

Homework 2

Task 1 VirtualBox & KVM (QEMU) + Vagrant

1. Using VirtualBox launch and configure 2 VMs (Debian, Centos).
2. Configure 2 network interfaces, one to provide Internet access, the other for internal networking.
3. On one of the VMs launch and configure L2-Virtualization (KVM(QEMU)), using CLI launch an Ubuntu-based VM and configure its network settings so that all 3 VMs are in the same LAN.

Task 2 Vagrant

1. In your repository create a branch Module 2 and upload a file named module2.txt with some text.
2. Install Vagrant and VirtualBox to your local PC.
3. Create a Vagrantfile that describes launch of 2 VMs (Ubuntu or Centos boxes).
4. Configure the network and network names of the VMs according to UNIX standard (use your nickname and OS name)
5. Using the “Shell” provisioner:
 - Install git and configure connection to your remote GitHub repository
 - Clone the Module 2 branch and print the content of module2.txt to the console
6. Check the availability of the VMs using the ping command (ping must work with DNS names between the VMs)
7. Upload the results manually to the module2 branch of your GitHub repository

Task 3

1. Automate the process of VM creation and configuration of network addresses and network names, defining the number of VMs with a variable.

2. The number of VMs needs to be input from keyboard and can take a value between 1 and 253 with input validation
3. Create a custom vagrant box with preinstalled and configured software.
4. Add your custom vagrant box to the default boxes directory.
5. Launch 2 VMs using your custom vagrant box and test for the installed software

Task 4

1. Create a Vagrantfile, in which you can specify the number of VMs to launch and configure, and the host part of each VM's IP address changes based on the number of the VM (the network part of the IP is common, the host part is variable). The hostnames of the VMs must change the same way, and the information about all VMs must be added to /etc/hosts in each VM after the VMs are launched and provisioning is finished (see Task 3).
 2. The total number of VMs is input from keyboard after the 'vagrant up' command is run and can take a value between 1 and 253 with input validation
 3. When the number of VMs is specified, one of the VMs must have a webserver installed (Apache or NGINX), the other VMs must have Tomcat installed and contain an index.html inside /usr/share/tomcat/webapps/ with a welcome text and the name of the VM on which the page is located. The webserver must be configured as a load balancer (default load balancing algorithm).
- !!!! Note: if the number of VMs = 1, only the VM with webserver must be launched. In all other cases 1 webserver VM is launched, and the other VMs with Tomcat.