IEEE 802.1 Minutes, March 2006

Opening Plenary Monday PM, March 6, 2006

Agenda – Tony Jeffree
- Administrative stuff
- IEEE Patent Policy
- Interim meetings
- Chair/Vice Chair elections
- Std 802.1H
- Exec stuff
- Liaison reports
- Task group stuff

Officers

Website

Congestion Management
- Establish this as 802.1 Congestion Management (CM) Study Group
- Will become a TG if/when PAR approved
- Will represent a 4rd track at future meetings, but scheduling will aim to avoid conflicts when topics need broad 802.1 coverage
- TG Chair will be Pat Thaler

Security Issue
- Please wear your badge when in the meeting areas of the hotel
- This will help the hotel security staff to improve the general security of the meeting rooms
- PCs HAVE BEEN STOLEN at previous meetings

Voting membership
- Review of the voting membership rules

Voters

802.1 TG and WG Operation
- Consensus not Robert's rules

TG, WG, and Sponsor balloting

Patent Policy
- The patent policy was explained and discussed, and the advice section was explained, and the two required slides, clause 6 and Inappropriate Topics, where shown and read so everyone in the room understands the IEEE patent policy

No photography/recording devices & other techno toys

Presentation Materials
- The file sizes of power points is becoming excessive
- Do not put copyrights in any presentation material

Future meetings

May interim
- Beijing

Exec Stuff

Chair/Vice Chair Elections will be held in the closing Plenary

802.1H Bridging of Ethernet

Due maintenance action this year
Was last reaffirmed 2001
Needs one of the following:
–Reaffirmation
–Revision
–Withdrawal
802.16 Bridging (addition to D Clause 6)
802.16 multi-hop relay
Any others?

Liaison reports
Hiroshi Ohta ITU-TSG13/SG15
Glen Parsons ITU-T SG15 liaisons on Ethernet Topics
Discussion on Ethernet Protection
Agenda
As posted on the email exploder
Status of MIBS – Dan Romascanu
IETF MIB work is finished
process is ongoing
ISG last call expires 3-17-06
New objects will go into IEEE space
MIB doctor work will continue after MIBs taken over by IEEE
Need to communicate if they are needed
Connection Oriented Ethernet follow-up – Sprecher
Presentation is at http://www.ieee802.org/1/files/public/docs2006/new-sprecher-vlan-xc-second-presnetation-0306.zip

Tuesday AM, March 7, 2006

P802.1AF Draft 0.4 Review – Mick Seaman

Tuesday PM, March 7, 2006

P802.1AF Draft 0.4 Review Continued – Mick Seaman

Tuesday, March 7, 2006 AV Discussions

- Michael Teener: Introduction and review of agenda items.
  - This working group is part of 802.1, so all patent rules discussed yesterday apply to this working group
  - Reviewed parallel tracks of other 802 groups (ae, ar, etc.).
  - Schedule – move forward PARs sequentially. The focus of this plenary is the time synchronization efforts. Tomorrow we hope to authorize the discussions on the next PAR.
  - Agenda for today: Review the PAR for Time Synch. Review status, and determine what more is required.

- Two more PARs will be presented for discussion, but no specific work is targeted at this stage. Both may go out together.
- Technical presentations:
  - Geoffrey Garner: Possible use of 1588 time synch efforts.
  - David James: Time of day synchronization
    - The goal is to reach consensus on an approach for consideration as the AVB standard.
  - Paul Hongkye Jeong, Geoffery, Eric: Delay histogram analysis (A discussion on latency, and shaping requirements)
- Review other agenda topics. Byproduct of our efforts is the encouragement of managed bridges. Unmanaged bridges will not forward video.
- Call for other presentations or discussions.
- Call to Tony for additions to the AVB PAR. No comments yet.

