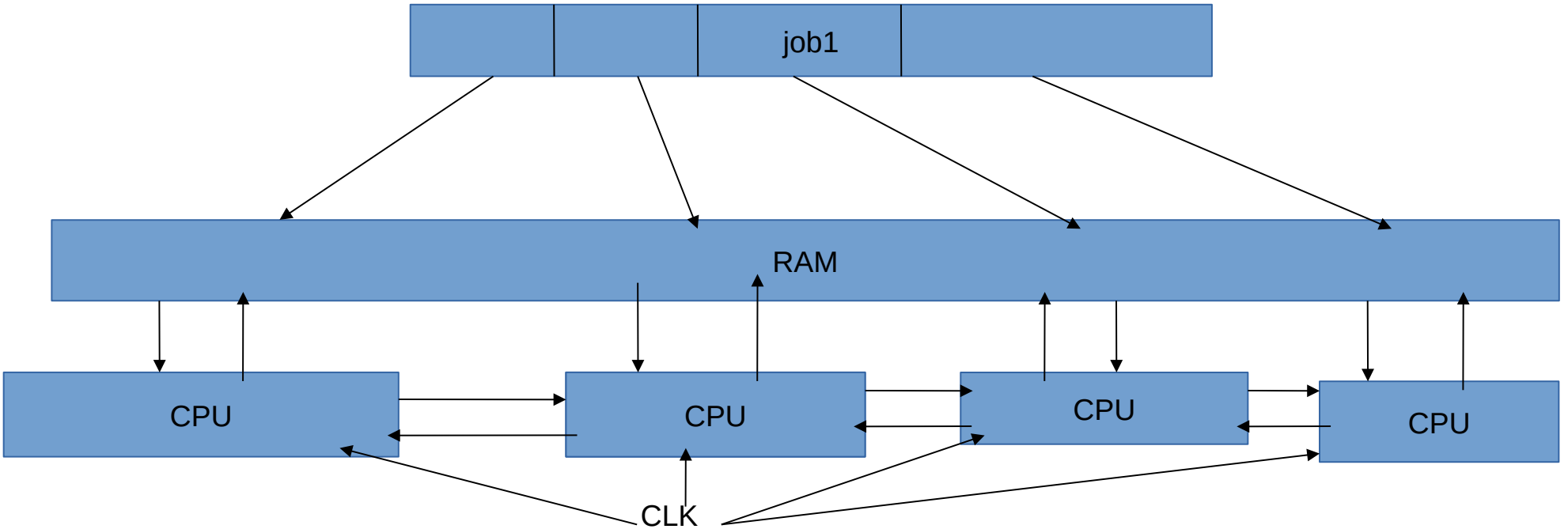
Distributed OS
Tightly coupled system

One in which there are multiple processors which communicate with each other by sharing computer bus,the clock,memory etc.



Distributed OS

Also known as parallel system or multiprocessor system.

Why Distributed system?

1. Resource sharing: files, printers etc...

2. Computation speed up: A problem can be divided into sub problems and can be run concurrently in different CPU and result is found quickly.

3. Reliability: If one CPU fails others are still working.

4. Communication: When a number of CPUs are connected communication takes places and information is exchanged.

Real time os(RTOS)

A real time os is considered to function correctly only if it returns the correct result the correct result within any time constraints.

