IEEE 802.17 RPRWG January 16/17, 20001 Preliminary Meeting Minutes
Double Tree Hotel, San Jose
Sponsored by RPR Alliance

Note: All the presentations are available on the web:
http://www.ieee802.org/rprsg/public/presentations/jan2001/index.html

----
January 16, 2001

9:00am: Welcome and Introduction, Mike Takefman and All
9:10am: 802.17 Administrative Brief , Mike Takefman
    - Rules and procedures summarized in Mike's "welcome" presentation:
       http://www.ieee802.org/rprsg/public/presentations/jan2001/welcome.pdf
    - Next IEEE March Plenary meeting information:
        March 11-16, 2001, Marriott Hilton Head, Hilton Head, SC
        http://www.ieee802.org/meeting/regform2.html
    - Voting rule for the officer positions is proposed and voted
      in favor unanimously
      (Detailed proposal is also in Mike's "welcome" presentation)
    - Goal for this meeting:
        To get the Scope, Objectives, Timeline and Amount of work estimated.

9:30am: Agenda Scrub, Mike Takefman
    - Bob moved to accept the agenda, and accepted unanimously.
9:35am: Review Minutes of August 2000 meeting, Mike Takefman
    Comment: This is to properly conclude the study group activity. It was
    noted that the only official product of the study group was PAR.

  Motion 2001-01-16-01:
    Approve the minutes of the August 2000 RPRSG Interim meeting as given on
    the January 2001 Preliminary Meeting web-site.
    (M) Bob Love (s) Amer Khaled
    (Y) 36 (N) 0 (A) 17

9:40am: Review Minutes of November 2000 meeting, Mike Takefman

  Motion 2001-01-16-02:
    Approve the minutes of the November 2000 RPRSG Interim meeting as given on
    the January 2001 Preliminary Meeting web-site.
    (M) Necdet Uzun (S) Raj Sharma
    (Y) 23 (N) 0 (A) 25

9:45am: Update on RPR Alliance Informal Liasion: Bob Love
    - Alliance is initially formed by 5 companies, and more applications are
      in line.
    - http://www.rpralliance.org

9:50am: RPRSG Summary, Mike Takefman
    -
http://www.ieee802.org/rprsg/public/presentations/jan2001/rprsg_summary.pdf

10:05am: Break

10:30am: Update on IETF IP over Resilient Packet Rings, Albert Herrera
        - New name was given to the WG, i.e., IPoRPR from IPoPTR
        - Current status, objectives, time-line are listed in
                http://www.ieee802.org/rprsg/public/presentations/jan2001/albert.pdf
        - Particular note was made that discussion was in progress whether the
          scope of the WG charter should be expanded to include non-RPR optical
          ring technologies

10:45am: Report on presentation to the IETF about IEEE 802.17, Khaled Amer
        - There existed a big concern about the availability of draft of
          the 802.17 standard for the IETF IPoRPR WG members to enable working
          together closely. IEEE drafts are not readily available, while IETF
          drafts are.
                - Khaled suggested that RPRWG proposed to Jim Carlo to make 802.17
                  drafts available to selected individuals for collaboration.
                - It was pointed out that most drafts were readily available,
                  although requiring password.
                - It was also pointed out that IEEE documents are copy-right
                  protected, and so need careful process.

        Action: Mike to send a request to Jim Carlo for his advice on this
           document sharing issue.
        Straw poll: Number of people who also participates in IETF (10), TIXI (7).

