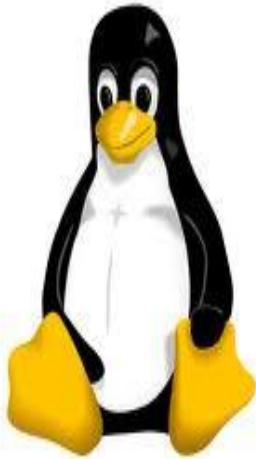


# **ADMINISTASI SISTEM**

**STT TERPADU NURUL FIKRI  
TEKNIK INFORMATIKA & SISTEM INFORMASI  
2018**

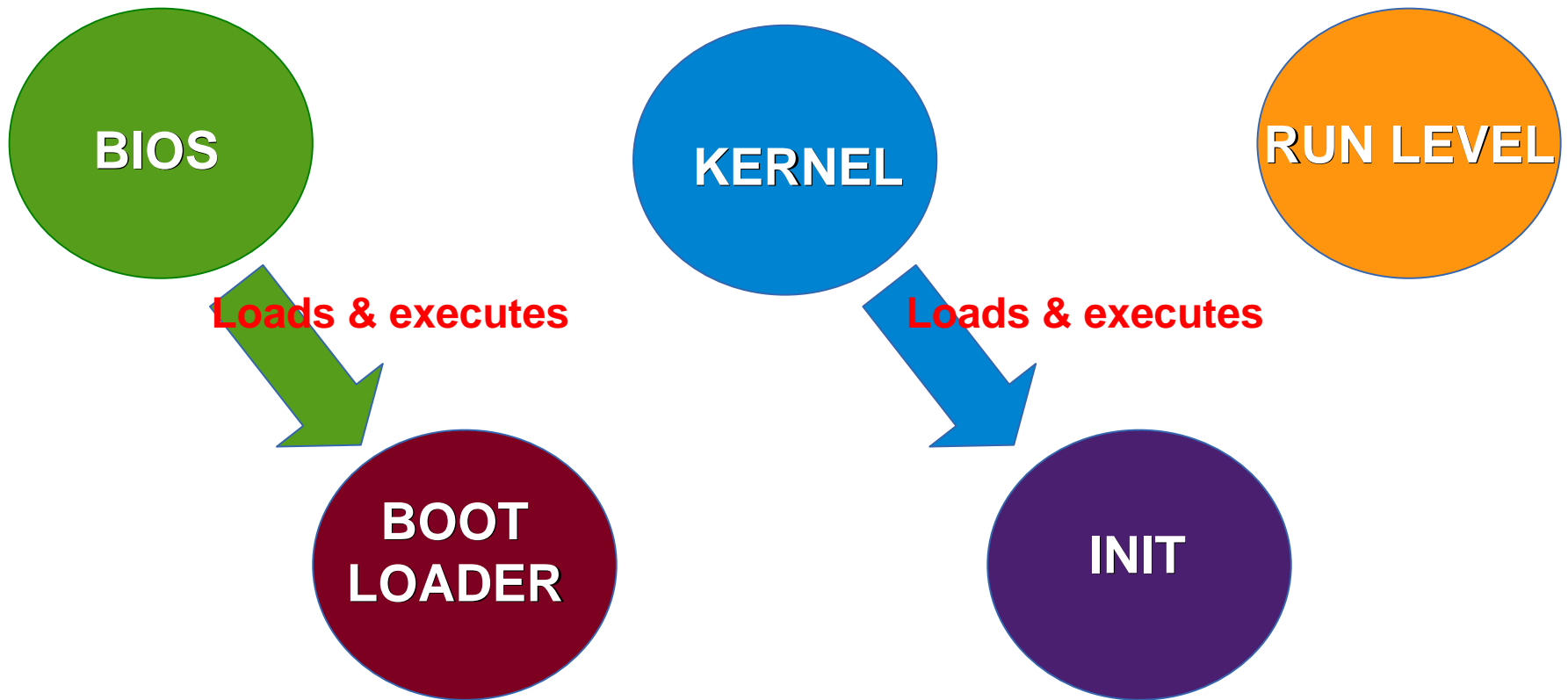
# PROSES BOOT DAN MANAJEMEN SERVICE



# LINUX BOOT PROCESS



# PROSES BOOT LINUX

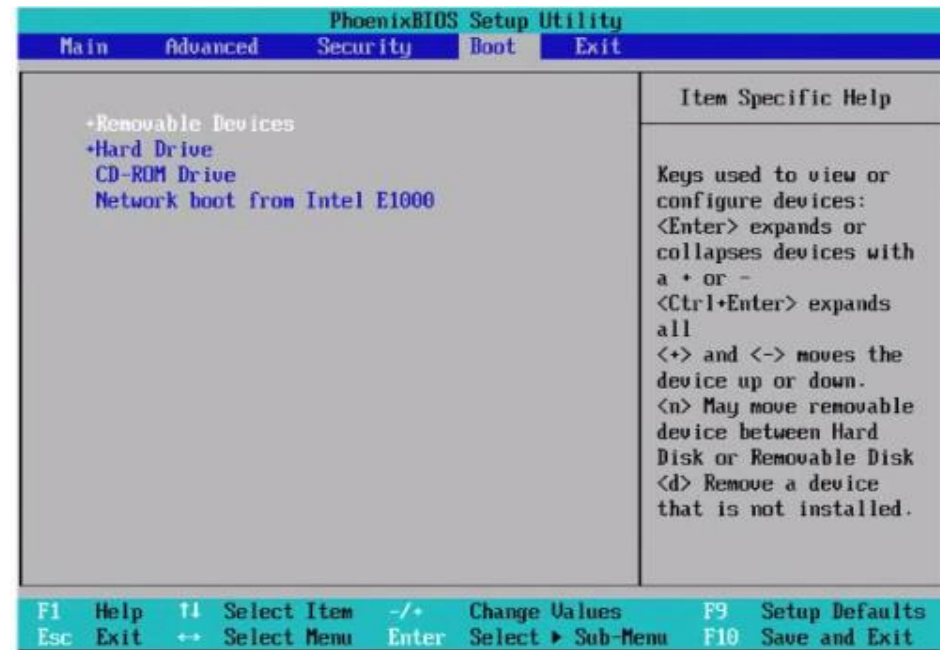


# BIOS




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- Basic Input Output System (BIOS)
- Program pertama
- Dijalankan dari ROM
- Independen terhadap OS
- POST (Power On Self Test)
- Menjalankan OS dari
- Daftar media penyimpanan sesuai urutan, sampai menemukan sebuah **MBR** (Master Boot Record)



# BIOS SCREEN

 Award Modular Bios v.4.01, An Energy Star Ally.  
Copyright (C) 1984-1994, Award Software, Inc.

i486-DX2 CPU at 50 mhz

Memory Test: 3277 OK

Award Plug and Play BIOS Extension v1.0  
Copyright (C) 1994, Award Software, Inc.

Detecting IDE Primary Master ... WDC-20

Detecting IDE Primary Slave ... None

Detecting IDE Secondary Master... Generic CD-ROM



<DEL>: BIOS Setup, <F12>: For Boot Menu  
06/27/1995



# BOOT LOADER



- ◆ MBR (Master Boot Record)
- ◆ Sektor awal (pertama) dari Disk, berukuran 512 Byte
- ◆ Terdiri dari 3 komponen: primary boot loader info, partition table info, MBR validation check
- ◆ Boot loader biasanya berada dalam MBR
- ◆ Bisa juga berada di tempat lainnya dari disk
- ◆ Boot loader dalam MBR dijalankan
- ◆ Boot loader memuat/menjalankan OS (kernel)
- ◆ Otomatis ataupun meminta opsi
- ◆ Contoh boot loader: LILO, GRUB
- ◆ Memuat initrd image
- ◆ “initial ramdisk”
- ◆ Sebuah file system berbasis RAM



# BOOT LOADER



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Mengenal filesystem

**Loads**

**GRUB  
Boot Loader**

Konfigurasi:

