Tuesday, March 07, 2000

802.3ae 10gigabit Ethernet working group meeting
Chair person – the honorable Jonathan Thatcher
Secretary – Joel Goergen

Opening statement:
8:30am Geoff Thompson opening remarks:
David Law's greeting card to be passed around and signed by all.
Business at Hand:

- First order to elect the chair for this task force. Geoff's choice is Jonathan Thatcher. He asks that we affirm him as choice for chair.
- Passed – yes – no na's

Jonathan Thatcher now presides as chair of the 802.3ae task force.

Review agenda for the day
Are we willing to hold to the schedule that is now not split – so everyone can view all the presentations?
There was no one that contested.
Motion to approve meeting agenda without splitting the group - Howard Frazier
Second Bob Grow
Passed

Roy Banyon was requesting or asking why we can not have a LAN and WAN track. Jonathan does not want to do this because he fears

Jonathan requested the following people be assigned to assist the Chair in the following positions:
Steve Hadock – Vice Chair
Ben Brown – Chief Editor
Walt Thirion – Chair PMD and PMA
No one opposed has recommendations.

Email Reflector, web site and misc information
Stds-802-3-hssg@mail.ieee.org
Mail to majordomo@mail.ieee.org and not the entire reflector. See the web site for details on how to do this at: http://grouper.ieee.org/groups/802/3

Review of the PAR5 criteria. Also found at the web site.
http://grouper.ieee.org/groups/802/3/ae/criteria.pdf
Procedure for presenters:
http://grouper.ieee.org/groups/802/3/ae/public/presentproc.html

Voting: This is described in detail on the web site. Please review this material should you have questions. For this meeting, if you understand what is going on or feel qualified to vote, then you can vote.

Member Attendance: The books are being passed around. People whom do not follow the rules will be publicly humiliated.

Bob Grow – Two newbies signed in the light blue book and will be publicly humiliated soon.

May22-26 Interim meeting in Ottawa
July 10-14 Plenary meeting in La Jolla
Sept Interim meeting Copenhagen or Boston?
Question: Isn't Copenhagen meeting for labor day
Copenhagen Sept 5-7
Boston Sept 11-13
Vote for Copenhagen – 29+35=64
Vote for Boston – 21+16+36=73

We are going to Boston

HSSG Objectives: Please review these objectives on the web site.
http://grouper.ieee.org/groups/802/3/ae/objectives.pdf

Long Term Schedule: The short-term goal is 'first draft' in September. The last new proposal should be added no later then the July meeting. Draft 2 will be done in November.

Motion to approve long term schedule just discussed
Jay Hoking first
Phil Accraon second
Was done by voice but not clear on outcome so a vote was done.
Yes – 147
No – 0
Abstain - 5
Motion has passed

Review Goals for the week
March – survey state of mind and reduce number of PMD proposals
May – July final selections and consolidating proposals
July – **Ask Jonathan for his slide here**

802.3ae Survey – 7 March 7, 2000
Review of the survey and then we all fill it out. The survey is broken into two questions. The first is to rank the choices for a PHY objective. The second is to rank the criteria for selecting a PHY for inclusion into the standard.

Presentations Begin.
All presentations can be found on the web site.

1. OIF Report
   By Tom Palkert (AMCC)
   Start Time: 9:15

Summary: OIF is currently studying low cost 10gig interface between boxes. There are 4 task groups working on this in parallel 12x1.25 and 4x2.5, serial short wave and long wave.
http://grouper.ieee.org/groups/802/3/ae/public/mar00/palkert_1_0300.pdf

2. TIA FO-2.2.1
   By Steve Swanson (Corning)
   Start Time: 9:21

Summary: They are moving forward in the next phase of test methodology and are seeking the help of the IEEE 802.3ae. They are looking for technical experts to help evaluate a range of source and fiber samples. This group meets on a weekly basis. Contact Mike Hackert at Corning hackertmj@corning.com.

3. Fiber Survey Report
   By Chris Dominico (Cabletron)
   Start Time: 9:29

Summary: They are still integrating the data from the surveys and Chris would like to put this on hold for a few days or at least until later in the day.
http://grouper.ieee.org/groups/802/3/ae/public/mar00/diminico_1_0300.pdf

Note from Bob Grow - Richard Carsen and Guna Bala need to be publicly humiliated.

4. 10 GE Market Potentials
   By Nan Chen (Nortel Networks)
   Start Time: 9:32

Summary: Nan outlines the current trends in Ethernet towards 10gigabit throughput. He notes that Ethernet capacity is following the increase in WAN capacity. He notes that the development of 10gig Ethernet will aid in the connection of the switch/router into the optical network. By 2002, close to 160k WAN 10GE switching ports will be required. Over 200k server area networks will need networks links at 10gigabit. Projects 3.5billion in revenue for 2004. Sources are provided in the presentation on the web.