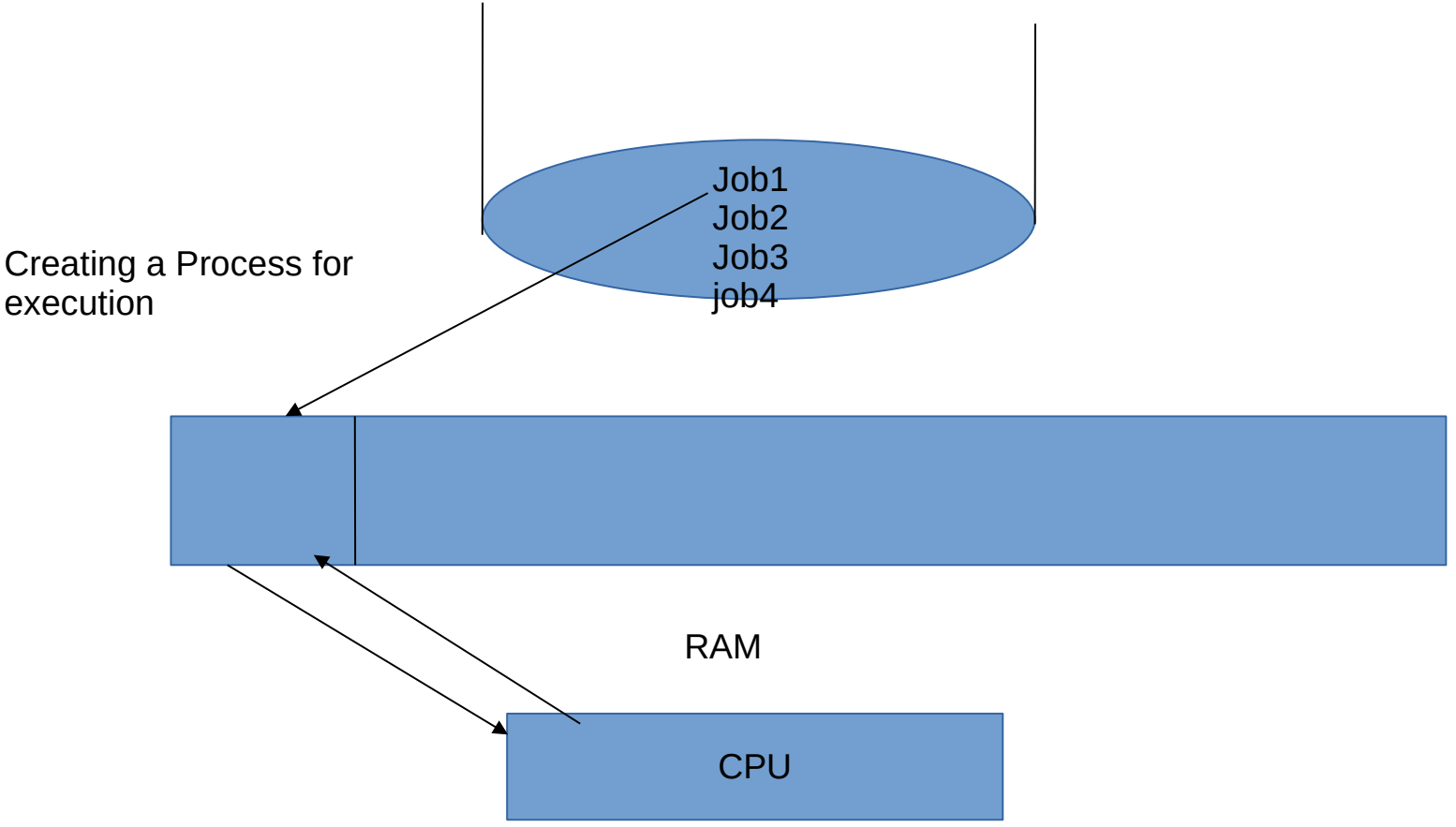
E.g: Missile technology