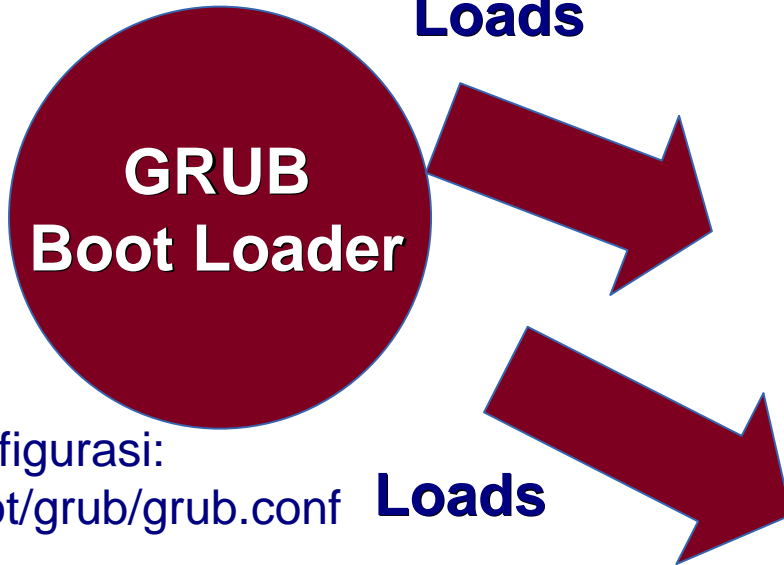
/boot/grub/grub.conf

**Loads**

**INITRD  
(/boot/initrd)**

**uses**

**Kernel  
(/boot/vmlinuz)**





# GRUB BOOT LOADER SCREEN



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GNU GRUB version 0.97 (639K lower / 523200K upper memory)

CentOS (2.6.18-164.el5)  
Other

Use the ↑ and ↓ keys to select which entry is highlighted.  
Press enter to boot the selected OS, 'e' to edit the  
commands before booting, 'a' to modify the kernel arguments  
before booting, or 'c' for a command-line.

CentOS

# KERNEL



- Memastikan hardware berjalan
- Melakukan pelepasan initrd ramdisk
- Melakukan pemasangan “real” root file system
- Menjalankan program init (/sbin/init)
- init adalah program pertama yang dijalankan
- init adalah proses induk

# LOADING KERNEL



GNU GRUB version 0.97 (639K lower / 1309632K upper memory)

```
root (hd0,0)
```

```
kernel /boot/vmlinuz-2.6.32-220.el6.x86_64 ro root=UUID=1239a910-f5e0→
```

```
initrd /boot/initramfs-2.6.32-220.el6.x86_64.img
```

Use the ↑ and ↓ keys to select which entry is highlighted. Press 'b' to boot, 'e' to edit the selected command in the boot sequence, 'c' for a command-line, 'o' to open a new line after ('O' for before) the selected line, 'd' to remove the selected line, or escape to go back to the main menu.

