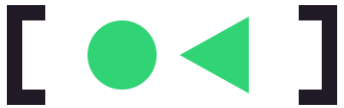
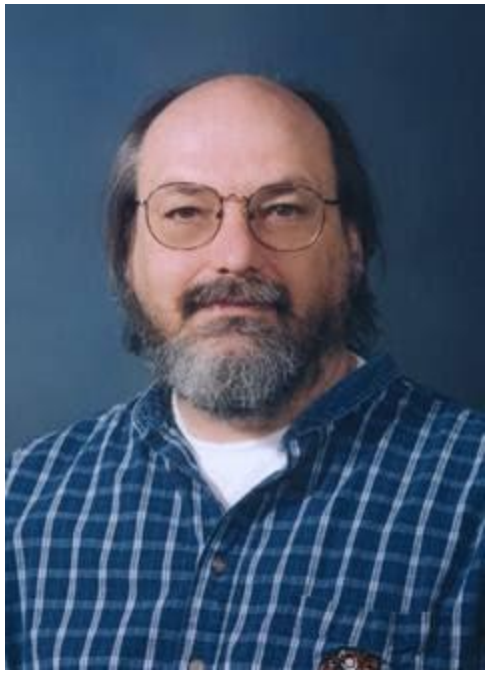
Poznaj systemd



