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# Remote Procedure Calls (RPCs)

- RPCs occur when a computer causes a procedure / function to execute in another address space, commonly on another computer on a shared network.
- The programmer doesn't explicitely code the details for the remote interaction.
- RPCs provide access transparency (local service looks like remote service)
- Goal of RPCs: Hide the network from the program

## Sequence of events during an RPC

1. The client calls the Client stub. This is a local procedure call with parameters pushed on the stack in the normal way.
2. Marshalling. Client stub packs parameters into a message, makes a system call and the OS sends the message over the network to the server. Packing parameters = marshalling.
3. The server's OS passes the incoming packets to the server stub.
4. Unmarshalling. The server stub unpacks the parameters from the message.
5. The server stub calls the server procedure.
6. The reply (i.e. return result) traces the same steps in reverse direction.

## Synchronous vs. asynchronous RPC

Synchronous RPC behaves like local one. Program waits for return results and only carries on after it's received them.

After an asynchronous RPC program only waits for acceptance but then carries on, on arrival of the return result the remote machine interrupts the local program, which then sends an ACK.