CS312 Homework #2 Answer Key

February 4, 2016

Questions

1. Explain the function of each of the following DNS records:

   - PTR: **Provides a reverse name mapping to an IP address.**
   - MX: **Email systems use this record to determine where to send email.**
   - TXT: **Arbitrary text record that's useful for extending DNS for applications.**
   - CNAME: **Assigns additional names to a host.**
   - SOA: **Start of Authority record marks the beginning of the zone.**
   - AAAA: **IPv6 Address Record (similar to `A` but for IPv6)**

2. Describe the difference between an authoritative DNS server and a recursive DNS server.

   An authoritative DNS server answers authoritatively for a specific domain. Recursive DNS servers do recursive DNS lookups for any domain requested. Authoritative typically are not setup as recursive.

3. `MX` records can be used on `CNAME` records

   (a) True

   (b) **False**

4. Which DNS record is typically used to assist in classless `PTR` delegation?

   `CNAME`

5. Describe why configuring remote logging is important.

   - **Security – send messages offsite so they can't be tampered**
   - **Send to a central location (or multiple locations)**
   - **Can be sent to a logging aggregation service (i.e. elastic search)**

6. Name the two logging applications that are running on CentOS 7.

   rsyslog and journald/systemd

7. What signal does `logrotate` typically send to applications to release file handles?

   `SIGHUP` or `-1` or `-HUP`

8. Provide the `journalctl` command which will list all of the logs for the `kernel`.

   `journalctl -k`

9. Provide a single `crontab` entry that would do **all of** the following:

   - Run every Tuesday and Thursday
   - Starting at 1am, every third hour it runs once every 10 minutes. For example, it should run at 1:10, 1:20, etc and then at 4:10, 4:20, etc.

   `*/10 1-23/3 * * 2,4`

   OR

   `*/10 1-23/3 * * tue,thu`

10. Which directory allows for arbitrary `crontab` formatted files used by `crond`?

    (a) **`/etc/cron.d`**

(b) `/etc/crontab`

(c) `/etc/cron.daily`

(d) `/etc/crons`

11. Software RAID6 can be used for `/boot` with any version of `grub`.

    (a) True

    (b) **False**

12. Which file provides the current status of the software RAID devices?

    (a) `/dev/raid`

    (b) **`/proc/mdstat`**

    (c) `/proc/mdadm`

    (d) `/sys/mdstat`

13. Correctly order the commands that should be used to create an LVM volume and then mount that volume.

    5 `mount /dev/data/misc /mnt`

    2 `vgcreate data /dev/sda1 /dev/sdb1`

    1 `pvcreate /dev/sda1 /dev/sdb1`

    4 `mkfs.ext4 /dev/data/misc`

    3 `lvcreate -n misc -L 100G data`

14. Which RAID level provides a mirrored set of striped drives?

    (a) RAID0

    (b) RAID1

    (c) RAID6

    (d) **RAID10**

15. Correctly order the network boot install steps:

    5 PXELINUX downloads Linux kernel/initrd image and sends any kernel arguments

1 System start up, BIOS check

3 Gets an IP address and information on where the TFTP server is

4 Grabs the initial boot image

2 Boot from network device

16. Provide the list of Anaconda **boot** options that would do the following:

    (a) Set the IP statically to `192.168.5.100`

    (b) Assuming the subnet is a /24 and the gateway is `192.168.5.1`, set the correct gateway and netmask.

    (c) Set the DNS nameserver to `192.168.5.130` and `192.168.5.131`

    (d) Enable the VNC GUI installer with the password set to `cs312`

    (e) Use the Kickstart file from an NFS file share on `192.168.5.2:/kickstart/ks.cfg`

```
ip=192.168.5.100::192.168.5.1:24:::none \
  nameserver=192.168.5.130 \
  nameserver=192.168.5.131 \
  inst.vnc \
  inst.vncpassword=cs312w16 \
  ks=nfs:192.168.5.2:/kickstart/ks.cfg
```

17. Which directory does systemd look for custom systemd unit files?

    (a) **`/etc/systemd/system/`**

    (b) `/usr/lib/systemd/system/`

    (c) `/run/systemd/system/`

    (d) `/etc/systemd/`

18. The following command is the proper way to restart the `httpd` service using systemd: `systemctl httpd restart`

    (a) True

    (b) **False**

19. Which systemd service type should be used for a command that is just run and then exits?

(a) notify

(b) simple

(c) forking

(d) **oneshot**

20. What are systemd Targets roughly equal to in the SystemV world?

(a) Init scripts

(b) **Run levels**

(c) Units

(d) `init`