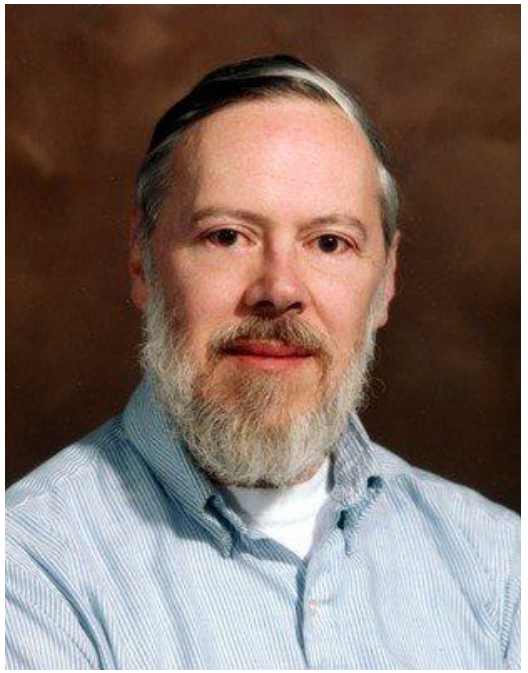
Mateusz Przybyła

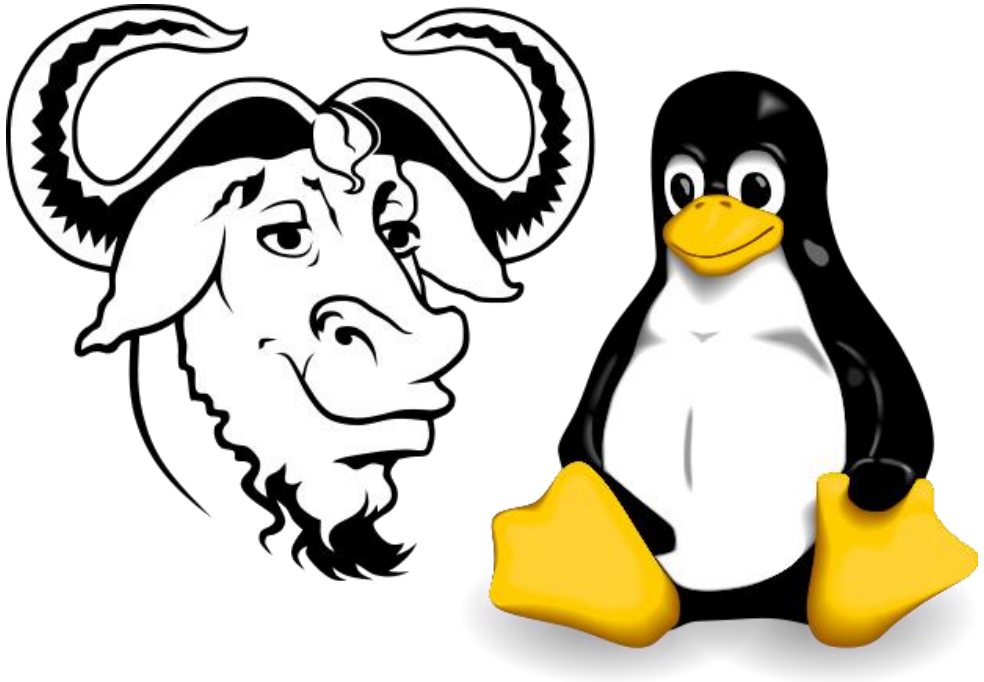
Solw'IT Let's Solve It



UNIX

System V init