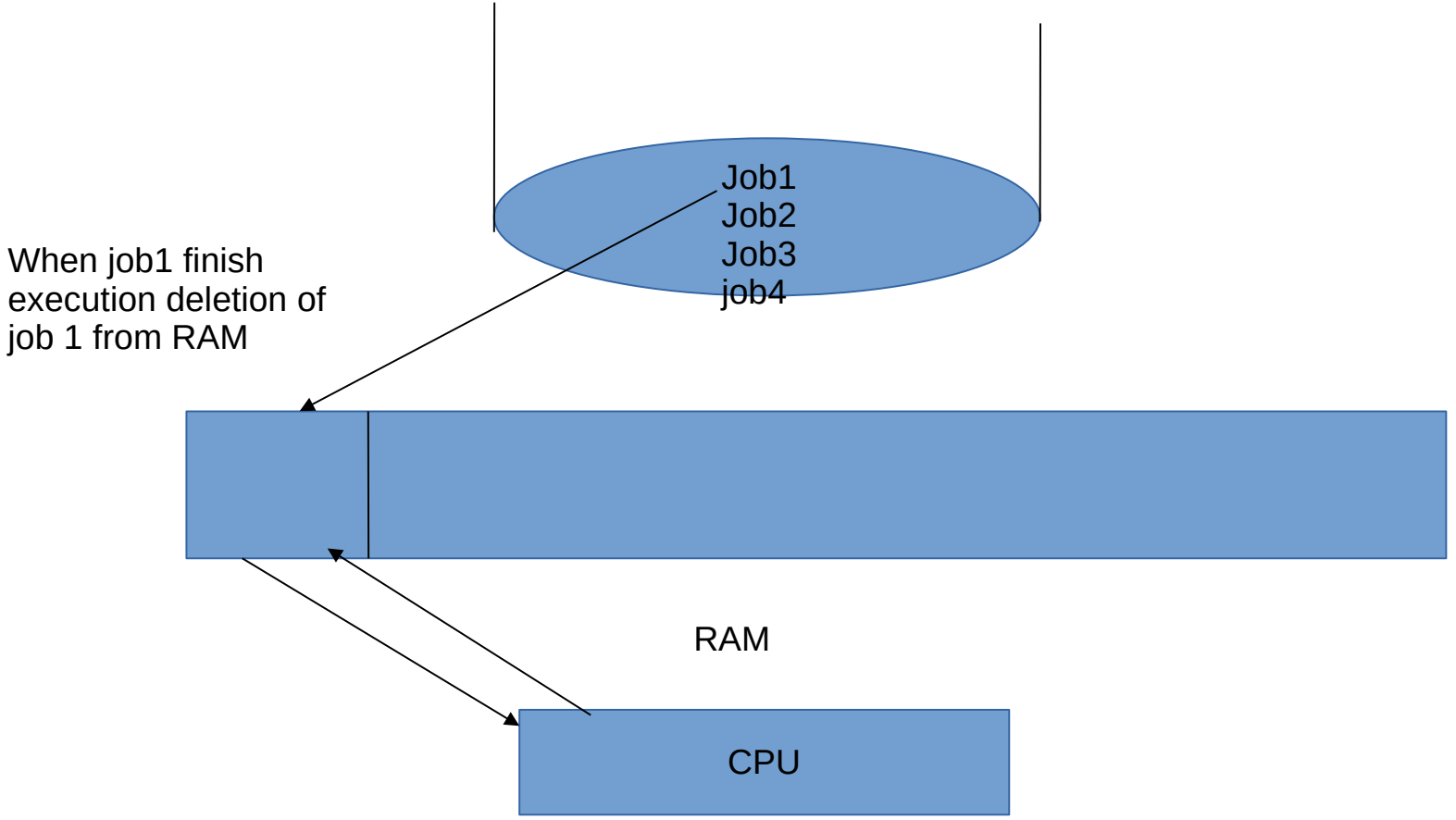
- Space technology
