

T11.3 FC-LS-5 Ad Hoc Working Group Regular Meeting Minutes

3 June 2020 – 11:00 AM to 5:00 PM CDT

Virtual Meeting

The FC-LS-5 ad hoc work group of the Fibre Channel Protocol (T11.3) Task Group held a virtual meeting on 3 June 2020, with Zoom meetings hosted by Marvel. Attendance was 14 people from 8 organizations and is tabulated at the end of this document.

Minutes were taken by Jason Rusch (Viavi Solutions) (jason.rusch@viavisolutions.com). Please report any corrections by email to the T11.3 reflector at T11_3@mail.T11.org.

1 Opening Remarks and Introductions

Chairperson Patty Driever (IBM) opened the virtual meeting on Wednesday, 3 June 2020 at 11:00 AM CDT. She led a round of introductions and thanked our virtual host organization, Marvel.

1.1 Attendance and Membership

The chair explained that attendance is recorded electronically at <http://www.incits.org>, 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. She 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.

1.2 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 slides 1-3 of http://www.incits.org/patent_slides.pdf. She 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.

1.3 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 she 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/standards-information/legal-info>.

2.0 Approval of Agenda

An agenda for the FC-LS-5 ad hoc work group regular meeting 3 June 2020 was posted as T11-2020-00119-v000.

Howard Johnson (Broadcom Inc) moved and Mark Malcom (Fujitsu) seconded to accept T11-2020-00119-v000 as modified as the agenda for this regular meeting. Approved by acclamation.

3.0 Review of Past Business

3.1 Review of Minutes

Minutes for the FC-LS-5 ad hoc work group regular meeting 8 April 2020 have been posted as T11-2020-00090-v000.

Howard Johnson (Broadcom Inc) moved and Mark Malcolm (Fujitsu) seconded to accept T11-2020-00090-v000 as the official minutes for the regular meeting on 8 April 2020. Approved by acclamation.

3.2 Review of Old Action Items

Action items carried forward from prior meetings:
None.

New action items from the previous meeting:

2004-01 Dave Peterson (Broadcom Inc) to investigate the frame size requirements for frames sent to the Fabric Controller prior to NPort Login (up to the receive data field size specified in the FLOGI exchange). **[COMPLETE, T11-2020-00126-v001]**

4 Old Business

4.1 Fabric Notification – Is There Anybody Out There?

[T11-2020-00013-v002, 014-v002, 0085-v000, 0109-v000] Johnson (Broadcom Inc) Howard led a discussion continuing the review of the proposal in T11-2020-00015-v002 and the three supporting text proposals. He summarized the changes made as a result of the previous discussion. The modified text for these changes was then reviewed, and the group provided feedback.

Howard then led a detailed review of the proposal text documents as follows:

T11-2020-00085-v00: *Draft text proposed to add the Congestion Detection Capability descriptor to the EDC ELS to support the Congestion Signals of Fabric Notifications.* Howard reviewed the changes since the last meeting. There were no additional change requests.

Howard Johnson (Broadcom Inc) moved and Mark Malcolm (Fujitsu) seconded to incorporate T11-2020-00085-v000 into FC-LS-5. Motion passed by acclamation.

T11-2020-00109-v000: *Draft text proposed to add the Register Diagnostic Functions ELS and associated descriptors to support Fabric Notifications.* Howard led a review of the proposed text and feedback from the February and April discussions. The group provided additional comments on the new text, which Howard will review and revise for the next meeting cycle.

T11-2020-00013-v002: Draft text proposed to add the Fabric Performance Impact Notification ELS and associated descriptors to support Fabric Notifications. Howard began reviewing the updated text proposal, but time did not permit to complete the full review of the text. Howard will modify the text proposal with the feedback discussed at this meeting and will post a new version. The revised version will be reviewed in detail at the next meeting cycle.

4.2 FC LAG Control Plane

[T11-2020-00116-v000] Bharadwaj (Cisco)

This proposal was discussed during the FC-SW-8 Ad hoc meeting. See the FC-SW-8 June 2020 meeting minutes in T11-2020-00124-v000.

5 New Business

5.1 FC LAG Data Plane

[T11-2020-00117-v000] Bharadwaj (Cisco)

Harsha led a discussion of the N_Port FC-LAG Data Plane concept between the FC-2 Addressing layer and the FC-2 Exchange Management layer in the FC architecture, and provided a comparison of the potential distribution types (e.g., Sub-Frame, Frame, Exchange, Flow). The Exchange and Flow distributions were discussed in detail, with Frame being ruled out.

The benefit for Flow based distribution was questioned if Exchange capability is not available – this functionality exists in today’s implementations through multi-pathing. Another point of discussion was whether Sequence level error recovery would work with FC-LAGs - the current recovery model may need modifications to make the concept functional.

A comparison of Ethernet LAG versus FC LAG was also discussed. The discussion will continue at a future meeting, expanding on the impact of FC-NVMe Sequence Level Error Recovery.

5.2 Fabric Controller and FLOGI

[T11-2020-00126-v001] Peterson (Broadcom Inc)

Dave gave an overview on the frame size requirements for frames sent to the Fabric Controller prior to NPort Login (up to the receive data field size specified in the FLOGI exchange). The basic concepts from existing standards were summarized, and the ELS login requirements from FC-MI-3, table 32 were discussed. In FC-MI-3, it is stated that the FLOGI provides an implicit PLOGI for the purposes of specific ELSs. Dave and Howard will propose similar text that can be added to FC-LS-5 Table 9 (footnote or normative). The table will also be updated to include all relevant ELS requests (e.g., RDF, FPIN, RDP).

6 Unscheduled Business

None.

7 Project Schedule

Milestone	Expected Date
Last technical input	October 2020
RFC Ballot	TBD
T11 Letter Ballot	TBD
Forward to INCITS	TBD

8 Review of Action Items

Action items carried forward from prior meetings:

None.

New action items from this meeting:

2006-01 Editor to incorporate T11-2020-00085-v000.

9 Future Meeting Schedule

9.1 Interim Conference Call

None.

9.2 Next Plenary Week

Request 3 hours for FC-LS-5 at the Virtual T11 plenary week August 10-14, 2020.

10 Adjournment

Howard Johnson (Broadcom Inc) moved and Mike Blair (Cisco) seconded to adjourn. Approved by acclamation.

The regular meeting was adjourned at 5:00 PM CDT on 3 June 2020.

11 Attendance

Organization	Representative	Member Company
Broadcom Inc	Howard Johnson	Member
Broadcom Inc	David Peterson	Member
Broadcom Inc	James Smart	Member
Broadcom Inc	Steven Wilson	Member
Cisco Systems Inc	Mark Allen	Member
Cisco Systems Inc	Harsha Bharadwaj	Member
Cisco Systems Inc	Mike Blair	Member
Fujitsu America Inc	Mark Malcolm	Member
Hewlett Packard Enterprise	Barry Maskas	Member
IBM Corporation	Patty Driever	Group Chair
IBM Corporation	Roger Hathorn	Member
Marvell Semiconductor Inc	Craig Carlson	Proj Editor
NetApp Inc	Frederick Knight	Member
Viavi Solutions Inc	Jason Rusch	Secretary