

Fabric Expansion Study Group Draft minutes 04-268v0  
April 6, 2004 1:00 PM – 6:00 PM  
Seaside, CA

***Introductions***

John Scheible opened the meeting at 1:05 PM. The group began with introductions. John thanked the host for the facilities.

The INCITS Patent and anti-trust policies were summarized for the group.

***Approval of minutes and Plenary Report***

The minutes of the February meeting (04-129v0) were approved as written. The report to T11.3 (04-145v0) was approved as written.

***Approval of Agenda***

The agenda was approved as modified (04-238v2).

***Review of Action items***

- None

***5.1 Schedule/output discussion          John Scheible***

John presented that he has customers that want a standard mechanism to connect SANs together. Currently the group is a study group, as there was not an intent for a single document. John raised the question if there was a desire to put the information into a document before putting it into the final document that it would go into. There were several recommendations that a holding document not be prepared. There was a suggestion that the header information should be quickly moved into FC-FS-2, and as soon as the routing protocols were formulated this should be moved into FC-SW-4. The question was raised when this group would disband, and it was stated that it would disband when all of the work was handed off to other standards working group.

***5.2 DefExtended Headers in FC-FS-2 (04-243v0)          Claudio DeSanti***

Claudio presented a set of proposed modifications to FC-FS-2. First was a modification of the frame formats in clause 8. The proposal put the extended headers in front of the existing FC headers. If an extended header is included in the frame, the CRC shall cover the extended header. There is an additional block of R\_CTL values to indicate the presence of extended headers. Second was a new clause 10 modeled after the optional header clause. There was a request to put wording in that would prevent taking a “bad” CRC and replacing it with a “good” CRC when the extended header is added and the CRC is re-calculated. It was pointed out that the reference documents for table 4 were examples only. Another issue was that the proposal was for the data\_field size to remain

at a maximum of 2112 bytes. This may be problematic for legacy equipment in the presence of extended headers. The response was that an implementation would be required to reduce the max data\_field size during login to accommodate the extended headers. This can be revisited when it is incorporated if there are issues.

Silvano Gai moved and Michael O'Donnell seconded to take this document as modified to FC-FS-2 for consideration for inclusion into FC-FS-2. It was pointed out that as the accompanying header type documents are developed, this proposal might change. The motion passed 16:0:3.

### **5.3 VFT\_Header Definition (04-242v0)**

***Claudio DeSanti***

Claudio presented the VFT\_Header document. There was a question raised as to whether the F\_ID was per a particular link, not associated with the actual Fabric that this was associated with. This was not the intent, and there was a requirement that the tag SHALL be equivalent F\_ID. Another challenge that was brought up was that if this is a global fabric ID, then there is a requirement to negotiate the fabric IDs for each fabric. The discussion circled around as to what the meaning of the F\_ID would be. The conclusion was to modify the first sentence to require that the tag is the F\_ID of the Virtual Fabric.

There was discussion on Table 2 over the use of “Reserved”, “Reserved for T11 use”, “Reserved for vendor specific use” and “Prohibited”. “Prohibited” means that it shall never be generated and if received it shall be discarded. The outcome was that 000h and FFFh were changed to “shall not be used for Fabric ID”; “reserved for T11” was changed to “Reserved”; and “Reserved for Vender Specific use” was changed to “Vendor Specific”. It was asked to increase the Reserved area to F00h – F7F, and Vendor Specific to “F80 – FFE”. It was decided to indicate in the table that 001 was “Default F\_ID”.

The hop count was discussed for some time and left as is. The “pad” field was changed to “Reserved”.

Silvano Gai moved and Bob Nixon seconded to take this document as modified to FC-FS-2 for consideration for inclusion into FC-FS-2. The motion passed 12:0:4.

### **5.4 FR\_Header Definition (04-241v0)**

***Joe Pelissier***

Joe started with an overview of the basic model. This proposal combines the encapsulation header and the Fabric Routing structure into one extended header. There was discussion to clarify Routing vs. Gateway. One implication was that gateway implies the use of NAT. Joe proposed that there would be one header, not an interoperability header and routing header. The S\_ID and D\_ID are those of the intermediate routing function as they pass through the routing function. One issue was that if there are legacy switches between routing functions which might break with the modified R\_CTL. It was asked that the R\_CTL be copied from the original frame be

copied into the routing header. An alternate point of view was that if the frame escaped the fabric with the extended header, then if it has the new R\_CTL, the end port would discard the frame due to an invalid R\_CTL. Joe's proposal does not cover N\_Ports which include the routing function; however, it does not preclude it.

One restriction was that for ELSs and ELS responses that contain embedded D\_IDs, the response must follow a reverse path of the original ELS. Secondly, for FCP frames with embedded D\_IDs there are problems in that their embedded D\_ID has to be changed as per the routing process.

There was discussion on how R\_A\_TOV was enforced over the extent of the fabric. Joe's proposal was to use fabric enforced times; however, it was suggested that if there is a synchronized time function, then the time could be better distributed.

### ***5.5 Requirements for Fabric Expansion (04-073v1) Bob Nixon***

Bob noted that there was a new version available for review. There are some requests for changes that he would like direction from this meeting to produce a new version. Bob took notes on the changes requested.

Bob will take the recommendations and provide an updated requirements document.

#### ***Action Items***

Old Action Items

None

New Action Items

- 1) Claudio DeSanti to modify 04-243v0 and take to FC-FS-2 for consideration.
- 2) Claudio DeSanti to modify 04-242v0 and take to FC-FS-2 for consideration.

#### ***Next meetings***

The next meeting will be in June in Chicago, IL during the next T11 plenary week, and 5 hours are requested.

Meeting adjourned at 5:55 PM.

#### ***Project status:***

The project is still in the Study Group stage.

Attendance:

Name	Organization Represented
Charles Monia	
Roy Elsbernd	AGILENT
William R. Martin	BROCADE COMMUNICATIONS
Edward McClanahan	BROCADE COMMUNICATIONS
Robert Snively	BROCADE COMMUNICATIONS
Paul Suhler	CERTANCE (SEAGATE)
Chris Janz	CIENA
Claudio DeSanti	CISCO SYSTEMS, INC.
Silvano Gai	CISCO SYSTEMS, INC.
Keith McCloghrie	CISCO SYSTEMS, INC.
Harry V. Paul	CNT CORPORATION
Bret Ketchum	COMPUTER NETWORK TECHNOLOGY
Robert W. Kembel	CONNECTIVITY SOLUTIONS
Dexter Anderson	CROSSROADS
David Black	EMC
Bob Nixon	EMULEX
Dal Allan	ENDL
Ralph Weber	ENDL TEXAS
Bob Cai	Fujitsu
Vinod Bhat	HEWLETT PACKARD
John Scheible	IBM AUSTIN
Robert Dugan	IBM POUGHKEEPSIE
George Penokie	IBM TIVOLI SYSTEMS
Andy Helland	LIGHTSAND COMMUNICATIONS
John Lohmeyer	LSI LOGIC
Jeff Whitt	LSI Logic
Michael O'Donnell	MCDATA
Joe Pelissier	McData
Craig Carlson	QLOGIC CORP.
Tim Sheehan	SAN DIAL
David Peterson	SBS TECHNOLOGIES, INC.
James Coomes	SEAGATE TECHNOLOGY
Steve Sletten	SUN MICROSYSTEMS
Arlen Martin	TRIQUINT OPTO ELETRONICS
Horst Truestedt	TRUE FOCUS, INC
Wayne Gentry	UNISYS CORPORATION
James McTigue	Xancom