Question
- Explain the configuration on the WAN: POPs today are being built with 10gigabit switches/routers.
- How are you talking about unifiying the LAN,WAN PHY: The WAN Ethernet needs to be covered to make integration into the WAN easier. He is not proposing a solution that we have a single LAN WAN PHY.
- Comment – LAN market is bigger then what Nan is including.

http://grouper.ieee.org/groups/802/3/ae/public/mar00/chan_1_0300.pdf

5. Terminology Ad Hoc
   By Brad Booth for David Law (3COM) who was not able to attend
   Start Time: 9:52

Summary: Review Discussion of WAN PHY Definitions.
Jonathan would like to introduce this during motion madness and update the older version currently posted on the web site.
http://grouper.ieee.org/groups/802/3/ae/public/mar00/law_1_0300.pdf

6. 802.3ae Document Structure
   By Brad Booth (Intel)
   Start Time: 10:00

Summary: Overview of the document architecture. What is implemented is not always easy to document. This proposal will be introduced during motion madness to try to lock down the layer model.

Comment – It is highly likely we will have to touch clause 5 because most of the management stuff is there.

Break
Return from break 10:37
Jonathan – The survey was a complete disaster because 50% filled it out incorrectly. We will review the rules and try filling out the survey again.
http://grouper.ieee.org/groups/802/3/ae/public/mar00/booth_1_0300.pdf

7. XAUI/XGXS Proposal
   By Rich Taborek (N-Serial)
   Start Time: 10:49

Summary: Proposal defines the proposed XGXS functions, as well as the XAUI functions. The new XGXS block allows for an extension of the XGMII to the PCS layer. The proposal recommends the HARI 4-lane 8b10b concept as the XAUI. Indicates the idle spectral content may not be a problem because of the control codes envoked.

- There was a question asking if the 'A' code would effect clock detection. Rich felt the IPG min KRA would make this easier.
- How does XAUI effect Fibre Channel and Infiniband: Doesn't feel there is a problem with Fibre Channel, but does not know about Infiniband.
- Comment on auto-negotiation : Currently not in discussions.

http://grouper.ieee.org/groups/802/3/ae/public/mar00/taborek_1_0300.pdf

8. UniPHY Update
   By Howard Frazier (Cisco)
   Start Time: 11:16

Summary: Discusses a WAN Interface Sub-layer (WIS) that can be inserted between the 64/66 codec and the SERDES.

- Is there any way to get rid of the flag characters: Howard does not think there are any flag characters involved here.
- Issue with the definition of WIS: Several choices of what is in here – full SONET layer of some sub-set of the SONET layer. We need to establish this.
- Where do we see the span lengths in the WAN: Does not have a hard opinion on the range of the SONET infrastructure.
- Why did you leave the 64/66 in: good frame delimiters and the ability to pass codes through.

http://grouper.ieee.org/groups/802/3/ae/public/mar00/frazier_1_0300.pdf

9. Proposal for a MAC/PHY Rate Control mechanism
   By Shimon Muller (SUN)
   Start Time: 11:44

Summary: Notes that Self-Pacing open loop rate control is cheaper/simpilar to implement, but that busy-idle closed loop rate control is more flexible.

- Comment: We still need a buffer in the PHY.
- You assume the average data rate of the PHY is known by the MAC – I didn't get this.
- Something on the IPG length – I didn't get this which indicates speakers need to speak clearer.

http://grouper.ieee.org/groups/802/3/ae/public/mar00/muller_1_0300.pdf

Break for Lunch

10. Why WAN PHY
    By Nan Chen for Paul Bottorff (Nortel)
    Start Time: 1:11

Summary: Discussed the over-all necessity of a WAN PHY and its implementation into the WAN environment.

http://grouper.ieee.org/groups/802/3/ae/public/mar00/bottorff_2_0300.pdf

11. WAN PHY Connections and Requirements
    By David Martin (Nortel)
    Start Time: 1:28

Summary: David discusses the requirements of a WAN PHY in various SONET applications for the PCS, PMA, and PMD. The current SONET rates for DWDM is 2.48832gbit or 9.95328gbit, but in the future, there are other speeds that we will have to consider.

- Have you given any thought to using a digital wrapping: This is being discussed in ITU-T SG13 and SG15 but does not relate to this layer.
- Please define digital wrapper: I didn't get this. The digital wrapper is layer 0.

http://grouper.ieee.org/groups/802/3/ae/public/mar00/martin_2_0300.pdf

12. 10GigE PCS to PMA Interfaces
    By Norival Figueira for Paul Bottorff (Nortel)
    Start Time: 1:40

Summary: Norival discusses a common PMD interface for all PHY devices. He believes that HARI is too high in layer stack. The proposal presents a lower stack simple Universal PMD Interface 4bits wide at 2.5gigabit, up to 20 inches in length. The goal is to unify or provide a common interface for the PMD to the LAN or WAN PHYs.

- How does this handle and propagate errors: Errors on the SUPI – there is no method defined to detect errors.
- How do you propagate an error up: There is no mechanism to hide the error so the PHY would intercept it.
- There was a question on the de-skew that I missed.

