Project/Assignment 3

Virtual Machines and Virtual Clusters
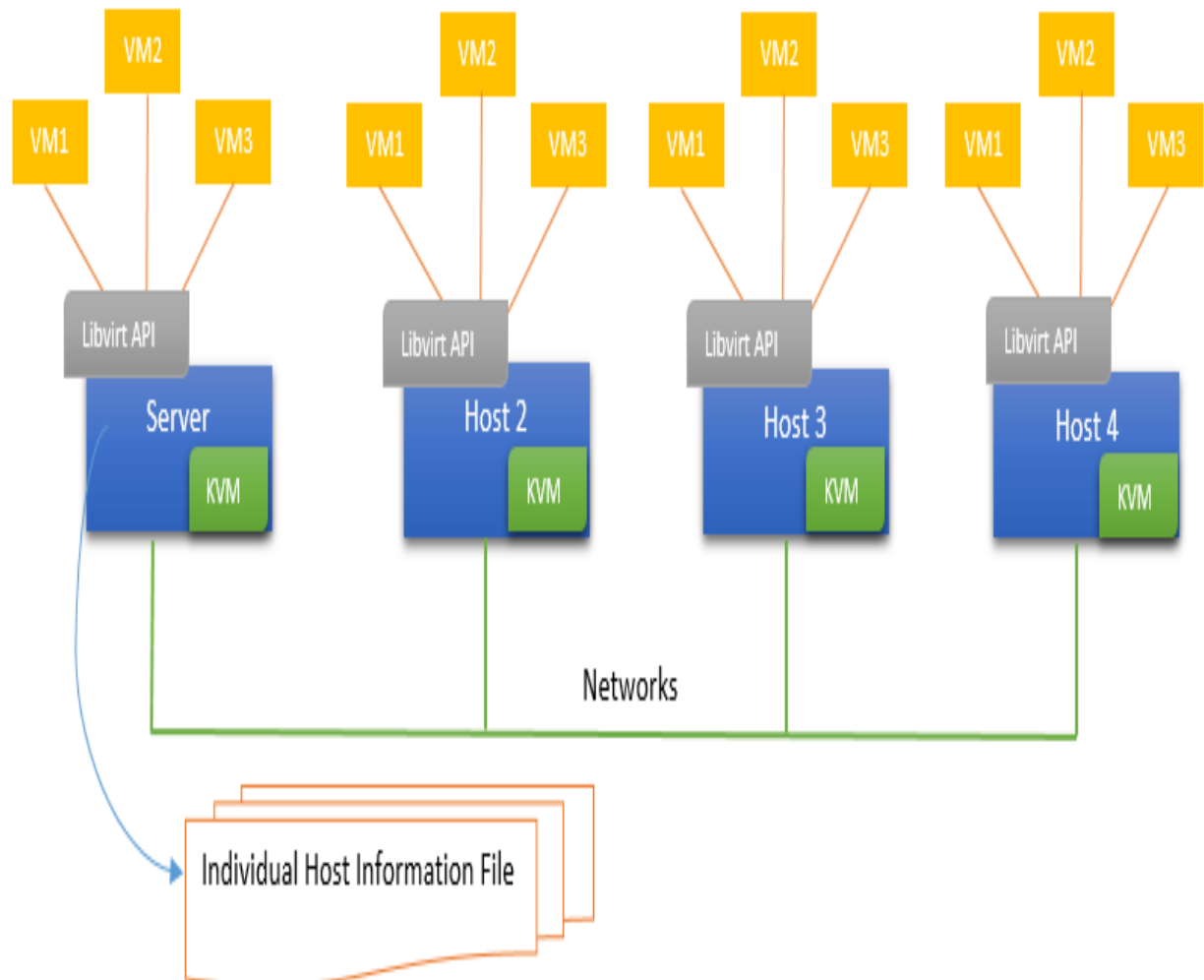
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1. Basic Architecture

1.1 Introduction

The following figure depicts basic architecture of our model. We have used KVM as a hypervisor. Libvirt api to handle virtual machine and used open-v-switch to create a virtual bridge.