- Robotics

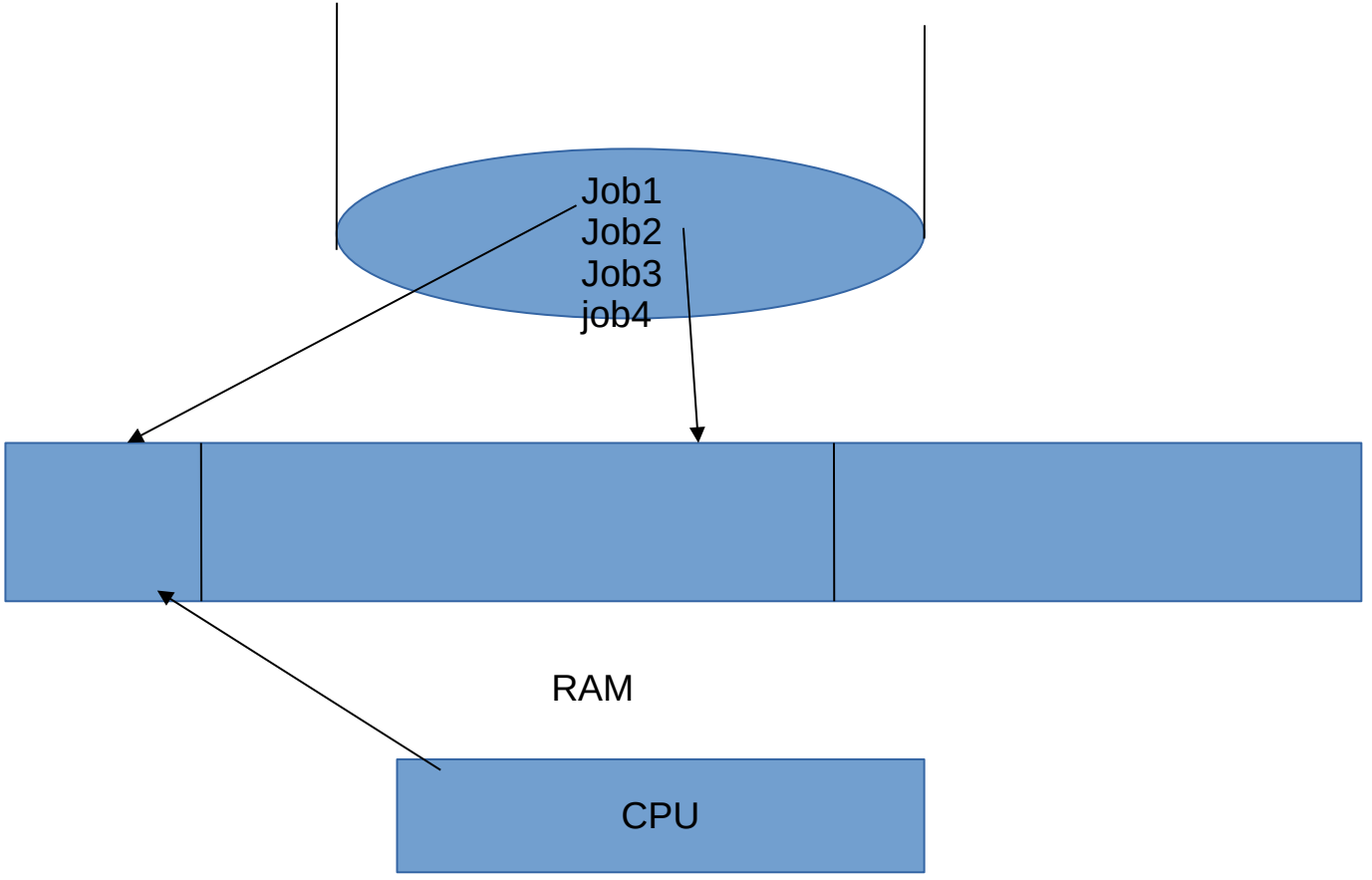
OS Components