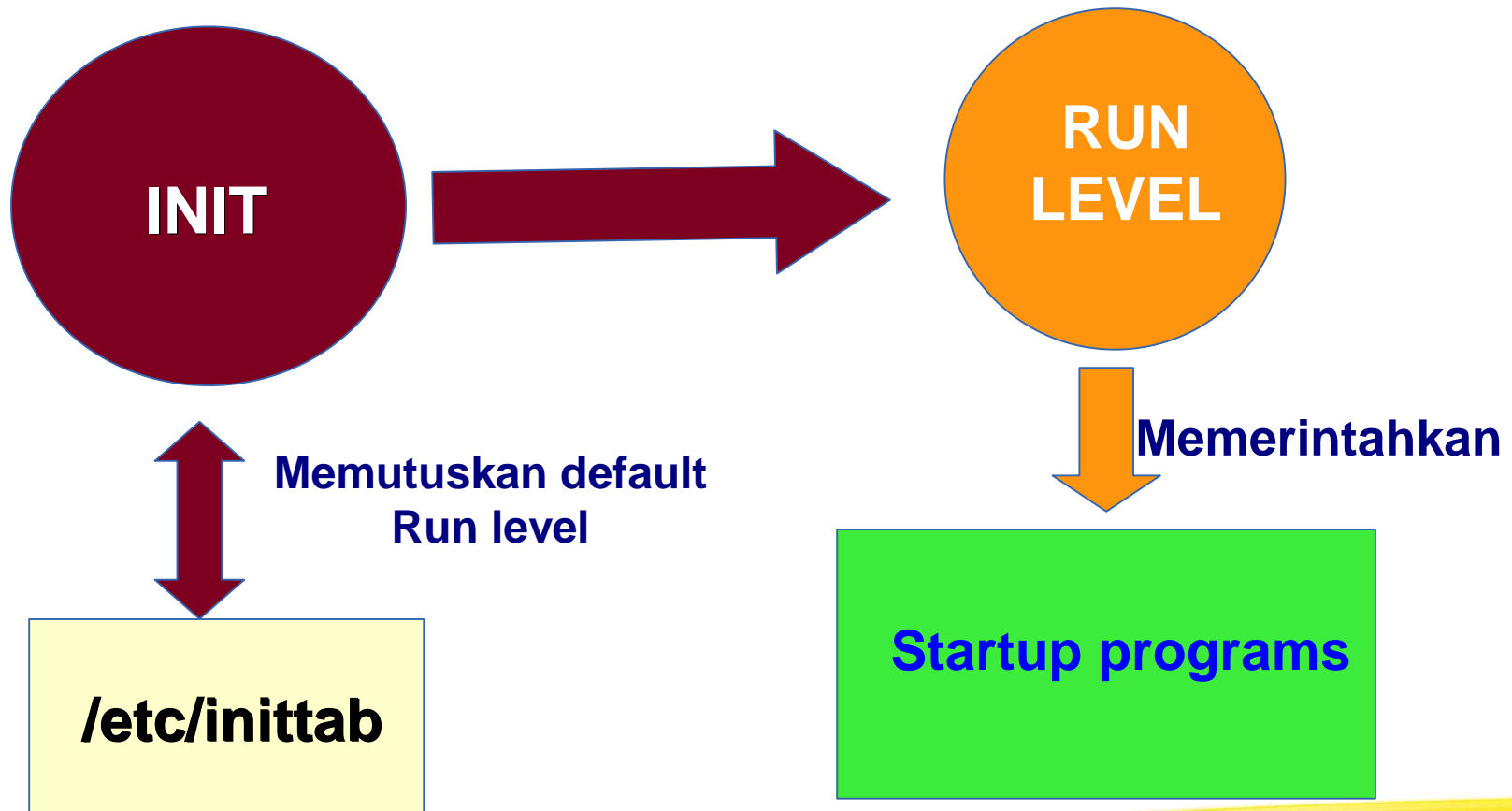
# LOADING KERNEL (CONT)



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```
ahci 0000:00:0d.0: flags: 64bit ncq stag only ccc
scsi2 : ahci
ata3: SATA max UDMA/133 abar m819200xf0806000 port 0xf0806100 irq 5
ata3: SATA link up 3.0 Gbps (SStatus 123 SControl 300)
ata3.00: ATA-6: UBOX HARDDISK, 1.0, max UDMA/133
ata3.00: 12582912 sectors, multi 128: LBA48 NCQ (depth 31/32)
ata3.00: configured for UDMA/133
scsi 2:0:0:0: Direct-Access      ATA          UBOX HARDDISK      1.0   PQ: 0 ANSI: 5
sr0: scsi3-mmc drive: 32x/32x xa/form2 tray
Uniform CD-ROM driver Revision: 3.20
sd 2:0:0:0: [sda] 12582912 512-byte logical blocks: (6.44 GB/6.00 GiB)
sd 2:0:0:0: [sda] Write Protect is off
sd 2:0:0:0: [sda] Write cache: enabled, read cache: enabled, doesn't support DPC
or FUA
sda: sda1 sda2
sd 2:0:0:0: [sda] Attached SCSI disk
EXT4-fs (sda1): mounted filesystem with ordered data mode. Opts:
dracut: Mounted root filesystem /dev/sda1
dracut: Loading SELinux policy
type=1404 audit(1393315373.071:2): enforcing=1 old_enforcing=0 auid=4294967295 s
es=4294967295
type=1403 audit(1393315376.075:3): policy loaded auid=4294967295 ses=4294967295
dracut:
dracut: Switching root
```

INIT





# INIT RUN LEVEL



- 0 – halt**
- 1 – Single user mode**
- 2 – Multiuser, without NFS**
- 3 – Full multiuser mode**
- 4 – unused**
- 5 – X11**
- 6 – reboot**



