RAID DISK ARRAY; Wake On LAN WOL; SSH; TUTORIAL

1) RAID is a composition of few discs to make one virtual – in this particular case RAID 0. Currently (2017y.) it is scalable linearly up to 8 discs with ~75% effectiveness (for example 4 SSD's should obtain theoretically symmetric read/write performance of 2GBps and it is approximately 1.6GBps mean real measures, which is about 75% performance). Firstly obtain at least 2 SSD's, and do as follows:

2) list devices – be sure, which two are especially for RAID:

```
#sudo su
```

list disc devices:

```
#fdisk -l
```

short list disc devices:

```
#lsblk
```

umount discs – useful trick:

```
#umount /dev/sdxx
```

3) format disc independtly of its content (check disc content before doing that):

format with ancient all-purpose, platform-independent FAT32 file system:

```
#mkdosfs -F 32 -I /dev/sdxx
```

format discs to ext4 file system (LINUX default):

```
#umount -f /dev/sdxx
#mkfs.ext4 /dev/sdxx
```

fit to constant partition size on all discs:

```
#resize2fs /dev/sdxx constantSize
```

after applying above steps to all discs create RAID 0 (md0 device)

```
#mdadm --create --verbose /dev/md0 -l 0 --raid-devices=2 /dev/sdxx1 /dev/sdxx2
```

P.S. now disc array is ordinary disc in operating system

deleting created RAID 0

```
# mdadm --stop /dev/md0
# mdadm --remove /dev/md0
# mdadm --zero-superblock /dev/sdx1
```

Post Scriptum mdadm program is CPU – computationally expensive, especially for large bandwidth (60-90%) pseudorandom (for sequential reads) accesses to RAID 50 array disc (virtual device). For general solution make disk array on separate MB and connect to it via network interface (link aggregation, IB, 10GbE cards etc.).

Post Post Scriptum one can do this for pendrives, ordinary HDD's, uSD's and so on.

4) it is quite useful to power on a remote Personal Computer with its network card MAC address (one can obtain it via #ifconfig command). It is mainly applicable for wired networks (majority of network cars in MB's and PCI/PCIe cards are supporting „magic packet" for Wake On LAN):

```
#sudo apt-get wakeonlan
#wakeonlan MACAddr_xx:yy:zz:xx:yy:zz
```

5) moreover it is useful to sign in remotely on the-same-username user without password via Secure Shell SSH:

create the same username user on both computers:

```
#sudo adduser sameSSHUser
#sudo usermod -aG sudo sameSSHUser
```

create ssh asymmetric cryptography ssh keys:

```
#ssh-keygen
#ssh-copy-id IPv4Addr
```

signing in is passwordless and simpyfied:

```
#ssh IPv4Addr
```