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Instructor: Dr. Jonathan V. Taylar	Semester and SY: 2023-2024

Activity 3: Install SSH server on CentOS or RHEL 8

1. **Objectives:**

1.1 Install Community Enterprise OS or Red Hat Linux OS

1.2 Configure remote SSH connection from remote computer to CentOS/RHEL-8

2. **Discussion:**

CentOS vs. Debian: Overview

CentOS and Debian are Linux distributions that spawn from opposite ends of the candle.

CentOS is a free downstream rebuild of the commercial Red Hat Enterprise Linux distribution where, in contrast, Debian is the free upstream distribution that is the base for other distributions, including the Ubuntu Linux distribution.

As with many Linux distributions, CentOS and Debian are generally more alike than different; it isn't until we dig a little deeper that we find where they branch.

CentOS vs. Debian: Architecture

The available supported architectures can be the determining factor as to whether a distro is a viable option or not. Debian and CentOS are both very popular for x86_64/AMD64, but what other archs are supported by each?

Both Debian and CentOS support AArch64/ARM64, armhf/armhfp , i386 , ppc64el/ppc64le. (Note: armhf/armhfp and i386 are supported in CentOS 7 only.)

CentOS 7 additionally supports POWER9 while Debian and CentOS 8 do not. CentOS 7 focuses on the x86_64/AMD64 architecture with the other archs released through the AltArch SIG (Alternate Architecture Special Interest Group) with CentOS 8 supporting x86_64/AMD64, AArch64 and ppc64le equally.

Debian supports MIPSel, MIPS64el and s390x while CentOS does not. Much like CentOS 8, Debian does not favor one arch over another —all supported architectures are supported equally.

CentOS vs. Debian: Package Management

Most Linux distributions have some form of package manager nowadays, with some more complex and feature-rich than others.

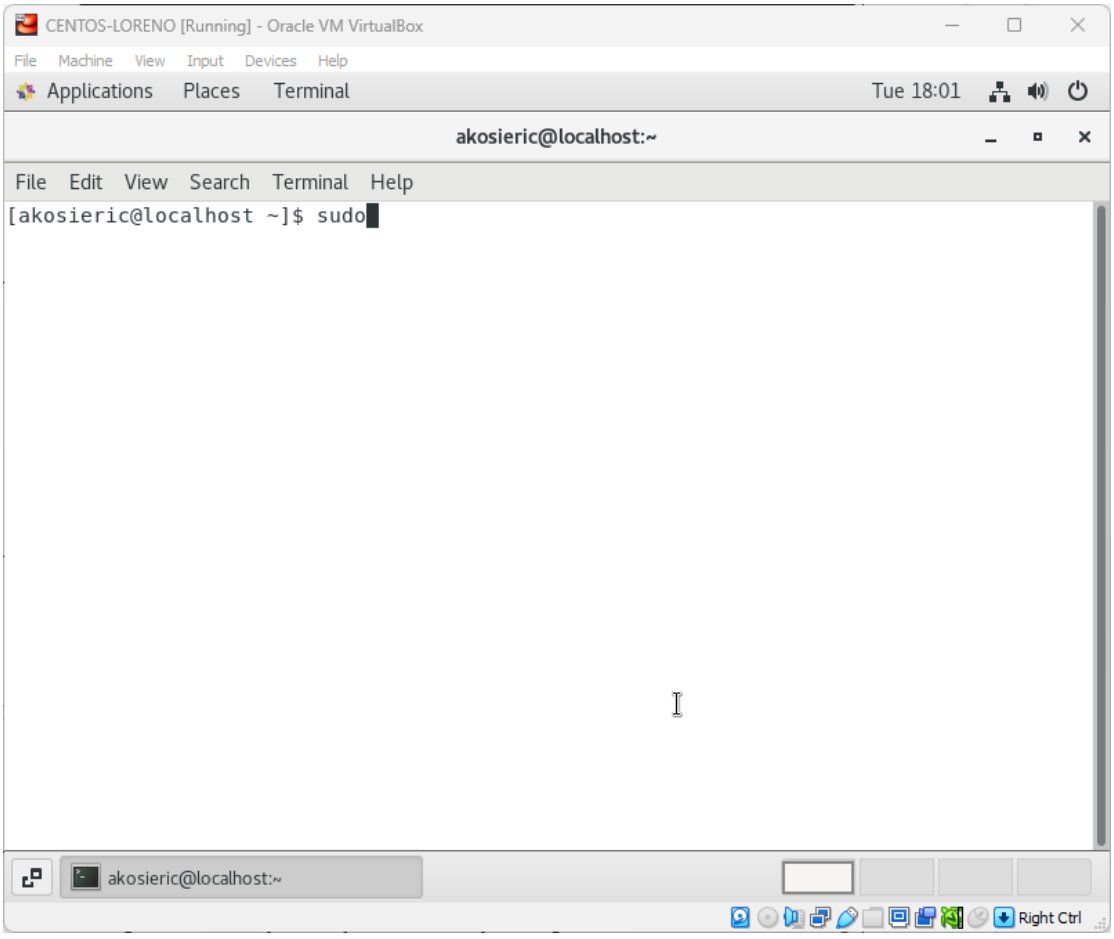
CentOS uses the RPM package format and YUM/DNF as the package manager.

Debian uses the DEB package format and dpkg/APT as the package manager.

Both offer full-feature package management with network-based repository support, dependency checking and resolution, etc.. If you're familiar with one but not the other, you may have a little trouble switching over, but they're not overwhelmingly different. They both have similar features, just available through a different interface.