```
[henry@www ~]$ pstree |more
```

```
init+-abrt-dump-oops
```

```

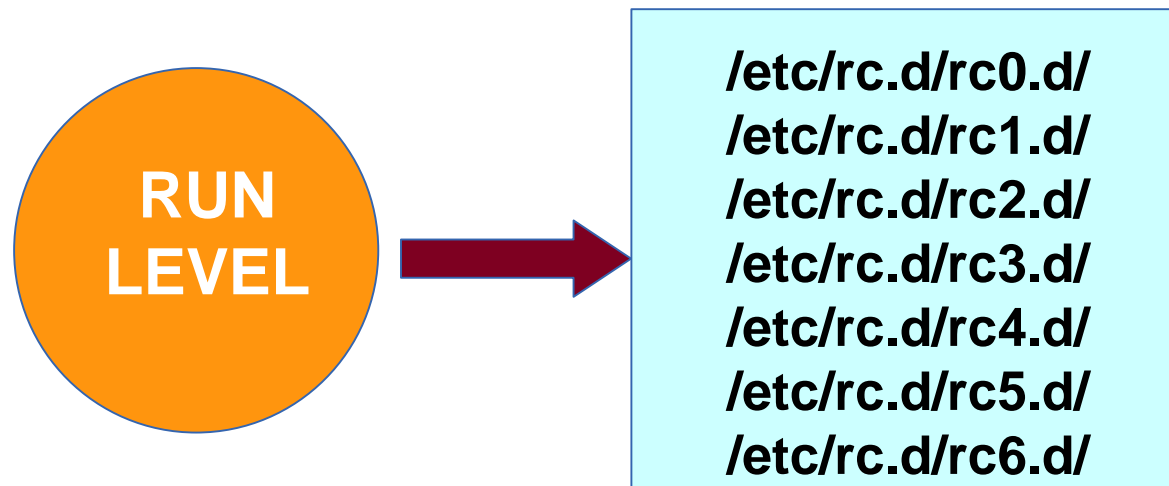
| -abrt-d
| -acpid
| -atd
| -auditd---{auditd}
| -avahi-daemon--avahi-daemon
| -bonobo-activati---{bonobo-activat}
| -clock-applet
| -console-kit-dae---63*[{console-kit-da}]
| -crond
| -2*[dbus-daemon---{dbus-daemon}]
| -2*[dbus-launch]
| -devkit-power-da
| -gconfd-2
| -gdm-binary---gdm-simple-slav+-Xorg
|                                     \-gdm-session-wor---gnome-session+-bluetooth-apple
|
|                                     | -gdu-notificatio
|                                     | -gnome-panel
|                                     | -gnome-power-man
|                                     | -gnome-volume-co
|                                     | -gpk-update-icon
|                                     | -metacity---{metacity}
|                                     | -nautilus
|                                     | -nm-applet
|                                     | -polkit-gnome-au
|                                     | -python

```

# RUN LEVEL



- Mengeksekusi program program (tasks, daemons or services) sesuai dengan current runlevel.



# STARTUP PROGRAM PROCESS



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```
Starting portreserve: [ OK ]
Starting system logger: [ OK ]
Starting irqbalance: [ OK ]
Starting named: [ OK ]
Starting rpcbind: [ OK ]
Starting NFS statd: [ OK ]
Starting RPC idmapd: RPC: Registered udp transport module.
RPC: Registered tcp transport module.
RPC: Registered tcp NFSv4.1 backchannel transport module.
[ OK ]
Starting system message bus: [ OK ]
Starting Avahi daemon... [ OK ]
Mounting other filesystems: [ OK ]
Starting acpi daemon: [ OK ]
Starting HAL daemon: [ OK ]
Retrigger failed udev events [ OK ]
Enabling Bluetooth devices:
Starting sshd: [ OK ]
Starting xinetd: [ OK ]
Starting postfix: [ OK ]
Starting abrt daemon: [ OK ]
Starting ksm: [ OK ]
Starting ksmtuned: [ OK ]
Starting Qpid AMQP daemon: [ OK ]
```