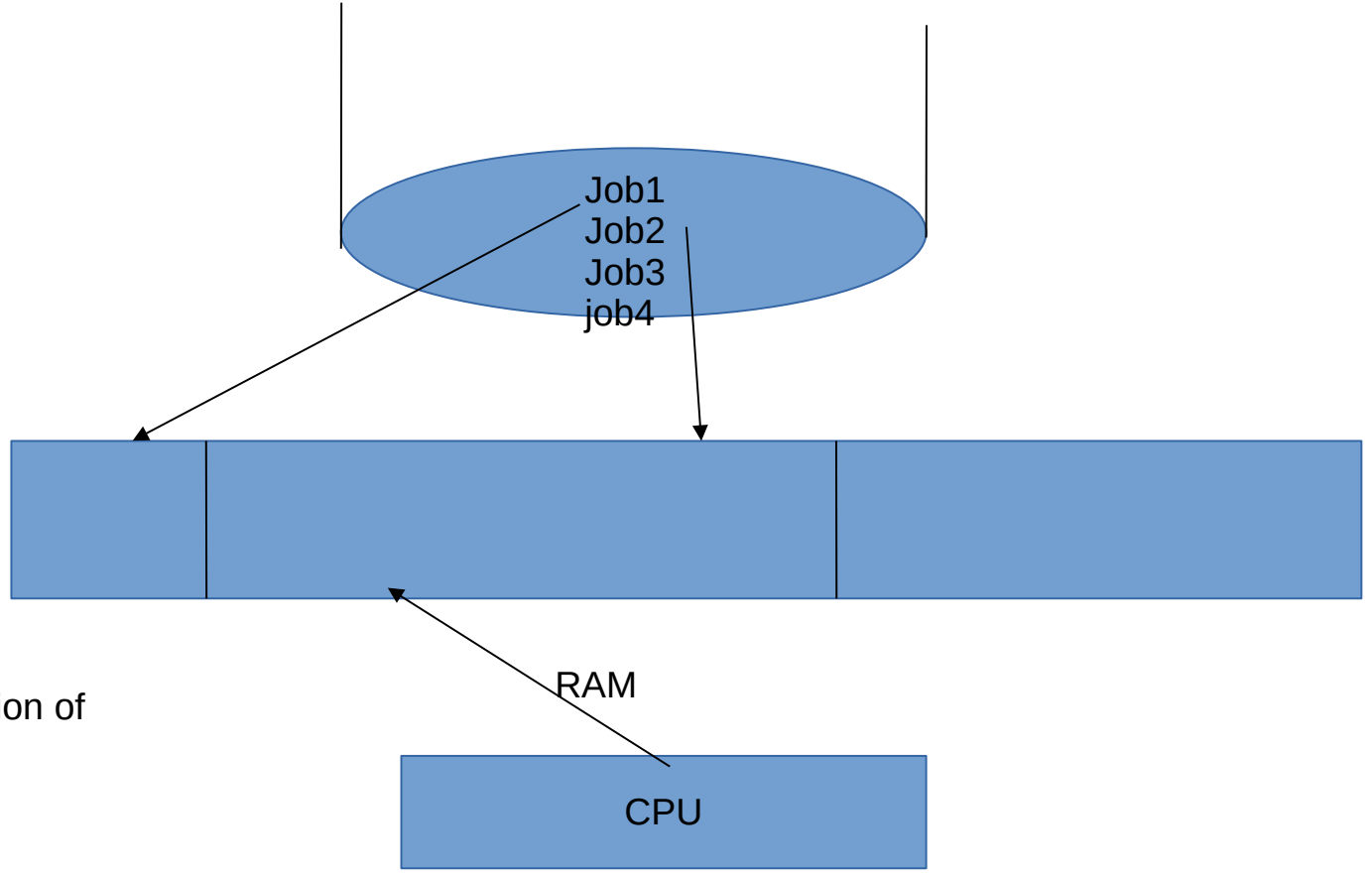
1. Process management:

