

Draft Minutes

T11.3 FC-BB-6 ad hoc work group regular meeting

9 June 2010 - 9:00 AM to 5:30 PM CDT

Minneapolis MN

The FC-BB-6 ad hoc work group of the Fibre Channel Protocol (T11.3) Task Group held a regular meeting at Minneapolis MN on 9 June 2010, hosted by FCIA and QLogic. Attendance was 37 people from 24 organizations and is tabulated at the end of this document.

Minutes were taken by Bob Nixon (Emulex) (bob.nixon@emulex.com). Please report any corrections by email to the T11.3 reflector at T11_3@mail.T11.org.

1 Opening remarks

1.1 Introductions

Chairperson Claudio DeSanti (Cisco) opened the regular meeting Wednesday, 9 June 2010 at 9:01 AM CDT. He thanked our hosts, FCIA and QLogic, and led a round of introductions.

2 Meeting Policy

2.1 Attendance and Membership

The chair explained that attendance is recorded electronically at www.t11.org/att, and explained the procedure. Attendance at this meeting does not count toward attendance at the plenaries of T11 and its task groups (i.e., being here will not get you out or keep you out of membership jeopardy).

The chair stated that all persons present are considered members of this meeting and may vote on questions, limited to one vote per company present. He advised that although T11 does not limit participation in the activities of its work groups to representatives of T11 member organizations, it requires nonmembers to identify themselves as such. Nonmembers that expect they may participate in the activities of T11 regularly were encouraged to become members.

Those responding are included in the attendance record. They were advised that by remaining in this meeting, they submit themselves and their organizations to INCITS policy for intellectual property, antitrust, and guest membership policy.

2.2 Patents

The chair indicated that among the rules and policies under which this working group operates are the ANSI intellectual property policies as specified in pages 1-3 of http://www.incits.org/pat_slides.pdf. He displayed these pages without comment or explanation, and directed that questions about the policy should be referred to the questioner's legal counsel or the ANSI General Counsel.

2.3 Antitrust

The chair indicated that among the rules and policies under which this working group operates are the INCITS Antitrust Guidelines. Any member of the meeting is responsible for objecting if he believes discussion in the meeting violates those guidelines. As examples, there should never be discussion of the following topics at any INCITS or INCITS subgroup meeting:

- Any company's prices or pricing policies;
- Specific R&D, sales and marketing plans;
- Any company's confidential product, product development or production strategies;
- Whether certain suppliers or customers will be served;
- Prices paid to input sources; or
- Complaints about individual firms or other actions that might tend to hinder a competitor in any market.

If such discussion is not immediately terminated, it is the chairperson's responsibility to terminate the meeting. The INCITS Antitrust Guidelines are available at

<http://www.incits.org/inatrust.htm>

3 Administrivia

3.1 Approval of Agenda

An agenda for the FC-BB-6 ad hoc work group regular meeting 9 June 2010 has been posted as T11/10-257v0.

Landon Noll (Cisco) moved and Fred Knight (NetApp) seconded to accept T11/10-257v0 as the agenda for this regular meeting. Approved unanimously.

3.2 Review of Minutes

Minutes for the FC-BB-6 ad hoc work group regular meeting 31 March 2010 have been posted as T11/10-151v2.

Bob Nixon (Emulex) moved and Fred Knight (NetApp) seconded to accept T11/10-151v2 as the minutes of the FC-BB-6 ad hoc work group meeting on 31 March 2010. Approved unanimously.

4 Review of Old Action Items

091209-1 FC-BB-6 editor to incorporate T11/09-514v1 into FC-BB-6.
(Completed by posting of dpANS FC-BB-6 version 1.01 as T11/10-211v1)

100331-1 Bob Nixon (Emulex) to publish a new document reflecting T11/10-055v1 and the agreements at the FC-BB-6 ad hoc work group regular meeting 31 March 2010.
(Completed by posting of T11/10-055v2)

5 Old Business

5.1 FC-BB-6: ASFC for the FC pseudowire **Black (EMC) T11/10-252v0)**

David has inherited the remaining issues with completion of the FC PseudoWire RFC. In order to simplify the process, and therefore its chance of early success, certain simplifications are being made. One of them is to adopt the FC-BB-4 ASFC flow control method to replace the Selective Retransmission method that is now incompletely defined.

The ability to add higher functionality flow control later was questioned. David assured that a) it remains possible; and b) he was not volunteering for such work now.