- Felix Feng: Stream Reservation Protocol PAR presentation
  - No enforcement is in scope, the intent is to facilitate dynamic maintenance of forwarding resources.
  - Tony: Pointed out that 802.1ak is not yet complete, so this proposal is contingent upon the completion of another document. **The PAR was appropriately updated.**
  - SCOPE: Clarification request: what is the definition of a stream?
    - Comment: The PAR is not a place to write definitions
    - Suggestion: Either use technology well understood, or include it in the definition in the PAR
    - Norm Finn: Need to capture the "intent" as part of the scope.
    - **MJT: Intent - For book keeping the per-stream resources need to be kept track, but per-stream resources are not administered at the data plan level per stream.**
    - **Changed wording and definitions of PAR scope for consistency with 802.1, and to minimize ambiguity. Norm Finn crafted the language. Consensus was reached on the proposed language.**
  - PURPOSE: Minor changes to "guarantee" language of the Purpose.
  - PURPOSE: Norm: Want to make sure we capture this does not require data plane changes. Will revisit after 5 criteria review.
  - REASON: Minor changes to language for redundancy and to strengthen language.
  - 5 CRITERIA:
    - Michael: older language. Requested we don't "word craft", but just take notes of items to consider when drafting the next revision.
    - Clarification of "end-to-end". Definition is "within a bridged network". All bridges in the path must participate. Link discovery protocol is proposed as a method to determine who is in the path. This drives the "defended network" discussion in the agenda which will be covered tomorrow.

- Confirmation that SRP is dependent on timing. Timing PAR exists that can be referenced. **Updated scope to reference time synchronization services (802.1as)**
- Discussion on the "model for balanced costs". Specify "for bridges".
- Question raised about request authentication. What if someone requests excessive bandwidth? Bridge can say NO. Can be done through calculation or any undefined reason. 802.1ae is for enforcement of authentication – this is not appropriate in all protocols. **If service provider needs it, you build a gateway that facilitates authentication services (MJT).**
- **Compatibility: Request to add "not changing the data plane" language – Norm/Tony. Crafted language and updated the PAR.**
- **DISTINCT IDENTITY: Crafted language that the proposed standard will be an amendment to 802.1q. Noted to copy the line out of the 802.1ak PA**R.
- Minor changes to language on technical feasibility referencing MRP in place of GARP
- Concern of MRP dependency on 802.1aq – Norm/Tony/MJT. Conclusion is that 802.1aq will strive to make MRP work.
- **Economic Feasibility: Added language indicating that we Expect applications to be developed that utilize SRP – Norm.**

- 20 minute break 10:20
- Geoffrey Garner – Time Synch Technical Presentation
  - Geoffrey provided background on the study. There was a meeting 2 weeks ago to determine how 1588 could be used in AVB. The focus was on peer-to-peer transparent clocks. Geoffrey was tasked with writing down the dialog. The documentation was posted to the reflector. This is a presentation summarizing the full document and providing background of 1588 for reference.
  - The presentation is not a full, comprehensive background of 1588 or how AVB may utilize it. More detail will follow in a white paper.
  - Norm Finn: Question on clock synch messages between MASTER/SLAVE. Slave needs to know propagation delay, master does not. Dialog for clarification of handshaking algorithms until a common understanding was reached.
  - Assumption is that the propagation delay does not vary. This is infrequently calculated. Follow-up messages are used to account for clock drift.
  - Norm Finn: What is the protocol for establishing Master/Slave? In version 1, it is part of the synch message. In version 2, they are discussing a separate message for Grand Master negotiation. The message is larger than 64 bytes (ANNOUNCE message).

- Geoff suggested that AVB implementation would determine an interval to run the Grand Master selection process. States do not change until the next GM selection process.
- Geoff: Version 1 of 1588 is IP, but version 2 will include layer 2.
- Geoff: Overview of P2P transparent clocks. 1588 also defines end-to-end, but AVB will not use this, so the presentation doesn't cover it.
- MJT reviewed "in-line clocks". A flag is in the message indicating if a follow-up is expected or not.
- Geoff reviewed transparent clocks, highlighting that they are free running oscillators. This is allowed in 1588. Defined a flex-timer – wherein the P2P timers correct for drift from the master between messages.
- Geoff proposed that AVB will utilize the ADelay facility. This isn't required in 1588 for backwards compatibility reasons.
- Geoff reviewed synch and follow-up message within AVB – specifically the impact of using inexpensive processors for AV bridging and the processing time required for message handling. Follow-up messages must be processed, whereas synch messages flow through each TC node quickly. Therefore, follow-up messages may be outside the synch interval for downstream TCs. Details in the presentation and associated paper.
- Norm Finn expressed concern over the synch interval, and tradeoffs between cost vs. synch interval. Geoff and MJT highlighted that the group is working on worst case scenarios. 10ms is worst case, high probability we will go slower. Simulation work is required and will be completed at a later date.
- The AVB approach will be compatible with 1588v2.
- Norm Finn would like to understand the relationship between the Ethernet (layer 2) vs. IP layer facilities of 1588 for purposes of router design. There may be applications that require routers (can't bridge that much). How do you know what to use? MJT and Geoff outlined a discovery protocol to determine what is required for this path. Likely we will require LLDP for higher layer services, but this isn't yet determined.
- Kevin Gross: Need to determine failure mode in cases where processor load can't process follow-up messages inside the sync interval. What happens if follow-up processing is arbitrary? MJT proposes we must guarantee processing window and manage code accordingly.
  - What is the failure mode? Need to fail gracefully? Group: **failure mode should be defined.**
- Kevin Gross: recognize that frequency correction decreases accuracy, and long processing of follow-up message further degrades accuracy. Reviewed Boundary clock vs. TC and discussed if alternative approaches have been considered.

