

From: Gerry Houlder, Seagate Technology <gerry.houlder@seagate.com>
Subj: SPC-4: Persistent Reservation fixes
Date: Jan. 16, 2008

Overview

I have noted some spots in description of persistent reservations that I believe are either unclear or wrong. This proposal is an attempt to fix those items.

- (a) In clause 5.6.9 there is a description of how to become a reservation holder. Item a) has the rules for All Registrants reservation types (where more than one initiator can simultaneously be a reservation holder). Item b) describes “all other types”, which boil down to types where only one initiator is the reservation holder.

Item b) doesn't include the RESERVE service action (which is the main way an initiator becomes the reservation holder) and it includes the two register service actions (which would make sense for an All Registrants reservation but not for this type). The Reserve service action needs to be added and the registration service actions should be deleted.

- (b) In clause 6.14.3, support for the SPEC_I_PT bit is clearly described for one service action, one other service action is described as not supporting it, and the standard is silent on the other service actions. There should be words added to clarify that the other service actions also do not support the SPEC_I_PT bit.
- (c) In clause 5 6.7 the draft standard uses the term “move the reservation”. I think this is unclear, it should say to establish a new reservation holder. I found a number of other clauses that discussed “moving” a reservation and have proposed new wording for each of these cases.

5.6.9 Persistent reservation holder

The persistent reservation holder is determined by the type of the persistent reservation as follows:

- a) For a persistent reservation of the type Write Exclusive – All Registrants or Exclusive Access – All Registrants, the persistent reservation holder is any registered I_T nexus; or
- b) For all other persistent reservation types, the persistent reservation holder is the I_T nexus:
 - A) For which the reservation was established with a PERSISTENT RESERVE OUT command with ~~REGISTER service action, REGISTER AND IGNORE EXISTING KEY RESERVE~~ service action, PREEMPT service action, or PREEMPT AND ABORT service action; or
 - B) To which the reservation was moved by a PERSISTENT RESERVE OUT command with REGISTER AND MOVE service action.

[Note – no other changes in this clause.]

6.14.3 Basic PERSISTENT RESERVE OUT parameter list

[Note – paragraphs before the SPEC_I_PT bit description are unchanged.]

If the Specify Initiator Ports (SPEC_I_PT) bit is set to zero, the device server shall apply the registration only to the I_T nexus that sent the PERSISTENT RESERVE OUT command. If the SPEC_I_PT bit is set to one for any service action except the REGISTER ~~AND IGNORE EXISTING KEY~~ service action, then the command shall be terminated with CHECK CONDITION status, with the sense key set to ILLEGAL REQUEST, and the additional sense code set to INVALID FIELD IN PARAMETER LIST. If the SPEC_I_PT bit is set to one for the REGISTER service action, the additional parameter data (see table 133) shall include a list of transport IDs and the device server shall also apply the registration to the I_T nexus for each initiator port specified by a TransportID. If a registration fails for any initiator port (e.g., if the logical unit does not have enough resources available to hold the registration information), none of the other registrations shall be made.

[Note – No other changes in this clause.]

[Note – update table 37 in rev 12 to eliminate the ignore case for the first row.]

[Note – update table 38 in rev. 12 to indicate SPEC_I_PT is not valid for REGISTER AND IGNORE EXISTING KEY case.]

[Note – update table 142 in rev. 12 to indicate “invalid” in the SPEC_I_PT column for all action except REGISTER.]

5.6.7 Registering and moving the reservation

The PERSISTENT RESERVE OUT command REGISTER AND MOVE service action is used to register a specified I_T nexus (see table 36) and move the reservation to ~~establish~~ that I_T nexus as the reservation holder.