# Method of Procedure (MOP) for Deploying a VM on OpenStack and Installing nDPI

## Document Control

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## Purpose

This MOP outlines the detailed steps to deploy a Virtual Machine (VM) on OpenStack with specific resource allocations, configure the VM with a designated node name and IP address, and install nDPI for packet inspection on a specified subnet.

## Reference

- OpenStack Documentation: https://docs.openstack.org/

- nDPI GitHub Repository: https://github.com/ntop/nDPI

## Prerequisites

1. Access to an OpenStack environment with appropriate permissions to create VMs.

2. OpenStack CLI or Horizon dashboard access.

3. Basic knowledge of Linux command line.

4. A subnet configured in OpenStack for packet inspection.

## Prerequisite Resources

- \*\*VM Requirements:\*\*

- Minimum 2 GB RAM

- Minimum 2 CPU cores

- \*\*Operating System:\*\* Ubuntu 22.04 or compatible Linux distribution.

## Procedure

### Step 1: Deploy a VM on OpenStack

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

- Use the OpenStack CLI or Horizon dashboard to log in to your OpenStack environment.

2. \*\*Create a VM Instance:\*\*

- If using the CLI, run the following command to create a VM. Replace `<NODE\_NAME>`, `<IMAGE\_NAME>`, `<FLAVOR\_NAME>`, and `<NETWORK\_NAME>` with your specific values.

```bash

openstack server create --flavor <FLAVOR\_NAME> --image <IMAGE\_NAME> --nic net-id=<NETWORK\_NAME> --key-name <KEY\_NAME> <NODE\_NAME>

```

- If using Horizon:

- Navigate to the "Instances" tab.

- Click on "Launch Instance."

- Fill in the instance details, including the name, flavor, image, and network.

- Click "Launch Instance."

3. \*\*Assign a Specific IP Address:\*\*

- After the VM is created, assign a specific floating IP address if required.

- Use the following command to associate a floating IP (replace `<FLOATING\_IP>` and `<NODE\_NAME>`):

```bash

openstack floating ip create <EXTERNAL\_NETWORK>

openstack server add floating ip <NODE\_NAME> <FLOATING\_IP>

```

### Step 2: Access the VM

1. \*\*SSH into the VM:\*\*

- Use SSH to connect to the VM using the floating IP address.

```bash

ssh ubuntu@<FLOATING\_IP>

```

### Step 3: Install nDPI

1. \*\*Update the Package List:\*\*

```bash

sudo apt update

```

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

```bash

sudo apt install git cmake g++ libpcap-dev

```

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

```bash

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

```

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

```bash

cd nDPI

mkdir build

cd build

cmake ..

make

sudo make install

```

### Step 4: Configure nDPI for Packet Inspection

1. \*\*Identify the Subnet:\*\*

- Determine the subnet you want to inspect. For example, `192.168.1.0/24`.

2. \*\*Run nDPI to Inspect Packets:\*\*

- Use the following command to start packet inspection on the specified subnet (replace `<INTERFACE>` with your network interface, e.g., `eth0`):

```bash

sudo ndpiReader -i <INTERFACE> -s 192.168.1.0/24

```

3. \*\*Verify nDPI is Running:\*\*

- Check the output of the nDPI command to ensure it is capturing packets correctly.

### Step 5: Cleanup

1. \*\*Stop nDPI:\*\*

- To stop the nDPI process, use `Ctrl+C` in the terminal where it is running.

2. \*\*Delete the VM (if necessary):\*\*

- If you no longer need the VM, delete it using the following command:

```bash

openstack server delete <NODE\_NAME>

```

## Conclusion

This MOP provides a comprehensive guide to deploying a VM on OpenStack, configuring it with a specific node name and IP address, and installing nDPI for packet inspection. Ensure to follow each step carefully and verify the installation and configuration of nDPI for successful packet analysis.

## Notes

- Ensure that the OpenStack environment has sufficient resources to create the VM.

- Modify the commands as necessary based on your specific OpenStack setup and network configurations.