- Are you assuming AC coupling on the SUPI: Only assumes a PRBS. The run length will be determined by the code scheme.

http://grouper.ieee.org/groups/802/3/ae/public/mar00/bottorff_1_0300.pdf

13. 10GE WAN PHY: PMA
    By Norival Figueira for (Nortel)
    Start Time: 2:00
    Summary: Introduces a 16bit interface for the PMD. Introduces a minimum Transport Over-head need for the LAN solution to support the WAN. This proposal defines the section overhead, line overhead, and path overhead required for the SONET infrastructure. Essentially, a set of rules to be satisfied by a PMA frame synchronization process is defined. After the frame is formed, everything is scrambled except the first row of the transport overhead.
    http://grouper.ieee.org/groups/802/3/ae/public/mar00/figueira_1_0300.pdf

14. Fiber Survey Report
    By Chris Di Minico (CDT)
    Start Time: 2:40
    Summary: Purpose was to define the installed cable plants and be completed by network managers. Building to building distances for the cable product in a campus environment is less then 2km. Most fell within 1km. Most backbone distances fell under 200meters. All of the backbone cables fell under 300meters in the survey.

- Rich Tolley was disappointed with the number of companies that supported the survey, yet failed to participate in the survey.

Break until 3:10

15. Simple Link Protocol
    By Tom Truman (Lucent)
    Start Time: 3:12
    Summary: The IPG control words are enough to determine the start and end of a packet. 8B10B Spectral content can cause an astronomical cost increase in controlling EMI.

- in 8b10b a bit error at the eof is easy to detect, but in SLP, you won't know you are back to idle: We can tolerate up to three bit errors. There is a state machine that runs a counter and can put you back into a sync state to look for the idle.
- Missed this one.
- If you detect you generate a T flag that the packet is retransmitted: The packet is retransmitted.
- If you miss the Inner Frame Delimiter, you can miss stuff until the counter gets in sync: Feels this will be detected immediately.
- How quick to sync: You sync the very next IPG – a one packet penalty.
- Comment – just as much an issue to miss IPG in 8b10b then in this scheme. The re-sync is different.
- Comment – disagree because 8B10B has a start bit to delineate the packet.
  http://grouper.ieee.org/groups/802/3/ae/public/mar00/azadet_1_0300.pdf

16. SLP: Delineation performance
    By Kamran Azadet (Lucent)
    Start Time: 1:40
    Summary: Discusses the probability of false packet not detected in SLP. Link synchronization loss is also discussed. Also, with re-sync, in 8B10B, the idle is sought. For SLP the re-sync time is a probable one packet delay. A final comparison is made of SLP vs 8B10B.

- In hunt mode you search for 12 idles, don't you search for 11: Kamran indicates the calculates were based on 12 idles.
- Probability with false match will increase as bit error goes up, can we test with minimum IFD. I missed this, but it was responded that SLP offers 3bit error tolerance.

- Comment from Kamran: Tom Truman's presentation has a table that shows the Hamming distance for error correction ability.
- I missed this one, but it regarding start of packet and error detection.
  http://grouper.ieee.org/groups/802/3/ae/public/mar00/azadet_2_0300.pdf

17. Performance Data for Serial I/O
    By Joel Goergen (Lucent)
    Start Time:
    Summary:
    http://grouper.ieee.org/groups/802/3/ae/public/mar00/goergen_1_0300.pdf

18. Refinements to the PMA for 10GE WAN PHY
    By Enrique Hernandez (Lucent)
    Start Time: 4:18
    Summary: Essentially presents a WAN PHY similar to the Nortel Proposal.

- What do you get with a large IPG: I didn't' understand this.
- Comment: Similar to Nortel proposal and thought is the differences could be resolved off line. The differences between the two are in the type field and in the payload.

http://grouper.ieee.org/groups/802/3/ae/public/mar00/hernandez_1_0300.pdf

19. PMD Interface Options
    By Stu Robinson (PMC Siera)
    Start Time: 4:29
    Summary: Proposes that a standard interface exists between the PMA and PCS.
    http://grouper.ieee.org/groups/802/3/ae/public/mar00/robinson_1_0300.pdf

20. WAN PHY Approach Proposal
    By Osamu Ishida (NTT)
    Start Time: 4:36
    Summary: First proposal using feed forward rate control implements a 9.58gigabit data rate all the way through to the source LAN PHY. This makes WAN implementation easier, but means we have to add rate provision. Second proposal has LAN over WAN where the IPG is removed and replaced by line and section information. At receiver, the line and section is replaced with the IPG. We would need to define IDLE extension and IDLE transparency.
    http://grouper.ieee.org/groups/802/3/ae/public/mar00/ishida_1_0300.pdf

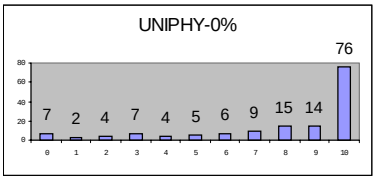
21. MB810 Implementation for HARI
    By ChanGoo Lee (ETRI/CNU)
    Start Time: 5:03
    Summary: Indicates that MB810 shares similar characteristics with 8B10B, but consumes half the bandwidth. This is accomplished by enhancing the 101010 to 11001100, etc. Block coding is tight bound in run length and provides relaxation on the receiver PLL. There is absolute freedom from DC wander. 8B10B/MB810 is deterministic and predictable in performance, offers less jitter, and longer distances.
    http://grouper.ieee.org/groups/802/3/ae/public/mar00/lee_1_0300.pdf

