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To: T10 SAS Working Group
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Subject: SAS-2, Modifications to 05-167r5, New NOTIFY to indicate imminent power failure

1 Introduction

Some details were not clearly defined in 05-167r5, specifically: the time limitations for transmission of BREAK and OPEN_REJECT and what happens during race conditions. The following clarifies those definitions.

2 Proposal

After review by and discussion with George Penokie of IBM, the following are the proposed modifications to George's proposal for inclusion in SAS-2:

0.0.2.2 NOTIFY

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If a target device supports NOTIFY (POWER FAILURE EXPECTED) and a NOTIFY (POWER FAILURE EXPECTED) is received, then the device server for each logical unit accessed by the SAS target port that received the NOTIFY (POWER FAILURE EXPECTED) shall:

- 1) stop writing data to the media on a block boundary (e.g., all write activity shall continue until a block boundary is reached then all writing shall stop); and
- 2) clear the task set.

If a target device supports NOTIFY (POWER FAILURE EXPECTED) and a NOTIFY (POWER FAILURE EXPECTED) is received, then, within 1 ms after the NOTIFY (POWER FAILURE EXPECTED) is received, each SAS phy within the target device shall:

- a) if there is a connection, then ~~issue~~ transmit a BREAK on that connection; and
- b) transmit ~~issue an~~ OPEN_REJECT (RETRY)s in response to all OPEN address frames ~~requests after the NOTIFY (POWER FAILURE EXPECTED) is received~~ until the power fail timeout timer expires (see 0.0.2.1.1).

NOTE 1 - A SAS target device may transmit a BREAK on an open connection and begin transmitting OPEN_REJECT (RETRY)s as soon as a NOTIFY (POWER FAILURE EXPECTED) is received.

If any frames are received by a SAS target device after a NOTIFY (POWER FAILURE EXPECTED) is received and before a connection is closed (i.e., by transmitting a BREAK in response to the NOTIFY (POWER FAILURE EXPECTED)), then the SAS target device shall discard the received frames.

If the power fail timeout timer expires, then each device server shall establish a unit attention condition for the initiator port associated with every I_T nexus with the additional sense code set to POWER FAIL EVENT COMMANDS CLEARED.