

Final Minutes

T11.3 FC-FS Working Group Meeting

August 7-8, 2001 – Waikoloa, HI

7th, 1 PM – 6 PM; 8th, 4 PM – 9 PM

Changes approved at FC-FS meeting 10/10/01: List "Bill Martin to publish..." as an AL-2 action (now 8.1.1) rather than an FS action (formerly 8.2.14)

A meeting of working group FC-FS of NCITS Technical Committee T11 Task Group T11.3 was held at Waikoloa, Hawaii, on August 7 and 8, 2001. Attendance of 35 people at this meeting is tabulated at the end of this document.

1. Opening remarks and introductions: John Scheible

Facilitator John Scheible opened the meeting at 1:38 PM Tuesday, August 7, 2001, thanked our host company, Solution Technology, and led a round of introductions.

2. Call for changes to minutes

2.1 AL-2/FS report to T11.3 - 06/07/01 [01-301v0](#) John Scheible

Approved as written.

2.2 AL-2/FS minutes - 6/5/01-6/6/01 [01-319v0](#) Bob Nixon

Bob pointed out three corrections:

- In section 1, the starting time should be 1:30 PM.
- In section 8.2, the presenter was not known. It is believed to be Steve Wilson of Boeing. (Bob to confirm before publishing corrections).
- In section 9.6, fourth paragraph, "Likewise, the class validity bits in FLOGI represent only the peer device" should say "Likewise, the class validity bits in PLOGI represent only the peer device".

Approved as modified

2.3 AL-2/FS minutes - 07/17/01 [01-366v0](#) Jim Nelson

Approved as written.

3. Approval of this agenda: [01-376v0](#) John Scheible

added: Converting SW_RSCN to RSCN – Dave Peterson ([01-422v0](#))

added: Loss of reserved frame type values – Bob Nixon (no doc)

Approved as modified.

4. Review of old action items: [01-376v0](#) John Scheible

4.1 AL/2 Action Items – None

4.2 FS Action Items

- 4.2.1 Jim Coomes will provide a rewrite of clause 17 to improve organization and define the X's and R's.
(OPENED 5/9/01) (CLOSED, [01-403v0](#))
- 4.2.2 Bob Snively to rewrite 15.5.25-27 to eliminate inappropriate examples using "IU"
(OPENED 5/9/01) (CARRYOVER)
- 4.2.3 Bob Snively to propose structure for Intermix to the reflector.
(OPENED 5/9/01) (CARRYOVER)
- 4.2.4 ACTION Mike Dorsett to rewrite clauses 17.6.7-8 to include class 6 support.
(OPENED 5/9/01) (CARRYOVER)
- 4.2.5 ACTION: Bill Martin to provide a proposal for the login requirement for every ELS.
(OPENED 5/10/01) (CARRYOVER)
- 4.2.6 ACTION: Bob Nixon to write up a revised statement replacing "shall" with "if you do this, this is how it will hurt", and review it with Tom Lindsey and Bill Ham.
(OPENED 5/10/01) (CLOSED, [01-333v0](#))
- 4.2.7 Bob Nixon to provide references for the IP terms used in RNID/RTIN descriptions.
(OPENED 6/5/01) (CLOSED, [01-324v0](#) and [01-250v1](#))
- 4.2.8 Bob Nixon to send an email to Mike Foster requesting text to satisfy [Akara-019](#).
(OPENED 6/6/01) (CLOSED, reflector email Nixon 6/11/01, Foster 6/11/01, Wanamaker 6/14/01)
- 4.2.9 Ken Hirata to upload his presentation on FARP Discrepancies as a document
(OPENED 6/5/01) (CLOSED, [01-307v0](#))
- 4.2.10 Bob Nixon to write a message to the reflector noting the FARP discrepancy and asking for implementer input, copy the authors of the RFC
(OPENED 6/5/01) (CLOSED, reflector email Nixon 6/11/01, Rajagopal 7/10/01)
- 4.2.11 John Scheible to allow time in the next meeting to discuss feedback on FARP header discrepancies.
(OPENED 6/5/01) (CLOSED, not needed)
- 4.2.12 Bob Nixon to modify the proposal for Clarification of Management IP Address as requested at 6/6/01 meeting and provide the text to George Penokie to incorporate into his RNID proposal.
(OPENED 6/6/01) (CLOSED, [01-324v0](#) and [01-250v1](#))