Although this brings FC-BB-x and FC PseudoWire into closer consistency, it does require a few changes in FC-BB-6. David displayed the changes he felt were appropriate.

On a pointed question from the usual curmudgeon, David agreed to verify that he had not reused control codes used by the removed flow control methods. (Later in this meeting, he confirmed that he had not.)

David offered that, due to the short time for general review of the document, he would not request approval at this meeting. He will post a revision with minor changes, and come back for approval at a later meeting.

6 Scheduled Business

6.1 FCoE End-to-End Connection

Ko (Huawei Symantec) T11/10-132v1

This presentation offers an approach to direct VN_Port to VN_Port communication in environments having FCFs. It follows up on a prior presentation, adding answers to earlier question.

Mike's target circumstance is a site that has an FC SAN, and then adds an FCF to expand it into FCoE. This site needs an FCF for the gateway, but wants to grow to a large number of FCoE VN_Ports. With the FC-BB-5 technology, he would either need to add FCFs or route all data traffic through the single FCF. His proposal uses the FCF only for control operations (e.g., N_Port_ID assignment, Name Server, RSCN), but routes data directly from VN_Port to VN_Port.

Zoning functionality is replaced by target LUN masking. Several pointed out that this does not provide the level of assurance as FC-BB-5 ACL methods.

6.2 ENode functionality

Peterson (Brocade) T11/10-232v0

The presentation was a stepwise building of a set of FCoE topologies required for support by VN2VN communication. Most have been introduced and validated elsewhere, but this presentation organizes them. It introduces the functionality of multiple VN2VN_Ports at a single ENode. The proposal was received with no contention on any point.

Dave Peterson (Brocade) moved and Fred Knight (NetApp) seconded to incorporate the functional model diagram in T11/10-232v0 into FC-BB-6.

The chair deferred consideration until a later presentation today (see 6.5).

6.3 Generating pseudo-random N_Port_IDs

Noll (Cisco) T11/10-137v1

Landon described an improved method of selecting tentative N_Port_IDs for the protocol described in T11/10-019v3. He reported results of simulating 100,000 networks. In statistically naive summary:

- On the average, in networks of 300 N_Ports, there were no collisions.
- On the average, in networks of 20,000 N_Ports, only one N_Port had to retry as many as 7 times.
- On the average, in networks of almost 30,000 N_Port, one N_Port failed to acquire an N_Port_ID (10 successive collisions).

A member pointed out that failing attempts (collisions) cost almost no time.

6.4 Locally Unique N_Port_IDs

DeSanti (Cisco)

T11/10-019v3

This presentation, describing a method of initiating operation among a group of ENodes lacking an FCF, is a refinement of its prior versions. Minor editorial corrections were agreed during its presentation.

Dave Peterson agreed that it would be acceptable either to add his model diagram from T11/10-232v0 to the current closest equivalent diagram, or to replace the current diagram.

Claudio thanked Pat Thaler and Broadcom for having the foresight to donate several multicast addresses for the needs of FC-BB-6.

6.5 Incorporating 10-019v3 in FC-BB-6

DeSanti (Cisco)

T11/10-272v0

This presentation proposes the detailed text changes to FC-BB-6 to incorporate T11/10-019v3.

It was agreed to make the same editorial changes to this document as were made to T11/10-019v3 during its review, and to add the model diagram from T11/10-232v0 near the current closest equivalent diagram.

In consideration of these agreements, Dave Peterson and Fred Knight withdrew their motion to incorporate the functional model diagram in T11/10-232v0 into FC-BB-6 (see 6.2).

It was questioned whether some time constants were in fact open to administrative tuning. The answer is that the standard does not allow them to be tuned. It was further questioned whether the selected values could be reconsidered. It was explained that the timers in question were carried over from established timers in FC-BB-5.

Claudio DeSanti (Cisco) moved and Fred Knight (NetApp) seconded to incorporate T11/10-272v0 amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010 into FC-BB-6.

The mover and seconder agreed to amend the motion to reference T11/10-019v3 instead of T11/10-272v0. As amended, the motion now reads

Claudio DeSanti (Cisco) moved and Fred Knight (NetApp) seconded to incorporate T11/10-019v3 amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010 into FC-BB-6.

The motion as amended passed 16 Favoring, 0 Opposing, 3 Abstaining.

ACTION Claudio DeSanti to publish a new document reflecting T11/10-019v3 amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010.