# STARTUP SCRIPTS



```
[henry@www ~]$ ls /etc/rc.d/rc3.d
<01matahari-host      K35dovecot      K84wpa_suppl...  S13irqbalance  S56xinetd
<01matahari-network   K36mysqld       K86cgred        S13named       S80postfix
<01matahari-service   K50dnsmasq      K87restorecond S13rpcbind     S82abrt-ccpp
<01matahari-sysconfig K50netconsole   K89rdisc        S14nfslock     S82abrt-d
<01smartd             K50snmpd        K95cgconfig     S15mdmonitor   S82abrt-oops
<05wdaemon            K50snmptrapd    K95firstboot    S18rpcidmapd   S84ksm
<10cups               K50vsftpd       K99sysstat      S19rpcgssd     S85ksmtuned
<10psacct             K60nfs          S02lvm2-monitor S22messagebus  S85qpidd
<10saslauthd          K69rpcsvcgssd   S08ip6tables    S24avahi-daemon S90crond
<15htcacheclean       K74ipsec        S08iptables     S25netfs       S95atd
<15httpd              K74ntpd         S10network       S26acpid       S99libvirt-guests
<15matahari-broker    K75ntpdate      S11auditd       S26haldaemon   S99local
<25squid              K75quota_nld    S11portreserve  S26udev-post   S99webmin
<30spamassassin       K80kdump        S12rsyslog      S50bluetooth
<30spice-vdagentd     K84NetworkManager S13cpuspeed     S55sshd
```

```
[henry@www ~]$ ls /etc/rc.d/rc5.d
<01matahari-host      K36mysqld       K86cgred        S13named       S70spice-vdagentd
<01matahari-network   K50dnsmasq      K87restorecond S13rpcbind     S80postfix
<01matahari-service   K50netconsole   K89rdisc        S14nfslock     S82abrt-ccpp
<01matahari-sysconfig K50snmpd        K95cgconfig     S15mdmonitor   S82abrt-d
<01smartd             K50snmptrapd    K95firstboot    S18rpcidmapd   S82abrt-oops
<05wdaemon            K50vsftpd       K99sysstat      S19rpcgssd     S84ksm
<10cups               K60nfs          S02lvm2-monitor S22messagebus  S85ksmtuned
<10psacct             K69rpcsvcgssd   S08ip6tables    S24avahi-daemon S85qpidd
<10saslauthd          K74ipsec        S08iptables     S25netfs       S90crond
<15htcacheclean       K74ntpd         S10network       S26acpid       S95atd
<15httpd              K75ntpdate      S11auditd       S26haldaemon   S99libvirt-guests
<15matahari-broker    K75quota_nld    S11portreserve  S26udev-post   S99local
<25squid              K80kdump        S12rsyslog      S50bluetooth   S99webmin
<30spamassassin       K84NetworkManager S13cpuspeed     S55sshd
```

**S – Start up**  
**K – Stopped/Kill**





# KERNEL RING BUFFER

- ◆ Sebuah ring buffer
- ◆ Sebuah buffer berukuran tetap untuk logs
- ◆ Jika buffer penuh, data baru akan menimpa yang lama
- ◆ Tidak akan menyebabkan out-of-space
- ◆ Kernel ring buffer
- ◆ dmesg, menampilkan pesan / log kernel dan pesan driver
- ◆ /var/log/dmesg