1.2 Network Architecture
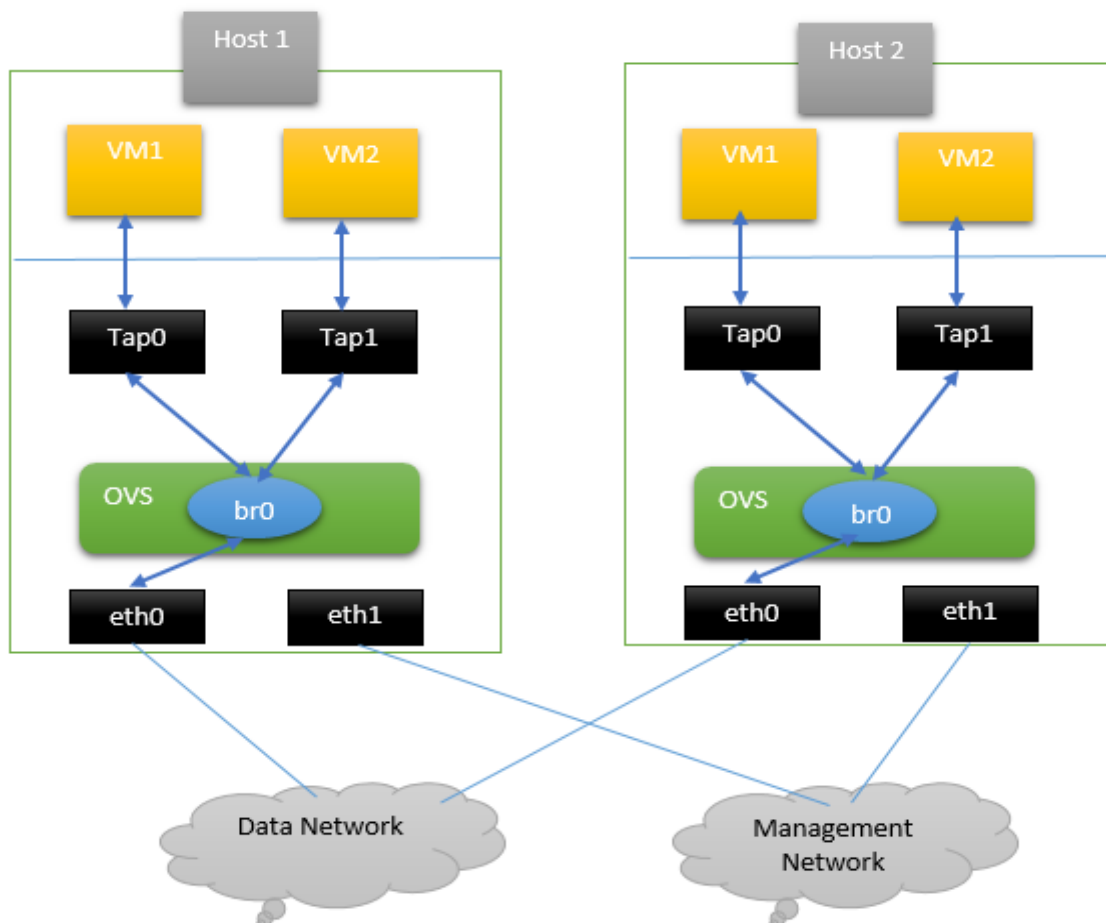
We have used open-v-switch in order to create a virtual bridge. We have used following commands to create a virtual bridge.