- Lunch Break 12:15 – 1:30
- David James: Clock Sync Presentation
  - Question raised on how the presented approach parallels 1588. David indicated there was similar in effect, but differs in dependencies. Geoff disagrees – not enough information known to resolve completely.

- David raised concern over a 1588 approach due to the overhead of unused fields. His proposal saves a large number of bytes in payload, and requires only a single message type.
- Discussion over the rate of Grand-master selection. David proposing this is done frequently, and the proposed approach minimizes payload and processing enabling this to occur.
- No feedback loop required in this approach – all computations are calculated based on the neighbor only, then propagated down.
- If Grand-master changes, all off-sets are still valid in this approach.
- David raised question to Tony on if the field would ever be tagged. It is point-to-point, not going through bridge. It won't be sent to an older bridge. It is never routed. For these reasons, it was determined the frame won't be tagged.
- Discussion about the need for epoc. The overhead has minimal value. **MJT – topic is out of scope**.
- Summary: Do you want to be compatible legacy wise with 1588 and carry overhead of doing so, or do you want to consider it a clean slate? David proposed reviewing what the "baggage" details are to make a decision on the AVB approach.
    - Karen – Sees it differently. Not providing legacy support, but rather leveraging work being done in another group. Silicon from both communities could be a significant advantage.
    - David – people trying to build hardware want common understanding of type-codes and other flags for time snapshots. Whether we use 1588 or not, this is possible to minimize hardware design issues. There is a discussion on this topic at 7:00 PST tomorrow.
    - Norm Finn suggestion (from .1ag). There should always be a version bit after the Ether-type. This will identify frames for special processing. A register to store the Ether-type and several other mask bits will provide requirements for silicon design for this and other .1 efforts.
    - Observation - if we can't converge on 1588 vs. AVB approach, then a single Ether-type would allow either (or both) to be implemented.
    - Continued discussions over programmable Ether-type fields.
    - Reviewed time-stamping every packet – but the additional hardware requirement is troublesome. The proposals are for keeping time out of band.
    - Focused on what are the criteria for taking a timestamp. The other discussions are implementation specific. The group refocused on issues that require standards, not implementations.
    - Geoff: confirming the approach synchronizes a link before engaging downstream nodes. Concern that jitter/latency requirements will require this to occur. David confirmed that isn't

a firm requirement of the proposal, but research is required to determine precisely.

- Break 2:55 – 3:15
- Discussion topic:
  - **Consensus on only pursuing two approaches. The DVJ white paper proposal, and the short frame 1588 approach presented earlier by Geoff. Documents and presentations are available on the web-site for review.**
- Presentation topic: Delay Histogram Analysis - Geoff Garner in place of Paul Jeong
  - Geoff provided simulation support tools and other models, but the work was performed by Paul, Felex, and Eric at Samsung.
  - DVJ Question: are BER experienced error rates, or specified. Geoff confirmed the analysis utilized specified BER, not measured.
  - MJT indicated 10^{-12} is the reasonably expected actual BER, but both 1e-8 and 1e-12 boundaries were reviewed.
  - Noted that the topologies for simulations are consistent with those presented in previous interim and plenary sessions.
  - Simulations do not represent any "bursting or bunching" packets. Doing so will dramatically impact delays
  - DVJ raised question – is it legal to pass packets with bad CRC ("cut through"). **Final determination is that bad CRC packets can't be forwarded, so the dialog was halted after significant discussion.**
    - The original request was from a major carrier, likely based on the fact that MPEG can recover from bit errors nicely. This still causes problems in the larger network preventing the group from considering it further.
- Presentation: David James – Rate Control
  - Discussing the possibility of how end-points should shape traffic given a couple of priority levels. If 10% bandwidth is requested, you can't provide 100% for 1 second, and 0% for 9. Smoothing/pacing is required.
  - Question on the use case – is this an example or proposed specification? MJT: We will need to have defined classes for QoS expectations. This can not be programmable. Consensus that non-priority traffic can be programmable, but the 75% of bandwidth allocated for priority traffic must be defined absolutely.
  - Question raised – what is the purpose of this? Is it a recommended practice? DVJ: Negotiated bandwidth is an agreement that you will have guaranteed bandwidth so long as you comply with shaping models. AVB is proposing a single approach in the standard.
  - Intent is to limit buffering. Proposals favor constant bit-rate traffic. The goal is to require worst case of double buffering (1 MTU). A device can deny a reservation if resources are insufficient.
  - Keith: Question raised on the need or drivers that promote adoption of standard shaping algorithms?