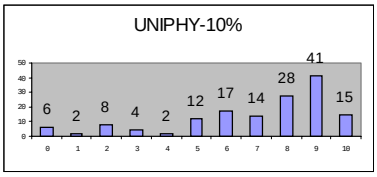
22. HARI Word Stripe Coding Issues and Status
    By Mike Jenkins (LSI)
    Start Time: 5:24
    Summary: To present an issue with the striping: word striping as opposed to byte striping. Word striping avoids the need to de-skew because a word rate clock from a single core can latch data for all cores into the FIFO.
    http://grouper.ieee.org/groups/802/3/ae/public/mar00/jenkins_1_0300.pdf

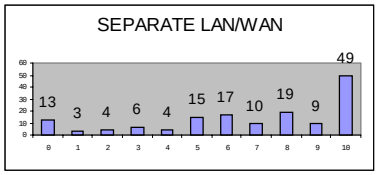
23. Jonathan's Survey results
    By Ben Brown (Nortel)

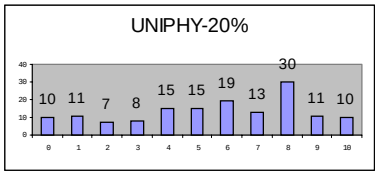
Start Time: 5:36
Summary: Joel will include these in the minutes.

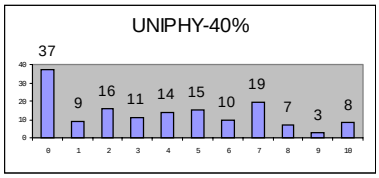
Survey results can be found on the web at:
http://grouper.ieee.org/groups/802/3/ae/public/mar00/brown_1_0300.pdf
Following are what was presented at the meeting:
Regarding question#1:

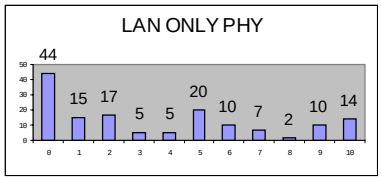


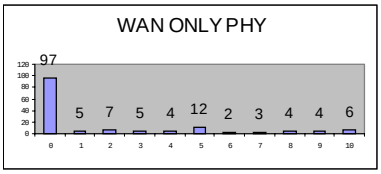




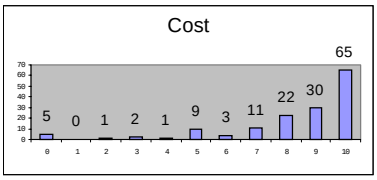


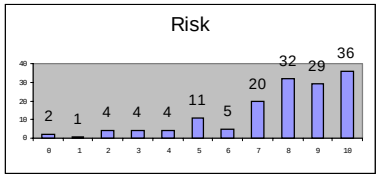


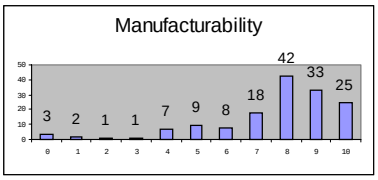


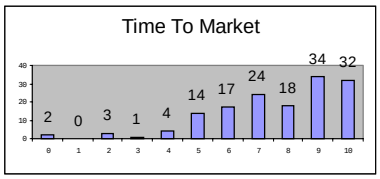


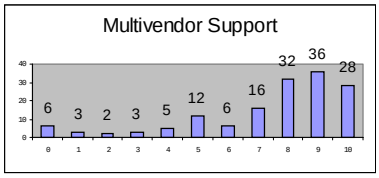
Regarding question #2:

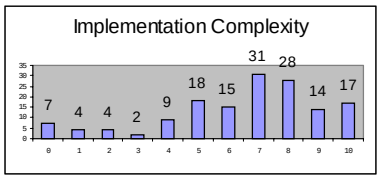


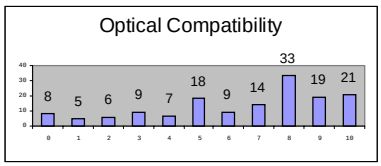


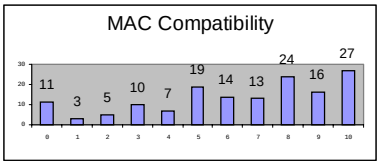


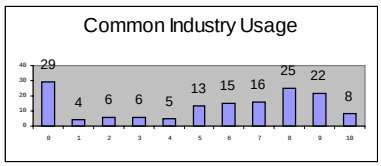


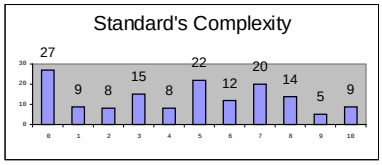


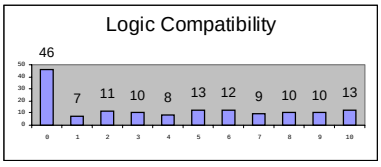


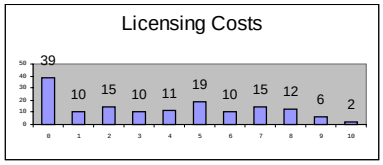












Wednesday 8March00 8:20 Start time

Opening comments:
Adding Presentations:
- Haluk Aytac (CHIP2CHIP) was added to the list of presenters because we will have some extra time.