11:00am: Presentation: Winning Through Standards Development, Bob Love, LAN
        Connect Consultants
        - http://www.ieee802.org/rprsg/public/presentations/jan2001/love01.pdf

11:20am: The Reality of Transmission Infrastructure - Roy Bynum, MCI Worldcom
        -
http://www.ieee802.org/rprsg/public/presentations/jan2001/RB_transmission.pdf
        - Presented his view on what the RPR standard effort should focus on.
                - RPR is a transport infrastructure, not the services.
                - SONNET/SDH metro access favors a mesh of two node rings
                  instead of multi-node rings.
                        * Two node rings are used because of the ability to do
                          operational maintenance on transmission systems without
                          affecting more than one site.
Q: What happens under fiber exhaust situation?
A: A lof utility companies are installing a huge amount of fibers.
Q: Why RPR is necessary, given the current proposed network design, i.e.,
   1+1 access protection rings?
A: Performance gain in TDM vs. Statistical muxing with RPR. However, multinode
   rings are still built in the long haul backbone transport infrastructure.
        - VBR, UBR, 0 CIR is a high margin business, but only represents 0.75%,
           the rest is CBR circuits.
        - Do not worry about QoS, and simply provide CIR service.
Q: Should the latency be part of SLA?
A: No. We also specify CIR.
Q: If the bandwidth is sold by chunks, why RPR?
A: Instead of point-to-point, value added services like voIP need pt-to-
multipoint or multi-to-multipoint connectivity, thus the need for RPR.
New Ethernet services are a whole new different game with different
requirements?

12:15pm: Lunch break

1:30PM: 802.17 Fairness for Transparent LAN Service, Bob Sultan, Fujitsu
        - http://www.ieee802.org/rprsg/public/presentations/jan2001/sultan.pdf
        - A Framework was proposed for weighted fairness to handle asymmetric
          traffic pattern in Transparent LAN services under congestion. Pointed
          out a requirement also to maintain independence of performance
          across customer domains, i,e., to isolate congestion control per domain.

Q: Considering the necessary complexity and scalability concerns, would it be
   better left toward vendor differentiation area?
A: Need more investigation.
Q: How about the potential problem for the L2 access control coupled with global
   TCP synchronization behaviour, as in ATM ABR?
A: Per-domain weighted fainess issue is no different from aggregate fairness.

2:05pm: Scope considerations for Link Layer in RPR, Pankaj Jha, Cypress
        Semiconductor
        - http://www.ieee802.org/rprsg/public/presentations/jan2001/pjscope.pdf
        - Presented a view of constructing RPR ring using MPLS LSP over physical
          ring, including a requirement for different link rates spanning
          different segments, and a consideration for efficient frame delineation
          scheme.

2:50pm: Jitter and Wander of High-priority Traffic in RPR, Gal Mor, Corrigent
        Systems
        - http://www.ieee802.org/rprsg/public/presentations/jan2001/ce_rpr.pdf
        - Presented simulation study results demonstrating the potential effect of
          low priority Jumbo frames on delay sensitive frames over RPR and the
          need to define a priority mechanism.

3:15pm; RPR: an SCI perspective, David V. James (past editor, IEEE Std 1596)
        -
http://www.ieee802.org/rprsg/public/presentations/jan2001/RrpAfterSci.pdf
        - Presented various perspectives on potential RPR issues and directions
          including packet header, and some thought on Jumbo frames and plug and
          play.

3:55pm: Break

4:05pm: What will it take to create the IEEE 802.17 Resilient Packet Ring
        Standard?, Bob Love, LAN Interconnect Consultants
        - http://www.ieee802.org/rprsg/public/presentations/jan2001/love02.pdf
        - Presented potential approach and procedures in establishing the 802.17
          standard in an effective and speedy way, based on 802.5 standard
          experience.
        - Proposed two-pronged approach, i.e., start outlining sections
          immediately following the March meeting, also start filling in the
          technical details within at the same time.