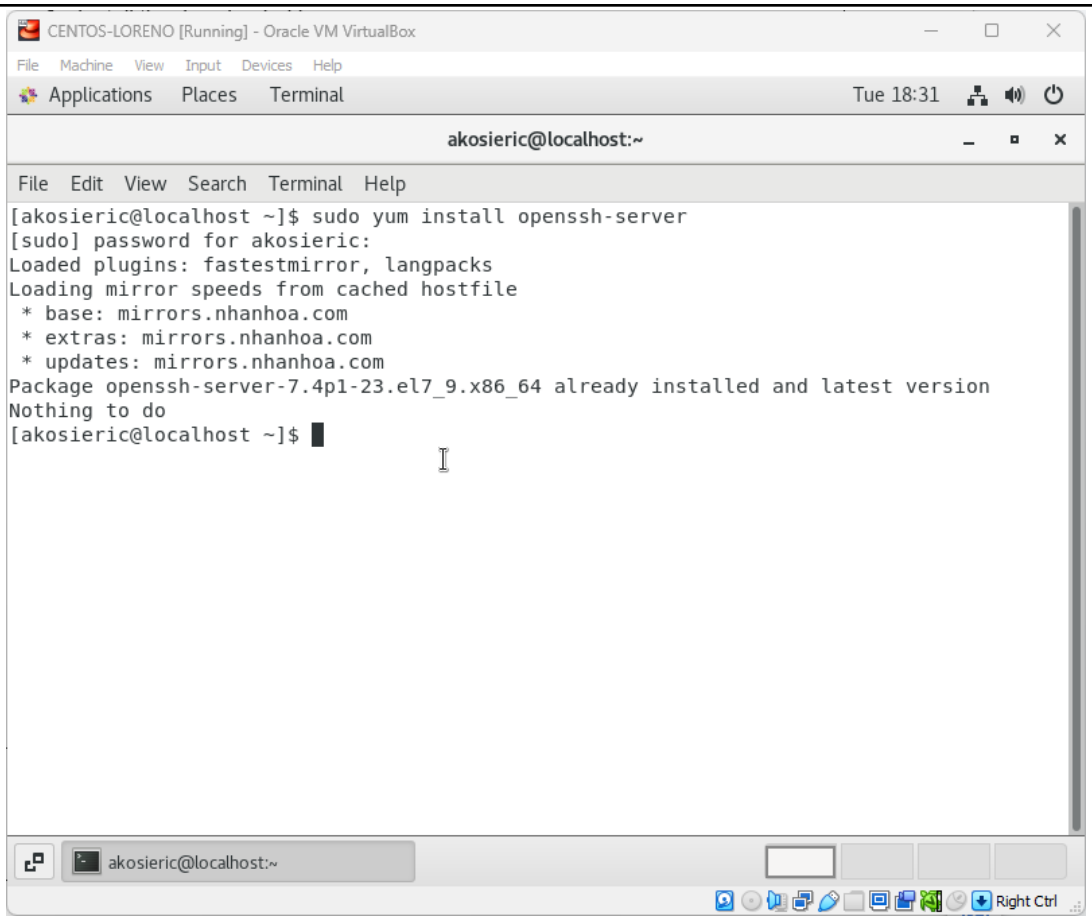
Task 1: Download the CentOS or RHEL-8 image (Create screenshots of the following)

1. Download the image of the CentOS here: http://mirror.rise.ph/centos/7.9.2009/isos/x86_64/
2. Create a VM machine with 4 Gb RAM and 35 Gb HD.
3. Install the downloaded image.
4. Show evidence that the OS was installed already.