Database of members:
Jonathan is asking if we want to have a database in the protected password area that lists all the members and contact information for .3ae. A quick vote indicates people are okay with this, except for about 10 people.
- Bob Grow is thinking the easiest way is to take the attendance database and use that. Jonathan does not want to do this. We need to give people the right to stay out of this published/private database.
- Jonathan is looking for software to help do this.
- We will take up this discussion later. There were many people who indicated their fear that this list would make it into the hands of a technical recruiter.

24. T1X1.5/99-268r1 Overview
    By David Martin (Nortel)
    Start Time: 8:30
    Summary: A proposed methodology for mapping Ethernet frames intact into SONET payloads. David points out that there is a shared bandwidth SONET emerging that muxes several 802.3 feeds into the SONET path. This creates a need to have client signals encapsulated in the SONET frame. By having a uniform mapping approach, load balancing/planning is easier and equipment costs can be minimized.

- Does it support VLAN tags 802.1q: That was not spelled out in this contribution, but that was the intent.
- VLAN tags: This would be carried in the payload.
- Comment: experiments show VLAN q tag has remained in tact (Roy).

http://grouper.ieee.org/groups/802/3/ae/public/mar00/martin_1_0300.pdf

Jonathan has received a letter from HP that it will give the appropriate license to companies in a fair manner. See Jonathan for the content of the letter.

25. 64B/66B Coding Update
    By Rick Walker (Agilent)
    Start Time: 8:52
    Summary: Rick calculated the mean time to false packet acceptance is about 7 orders higher then GigE at the same 10^-11 BER. This gives us some margin to reduce the BER and perhaps use the margin somewhere else. In review of the code/decode block, a PLL/detector concept is introduced that could eliminate the clock concerns. A considerable amount of VERILOG has been written and they will begin generating test vectors.

- Rick points out an error in code summary slide 'Z6 Z6' should be 'Z6 Z7'.
- How does word alignment happen at start-up: Will introduce this at the next meeting. Thinks we could bit slip 64 times before we find the start.
- Can you hunt in one direction looking for the start: Yes- do this 64 times max and you should find the start.
- 8b10b followed by 64/66 – XAUI over copper should have better BER then on the fiber side. Maybe that 8b10b over the back-plane will not be the limiting factor. I did not get all Shimon's question.
  http://grouper.ieee.org/groups/802/3/ae/public/mar00/walker_1_0300.pdf

26. Serial LAN PHY Proposal
    By Vipul Bhatt (Finisar)
    Start Time: 9:16
    Summary: Defines a serial LAN PHY that uses an 8B10B XAUI on the MAC side and a 64/66 on the PMD side. He introduces changes to the GigE link model, discusses an implementation model, and discusses future work in link model changes and refined jitter numbers.

    - Supports objective to reach five PMDs. Supports one clause.
    http://grouper.ieee.org/groups/802/3/ae/public/mar00/bhatt_1_0300.pdf

27. 850nm Serial Link performance on MMF
    By Jason Yorks (Cielo)
    Start Time: 9:43
    Summary: Jason reviews the package for the low cost VCSEL. He reviews the test set-up. Then displays the eye pattern results at 10.3gigabit and 12.5gigabit. There is confidence that 850nm VCSEL technology will provide a robust and cost effective solution.

    - Comment: The VCSEL was not driven through fr-4, but just a coax so it does not demonstrate a real system.
    http://grouper.ieee.org/groups/802/3/ae/public/mar00/yorks_1_0300.pdf

28. VCSEL Based 10 Gigabit Serial Solution
    By Jack Jewel (Picolight)
    Start Time: 9:49
    Summary: Jack reviews the 850nm VCSEL over 100m, 300m, and 400m of MMF at 10gigabit speeds. Alignment sensitivity is discussed. Review of the link budget in terms of Reach VS Fiber Modal Bandwidth. Conclusion is that there are many suppliers that have demonstrated success in the 850nm VCSEL 300m fiber solutions. Tests in the long wave VCSEL are demonstrating excellent results and show promise in thermal and power management. More testing will be done. They expect 1300nm VCSEL available in late 2000.

    - Who is making 1300nm VCSEL: Gore and Picolight … others should come out of the closet soon.
    http://grouper.ieee.org/groups/802/3/ae/public/mar00/jewell_1_0300.pdf

    Break-time 10:00am

29. Regis Colla
    By Regis Colla (Alcatel)
    Start Time: 10:21
    Summary: They have evaluated the GORE 850nm VCSEL over Alcatel fibers and show good results.

    - This data is for the new generation of multi-mode fibers and does not reflect the install base.

30. 10GBE WWDM Interest Group is Formed
    By Dan Rausch (Agilent)
    Start Time: 10:31
    Summary: Introduces the interest group formed of over nine companies. Dan discusses a WWDM 4 channel long wave/short wave proposal and indicates it is cost effective.

