost-Auto-provision-VPX-NetScalerVPX	tn38509_lb1000_csserver6794	●	30.0.0.25

Once the VPX is created and all the configurations are done, it is ready to serve the traffic.