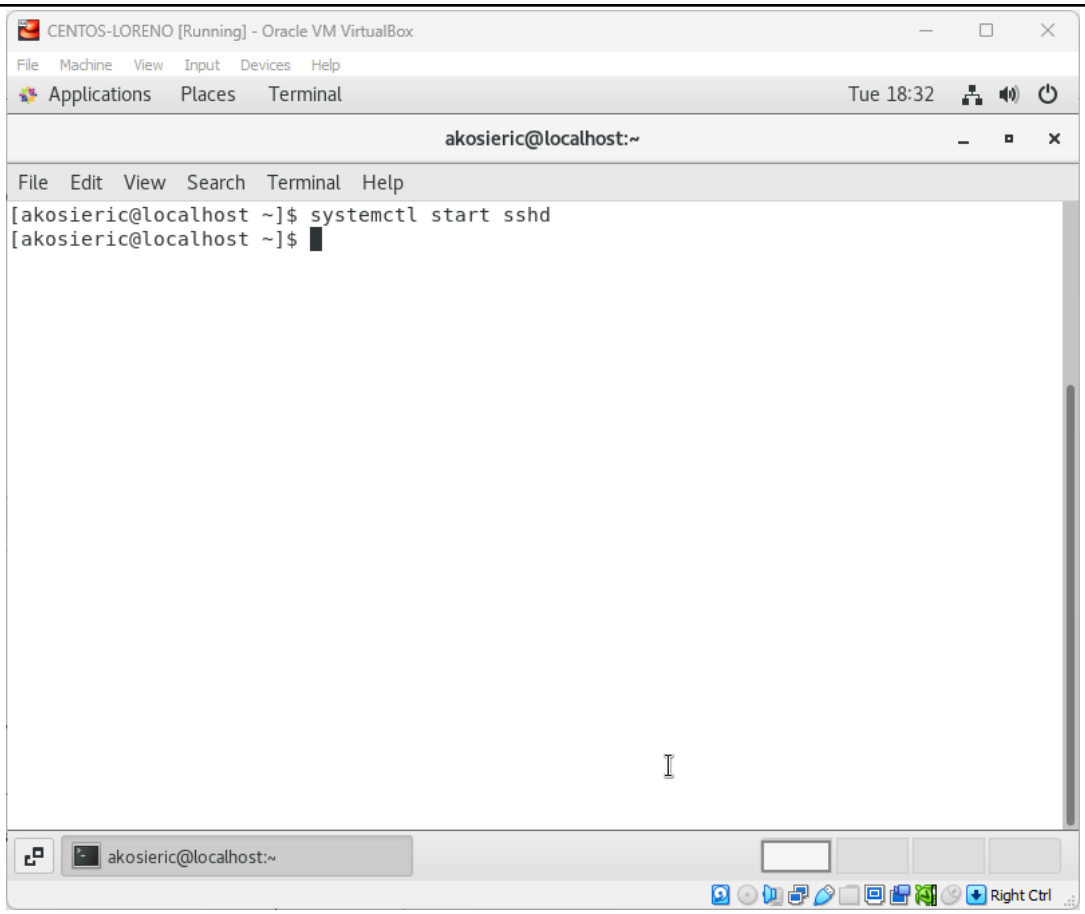


Task 2: Install the SSH server package *openssh*

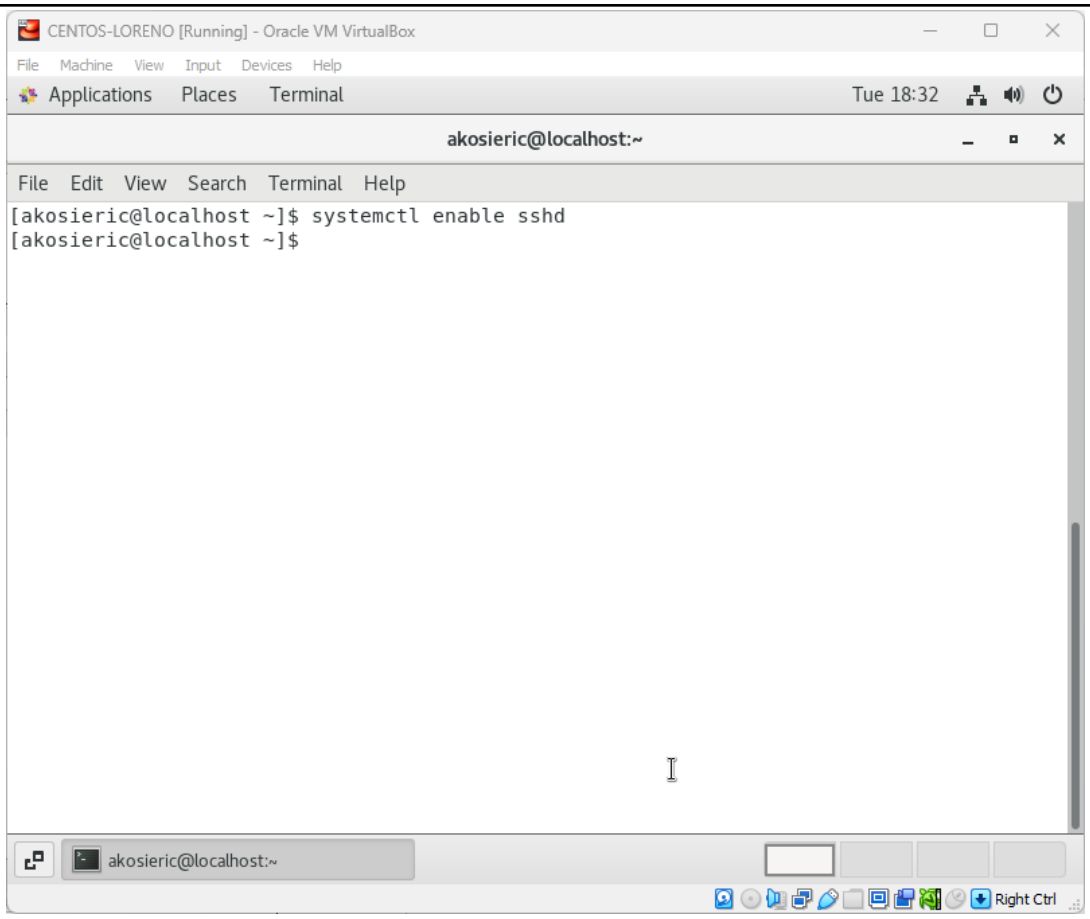
1. Install the ssh server package *openssh* by using the *dnf* command:
   $ dnf install openssh-server



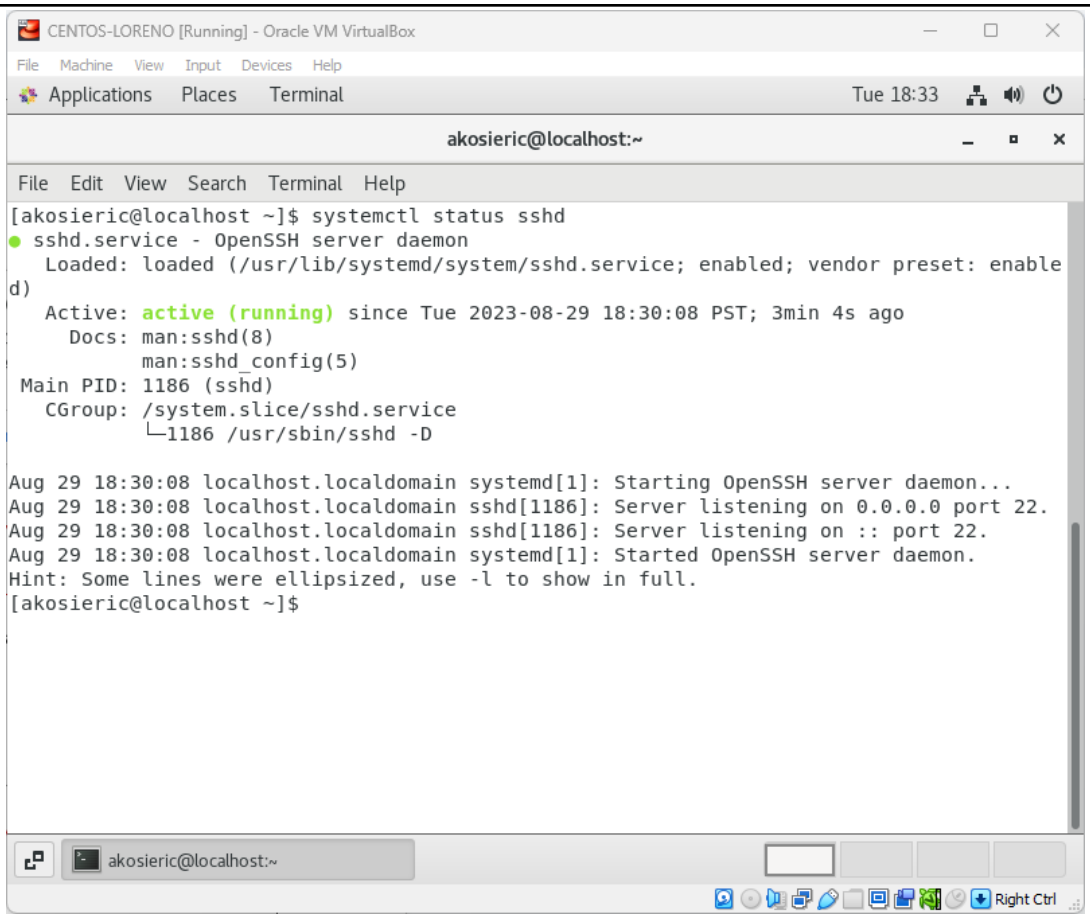
2. Start the *sshd* daemon and set to start after reboot:
   $ systemctl start sshd