4:30pm: IEEE 802.17 Development Timeline, Mike Takefman
        - http://www.ieee802.org/rprsg/public/presentations/jan2001/timeline.pdf
        - Mike presented a preliminary timeline based on 802.3z example showing
          completed Standard in March 2003. The timeline is as follows:

          WG Formation: Dec 2000
          Objectives: March 2001
          Proposal Cutoff: Nov 2001
          1st draft: Jan 2002
          Last Add TF Review: March 2002
          WG Ballot: July 2002
          Last Tech Change: Sept 2002
          LMSC Sponsor Ballot: Nov 2002
          Standard: March 2003

        - A concern was raised and discussed on whether setting the objectives in
          March, 2001 Plenary is achievable. A proposal is raised and discussed
          to have another interim meeting in February to gather more proposals for
          the objectives setting. Decision on the planning is deferred until
          January 17.
Q: What happens if we miss the time line?
A: Possibility exists to miss the market!

5:00pm: Scope Considerations, Bob Love
        - He went through an example exercise in deciding on a list of agreed upon
          work items. The example list is shown below:

(Feature)	(include)	(Maybe)	(Exclude)
Ethernet-based PHY layer			
1G	yes		
10G	yes		
Sonet-based PHY layer			
OC48	yes		
OC192	yes		
Spatial Reuse	yes		
Ring Topology	yes		
Point-to-Point Topology	lots	yes	
(Unprotected)			
Mesh Topology	few	lots	lots
9.6k Frame size			most
Congestion Control Layer 2	yes	few	few
Distributed Bandwidth Mgmt			
Class of Service Support			
<= 2			
<= 4			
> 4			

5:25pm: Discussion on Ad-hoc Group formation, Mike Takefman
- http://www.ieee802.org/rprsg/public/presentations/jan2001/adhoc.pdf
- Proposed to have multiple parallel sessions in all meetings to maximize effectiveness and efficiency.
- Presented possible work areas include:
    . MAC definition: service model/frame format/packet processing
        rules/priority support/fairness, etc.
    . Control protocols: topology, protection
    . Physical layer definition: SONET/SDH, Ethernet
    . Performance evaluation:
    . 802.1 bridging related work

5:40pm: Performance Adhoc Group, Khaled Amer
- http://www.ieee802.org/rprsg/public/presentations/jan2001/khaled.pdf
- Presented a brief scope on objectives and methodologies for performance evaluation.
- Took a quick straw poll on whether performance comparison between RPR and Ethernet solution should be done in this group. Mike said it was a technical decision, and 75% agreement could not be reached. As a result, no decision was made.
- An idea of off-loading this performance work to independent consulting company, or to the RPR alliance, was discussed. No definite decision was reached.
Q: Is the goal of the performance adhoc group to accept an existing proposal, or to come up with a better proposal? The question is in regard with meeting the time line objective.
A: This is one of the issues where we need consensus.

6:10pm: End of January 16, 2001 Meeting.

January 17, 2001

8:30am-9:00am: Coffee and Seating
9:00am: Goals for the day, Mike Takefman
    - The goal was to firm up the working group objectives, and to have an open forum for various technical and planning issues.
9:05am: Agenda Scrub, Mike Takefman

9:10am: Discussion on Performance Modeling, Khaled Amer
    - Khaled presented a progress and status report on the performance modeling effort in the study group, and led more discussions on the goals, performance metrics and traffic scenarios.
    - Based on a comment on the packet size distribution, straw poll was taken on existing model (agreed upon in earlier RPRSG meetings, i.e., Trimodal (40% 64Bytes, 40% 512Bytes, 20% 1518Bytes) and Bimodal (50% 64Bytes, 50% 9KBytes). Poll result: Change (9), Not-change (9).
    - Another comment was brought up that judging from the number of votes, decision on exact numbers should be deferred to Ad-hoc group effort. Straw poll approved the comment.
    - Discussion occurred whether the comparative study should be at the level of comprehensive vendor solution or at the component mechanism level. Decision has been deferred.

11:00am: Comment on recent press release from some participating companies, Bob
         Love
    - It was advised to refrain from making misleading marketing announcement.

11:05am: 802.17 Objectives, Mike Takefman
    - 802.3z Obejectives were shown as an example. Then, Mike's version was
      presented, and discussed. The end result was as follows. Sub-bullets
      captured some of the related discussions.