init

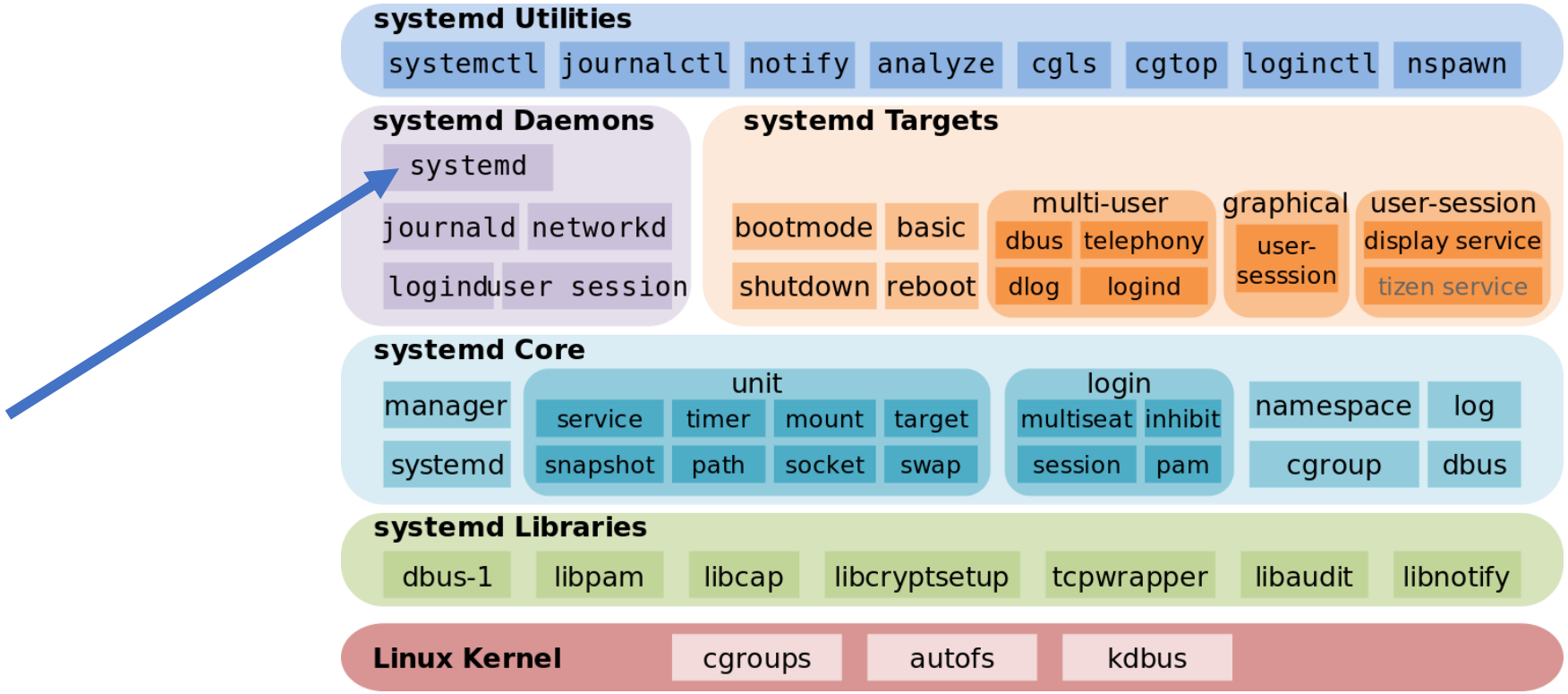
launchd

systemd

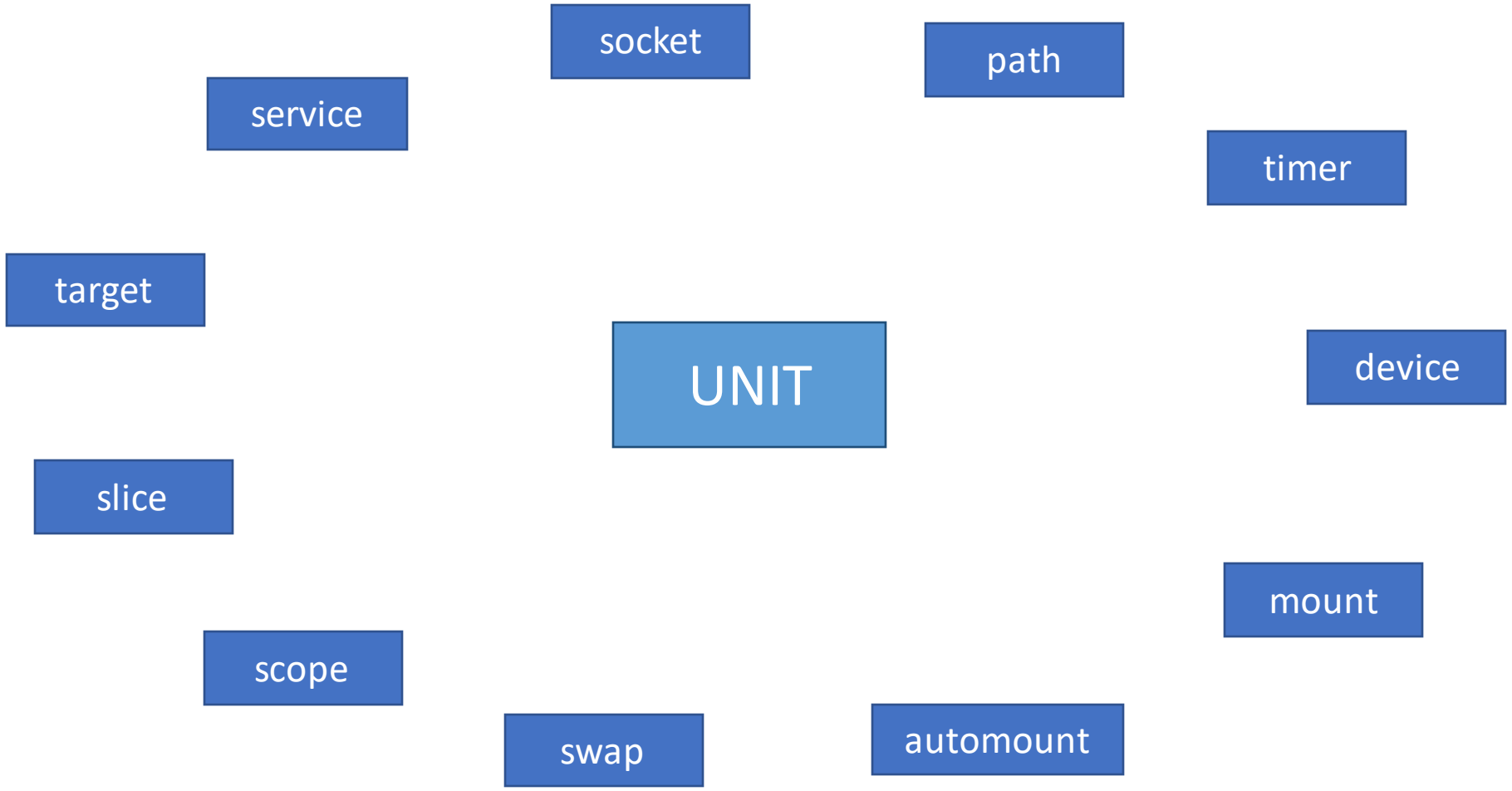
www.freedesktop.org

www.0pointer.net (Pid Eins)

