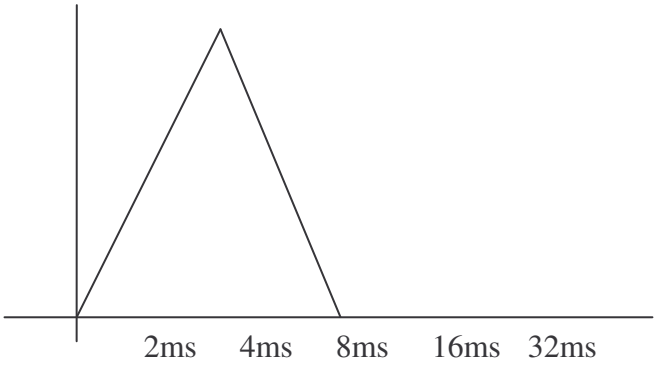


CPU Burst + I/O Burst

Degree of multiprogramming

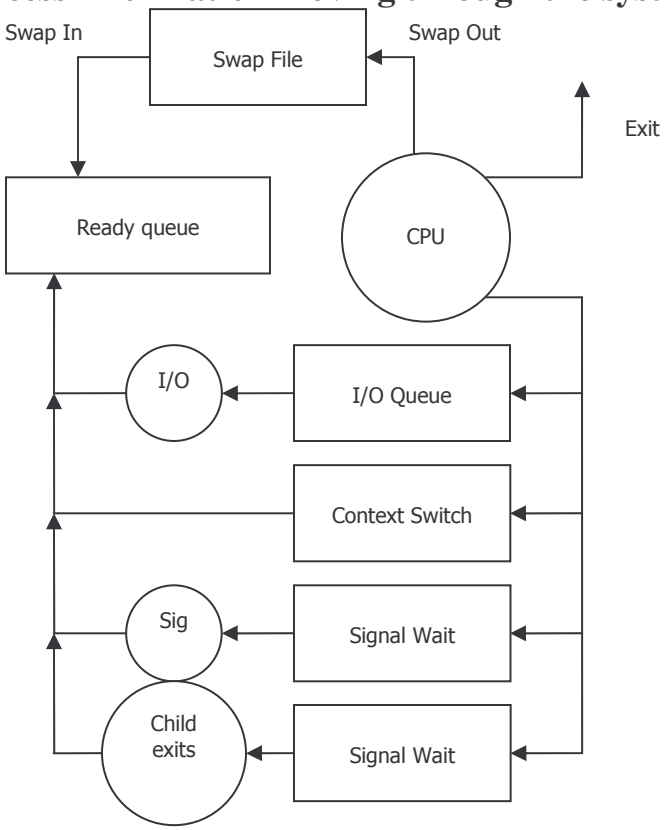
Number of programs in memory executing.

In some OSes, this quantity is fixed. Others grow and shrink the quantity dynamically.

Swap file

Process table of processes that are still executing but are not in memory at the moment because memory is a limited resource.

Classic view of process information moving through the system



The majority of OSes don't have one big monolithic piece of code for the kernel, but a collection of processes that make up the kernel.

Today, Unix is considered the most secure OS.

System 5 – IBM's Unix
BSD – Berkely Standard Distro of Unix
Linux – Currently over 150 distros; has a kernel that behaves nearly identical to Unix

Unix

`ps` Shows processes running under the current user (proctable information)
With no arguments: only shows those started from the command shell

ps –U musicke
Shows all processes running as musicke

ps aux
Shows all processes for all users, including system processes

Shell

Command window

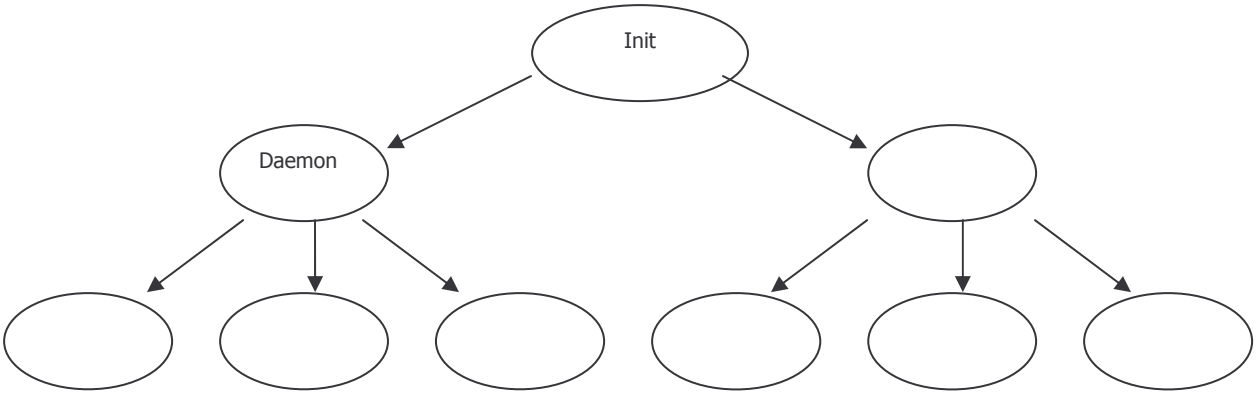
In Unix, the standard shells:
bash – Bourne Again Shell – default and most configurable
shell (sh) –
cshell – advanced version of sh
tcshell -

When processes are created in a system, they are assigned a unique process identification number (PID). PID 0 or 1 will be one of the following:

Solaris – sched
Linux – init
MacOSX – launchd

Initializes and starts all of the other daemons.

System processes often end in d, which stands for **daemon**, which is a system process that is operating in the background and coordinating some part of the OS.



Pipe

Gives the ability for inter-process communication via stdout and stdin or via a dedicated pipe through the OS.

Cron

Automates execution of certain processes at specific times and days

Kill signals, shutdown signals, hang up signals
Tells each process that right now the system is shutting down. The tree self-destructs, init dies and system stops.