Synchronous Communication

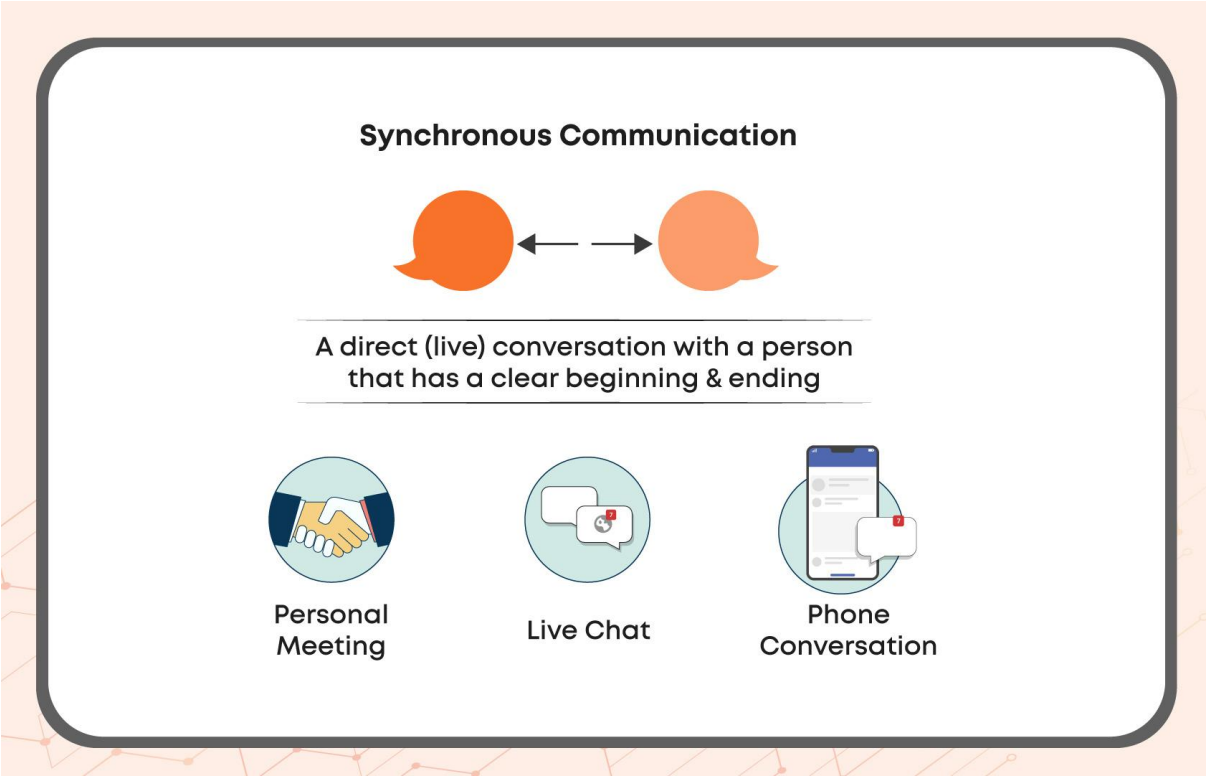
Suppose you go to an Icecream Parlour and buy a Mango Popsicle and pay the money to the ice cream vendor. You have to wait for some time till the vendor prepares your order and delivers it to you. Till the time order is being prepared, you cannot leave the place and this is an example of synchronous communication. Since you are "blocked" until you receive your order, it can also be called a blocking call.

Synchronous Communication is the "Communication in sync".

What is synchronous communication?

Synchronous communication is a type of communication between two or more parties where they exchange information from start to finish without any interruption. If the client has made a request and keeps waiting until it is satisfied then that is an example of synchronous communication/blocking call.

Example: An application A requests some data from application B without which it cannot proceed on the next processing step. Application A is blocked or the process is halted until application B responds with the required information.



Synchronous Communication

Why is synchronous communication required?

1. Real-Time Communication:
   Synchronous communication is essential when the information exchanges can happen in real-time.
   Example: Two applications are dependent on each other for sharing information. The application has to wait until its request is fulfilled by the second application.

2. Transaction:
   In synchronous communication, the exchange has to take place from start to finish, that is the thread/system/client must wait till the other point of communication has responded. The system has to wait till the successful completion of the process.
   Example: During a money transfer, either the system must NOT transfer money and show some error or transfer it successfully. In such situations, synchronous communication is essential.

3. Consistency:
   High Consistency is ensured when all the replicas of the data are updated with the most recent data after a write operation takes place. The read operations are blocked until all the replicas are updated and their synchronous communication would be required to achieve high consistency.

How is the synchronization call achieved?

The synchronous call is based on the concept of blocking. Till the request is not completed the node making the request has to halt and wait until the response is received.

Example: Thread A1 of an application requests information from thread A10 of that application. Until the processing to deliver the request is not completed by thread A10, thread A1 has to wait and block the process. The process would continue once the request is completed by thread A10. A Real-Life Example of this would be talking with your friend over a video call.