Suita oprogramowania



Unity systemd



Hello, service!

```
[Unit]
Description=My Service

[Service]
ExecStart=/usr/local/bin/my-service.sh
```

```
my-service.service --> /etc/systemd/system
```

```
[Unit]
Description=My Service
After=earlier.service
Before=later.service
Wants=some-other.service
Requires=yet-another.service

[Service]
ExecStart=/usr/local/bin/my-service.sh
```

Podpinanie serwisu pod target

```
[Unit]
Description=My Service

[Service]
ExecStart=/usr/local/bin/my-service.sh


[Install]
WantedBy=default.target
```

Targety Ubuntu

```
basic.target
cryptsetup.target
getty.target
graphical.target
local-fs-pre.target
local-fs.target
multi-user.target
network-online.target
network-pre.target
network.target
nss-lookup.target
nss-user-lookup.target
paths.target
remote-fs.target
slices.target
sockets.target
sound.target
swap.target
sysinit.target
time-set.target
timers.target
veritysetup.target
```

```
$ systemctl list-dependencies

default.target
● ├─accounts-daemon.service
● ├─apport.service
● ├─gdm.service
● ├─my-keystroke-counter.service
● ├─power-profiles-daemon.service
● ├─switcheroo-control.service
○ ├─systemd-update-utmp-runlevel.service
● ├─udisks2.service
● └─multi-user.target
○   ├─anacron.service
●   ├─apport.service
```

Jednorazowe uruchomienie

```
[Unit]
Description=My Service

[Service]
Type=oneshot
RemainAfterExit=yes
ExecStart=/usr/local/bin/my-service.sh
```

Włączenie watchdoga

```
[Unit]
Description=My Service

[Service]
Type=notify
WatchdogSec=10s
Restart=on-watchdog
ExecStart=/usr/local/bin/my-service.sh
```

logger.service

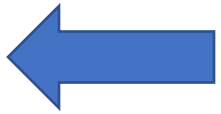
logger.socket

```
[Unit]
Description=Logger

[Service]
ExecStart=/(...)/logger.sh
```

```
[Unit]
Description=Socket for Logger

[Socket]
ListenFIFO=/tmp/logger.fifo

[Install]
WantedBy=sockets.target
```

Aktywacja timerem

system-monitor.service



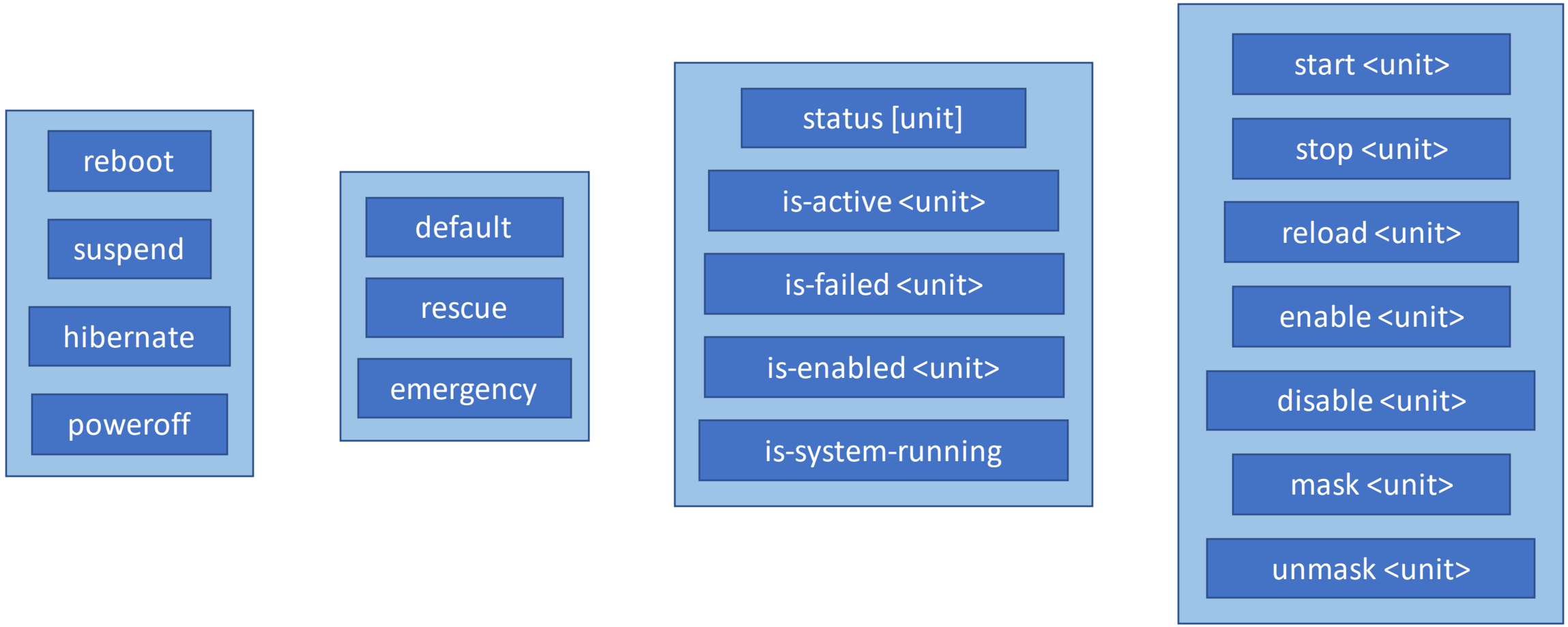
system-monitor.timer

```
[Unit]
Description=System Monitor

[Service]
ExecStart=/usr/bin/python3
    /(...)/system-monitor.py
```

```
[Unit]
Description=Timer for System
Monitor

[Timer]
OnActiveSec=0 seconds
OnUnitActiveSec=1 minute

[Install]
WantedBy=timers.target
```