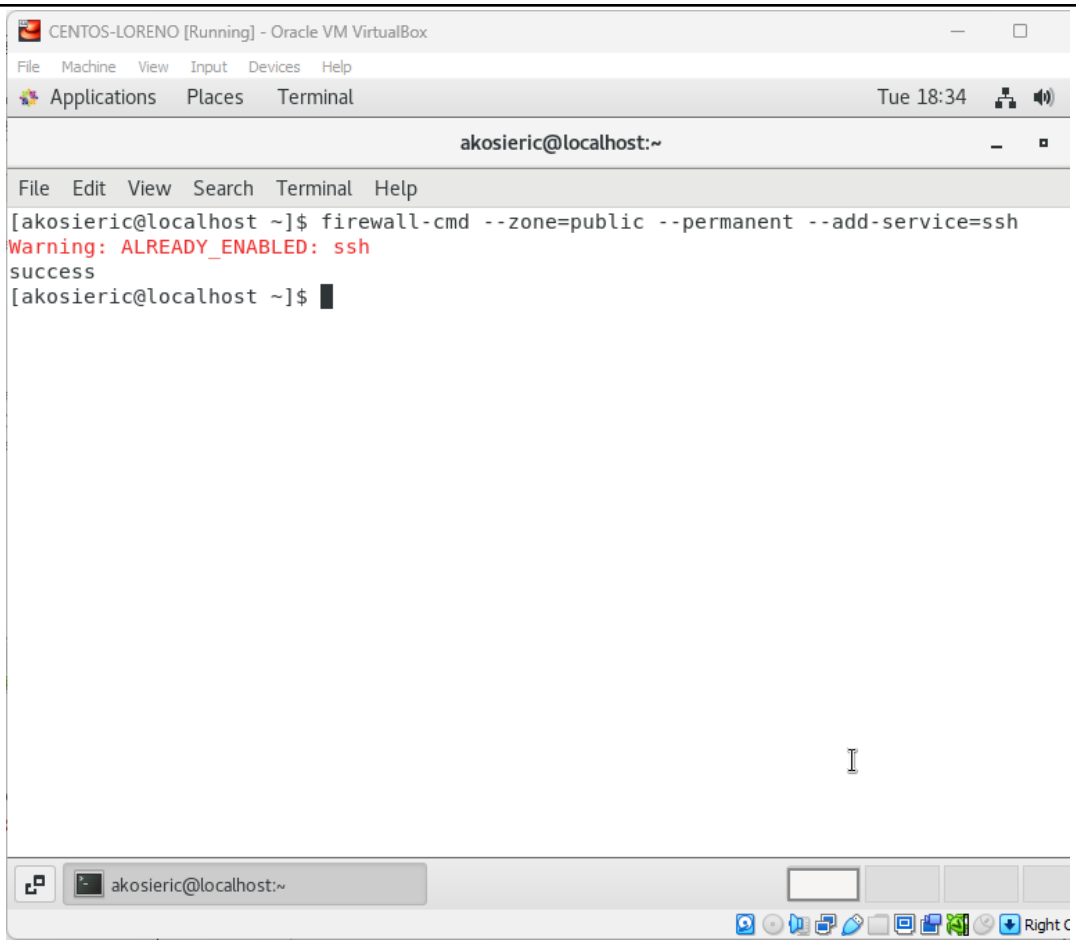
$ systemctl enable sshd



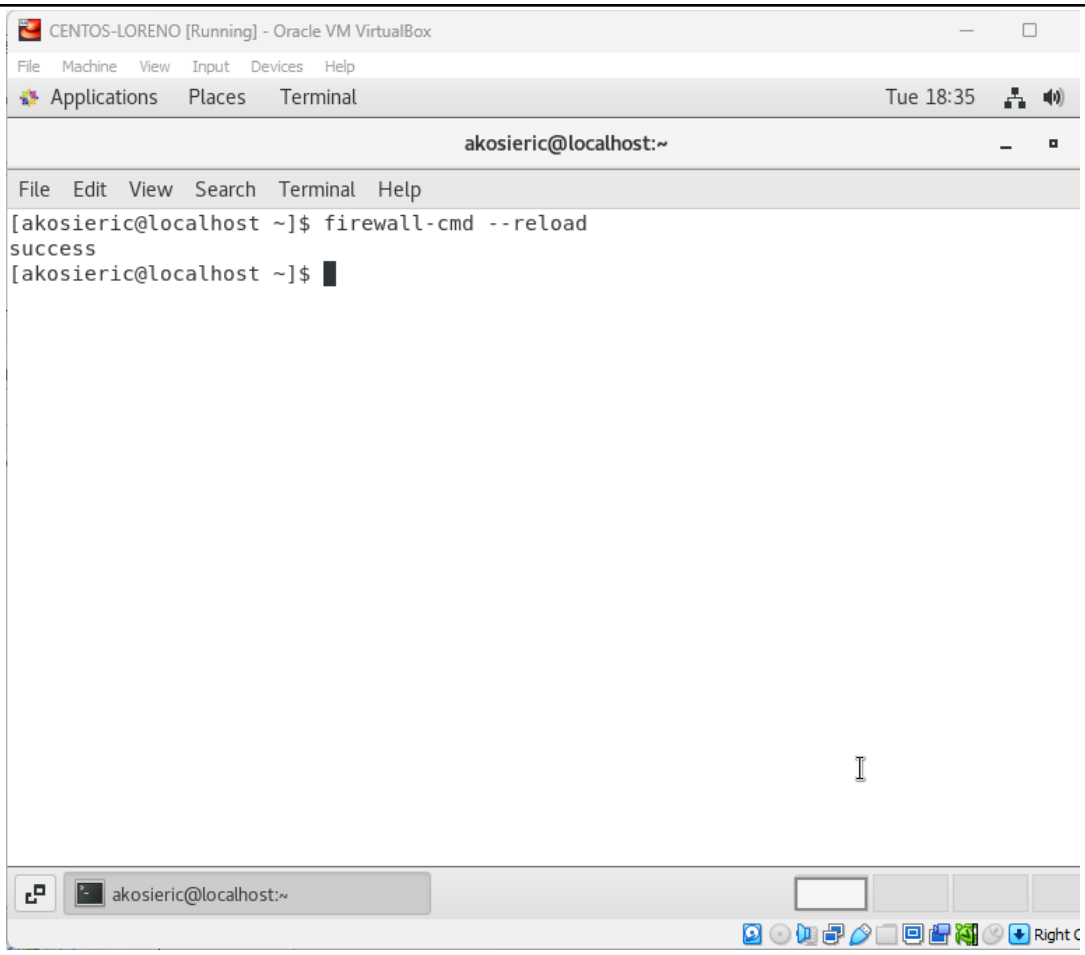
3. Confirm that the sshd daemon is up and running:
