Minutes of the Interim Meeting
of the
Power Via the MDI Study Group
20-21 January, 2000

The meeting was called to order by Steve Carlson, chairman at 8:35 AM, 20 January 2000.

The agenda was presented to the group. There were no additions to the agenda presented.

Administrative issues discussed included the email address for the mail list and instructions for subscribing, the URL for the web page, voting membership requirements and presentation guidelines.

The objectives for this meeting were identified as:

1. Continue the definition of the constraints.
2. Examine and set bounds to the problem space.
3. Establish a list of decisions which need to be made and identify:
   - what information is needed to reach consensus
   - how do we gather required the information
   - is it possible to gather the information or must we make a "good faith" estimate based on available data

Future meetings were discussed. The next plenary is in Albuquerque, NM in March. The next interim meeting is in Ottawa, Canada in May. It is possible that the May meeting may be the last for the presentation of new ideas. The Albuquerque plenary should see the status of the group change from a Study Group to a Task Force.

It was also stated that the NESCOM meeting, wherein the PAR should receive final approval, will be held next week.

A long-term objective of the group is to have the standard accepted in September of 2001.

The members of the study group were then asked to introduce themselves. The attendance books for voting status were also circulated at various times during the day.

Presentations were then begun.

1. Henry Hinricks of Pulse.
2. Mike Nootbaar of TDK Semiconductor.
3. Nick Stapleton of 3COM.
4. Amir Lehr of PowerDsine.
5. Dan Dove of HP.
6. Robert Leonowich of Lucent.
7. Robert Leonowich of Lucent.
8. Elwood T. Parsons of AMP.
9. Howard Frazier of Cisco.
10. Arlan Anderson of Nortel.
11. Jennifer Rasimas of Nortel.

A series of straw polls were next conducted to try to determine the sense of the study group on several issues. The following are the results of those polls.

1. Prefer power to be provided over the “idle pairs” (In Favor: 14)
2. Prefer power to be provided over the “signal pairs” (In Favor: 11)
3. Unsure of their preference as to idle pairs or signal pairs (In Favor: 12)
4. Prefer power to be provided via “phantom” methods regardless of the pair selected (In Favor: 32, Opposed: 0, Abstaining: 14)
5. Prefer two pair powering where, regardless of the two pairs selected, each wire in the pair is at the same potential and the power supply potential is between the two pairs selected: (In Favor: 39,Opposed: 0,Abstained: 2)

It was next decided to try to create a list of decisions that must be made in order to create this standard. The following is the list of these decisions.

1. Max Voltage (Objective #5)
2. Max and Min Current (Objective #5)
3. Do we need Classifications and if so, how many. (6?)
4. Detection to be made on the same pair as power
5. Which pairs (Objective 7)
6. Support for two pair legacy systems (Objective 7)
7. Support for 1000BaseT (Objectives 1&9)
8. Determine fault behavior
9. Determine type of discovery mechanism
10. Single or multi-tiered discovery mechanism
11. Of the known RJ-45 devices can we determine which can we live with
12. Do we support mid-span insertion
13. AC or DC
14. Should we define a standard means to provide optional visual indications of the ability to supply power from a connector and/or is it currently providing power.

The following action item(s) were generated today:

1. Determine the Japanese safety limits for voltage, etc. and also any loop resistance limits – Assigned to Geoff Thompson of Nortel.

The first session of the interim meeting was adjourned at 4:30 PM.

The second session of the interim meeting was called to order by Steve Carlson at 8:36 AM on 21 January, 2000.

There were initially several straw pools taken by the chairman to determine the sense of the committee. The following are the results.

Straw Poll –

- In Favor of the powering pair(s) and the sensing pair(s) being the same:32
- Opposed: 0
- Don’t Know: 1

Straw Poll –

- In favor of DC to DTE: 34
- Against DC:0
- In Favor of AC to DTE: 3
- Against AC: 17
- Further Study: 18

Straw Poll – Voltage

- In Favor of keeping the max voltage within the SELV limits of IEC 950: 39
- In favor of exceeding the max voltage within the SELV limits of IEC 950: 0
- Don't know: 0

Straw Poll – Max Voltage

- In favor of lowing the max voltage below SELV if required by some country to approximately 40 VDC: 25
- In favor of keeping maximum at IEC 950: 9
- Don't know: 7

A presentation was then given by David Law of 3COM concerning the number of wire pairs available to the DTE at the desktop. The primary conclusion of the presentation is that there is no reliable data on the number of pairs available.

