IEEE 802.3 HSSG Montreal Minutes

Tuesday, July 6, 1999

Meeting convened by Jonathan Thatcher at 10:35am. Brad Booth volunteered to take minutes for the meeting.

Mr. Thatcher requested that the meeting proceed directly into the presentations and postpone the "Jon and Geoff" show until the afternoon. There was no opposition.

Presentation #1: In-Premises Optical Fibre Deployment; Flatman, Alan; Musk, Bob
- survey is all private premises fibre
- no indication of the dark fibre overprovision support for SMF
- broad profile of banking, hospitals, defense establishments, and universities used in survey
- only taken account of fibres that are active
- more 160/500 fibre in N.A. than in Europe

Presentation #2: Selected WAN/MAN/Long Haul ; Haile-Mariam, Atikem; Attachment B
- public utility fibre is predominantly rings
- ring size is circumference

Presentation #3: Multimode Fibers of Installed Base for 10 Gigabit Ethernet; Chang, Ed; Taborek, Rich

Adjourned at noon for lunch, to reconvene at 1:15pm.

Reconvened at 1:25pm.

Mr. Thatcher posted the proposed agenda.
Motion to accept the Agenda. Moved: H. Frazier, Second: L. Rubin. Agenda approved by acclamation.

Mr.Law announced that the Interim meeting announcement has been placed on the reflector. The Interim is scheduled to be 9/27/99 to 9/29/99 in York, England. The date was not altered, as 802.3ad doesn't want to conflict with HSSG. January Interim tentatively to be hosted by Texas Instruments in Dallas.

Review of the presentation schedule.

Presentation #4: TIA FO-2.2.1 Task Group on Modal Dependence of Bandwidth; Hackert, Michael

Presentation #5: Market Potentials for 10 GbE in Metro, and Wide Area Networks; Chen, Nan

Presentation #6: Proposal for a 10 Gbps MII; Frazier, Howard et al.

Presentation #7: 9.584640 GigE In the WAN; Bottorff, Paul

Presentation #8: FEC techniques and applications to 10G Ethernet; Azadet, Kamran

Presentation #9: Recommendation of 10^-13 Bit Error Rate for 10 Gigabit Ethernet; Chang, Ed

Presentation #10: A New Line Code MB810 for 10GbE; Kim, Dae Young
- Dr. Kim to make the line coding information and pattern generation information public

- Dr. Kim stated that they have filed for a Korean patent, and will be filing within a year for the US patent

Presentation #11: Impact of the x^43 + 1 Scrambler on the Error Detection Capabilities of the Ethernet CRC; Figueira, Norival

Presentation #12: Error Correction with Fibre Channel Transmission Code; Widmer, Al

Presentation #13: Partitioned DC-Balanced (0,6) 16B/18B Transmission Code; Widmer, Al

Wednesday, July 7, 1999

Meeting called to order by Mr. Thatcher at 8:10am.

Presentation #14: 10 Gb/s Multimode Fiber Standards Update and 850 nm Justification; Kolesar, Paul
- Rich Taborek pointed out that greater than 300m range could be met if other transmission encoding schemes were used, Mr. Kolesar agreed

Presentation #15: High Speed 850nm VCSEL Transmission over Multimode Fiber; Donhowe, Mark

Presentation #16: High Bandwidth, Multi Mode Fiber Systems; Giaretta, Giorgio
- David Cunningham stated that the presentation was misleading due to out of date information

Presentation #17: Parallel Optics Opportunities for 10 GbE; Kriese, Richard

Presentation #18: Case For Using 980 nm (Rather Than 850 nm) VCSELs For Serial 10 Gb/s Links With New Higher Bandwidth 50MMF; Hanson, Del
- This would be green fiber, in other words, no or little installed base
- 980nm performance is better than 850nm (as agreed with by Mr. Kolesar's presentation… Presentation #13)
- Mr. Kolesar agreed with Mr. Hanson's point that the flip-chip bonding is only being done in the lab, but disagreed with Mr. Hanson's statement about production capability

Presentation #19: Multilevel Modulation for 10GbE: Link and Component Specification Issues; Cunningham, David
- Mr. Taborek pointed out that in all lasers, you don't operate at the ends (threshold and saturation levels) therefore you won't get the compression described by Mr. Cunningham

Presentation #20: WWDM Transceiver Update and 1310 nm eye-safety; Lemoff, Brian
- HP is not in production with their WWDM part and have some design flaws to correct

Presentation #21: 10G-BASE-T; Kardontchik, Jaime

Mr. Thatcher presented the change to the presentation schedule.