- A great deal of simulation work was performed on the algorithms as part of the 802.17 work. There is a desire to computer the high limit.
- **DVJ assumes the action to show equations and assumptions required to calculate the high limits of the proposed model**.
- **B and C (best effort) classes are out of scope – only reviewed priority class streams. Show examples, but don't need to explain or derive the impacts. No standard implementations.**

Wednesday AM, March 8, 2006

P802.1AE Sponsor Ballot – Allyn Romanow
P802.1AR Draft Review – Mike Borza

Wednesday PM, March 8, 2006

P802.1AR Draft Review – Mike Borza
P802.1AR & P802.1AF Interactions – Mick Seaman

Wednesday, March 8, 2006 AV Discussions

- Michael Teener: Introduction and review of agenda items.
  - This working group is part of 802.1, so all patent rules discussed yesterday apply to this working group
  - Reviewed parallel tracks of other 802 groups (ae, ar, etc.).
  - Schedule – move forward PARs sequentially. The focus of this plenary is the time synchronization efforts. Tomorrow we hope to authorize the discussions on the next PAR.
  - Agenda for today: Review the PAR for Time Synch. Review status, and determine what more is required.
  - Two more PARs will be presented for discussion, but no specific work is targeted at this stage. Both may go out together.
  - Technical presentations:
    - Geoffrey Garner: Possible use of 1588 time synch efforts.
    - David James: Time of day synchronization
      - The goal is to reach consensus on an approach for consideration as the AVB standard.
    - Paul Hongkye Jeong, Geoffery, Eric: Delay histogram analysis (A discussion on latency, and shaping requirements)
  - Review other agenda topics. Byproduct of our efforts is the encouragement of managed bridges. Unmanaged bridges will not forward video.
  - Call for other presentations or discussions.
  - Call to Tony for additions to the AVB PAR. No comments yet.
- Felix Feng: Stream Reservation Protocol PAR presentation
  - No enforcement is in scope, the intent is to facilitate dynamic maintenance of forwarding resources.

- Tony: Pointed out that 802.1ak is not yet complete, so this proposal is contingent upon the completion of another document. **The PAR was appropriately updated.**
- SCOPE: Clarification request: what is the definition of a stream?
  - Comment: The PAR is not a place to write definitions
  - Suggestion: Either use technology well understood, or include it in the definition in the PAR
  - Norm Finn: Need to capture the "intent" as part of the scope.
  - **MJT: Intent - For book keeping the per-stream resources need to be kept track, but per-stream resources are not administered at the data plan level per stream.**
  - **Changed wording and definitions of PAR scope for consistency with 802.1, and to minimize ambiguity. Norm Finn crafted the language. Consensus was reached on the proposed language.**
- PURPOSE: Minor changes to "guarantee" language of the Purpose.
- PURPOSE: Norm: Want to make sure we capture this does not require data plane changes. Will revisit after 5 criteria review.
- REASON: Minor changes to language for redundancy and to strengthen language.
- 5 CRITERIA:
  - Michael: older language. Requested we don't "word craft", but just take notes of items to consider when drafting the next revision.
  - Clarification of "end-to-end". Definition is "within a bridged network". All bridges in the path must participate. Link discovery protocol is proposed as a method to determine who is in the path. This drives the "defended network" discussion in the agenda which will be covered tomorrow.
  - Confirmation that SRP is dependent on timing. Timing PAR exists that can be referenced. **Updated scope to reference time synchronization services (802.1as)**
  - Discussion on the "model for balanced costs". Specify "for bridges".
  - Question raised about request authentication. What if someone requests excessive bandwidth? Bridge can say NO. Can be done through calculation or any undefined reason. 802.1ae is for enforcement of authentication – this is not appropriate in all protocols. **If service provider needs it, you build a gateway that facilitates authentication services (MJT).**
  - **Compatibility: Request to add "not changing the data plane" language – Norm/Tony. Crafted language and updated the PAR.**
  - **DISTINCT IDENTITY: Crafted language that the proposed standard will be an amendment to 802.1q. Noted to copy the line out of the 802.1ak PA**R.
  - Minor changes to language on technical feasibility referencing MRP in place of GARP

