T10/98-121r0

To: T10 Project 1155D Working Group
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Date: 2/23/98

Re: Document Number T10/98-121r0
   Serial Bus Protocol 2 - Programmable Reconnect Interval Extension

The SBP-2 proposal 0.3a currently has a reconnect interval fixed
at one second. This may be sufficient for resumption of access
control following a Serial Bus reset where neither the initiator,
target, nor bus disappeared from the topology, but is
insufficient for maintaining access control across an transient
topology change by a person. These changes include device
removal from the middle of a chain and inadvertent disconnects or
cyclic connections. These cases are quite feasable for a
hot-pluggable technology, and should be expected user behavior.
These cases may be supported simply by extending the unit access
control reconnect definition within SBP-2.

A note exists indicating that the reconnect interval is
artificially limited to one second for isochronous resource
management reasons. For asynchronous-only services, this is
(presumably) an artificial limit. By having the initiator set
the reconnect interval to a value supported by the target, the
transient changes are automatically managed for SBP-2
asynchronous services. The tradeoff is the interval required
before terminating the connection and releasing resources. The
set of changes necessary to revision 0.3a for this extended support
are described below.

Please consider adding these changes to the SBP-2 proposal.

Proposed changes to SBP-2, Revision 3a, dated January 23, 1998:

   Section 3.1.2 Glossary:
      Add the following definition.

         transient link interruption: An interval long enough to
   allow a cable disconnect and reconnect to be performed by
   a human, yet short with respect to an interface access
   session.

   Section 5.1.4.1 Login ORB:
      The ORB diagram shall be changed such that the least
      significant 3 bits of the _reserved_ field are labeled as
      "rcon_to".

      Beneath the paragraph describing the _exclusive_ bit, add the
      following text:

         The rcon_to field shall specify, as an enumeration, the
         maximum time a target shall allow for this initiator to
         complete a reconnection before releasing access to the
         interface. The supported values are enumerated in the
         table below. A one-second timeout is required for logins
         associated with a Create Stream ORB.

      Table X - Reconnect Timeout Values

rcon_to value	reconnect timeout (seconds)
0	1
1	5
2	10

3	30
4	60
5	120
6-7	reserved for future standardization

Section 5.1.4.2 Query logins ORB:
The indented NOTE shall be changed to:

> NOTE - A _node_ID_ value of FFFF(16) may be observed only during
> the reconnect interval programmed by the associated initiator.
> After this time the target performs an automatic logout of this
> initiator if it has not reconnected.

Section 7.4.8 Logical_Unit_Characteristics entry:
The Logical_Unit_Characteristics entry format diagram shall
be changed such that the least significant 3 bits of the
reserved field are labeled as "rcon".

The following paragraph shall be inserted before the one
describing the _mgt_ORB_timeout_ field:

> The _max_rcon_to_ field (abbreviated as _rcon_ in the
> figure above) specifies the highest enumerated value
> supported by this implementation for a reconnect interval.
> The target shall support all lower enumerated values beneath
> what is specified in this field. The values shall match
> those specified for the _rcon_to_ field in section 5.1.4.1.

> All implementations shall support a value of zero. If this
> entry is missing, the enumerated value of zero shall be
> assumed.

Section 8.1 Access protocols
The end of the first paragraph shall be change to read
"access rights across a Serial Bus reset or transient link
interruption."

The first bulletted paragraph shall have "a reconnect timeout
vairable," inserted before "the base addresses".

The thired bulletted paragraph shall replace "one second" with
"the reconnect interval".

Section 8.2.1 Login
Paragraph e) shall be changed from "the _lun_ and _status_FIFO_
fields" to read "the _lun_, rcon_to, and _status_FIFO_ fields"

Section 8.3 Reconnection
Paragraph 2 shall be replaced with:

> Subsequent to a bus reset, the target shall retain
> sufficient information to permit an initiator to reconnect
> its login ID (and, implicitly, any associated stream ID's).
> After the programmed reconnect interval, the target shall
> perform an implicit logout of the expired login ID and
> associted stream ID's if a successful reconnection has

> not been established.

Following NOTE shall be replaced with:

> NOTE - A one second timeout shall be required for
> interfaces which provide isochronous stream control. This
> interval is to permit initiators to reallocate isochronous
> channels and bandwidth and to reestablish isochronous
> connections. Interfaces which do not provide isochronous
> stream control may support longer reconnect intervals in order
> to provide transient link interruption tollerance.

NOTE - The reconnection time-out commences when the target observes the first subaction gap subsequent to a bus reset. If a bus reset occurs before the time-out expires, the timer is zeroed then resetarted upon detection of a subaction gap.