RPC example - return

Client Program:
```
sum = server->Add(3,4);
```

Server Program:
```
int Add(int x, int y){
  return x + y;
}
```

RPC library

Client Stub:
```
int Add(int x, int y) {
  Alloc message buffer;
  Mark as "Add" call;
  Store x, y into buffer;
  Create, send message;
  Remove r from reply;
  return r;
}
```

Server Stub:
```
Add_Stub(Message) {
  Remove x, y from buffer
  r = Add(x, y);
  Store r in buffer;
}
```

network

RPC Runtime:
```
Return reply to stub;
```

RPC Runtime:
```
Send reply to client;
```
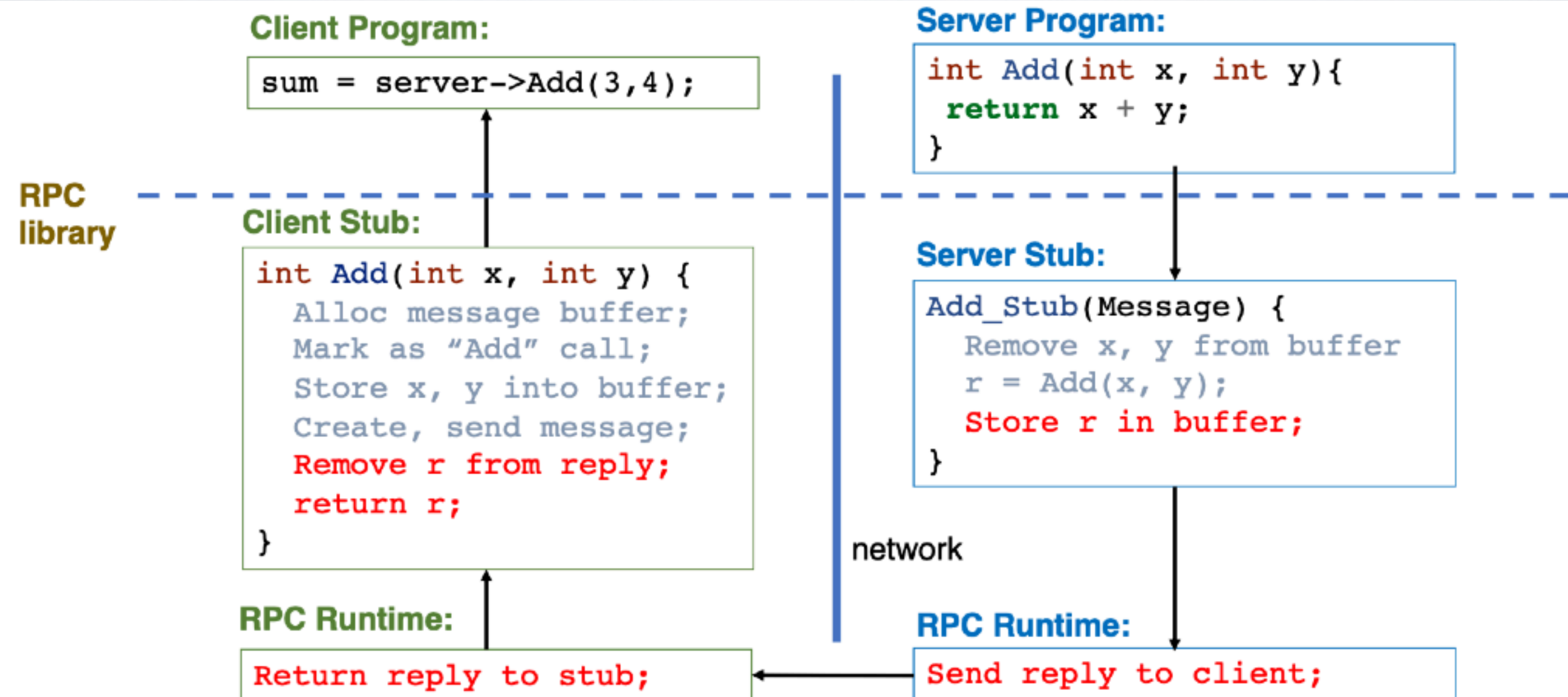
RPC implementation details

What if client/server machines are different architectures and/or languages?
Need to convert everything to/from some canonical form and tag every item with an indication of how it is encoded (avoids unnecessary conversions)

➡ Abstract Syntax Notation One (ASN.1)

How does client know which server to send to?
Need to translate name of remote service into network endpoint (IP, port)

➡ Binding - the process of converting a user-visible name into a network endpoint

- Static - fixed at compile time

- Dynamic - performed at runtime