- 4.2.13 Jim Coomes to include corrections to 17.3.3 concerning FLOGI class of service in his rewrite of clause 17.
(OPENED 6/6/01) (CLOSED, [01-403v0](#))
- 4.2.14 Jim Coomes to include changes to remove PLOGI class of service restrictions in his rewrite of clause 17
(OPENED 6/6/01) (CLOSED, [01-403v0](#))
- 4.2.15 Jim Nelson will bring the question of [Vixel 122](#) to the FC-BB group.
(OPENED 7/17/01) (CLOSED)
- 4.2.16 Jim Coomes will rewrite clause 14 with appropriate inclusion of WWN information from the annexes. The title will be "Name_Identifier formats".
(OPENED 7/17/01) (CARRYOVER)
- 4.2.17 Gary Stephens has been actioned in absentia to correct [Boeing 23](#).
(OPENED 7/17/01) (CLOSED)
- 4.2.18 Jim Nelson will post the proposed fix to [Brocade 18](#).
(OPENED 7/17/01) (CARRYOVER)
- 4.2.19 Bob Snively will post the concerns about [Agilent 006 and 007](#).
(OPENED 7/17/01) (CARRYOVER)
- 4.2.20 Jim Nelson will post the proposed correction to [Agilent 005](#).
(OPENED 7/17/01) (CARRYOVER)
- 4.2.21 Bob Snively will post the required correction to 12.2.2.2.2, item a.
(OPENED 7/17/01) (CARRYOVER)
- 4.2.22 Craig Stuber to provide resolution for [JNI 005](#).
(OPENED 7/17/01) (CARRYOVER)
- 4.2.23 Mike Dorsett will provide a proposed resolution for [Tivoli-853](#).
(OPENED 7/17/01) (CARRYOVER)
- 4.2.24 Jim Nelson will contact Gary Stephens for guidance on [QLogic 141](#) and [Tivoli 894](#).
(OPENED 7/17/01) (CLOSED)
- 4.2.25 Jim Nelson will contact Mike Foster to be sure our interpretation of [QLogic 145](#) is correct.
(OPENED 7/17/01) (CLOSED Nelson, CARRYOVER Dorsett)
- 4.2.26 Bob Nixon has already got an action item to address [Agilent 001](#).
(OPENED 7/17/01) (CLOSED, [01-333v0](#))
- 4.2.27 Bob Snively to investigate proper choice of OLS and NOS during speed negotiation.
(OPENED 7/17/01) (CARRYOVER)

- 4.2.28 Bob Nixon will review [JNI_002](#) with Tom Lindsay and Bill Ham to see if that is the correct resolution.
(OPENED 7/17/01) (CLOSED, reflector email Nixon 8/1/01)

5. Scheduled New Business AL-2/AL-3

5.1 AL-2 Amendment [01-343v1](#) Bill Martin

The proposed amendment incorporates previously agreed fixes to errors in the logic defined by AL-2 concerning setting of ARB Pend and use of Err INIT.

Another issue was identified in a letter from Ernie Kohlwey to the reflector 8/2/01, involving the delay for transition into old_port state. There is a discrepancy between the timeout value in the body of the document and an annex.

Discussion of the purpose of the amendment ensued. Strongest opinion was only to fix errors that could lead to loop failures. This item of business was postponed overnight... Bill Martin will review this new issue to see if it is similarly critical, and if so, which timer is appropriate.

On resumption, Bill Martin reported that not all, but part, of Ernie's issue was valid, and he proposed a correction to FC-AL-2. The Annex sentence at issue should be changed to say 3*R_A_TOV.

John Scheible moved and Bill Martin seconded that [01-287v0](#) modified as determined by Bill Martin in response to Ernie Kohlwey's letter be published as [01-287v1](#) and forwarded to T11 for further processing.

In discussion, Bob Kembel and Horst Truedstedt noted that there is another outstanding issue which they have previously documented that has not been incorporated. Others said the issue had been previously considered and judged insufficiently critical to justify pursuing a correction.

Approved 15Y-5N-2A

Comments from those voting NO:

Bob Kembel: There is a technical deficiency in the standard that can cause loss of access to functioning devices on an existing loop.

Horst Truedstedt: Referring to Bob's comment, if we have a place to fix it, we should fix it.

Bob Nixon: Does not believe adequate time was given to reconsider Bob Kembel's issue in the light of the opportunity to fix it when the effort can be amortized over the processing of other changes.

ACTION: Bill Martin to publish [01-287v1](#) and [01-343v2](#) to include the change agreed at this meeting.

6. Scheduled New Business FS

6.1 Status of FC-FS rev 1.30 [01-024v3](#) Jim Nelson

The new document includes most fixes (81%, according to John Scheible).