A presentation was then give by Geoff Thompson of Nortel Networks. This presentation was a preview of a presentation to be given to SC25/WG3 concerning wiring. It contained information about the sense of this study group and was edited by the group to present the current views and to ask the experts for advice in certain areas.

A view of the long term schedule for the study group/ task force was then presented by the chairman for the group's review. Two critical dates were identified as:

- Last new proposal accepted in May 2000
- First draft produced in June 2000

These dates underscored the urgency of action for the group. In order to meet these dates, the chair again conducted a straw poll to get a sense of the group relative to which pairs should be used to carry the power to the DTE. The results are as follows.

Straw Poll –

- In favor of a two pair standard based on pins 1,2,3, and 6: 10
- In favor of a four pair standard based on powering pins 4,5,7 and 8: 13
- In favor of a standard that can support both of the above with DTE supporting both: 3
- Undecided or abstain: 3

It was decided because of the split nature of the positions that there needed to be one last attempt to gain information relative to the availability of pairs to the desktop. It was also deemed needed that information gathered by actual testing to determine if mid-span insertion of power could be performed if the signal pairs were used without unexceptable signal degradation. See action items below.

Several motions relative to consensus were next presented and voted upon. The following are the results.

Motion 1 –

Without specifying the two and only two pairs to be utilized for DTE power, DTE power shall utilize two pair powering where each wire in the pair is at the same nominal potential and the power supply potential is between the two pairs selected.

Moved: Michael McCormack
Second: Henry Hinrichs
Technical – 75% Required
Yes: 23 Opposed: 4 Abstains: 3 Total attendance: 33 Time: 1:42 PM 1/21/00

Motion 2 –

Regardless of the detection scheme adopted and the power feed scheme adopted, the power detection and the power feed shall operate on the same set of pairs.

Moved: Michael McCormack
Second: Dave Richkas
Technical – 75% Required
Yes: 31 Opposed: 0 Abstaining: 1 Total Attendance 33 Time: 1:47 1/21/00

Motion 3 –

Regardless of the final voltage selected, the DTE power max voltage shall not exceed the limits of SELV per IEC 950.

Moved: Michael McCormack
Second: Nick Stapleton
Technical 75% required
Yes: 30 Opposed: 0 Abstain: 1 Total Attendance 33 Time 1:50PM 1/21/00

The purpose for these motions was to solidify those issues about which there was agreement so as to permit the work to proceed without re-opening the issues at a later time.

Next a series of straw polls were again taken to determine the sense of the group. The results follow.

Straw Poll – Desired delivered power

- 5 Watts: 0
- 7.5 Watts: 0
- 10 Watts: 8
- 15 Watts: 9
- 20 Watts: 2
- 25 Watts: 0

Straw Poll – Minimum acceptable delivered power

- 5 Watts: 4
- 5 Watts is too low: 19

- 8 Watts: 13
- 8 Watts is too low: 3
- 10 Watts is too low: 0

Plans for the next meeting of the group at the Plenary session were discussed but no concrete decisions were made.

The action items from the previous meeting were reviewed and Henry Hinrichs of Pulse closed out two questions from that list.

- Would there be any false positive indications into a Token Ring RJ45 – No.
- Would there be any damage plugging into a Token Ring RJ45 – No.

New Action Items were then presented.

1. Determine the international limits for voltage/etc. safety and loop resistance limits – Geoff Thompson of Nortel
2. Set up a real test environment with an active load to determine the error characteristics of the MDI in relationship with the TIA cable spec. Karl Nakamura, Cisco Systems; Mike Nootbaar of TDK.
3. Make a presentation on Isolation relative to 802.3, Telephony, Regulatory/Safety requirements. Dave Law of 3COM, Bob Bell of Cisco Systems.
4. Study the effect of AC on the MDI. Mike Nootbaar of TDK.
5. Provide experimental data on mid-span insertion on the signal pairs. (National Twister transceiver) Roger Karam, Cisco Systems.
6. Contact Telecom Department at Texas A&M relative to the availability of wiring pairs at the desktop there and through the wiring industry group, determine a feel for the availability generally. Geoff Thompson of Nortel.
7. Strawman power supply specification which contains all critical parameters for consideration. Larry Spaziani, Texas Instruments.

A review of the old action items found the following item still pending.

1. Spice model for cabling, Larry Miller of Nortel

Move to Adjourn by Bill Quackenbush
Seconded by Robert Muir

Adjourned at 3:10 PM 1/21/00

Respectfully submitted:
Robert T. Bell
Cisco Systems Inc.
Temporary Secretary
802.3af Study Group