Inter-process Communication

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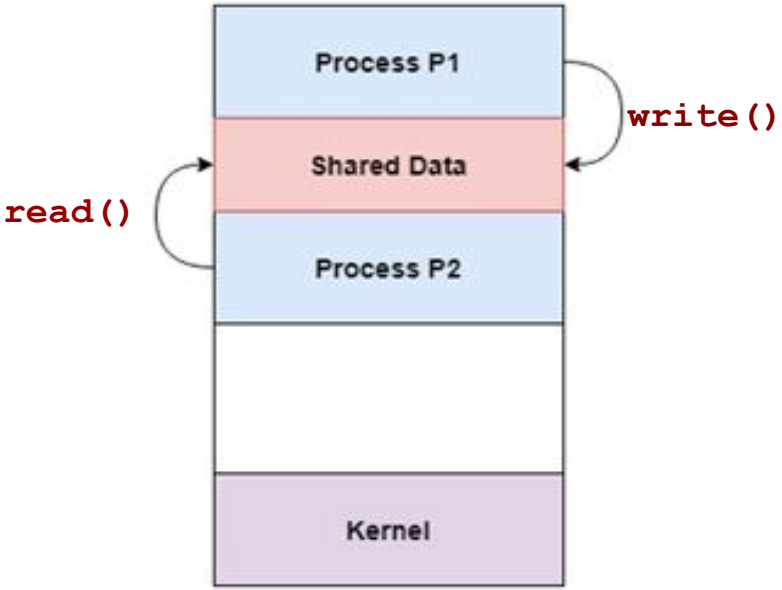
Inter-Process Communication

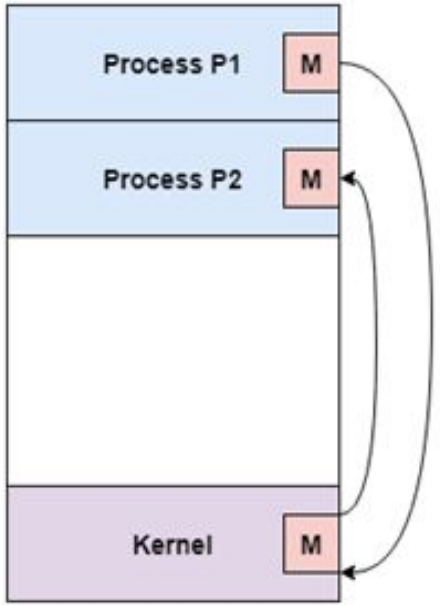
- What is Inter-Process Communication?
- Types of Processes
  - Independent Processes
  - Cooperating Processes
- Types of Models / Methods
  - Shared Memory
  - Message Passing
  - pipe
- Examples of IPC
  - Posix : uses shared memory method.
  - Mach : uses message passing
  - Windows XP : uses message passing using local procedural calls

Inter-Process Communication

- Models / Methods



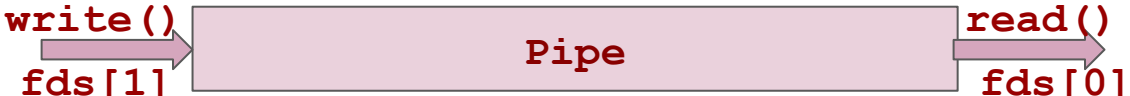
Shared Memory Model



Message Passing Model

Pipe

- Pipe is a communication medium between two or more related or interrelated processes. It can be either within one process or a communication between the child and the parent processes.



Pipe within one process

- Creation of pipe:

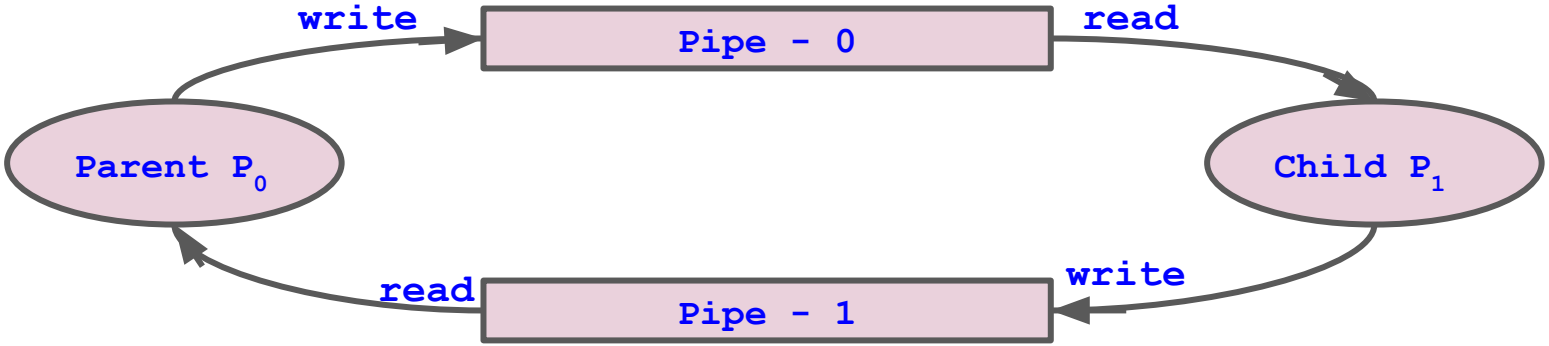
```
int pipe(int fds[2])
```

Where, fds[0] & fds[1]
Returns '0' - success
'1' - fail

- Child and parent process communication.
- FIFO
- At a time 512 bytes can write in a pipe
- At a time, 1 byte read() from pipe

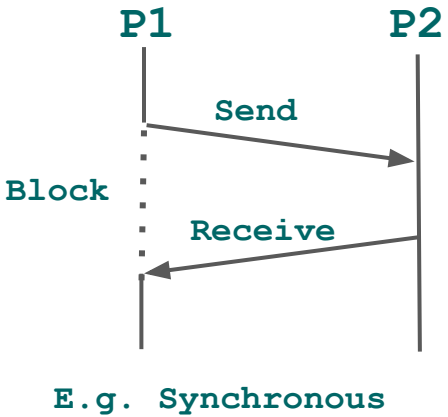
Two Way Communication Using Pipes

- read() returns how many byte read() from pipe. [1 byte]
- write() returns how many bytes write to a file.[256 byte]
- To establish two way communication between parent child process, we can use two pipes.

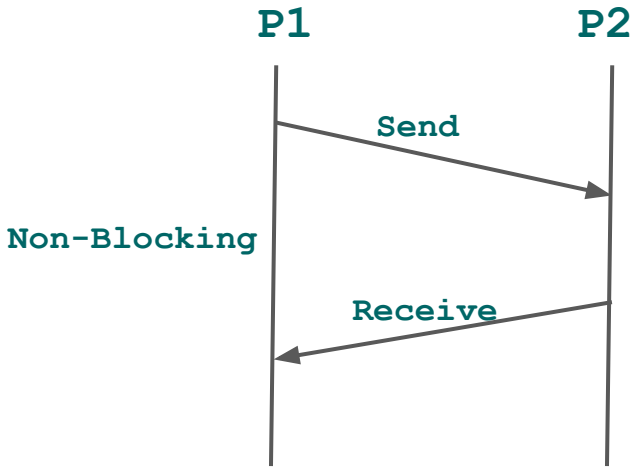


Asynchronous Communication

- Asynchronous communication means communication which happens 'out of sync' or in other words; not in real-time



E.g. Synchronous



E.g. Asynchronous