Document: T10/02-064r0 Date: 23 January 2002
To: T10 Committee Membership
From: Edward A. Gardner, Ophidian Designs
Subject: SRP normal and solicited message reception (comment OD006)

The text of SRP letter ballot comment OD006 reads:

> Normal and solicited message reception.
>
> This feature is described in the RDMA communication service model, yet not used by SRP. Interrupt mitigation is important in high end systems. Therefore this should be supported by SRP information units. A description of how to do so follows.
>
> Define a bit to be included in all SRP information units. Recommend this be bit 0 of byte 1 and called noturg (notification urgency or not urgent, take your pick).
>
> In initiator to target requests, noturg specifies the notification urgency for the response. The initiator may set it to any value.
>
> In target to initiator responses, noturg specifies the notification urgency. The target shall copy it from the request.
>
> In target to initiator requests, noturg shall be zero. Specify this individually in each request, not as a general rule, so that it may be changed for future requests.
>
> In initiator to target responses, the target shall ignore noturg.
>
> In Annex B, specify that the target shall send information units with solicited event notification enabled if noturg is zero. The target shall send information units with solicited event notification disabled if noturg is one. The initiator shall ignore noturg and send all information units with solicited event notification enabled.

The following detailed changes to SRP revision 10 accept this comment. When considering the specific changes, the generic changes described in the comment didn't always make sense. In particular, with SRP_LOGIN_REQ, SRP_LOGIN_RSP and SRP_LOGIN_REJ, which are not sent using messages, and SRP_I_LOGOUT, which does not have a response. The following changes require that the NOTURG bit be ignored in those information units.

These changes also clarify how each information unit is sent, using common phrasing, in addition to specifying use of normal or solicited message reception notification.

Subclause 6.2 SRP_LOGIN_REQ request, add NOTURG to table 9 and make the following changes:

> An SRP_LOGIN_REQ request (see table 9) conveys SRP protocol login parameters from an SRP initiator port to an SRP target port. ~~The~~ An SRP_LOGIN_REQ request shall ~~only~~ be sent as login data during RDMA channel establishment (see 4.2).
>
> The notification urgency (NOTURG) bit may be set to any value and shall be ignored by the SRP target port.

Subclause 6.3 SRP_LOGIN_RSP response, add NOTURG to table 11 and make the following changes:

> An SRP_LOGIN_RSP response (see table 11) indicates successful RDMA channel establishment and conveys SRP protocol login parameters from an SRP target port to an SRP initiator port. ~~The~~ An SRP_LOGIN_RSP response shall ~~only~~ be sent as accept data during ~~to indicate successful~~ RDMA channel establishment (see 4.2).
>
> The notification urgency (NOTURG) bit may be set to any value and shall be ignored by the SRP initiator port.

Subclause 6.4 SRP_LOGIN_REJ response, add NOTURG to table 13 and make the following changes:

> An SRP_LOGIN_REJ response (see table 13) indicates that ~~is sent by a SRP target port to notify the SRP initiator port that~~ an RDMA channel could not be established. An SRP_LOGIN_RSP response shall be sent as reject data during RDMA channel establishment (see 4.2).

The notification urgency (NOTURG) bit may be set to any value and shall be ignored by the SRP initiator port.

Subclause 6.5 SRP_I_LOGOUT request, add NOTURG to table 15 and make the following changes:

An SRP_I_LOGOUT request (see table 15) is sent by an SRP initiator port to notify the SRP target port that the SRP initiator port is disconnecting the RDMA channel. An SRP_I_LOGOUT request may also be used to notify the SRP target port that an RDMA channel has failed, rendering it non-operational. An SRP_I_LOGOUT request shall be sent as a 16 byte message with normal message reception notification (see 4.3).

The notification urgency (NOTURG) bit may be set to any value and shall be ignored by the SRP target port.

Subclause 6.6 SRP_T_LOGOUT request, add NOTURG to table 16 and make the following changes:

An SRP_T_LOGOUT request (see table 16) is sent by a SRP target port to notify the SRP initiator port that the SRP target port is disconnecting the RDMA channel. An SRP_T_LOGOUT request may also be used to notify the SRP initiator port that an RDMA channel has failed, rendering it non-operational. An SRP_T_LOGOUT request shall be sent as a 16 byte message. An SRP_T_LOGOUT request shall be sent with solicited message reception notification if that is supported by the RDMA communication service (see 4.3).

The notification urgency (NOTURG) bit shall be set to zero.