   $ systemctl status sshd



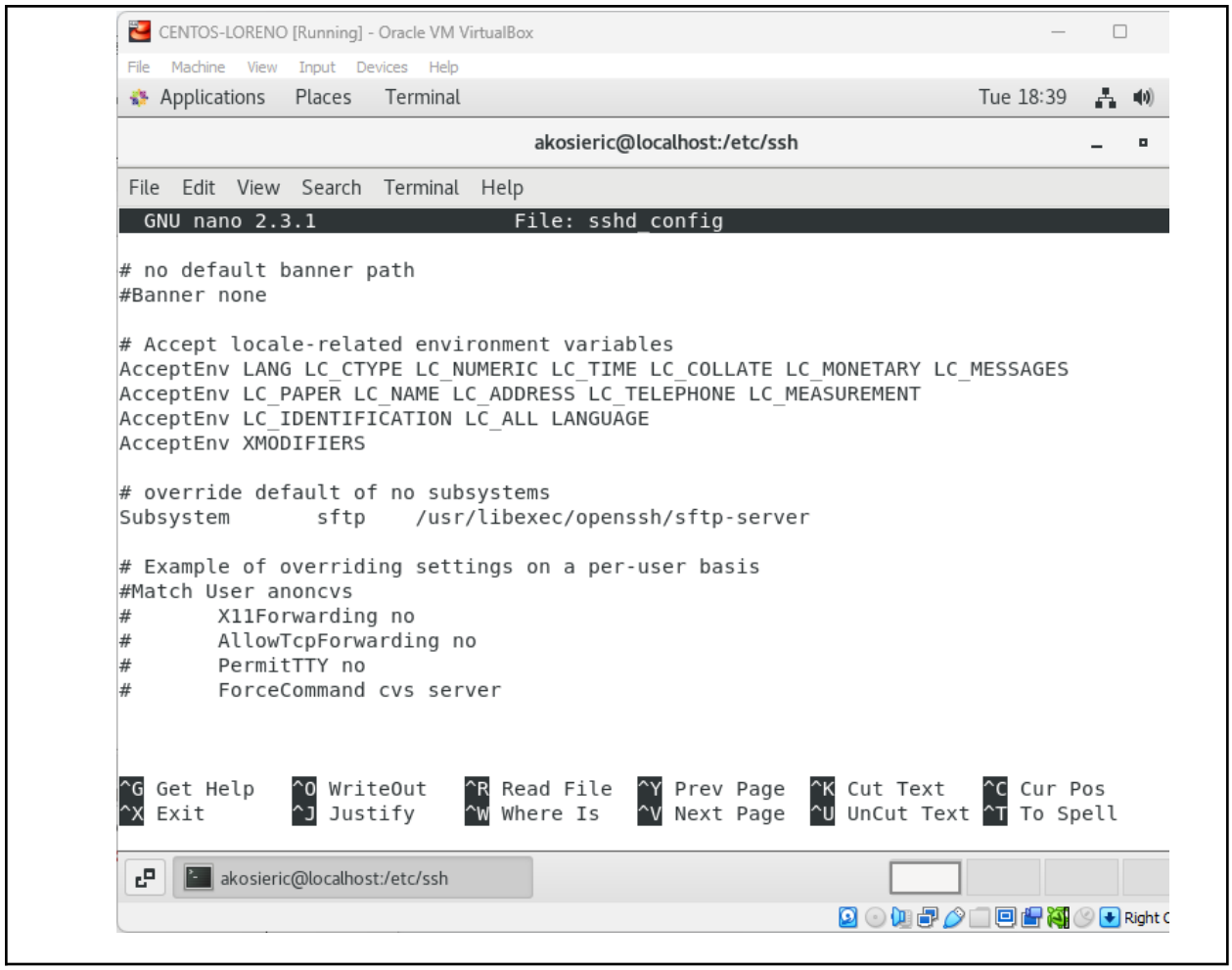
4. Open the SSH port 22 to allow incoming traffic:
   $ firewall-cmd --zone=public --permanent --add-service=ssh