- Creation and deletion of process.
- Suspension and resumption of process.
- Process communication.
- Deadlock handling.

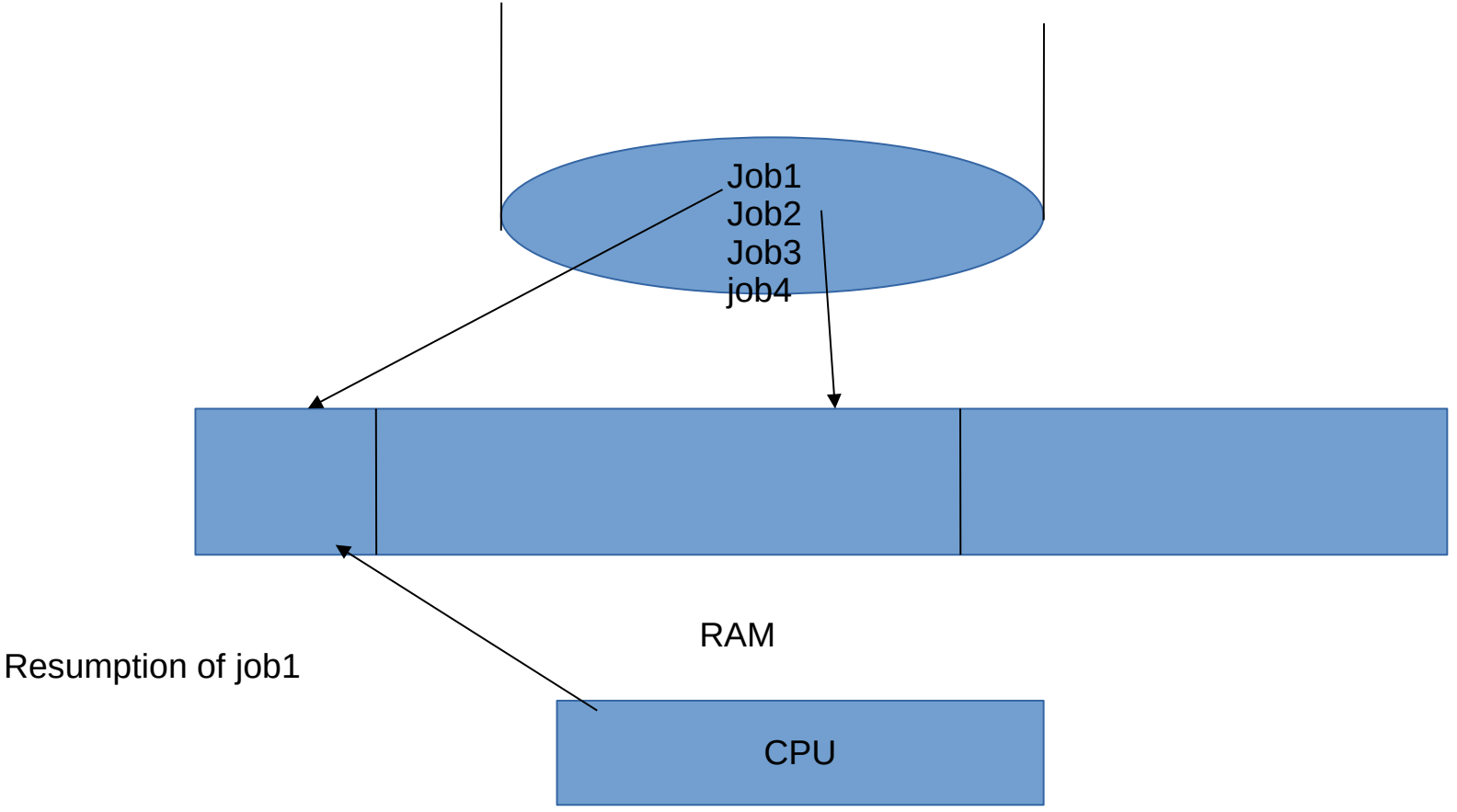

Job1
Job2
Job3
job4
Creating a Process for execution
RAM
CPU

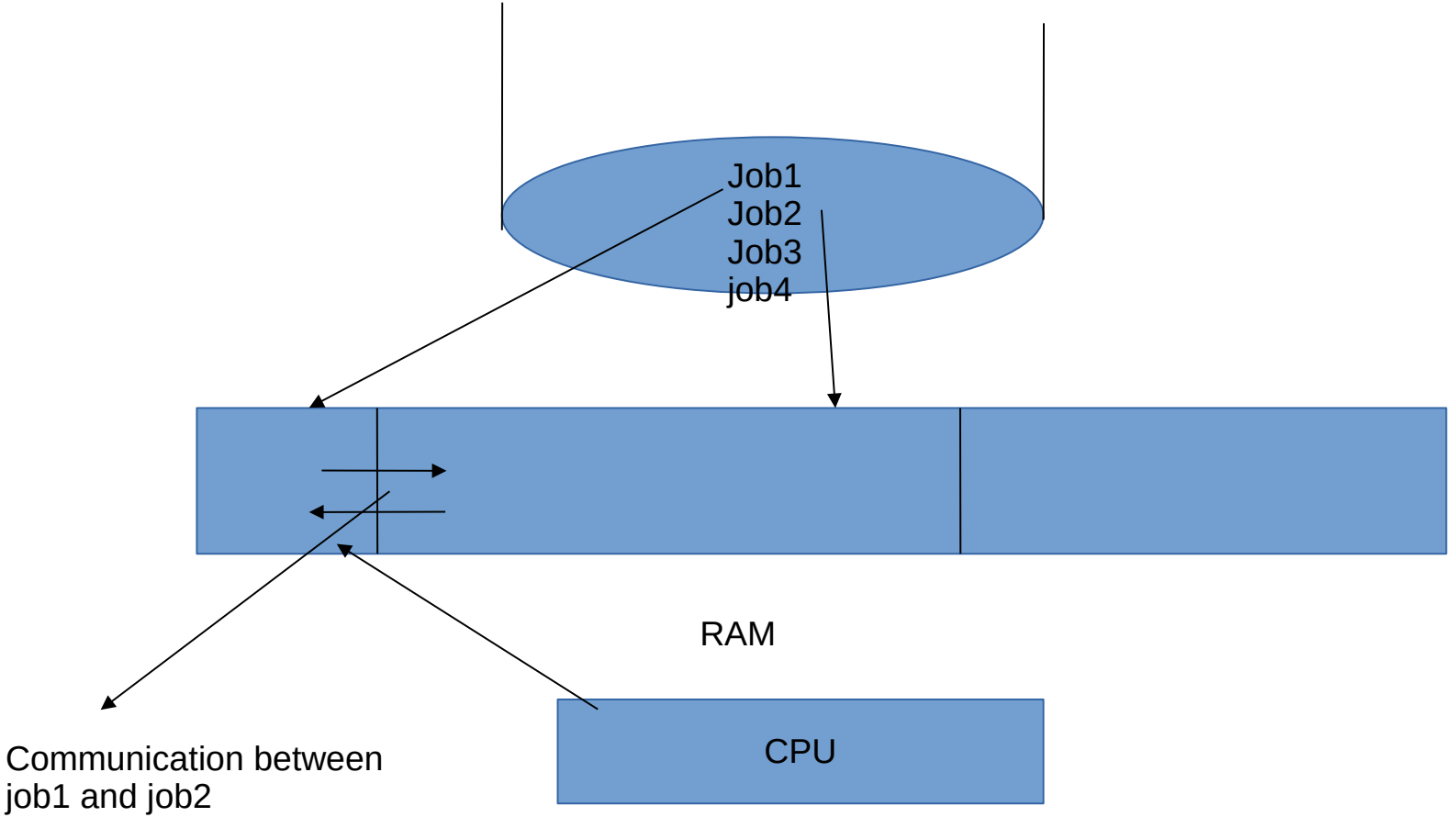

Job1
Job2
Job3
job4