  (1) Dual Counter Rotating Ring network with:
      - media agnostic MAC capable of supporting speeds ranging from 1 to
            multiple Gb/s
      - spatial reuse & multi-cast support
      - mechanism to insure packets do not circulate forever
      - plug and play (no provisioning for basic operation)
          * definition to be discussed more in the reflector
      - same media (link speed) on a single RPR ring
          * Need for standardize different link speed/rate on different ring
            segment was discussed more. Some believed such feature should be
            vendor-specific value add, while others argued it should be a part
            of standard.
      - no packet loss on ring except during protection events
      - inter-operability to the level of allowing boxes from different vendors
        on the same ring:
            * Need feedback from the service provider customers?
            * May unnecessarily broaden the scope of the standard effort?
            * What is the definition of interoperability? An answer from @home
              representative was that MAC devices from different vendors could
              exchange MAC frames. Detailed definitions would be discussed
              more in the reflector.
      - Masterless ring

12:00am: Lunch Break

1:30pm: RPRWG Objectives (Continued), Mike Takefman

  (2) New frame format that can efficiently transport packets:
      - simple mapping for 802.3 frames into 802.17 frames
        Action: Harry Peng to prepare a presentation to propose GFP mapping to
            RPR in March
      - extensions to support enhanced VLANs (virtual private line?)
        Action: Roy Bynum to prepare a presentation on the requirement
            and definition of "virtual private line" in March Plenary meeting.
      - mechanism to insure packets do not circulate forever
        Action: Pankaj Jha to prepare a presentation of a mechanism to insure
            packets do not circulate forever. Pankaj will also presents on
            fault recovery and restoration scenarios, and different rate spans
            over an RPR ring.
      - support for a header field that supports differentiated services
      - What kind of payloads do we want to carry on 802.17?
            . MAC is payload agnostic. *This requires definition.
                  - Does not preclude TDM services/circuit emulation
        Action: Raj Sharma to prepare a presentation to make the MAC payload
            agnostic not precluding TDM/circuit emulation service in March.
        Action: Yong Kim to compile an updated list of objectives from the
            reflector discussions for the March Plenary meeting.

(3) Define mapping of MAC frame into existing PHY layers:
    - OC-48c/STM-16, OC-192c/STM-64 SONET/SDH
    - 1Gb/s Ethernet PHY
    - 10Gb/s Ethernet (LAN and/or WAN) PHY
    - and not preclude the lower rates (Harry Peng - SONET)
    - and not to preclude higher rates
  Action: Harry Peng to be an editor for the lower than OC-48c link rate.
  Action: David James to be an editor for the lower rate Ethernet
        (e.g., 10Mb/s).
  Action: Offer Pazy to prepare a presentation on a position to accommodate
        sub- OC-48c/STM-16 with a larger payload.
    - clocking and synchronization
  Action: Lauren Schlicht to maintain a living list of "Terms and
        Definitions"

(4) Define a protection scheme that recovers from node or facility failures
    in under 50ms:
    - minimize packet loss beyond fault recovery time
    - wrapping vs steering
    - design of protection and topology messaging protocols

(5) Support both layer 2 and layer 3 networks:
    - support 802.1D/Q
    - expose ceertain features/functions to upper layer
   Action: Offer Pazy to prepare a presentation on the desired MAC client
        interface for information and control.
   Action: Nader Vijeh to prepare a presentation on how other MACs dealt
        with 802.1D/Q compliance issue.

(6) Class of service support:
    - on the ring
    - ingess to the ring
    - egress from the ring

(7) Support packet size up to 9K bytes
(8) Addressing OAM/P requirement

4:00pm: IEEE 802.17 RPRWG Major Decisions, Mike Takefman
    - It was noted that the following list was rather a list of items to be
      decided upon later.