Presentation #22: 10 Gb/s Serial PHY for Local Area Networks; Nuss, Martin
- Mr. Grow made the point that the reference should not be to an exposed 10GMII, because exposed means that there is a physical connector at this interface, Mr. Nuss agreed
- request was made by Mr. Bynum to see some relative cost information provided

Presentation #23: HSSG Copper Ad Hoc; Di Minico, Chris
- objectives and characteristics were put together

- planned motion to support at least 10m on copper cable
- planned motion for multi-rate and support on Cat-6

Presentation #24: 10GbE Serial Technology Proposal; Weniger, Fred
- question raised about whether the 10 bit bus is differential, Mr. Weniger replied that it could be PECL but there are other options
- Mr. Weniger highlighted his RESYNC logic as a way to aggregate ten 1GbE links, and Mr. Thatcher requested that more information be provided
- Ms. Buckman pointed out that only parallel multimode is available, that both WWDM and serial 10G are still in the development phase

Presentation #25: "Objective 8" & Media Ad Hoc; Thompson, Geoff
- Mr. Thompson highlighted that the HSSG can affect the direction of ISO/IEC 11801 for selection of media
- Mr. Thatcher was concerned about referencing 11801 for media that hasn't been standardized but is in the standardization process
- Mr. Di Minico requested that the HSSG reference the revision of 11801 (11801-A)
- Mr. Thatcher requested that Mr. Thompson's ad hoc propose an objective before the end of the day

Presentation #26: Cable Survey Ad Hoc; Tolley, Bruce
- plan to present results of the survey at September Interim meeting
- requesting assistance by IEEE members for distributing the survey
- Mr. Thatcher informed Mr. Tolley that the ad hoc may wish to make a motion to the HSSG to have 802.3 formalized and authorize the survey

Presentation #27: HSSG "Speed" Ad Hoc; Thirion, Walt
- no conscience on the speed

Presentation #28: Distance Ad Hoc; Hanson, Del
- prepared to motions in the afternoon to resolve distance requirements

Meeting adjourned for lunch at 12:30pm to reconvene at 1:30pm.

Meeting reconvened at 1:35pm.

Motion Madness Time…

Mr. Thatcher reviewed the agenda to inform the HSSG where we are. Mr. Thatcher presented the short term schedule. Mr. Law requested that a tutorial be presented at the November Plenary. Mr. Thatcher outlined the motions to be presented this afternoon. Mr. Di Minico requested that the copper objective to be added to the agenda.

Mr. Thatcher presented a request for motion for the HSSG not to go forward for a PAR until it has objectives for distance, media support, speed and support for other standards effort. Mr. Thatcher wants the HSSG to proceed with a well-defined focus.

Motion: To move the copper objective motion and discussion to proceed the speed objective and discussion.
M: C. Di Minico
S: T. Dineen
Procedural (>50%): Approved by acclamation. (Passes by voice vote.)
PASSES

Motion: The HSSG will not go forward for a PAR until it has passed succinct objectives for the following:

- Distances to be supported
- Media to be supported; where and how media is referenced
- Speed(s) to be considered
- Support of other standards efforts (e.g. P802.3ad)

M: H. Frazier
S: B. Grow
Technical (>75%): Approved by acclamation.
PASSES

Motion: Add to the list of objectives:

- Support proposed standard P802.3ad, Link Aggregation

M: T. Dineen
S: L. Rubin
Technical (>75%): Approved by acclamation.
PASSES

Presentation #29: Equipment Room Copper Cabling Proposal; Plant, Drew

- presentation delayed from the morning session to proceed a copper cabling motion
- minimum 10m distance copper cable proposal
- implementation: 4 SERDES, 4 cabling pairs

Motion: Add to the list of objectives:
Support a link distance of at least 100 m on category 6 at a minimum of ~2.5 Gb/s, if possible.
M: C. Di Minico
S: R. Taborek
Technical (>75%): For: 42 Against: 61 Abstain: 21
FAILS

Mr. Bottorff questioned if the 2.5 Gbps requirement would force a 10 Gbps solution over a 9.58464 Gbps solution. Mr. Thatcher questioned whether the copper rate would be 1/4 that of the rate selected by the speed ad hoc. Mr. Di Minico expressed that would be the intent.