Subclause 6.7 SRP_TSK_MGMT request, add NOTURG to table 18 and make the following changes:

An SRP_TSK_MGMT request conveys a SCSI task management request (table 18). An SRP_TSK_MGMT request shall be sent as a 48 byte message with normal message reception notification (see 4.3).

The notification urgency (NOTURG) bit specifies whether the response to a successful SRP_TSK_MGMT request shall be sent with normal or solicited message reception notification.

Subclause 6.8 SRP_CMD request, add NOTURG to table 20 and make the following changes:

An SRP_CMD request conveys a SCSI command (see table 20). An SRP_CMD request shall be sent as a message whose length is 48 bytes plus the lengths of the ADDITIONAL CDB, DATA-OUT BUFFER DESCRIPTOR and DATA-IN BUFFER DESCRIPTOR fields. An SRP_CMD request shall be sent with normal message reception notification (see 4.3).

The notification urgency (NOTURG) bit specifies whether the response to a successful SRP_CMD request shall be sent with normal or solicited message reception notification.

Subclause 6.9 SRP_RSP response, add NOTURG to table 22 and make the following changes:

An SRP_RSP response (see table 22) conveys an SRP response to an SRP_TSK_MGMT request (see 6.7) or an SRP_CMD request (see 6.8) received by a SRP target port. SRP_RSP responses that contain neither RESPONSE DATA nor SENSE DATA shall be sent as a 36 byte message. SRP_RSP responses that contain either RESPONSE DATA or SENSE DATA shall be sent as the minimum length message capable of containing those fields. An SRP_RSP response shall be sent with solicited message reception notification if the NOTURG bit in the response is zero and solicited notification is supported by the RDMA communication service. Otherwise an SRP_RSP response shall be sent with normal message reception notification (see 4.3).

The notification urgency (NOTURG) bit shall be zero if the STATUS field is non-zero or if the RSP_CODE field is present and non-zero. Otherwise the NOTURG bit shall contain the same value as the notification urgency (NOTURG) bit in the SRP_TSK_MGMT request (see 6.7) or SRP_CMD request (see 6.8) for which this SRP_RSP response is a response.

Subclause 6.10 SRP_CRED_REQ request, add NOTURG to table 25 and make the following changes:

An SRP target port may use SRP_CRED_REQ requests (see table 25) to adjust an SRP initiator port's

REQUEST LIMIT value (see 5.3). All SRP initiator ports shall support receiving SRP_CRED_REQ requests. An SRP_CRED_REQ request~~s~~ shall be sent as a 16 byte message. An SRP_CRED_REQ request shall be sent with solicited message reception notification if that is supported by the RDMA communication service (see 4.3).

The NOTURG bit shall be set to zero.

Subclause 6.11 SRP_CRED_RSP response, add NOTURG to table 9 and make the following changes:

An SRP_CRED_RSP response (see table 26) is the response to an SRP_CRED_REQ request (see 6.10) received by an SRP initiator port. All SRP initiator ports shall support generating SRP_CRED_RSP responses. SRP_CRED_RSP responses shall be sent as a 16 byte message with normal message reception notification (see 4.3).

The notification urgency (NOTURG) bit may be set to any value and shall be ignored by the SRP target port.

Subclause 6.12 SRP_AER_REQ request, add NOTURG to table 9 and make the following changes:

An SRP_AER_REQ request (see table 27) conveys a SRP target port request to report an asynchronous event. An SRP_AER_REQ request~~s~~ shall be sent as the minimum length message capable of carrying the fields. An SRP_AER_REQ request shall be sent with solicited message reception notification if that is supported by the RDMA communication service (see 4.3). ~~All~~ SRP initiator ports shall support receiving SRP_AER_REQ requests and ~~all~~ SRP target ports shall support generating SRP_AER_REQ requests.

The NOTURG bit shall be set to zero.

Subclause 6.13 SRP_AER_RSP response, add NOTURG to table 9 and make the following changes:

An SRP_AER_RSP response (see table 28) conveys an SRP initiator port's SRP response to an SRP_AER_REQ request (see 6.12). An SRP_AER_RSP response shall be sent as a 16 byte message with normal message reception notification (see 4.3).

The notification urgency (NOTURG) bit may be set to any value and shall be ignored by the SRP target port.

In target to initiator requests, noturg shall be zero. Specify this individually in each request, not as a general rule, so that it may be changed for future requests.

In initiator to target responses, the target shall ignore noturg.

In Annex B, specify that the target shall send information units with solicited event notification enabled if noturg is zero. The target shall send information units with solicited event notification disabled if noturg is one. The initiator shall ignore noturg and send all information units with solicited event notification enabled.