Date: July 11, 2001
To: T10 Committee (SCSI)
From: George Penokie (Tivoli)
Subject: SRP to SAM-2 Protocol

I suggest you make this a normative annex A. The annex starts on the next page.
Annex A

(normative)

SRP services

A.1 SRP services overview

SRP provides services to enable an application client to request and manage tasks (see SCSI Architecture Model-2 Standard) and to enable a device server to receive commands and move data to/from an application client. The SRP services are described in terms of the services the SCSI initiator port and SCSI target port provide.

A.2 Procedure objects

See table A.1 for a list of the procedure objects used when passing services across the SRP service interface. See table A.1 for the definitions of the names used within this standard and the equivalent SCSI Architecture Model-2 Standard names of the procedure objects, the name of the standard where the objects are defined, the standard where the binary contents of the objects are defined, and the routing of the objects. The routing shows:

a) the source of the object
b) the final destination of the object, and
c) the routing of the object.
A.3 Application client SCSI command services

A.3.1 Application client SCSI command services overview

The SCSI command services shall be requested by the application client using a procedure call defined as:

Execute Command (IN (I_T_L_x nexus, command descriptor block, [task attribute], [data-in buffer size], [data-out buffer size], [autosense request]), OUT ([data-in buffer], [sense data], status, service response))
A.3.2 Send SCSI command service

The send SCSI command service is a four step confirmed service that provides the means to transfer a command data block to a device server.

Processing the execute command procedure call for a send SCSI command service shall be composed of the 4 step confirmed service shown in table A.2.

<table>
<thead>
<tr>
<th>Step</th>
<th>Source/Destination</th>
<th>Protocol service name</th>
<th>SCSI Protocol Service Interface procedure call</th>
</tr>
</thead>
<tbody>
<tr>
<td>request</td>
<td>application client to consumer</td>
<td>send SCSI command request</td>
<td>Send SCSI command (IN (I_T_L_x nexus, command descriptor block, [task attribute], [data-in buffer size], [data-out buffer], [data-out buffer size], autosense request))</td>
</tr>
<tr>
<td>info unit transfer</td>
<td>consumer to I/O controller</td>
<td>SRP_CMD IU or SRP_Task_Management IU</td>
<td>See 5x7 and 5x6</td>
</tr>
<tr>
<td>indication</td>
<td>I/O controller to device server</td>
<td>send SCSI command indication</td>
<td>SCSI command received (IN (I_T_L_x nexus, command descriptor block, [task attribute], autosense request))</td>
</tr>
<tr>
<td>response</td>
<td>device server to I/O controller</td>
<td>send SCSI command response</td>
<td>Send command complete (IN (I_T_L_x nexus, [sense data], status, service response))</td>
</tr>
<tr>
<td>info unit transfer</td>
<td>I/O controller to Consumer</td>
<td>SRP_RSP IU</td>
<td>See 5x8</td>
</tr>
<tr>
<td>confirmation</td>
<td>consumer to application client</td>
<td>send SCSI command confirmation</td>
<td>Command complete received (IN (I_T_L_x nexus, [data-in buffer], [sense data], status, service response))</td>
</tr>
</tbody>
</table>

A.4 Device server SCSI command services

A.4.1 Device server SCSI command services overview

The SCSI data buffer movement services shall be requested from the device server using a procedure call defined as:

Move data buffer (IN (I_T_L_x nexus, device server buffer, application client buffer offset, request byte count)).

Either data-in delivery, data-out delivery, both data-in and data-out delivery, or neither data delivery may be used while processing one command. If both are used, the device server shall combine the data-in and data-out service responses into one service response.

A.4.2 Data-in delivery service

The data-in delivery service is a two step confirmed service that provides the means to transfer a parameter list or data from a device server to a SCSI initiator port.
Processing the execute command procedure call for a data-in delivery service shall be composed of the 2 step confirmed service shown in table A.3.

Table A.3 - Processing of data-in delivery service procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Source/Destination</th>
<th>Protocol service name</th>
<th>SCSI Protocol Service Interface procedure call</th>
</tr>
</thead>
<tbody>
<tr>
<td>request</td>
<td>device server to I/O controller</td>
<td>data-in delivery request</td>
<td>Send data-in (IN (I_T_L_x nexus, device server buffer, application client buffer offset, request byte count))</td>
</tr>
<tr>
<td>data-in</td>
<td>I/O controller to consumer</td>
<td>RDMA data-in transfer</td>
<td>See 4x1.</td>
</tr>
<tr>
<td>confirmation</td>
<td>I/O controller to device server</td>
<td>data-in delivery confirmation</td>
<td>Data-In delivered (IN (I_T_L_x nexus))</td>
</tr>
</tbody>
</table>

A.4.3 Data-out delivery service

The data-out delivery service is a two step confirmed service that provides the means to transfer a parameter list or data from a SCSI initiator port to a device server.

Processing the execute command procedure call for a data-out delivery service shall be composed of the 2 step confirmed service shown in table A.4.

Table A.4 - Processing of data-out delivery service procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Source/Destination</th>
<th>Protocol service name</th>
<th>SCSI Protocol Service Interface procedure call</th>
</tr>
</thead>
<tbody>
<tr>
<td>request</td>
<td>device server to I/O controller</td>
<td>data-out delivery request</td>
<td>Receive data-out (IN (I_T_L_x nexus, application client buffer offset, request byte count, device server buffer))</td>
</tr>
<tr>
<td>data-out</td>
<td>I/O controller to consumer</td>
<td>RDMA data-out transfer</td>
<td>See 4x1.</td>
</tr>
<tr>
<td>confirmation</td>
<td>I/O controller to device server</td>
<td>data-out delivery confirmation</td>
<td>Data-out received (IN (I_T_L_x nexus))</td>
</tr>
</tbody>
</table>

A.5 Task management services

A.5.1 Task management functions overview

The task management services shall be requested from the application client using a procedure call defined as:

Function name (IN (nexus), service response)
A.5.2 Task management functions

This standard handles task management functions as a four step confirmed service that provides the means to transfer task management functions to a task manager.

The task management functions are defined in the SCSI Architecture Model-2 Standard. This standard defines the actions taken by the SRP services to carry out the requested task management functions.

A.5.3 ABORT TASK

The SRP services request the SCSI initiator port issue an SRP_TASK_MGMT information unit with a TASK MANAGEMENT FLAGS field set to indicate an ABORT TASK function (see xxx) to be sent to the selected SCSI device.

A.5.4 ABORT TASK SET

The SRP services request the SCSI initiator port issue an SRP_TASK_MGMT information unit with a TASK MANAGEMENT FLAGS field set to indicate an ABORT TASK SET function (see xxx) to be sent to the selected SCSI device.

A.5.5 CLEAR ACA

The SRP services request the SCSI initiator port issue an SRP_TASK_MGMT information unit with a TASK MANAGEMENT FLAGS field set to indicate an CLEAR ACA function (see xxx) to be sent to the selected SCSI device.

A.5.6 CLEAR TASK SET

The SRP services request the SCSI initiator port issue an SRP_TASK_MGMT information unit with a TASK MANAGEMENT FLAGS field set to indicate an CLEAR TASK SET function (see xxx) to be sent to the selected SCSI device.

A.5.7 LOGICAL UNIT RESET

The SRP services request the SCSI initiator port issue an SRP_TASK_MGMT information unit with a TASK MANAGEMENT FLAGS field set to indicate an LOGICAL UNIT RESET function (see xxx) to be sent to the selected SCSI device.