31. Evaluating CWDM 10GBASE-SX
    By Bill Wiedemann (Blaze)
    Start Time: 10:40

Summary: Bill Discusses a 4 channel CWDM PMD solution for short wave and long wave that is cost competitive with 10gigabit serial. He demonstrates the technical feasability and describes remaining issues yet to discuss. Also indicates there is more work to be done in terms of jitter, etc.

- Comment: concern on objectives comparison and costs.
- Will this be the only use for this type of laser: Not sure.
- Comment: there are other applications and this is really no different from other wavelength parts.
  http://grouper.ieee.org/groups/802/3/ae/public/mar00/wiedemann_1_0300.pdf

32. 10Gb/s PMD Using PAM-5 Trellis Coded Modulation
    By Oscar Agazzi (Broadcom)
    Start Time: 10:56
    Summary: Presents a PAM-5, 5Gbaud signaling rate PMD solution. Decision Feedback Equalization is added to the transmitter, Trellis-coded modulation is added, and a forward equalizer is used at the receiver. The proposal uses a fully parallel DSP implementation using a 312.5mhz clock rate.

- Why PAM-5 over PAM-4: Wants to introduce Trellis coding, which requires more then the symbols allowed in PAM-4.
- Laser linearity: indicates the models do use some non-linear effects in the laser modeling, but states more work needs to be done here.
- Experiments to verify this: Yes, they are working on experiments to verify the feasability
- What difficulty is there in doing this experiment: Have not had time – not a difficulty issue.
- What is the bandwidth requirement of the input filter: Pole position is 200mhz at 3db. Assumed bandwidth is 1ghz.
- The 16 AD 6bit is very difficult: discussed in following presentations.
- Comment: Not less complicated then a 1000baset transceiver. Seems there is disagreement over the complexity.
- Is non-linearity in the analog included in the simulations: yes.
- RIN –130db – how would those signals be effected with the introduction of modal noise: They will address this in future presentation. It is an issue to address.
- Comment: Channel is highly non-linear, so some details within the model and trellis coding may not be valid/appropriate.

http://grouper.ieee.org/groups/802/3/ae/public/mar00/agazzi_1_0300.pdf

33. Parallel Implementation of the DSP Functions of the PAM-5 10Gb/s Transceiver
    By Keshab Parhi (Broadcom)
    Start Time: 11:42
    Summary: Addresses the digital implementations for PAM-5 Transceiver. Parallel implementation of pre-coder is difficult, but look-ahead techniques can be used. Power consumption for implementation is about 2watts.

- Process: .13un
- Power at .25un: about 8watts
- CMOS tech available for production: end of year.
- Pre-coder stability: Should stay stable because of the additional feed-back loop.
  http://grouper.ieee.org/groups/802/3/ae/public/mar00/parhi_1_0300.pdf

Lunch – back at 1pm

34. Analog Interface for 10Gb/s Ethernet
    By ?? for Pieter Vorenkamp (Broadcom)
    Start Time: 1:06
    Summary: This presentation covers the pre-coding through the DAC and to the fiber transmitter, then at the fiber receiver, through a filter and into the ADC. The DAC is a current mode DtoA. This technology can be implemented in CMOS technology.

- It was pointed out that the presentation has 'Broadcom Confidential' at the bottom of each slide. The speaker apologized for this and indicated it should not be there and is 'not' on the handouts we all received.
http://grouper.ieee.org/groups/802/3/ae/public/mar00/yousefi_1_0300.pdf

35. Are Lasers Linear Enough for PAM-5 over Optics
By Siva Yegnanarayanan (Cogent)
Start Time: 1:27
Summary: Siva's conclusions are that VCSEL's have a linearity that should be sufficient for sub-octave analog transmissions. There are some open issues regarding PAM-5 over optics: 2 and 3 order distortions, mode losses, linearity of photo-detector, wavelength accuracy.

- The presentation for this will not be available on the web until a letter is received for copy right permission.
http://grouper.ieee.org/groups/802/3/ae/public/mar00/index.html

36. 850nm-4WDM-1.25Gbaud transceiver over multi-mode fiber for 10GbE
By Jaime Kardontchik (Micro Linear)
Start Time: 1:46
Summary: Jamie describes the main advantages of this proposal as cost effective to other solutions, uses 1000Base-T PCS, compatible with DFE for those that wish to use them, will work on the current install MMF base. He indicates there are open issues such as Laser Linearity and the coding option.

- Comment: The noise bandwidth ???
- Arrival of signals – is there a de-skew problem: Can handle a skew of seven symbols (I don't think I heard this right) Broadcom presentation covers some of this.
http://grouper.ieee.org/groups/802/3/ae/public/mar00/kardontchik_1_0300.pdf

37. Laser Safety Update
By Paul Kolesar (Lucent)
Start Time: 2:02
Summary: Discusses the IEC 60825 Part 1 – Basic Standard that may become effective in September 00. This new draft defines two new classes: Class 1- safe even if viewed with instruments, and Class 1M – Safe if not using instruments. The new exposure limits, if approved by the appropriate approving bodies, could provide relief in the link budgets. Basically, we may receive an additional 2.5dB to work with. Then Paul discusses IEC 60825 that covers limitations on classes of energy accessible within controlled, restricted, and unrestricted locations. Paul will present a motion asking for authorization for the Chair of 802.3 to write a letter to various approving bodies to determine their position and possible granting of variance.

