Message Passing

IPC through Message Passing is a method where processes communicate by sending and receiving messages to exchange data. In this method, one process sends a message, and the other process receives it, allowing them to share information. Message Passing can be achieved through different methods like Sockets, Message Queues or Pipes.

Sockets provide an endpoint for communication, allowing processes to send and receive messages over a network. In this method, one process (the server) opens a socket and listens for incoming connections, while the other process (the client) connects to the server and sends data. Sockets can use different communication protocols, such as TCP (Transmission Control Protocol) for reliable, connection-oriented communication or UDP (User Datagram Protocol) for faster, connectionless communication.

To read more refer – IPC using Message Queues

Different methods of Inter process Communication (IPC) are as follows:

1. **Pipes –** A pipe is a unidirectional communication channel used for IPC between two related processes. One process writes to the pipe, and the other process reads from it.

   Types of Pipes are Anonymous Pipes and Named Pipes (FIFOs)
2. **Sockets –** Sockets are used for network communication between processes running on different hosts. They provide a standard interface for communication, which can be used across different platforms and programming languages.
3. **Shared memory –** In shared memory IPC, multiple processes are given access to a common memory space. Processes can read and write data to this memory, enabling fast communication between them.
4. **Semaphores –** Semaphores are used for controlling access to shared resources. They are used to prevent multiple processes from accessing the same resource simultaneously, which can lead to data corruption.

5. **Message Queuing –** This allows messages to be passed between processes using either a single queue or several message queue. This is managed by system kernel these messages are coordinated using an API.