Администрирование сетевых подсистем

Лабораторная работа №1

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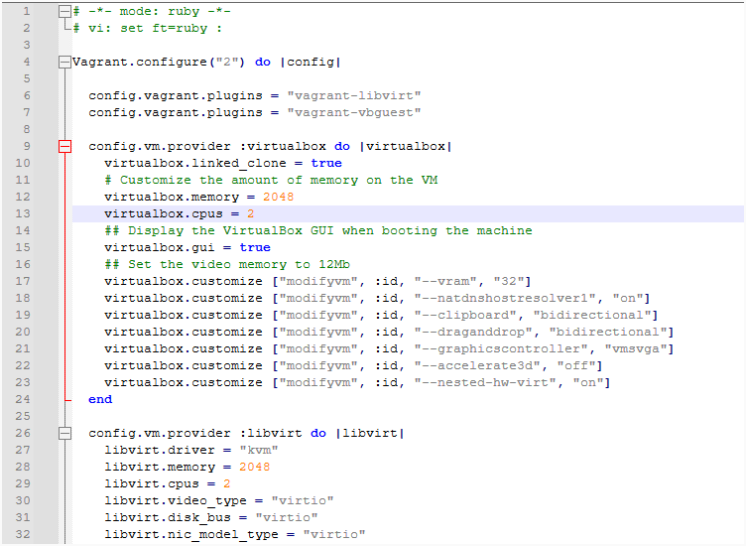
Цели и задачи работы

Цель лабораторной работы

Приобретение практических навыков по развертыванию Rocky Linux в среде Vagrant и автоматизации конфигурации с использованием Packer и provisioning-скриптов.

Выполнение лабораторной работы

Подготовка конфигурационных файлов



```
# -*- mode: ruby -*-
# vi: set ft=ruby :

Vagrant.configure("2") do |config|

  config.vagrant.plugins = "vagrant-libvirt"
  config.vagrant.plugins = "vagrant-vbguest"

  config.vm.provider :virtualbox do |virtualbox|
    virtualbox.linked_clone = true
    # Customize the amount of memory on the VM
    virtualbox.memory = 2048
    virtualbox.cpus = 2
    ## Display the VirtualBox GUI when booting the machine
    virtualbox.gui = true
    ## Set the video memory to 12Mb
    virtualbox.customize ["modifyvm", :id, "--vram", "32"]
    virtualbox.customize ["modifyvm", :id, "--natdnshostresolver1", "on"]
    virtualbox.customize ["modifyvm", :id, "--clipboard", "bidirectional"]
    virtualbox.customize ["modifyvm", :id, "--draganddrop", "bidirectional"]
    virtualbox.customize ["modifyvm", :id, "--graphicscontroller", "vmsvga"]
    virtualbox.customize ["modifyvm", :id, "--accelerate3d", "off"]
    virtualbox.customize ["modifyvm", :id, "--nested-hw-virt", "on"]
  end

  config.vm.provider :libvirt do |libvirt|
    libvirt.driver = "kvm"
    libvirt.memory = 2048
    libvirt.cpus = 2
    libvirt.video_type = "virtio"
    libvirt.disk_bus = "virtio"
    libvirt.nic_model_type = "virtio"
```


Рис. 1: Фрагмент Vagrantfile

Создание пользователя

```
#!/bin/bash

echo "Provisioning script $0"

username=chileshe
userpassword=123456

encpassword=`openssl passwd -1 ${userpassword}`

id -u $username
if [[ $? ]]
then
    adduser -G wheel -p ${encpassword} ${username}
    homedir=`getent passwd ${username} | cut -d: -f6`
    echo "export PS1='[\u@\H \W]\\$ '" >> ${homedir}/.bashrc
fi
```

Рис. 2: Provisioning-скрипт создания пользователя

Автоматическая смена hostname

Рис. 3: Provisioning-скрипт изменения hostname

Создание box-файла

```
Windows PowerShell
(C) Корпорация Майкрософт (Microsoft Corporation). Все права защищены.

Установите последнюю версию PowerShell для новых функций и улучшения! https://aka.ms/PSWindows

PS C:\work\chileshe\vagrant> vagrant box add rockylinux10 vagrant-virtualbox-rockylinux10-x86_64.box
==> box: Box file was not detected as metadata. Adding it directly...
==> box: Adding box 'rockylinux10' (v0) for provider: (amd64)
    box: Unpacking necessary files from: file://C:/work/chileshe/vagrant/vagrant-virtualbox-rockylinux10-x86_64.box
    box:
==> box: Successfully added box 'rockylinux10' (v0) for '(amd64)'!
PS C:\work\chileshe\vagrant>
```

