Review OS 造进程？

{ 替代人 operator : coding、compiler、running
and 运筹 operational performance

System : maybe S/W → H/W

example : UNIX

1. History : → Batching → Time Sharing @ Corbarto

(用脚本. e.g. FMS
Fortran Monitor .
@ John Backus

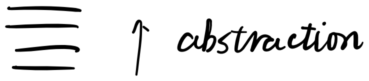
CTSS

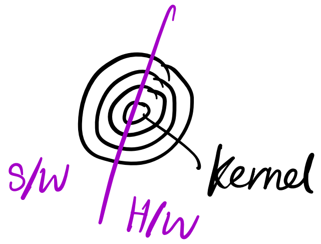
MULTICS

then MULTICS → Modern System
@ Bell ↘
Unics

视角:

layer (hierarchy) vs. Ring





2. Virtualization : { CPU、MEM. I/O ... }
↓
{ process, virtual mem. file }
every process is a VM.

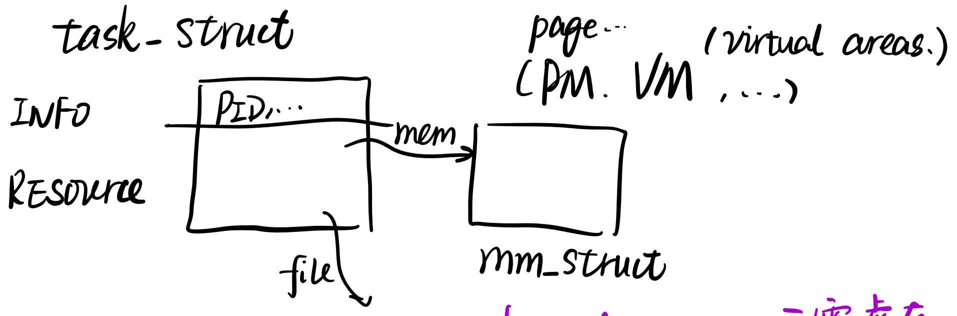
2.1 process

(1) User / Kernel process (thread)

kernel process in unix : no mm_struct

Thread : shared mem but ind. Reg、Stack, ...

Recall : mm_struct ? 3.13 class



kernel proc: 无需虚存、在高位

内核申请mem: alloc_pages . kmalloc.

(2) Interface: 系统调用.

fork() 、exec()   强杀: kill -9 (signal)

exit().   wait()

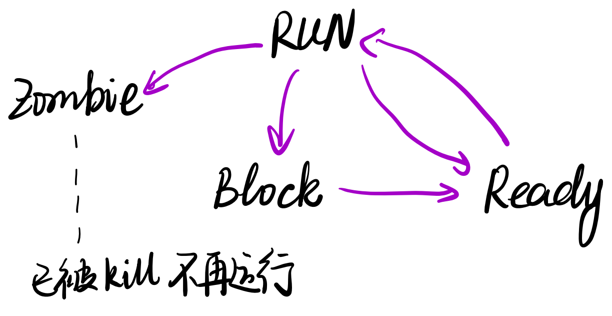
(3) Scheduling: MLFQ (prior. queue)

multi level feedback queue

case: nice(). jiff. epoch

(2.6 class) virtual time: Complete Fair Sch.

(4) status of process



回收: 上级 wait() ... #1

2.2 Memory:

— Physical Mem: free or not free (frame/page)

Linux: * Buddy ALG.

接口: kmalloc、alloc_pages、 vmalloc.

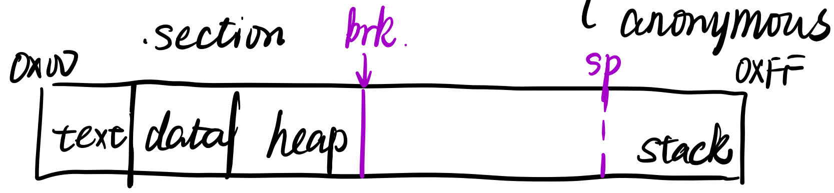
— Virtual Mem (for process)

① page table

3.13 class

② mem-map: vm_area_struct、Seq-list、R-B tree

a system call: mmap(): { file → vm. like another malloc
{ anonymous (申虚存)



memory map.

③ malloc() : brk() in sys call

now by mmap() ? >2.4

2.3 File (everything is a file)

(1) File (itself) : seq of Bytes

接口: • open、close : exclusive sharing.

互斥

不同句柄号、实例

↑lseek

• lseek, .. "virtual file"

• read、write

• ioctl

(2) VFS☆. abstraction for all supported FS.

history: Network FS (vnode (in mem))、RPC @ SUN

(3) File System (a set of file): insert、del、find

FAT: Linked List

EXT2: Index (inode)

tree？可能也可建立编序