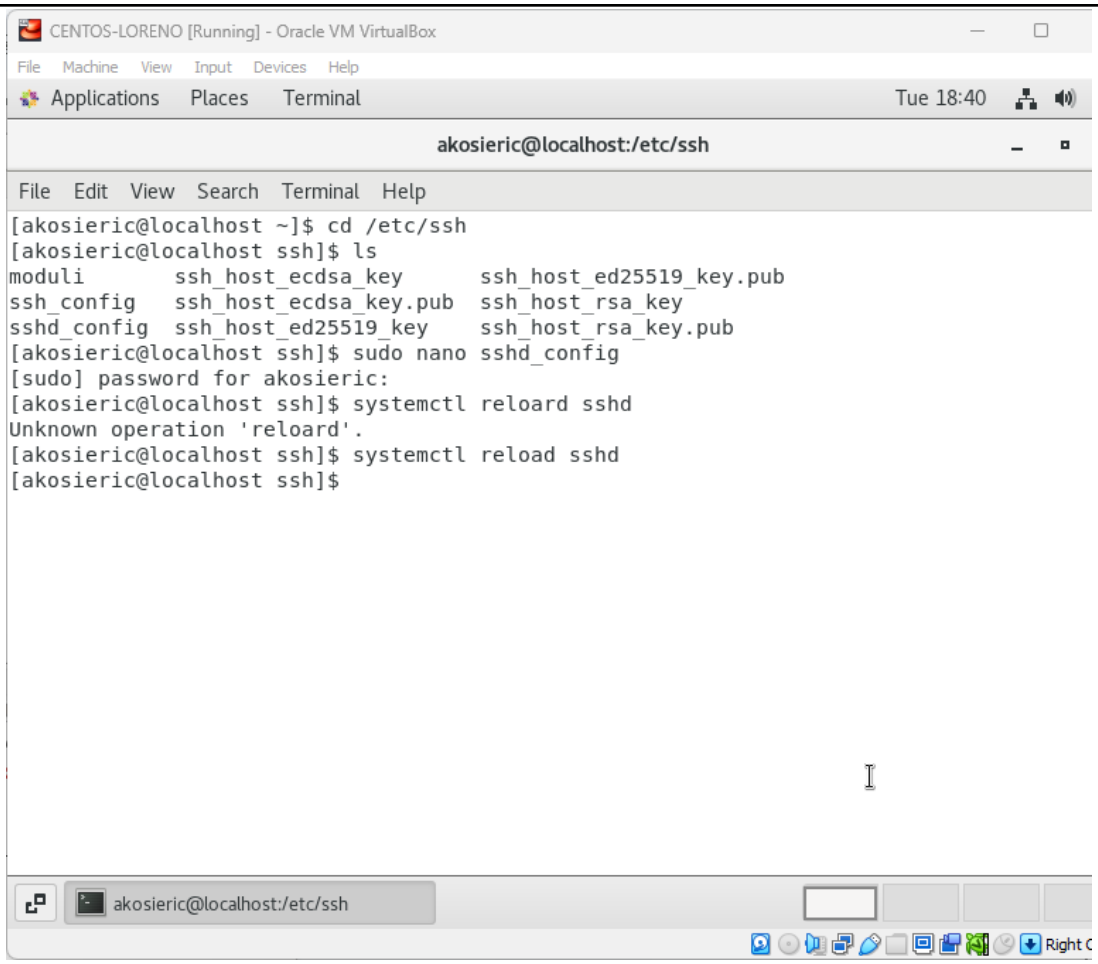


$ firewall-cmd --reload



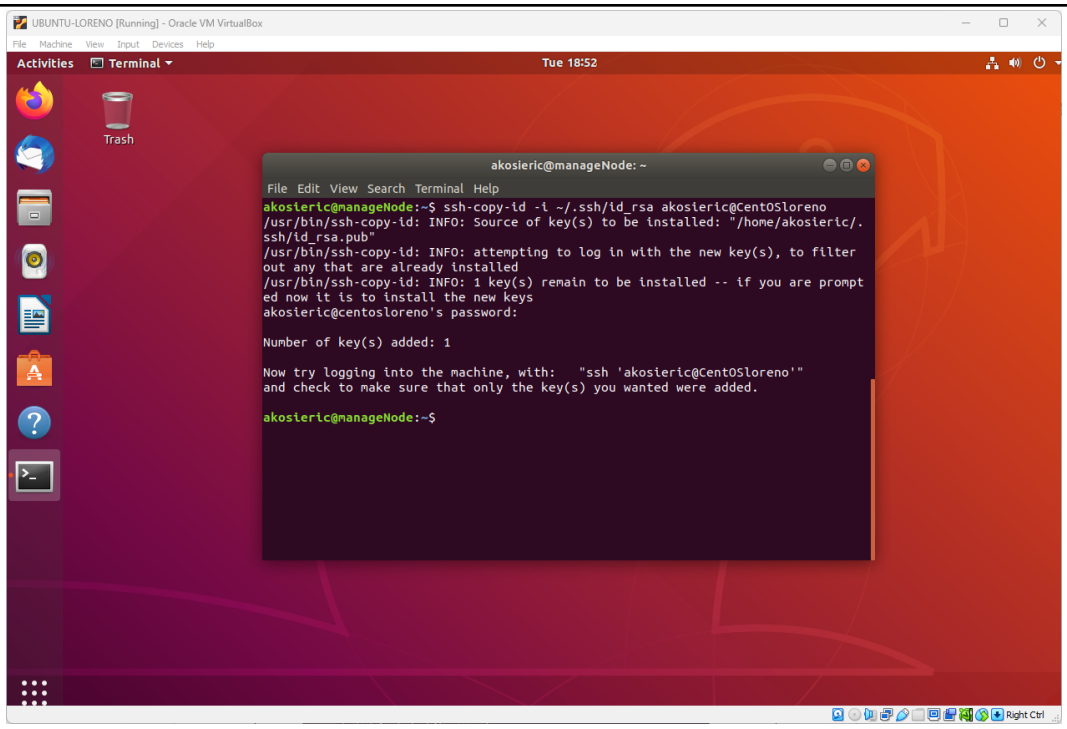
5. Locate the ssh server man config file /*etc/ssh/sshd_config* and perform custom configuration. Every time you make any change to the /*etc/ssh/sshd-config* configuration file reload the *sshd* service to apply changes:
   $ systemctl reload sshd


