IEEE 802.3ar Congestion Management Task Force

16th May 2006
Meeting Minutes
Beijing, China

Attendees

1. Hugh Barrass / Cisco Systems
2. Uri Cummings / Fulcrum Microsystems
3. Kevin Daines / World Wide Packets
4. Bob Grow / Intel Corporation
5. Takafumi Hamano / NTT
6. Gopal Hegde / Intel Corporation
7. Glenn Parsons / Nortel
8. Tae-eun Kim / Extreme Networks
9. Raghu Kondapalli / Marvell
10. Bruce Kwan /Broadcom
11. Don Pannell / Marvell
12. Pat Thaler / Broadcom
13. Manoj Wadekar / Intel Corporation
14. Yan Wang / Huawei
15. Li Xixiang / Huawei
16. Yan Xuai jun / Huawei
17. Suping Zhai / Huawei

8:15 AM Session started

Welcome and introductions

Gopal Hegde appointed as recording secretary

Kevin Daines (P802.3ar Chair) presented ar_agenda_1_0605_post.pdf, which contains agenda and general information. Kevin Daines outlined the purpose of the meeting, which is to resolve the comments received to the draft 1.2 of the specification and prepare for working group ballot.

TF Motion #1: "Approve the agenda posted on 802.3ar website.

Move: Bob Grow
Second: Glenn Parsons

Result: The motion was approved by voice vote.

TF Motion #2: "Approve minutes from March plenary meeting posted on 802.3ar website"

Move: Hugh Barrass
Second: Gopal Hegde
Motion approved by voice vote
Revised patent policy (February 2006) was read to the Task Force. No letter of assurance by any attendee at this time.

Kevin Daines reviewed structure of 802.3 and where 802.3ar fits. He also reviewed 802.3ar timeline and current status.

High Barrass talked about the comments received on the draft. A total of 38 comments have been received by the task force. More than half of these (~20) are trivial. There is probably only one that is difficult.

We also talked about reserving some time to discuss revised PAR and 5 criteria ahead of submitting to 802.3 WG in July.

Comment resolution concluded at 9:45 AM. Hugh Barrass from Cisco (editor of 802.3ar task force) drove the discussion.
(802.3ar_d1_2_comments_responses.pdf)

Next topic of the agenda was to discuss PAR and 5 criteria based on discussions and motions from the March plenary.

Kevin Daines kicked off this discussion with his presentation (daines_1_0605.pdf). This is to close on the work/discussion that was started during last plenary ahead of submitting this to 802.3 WG in July plenary.

TF Motion #3: "Change Amendment title to "…. Enhancements for Rate Limiting"

Move: M. Wadekar
Second: P. Thaler

Yes:11, No:0, Abstain:1

Motion Passes

TF Motion #4: "Modify scope of proposed standard to read "…to provide rate limiting."

Mover: Hugh Barrass
Second: Bob Grow
Yes: 12, No: 0, Abstain: 0

Motion Passes

TF Motion #5: PAR item 5.3, Change the response to "No"

Mover: Manoj Wadekar
Second: Hugh Barrass

Yes: 12, No: 0, Abstain: 1

Motion Passes

TF Motion #6: Modify the Purpose of Proposed Standard as follows:
This project will enable accelerated deployment of Ethernet into emerging applications that required improved delay, delay variation and frame loss characteristics in the presence of known bottlenecks.

Mover: Gopal Hegde
Second: Manoj Wadekar

Yes: 12, No: 0, Abstain: 1
Motion Passes

TF Motion 7: Update the need for the project as follows
5.5 Need for the project:
Ethernet Networks are being used in an increasing number of application spaces that are sensitive to frame delay, delay variation and loss

Mover: Bob Grow
Second: Manoj Wadekar

Yes: 9, No: 0, Abstain: 2

TF Motion #8: Create 5.6 Stakeholders for the project.
Network equipment, network silicon, media converters and NIC manufacturers and users.

Mover: Gopal Hegde
Second: Manoj Wadekar

Yes: 9, No: 0, Abstain: 2

Motion Passes

TF Motion #9: Modify broad market potential criteria as follows: Ethernet networks are being used in an increasing number of application spaces that are sensitive to frame delay, delay variation and loss. Study Group presentations have shown that Ethernet networks can experience higher throughput, lower delay, and lower frame loss by performing rate limiting.

Rate Control is an effective technique to reduce buffer requirements and to reduce frame delay, delay variation and loss when there are known/fixed bottlenecks in the networks.

During the discussion of the WG 802.3 motion to initiate this study group, 23 people from 16 companies indicated that they plan to participate in the standardization effort. This level of commitment indicates that a standard will be developed by a large group of vendors and users. During the study group and task force meetings, there have been up to 35 people representing 16 companies in attendance.

A standard to support rate limiting will respect the balance of cost between LAN and attached stations.

Mover: Uri Cummings
Second: Manoj Wadekar

Yes: 11 No: 0 Abstain: 0

TF Motion #10: Modify the Conformance (Criteria #2) as follows: The proposed standard will be consistent with 802.1d, 802.1Q, and relevant portions of 802.1f.

The MAC will be enhanced with optional capabilities that are fully compliant with the existing 802.3 MAC specification.

As was the case in previous 802.3 standards, additional MAC

Control sublayer functionality and MAC Control frame opcodes maybe defined.

