

To: T10 Technical Committee
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 Subject: 06-459r0 SAS-2 Broadcast after count update

Revision history

Revision 0 (17 October 2006) First revision

Related documents

sas2r06 - Serial Attached SCSI - 2 revision 06

Overview

The SAS document doesn't specify temporal relationship between an expander device originating a Broadcast (Change) and updating its local counts, such as the expander change count or the phy change counts.

SAS Discovery Application Agents rely on those counts to properly discover SAS domain devices, and to properly re-discover domain devices after receiving Broadcast (Change) which notifies them of domain changes.

Since no temporal relationship has been explicitly mentioned in the SAS document, a combination of certain SAS Discovery Application Agents and certain expander devices results in devices not being discovered or devices not being removed. For example, an expander device generates Broadcast (Change), the SAS Discover agent issues REPORT GENERAL SMP and/or DISCOVER (LIST) SMP function, but the expander device hasn't updated its local counts yet, such as expander change count and phy change count. The SAS Discover agent discovers the same counts it had previously discovered, and dismisses the Broadcast (Change) as SAS domain "flutter". This results in an inconsistent representation of the SAS domain by the SAS Discover agent.

Suggested changes

7.11 SAS domain changes (Broadcast (Change) usage)

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The expander device shall originate Broadcast (Change) from at least one phy in each expander port other than the expander port that is the cause for originating Broadcast (Change). **The expander device should first update any relevant local counts (for example, Expander Change Count and Phy Change Count) affected by the event which generated the Broadcast (Change) and then transmit Broadcast (Change) as specified below.**

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10.4.3.3 REPORT GENERAL function

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The EXPANDER CHANGE COUNT field counts the number of Broadcast (Change)s originated by an expander device (see 7.11). Management device servers in expander devices shall support this field. management device servers in other device types (e.g., end devices) shall set this field to 0000h. This field shall be set to at least 0001h at power on. If the expander device has originated Broadcast (Change) for any reason described in 7.11 since transmitting a REPORT GENERAL response, it shall increment this field at least once from the value in the previous REPORT GENERAL response. It shall not increment this field when forwarding a Broadcast (Change). This field shall wrap to at least 0001h after the maximum value (i.e., FFFFh) has been reached. **The expander device shall first increment this field, before originating a Broadcast (Change) as specified in 7.11.**

10.4.3.7 DISCOVER function

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The PHY CHANGE COUNT field counts the number of Broadcast (Change)s originated by an expander phy. Expander devices shall support this field. Other device types shall not support this field. This field shall be set to zero at power on. The expander device shall increment this field at least once when it originates a Broadcast (Change) for any reason described in 7.11 from the specified expander phy and shall not increment this field when forwarding a Broadcast (Change). **The expander device shall first increment this field, before originating a Broadcast (Change) as specified in 7.11.**

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