RPC failure semantic - at-most-once

- Problem with at-least-once behavior
  What if the request is "deduct $100 from bank account" ?

- At-least-once works well with <u>idempotent requests</u>

Another (better) RPC behavior - **at-most-once**

- Having Server RPC code detects duplicate requests returns previous reply instead of re-running handler

- How to detect a duplicate request?

  - Client includes unique ID (XID) with each request, and uses the same XID for re-send

  - Server checks an incoming XID in a table, if an entry is found, directly returns the reply

Problems with RPC - performance

Cost of Procedure Call ≪ same-machine RPC ≪ network RPC

➡ Means programmers must be aware that RPC is not free