        - Concern of MRP dependency on 802.1aq – Norm/Tony/MJT. Conclusion is that 802.1aq will strive to make MRP work.
        - **Economic Feasibility: Added language indicating that we Expect applications to be developed that utilize SRP – Norm.**
- 20 minute break 10:20
- Geoffrey Garner – Time Synch Technical Presentation
    - Geoffrey provided background on the study. There was a meeting 2 weeks ago to determine how 1588 could be used in AVB. The focus was on peer-to-peer transparent clocks. Geoffrey was tasked with writing down the dialog. The documentation was posted to the reflector. This is a presentation summarizing the full document and providing background of 1588 for reference.
    - The presentation is not a full, comprehensive background of 1588 or how AVB may utilize it. More detail will follow in a white paper.
    - Norm Finn: Question on clock synch messages between MASTER/SLAVE. Slave needs to know propagation delay, master does not. Dialog for clarification of handshaking algorithms until a common understanding was reached.
    - Assumption is that the propagation delay does not vary. This is infrequently calculated. Follow-up messages are used to account for clock drift.
    - Norm Finn: What is the protocol for establishing Master/Slave? In version 1, it is part of the synch message. In version 2, they are discussing a separate message for Grand Master negotiation. The message is larger than 64 bytes (ANNOUNCE message).
    - Geoff suggested that AVB implementation would determine an interval to run the Grand Master selection process. States do not change until the next GM selection process.
    - Geoff: Version 1 of 1588 is IP, but version 2 will include layer 2.
    - Geoff: Overview of P2P transparent clocks. 1588 also defines end-to-end, but AVB will not use this, so the presentation doesn't cover it.
    - MJT reviewed "in-line clocks". A flag is in the message indicating if a follow-up is expected or not.
    - Geoff reviewed transparent clocks, highlighting that they are free running oscillators. This is allowed in 1588. Defined a flex-timer – wherein the P2P timers correct for drift from the master between messages.
    - Geoff proposed that AVB will utilize the ADelay facility. This isn't required in 1588 for backwards compatibility reasons.
    - Geoff reviewed synch and follow-up message within AVB – specifically the impact of using inexpensive processors for AV bridging and the processing time required for message handling. Follow-up messages must be processed, whereas synch messages flow through each TC node quickly. Therefore, follow-up messages may be outside the synch interval for downstream TCs. Details in the presentation and associated paper.
    - Norm Finn expressed concern over the synch interval, and tradeoffs between cost vs. synch interval. Geoff and MJT highlighted that the group