Narzędzia

```
$ systemctl ...
```


reboot
suspend
hibernate
poweroff
default
rescue
emergency
status [unit]
is-active <unit>
is-failed <unit>
is-enabled <unit>
is-system-running
start <unit>
stop <unit>
reload <unit>
enable <unit>
disable <unit>
mask <unit>
unmask <unit>

$ systemctl status

```
● osboxes
    State: running
     Jobs: 0 queued
   Failed: 0 units
    Since: Tue 2023-04-04 02:53:57 EDT; 27min ago
   CGroup: /
           ├─user.slice
           │ └─user-1000.slice
           │   ├─user@1000.service
           │   │ ├─session.slice
           │   │ │ ├─org.gnome.SettingsDaemon.MediaKeys.service
           │   │ │ │ └─1542 /usr/libexec/gsd-media-keys
           │   │ │ ├─org.gnome.SettingsDaemon.Smartcard.service
           │   │ │ │ └─1559 /usr/libexec/gsd-smartcard
           │   │ │ ├─org.gnome.SettingsDaemon.Datetime.service
           │   │ │ │ └─1536 /usr/libexec/gsd-datetime
```

$ systemctl status acpid.service

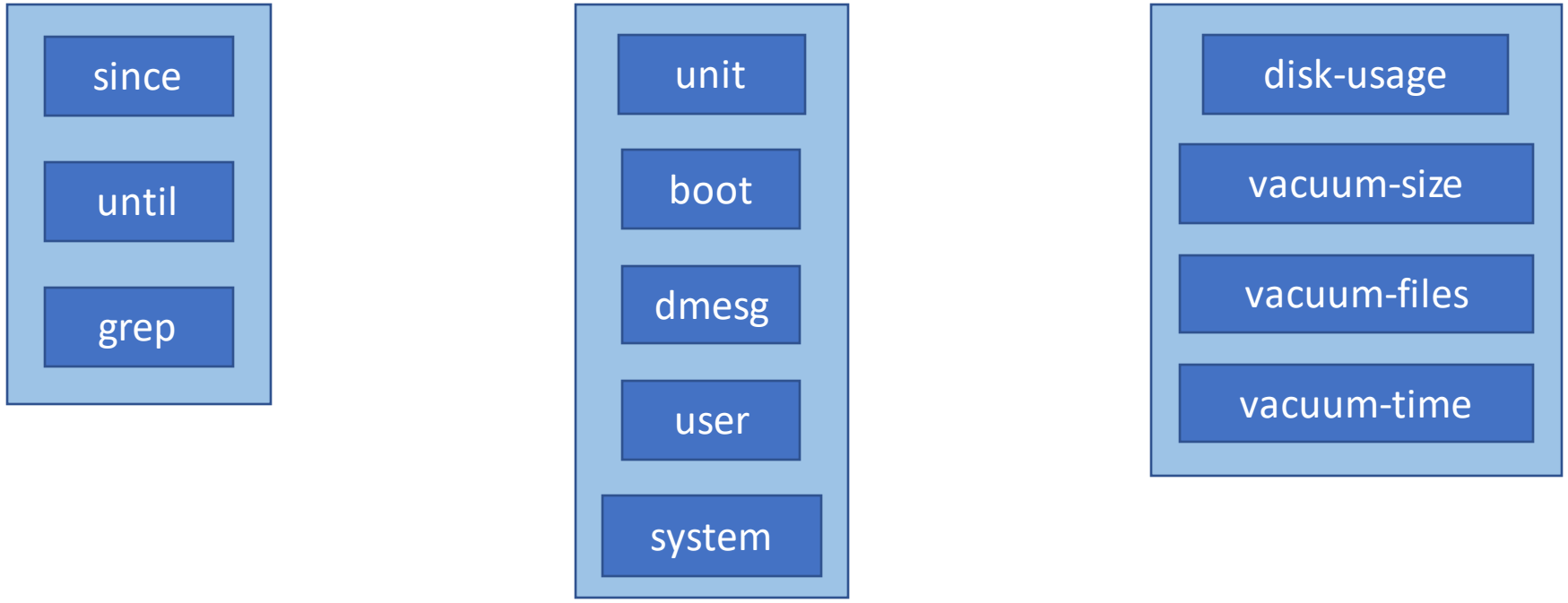
```
● acpid.service - ACPI event daemon
     Loaded: loaded (/lib/systemd/system/acpid.service; disabled; vendor preset:
enabled)
     Active: active (running) since Tue 2023-04-04 02:54:02 EDT; 29min ago
TriggeredBy: ● acpid.socket
             ● acpid.path
       Docs: man:acpid(8)
   Main PID: 472 (acpid)
      Tasks: 1 (limit: 26551)
     Memory: 372.0K
        CPU: 721ms
     CGroup: /system.slice/acpid.service
             └─472 /usr/sbin/acpid

