

# FCP-3 Work Items

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(T10/03-313r0)

- 1) Normative text for bi-directional SCSI command support;
- 2) Updated clearing effects (no changes pending at this time).
- 3) Normative text for class 2 error detection and recovery.

4) - clause 9.3

... The target shall never request or deliver data outside the buffer length defined by FCP\_DL. If the command requested that data beyond FCP\_DL be transferred, the FC\_RSP IU shall contain the FCP\_RESID\_OVER bit set to one. The command is completed normally except that data beyond the FCP\_DL count shall not be transferred and that the appropriate overrun condition is presented. See 9.4.4.

How can the command ever request that data beyond FCP\_DL be transferred? Maybe this would be for example, when a variable length read type command is issued to a tape device that results in data larger than the provided FCP\_DL?

5) - clause 9.4.8

If a condition of FCP\_RESID\_OVER is detected, the termination state of the FCP I/O operation is not certain. Data may or may not have been transferred and the SCSI status byte may or may not provide correct command completion information.

Not sure what the recovery process is after this condition?

Is the reason why the SCSI status byte may or may not provide correct information because the data may or may not have been transferred?

Also this text appears to be in conflict with clause 9.3.

6) - Obsolete Asynchronous Event Reporting

7) - Implement FCP changes per FC-AE (see clause 4.6)

- FC-AE-RDMA uses Word 5 bits 31-24 as a code field:

0xA6 RDMA with Target Notification

0xA7 RDMA without Target Notification

FCP\_XFER\_RDY is not used

CDB is not used

8) - Implement T10/02-419 - Device Identifiers and VPD Data

Proposed changes for FCP-3

Add these rules wherever appropriate:

A SCSI target device containing only FCP target ports shall use the NAA format for its logical unit names. If a SCSI target device contains both FCP target ports and target ports using other transport protocols, the logical unit names should use SCSI name string format (with "naa", "eui", or "iqn" formats).

A SCSI target device containing only FCP target ports shall use the NAA format for its target port identifiers. If a SCSI target device contains both FCP target ports and target ports using other transport protocols, the target port identifiers should be in SCSI name string format (with "naa", "eui", or "iqn" formats).

## 9) - Review T10/02-267- FCP-2: Issues To Resolve

### #5 - Task Retry Identification functionality

- > We have a question regarding the Task Retry Identification functionality
- > described in Section 4.6.
- >
- > The re-use of OX\_IDs within RR\_TOV of their last use exposes the
- > initiator to this condition described in Section 4.6.
- >
- > Since it is the initiator's OX\_ID generation model which can determine
- > the exposure to this problem, the Task Retry Identification
- > functionality must be a "mandatory to implement, optional to use"
- > feature and it should be left to the initiator's discretion on whether
- > this should be enabled.
- >
- > Can someone clarify why this is not a mandatory feature of FCP-2 ?
- > Without this feature, there is a risk of exposure to data corruption and
- > FCP-2 sequence level error recovery (SLER) cannot be used in a reliable
- > manner.
- >
- > Can the FCP-2 target implementors on this list comment on whether they
- > support Task Retry Identification ? What is the extent of support for
- > this feature among FCP-2 target implementations ?

Resolution: defer to FCP-3.

### #6 - 3rd party device identifier

#### 5.2 SCSI third-party device identifier for the Fibre Channel protocol

The SCSI RESERVE commands that use the 64-bit THIRD-PARTY DEVICE ID defined by SPC-2 shall use the FCP third-party device id format defined in table 7 to identify the specified third-party target.

#### FCP\_PORT IDENTIFIER:

The FCP\_PORT IDENTIFIER field defines the address identifier of the target that shall be used by the target for third-party addressing.

Table 7 - FCP third-party device id format

Byte  
0 RESERVED  
1-3 (MSB) FCP\_PORT IDENTIFIER (LSB)  
4-7 RESERVED

dap: should use the worldwide port name as the identifier.

Resolution: defer to FCP-3.

#### 10) - Review T10/02-440 - Response to HP INCITS No Vote on FCP-2

#4 - FCP-2 task retry identification and FCP\_CONF features are optional to implement per the standard. When FCP\_CONF is not in use and task retry identification is not enabled, there is a potential for data corruption under the following conditions:

- An exchange completes and its originator ID (OX\_ID) is re-used for the next exchange, issued within RR\_TOV after the previous use of that OX\_ID.
- In the new exchange, the FCP\_CMD is lost and the initiator issues REC.

Since the target never saw the new exchange, the REC response is sent with information about the previous exchange. The initiator commences sequence recovery based on incorrect REC response data. There is an exposure to the risk of data corruption when this condition occurs.

Resolution: Defer to FCP-3. This issue is discussed in clause 4.6 and is well understood.

#6 - Per Section 12.5.2, the initiator shall abort (send ABTS + RRQ) a REC that does not complete within R\_A\_TOV(ELS) and retry the REC. This error recovery scenarios are rendered useless since the target is allowed to discard exchange state within RR\_TOV after sending a FCP\_RSP and RR\_TOV can be < R\_A\_TOV(ELS).

The RR\_TOV timer value needs to be re-defined for the purpose of FCP-2 SLER, or a new timer value needs to be used in its place which allows targets to discard exchange state.

Resolution: See issue #3 resolution. The dual use of this timer has become a problem (e.g., certainly don't need to wait an extended period of time for authentication to occur following loop initialization). Need to resolve this issue in FCP-3.

#### 11) - Device Names

- require that FCP-3 devices use the name string format (see T10/02-419)

#### 12) - Obsolete First\_Burst functionality

- PLDA prohibits setting Write Xfer\_RDY = 1