6.2 Changes for DiffServ [01-313v1](#) Jim Nelson

The proposal has been restated to specify only a means of carrying a policy identification in each frame. The standard will not (yet) specify a way of acting on them. A short

summary of an intended use closely modeled after Diffserv was described, but that is not part of the proposal. The proposal uses some reserved bits, whose zero value would imply current behavior.

An issue arose with calling the behavior for all nonzero values “vendor-specific”, which would prevent any future standard behavior for all of them. It was proposed that “some” of the values be vendor-specific, and the rest will be reserved. Jim will revise his proposal to incorporate this and present it tomorrow.

An issue arose that there was no means of finding out if the intermediate devices support a policy that is to be requested. Jim pointed out that Diffserv allows intermediate devices that do not support a policy. Others were uncomfortable that this was not a good answer for potentially “more rigorous” policies. Jim will propose language directing the behavior of intermediate devices on observing unsupported policy values and present it tomorrow.

After the overnight recess, Jim provided detailed changes which took into account the issues above. The result is that the revised proposal now requires certain policy behavior by reference to the Diffserv RFC.

Jim Nelson moved and Jim Coomes seconded that [01-313v1](#) with changes discussed here be rolled into FS. Approved with no objection.

ACTION: Jim Nelson to publish [01-313v2](#) to incorporate the changes discussed at this meeting and incorporate the result into FC-FS.

6.3 RTIN and RNID rewrite [01-250v1](#) George Penokie

Review began to find issues with the basic design, which George did not intend to alter. Historical background was offered...RTIN was designed by and for support of a never-implemented intelligent hub.

Bob Nixon moved and Dave Peterson seconded that we obsolete RTIN.

Consideration of the motion was deferred until 8/8/01. On resumption, the motion was amended to say “delete” rather than “obsolete”. It was further amended to “make the code vendor specific”.

Approved as amended 19Y-0N-1A.

ACTION: Bob Nixon to send out email to the reflector apprising the members of the deletion of RTIN ELS.

Review of the RNID rewrite was undertaken. George captured agreed issues and changes in his document.

ACTION: George Penokie to publish [01-250v2](#) to reflect removal of RTIN and the RNID changes agreed at this meeting and present it at the next meeting.

ACTION: Bob Nixon to send out email soliciting opinion (ie extant product) on where an IPv4 address should be positioned within the Management IP address field of an RTIN reply payload.

6.4 The topology of RTIN [01-397v0](#) / [01-398v0](#) Bob Nixon

After RTIN was deleted, this became irrelevant. It was not presented.

6.5 Short R_T_TOV value [01-348v0](#) Steve Wilson (Boeing)

Steve Wilson was not present. Rich Allison presented in his absence. The presentation document gave the changes to FS needed to incorporate a FLOGI/PLOGI flag to indicate whether the sending port is using a short (100 usec) R_T_TOV, and a similar indicator in the RTV ELS to report the current setting.

Moved by John Scheible to accept the document into FS. Seconded by Charles Monia. Approved without objection.

6.6 CS_CTL/Priority Clarification [01-353v0](#) Greg Koellner

Greg's document listed a series of letter ballot comments which it attempts to resolve. It then gave detailed change instructions for FC-FS rev 1.2. There were a couple late issues to the document as written from Boeing which will be corrected in a rewrite of the document, along with any issues raised today.

One which Boeing will have to justify first is a request to remove the constraint that the priority enable bit shall only be changed on sequence boundaries. Additionally, the requirements on switches and receiving ports to verify this constraint were reversed: Consistency shall not be verified by intermediate and receiving ports. ACKs shall echo the value, even if not consistent.

References to the behavior of Class 4 wrt priority enable bit should be removed, since there is no such thing in Class 4.

Some revision was requested to the wording describing the P bit in the Login Class of Service Options. The situation is that priority and preemption are not separable, so referencing them as "priority/preemption" is better than "priority and preemption".

ACTION Greg Koellner to publish [01-353v1](#) to reflect the discussion at this meeting and present it at the next meeting.

6.7 FC-FS comment compilation [01-138v7](#) Jim Nelson

Deferred to a later meeting.

6.8 N_Port resident CT services [01-401v0](#) Bob Nixon

Bob observed that there are a few places in FC-FS (and in FC-GS-3) that appear to require that CT services be provided only at well-known addresses. He then posed that there are both current (.eg., Key Server) and likely future (e.g., FDMI dynamic values) applications for CT services provided by end devices at their FCID rather than at a well-known address.

The group accepted the potential usefulness, but felt that services intended for fabric residence should only be provided at a well-known address. This was counter to some of Bob's proposal, but acceptable to him. It was agreed that services may be provided at an end device FCID only if their specification explicitly allows it.