is working on worst case scenarios. 10ms is worst case, high probability we will go slower. Simulation work is required and will be completed at a later date.
    - The AVB approach will be compatible with 1588v2.
    - Norm Finn would like to understand the relationship between the Ethernet (layer 2) vs. IP layer facilities of 1588 for purposes of router design. There may be applications that require routers (can't bridge that much). How do you know what to use? MJT and Geoff outlined a discovery protocol to determine what is required for this path. Likely we will require LLDP for higher layer services, but this isn't yet determined.
    - Kevin Gross: Need to determine failure mode in cases where processor load can't process follow-up messages inside the sync interval. What happens if follow-up processing is arbitrary? MJT proposes we must guarantee processing window and manage code accordingly.
        - What is the failure mode? Need to fail gracefully? Group: **failure mode should be defined.**
    - Kevin Gross: recognize that frequency correction decreases accuracy, and long processing of follow-up message further degrades accuracy. Reviewed Boundary clock vs. TC and discussed if alternative approaches have been considered.
- Lunch Break 12:15 – 1:30
- David James: Clock Sync Presentation
    - Question raised on how the presented approach parallels 1588. David indicated there was similar in effect, but differs in dependencies. Geoff disagrees – not enough information known to resolve completely.
    - David raised concern over a 1588 approach due to the overhead of unused fields. His proposal saves a large number of bytes in payload, and requires only a single message type.
    - Discussion over the rate of Grand-master selection. David proposing this is done frequently, and the proposed approach minimizes payload and processing enabling this to occur.
    - No feedback loop required in this approach – all computations are calculated based on the neighbor only, then propagated down.
    - If Grand-master changes, all off-sets are still valid in this approach.
    - David raised question to Tony on if the field would ever be tagged. It is point-to-point, not going through bridge. It won't be sent to an older bridge. It is never routed. For these reasons, it was determined the frame won't be tagged.
    - Discussion about the need for epoc. The overhead has minimal value. **MJT – topic is out of scope**.
    - Summary: Do you want to be compatible legacy wise with 1588 and carry overhead of doing so, or do you want to consider it a clean slate? David proposed reviewing what the "baggage" details are to make a decision on the AVB approach.

- Karen – Sees it differently. Not providing legacy support, but rather leveraging work being done in another group. Silicon from both communities could be a significant advantage.
- David – people trying to build hardware want common understanding of type-codes and other flags for time snapshots. Whether we use 1588 or not, this is possible to minimize hardware design issues. There is a discussion on this topic at 7:00 PST tomorrow.
- Norm Finn suggestion (from .1ag). There should always be a version bit after the Ether-type. This will identify frames for special processing. A register to store the Ether-type and several other mask bits will provide requirements for silicon design for this and other .1 efforts.
- Observation - if we can't converge on 1588 vs. AVB approach, then a single Ether-type would allow either (or both) to be implemented.
- Continued discussions over programmable Ether-type fields.
- Reviewed time-stamping every packet – but the additional hardware requirement is troublesome. The proposals are for keeping time out of band.
- Focused on what are the criteria for taking a timestamp. The other discussions are implementation specific. The group refocused on issues that require standards, not implementations.
- Geoff: confirming the approach synchronizes a link before engaging downstream nodes. Concern that jitter/latency requirements will require this to occur. David confirmed that isn't a firm requirement of the proposal, but research is required to determine precisely.

- Break 2:55 – 3:15
- Discussion topic:
  - **Consensus on only pursuing two approaches. The DVJ white paper proposal, and the short frame 1588 approach presented earlier by Geoff. Documents and presentations are available on the web-site for review.**
- Presentation topic: Delay Histogram Analysis - Geoff Garner in place of Paul Jeong
  - Geoff provided simulation support tools and other models, but the work was performed by Paul, Felex, and Eric at Samsung.
  - DVJ Question: are BER experienced error rates, or specified. Geoff confirmed the analysis utilized specified BER, not measured.
  - MJT indicated 10^{-12} is the reasonably expected actual BER, but both 1e-8 and 1e-12 boundaries were reviewed.
  - Noted that the topologies for simulations are consistent with those presented in previous interim and plenary sessions.
  - Simulations do not represent any "bursting or bunching" packets. Doing so will dramatically impact delays

  - DVJ raised question – is it legal to pass packets with bad CRC ("cut through"). **Final determination is that bad CRC packets can't be forwarded, so the dialog was halted after significant discussion.**
    - The original request was from a major carrier, likely based on the fact that MPEG can recover from bit errors nicely. This still causes problems in the larger network preventing the group from considering it further.
- Presentation: David James – Rate Control
  - Discussing the possibility of how end-points should shape traffic given a couple of priority levels. If 10% bandwidth is requested, you can't provide 100% for 1 second, and 0% for 9. Smoothing/pacing is required.
  - Question on the use case – is this an example or proposed specification? MJT: We will need to have defined classes for QoS expectations. This can not be programmable. Consensus that non-priority traffic can be programmable, but the 75% of bandwidth allocated for priority traffic must be defined absolutely.
  - Question raised – what is the purpose of this? Is it a recommended practice? DVJ: Negotiated bandwidth is an agreement that you will have guaranteed bandwidth so long as you comply with shaping models. AVB is proposing a single approach in the standard.
  - Intent is to limit buffering. Proposals favor constant bit-rate traffic. The goal is to require worst case of double buffering (1 MTU). A device can deny a reservation if resources are insufficient.
  - Keith: Question raised on the need or drivers that promote adoption of standard shaping algorithms?
  - A great deal of simulation work was performed on the algorithms as part of the 802.17 work. There is a desire to computer the high limit.
  - **DVJ assumes the action to show equations and assumptions required to calculate the high limits of the proposed model**.
  - **B and C (best effort) classes are out of scope – only reviewed priority class streams. Show examples, but don't need to explain or derive the impacts. No standard implementations.**