- Comment: Not clear that class 1 will apply to optics.
- Comment: May need to look at analysis down to 830nm vs 840nm. – Paul indicates this has to do with the peak bandwidth available at the fiber. Paul will take this off-line.
http://grouper.ieee.org/groups/802/3/ae/public/mar00/kolesar_1_0300.pdf

Break time 2:18 – be back in 20minutes

38. Evaluating Open Fiber Control
By Ken Herrity (Blaze)
Start Time: 2:46
Summary: Ken describes an open fiber control state machine that allows low power transmit until detection and then full power after detection. The power must stay under safe levels during fiber detection. This concept, or one like it, can be implemented in all PMD designs.
http://grouper.ieee.org/groups/802/3/ae/public/mar00/herrity_1_0300.pdf

39. More Thoughts on Open Fiber Control
    By Jonathan Thatcher (World Wide Packets)
    Start Time: 2:56
    Summary: Jonathan points out some history on Open Fiber Control used by IBM in the AS/400 product family. Later, this was adopted by fibre channel. Eventually, this feel out of favor within fibre channel community for link time, arbitrated loop, and timing specifications. Jonathan goes on to describe an implementation for multi-laser solutions. Serial is slightly more difficult. Power up into a lower bias level and then bias higher upon detection. Points out that the receiver may have to have a higher dynamic range.

- If all the lasers in a wdm are eye safe, why have this: Because all lasers running in parallel may not be safe. For the serial case, power up at quarter power.
- Comment: You don't need a special case for PAM-5 – true under muli-lasers, not true for a single laser with multi-colors.
- Have you given any thought to the hand shake: No and doesn't want to yet.
- Does this have to be redundant, it was in the old days: (I missed the answer)
  http://grouper.ieee.org/groups/802/3/ae/public/mar00/thatcher_1_0300.pdf

40. Enhancements to Gigabit Ethernet Link Budget Spreadsheet
    By Piers Dawe (Agilent)
    Start Time: 3:14
    Summary: Piers indicates the spread sheets are available on the web **(insert URL**). Piers indicates that we need more experimental verification and that there is some accuracy issues with the 1550nm attenuation formula. Use the spread sheet as you always have and place BLW at zero if you don't care about it.

- Combining the penalties seems to give you more then adding them: Surprised by this, but appears to be the case. More work needs to be done in f=verification.

http://grouper.ieee.org/groups/802/3/ae/public/mar00/dawe_1_0300.pdf

41. MPN Penalty Considerations
    By Petar Pepeljugoski (IBM)
    Start Time: 3:31
    Summary: Petar indicates that the approximation for MPN in the Link Budget Spread Sheet is not an accurate approximation based on simulation and formula analysis. The results show that the old model gives an MPN of 2.11dB and the new corrected formula model gives an MPN of .17dB. Also, the use of continuum of modes approximation may underestimate the MPN penalty for some lasers.

    - Can we apply this to lasers with multiple modes ie four or five – complicated but yes. (I don't think I captures this correctly)
    http://grouper.ieee.org/groups/802/3/ae/public/mar00/pepeljugoski_1_0300.pdf

42. Hierarchical Decoding of Parallel Serial Streams
    By Haluk Aytac (Chip2Chip)
    Start Time: 3:47
    Summary: Suggests we use different control characters for byte alignment, clock skew, and lane matching. We will also need something for Inter Packet Gap.

- The coding is similar to infiniband, but in infiniband takes one out and puts one in on all four at the same time so is not like the picture shown: yes
- This coding is not similar to the XAUI: (I wasn't clear on the answer - I think it was no)

http://grouper.ieee.org/groups/802/3/ae/public/mar00/aytac_1_0300.pdf

May Meeting in Ottawa: We will have three full days, including nights.
- Stage for July final selection of proposals.
- Identify final candidates
- Consolidate proposals and identify clause structure

The May meeting will be the staging time for all this. Detail presentations will probably not be generally allowed.

Issues with Names:
LAN PHY and WAN PHY names do not correctly represent the objectives.

Define WAN PHY:
ADD Jonathan's text here
http://grouper.ieee.org/groups/802/3/ae/public/terminology.pdf

Motions:
1. Terminology: Propose we direct David Law to replace the old terminology doc with the new one and have these words added:

ADD Jonathan's text here
Does anyone have a problem with this: NO

2. By Paul Kolesar (Lucent)

Motion for Liaison letter to FDA
- Request the chair of P802.3ae TF to present the following motion to 802.3:
- Authorize chair of IEEE 802.3 to send a liaison letter to the appropriate laser safety official at the FDA/CDRH (Jerome Dennis) which encourages the adoption of the new laser safety requirements and requests input on
  - FDA/CDRH intent to harmonize with IEC revisions
  - Possible time line for completion of the harmonization
  - Policy of granting variances to the FDA/CDRH requirements prior to IEC standard harmonization
  - Interpretation of the applicability of class 1M to fiber optic communication systems

Moved by Paul Kolesar (Lucent)
Second by Steve Swanson (Corning)

Jonathan would like to see us adopt this, which is more strongly then what Paul is asking for. Paul Agrees and is changing his motion.

