Accredited Standards Committee
X3, Information Processing Systems

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Ref Doc.: SSA-S2P rev 7
Reply to: John Scheible

To: X3T10.1 Membership
From: John Scheible

Subject: Confirm Status proposal

BACKGROUND

In SSA-S2P, the target does not know the that the initiator actually saw the SCSI STATUS SMS (i.e. delivery is not confirmed). In addition, a long data transfer cannot be restarted in the middle over a new path in case of a break (or over a recovered path after Privileged mode has discarded Application frames).

Due to the performance impact of processing the confirmation SMS, the Interlocked delivery function is selectable on a command by command basis.

This proposal assumes that it is better to use existing Asynchronous Alert ALERT CODE values, rather than create new ones.

PROPOSAL

Make the following changes to SSA-S3P (reference numbers are from SSA-S2P rev 7).

1) 6.6 (SCSI COMMAND SMS), Table 5 - add a new CONFIRM bit to byte 10 bit 4.
2) 6.6 (SCSI COMMAND SMS), new paragraph after paragraph x
   If the ILOCK bit is set the target does not consider the I/O process complete until the appropriate CONFIRM STATUS SMS is received with the COMPLETE bit set. If the CONFIRM bit is cleared, the target considers the I/O process complete after sending the SCSI STATUS SMS, and the receipt of an associated CONFIRM STATUS SMS creates an Asynchronous Alert (see x.xx). If both the OOT and CONFIRM bits are set, then generate an Asynchronous Alert (see SSA-TL) with an ALERT CODE value of INVALID FIELD.
3) Add a new SMS as shown on the following page.
4) 6.1 (Summary of SSA-S3P SMSs), Table 4, add a new entry
   CONFIRM STATUS, 83h, 12h, APPLICATION, initiator, target
5) Add a new warning ALERT CODE value in Table 25 of SSA-TL2...
   alert code =060600h, value=UNCONFIRM STATUS, Port mode=Unchanged.

Sincerely,

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6.7½ CONFIRM STATUS SMS

The CONFIRM STATUS SMS is sent from an initiator to a target to either confirm receipt of a SCSI STATUS or to instruct the target to restart the I/O process from a specified point.

The CONFIRM STATUS SMS is returned for each SCSI COMMAND SMS with the ILOCK bit set unless the command is rejected (with an ASYNC ALERT SMS or an SCSI RESPONSE SMS) or the command is cleared by any of the following:

a) ABORT TAG SMS
b) ABORT SMS
c) CLEAR QUEUE SMS
d) DEVICE RESET SMS
e) A Hard Reset condition (including a transport layer Total Reset or Absolute Reset frame).

The contents of the DATA field in the CONFIRM STATUS SMS are defined in Table 1.

Table 1 - CONFIRM STATUS SMS

Byte	Bit 7	6	5	4	3	2	1	Bit 0
0	SMS CODE (83h)							
1	S3P CODE (12h)							
2	TAG							
3	TAG							
4	OLD RETURN PATH ID							
5	OLD RETURN PATH ID							
6	OLD RETURN PATH ID							
7	OLD RETURN PATH ID							
8	NEW RETURN PATH ID							
9	NEW RETURN PATH ID							
10	NEW RETURN PATH ID							
11	NEW RETURN PATH ID							
12	BYTE OFFSET							
13	BYTE OFFSET							
14	BYTE OFFSET							
15	BYTE OFFSET							
16	COMPLETE	reserved						

The TAG field is a copy of the TAG field in the corresponding SCSI COMMAND SMS.

The OLD RETURN PATH ID field is a copy of the RETURN PATH ID of the SCSI COMMAND SMS. The combination of TAG and OLD RETURN PATH ID fields identifies the correct I/O process.

The NEW RETURN PATH ID field replaces the RETURN PATH ID field of the SCSI COMMAND SMS. If the I/O process is active, any active data transfer is terminated, and all future activity uses the NEW RETURN PATH ID field to route data and SMSs.

The BYTE OFFSET field indicates the number of bytes of read data that has been received by the initiator., or write data that has been sent from the initiator. An BYTE OFFFSET field value of zero indicates the target shall execute the entire I/O process. An BYTE OFFSET field value equal to the I/O process transfer count indicates that the initiator received all the data, but has not seen a SCSI STATUS SMS.

If the COMPLETE bit is set, the CONFIRM STATUS SMS is used to confirm the receipt of the SCSI STATUS SMS. If the COMPLETE bit is cleared, the CONFIRM STATUS SMS is used to potentially change the RETURN PATH ID for an I/O process and to potentially restart the I/O process at a given point (BYTE OFFSET field).

If a CONFIRM STATUS SMS is received for an I/O process that had the ILOCK bit cleared in the SCSI COMMAND SMS, then generate an Asynchronous Alert (see SSA-TL) with an ALERT CODE field value of SMS UNEXPECTED. If a CONFIRM STATUS SMS is received for an I/O process which is unknown to the target

(i.e. TAG field and OLD RETURN PATH ID field does not match an existing I/O process) then generate an Asynchronous Alert (see SSA-TL) with an ALERT CODE field value of SMS UNEXPECTED. No check is performed to verify that the NEW RETURN PATH ID field is associated with the same initiator pointed to by the OLD RETURN PATH ID field. If the BYTE OFFSET field is larger than the transfer count of the I/O process, then generate an Asynchronous Alert (see SSA-TL) with an ALERT CODE field value of INVALID FIELD. If the target does not receive an associated CONFIRM STATUS SMS within 5 seconds of sending a SCSI STATUS SMS, then generate an Asynchronous Alert with an ALERT CODE value of UNCONFIRMED STATUS.