Thursday AM, March 9, 2006

Closing Plenary Thursday, March 9, 2006

Review of Agenda – Tony Jeffree

Administrative Stuff – Tomy Jeffree

Officers

Website

Voting Membership

Patent Policy – Tony Jeffree

The two required slides where shown to the working group and the requirements and rules were discussed

Interim Meetings – Tony Jeffree

May – Beijing
September – York, UK
January – London with all of 802
May 2007 – Korea has been suggested

Current Projects – Tony Jeffree

802.1AC (MAC Service): Initial draft
802.1AE (MAC security): Done!
802.1af (Key agreement): Editor's draft. End date Dec '06
802.1ag (CFM): WG ballot. End date July '07
802.1ah (Backbone PB) Third draft – TG ballot. End date Sept 2007
802.1aj (Two-port relay) Third draft – TG ballot. End date Sept 2007
802.1ak (MRP) WG ballot. End date Sept 2007
802.1AP (Q MIB). PAR approved. End date Dec 2008
802.1aq (Shortest Path) PAR approved. First draft. End date Dec 2008
802.1AR (Device identifiers) Second draft to TG ballot. End date Dec 2008
802.1AS (Time synch) - PAR to be submitted
SRP PAR to be submitted in July
Congestion Notification PAR to be submitted in July
2 more AVB PARS – by November?
802.1H revision/reaffirmation?
Link Agg?
LLDP amendment – addressing issues?

Motions

802.1 requests the 802 Exec to confirm the appointment of Tony Jeffree as Chair of 802.1.
Move: Seaman Second: Messenger
For 31 Against 0 Abstain 0

802.1 requests the 802 Exec to confirm the appointment of Paul Congdon as Vice Chair of 802.1.
Proposed: romascanu
Second:Wright
For: 30 Against: 0 Abstain: 2

802.1 requests approval from the EC to establish an 802.1 Congestion Management (CM) Study Group. SG Chair will be Pat Thaler.
802.1 Proposed: Wadekar Second:Seaman
For: 28 Against: 0 Abstain: 4

802.1 approves the joint 802.1/802.17 liaison response to the ITU on ring protection as presented at this meeting.
Proposed: seaman Seconded: finn
For 27 Against 0 Abstain 3

802.1 resolves to hold an interim session in Beijing, 15th -18th May 2006 hosted by Huawei
Proposed: Dunbar
Second:wright
For: 22 Against:1 Abstain:11

802.1 resolves to hold a security interim session week of 29th May, precise dates and location to be decided
Proposed: Seaman
Second: wright
For: 16 Against: 0 Abstain: 16

802.1 resolves to hold a pre-meeting on the Monday morning of the July 2006 plenary session. (1 room)
Proposed: seaman
Second: wright
For: 25 Against: 0 Abstain:5

802.1 authorizes its May interim meeting to further develop the text of the proposed PAR/5C for "SRP" and authorizes the 802.1 Chair to forward it to the EC as per the 30-day rule.
Proposed: johas-teener
Second:finn
For:26 Against:0 Abstain:6

802.1 authorizes the 802.1 Chair to forward the text of the draft PAR/5C for "Congestion Notification" to the EC as per the 30-day rule.
Proposed: finn
Second:wright
For:27 Against:0 Abstain:5

802.1 requests permission from the EC to forward P802.1AE to RevCom.
Proposed: seaman Second: wright
For: 23 Against: 0 Abstain:3

802.1 requests permission from the EC to forward the P802.1AS draft PAR – Timing and synchronization for time sensitive applications in bridged LANs - to NesCom.
Proposed: johas teener Second:wright
For: 23 Against: 0 Abstain:3