Jonathan considers this motion technical and requires 75% to pass.
Yes: 44+28+66=138 No: 0 A: 1 Motion Passed

Paul did not forward to me his overhead version.

3. By Walt Thirion (Jato)

The P802.3ae TF shall reduce the number of distinct PMDs (independent of PMA, PCS, and other upper layers) being worked on to no more then seven by the end of the July, 2000 P802.3ae task force meeting and no more then four prior to working group ballot. Application of the P802.3ae objectives shall be the primary filter.

Moved by Walt Thirion (Jato)
Second by Brad Booth (Intel)

Roy – Aren't there five distinct distances in the objectives? While there are five distance requirements does not mean that there should be five different PMDs.

Bruce – York adhoc that got together to generate criteria and should this be added? Walt thinks these are covered in the five criteria.

Discussion/comment: If two PMDs can be connected and they operate at that level, they should be considered the same PMD.
Does this make each PMD specific to the PHY? Not what is being discussed.

Pat - Feels the five criteria are too vague.

Changoo – Wants to make sure we are clear about PMD and PCS independencies.

Paul – Wants to include the work done in York. But we can't because we have not accepted that criteria.

Yes: 37+39+19=95 No: 8+24=32 A: 20 FAILED

Final motion as recorded on the overhead projector:
Motion #3

The P802.3ae TF shall reduce the number of distinct PMDs (independent of PMA,PCS and other upper layers) being worked on to no more than 7 by the end of the July, 2000 P802.3ae Task Force meeting and no more than 4 prior to Working Group Ballot. Application of the P802.3ae objectives shall be the primary filter.

Fewer is better!

Moved: Walt Thirion
Second: Brad Booth
Technical: >75%
FOR: 95 AGAINST: 32 ABSTAIN 20

4. By Pat Thaler (Agilent)
The P802.3ae TF shall reduce the number of distinct PMDs (independent of PMA, PCS, and other upper layers) being worked on to no more then seven by the end of the July, 2000 P802.3ae task force meeting. The expectation is there will be fewer then seven by working group ballot. Application of the P802.3ae objectives shall be the primary filter.

Moved by Pat Thaler (Agilent)
Second by Shelto Van Doorn (Infinion)

Pat considers
Yes: 21+53+64=138 No: 3 A: 6 Motion PASSES

Final motion as recorded on the overhead projector:
Motion #4

The P802.3ae TF shall reduce the number of distinct PMDs (independent of PMA,PCS and other upper layers) being worked on to no more than 7 by the end of the July, 2000 P802.3ae Task Force meeting. The expectation is there will be fewer than 7 by Working Group Ballot. Application of the P802.3ae objectives shall be the primary filter.

Fewer is better!

Moved: Pat Thaler
Second: Shelto Van Doorn
Technical: >75%

FOR: 138 AGAINST: 3 ABSTAIN: 6

5. By Steve Haddock (Extreme Networks)
In light of the request for the P802.3ae task force to recommend to the 802.3 WG a response to the request for a liaison letter to T1X1.5 concerning T1X1.5/99-267 and T1X1.5/99-268r1, move that:

The chair of 802.3WG responds to T1X1.5 with the following modified letter and any appropriate edits:

Response to liaison communications from T1X1.5 dated October 8, 1999, requesting feedback in reference to T1X1.5/99-267 and T1X1.5/99-268r1.

P802.3ae Task Force (TF) has an objective to develop a WAN PHY, operating at a data rate compatible with the payload rate of OC-192c/SDH VC-4-64c. A number of proposals for mapping 802.3 MAC frames into the SONET payload have been presented to the P802.3ae TF.

At this time the TF has not yet selected the set of baseline proposals as the basis for the standard. Therefore, it is premature to communicate any particular direction to T1X1.5. After the selection is complete, 802.3 will communicate this information to T1X1.5.

Moved by Steve Haddock (Extreme Networks)
Second by Ben Brown ()

Roy – Suggests we remove the premature part and add a we will be glad to observe …
Word change from recommend to communicate.
Question called
Move we approve by acclimation: PASSES

Final motion as recorded on the overhead projector:
Motion # 5

In light of the request for the P802.3ae task force to recommend to the 802.3 WG a response to the request for a liaison letter to T1X1.5 concerning T1X1.5/99-267 and T1X1.5/99-268r1, move that:

The chair of 802.3WG responds to T1X1.5 with the following modified letter and any appropriate edits:

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At this time the TF has not yet selected the set of baseline proposals as the basis for the standard. Therefore, it is premature to communicate any particular direction to T1X1.5. After the selection is complete, 802.3 will communicate this information to T1X1.5.

Moved: Stephen Haddock

Second: Ben Brown
Technical: >75% PASSED BY ACCLAMATION
FOR: AGAINST: ABSTAIN: