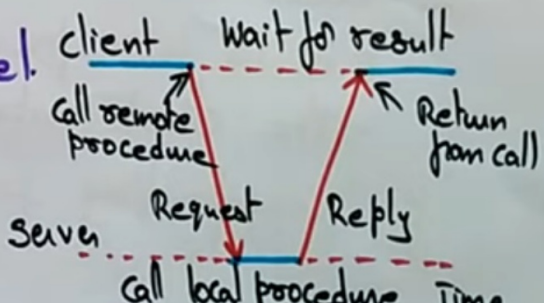
✡ Remote Procedure Call (RPC)

→ RPC is a protocol that one program can use to request a service from a program located in another computer on a network without having to understand the network's details.

→ A procedure call is also called as function call or subroutine call.

→ RPC uses the client server model.



→ It includes mainly five elements :-

- The client
- The client stub (stub: Piece of code used for converting parameters)
- The RPC Runtime (RPC communication package)
- The Server stub
- The Server

* The client

- It is user process which initiates a RPC
- the client makes a perfectly normal call that invokes a corresponding procedure in the client stub.

he Client Stub :-

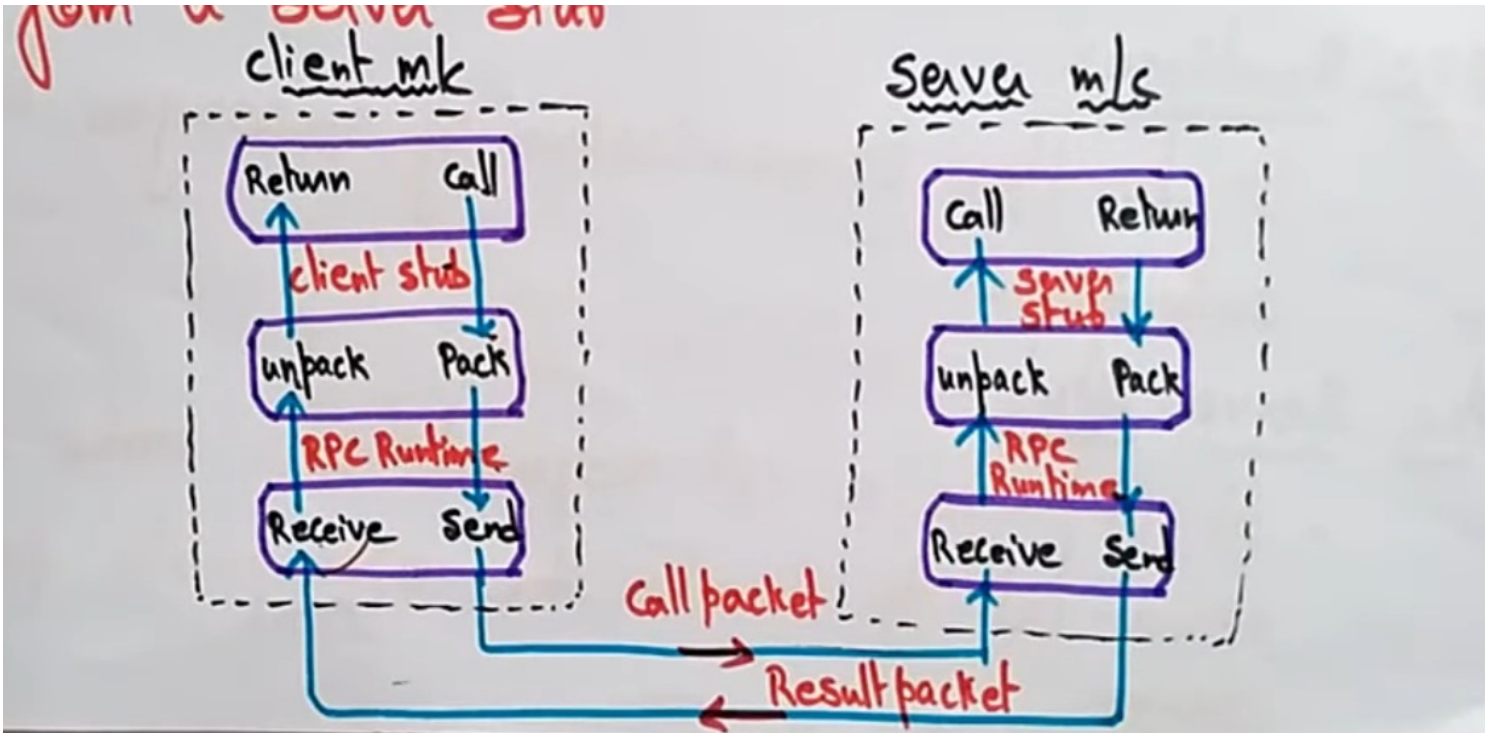
- On receipt of a request it packs a requirement into a message and asks to RPC Runtime to send
- On receipt of a result it unpacks the result and passes it to client.

