# Method of Procedure (MOP) for Deploying an OpenStack VM with nDPI

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## Reference: OpenStack Documentation, nDPI GitHub Repository

### Prerequisites

- Access to an OpenStack environment with administrative privileges.

- OpenStack CLI installed and configured.

- A specific node in the OpenStack environment where the VM will be deployed.

- Basic knowledge of OpenStack and networking.

### Objective

This MOP outlines the steps to deploy an OpenStack VM on a specific node, assign it a static IP, install nDPI, and configure it to block specific traffic.

### Steps

#### 1. Prepare the Environment

1. \*\*Log in to OpenStack\*\*:

```bash

source /path/to/your/openrc.sh

```

2. \*\*Identify the Node\*\*:

Determine the specific compute node where you want to deploy the VM. You can list the available compute nodes using:

```bash

openstack hypervisor list

```

#### 2. Create a Flavor

Create a flavor that specifies the desired CPU and RAM for the VM.

```bash

openstack flavor create --ram <RAM\_IN\_MB> --disk <DISK\_IN\_GB> --vcpus <NUMBER\_OF\_VCPUS> <FLAVOR\_NAME>

```

Example:

```bash

openstack flavor create --ram 2048 --disk 20 --vcpus 2 m1.custom

```

#### 3. Create a Network and Subnet

If you do not have an existing network, create one and a corresponding subnet.

```bash

# Create a network

openstack network create <NETWORK\_NAME>

# Create a subnet

openstack subnet create --network <NETWORK\_NAME> --subnet-range <SUBNET\_CIDR> <SUBNET\_NAME>

```

Example:

```bash

openstack network create my\_network

openstack subnet create --network my\_network --subnet-range 192.168.1.0/24 my\_subnet

```

#### 4. Assign a Static IP

Allocate a static IP address from the subnet created above.

```bash

openstack port create --network <NETWORK\_NAME> --fixed-ip subnet\_id=<SUBNET\_ID>,ip-address=<STATIC\_IP> <PORT\_NAME>

```

Example:

```bash

openstack port create --network my\_network --fixed-ip subnet\_id=$(openstack subnet show my\_subnet -f value -c id),ip-address=192.168.1.10 my\_port

```

#### 5. Launch the VM

Deploy the VM on the specified node with the created flavor, network, and static IP.

```bash

openstack server create --flavor <FLAVOR\_NAME> --image <IMAGE\_NAME> --nic port-id=<PORT\_ID> --key-name <KEY\_NAME> --availability-zone <AVAILABILITY\_ZONE> <VM\_NAME>

```

Example:

```bash

openstack server create --flavor m1.custom --image Ubuntu-22.04 --nic port-id=$(openstack port show my\_port -f value -c id) --key-name my\_key --availability-zone nova:compute1 my\_vm

```

#### 6. Install nDPI

1. \*\*Access the VM\*\*:

```bash

ssh -i /path/to/your/private\_key user@192.168.1.10

```

2. \*\*Install Dependencies\*\*:

```bash

sudo apt update

sudo apt install -y git build-essential cmake libpcap-dev

```

3. \*\*Clone nDPI Repository\*\*:

```bash

git clone https://github.com/ntop/nDPI.git

cd nDPI

```

4. \*\*Build and Install nDPI\*\*:

```bash

mkdir build

cd build

cmake ..

make

sudo make install

```

#### 7. Configure nDPI to Block Specific Traffic

1. \*\*Create a Configuration File\*\*:

Create a configuration file for nDPI to specify the traffic to block. This will depend on the specific traffic you want to block (e.g., certain protocols or IP addresses).

2. \*\*Example Configuration\*\*:

Create a file named `ndpi\_block.conf`:

```bash

# Example configuration to block HTTP traffic

[http]

block = true

```

3. \*\*Run nDPI\*\*:

Use nDPI to monitor traffic and apply the blocking rules:

```bash

sudo ndpiReader -f ndpi\_block.conf

```

### 8. Verification

- Check the status of the VM:

```bash

openstack server list

```

- Verify that nDPI is running and blocking the specified traffic.

### Conclusion

This MOP provides a comprehensive guide to deploying an OpenStack VM, assigning a static IP, installing nDPI, and configuring it to block specific traffic. Ensure to adjust the configurations based on your specific requirements and network policies.