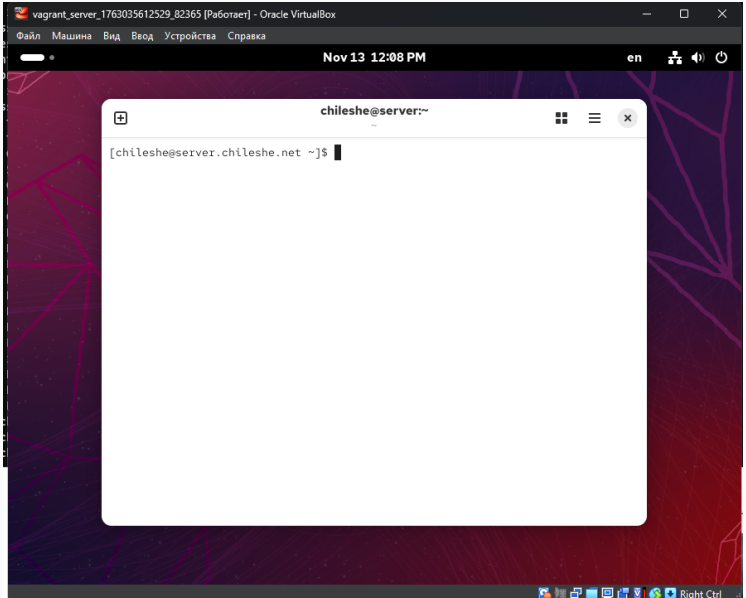
Рис. 4: Добавление box-файла в Vagrant

Запуск server через Vagrant

```
PS C:\work\chileshe\vagrant> vagrant up server
Bringing machine 'server' up with 'virtualbox' provider...
==> server: You assigned a static IP ending in ".1" or ":1" to this machine.
==> server: This is very often used by the router and can cause the
==> server: network to not work properly. If the network doesn't work
==> server: properly, try changing this IP.
==> server: Preparing master VM for linked clones...
    server: This is a one time operation. Once the master VM is prepared,
    server: it will be used as a base for linked clones, making the creation
    server: of new VMs take milliseconds on a modern system.
==> server: Importing base box 'rockylinux10'...
==> server: Cloning VM...
==> server: Matching MAC address for NAT networking...
==> server: You assigned a static IP ending in ".1" or ":1" to this machine.
==> server: This is very often used by the router and can cause the
==> server: network to not work properly. If the network doesn't work
==> server: properly, try changing this IP.
==> server: Setting the name of the VM: vagrant_server_1763035612529_82365
Vagrant is currently configured to create VirtualBox synced folders with
the `SharedFoldersEnableSymlinksCreate` option enabled. If the Vagrant
guest is not trusted, you may want to disable this option. For more
information on this option, please refer to the VirtualBox manual:
```

Рис. 5: Запуск VM server

Графический интерфейс server



Подключение через SSH

```
PS C:\work\chileshe\vagrant> vagrant ssh server
==> server: The machine you're attempting to SSH into is configured to use
==> server: password-based authentication. Vagrant can't script entering the
==> server: password for you. If you're prompted for a password, please enter
==> server: the same password you have configured in the Vagrantfile.
vagrant@127.0.0.1's password:
Last login: Wed Sep  3 09:04:22 2025 from 10.0.2.2
vagrant@server:~$ su -
adm                 dnsmasq             libstoragemgmt      rtkit               tcpdump
avahi               flatpak             lp                  setroubleshoot      tss
bin                 ftp                 mail                shutdown            vagrant
chileshe            games               nobody              sshd                vboxadd
chrony              gdm                 operator            sssd                wsdd
clevis              geoclue             pesign              stapunpriv
colord              gnome-initial-setup pipewire            sync
daemon              gnome-remote-desktop polkitd            systemd-coredump
dbus                halt                root                systemd-oom
vagrant@server:~$ su chileshe
Password:
[chileshe@server.chileshe.net vagrant]$
[chileshe@server.chileshe.net vagrant]$
exit
vagrant@server:~$
logout
Connection to 127.0.0.1 closed.
PS C:\work\chileshe\vagrant>
```

Рис. 7: Подключение SSH

Вывод

Вывод

Развернут полноценный лабораторный стенд на основе VirtualBox и Vagrant, включающий сборку box-файла через Packer, автоматическую установку Rocky Linux и запуск виртуальных машин с использованием provisioning-скриптов. Работа подтверждает эффективность применения инструментов автоматизации для подготовки инфраструктуры.