The proposed standard will conform to the 802.3 MAC Client Interface, which supports 802.2 LLC.

The proposed standard will conform to the 802.1 Architecture, Management and Internetworking.

The proposed standard will define a set of systems management objects, which are compatible with OSI and SNMP system management standards.

The proposed standard will conform to the requirements of IEEE Std 802-2001.

Mover: Gopal Hegde
Second: Li Xixiang

Yes: 11, No: 0, Abstain: 0

Motion Passes

TF Motion #11: Modify the "Distinct Identify" (Criteria #3) as follows:

The current 802.3 standard specifies a means of flow control using PAUSE.

While this can decrease the frame loss due to oversubscription, the periods of no data transmission result in increased delay in the Ethernet link.

802.3X PAUSE flow control is not best solution for addressing known/fixed bottlenecks because it requires additional buffering and introduces additional frame delay variation.

Rate limiting, when used will reduce the offered load at the bottlenecks without spreading congestion. Rate limiting could address bottlenecks due to date rate mismatch as well as mismatch due to protocol overheads. This specification will define a means of decreasing frame loss while permitting increased efficiency in the Ethernet network.

The proposed standard may include multiple parameters to support a single rate limiting mechanism addressing various forms of bottlenecks.

The specification will be done in a format consistent with the IEEE document requirements.

Mover: Bob Grow
Second: Tae-eun Kim

Yes: 12, No: 0, Abstain: 0

TF Motion #12: Modify the Technical Feasibility Criteria (Criteria #4) as follows:

Rate limiting is not technologically challenging.

Rate control is commonly implemented in Ethernet devices (e.g. MAC ifsStretch supporting 10 Gb/s WAN PHY operation) demonstrating rate limiting techniques are feasible and reliable. Anticipated solutions are only expected to enhance this existing capability.

Providing common framework, method(s), and parameters will enable interoperability between vendors.

The anticipated solution has no known negative impact on higher layer operation.

Mover: Bob Grow
Second: Manoj Wadekar

Yes: 7, No: 3, Abstain: 1

Motion Fails

TF Motion #13: Modify the Technical Feasibility Criteria (Criteria #4) as follows:

Rate limiting is not technologically challenging.

Rate control is commonly implemented in Ethernet devices (e.g. MAC ifsStretch supporting 10 Gb/s WAN PHY operation) demonstrating rate

limiting techniques are feasible and reliable. Anticipated solutions are only expected to enhance this existing capability.

Providing common framework, method(s), and parameters will enable interoperability between vendors.

The anticipated solution has no known negative impact on higher layer operation, including congestion management and notification proposals. A higher layer protocol that requires knowledge of link speed will benefit from this enhancement.

Mover: Uri Cummings
Second: Hugh Barrass

Yes: 11, No: 0, Abstain: 2

Motion Passes

TF Motion #14: Modify the Economic Feasibility Criteria (Criteria #5) as follows:

Possible solutions investigated for technical feasibility do not add significant complexity to Ethernet devices.

Rate limiting standardization will increase the broad market potential of Ethernet which will increase deployment and further reduce cost.

System design, installation and maintenance costs are minimized by utilizing Ethernet system architecture, management, and software.

Mover: Manoj Wadekar
Second: Li Xixiang

Yes: 13, No: 0, Abstain: 0

Motion Passes

TF Motion #15: 802.3ar TF requests the 802.3 WG chair to circulate the modified PAR and 5 criteria for July 2006 consideration.

Mover: Hugh Barrass
Second: Manoj Wadekar

Yes: 12, No: 0, Abstain: 0

Motion Passes

TF Motion #16: Create P802.3ar/D1.3 based on comment resolution and conduct TF review prior to July 2006 meeting (San Diego)

Mover: Bob Grow
Second: Pat Thaler

Yes: 12, No: 0, Abstain: 1

Motion Passes

The objectives were revised during March plenary and two objectives were removed. We did not take any vote on this in the 802.3 WG plenary closing session in Denver. The new task force objectives are as follows:

1) Specify a mechanism to limit the rate of transmitted data on an Ethernet link
2) Preserve the MAC/PLS service interfaces

TF Motion #17 Modify TF objective #1 as follows:
Specify a mechanism to limit the rate of transmitted data on an Ethernet link

- Capable of 1% or better granularity over the range of 10% to 99% of link rate.

Mover: G. Parsons
Second: H. Barrass

Yes: 12, No: 0, Abstain: 1

Motion passes

TF Motion #18 Modify TF objective #1 as follows:
Specify a mechanism to limit the rate of transmitted data on an Ethernet link

- Capable of 1% or better granularity over the range of 10% to 99% of link rate.

- Capable of supporting a constant per-frame overhead

Mover: Bob Grow
Second: Manoj Wadekar

Yes: 2, No: 2, Abstain: 8

Motion Fails!

TF Motion #19: Submit P802.3ar/D1.3 to 802.3 WG in anticipation of requesting WG ballot in July 2006 meeting (San Diego)

Mover: Gopal Hegde
Second: Manoj Wadekar

Yes: 10, No: 0, Abstain:1

Motion Passes

Future Meetings:

- Plenary meeting in July (San Diego)
- 802.3 Interim in September is TBD, Northeastern US/Canada
- Plenary meeting in November (Dallas)

TF Motion #20: Motion to adjourn

Motion Passes by voice vote