

RPC Semantics

At-least-once semantics

- If the client stub doesn't receive a response within some specific time, the stub resends the request as many times as necessary until it receives a response from the service.
- This may cause the remote procedure to execute a request more than once.
- This only works well for idempotent operations.
Idempotent = ~~applying the same operation~~ repeating the same request several times has the same effect as doing it just once.
- This approach only fails if the executing server never responds.

At-most-once semantics

- If the client stub doesn't receive a response within some specific time it will not retry before it has received a negative acknowledgment of the invocation.
- This "guarantees" the remote procedure is executed either 0 or 1 time.
- This works well for non-idempotent operations where it is important that a remote procedure is only invoked once, e.g. incrementing a bank account balance.

Name server

- Takes a name, and returns one or more attributes of the named object.
- Analogy: White pages telephone book

Directory server

- Takes attribute values, and returns sets of attributes of objects with those attribute values.
- Analogy: yellow pages telephone book