It was moved by Bob Nixon and seconded by Charles Monia that [01-401v0](#) with changes requested at this meeting will be incorporated into FC-FS as modified to reflect discussion at this meeting unless further issues are raised via the reflector before 8/21/01. In that case, it will be revised and reviewed on the reflector. Approved without objections.

6.9 Login Clause [01-403v0](#) Jim Coomes

It was moved by Jim Coomes and seconded by Jim Nelson that [01-403v0](#) be incorporated into FC-FS.

Discussion: FLOGI returns the class support of the local switch only; but this represents the whole fabric, because switches will not form a fabric if they have different class support.

Scope of the service parameters in FLOGI is not right and will be fixed.

Some people have not had time to review it and were hesitant to move it into the document yet.

The motion was amended to first correct for the scope of FLOGI

The motion was Approved 14Y-2N-3A

ACTION: Jim Coomes to publish 01-403v1 to reflect the discussion of FLOGI and provide to the editor for incorporation into FC-FS.

6.10 SW_RSCN to RSCN [01-422v0](#) Dave Peterson

There is text in FC- SW-2 and FC-FS that suggests or demands that even in the case of an area (or domain) being the affected entity, the RSCN has to include a list of all the affected ports.

This discussion was interrupted by meeting recess. After the recess, Dave presented additional data supporting his contention that it is not clear what is the content of area SW-RSCNs and RSCNs.

ACTION: Bob Nixon to write email requesting the membership to indicate what they include in an area SW-RSCN or RSCN.

6.11 Problem JNI-005 (no doc) Craig Stuber

FC-FS table 220 concerns hunt group addressing. It was not understandable to the presenter. Or to anyone else present, it appeared. Craig proposed an alternate table which he thought more clearly expressed the intent. No one present felt qualified to evaluate it.

ACTION: Craig Stuber will post his presentation on clarifying table 220 as a document and request input via the reflector.

Given that no one in this otherwise experienced group was aware of any existing or planned use of hunt groups, their value to the community was questioned.

ACTION: Bob Nixon to write email to the reflector informing that FC-FS intends to vote at its October meeting whether to retain hunt groups and inviting opinions supporting its value.

6.12 Loss of reserved frame type values (no doc) Bob Nixon

Bob pointed out that between FS versions .10 ([99-145v1](#)) and .20 ([00-340v0](#)), in Table 22 - Type Codes – FC-4, two adjacent groups of codes at the end of the table were coalesced into one. A range of vendor-unique codes was greatly expanded but the

formerly adjacent large range of reserved codes was eliminated. As noted in an earlier discussion, the formerly reserved codes thereby would become forever unusable for standard purposes. This was presumed to be an editorial error by all present.

ACTION: Bob Nixon to write email to the reflector that FC-FS intends to restore the range of vendor-unique FC-4 frame type codes to those identified in FC-FS ver .10, returning the released codes to reserved.

7. **Unscheduled new FS business**

None

8. **Review of AL-2/FS action items**

8.1 **AL/2 Action Items**

- 8.1.1 Bill Martin to publish [01-287v1](#) and [01-343v2](#) to include the change agreed at FC-FS Ad Hoc meeting August 7-8, 2001.
(OPENED 8/8/01)

8.2 **FS Action Items**

- 8.2.1 Bob Snively to rewrite 15.5.25-27 to eliminate inappropriate examples using "IU"
(OPENED 5/9/01) (CARRYOVER)
- 8.2.2 Bob Snively to propose structure for Intermix to the reflector.
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- 8.2.12 Mike Dorsett (was Jim Nelson) will follow up with Mike Foster to be sure our interpretation of [QLogic 145](#) is correct.
(OPENED 7/17/01) (CARRYOVER)
- 8.2.13 Bob Snively to investigate proper choice of OLS and NOS during speed negotiation.
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- 8.2.14 Jim Nelson to publish [01-313v2](#) to incorporate the changes discussed at FC-FS Ad Hoc meeting August 7-8, 2001 and incorporate the result into FC-FS.
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- 8.2.16 George Penokie to publish [01-250v2](#) to reflect removal of RTIN and the RNID changes agreed at FC-FS Ad Hoc meeting August 7-8, 2001, and present it at the next meeting..
(OPENED 8/7/01)
- 8.2.17 Bob Nixon to send out email soliciting opinion (ie extant product) on where an IPv4 address should be positioned within the Management IP address field of an RTIN reply payload.
(OPENED 8/7/01)
- 8.2.18 Greg Koellner to publish [01-353v1](#) to reflect the discussion at FC-FS Ad Hoc meeting August 7-8, 2001 and present it at the next meeting.
(OPENED 8/7/01)
- 8.2.19 Jim Coomes to publish [01-403v1](#) to reflect the discussion of FLOGI at FC-FS Ad Hoc meeting August 7-8, 2001 and provide to the editor for incorporation into FC-FS.
(OPENED 8/7/01)
- 8.2.20 Bob Nixon to write email requesting the membership to indicate what they include in an area SW-RSCN or RSCN.
(OPENED 8/7/01)
- 8.2.21 Craig Stuber will post his presentation at FC-FS Ad Hoc meeting August 7-8, 2001 on clarifying table 220 as a document and request input via the reflector.
(OPENED 8/8/01)

