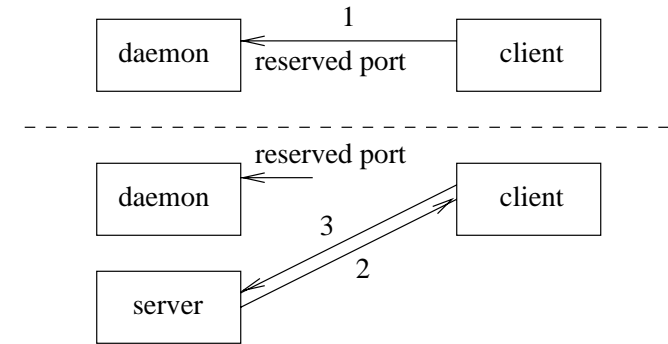


## System services

- System processes - daemons
- Network services
- Internet daemon
- Time daemon

1

## Typical connection establishment



3

## System processes

- rpcbind** - Remote Procedure Call control daemon
- nfsd** - Network File System daemon
- cron** - Time daemon
- vold** - Volume manager daemon
- syslogd** - System Log daemon
- keyserv** - Key distribution daemon
- rpc.nisd** - Network Information System server daemon
- inetd** - Internet daemon
- in.ftpd** - File Transfer Protocol server daemon
- in.telnetd** - Telnet server daemon
- in.rlogind** - Remote login server daemon
- in.rshd** - Remote Shell server daemon
- in.talkd** - Talk daemon

2

## Plik /etc/inetd.conf

em service-name endpoint-type protocol wait-status uid  
server-program server-arguments

**service-name** – name of the service (from /etc/services)  
**endpoint-type** – type of the service: stream, dgram, raw, tli  
**protocol** – name of the protocol (from /etc/protocols)  
**wait-status** – nowait/wait – does server release the connection?  
**uid** – uid for the server  
**server-program** – path to the server programm  
**server-arguments** – argument list (including arg[0])

4

## File /etc/inetd.conf – fragment

```
ftp      stream tcp nowait  root    /usr/sbin/in.ftpd    in.ftpd
telnet   stream tcp nowait  root    /usr/sbin/in.telnetd in.telnetd
#
shell    stream tcp nowait  root    /usr/sbin/in.rshd    in.rshd
login    stream tcp nowait  root    /usr/sbin/in.rlogind in.rlogind
exec     stream tcp nowait  root    /usr/sbin/in.rexecd  in.rexecd
talk     dgram  udp wait    root    /usr/sbin/in.talkd   in.talkd
finger   stream tcp nowait  nobody  /usr/sbin/in.fingerd in.fingerd
```

5

```
talk          517/udp
```

7

## File /etc/services – fragment

```
#
# Network services, Internet style
#
echo      7/tcp
echo      7/udp
telnet    23/tcp
smtp      25/tcp          mail
whois     43/tcp          nicname      # usually to sri-nic
finger    79/tcp
#
# UNIX specific services
# these are NOT officially assigned
#
```

6

## File /etc/protocols

*protocol protocol-number aliases*

**protocol** – name of the protocol  
**protocol-number** – protocol number  
**aliases** – alias names of the protocol

8

## File /etc/protocols – fragment

```
#
# Internet (IP) protocols
#
ip      0      IP      # internet protocol, pseudo protocol number
icmp    1      ICMP    # internet control message protocol
ggp     3      GGP     # gateway-gateway protocol
tcp     6      TCP     # transmission control protocol
egp     8      EGP     # exterior gateway protocol
pup     12     PUP     # PARC universal packet protocol
udp     17     UDP     # user datagram protocol
hmp     20     HMP     # host monitoring protocol
xns-idp 22     XNS-IDP # Xerox NS IDP
rdp     27     RDP     # "reliable datagram" protocol
```

9

## crontab command

```
crontab [ filename ]
crontab -e [username]
crontab -r [username]
crontab -l [username]
           minute hour day month day_of_the_week command
```

- minute – 0..59
- hour – 0..23
- day of the month – 1..31
- month – 1..12
- day\_of\_the\_week – 0..6 (0=Sunday, 1=Monday, ...)

Control files: /usr/sbin/cron.d/cron.allow, cron.deny

11

## at command

```
at [-csm] [-f script] [-queue] time [date] [+ increment]
at -l [ job... ]
at -r job
```

Examples:

```
at 8:15am Jan 24
at now + 1 minute
at now next day
at 5 pm Friday
```

Control files: /usr/sbin/cron.d/at.allow /usr/sbin/cron.d/at.deny

10

## crontab – examples

```
#minute hour day month day_of_the_week command
0 12 1 * * echo "First of the month - go to get salary!"
0 12 * * 5 echo "Tomorrow Saturday - weekend!!"
0 * * * * kuku
0 12 * 1,4,7,10 * echo "Begin of the quarter"
```

12