CENTOS-LORENO [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Tue 18:39
akosieric@localhost:/etc/ssh
File Edit View Search Terminal Help
GNU nano 2.3.1 File: sshd_config
no default banner path
#Banner none
Accept locale-related environment variables
AcceptEnv LANG LC_CTYPE LC_NUMERIC LC_TIME LC_COLLATE LC_MONETARY LC_MESSAGES
AcceptEnv LC_PAPER LC_NAME LC_ADDRESS LC_TELEPHONE LC_MEASUREMENT
AcceptEnv LC_IDENTIFICATION LC_ALL LANGUAGE
AcceptEnv XMODIFIERS
override default of no subsystems
Subsystem sftp /usr/libexec/openssh/sftp-server
Example of overriding settings on a per-user basis
#Match User anoncvs
X11Forwarding no
AllowTcpForwarding no
PermitTTY no
ForceCommand cvs server
^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell
akosieric@localhost:/etc/ssh
Right C

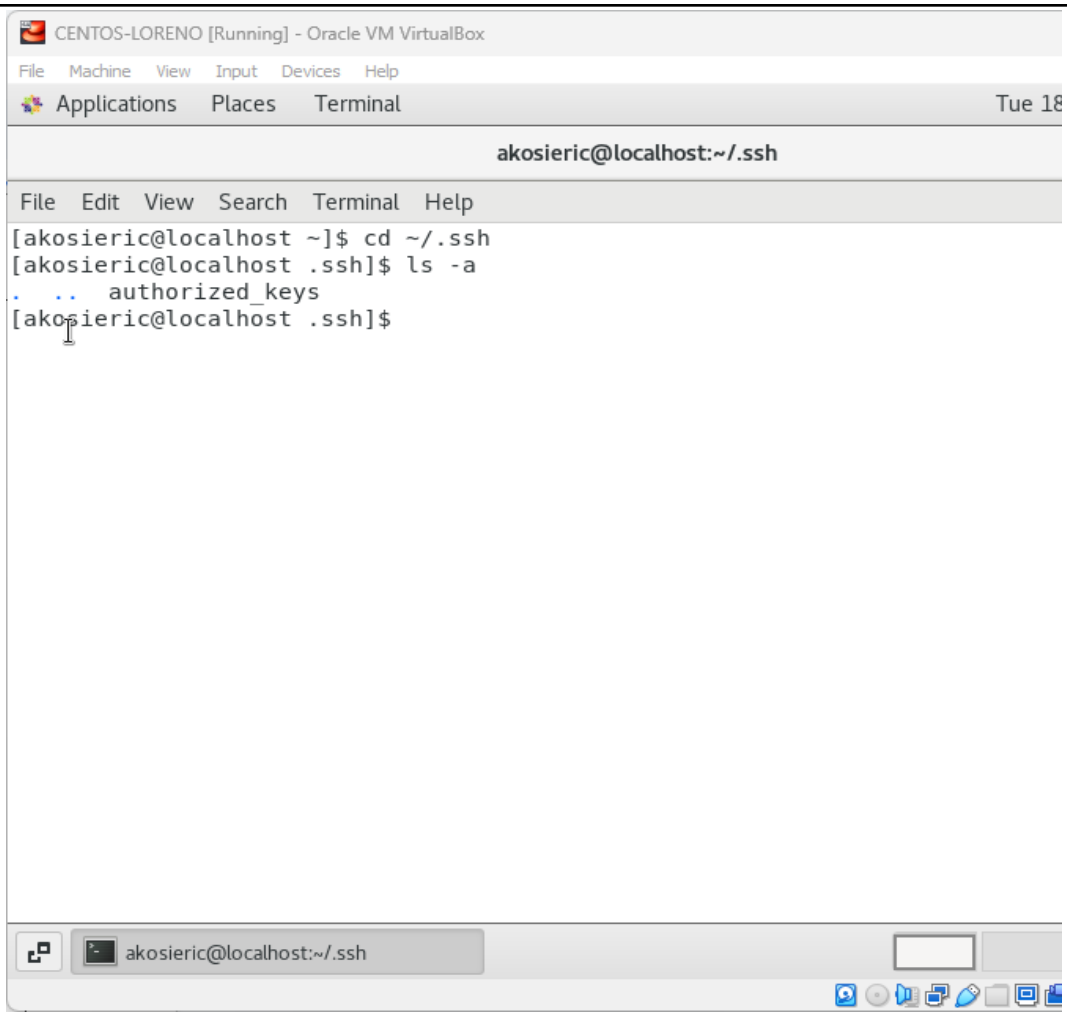


Task 3: Copy the Public Key to CentOS

1. Make sure that *ssh* is installed on the local machine.
2. Using the command *ssh-copy-id*, connect your local machine to CentOS.