802.1 instructs the editor of P802.1ag (CFM), Norm Finn, to prepare a further draft taking into account the discussions during the March 2006 meeting. The Chair is authorised to issue the draft for Working Group ballotting.
Proposed: finn Second: patton
For: 28 Against: 0 Abstain:0

802.1 instructs the editor of P802.1ah (PBB), Paul Bottorff, to prepare a further draft taking into account the discussions during the March 2006 meeting. The Chair is authorised to issue the draft for Task Group ballotting.
Proposed: bottorff Second:patton
For: 29 Against: 0 Abstain:2

802.1 instructs the editor of P802.1ak (MRP), Tony Jeffree, to prepare a further draft to complete the editing from the previous ballot. The Chair is authorised to issue the draft for Working Group 30-day recirculation ballotting.
Proposed: seaman Second:wright
For: 27 Against: 0 Abstain: 3

802.1 requests permission from the EC for conditional approval to forward P802.1ak (MRP) to Sponsor ballot as per current P&P.
Proposed: seaman Second: wright
For: 26 Against: 0 Abstain:1

802.1 authorizes the editor of P802.1AR (DevID), Mike Borza, to prepare a further draft taking into account the discussions during the March 2006 meeting. The Chair is authorised to issue the draft for Task Group ballotting.
Proposed: Seaman Second:wright
For: 21 Against: 0 Abstain:6

802.1 authorizes the editor of P802.1aq (SPB), Mick Seaman, to prepare a further draft taking into account the discussions during the March 2006 meeting.
Proposed: Seaman Second: wright
For: 25 Against: 0 Abstain:2

Motion to adjourn
Proposed: Wright
Unanimous

Attendees

Luis Aguirre-Torres
Subbarao Arumilli
Hugh Barrass
Alexei Beliaev
Gil Block
Rob Boatright
Jean-Michel Bonnamy
Mike Borza
Paul Bottorff
Rudolf Brandner
Robert Brunner
Dirceu Cavendish
Frank Chao
Alex Conta
Uri Cummings

Claudio Desanti
Russell Dietz
Marcus Duelk
Linda Dunbar
Kristian Ehlers
Hesham Elbakoury
David Elie-Dit-Cosaque
Lars Ellegard
Don Fedyk
Felix Feifei Feng
Norm Finn
David Frattura
John Fuller
Geoffrey Garner
Anoop Ghanwani
Mark Gravel
Ken Grewal
Kevin Gross
Tanmay Gupta
Steve Haddock
Per F Halsen
Takafumi Hamano
Susan Hares
Brian Hassink
Asif Hazarika
Qingyi He
Gopal Hegde
Romain Insler
Ran Ish-Shalom
Raj Jain
Vipin Jain
David James
Tony Jeffree
Pankaj Jha
Michael Johas Teener
Hee Won Jung
Hoon Kim
Tae-eun Kim
Yongbum Kim
Mike Ko
David Koenen
Raghu Kondapalli
Rick Kreifeldt
Subi Krishnamurthy
Bruce Kwan
Kari Laihonen
Michael Lau
Joe Lawrence
Dan Maltbie
David Martin
Tom Mathey
Dave Mayne
John Messenger
Mike Mezeul
Dinesh Mohan
Bob Moskowitz
Wayne Mueller

Suvhasis Mukhopadhyay
Peter Newman
Jacob Nielsen
Satoshi Obara
Karen O'Donoghue
Hiroshi Ohta
David Olsen
Don Pannell
Glenn Parsons
Ken Patton
Haim Porat
Max Pritikin
Charles Qi
Ray Qiu
Karen Randall
Robert Roden
Guenter Roeck
Josef Roese
Allyn Romanow
Dan Romascanu
Jessy V Rouyer
Eric Ryu
Hussein Sallam
Joseph Salowey
Panagiotis Saltsidis
Sam Sambasivan
John Sauer
Matthias Schmitter
Mick Seaman
Koichiro Seto
Himanshu Shah
Hardeep Singh
Kirk Spessan
Nurit Sprecher
Kevin B Stanton
Bob Sultan
Richard Sun
Muneyoshi Suzuki
Kazuo Takagi
John Terry
Pat Thaler
Suresh Vobbilisetty
Kevin VoDinh
Dennis Volpano
Manoj Wadekar
Bert Wijnen
Ludwig Winkel
Jeff Wise
Michael D. Wright
Chien-Hsieu Wu