Mr. Bottorff requested a friendly amendment to put a tilde in front of the 2.5 Gbps, and amendment was accepted.

Mr. Frazier expressed concern about the fact that 1000BASE-T development took a year longer than 1000BASE-X development, and expressed concern about the rate being closer to 1G than 10G.

Mr. Booth expressed concern that there are currently no PHY vendors showing interest in this development.

Mr. Bottorf expressed his support based upon a desire for a multi-rate MAC.

Motion: To limit discussion on this motion to 15 minutes.
M: B. Grow
S: B. Quackenbush
Procedural (>50%): Approved by acclamation.

PASSES

Mr. Di Minico expressed that there is PHY vendor interest, but no statement was made when there was a request. Mr. Di Minico expressed that 2x at copper equals 10x at fiber.

Mr. Thirion spoke to against the motion because of the burden it could place on the 10G development.

Mr. Dineen spoke for the motion.

Mr. Grow expressed concern about taking on too many tasks, that this proposal is another PHY and will fragment the market.

Mr. Muller expressed that going from 1G to 2G in horizontal wiring (to the desktop) is not a large market and when the extra bandwidth is required, customers are likely to pull fiber to have the extra bandwidth room.

Mr. Di Minico expressed that copper will have the potential to support higher data rates.

Mr. Di Minico asked Mr. Thompson about a Call For Interest on this subject. Mr. Thompson responded that Mr. Di Minico would have to make that request at the November Plenary.

Presentation #30: 10 GbE CX - short haul copper; Taborek, Rich

- Mr. Taborek's proposal uses twinax, one cable up and one cable down

Motion: Add to the list of objectives:
Support a link distance of at least 10 m on copper cable at ~10 Gb/s.
M: C. Di Minico
S: R. Taborek
Technical (>75%): For: 61 Against: 30 Abstain: 26
FAILS

Motion: To make an unfriendly amendment to add "as an equipment jumper" after "copper cable."
M: A. Flatman
S: E. Cagey
Technical (>75%): For: 10 Against: 60 Abstain: 53
FAILS

Mr. Grow called the question.
Mr. Dove objected to calling the question.

Vote on calling the question.
Procedural (>50%): Approved by acclamation.
PASSES

Mr. Frazier spoke against this motion because he felt that it lacked broad market potential, which is one of the 5 criteria. Mr. Frazier expressed concern about adding fluff to the HSSG development.

Mr. Dove spoke for the motion because his customers like the use of 1000BASE-CX.

Mr. Quackenbush offered a friendly amendment to add "at ~10 Gb/s" after "copper cable."

Motion: Limit discussion on this motion to 10 minutes.
M: B. Quackenbush
S: B. Grow
Procedural (>50%): Approved by acclamation.
PASSES

Mr. Bottorff spoke for the motion because he felt that the CX solution would give the best solution for the equipment room.

Mr. Dugan spoke in favour of the motion due to the inevitability due to work in other standards groups.

Mr. Thompson spoke in support of Mr. Frazier objection because 1000BASE-CX came relatively free compared to what will be required for 10GbE CX.

Mr. Dove spoke in favour due to the requirements of the wiring closet and equipment room.