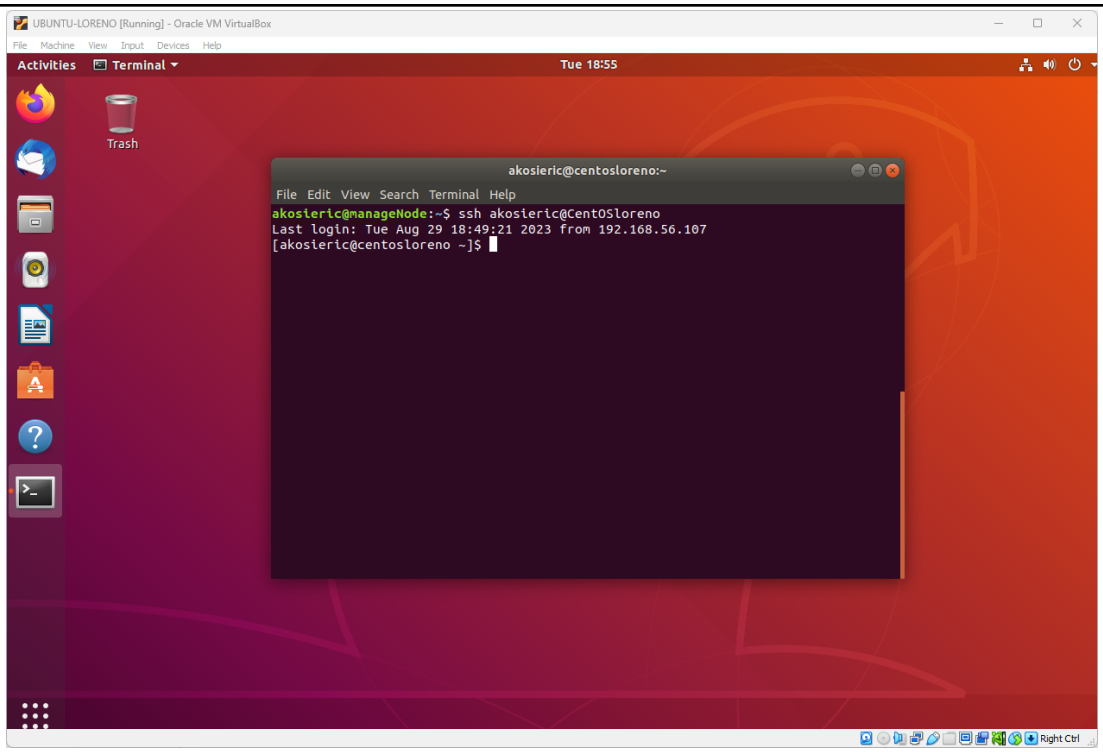


3. On CentOS, verify that you have the *authorized_keys*.

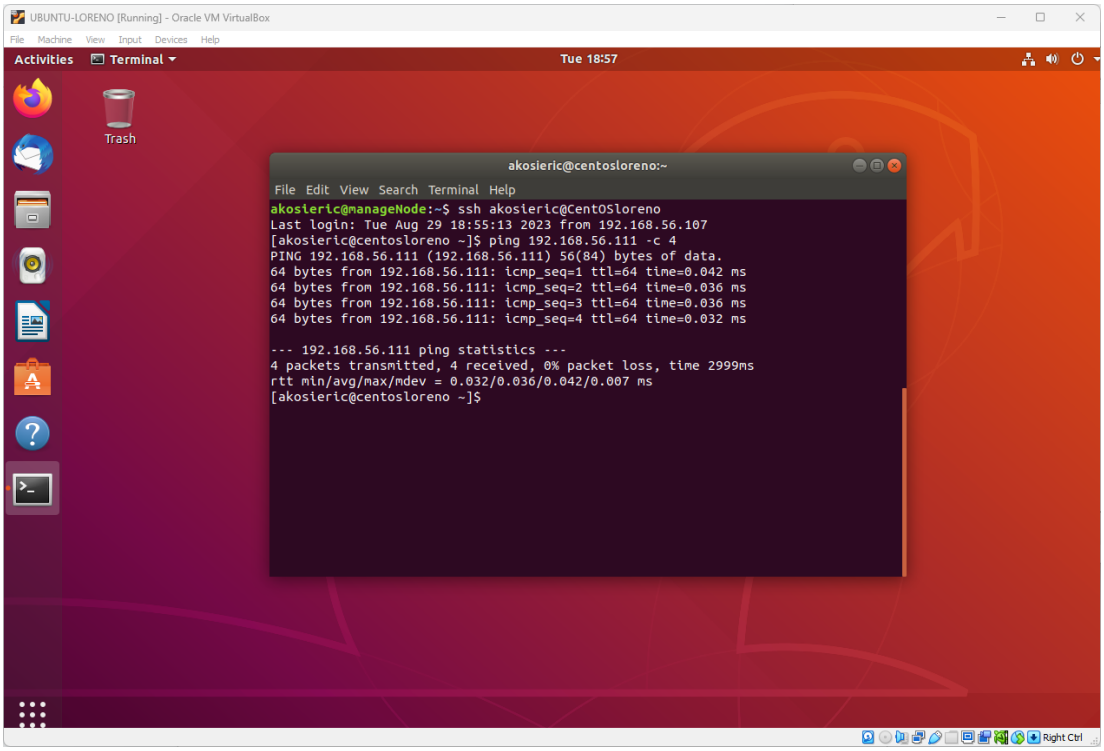


Task 4: Verify ssh remote connection

1. Using your local machine, connect to CentOS using ssh.



2. Show evidence that you are connected.



Reflections:
Answer the following:

1. What do you think we should look for in choosing the best distribution between Debian and Red Hat Linux distributions?
   - ***When choosing between Debian and Red Hat Linux distributions, consider factors such as your familiarity with the package management systems (APT or Debian, RPM for Red Hat), community support, software availability, and enterprise-level features. Debian tends to prioritize stability and software freedown, making it suitable for a wide range of use cases. Red Hat distributions, such as CenOS and Fedora, often cater to enterprise needs with strong support, documentation, and commercial options.***

2. What are the main diffence between Debian and Red Hat Linux distributions?

   - ***Debian and Red Hat Linux distributions differ in their package management systems (APT vs. RPM), release cycles (Debian's stability-focused vs. Red Hat's mix of shorter and longer cycles), community involvement(Debian's community-driver vs. Red Hat's mix of community and commercial offerings), licensing philosophies (Debian's strict open-source stance vs. Red Hat's inclusion of proprietary elements), software repositories (Debian's extensive selection vs. Red Hat's curated approach), and ecosystem/community focus(Debian's diverse global community vs. Red Hat's enterprise-oriented support options).***