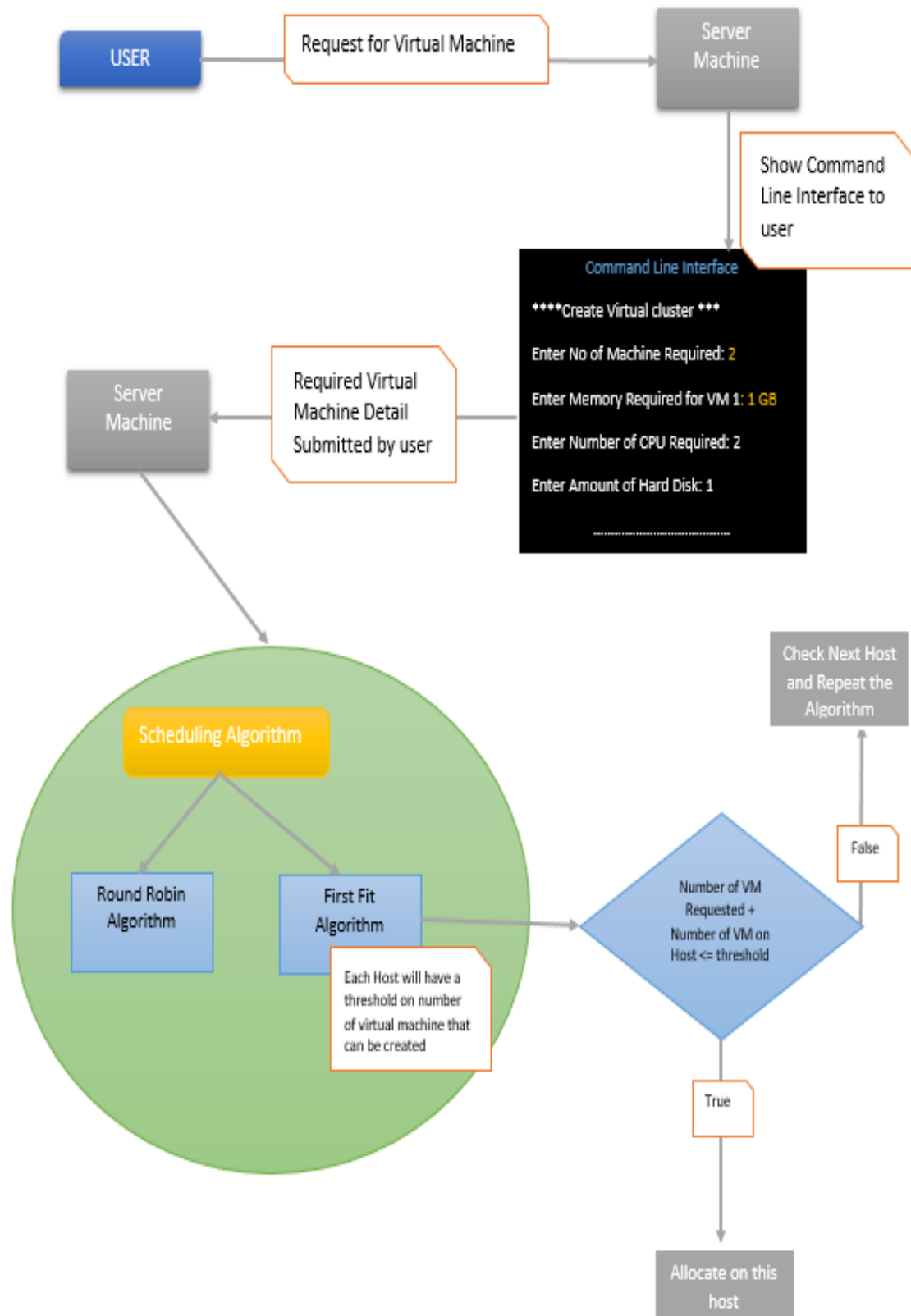Ovs-vsctl add-br br0 //this command will create a virtual bridge with name br0

Ovs-vsctl add-port br0 eth0 //this command will link the eth0 to bridge br0

Ifconfig eth0 0 //to remove ip from eht0

Dhclient br0

1.3 Overall Working

USER

Request for Virtual Machine

Server Machine

Show Command Line Interface to user

Command Line Interface

****Create Virtual cluster ***

Enter No of Machine Required: 2

Enter Memory Required for VM 1: 1 GB

Enter Number of CPU Required: 2

Enter Amount of Hard Disk: 1

Required Virtual Machine Detail Submitted by user

Server Machine

Scheduling Algorithm

Round Robin Algorithm

First Fit Algorithm

Each Host will have a threshold on number of virtual machine that can be created

Number of VM Requested + Number of VM on Host <= threshold

Check Next Host and Repeat the Algorithm

False

True

Allocate on this host

2. References

1. http://libvirt.org/html/index.html

2. https://www.youtube.com/watch?v=rYW7kQRyUvA

3. http://git.openvswitch.org/cgibin/gitweb.cgi?p=openvswitch;a=blob_plain;f=INSTALL.Libvirt;hb=HEAD