HSSG Speed Discussion; Thirion, Walt

- discussion being limited to 20 minutes
- a straw poll will be held at the end of the discussion
- Mr. Chang asked about the clock tolerance differences between Ethernet and Sonet; Mr. Bottorff addressed Mr. Chang's concern
- Mr. Dove spoke in favour of the 10.0 Gb/s solution and felt that there was probably a way to take the 10 Gb/s Ethernet down to 9.58464 Gb/s Sonet
- Mr. Dineen is speaking in favour of the 10.0 Gb/s solution and is opposed to the Sonet feature requirements and cost structure
- Mr. Bottorff spoke in favour of 9.58464 Gb/s due to the market potential of moving Ethernet into the WAN environment (estimated 2M ports in 2002)
- Mr. Thompson spoke in favour of 9.58464 Gb/s because it would give Ethernet a larger market penetration
- Mr. Frazier felt that Ethernet should stay focussed on the LAN
- Mr. Daines questioned if this would be a start of requests to do Ethernet for OC-48 or for OC-768; Mr. Bottorff responded that there is only a desire for Ethernet over the current OC-192 networks

HSSG Speed straw poll

- 9.58464 Gbps - 30
- 10.0 Gbps - 60
- Both - 2
- Other - 0

Motion: Move the HSSG adopt as an objective:
Select either 10.000 Gb/s or 9.58464 Gb/s as the MAC/PLS interface data rate.
M: W. Thirion
S: P. Bottorff
Technical (>75%): For: 113 Against: 3 Abstain: 10
PASSES

Mr. Dove spoke against the motion stating that the data rate of 10.000 Gb/s is for the MAC/PLS interface, not the PHY data rate.

Mr. Thompson spoke against the motion that it was left open to interpretation as to who would make the decision.

Motion: Move to amend the motion to read "Select 10.000 Gb/s as the MAC/PLS data rate."
M: T. Dineen
S: B. Sarles
Technical (>75%): For: 64 Against: 37 Abstain: 8
FAILS

Motion: Move to take a break. No objection. 10 minute break.

Mr. Thompson requested a friendly amendment to motion to read "Select only one of 10.000 Gb/s or 9.58464 Gb/s to standardize as the MAC/PLS data rate." Accepted by Mr. Thirion and Mr. Bottorff. The interpretation is that the HSSG has to pick one or the other before approval of the standard, before it goes to working group ballot.

Motion: Move to amend the motion to read "Adopt 10.00 Gb/s (with a pacing mechanism to enable lower speed PHYs) as the MAC/PLS data rate."
M: K. Daines
S: T. Dineen
Technical (>75%): For: 8 Against: 88 Abstain: 11
FAILS

Mr. Bynum was of the option that this would open the HSSG up to lower rate PHYs.

Mr. Bottorff opposed the amendment in favour of postponing.

Mr. Thompson opposed the motion based upon this was not what was recommended by the ad hoc.

Mr. Haddock opposes the amendment, but stated that there is a way in the MAC to defer although it is not used in full duplex. Mr. Thompson asked Mr. Haddock if he would give a presentation to the HSSG on full duplex MAC deferral, and Mr. Haddock accepted.

Mr. Dineen called the motion. There was no opposition.

Motion: To table indefinitely the motion to amend the speed motion to strike the "~10,000 Mbps" option.
M: B. Grow
S: G. Thompson
Technical (>75%): Approved by acclamation.
PASSES

Motion: The Objective 8 Ad Hoc moves that the following test be adopted as an objective: Support fiber media selected from the second edition of ISO/IEC 11801. (802.3 to work with SC25/WG3 to develop appropriate specifications for any new fiber media.)
M: G. Thompson
S: T. Szostak
Technical (>75%): For: 119 Against: 0 Abstain: 1
PASSES

Mr. Thompson felt that this would not delay our standard and that he felt that it was unlikely that the new revision would remove any current installed 11801 media. Mr. Thompson also stated that media not in 11801 would not be excluded from the standard.

Mr. Quackenbush called the motion.

Motion: Move that the HSSG adopt:
Provide a family of Physical Layer specifications which support a link distance of:
a. At least 2 km over SMF.
M: D. Hanson
S: P. Kolesar
Technical (>75%): For: 105 Against: 0 Abstain: 0
PASSES

Motion: Move that the HSSG adopt:
Add to the family of Physical Layer specifications:
b. At least 10 km over SMF.
M: D. Hanson
S: P. Kolesar
Technical (>75%): For: 93 Against: 5 Abstain: 7
PASSES

Motion: Move that the HSSG adopt:
Add to the family of Physical Layer specifications:
c. At least 100 m over installed MMF.
M: D. Hanson
S: P. Kolesar
Technical (>75%): For: 73 Against: 13 Abstain: 21
PASSES

Mr. Thatcher explained that installed fiber is that which is supported by 11801 and 802.3. Mr. Thatcher expressed that by supporting "installed MMF" over "MMF" is that "installed" refers to fiber currently in the market that meets the requirements of 11801, by not selecting "installed" there would be no requirement to support fiber in the market. Selected "installed" does not preclude newer, higher bandwidth fiber as long as it meets the requirements of the "installed" fiber.