When job1 finish execution deletion of job 1 from RAM
RAM
CPU


Job1
Job2
Job3
job4
RAM
CPU

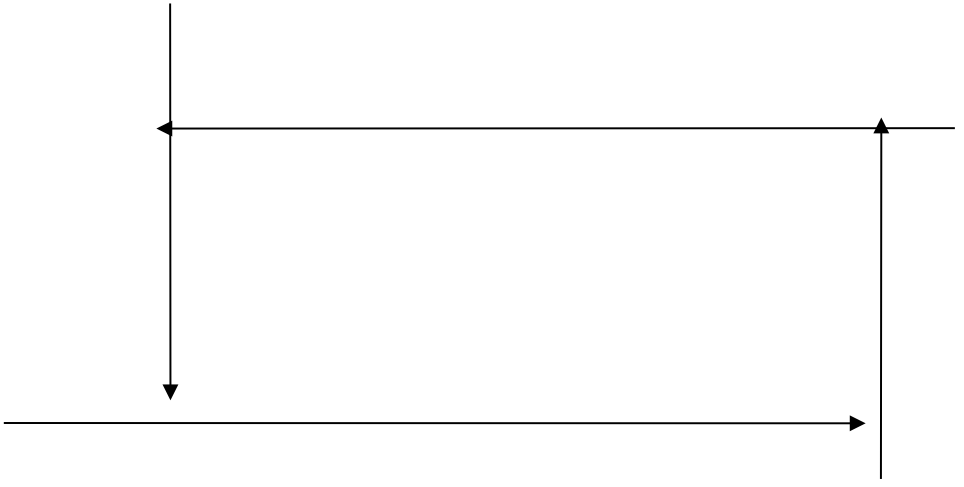


Suspension of job1


Job1
Job2
Job3
job4
RAM
Resumption of job1
CPU


Job1
Job2
Job3
job4
RAM
CPU
Communication between
job1 and job2

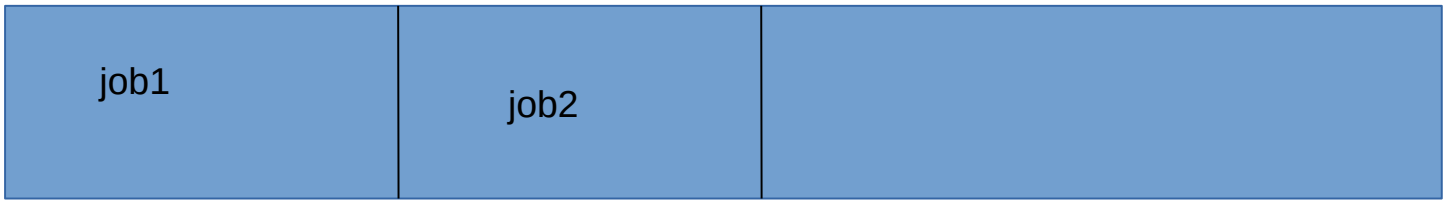
DEADLOCK????



