

# Raw messaging

➔ Network programming = raw messaging (socket I/O)  
programmers hand-coded messages to send requests and responses

- Too low-level and tiresome

- Need to worry about message formats
- Must wrap up information into message at source
- Must decide what to do with message at destination
- Have to pack and unpack data from messages
- May need to sit and wait for multiple messages to arrive

Messages are not a very natural programming model

- Could encapsulate messaging into a library
- Just invoke library routines to send a message
- Which leads us to RPC...

# Procedure calls

Procedure calls are a more natural way to communicate

- Every language supports them
- Semantics are well-defined and understood
- Natural for programmers to use

➔ Idea - let servers export procedures that can be called by client programs

- Similar to module interfaces, class definitions, etc.
- Clients just do a procedure call as if they were directly linked with the server
- Under the covers, the procedure call is converted into a message exchange with the server