    **MAC Features:
    - Cut through vs Store and Forward
    - Packet Loss on Ring
    - Transit Buffer Design/Size
    - Bandwidth management mechanism
        . Fairness vs weighted fairness
    - Transit traffic priority support
    - Transmit traffic priority support
    - Receive traffic priority support
    - Congestion control

4:15pm: Break

4:30pm: New Business, Bob Love
    - Presented a list of things needed on the web:
        What documents do we need on the web(outside of meeting sections)?
        Meeting section will include the presentations and meeting minutes.
        . Definitions (Lauren Schlicht)
        . Scope & Objectives (Yong Kim)
        . Issues List (Mannix Alex)
        . Table of Contents for the Standard (Once it exists)
        . Standards Clauses - As they are written
        . Action Item List (Who will deliver what, when)
        . Development Schedule
        . List of Significant people - officers, volunteers, contributors
        . Voting Members
        . Members only page - contact information
        . Liaison to 802.3 and 802.1

    Action: Mike to check with MPLS and OIF web management tool. Current web
        master Edward Mussina (sp?) would also be consulted. Any other
        web-related ideas were encouraged to be brought up in the reflector.
    Action: Mannix Alex to be in charge of issues list.
    - New business:
        . Liaison to 802.3 and 802.1 and T1X1.5

5:00pm: Planning for the March Plenary, Mike Takefman
    - Technical presentations that support objective selection.
    - Refine the living docment (on the web) with the terms, definition
    - Architecture:
      . Determine issues on network architecture and interoperability
        - What does interoperability really mean:
                . At the MAC layer?
                . Beyond the MAC layer?
                . Multiple vendor boxes on ring?
                . Ring to ring architecture?

    Action: Service providers present their network architectures and
            requirements for the new people in the March Plenary meeting, e.g.,
            Excite@home, Sprint, etc.
      . Issues surrounding multiple ring scenarios
        - 802.1 bridging
        - routing
        - Other?
      . Plug and play
        - Sounds great, but what does it really entail?
        - Provisioning
    - MAC Layer
      . Creation of a straw-man IEEE 802 compliant MAC layering.
      . Presentations from all companies on their current MAC design:
        - Feature description:
          . Five each company would be allocated 1 hour, and encouraged to
            have additional collateral that would not be presented. These
            should be posted hopefully way ahead of the meeting.
        - Simulation presentations:
          . Each company would be given 30 minutes and they run the
            simulations they think would be the most important to highlight
            the real performance issues. (Allocated times would be
            adjusted according to the number of presentations scheduled.)

- Physical Layer Issues:
  . mapping of frames to each physical layer
    - Is there a need for sub-layers to handle each physical layer
      differently?
    - For Ethernet media, do we maintain things like the IPG, or
      preamble?
    - What protocol does we use for SONET links?
  . clocking
    - Are these really just point-to-point links that free-run? OR
    - Do we need to support a clocking hierarchy?
    - Do we support loop timing?
  . synchronization
    - Do we need to support 8KHz framing?
    - How do we deal with frequency mismatch on free running nodes?

- <u>Preliminary Daily Schedule for March, 2001 Plenary Meeting</u>
  . Monday AM
    - Bob and Mike at SEC Meeting
    - RPR Primer for New Participants?
  *Action: Raj Sharma to do the RPR Primer presentation. Raj will
   give a draft in 2 weeks, and Mike to post the presentation in the
   reflector, and to gather feedback to finalize it.
    - Performance Ad-hoc, 8:30am to 10:50am
    - 802 Plenary, 11:00 - 12:00am
  . Monday PM
    - 802.17 Opening Meeting
    - Discussion on Terms and Definitions
      . Straw polls taken on each definition
  . Tuesday AM to Thursday AM
    - Architecture presentations (end-user driven, but corporate driven
      is also good)
    - MAC Layer model
    - Performance simulation presentations
  . Thursday PM
    - Voting membership determined
    - Election of officers of RPRWG
    - Motions on Terms and Definitions
      . To reconfirm the straw polls
    - Motions on Objectives
    - Planning the next meeting

Request from the chair: Let the intention to make a presentation to be known in
about a month in advance, so as to have a firm agenda earlier, e.g., by February
12. Exceptions will be made to customer presentations.