Motion: Move that the HSSG adopt:
Add to the family of Physical Layer specifications:
d. At least 300 m over MMF.
M: D. Hanson
S: P. Kolesar
Technical (>75%): For: 83 Against: 3 Abstain: 12
PASSES

Motion: Move to table the motion on the floor.
M: W. Thirion
S: L. Rubin
Procedural (>50%): For: 39 Against: 38
PASSES

Motion: Move to change the agenda to vote on "300 m over installed MMF" prior to "300 m over MMF."
M: D. Cunningham
S: A. Flatman
Procedural (>50%): For: 33 Against: 49
FAILS

Mr. Dove called the question.

Motion: Move to remove the motion from the table.
M: D. Dove
S: M. Salzman
Procedural (>50%): Approved by acclamation.
PASSES

Motion: Move that the HSSG adopt:
Add to the family of Physical Layer specifications:
e. At least 100 m over MMF.
M: D. Hanson
S: P. Kolesar
Technical (>75%): For: 28 Against: 43 Abstain: 16
FAILS

Motion: Move that the HSSG adopt:
Add to the family of Physical Layer specifications:
f. At least 550 m over MMF.
M: D. Hanson
S: P. Kolesar
Technical (>75%): For: 23 Against: 47 Abstain: 21
FAILS

Motion: Move that the HSSG adopt:
Add to the family of Physical Layer specifications:
g. At least 300 m over installed MMF.
M: D. Hanson
S: P. Kolesar
Technical (>75%): For: 33 Against: 53 Abstain: 14
FAILS

Motion: Move that the HSSG adopt:
Add to the family of Physical Layer specifications:
h. At least 40 km over SMF.
M: D. Hanson
S: P. Kolesar
Technical (>75%): For: 68 Against: 4 Abstain: 23
PASSES

Motion: Move that the HSSG adopt:
Add to the family of Physical Layer specifications:
i. At least 20 km over SMF.
M: D. Hanson

S: P. Kolesar
Technical (>75%): For: 8 Against: 57 Abstain: 25
FAILS

Motion: Move that the HSSG adopt:
Add to the family of Physical Layer specifications:
j. At least 80 km over SMF.
M: D. Hanson
S: P. Kolesar
Technical (>75%): For: 18 Against: 33 Abstain: 45
FAILS

Straw Poll: Poll to consider:
1) investigate use of higher bandwidth 50 um MMF include activity in 300 m over MMF - 1
2) investigate use of higher bandwidth 50 um MMF in other activity - 0
3) do nothing - overwhelming

Motion: That the HSSG request 802.3 to endorse the administration of the survey prepared by the HSSG cabling survey ad hoc and that 802.3 direct the 802.3 chair to sign a cover letter to accompany this survey. This survey's goal is to gather information on the installed fiber optic cabling that will information the HSSG's work on the distance objectives.
M: B. Tolley
S: C. Di Minico
Technical (>75%): For: 71 Against: 3 Abstain: 9
PASSES

> Mr. Dineen called the question. The call was opposed. The vote to call the motion passed by acclamation.

Motion: Move that the chair of the HSSG request that 802.3 extend the HSSG's charter by four months.
M: K. Daines
S: T. Dineen
Procedural (>50%): Approved by acclamation.
PASSES

Motion: Move to accept the amended minutes of the June meeting.
M: T. Dineen
S: R. Bynum
Procedural (>50%): Approved by acclamation.
PASSES

Motion: Move to adjourn.
M: B. Grow
S: L. Rubin
Procedural (>50%): Approved by acclamation.
PASSES

Meeting adjourned at 6:35pm.