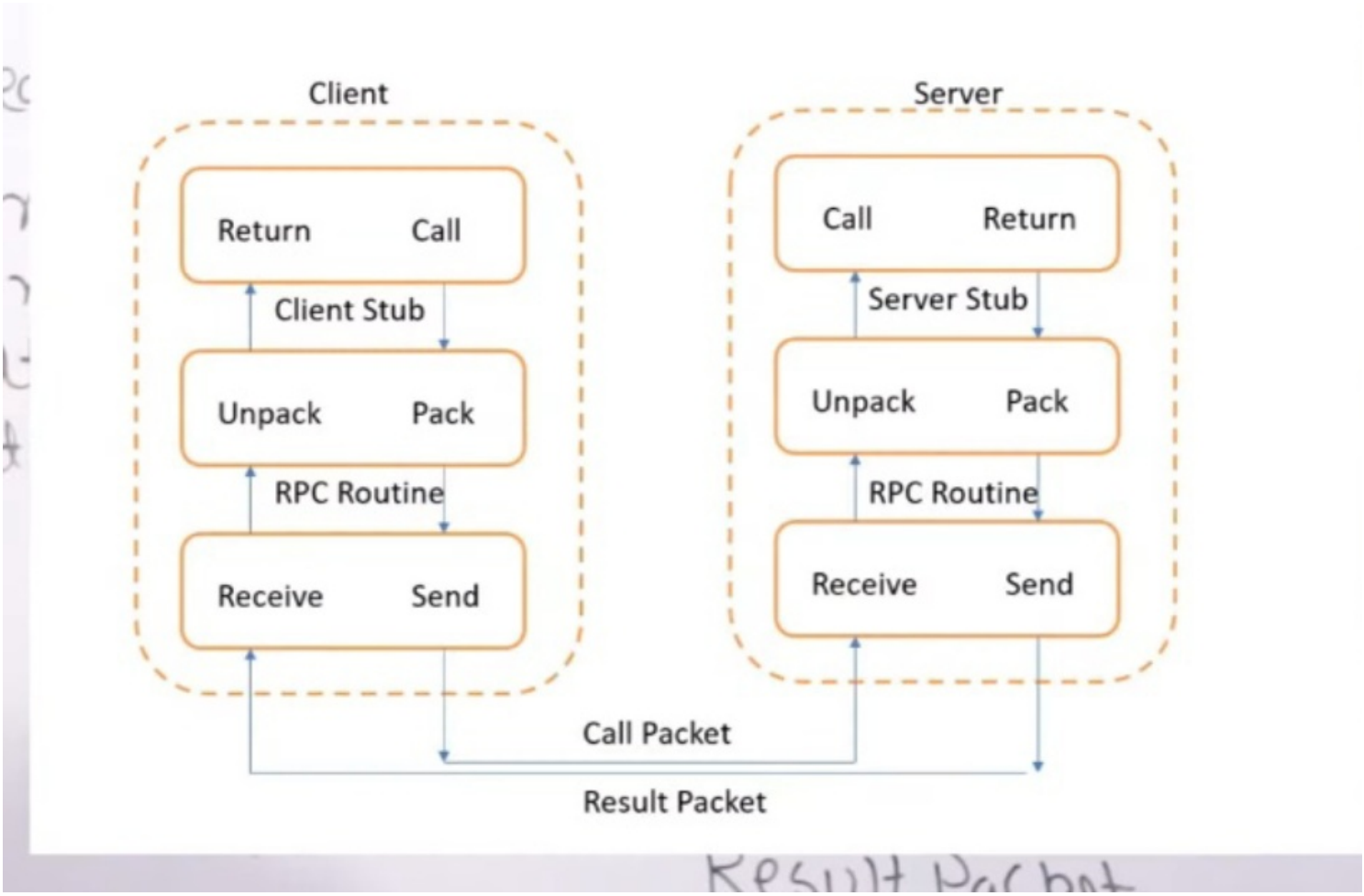
PC Runtime :-

- It handles transmission of messages between client and server.

e Serva Stub :-

- It unpacks a call request and make a perfectly normal call to invoke the appropriate procedure in the


client m/c
Server m/c
Return
Call
client stub
unpack
Pack
RPC Runtime
Receive
Send
Call
Return
server stub
unpack
Pack
RPC Runtime
Receive
Send
Call packet
Result packet


Client
Return
Call
Client Stub
Unpack
Pack
RPC Routine
Receive
Send
Server
Call
Return
Server Stub
Unpack
Pack
RPC Routine
Receive
Send
Call Packet
Result Packet

1. Client procedure calls client stub in normal way
2. Client stub builds message, calls local OS
3. Client's OS sends message to remote OS
4. Remote OS gives message to server stub
5. Server stub unpacks parameters, calls server
6. Server does work, returns result to the stub
7. Server stub packs it in message, calls local OS
8. Server's OS sends message to client's OS
9. Client's OS gives message to client stub
10. Stub unpacks result, returns to client

- **Stub** - A stub is a representation (proxy) of the remote object at client. It resides in the client system; it acts as a gateway for the client program.
- **Skeleton** - This is the object which resides on the server side. **stub** communicates with this skeleton to pass request to the remote object.