Apr 04 02:54:02 osboxes systemd[1]: Started ACPI event daemon.
Apr 04 02:54:02 osboxes acpid[472]: starting up with netlink and the input layer
```

```
$ systemd-analyze

Startup finished in 10.128s (kernel) + 19.650s (userspace) = 29.778s
graphical.target reached after 19.593s in userspace
```

```
$ systemd-analyze blame

13.851s plymouth-quit-wait.service
 3.283s vboxadd.service
 3.077s apport.service
 2.689s virtualbox-guest-utils.service
 2.088s networkd-dispatcher.service
 1.818s udisks2.service
 1.796s accounts-daemon.service
 1.571s dev-sda1.device
 1.400s NetworkManager-wait-online.service
 1.301s avahi-daemon.service
 1.085s NetworkManager.service
 1.072s systemd-logind.service
```

journald

```
$ journalctl --...
```


since
until
grep
unit
boot
dmesg
user
system
disk-usage
vacuum-size
vacuum-files
vacuum-time

```
$ journalctl
```

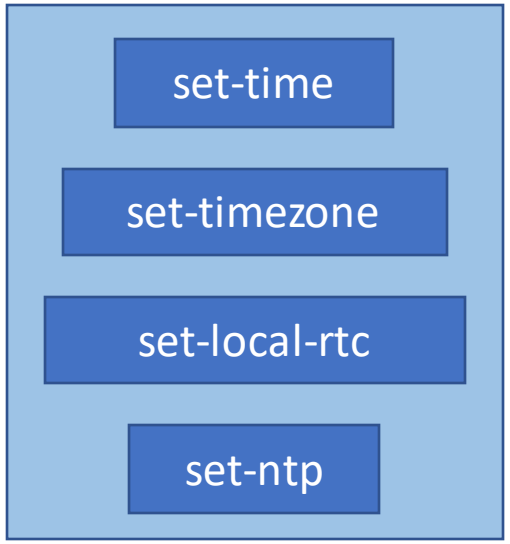
```
Apr 03 12:01:12 osboxes systemd-journald[5196]: System Journal
Apr 03 12:01:12 osboxes sudo[5257]: pam_unix(sudo:session): session closed for user root
Apr 03 12:01:15 osboxes sudo[5279]:  osboxes : TTY=pts/4 ; PWD=/home/osboxes/
Apr 03 12:01:15 osboxes sudo[5279]: pam_unix(sudo:session): session opened for user
Apr 03 12:01:15 osboxes sudo[5279]: pam_unix(sudo:session): session closed for user root
Apr 03 12:03:58 osboxes sudo[5466]:  osboxes : TTY=pts/4 ; PWD=/home/osboxes/Workspace
Apr 03 12:03:58 osboxes sudo[5466]: pam_unix(sudo:session): session opened for user
```

