

## ENS III – Activity 1.2

- When a remote method is invoked by a client, which are the main failure points? Examples?

The main failure points are three:

- Omission failures

When the network loses the data related to a method invocation and the request doesn't arrive to its destination, we can talk of an omission failure. Source does not know that the request has been lost and destination does not know that a method has been invoked.

It is possible to detect this kind of failures using time-outs, in synchronous systems we will know exactly when we can consider the request lost but in asynchronous system we will have to predict a time-out (which may produce false positives).

A clear example can be found if we use wireless connection with protocols that don't guarantee the correct transmission of information. Omission failures would occur frequently.

- Arbitrary failures

This kind of failures take place when requested actions are done but no notification is received by the caller, or actions are done but return a message with wrong values.

The network problem is the similar of omission failure, packets are lost or modified. But this time the invocation has been done and the client gets no notification or receives bad results. This is the worst type of failure which presents a bad situation with difficult solution.

For example a client invoke a method for adding money to a bank account, the method is executed but the client doesn't receive any answer. What have to do the client? Invoke again the method? This will add extra money to the bank account because of a arbitrary failure.

- Timing failures

In synchronous systems we can find time limits for certain actions like sending a message through the network, processing some data, executing a method, etc... If one of these time limits is exceeded then a timing failure is produced.

For example, a method for weather forecast must be executed within 12 hours. If we exceed this time prediction may be useless and it will produce a timing failure.

Author:  
Sergio Blanco Cuaresma