At-most-once Atomicity
With Logs

6.033 2008 Lecture 17

Log-only Read

read(var):
  cset = {}
  for i = len(log) down to 0:
    r = log[i]
    if r is a Commit:
      cset = cset ∪ r.TID
    if (r is a Modify and r.TID in cset
       and r.var == var):
      return r.new

Write-ahead-log Recovery

recover():
  cset = {}
  for i = len(log) down to 0:
    r = log[i]
    if r is a Commit:
      cset = cset ∪ r.TID
    if r is a Modify and r.TID NOT in cset:
      write r.old to r.var
    for i = 0 to len(log):
      if r is a Modify and r.TID in cset:
        write r.new to r.var