- 8.2.22 Bob Nixon to write email to the reflector informing that FC-FS intends to vote at its October meeting whether to retain hunt groups and inviting opinions supporting its value.
(OPENED 8/8/01)
- 8.2.23 Bob Nixon to write email to the reflector that FC-FS intends to restore the range of vendor-unique FC-4 frame type codes to those identified in [FC-FS ver .10](#), returning the released codes to reserved.
(OPENED 8/8/01)

9. Future meeting plans

8 hours will be requested in the T11 slot during the September T10 plenary meeting. As much as possible will be requested in the T11 slot during the October T11 plenary meeting.

10. Adjournment (FS WG)

The meeting was adjourned at 9:00 PM Wednesday, August 8, 2001.

11. Summary of approved changes

11.1 Changes to FC-AL-2

- 11.1.1 Error corrections in accord with [01-287v1](#)

11.2 Changes to FC-FS

- 11.2.1 Changes noted here are only those which are not pursuant to letter ballot comment resolution. All changes initiated to resolve letter ballot comments are recorded in or referenced from [01-138v7](#).
- 11.2.2 Include Diffserv in accord with [01-313v2](#).
- 11.2.3 Include short R_T_TOV value in accord with [01-348v0](#).
- 11.2.4 Lacking issues raised on the reflector by 8/21/01, include N_Port resident CT services in accord with [01-401v0](#) and the discussion at FC-FS Ad Hoc meeting August 7-8, 2001.
- 11.2.5 Restore vendor unique FC-4 frame types to the range in table 22 of [FC-FS version .10](#), returning the released range of values to reserved.

12. Attendance

T11 FC-FS Working Group Meeting Attendance – 08/07/01-08/08/01

Company Represented	Last Name	First Name	Email
Akara	Wanamaker	Neil	nwanamaker@akara.com
Andiamo Systems	DeSanti	Claudio	cds@andiamo.com
Boeing	Keller	Jack	jack.e.keller@boeing.com
Boeing	Nast	Douglas	douglas.p.nast@boeing.com
Brocade	Wilson	Steven L.	swilson@brocade.com
Cisco Systems	Peterson	David	dap@cisco.com
Connectivity Solutions	Kembel	Robert W.	kembel@compuserve.com
Crossroads	Tyndall	John	jtyndall@crossroads.com
Emulex	Nixon	Bob	bob.nixon@emulex.com
Exabyte	Rose	Roger	rogerr@exabyte.com
FSI	Stephens	Gary	grfsi@aol.com
FSI	Weber	Ralph	roweber@acm.org
Fujitsu	Fitzpatrick	Mike	mfitzpatrick@fcpa.fujitsu.com
General Dynamics	Pedersen	Robert K.	robert.k.pedersen@gd-is.com
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IBM	Scheible	John	jpscheible@aol.com
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JNI	Stuber	Craig	cstuber@jni.com
Lockheed Martin	Allison	Rick	rick.h.allison@lmco.com
McData	Kipp	Scott	skipp@mcdata.com
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MTI	Ramos	Rich	rich@chi.mit.com
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Seagate	Coomes	James	jim_coomes@seagate.com
Seagate	Suhler	Paul	paul_a_suhler@seagate.com
Sony	Kai	Masamitsu	masamitsu.kai@am.sony.com
Sony	Mendiola	Jeff	jeff_mendiola@asd.sel.sony.com
SRB Consulting	Warden	Gary	gwarden@srbconsulting.com
StorageTek	Gaffney	Matt	matt_gaffney@stortek.com
Tivoli	Penokie	George	g_penokie@tivoli.com
True Focus	Trustedt	Horst	hotruess@attglobal.net
Vixel	Hirata	Ken	khirata@vixel.com
Vixel	Nelson	James	jnelson@vixel.com