Installing the Controller in NFVIS Environment

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Overview of Cisco Enterprise Network Function Virtualization Infrastructure Software

Cisco Enterprise Network Function Virtualization Infrastructure Software (Cisco Enterprise NFVIS) is a Linux-based infrastructure software designed to help service providers and enterprises dynamically deploy virtualized network functions, such as a virtual router, firewall, and WAN acceleration, on a supported Cisco device. Addition of a physical device for every network function is not required; you can use automated provisioning and centralized management.

Cisco Enterprise NFVIS solution helps you convert your critical network functions into software, making it possible to deploy network services in minutes across dispersed locations. It provides a fully integrated platform that can run on top of a diverse network of both virtual and physical devices.

The Cisco 5400 Series Enterprise Network Compute System combines routing, switching, storage, processing, and a host of other computing and networking activities into a compact 1-RU box. This high-performance unit achieves this goal by providing the infrastructure to deploy virtualized network functions and acting as a server that addresses processing, workload, and storage challenges.

Installation Procedure

VM lifecycle management refers to the entire process of registering, deploying, updating, monitoring VMs, and getting them service chained as per your requirements. You can perform these tasks using the Cisco Enterprise NFVIS portal.

Register a VM Image

To register a VM image, you must first copy or download the relevant VM image to the NFVIS server, or host the image on a HTTP or HTTPs server. After you download the file, you can register the image using

the registration API. This API allows you to specify the file path to the location (on an HTTP or HTTPs server) where the tar.gz file is hosted. Registering the image is a one-time activity. After an image is registered on the HTTP or HTTPs server, and is in active state, you can perform multiple VM deployments using the registered image.

Customizing the Setup

After registering a VM image, you can optionally create a custom profile or flavor for the VM image if the profiles defined in the image file do not match your requirement. The flavor creation option lets you provide specific profiling details for a VM image, such as the virtual CPU on which the VM will run, and the amount of virtual memory the VM will consume.

Depending on the topology requirement, you can create additional networks and bridges to attach the VM to during deployment.

Deploying a VM

A VM can be deployed using the deployment API. This API allows you to provide values to the parameters that are passed to the system during deployment. Depending on the VM you are deploying, some parameters are mandatory and others optional.

Managing and Monitoring a VM

You can monitor a VM using APIs and commands that enable you to get the VM status and debug logs. Using VM management APIs, you can start, stop, or reboot a VM, and view the statistics for a VM, such as CPU usage.

A VM can also be managed by changing or updating its profile. You can change a VM's profile to one of the existing profiles in the image file; alternatively, you can create a new custom profile for the VM. The vNICs on a VM can also be added or updated.

Uploading Image on NFVIS

Follow the procedure given below to upload an image to NFVIS:

Procedure

Step 1 Select **VM Life Cycle > Image Repository**.

Step 2 Select the **Image Registration** tab and click upload arrow next to **Images**.

Step 3 Select the file from **Drop Files or Click** option.

Step 4 Click **Start** to upload the image.

After the image is uploaded, NFVIS creates respective profiles and registers the image. You can find your file listed under the images section on the same page.

Creating a VM Package Using Web Interface

Follow the procedure given below to create VM image using web interface:

Procedure

Step 1 From ECNS, select **Image Packaging** tab and click on the create icon next to **VM Packages**.

Step 2 Enter the details in **Image Packaging** tab.

Step 3 Click **Submit**.

The bootstrap files are uploaded.

After the image is created, you have to register it so that the profiles are properly populated in the ENCS.

Step 4 Select the image you created and click on **Register**.

Creating a Network

Follow the procedure given below to create a network:

Procedure

Step 1 From ECNS, select **VM Life Cycle> Networking** .

This opens up Networks & Bridges window.

Step 2 Click on the create icon next to **Networks & Bridges**.

Step 3 Enter values for **Network**, **Mode**, **Vlan**, **Bridge** and **Interface**.

Note
Single Root Input/Output Virtualization (SRIOV) is not supported.

Step 4 Click **Submit**.

This creates the network.

Deploying the Controller on NFVIS

Follow the procedure given below to deploy the controller on NFVIS:

Procedure

Step 1 From ENCS, select **VM Life Cycle > Deploy**.

This opens up the VM Deployment window.

Step 2 From the VM Deployment window, drag and drop the controller **icon** to the pane below and map to the desired networks as required.

Note
We support only 1000 APs and 10000 clients.

Step 3 In **VM Details** area, enter the **VM Name**.

Step 4 Select the **Image** name from the drop-down.

Step 5 Select the **Profile** name from the drop-down.

Step 6 Select the **Bootstrap Config** option for providing the bootstrap configuration file before deploying the VM.

Ensure that you use the filename “iosxe_config.txt" for the bootstrap configuration file.

Step 7 Click **Deploy**.

What to do next

After deploying the VM instance, you can check the Instance details in **Manage** tab, which lists the summary of VM instances.

You can click the **Console** symbol next to the VM to get the console access.

Viewing VM Resource Allocation

Follow the procedure given below to view the VM resource allocations:

Procedure

Step 1 From ECNS, select **VM Life Cycle> Resource Allocation**.

This opens up the VM CPU Allocation tab, which displays the overall CPU allocations.

Step 2 Click **VM Memory Allocation** tab.

This tab shows the overall memory allocations.

Step 3 Click **VM Disk Allocation** tab.

This tab shows the overall disk allocations.

Viewing VM Statistics

Follow the procedure given below to view the VM resource utilization:

Procedure

Step 1 From ECNS, select **VM Life Cycle> VM Monitoring**.

This opens up the VM CPU Utilization tab, which displays the overall CPU utilization per VM.

Step 2 Click **Memory Allocation** tab.

This tab displays the memory utilization per VM.

Step 3 Click **VNIC Utilization** tab.

This tab displays the VNIC utilization per VM.

Step 4 Click **Disk Utilization** tab.

This tab displays the disk utilization per VM.