Volume 2

Chapter 1

1. No answer required.

2.

a. No answer required.

b. 1 and 2 have indeterminate memory bus speed, 3 has 1333 MT/s.

You can’t really infer what the bus speed is from the CPU clock rate.

Error Correction Code memory, servers that are running ZFS.

3. On our systems, it is possible to affect the order of booting by pressing a function key before the firmware finds the boot medium. We then enter a “Setup” mode, and can select the order of boot media searched. This is useful, for example, when we want to boot into another system, such as Clonezilla, on a USB thumbdrive, or DVD medium. We can then use Clonezilla to “clone” our system disks and data disks.

4. No answer required, but USB3 is the fastest method of booting.

5. Those programs are insecure, for example ftp sends passwords over the network in plain text. This allows anyone monitoring your session to capture and use the password for your account.

6. **groups**

7. No answer required.

8. No answer required.

9. No answer required.

10. If you don’t remove the old home directory and its contents, nothing changes.

11. It was automounted, and the **findmnt** command listed it as /media/bob/7CF8-00D8 /dev/sdb1. No answer required for the remainder of this In-Chapter Exercise.

12. Because you unmounted it to use **fdisk**.

13. No answer required.

14. No answer required.

15. No answer required.

16. /*data/*datafile20

17. /*data*/text1.txt

18. The pathnames to the mirrored text files would be the same, /data2/textfilename! You can’t edit them separately. This is the salient difference between ZFS mirrored and traditional operating system mirrored disks. On a traditional system, for example, the text files would be mirrored on drives C: and D:, so you could designate different pathnames to the two mirrored files. Not so in ZFS.

19. No, you can’t mix mirrored pairs with single disks.

20. No, as can be seen by what disk usages show in the **zpool iostat -v** command in steps 21. and 22.. data2 is a pool with two mirrors.

21. Add the --**gzip** or --**gunzip** option to the appropriate parts a. and b. command.

22. Two assumptions. That you have access to the account on that remote host, via a username and password pair. Also, that both systems have the **rsync** command installed.

23. No answer required.

24. No answer required.

25. With the **gunzip** command, with the proper argument specifying that other directory.

26. No answer required.

27. No answer required.

28. They will restart on reboot, because APT places the correct systemd service unit installation instructions on a Raspberry Pi for them in /usr/lib/systemd/system. You could know this without booting if you examine their service unit files.

29. No answer required.

30. No answer required.

31. No answer required.

32. When you see numbers like 1024, 3000, or 100 associated with CPU allocation, they likely refer to specific values used for configuring CPU-related settings, but they don't directly correspond to the percentage representation you typically see in **top**. To interpret CPU utilization as a percentage using **top**, you would look at the %CPU column and the other related CPU metrics. We set them to 3000 to give those processes a bigger percentage share of the CPU.

33. No answer required.

34. No answer required.

35. root@raspberrypi:~# **systemctl stop test4.service**

root@raspberrypi:~# **systemctl stop test5.service**

36. No answer required.

37. On our Raspberry Pi 400-

bob@raspberrypi:~ $ **free**

total used free shared buff/cache available

Mem: 3884368 857128 1266204 203156 1761036 2746864

Swap: 102396 0 102396

38. **sudo ip address del 192.168.1.100/24 dev eth0**

39. Edit /etc/network/interfaces, and delete the assignment there.

40. Edit /etc/network/interfaces, and add new assignments there.

41. On our Raspberry Pi system-

bob:x:1000:1000:,,,:/home/bob:/bin/bash

username:encrypted password: UID:GID:full name:home directory: login shell

42. The Linux kernel, in conjunction with systemd.

43. POSIX 1.e ACLs, and NFSv4 ACLs, SELinux, any process controls levied by the kernel.

44. Any thread controls you levy via **capset**.

45. Examine the sudoers file, if you are allowed to.

46. No answer required.

47. Not ordinarily, but if you have sudo privilege, you can give the command **sudo su -**, and then you become root. Type **exit** to logout of root.

48. Coming from the Internet onto your LAN, and targeting the network stack.

49. No answer required.

50. Install fail2ban. See the current bans are in effect, using the fail2ban-client command **sudo fail2ban-client status service\_name**. Then unblock the IP address with the following command- **sudo fail2ban-client set servie\_name unbanip IP\_ADDRESS** , where IP\_ADDRESS is the address you want to unblock. Finally, to check use the command **sudo fail2ban-client status service\_name** .

51. Wireshark is a popular and widely used network packet analyzer. It is an open-source software that allows users to capture, analyze, and inspect the data packets traveling over your LAN, for example. These packets contain information about network traffic, including details about the source and destination addresses, protocols being used, payload data, and more.

52. **sudo ufw status**

**sudo systemctl status ufw**

Check to see if it’s enabled at boot-

**sudo systemctl is-enabled ufw**

On our Raspberry Pi system, it was not enabled, and no rules were in effect by default.

53. No answer required.

54. No answer required.

55. No answer required.

56. KVM, which stands for Kernel-based Virtual Machine, is an open-source virtualization technology that allows you to create and manage virtual machines (VMs) on Linux. It is a part of the Linux kernel and provides a hypervisor that enables you to run multiple virtual machines with various operating systems on a single physical machine. See Volume 3, Chapter 3 on LXC/LXD and Docker for a better idea of a comparison. Also, KVM is free, compared to Amazon Web Services or Google Cloud.