Modes:
System calls
process context
Exceptions
Interrupts
system context
u area
SYSCALLSYSEXIT
trapsoftware interrupt
int $0x80iret
sysentersysexit
$\in \{0, \ldots, 255\}$0x80
idtr
system_call:
pushl %eax # system call number is stored in register eax by
wrapper routine in libc
SAVE_ALL # saves contents of (most) user registers in the kernel stack
*dispatch vector dispatch table*sys_call_table[NR_syscalls]
NR_syscalls
on errors:
no errors:
Process:
lspine
Kernel:
/vmunix/boot/vmlinux
computationinput/output
Definition:
User address space
Registers
processor status word
Constituents:
Kernel stack
Address translation maps
Control information
proc
u area
Credentials
Environment variables
VARIABLE=value
u area
proc
PCB
Real/etc/passwd
Effectivesuidsgid
-r-s--x--x 1 root root 15104 Mar 14 2002 passwd
root
sleep
Principle:

save_context
$p_{old}$$p_{new}$
resume_contextp_{new}
p_{old}
p_{old}save_context
resume_context
ALT:
inode
inode
open
Syntax:pid = fork();
Syntax:pid
pid
proc
proc
proc
BEING CREATED
proc
u area
Syntax:exit(status);
Syntax:status
main
exit()
proc
ZOMBIE*proc*
init
ZOMBIEinitSIGCHLDinit*proc*
SIGCHLD
Syntax:execve(filename, argv, envp);
Syntax:filename
argvchar **
envpchar **
u area
multi-programming
$\equiv$*context*
forkexit*exec*