

UNIT-IV

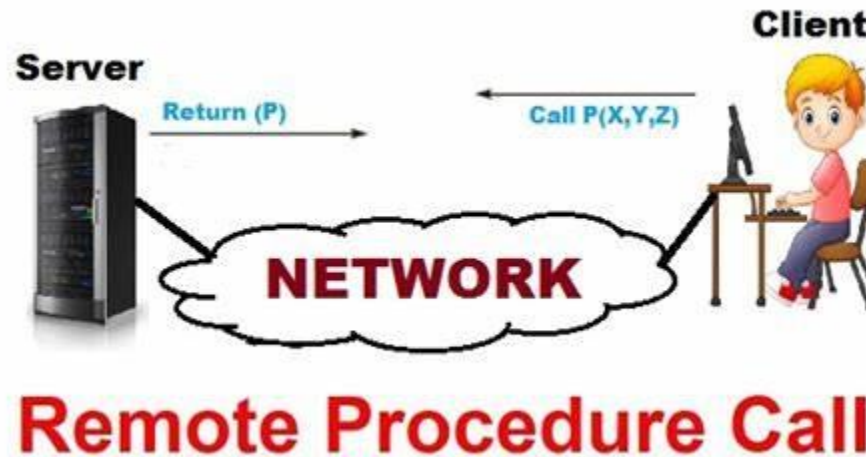
Remote Procedure Call

Remote Procedure Call

- It is a software communication 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.
- RPC is used to call other processes on the remote systems like a local system.
- A procedure call is also sometimes known as a function call or a subroutine call.

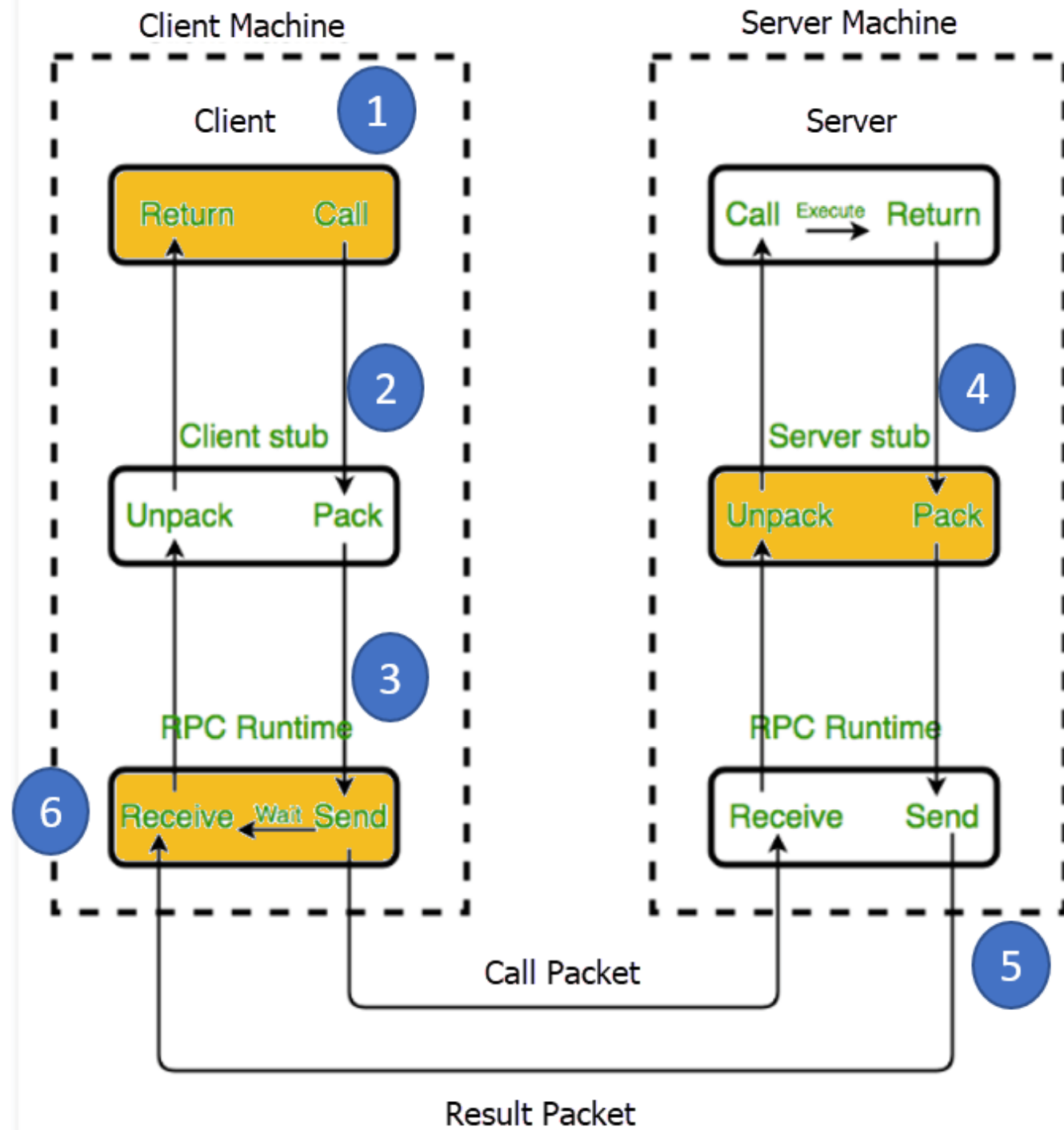
Remote Procedure Call (Contd...)

- RPC uses the client-server model. The requesting program is a client, and the service-providing program is the server.



Working of RPC

- When a remote procedure call is invoked, the calling environment is suspended, the procedure parameters are transferred across the network to the environment where the procedure is to execute, and the procedure is then executed in that environment.
- When the procedure finishes, the results are transferred back to the calling environment, where execution resumes as if returning from a regular procedure call.



During an RPC, the following steps take place:

1. The client calls the client stub. The call is a local procedure call with parameters pushed onto the stack in the normal way.
2. The client stub packs the procedure parameters into a message and makes a system call to send the message. The packing of the procedure parameters is called marshalling.
3. The client's local OS sends the message from the client machine to the remote server machine.
4. The server OS passes the incoming packets to the server stub.
5. The server stub unpacks the parameters -- called unmarshalling -- from the message.
6. When the server procedure is finished, it returns to the server stub, which marshals the return values into a message. The server stub then hands the message to the transport layer.
7. The transport layer sends the resulting message back to the client transport layer, which hands the message back to the client stub.
8. The client stub unmarshalls the return parameters, and execution returns to the caller.