OS Components

2. Main memory management:

- Keep track of which part of the memory are currently being used by whom.
- Decide which processes are to be loaded into memory when memory space becomes available.
- Allocate and deallocate memory space as needed.



0
1

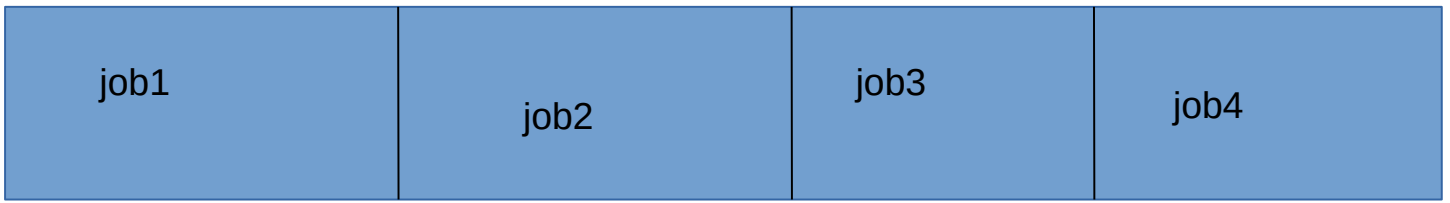
0 0
8 9

1
9

	From	To
Job1	01	08
Job2	09	19

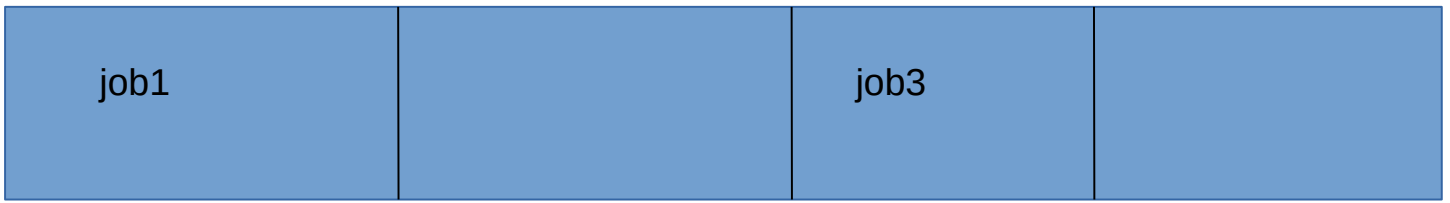
When job2 finishes

	From	To
Job1	01	08
Free	09	99



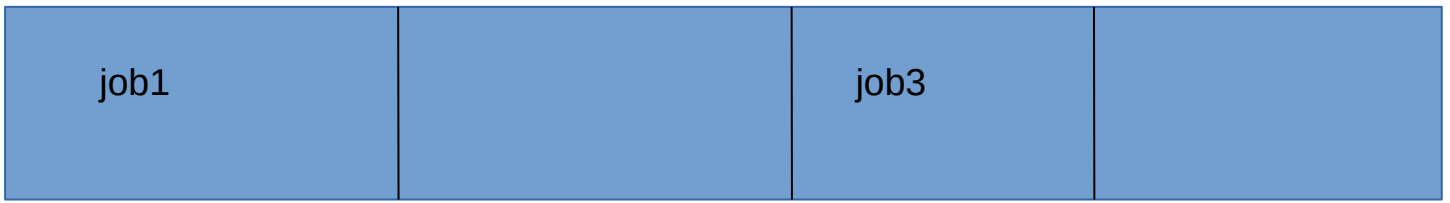
When job2 and job4 finishes

	From	To
Job1	01	08
Job2	09	20
Job3	21	31
Job4	32	99



When job2 and job4 finishes

	From	To
Job1	01	08
Job3	21	31
free	09	20
	32	99



New jobn is ready and it requires
10 bytes to fit

	From	To
Job1	01	08
Job3	21	31
free		
	09	20
	32	99

3. File Management

- The creation and deletion of files.
- The creation and deletion of directories.
- Modifying a file.
- Mapping of files into secondary storage.

I/O system management

- General device driver interface.
- Drivers for specific hardware devices.
- If a printer is shared between more than one machines then buffering of document to be print.

- Networking
- Secondary storage management.
- Protection system.
- Command line interpreter.

OS services

- Program execution.
- I/O operation.
- File system manipulation.
- Communication.
- Error detection.
- Resource allocation.
- Accounting.
- Protection.