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To: T10 Committee Membership
From: Edward A. Gardner, Ophidian Designs
Subject: 64-bit Task Tags or Host Context Fields in SVP

When discussing SVP with the IBTA Application Working Group, several members requested that SVP commands and responses include a 64-bit unique identifier. The AWG requested that I propose this to T10.

The desire is that every SVP command IU contain a 64-bit identifier that would be returned in the corresponding response IU. Host driver software would use this to uniquely identify all outstanding IO operations across all Initiators (adapters), Targets and LUNs. SVP's current 32-bit Task Tags were intended to allow this, but members of AWG felt that field size would be too small for future large scale systems.

Two approaches are possible to satisfy this requirement:

1. Increase SVP's Task Tag field size to 64 bits.
2. Include both a Task Tag and a Host Context field in SVP command IUs. The Task Tag field could be small, 16 or 32 bits, and would be unique only within an I_T_L nexus. The Host Context field would be 64 bits. Response IUs would return the Host Context field but could omit the Task Tag. ABORT TASK would include the Task Tag but could omit the Host Context.

The first of these is simpler. In my opinion that makes it much preferable. The following discusses the changes to SVP to accomplish that choice.

Table 1 summarizes the changes for all IUs. The order of the REQUESTLIMITDELTA and TAG fields is reversed, and TAG extended to eight bytes. Note that bytes 12-15 were formerly reserved in every IU, they are now part of the TAG field.

Table 1 - Fields common to all information units

Bit / Byte	7	6	5	4	3	2	1	0
0	TYPE							
1								
2		RESERVED						
3								
4	MSB	~~TAG~~ REQUESTLIMITDELTA (ONLY WHEN SENT BY TARGET)						
• • •								
7								LSB
8	~~MSB~~	~~REQUESTLIMITDELTA (ONLY WHEN SENT BY TARGET)~~ TAG						
• • •								
~~11~~15								~~LSB~~
~~12~~16		varies						
• • •								
n								

Table 2 shows the revised SVP_CMD IU format.

Table 3 shows the revised SVP_RSP IU format.

Table 2 - SVP_CMD information unit

Bit / Byte	7	6	5	4	3	2	1	0
0	TYPE							
1	RESERVED							
2								
3								
4	~~TAG~~ RESERVED							
• • •								
7								
8	~~RESERVED~~ TAG							
• • •								
15								
16	MSB							
• • •	LOGICAL UNIT NUMBER							
23								LSB
24	MSB							
• • •	DATA VIRTUAL ADDRESS							
31								LSB
32	MSB							
• • •	DATA MEMORY HANDLE							
35								LSB
36	MSB							
• • •	DATA LENGTH							
39								LSB
40	RESERVED							
• • •								
44								
45	RESERVED						TASK ATTRIBUTE	
46	TASK MANAGEMENT FLAGS							
47	RESERVED	ADDITIONAL CDB LENGTH = (n-63)/4					RDDATA	WRDATA
48	MSB							
• • •	CDB							
63								LSB
64	MSB							
• • •	ADDITIONAL CDB							
n								LSB

Table 3 - SVP_RSP information unit

Byte \ Bit	7	6	5	4	3	2	1	0
0	TYPE							
1	RESERVED							
2	RESERVED							
3	RESERVED							
4	MSB			~~TAG~~ REQUESTLIMITDELTA				
• • •								
7								LSB
8				~~REQUESTLIMITDELTA~~ TAG				
• • •								
~~11~~15								
16	MSB			LOGICAL UNIT NUMBER				
• • •								
23								LSB
24	RESERVED							
25	RESERVED							
26	RESERVED				RIDUNDER	RIDOVER	SNSVALID	RSPVALID
27	STATUS							
28	MSB			RESIDUAL COUNT				
• • •								
31								LSB
32	MSB			SENSE DATA LIST LENGTH = n				
• • •								
35								LSB
36	MSB			RESPONSE DATA LIST LENGTH = m				
• • •								
39								LSB
40	MSB			RESPONSE DATA (m bytes long)				
• • •								
39+m								LSB
40+m	MSB			SENSE DATA (n bytes long)				
• • •								
39+m+n								LSB