Persistent Reserve In/Out Functionality for Reserve/Release Replacement

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Proposal: Add, as an infomative annex in SPC-3, the following text:

A.1 Introduction

This annex specifies the PERSISTENT RESERVE OUT functionality necessary to replace the reserve/release management method and provides guidance on how to perform a third party reservation using persistent reservations. No PERSISTENT RESERVE IN functionality is required to replace the reserve/release management method.

A.2 PERSISTENT RESERVE OUT functionality to replace the reserve/release management method

The minimum PERSISTENT RESERVE OUT functionality required to replace the reserve/release management method is specified in table 1.

Table 1: PERSISTENT RESERVE OUT functionality

PERSISTENT RESERVE OUT functionality	Required
Service Action	
REGISTER	Yes[a]
RESERVE	Yes
RELEASE	Yes
CLEAR	Yes[c]
PREEMPT	No
PREEMPT AND ABORT	No
REGISTER AND IGNORE EXISTING KEY	Yes[a]
REGISTER AND MOVE	Yes[b]
Scope	
LU_SCOPE	Yes
a) An implementation uses either the REGISTER or REGISTER AND IGNORE EXISTING KEY service action. b) Required only for third party reservation functionality. c) Needed to clear the registration and reservation (e.g, a failed initiator).	

Table 1: PERSISTENT RESERVE OUT functionality (continued)

PERSISTENT RESERVE OUT functionality	Required
Type	
Write Exclusive	No
Exclusive Access	Yes
Write Exclusive - Registrants Only	No
Exclusive Access - Registrants Only	No
Write Exclusive - All Registrants	No
Exclusive Access - All Registrants	No
a) An implementation uses either the REGISTER or REGISTER AND IGNORE EXISTING KEY service action. b) Required only for third party reservation functionality. c) Needed to clear the registration and reservation (e.g, a failed initiator).	

A.3 Third party reservation functionality

For some EXTENDED COPY implementations, the application client performs a locking function to maintain data integrity on the source and may also lock the destination device prior to starting the copy operation. The persistent reservation management method may be used to perform the locking function. Other methods (e.g., access controls) may also perform the locking function.

To accomplish a third party persistent reservation the following steps are recommended:

1) Backup application uses the REGISTER service action to register an I_T nexus with a logical unit (e.g., a tape drive logical unit);
2) Backup application uses the RESERVE service action to establish a persistent reservation with the Exclusive Access type;
3) Backup application prepares the logical unit for access (e.g., medium is loaded and positioned);
4) Backup application uses the REGISTER AND MOVE service action to register the I_T nexus that the copy manager is expected to use and moves the persistent reservation to that I_T nexus;
5) Backup application sends the EXTENDED COPY command to the copy manager that includes a third party persistent reservations source I_T nexus segment descriptor (see 6.3.7.19);
6) Copy manager processes all segment descriptors in the received EXTENDED COPY command except the third party persistent reservations source I_T nexus segment descriptor; and
7) Copy manager issues a REGISTER AND MOVE service action, using the reservation key and I_T nexus specified in the third party persistent reservations source I_T nexus segment descriptor received from the backup application (see step 5), to move the persistent reservation back to the original I_T nexus.