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1

	1.1 USB sysfs udev dbus
	1.2 BIOS/UEFI SysVinit upstart
	1.3 / SysVinit systemd SysVinit systemd

2 Linux

	2.1 Linux
	2.2 GRUB GRUB 2
	2.3
Debian	2.4 Debian Debian <code>apt</code> Debian
RPM YUM	2.5 RPM YUM RPM YUM RPM <code>dnf</code> Zypper RPM
Linux	2.6 Linux Linux iaas Linux

3 GNU UNIX

Linux	3.1 shell
	3.2 GNU textutils UNIX

	3.3 <div> <div>tar</div> <div>cpio</div> <div>dd</div> </div>
	3.4
	3.5
	3.6
	3.7
	3.8 <div> <div>vi</div> <div>vi</div> <div>Emacs nano</div> <div>vim</div> </div>

4

Linux

	4.1 <div> <div>MBR</div> <div>GPT</div> <div>ext2/ext3/ext4</div> <div>XFS</div> <div>VFAT</div> <div>exFAT</div> <div>Btrfs</div> </div>
	4.2 <div>inode</div>
	4.3 <div> <div>UUID</div> <div>systemd</div> </div>
	4.4
	4.5 <div> <div>suid</div> <div>sgid</div> <div>sticky bit</div> <div>group</div> </div>
	4.6 <div>/</div>

	4.7	(FHS)	FHS	Linux	FHS

5 Shell shell

shell	5.1 shell shell PATH Bash
	5.2 Bash shell shebar
SQL	5.3 SQL SQL SQL

6

X11	6.1 X11 I X11 X11 X Window Xorg X
	6.2 GNOME KDE Xfce X11 XDMCP VNC SPICE RDP
	6.3 (AT)

7

	7.1
	7.2 cron system{cron at systemd}
	7.3 LANG=C

8

	<div>8.1</div> <div>NTP</div> <div>ntp</div> <div>NTP</div> <div>ntpd</div> <div>chrony</div> <div>pool.ntp.org</div>
	<div>8.2</div> <div>rsyslog</div> <div>systemd</div> <div>syslog</div> <div>syslog-ng</div> <div>logrotate</div>
(MTA)	<div>8.3 (MTA)</div> <div>MTA</div> <div>MTA</div> <div>postfix</div> <div>sendmail</div> <div>exim4</div>
	<div>8.4</div> <div>CUPS</div> <div>LPD</div> <div>CUPS</div>

9

	<div>9.1</div> <div>TCP/IP</div> <div>IP</div> <div>TCP</div> <div>UDP</div> <div>20</div> <div>21</div> <div>22</div> <div>23</div> <div>25</div> <div>!</div> <div>IPv6</div> <div><</div> <div>tcp</div> <div>ip</div> <div>cidr</div> <div>udp</div> <div>20</div> <div>21</div> <div>22</div> <div>23</div> <div>25</div> <div>53</div> <div>80</div> <div>110</div> <div>123</div> <div>139</div> <div>143</div> <div>161</div> <div>162</div> <div>389</div> <div>443</div> <div>465</div> <div>514</div> <div>636</div> <div>993</div> <div>995</div> <div>udp</div>
	<div>9.2</div> <div>Linux</div> <div>TCP/IP</div> <div>wifi</div> <div>systemd-networkd</div>
	<div>9.3</div> <div>net-tools</div> <div>iproute2</div> <div>iproute2</div>
	<div>9.4</div> <div>DNS</div> <div>DNS</div> <div>DNS</div> <div>DNS</div> <div>systemd-resolved</div>

10

	<div>10.1</div> <div>nmap</div> <div>netstat</div> <div>suid/sgid</div> <div>sudo</div>
	<div>10.2</div> <div>TCP</div>
	<div>10.3</div> <div>OpenSSH 2</div> <div>OpenSSH 2</div> <div>GnuPG</div>

cpu IO

- SQL -----> sql
- IO (raid raid tps)
- tps : IO

IO cpu

- IO
- autocommit IO
- IO/PS IO
- IO
- SQL

IO cpu

- SQL

1.

:
--> --> --> --> ()

2.

- CPU
- I/O I/O
- RAID BBU(Battery Backup Unit)

cpu

- cpu
- cpu OLTP cpu
- IO OLAP
- OLAP
- OLTP cpu 2 4
- RAID (raid 5 raid 10)
- (raid1)(ssd sas sata)

raid raid

- (raid1)
- I/O I/O
- RAID BBU(Battery Backup Unit)

(HBA)

3.

- 1
- 2 (FENCE ipmi ilo idarc)
- 3 (snmp agent)
- 4 EMC2(hp) (hds) IBM OEM hds

4.

Cpu

SWAP

MySQL swap swap 0

IO

- raid no lvm ext4 xfs ssd IO
- Swap (swap)

- 1 CPU CPU
- 1 CPU A B " " A B CPU
- $= ((\frac{\text{CPU}}{2}) + \text{CPU}) \times 4$ i7 $((4 \times 2) + 1) = 9$ 10 3000 6000 TPS
- $2 \times \text{CPU}$ 10000 10
- tps " " " I/O " " I/O "
- iops IO , " "
- KB_read/s (drive expressed)
- KB_wrtn/s (drive expressed)
- KB_read
- KB_wrtn Kilobytes