Persistent Reservation Proposals

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Past Documents/Direction

Date	Ref	Contents 1) Analog to 3rd party reserves 2) Mix original Reserves and PRs
11/6/2002	02-483r0	1) Non-participating register + new Transfer PR Out Service Action 2) Reserve inside PR is no-op + Reserve synthesizes excl accss PR when none exists
5/5/2003	02-483r1	1) As r0 above (could live with register killed by preempt) 2) Reserve inside PR synthesizes Reg + Reserve synthesizes PR excl access when none exists + Release of synthesized reg like Register with 0 key + release of non-synthesized reserve is no-op
5/7/2003	CAP mtg	1) Directed to create a Move Service action 2) Directed to create a new command to synthesize PR from existing Reserve

Documents uploaded 7/2/2003

Ref	Contents
03-231r0	Overview and latest information
03-232r0	Modified Reservation Handling Proposal
03-233r0	Move Service Action Proposal

- Apologies for the fact that nobody from VERITAS was at the July CAP meeting to present the docs

Latest Information

- Reserve to Persistent Reserve conversion command will not solve the problem
  - Many Reserves and Releases are issued in some codepaths (by app, platform, device driver)
    - Because no way to test for existing reservation
    - Some tape drivers do very weird things
      - E.g. multiple rewinds, space to non-existent blocks
    - Have see situations where 26 successive reserves issued during a mount, and 10 releases issued during dismount
- BTW – lots of code out there assumes Release never fails!

Latest Information

- We believe no alternative to creating a situation by which:
  - Reserve and Release commands that are received from an Initiator Port that has access under a pre-existing Persistent Reservation are:
    - Accepted
    - Have no effect on the state of the Persistent Reservation.

Latest Information

- 03-232r0 contains a Modified Reservation handling (MRH) proposal
- We've convinced ourselves that we do not need the conversion command

Latest Information

- We've done some more work on the PR Out Move Service Action
  - Looks like it works for us
- 03-233r0 contains a detailed proposal
- The overview document gives background to another proposal - Joined reservations
  - 03-234r0 never uploaded, ran out of time before leaving for vacation
  - Decided to give OIR priority @ this meeting
  - Will ask for time to present Joined reservations in November

Modified Reservation Handling

- 3 parts
  - A new subclause to be added to the Reservations model section in subclause 5.5.
  - Addition of a bit to the PERSISTENT RESERVE IN Parameter data for Report Capabilities in subclause 6.10.1
  - Text to be added to the definition of the RESERVE and RELEASE commands
    - (N.B. where this text is to be located in SPC-3, and whether all of the definitions of all of the Reserve and Release commands currently in SPC-2 should be repeated in SPC-3 has not yet been addressed in this proposal.)

Modified Reservation Handling

- Text for 5.5.3 Mixing Persistent Reservations and Reservations:
  - When a RESERVE command is received from an I_T nexus which holds a Persistent Reservation or is registered when a registrants only or all registrants type persistent reservation is present, the command shall be allowed (see 5.1.1 and Table 31), but no Reservation will established and the Persistent Reservation shall not be changed.

Modified Reservation Handling

- When a RELEASE command is received from an I_T nexus which holds a Persistent Reservation or is registered when a registrants only or all registrants type persistent reservation is present, the command shall be allowed (see 5. 1.1 and Table 31), but the Persistent Reservation will not be released.

Modified Reservation Handling

- When a RESERVE or RELEASE command is received from I_T nexuses not holding the reservation or from I_T nexuses not registered when a registrants only or all registrants type persistent reservation is present, and a Persistent Reservation exists, then the command shall not be performed and the device server shall terminate the command with a RESERVATION CONFLICT status.

MRH_C in Report Capabilities

- An mrh_c (Modified Reservation Handling Capable) bit of one indicates that the device server supports the Modified Reservation Handling scheme defined in 5.5.3. An mrh_c (Modified Reservation Handling Capable) bit of zero indicates that definition of how RESERVE and RELEASE commands are handled in the presence of Persistent Reservations is defined by a predecessor standard to SPC-3.

New Reserve and Release text

- New Text for RELEASE Command
  - In the case where a RELEASE command is received from an Initiator which has a pre-existing Persistent Reservation with the Device Server, the RELEASE command shall be accepted but the Persistent Reservation will not be released.
- New Text for RESERVE Command
  - In the case where a RESERVE command is received from an Initiator which has a pre-existing Persistent Reservation with the Device Server, the RESERVE command shall be accepted but no Reservation shall be made and the Persistent Reservation will not be altered.

Request of CAP

- Request that the editor:
  - Add new text for 5.5.3
  - Select a bit for MRH_C in Report Capabilities, and add the text for the bit
  - Include the text for Reserve and Release in SPC-3 in a location at his discretion, and with other text from SPC-2 or not at his discretion

Move Service Action Proposal

- 3 parts:
  - A new row for Table 32.
  - A new subclause for The Persistent Reservations management method section (5.5.2)
  - A new row for Table 108

Move subsection text

- Only a persistent reservation holder (see 5.5.2.6) is allowed to move a persistent reservation.
- An application client moves a persistent reservation by issuing a PERSISTENT RESERVE OUT command with MOVE service action through a registered I_T nexus with the following parameters:
  - reservation key field set to the value of the reservation key that is registered for the I_T_L nexus to which the reservation is being moved;
  - service action reservation key set to the value of the reservation key of the persistent reservation to be moved; and
  - type and scope fields set to match the persistent reservation.

Move subsection text

- In response to a persistent reservation move request from a registered I_T nexus the device server shall perform a move by doing the following as an uninterrupted series of actions:
  - Release the persistent reservation for the holder identified by the service action reservation key;
  - Establish a persistent reservation for the I_T nexus identified by the reservation key using the contents of the scope and type fields;
  - Not remove any registration(s); and
  - Establish a unit attention condition for the initiator port associated with the registered I_T nexus identified by the key value in the service action reservation key field. The sense key shall be set to UNIT ATTENTION and the additional sense code shall be set to RESERVATIONS RELEASED.

Move subsection text

- The established persistent reservation shall not be altered and the device server shall return a CHECK CONDITION status for a PERSISTENT RESERVE OUT command that specifies the move of a persistent reservation when:
  - The service action reservation key does not match the value of the reservation that is registered for the I_T_L nexus; or
  - The scope and type fields do not match the scope and type of the established persistent reservation; or
  - The existing reservation is a registrants only or all registrants type.
- The sense key shall be set to ILLEGAL REQUEST and additional sense code shall be set to INVALID MOVE (new code required).

Tables

- Move rows in Table 32 and Table 108 has same contents as Preempt rows

Request of CAP

- Request that the editor:
  - Add new rows for Tables 32 & 108
  - Add a new subclause for the Move service Action located appropriately in the Persistent Reservations management method section (5.5.2)
  - Add a new code and new row for the Move service action in Table 106
  - Add a new ASC for “Invalid Move”