ACTION Claudio DeSanti to provide source for a new document reflecting T11/10-019v3 amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010 to FC-BB-6 editor.

ACTION FC-BB-6 editor to incorporate T11/10-019v3 amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010 into FC-BB-6.

6.6 Single Domain FCoE Fabrics

Peterson (Brocade)

T11/10-233v0

The presentation organized the assumptions and implications of partitioning a single domain ID among multiple switching elements (i.e., one or more FCFs and zero or more FDFs).

Some of those experienced with the development of IP classless interdomain routing (CIDR) advised that a completely flat address space may be impractical.

It was noted that one of the diagrams introduces both a domain shared between FCFs, and a domain that is a member of two distinct Fabrics. The audience identified these as significant departures from current FC architecture that would need careful consideration.

6.7 FDF Protocols **Carlson (QLogic)** **T11/10-274v0**

This is a next step elaboration supporting the decomposition of the FCF into FDFs and Controlling FCFs. Not all of its elaborations were universally accepted, but many were found uncontentious.

6.8 VA_Ports: FDF / Controlling FCF Protocols **DeSanti (Cisco)** **T11/10-271v0**

This presentation continued the original presentations on the decomposition of the FCF model into FDFs and Controlling FCFs.

Key contenders agreed that the ONLY way to reach a native FC Fabric would be via an FCF.

New SW_ILSs were required to negotiate Fabric build between FDFs and Controlling FDFs, and to negotiate Fabric Login related events between FDFs and their Controlling FCF. The interactions include assignment of blocks of N_Port_IDs by the Controlling FCF to the FDFs. These assignments are multicast so that other FDFs learn the local FDF for each others' blocks of N_Port_IDs, to enable future data forwarding.

It was suggested that the FDF should forward FLOGI requests to the Controlling FCF rather than initiate a new "allocate" command. The FDF may or may not still be responsible for performing the address allocation before forwarding the FLOGI. The FLOGI may be repackaged as an SW_ILS body. The presenter will consider these suggestions.

6.9 FC-SW-6 Project Proposal **Wilson (Brocade)** **T11/10-220v0**

SW presented a draft project proposal for a new revision of FC-SW-x. This would cover needs raised in concurrent new projects such as FC-GS-7 and FC-BB-6. Some additional example content was added. Some references were corrected.

SW-1 (Brocade) moved and SW-2 (Fujitsu) seconded to request T11.3 to approve the project proposal for FC-SW-6 (T11/10-220v1) and to request T11 to forward the project proposal for FC-SW-6 (T11/10-220v1) to INCITS for further processing. The motion passed 17 Favoring, 0 Opposing, 1 Abstaining.

ACTION SW to publish T11/10-220v1 reflecting T11/10-220v0 amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010.

ACTION FC-BB-6 ad hoc work group chair to request T11.3 to request T11 to forward the project proposal for FC-SW-6 (T11/10-220v1) to INCITS for further processing.

6.10 VN_Port WWPN to Fabric association **Smith (EMC)** **T11/10-224v1**

This presentation was deferred because time was not available.

6.11 FCoE Path Potholes **Carlson (QLogic)** **T11/10-273v0**

This presentation was deferred because time was not available.

7 Unscheduled Business

7.1 Issue with PseudoWire and 16GFC

In revising the PseudoWire specifications, David Black realized that they are designed with a presumption of 8B/10B encoding. This prevents their use with 16GFC and higher, which use, or are expected to use, 64B/66B encoding. The dependencies affect both FC and IETF specifications.

ACTION **Bob Nixon** to coordinate with David Black to propose appropriate text for FC-BB-6 advising its readers that FC-GFPT and FC-PW are not usable **at 16GFC**.

8 Review of Action Items

- 100609-1 Claudio DeSanti to publish a new document reflecting T11/10-019v3 amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010.
- 100609-2 Claudio DeSanti to provide source for a new document reflecting T11/10-019v3 amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010 to FC-BB-6 editor.
- 100609-3 FC-BB-6 editor to incorporate T11/10-019v3 amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010 into FC-BB-6.
- 100609-4 Bob Nixon to coordinate with David Black to propose appropriate text for FC-BB-6 advising its readers that FC-GFPT and FC-PW are not usable at 16GFC.
- 100609-5 SW to publish T11/10-220v1 reflecting T11/10-220v0 amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010.
- 100609-6 FC-BB-6 ad hoc work group chair to request T11.3 to request T11 to forward the project proposal for FC-SW-6 (T11/10-220v1) to INCITS for further processing.