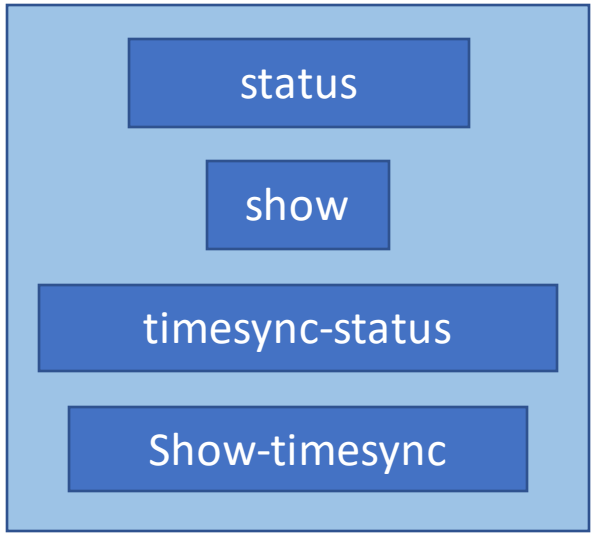
```
$ journalctl --unit acpid.service

Apr 03 12:05:05 osboxes systemd[1]: Stopping ACPI event daemon...
Apr 03 12:05:05 osboxes systemd[1]: acpid.service: Deactivated successfully.
Apr 03 12:05:05 osboxes systemd[1]: Stopped ACPI event daemon.
-- Boot febd83805a7348df81e07b483ad6e97d --
Apr 03 12:05:14 osboxes systemd[1]: Started ACPI event daemon.
Apr 03 12:05:15 osboxes acpid[533]: starting up with netlink and the input layer
Apr 03 12:05:15 osboxes acpid[533]: 8 rules loaded
Apr 03 12:05:15 osboxes acpid[533]: waiting for events: event logging is off
Apr 03 12:07:12 osboxes systemd[1]: Stopping ACPI event daemon...
Apr 03 12:07:13 osboxes systemd[1]: acpid.service: Deactivated successfully.
Apr 03 12:07:13 osboxes systemd[1]: Stopped ACPI event daemon.
-- Boot 8ce093f4d9e341659ee141b7df99b317 --
Apr 04 02:54:02 osboxes systemd[1]: Started ACPI event daemon.
```

```
$ journalctl --disk-usage

Archived and active journals take up 16.0M
in the file system.
```

timedated
timesyncd

```
$ timedatectl ...
```





```
$ timedatectl status

               Local time: Tue 2023-04-04 03:39:40 EDT
           Universal time: Tue 2023-04-04 07:39:40 UTC
                 RTC time: Tue 2023-04-04 07:39:39
                Time zone: America/New_York (EDT, -0400)
System clock synchronized: no
              NTP service: inactive
          RTC in local TZ: no
```

udevd
logind
resolved
networkd

Demo

Podsumowanie

- ✓ Uruchamia system szybciej niż sysvinit
- ✓ Monitoruje uruchomione programy
- ✓ Dostarcza mechanizmy restartowania programów
- ✓ Pozwala podpiąć HW watchdoga
- ✓ Dostarcza zbiorcze miejsce dla logów
- ✓ Daje ciekawe narzędzia administracyjne
- ✗ Wymaga więcej pamięci

Dziękuję za uwagę!

Solw'IT Let's Solve It