# MANAGING SERVICES





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# APA ITU SERVICE



- Services adalah program yang berjalan di belakang layar (background process)
- Berjalan terus menerus
- Biasanya dijalankan sebagai startup program
- Menyediakan layanan (service) untuk local system ataupun jaringan
- Kadang juga disebut 'daemon'

# TOOLS



- chkconfig command (chkconfig)
- service command (initscripts)
- initctl command (upstart)
- start, stop, status, restart (upstart)

# LIST SERVICES



- ◆ chkconfig –list
- ◆ initctl list

# START, STOP, STATUS, RESTART SERVICES



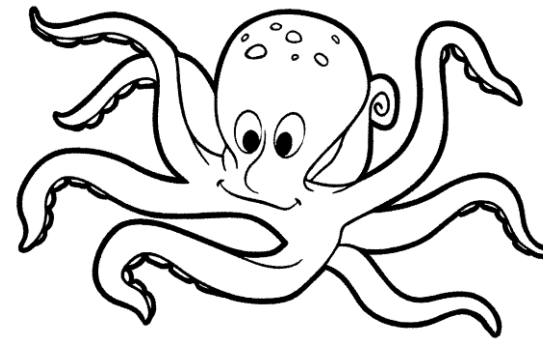
- `service <name> start | stop | status | restart`
- `Initctl start | stop | status | restart <name>`



# LOKASI START UP SCRIPT

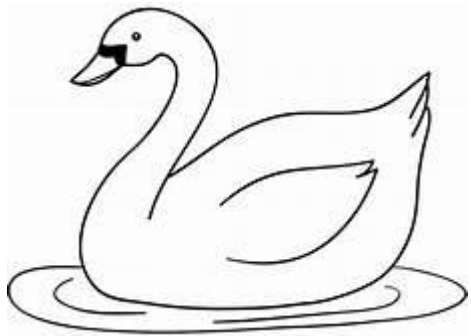


- Lokasi start up scripts
- **Sys V** → **/etc/rc.d/init.d**
- **Upstart** → **/etc/init**



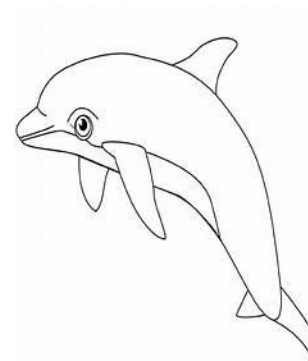
Gurita

B

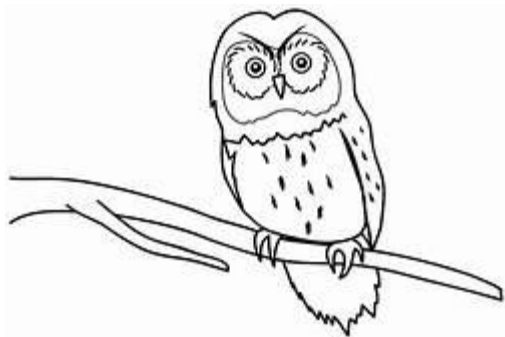


Angsa

A



Lumba-Lumba



Burung Hantu

BIOS

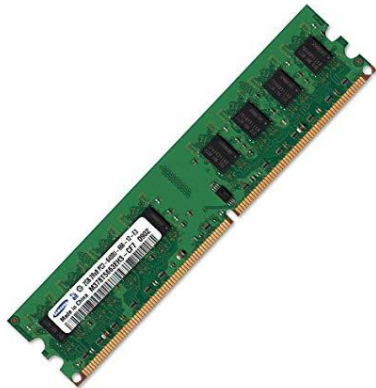
Kernel

Program

Service



A

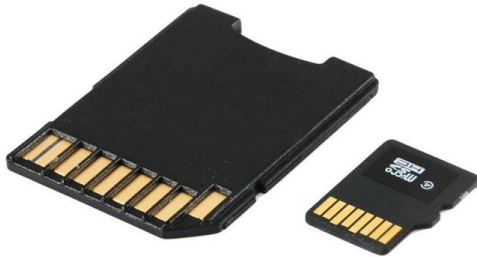


RAM

B



Disket



SD Card

A



Monas

A