9 Meeting Schedule

Request as much time as possible at the T11 plenary week hosted by FCIA in Chicago IL, 2-6 August 2010.

10 Adjournment

Bob Nixon (Emulex) moved and Horst Truustedt (TrueFocus) seconded to adjourn. Approved unanimously.

The regular meeting was adjourned at 5:36 PM CDT on 9 June 2010.

11 Status of Open Proposals

Document Title	Number	Disposition	Author
Distributed FCF functionality	T11/10-028	Carry. Most recent version presented was T11/10-028v0	Gai (Cisco)
VN_Port to VN_Port Virtual Links	T11/10-037	Carry. Most recent version presented was T11/10-037v0	Peterson (Brocade)
Jet Assist for FCoE P2P N_Port_ID Selection	T11/10-119	Carry for further consideration. Most recent version presented was T11/10-119v0	Weber (ENDL Texas)
Harmonized (Direct Mode) Adapter Based Shortcut	T11/10-133	Carry for further development. Most recent version presented was T11/10-133v0.	Hufferd (Hufferd Ent.)
VN2VN Multi-Point and Point-to-Point	T11/10-156	Close. Replaced by T11/10-272. Most recent version presented was T11/10-156v0.	DeSanti (Cisco)
The sFCF	T11/10-131	Carry for further development. Most recent version presented was T11/10-131v0.	Hufferd (Hufferd Ent.)
FCoE Topologies	T11/10-130	Carry for further development. Most recent version presented was T11/10-130v0.	Gai (Cisco)
ASFC for the FC pseudowire	T11/10-252	Carry for member review. Most recent version presented was T11/10-252v0	Black (EMC)
FCoE End-to-End Connection	T11/10-132	Carry for further development. Most recent version presented was T11/10-132v1	Ko (Huawei Symantec)
ENode functionality	T11/10-232	Carry for further development. Most recent version presented was T11/10-232v0	Peterson (Brocade)
Generating pseudo-random N_Port_IDs	T11/10-137	Close. Will be incorporated as an informative annex. Most recent version presented was T11/10-137v1	Noll (Cisco)
Locally Unique N_Port_IDs	T11/10-019	Close. Approved version was T11/10-019v4	DeSanti (Cisco)
Incorporating 10-019v3 in FC-BB-6	T11/10-272	Close. Replaced by approval of T11/10-019. Most recent version presented was T11/10-272v0	DeSanti (Cisco)

Document Title	Number	Disposition	Author
Single Domain FCoE Fabrics	T11/10-233	Carry for further development. Most recent version presented was T11/10-233v0	Peterson (Brocade)
FDF Protocols	T11/10-274	Close. Further details to be provided in other presentations (e.g., T11/10-233 and T11/10-271). Most recent version presented was T11/10-274v0	Carlson (QLogic)
VA_Ports: FDF / Controlling FCF Protocols	T11/10-271	Carry for further development. Most recent version presented was T11/10-271v0	DeSanti (Cisco)
FC-SW-6 Project Proposal	T11/10-220	Close. Approved version was T11/10-220v1	Wilson (Brocade)
VN_Port WWPN to Fabric association	T11/10-224	Carry. presentation was deferred. Most recent version available was T11/10-224v1	Smith (EMC)
FCoE Path Potholes	T11/10-273	Carry. presentation was deferred. Most recent version available was T11/10-273v0	Carlson (QLogic)

12 Attendance

Organization	Representative
BROADCOM	Pat Thaler
BROCADE	David Peterson
BROCADE	Steven L. Wilson
CISCO	J Metz
CISCO	Joe Pelissier
CISCO SYSTEMS	Landon Noll
CISCO SYSTEMS, INC.	Claudio DeSanti
DELL	Gaurav Chawla
DELL, INC.	Glenn Virball
EMC	David Black
EMC	Erik Smith
EMC	Gary S. Robinson
EMULEX	Bob Nixon
EMULEX	William R. Martin
ENDL TEXAS	Ralph Weber
FORCE10 NETWORKS	T Sridhar
FUJITSU AMERICA, INC.	Sandy Wilson
HEWLETT-PACKARD COMPANY	Nadaraha (Nava) Navaruparajah
HUAWEI SYMANTEC	Michael Ko
HUFFERD ENTERPRISES	John Hufferd
IBM	Louis Ricci
IBM	Roger Hathorn
IBM	Scott Carlson
INTEL CORPORATION	Prafulla Deuskar
JUNIPER	Joseph White
LSI CORP.	John Lohmeyer
MELLANOX TECHNOLOGIES	Diego Crupnicoff
NETAPP	Frederick Knight
ORACLE	Matt Gaffney
ORACLE	Roger Dickerson
QLOGIC	Ed McGlaughlin
QLOGIC CORP	Alan Spalding
QLOGIC CORP.	Craig W. Carlson

Organization	Representative
SOLUTION TECHNOLOGY	Robert Kembel
SYMANTEC	Roger Cummings
TRUE FOCUS, INC	Horst Truestedt
UNIVERSITY OF NEW HAMPSHIRE INTEROPERABILITY LAB	Mikkel Hagen

13 template motions

MOV (co) moved and SEC (co) seconded to DO SOMETHING. The motion passed unanimously/FF Favoring, OO Opposing, AA Abstaining.

MOV (co) moved and SEC (co) seconded to incorporate DDD amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010 into FC-BB-6. The motion passed unanimously/FF Favoring, OO Opposing, AA Abstaining.

ACTION AUTH to publish a new document reflecting DDD amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010.

ACTION AUTH to provide source for a new document reflecting DDD amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010 to FC-BB-6 editor.

ACTION FC-BB-6 editor to incorporate DDD amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010 into FC-BB-6.

MOV (co) moved and SEC (co) seconded to request T11.3 to request T11 to forward TITLE (T11/YY-DDDvN) to SOMEBODY to DO SOMETHING. The motion passed unanimously/FF Favoring, OO Opposing, AA Abstaining.

ACTION FC-BB-6 ad hoc work group chair to request T11.3 to request T11 to forward TITLE (T11/YY-DDDvN) to SOMEBODY to DO SOMETHING.

MOV (co) moved and SEC (co) seconded to request T11.3 to request T11 to forward TITLE (T11/YY-DDDvN) to INCITS for further processing. The motion passed unanimously/FF Favoring, OO Opposing, AA Abstaining.

ACTION FC-BB-6 ad hoc work group chair to request T11.3 to request T11 to forward TITLE (T11/YY-DDDvN) to INCITS for further processing.

MOV (co) moved and SEC (co) seconded to request T11.3 to approve the project proposal for FC-GGG (T11/YY-DDDvN) and to request T11 to forward the project proposal for FC-GGG (T11/YY-DDDvN) to INCITS for further processing. The motion passed unanimously/FF Favoring, OO Opposing, AA Abstaining.

ACTION FC-BB-6 ad hoc work group chair to request T11.3 to request T11 to forward the project proposal for FC-GGG (T11/YY-DDDvN) to INCITS for further processing.

MOV (co) moved and SEC (co) seconded to request T11.3 to request T11 to conduct a letter ballot on forwarding Revision R.RR of FC-GGG (T11/YY-DDDvN), Project XXXX-DT, to INCITS for further processing including public review. The motion passed unanimously/FF Favoring, OO Opposing, AA Abstaining.

ACTION FC-BB-6 ad hoc work group chair to request T11.3 to request T11 to perform a letter ballot on forwarding Revision R.RR of FC-GGG (T11/YY-DDDvN), Project XXXX-DT, to INCITS for further processing including public review.

MOV (co) moved and SEC (co) seconded to accept T11/YY-DDDvN as the resolution of all letter ballot comments against FC-BB-6, reflecting T11/YY-DDDvN and the agreements at the FC-BB-6 ad hoc work group regular meeting 9 June 2010. The motion passed unanimously/FF Favoring, OO Opposing, AA Abstaining.

ACTION AUTH to publish a new document reflecting DDD amended as agreed at the FC-BB-6 ad hoc work group regular meeting 9 June 2010.

MOV (co) moved and SEC (co) seconded to request T11.3 to recommend to T11 to accept T11/YY-DDDvN as the resolution of the letter ballot comments on FC-GGG and to forward the latest draft of FC-GGG (T11/YY-DDDvN), Project XXXX-DT, to INCITS for further processing including public review. The motion passed unanimously/FF Favoring, OO Opposing, AA Abstaining.

ACTION FC-BB-6 ad hoc work group chair to request T11.3 to recommend to T11 to accept T11/YY-DDDvN as the resolution of the letter ballot comments on FC-GGG and to forward the latest draft of FC-GGG (T11/YY-DDDvN), Project XXXX-DT, to INCITS for further processing including public review.