   *Action: Mike to come up with the document naming convention, e.g., name,
     revision, date, etc., and post it in the reflector for feedback.

Motion 2001-01-17-01:
     Presentations to the RPRWG must be delivered to the Chair for upload onto
     the web-site 8 days prior to the meeting to be scheduled time in the
     meeting. Any substantial updates to the presentation will be available on
     paper copy at the start of the presentation. (Procedural)

     (M) David James (S) Paul Amsden
     (Y) 18   (N) 9   (A) 7

Motion 2001-01-17-02:

     Slots in the agenda for a WG meeting must be requested from the Chair 30 days in advance of the meeting. The Chair has the discretion to add to the agenda those people who missed the deadline. (Procedural)

     (M) Khaled Amer (S) David James
     (Y) 18   (N) 2   (A) 10

Motion 2001-01-17-03:

     The chair has discretion to allow some invited presentations at the meeting. Invited presentations do not have to meet deadlines.(Procedural)

     (M) David James (S) Paul Amsden
     (Y) 20   (N) 0   (A) 4

6:30pm: Volunteers, Decisions, Actions, Mike Takefman
- Discussed the required frequency and duration of interim meetings.
     - Harry Peng requested that the proposed schedule be reviewed again in the March Plenary.
     - Khaled reported performance modeling Ad-hoc discussion results.
     - B.J. Lee summarized and presented a list of action items for update.
     - Exact date for the May interim is May 14-18.

7:00pm: End of IEEE 802.17 RPRWG Jan 16-17, 2001 Preliminary meeting.

List of Action Items:

---

1. Mike Tekefman to send a request to Jim Carlo for his advice on the document sharing issue (with IETF IP0RPR WG).
2. Harry Peng to prepare a presentation to propose GFP mapping to RPR in March.
3. Roy Bynum to prepare a presentation on the requirement/definition of "virtual private line" in March Plenary meeting.
4. Pankaj Jha to prepare a presentation of a mechanism to insure packets do not circulate forever. Pankaj will also presents on fault recovery and restoration scenarios, and different rate spans over an RPR ring.
5. Raj Sharma to prepare a presentation to make the MAC payload agnostic that does not preclude TDM/circuit emulation service in March.
6. Yong Kim to compile an updated list of objectives from the reflector discussions for the March Plenary meeting.
7. Harry Peng to be an editor for the lower than OC-48c link rate.
8. David James to be an editor for the lower rate Ethernet (e.g., 10Mb/s).
9. Offer Pazy to prepare a presentation on a position to accommodate sub- OC-48c/STM-16 with a larger payload.
10. Lauren Schlicht to maintain a living list of "Terms and Definitions."
11. Offer Pazy to prepare a presentation on the desired MAC client interface for information and control.
12. Nader Vijeh to prepare a presentation on how other MACs dealt with multi-path forwarding.
13. Nader Vijeh to prepare a presentation of 802.17 MAC model.
14. Mike Takefman to come up with the document naming convention, e.g., name, revision, date, etc., and post it in the reflector for feedback.

```
Attendees
```

Alak Deb
Alexander Leobovich
Andrew Brown
Bob Schiff
ChingWei Chang
Chuck Kuhlmann
Dean Cheng
Devendor K Tripathi
Fouad A Tobagi
Itzik Hendel
JC Kuo
Jim Kao
Kamal Rathi
Longsong Lin
Magnus Svevar
Mark Hoke
Martin Green
Mete Yilmaz
Michael Steele
Mike Jacobsen
Nader Vasseghi
Patrick Conlon
Perminder Chohan
Rafi Shalor
Ron Fang
Samian Kaur
Samuel Liang
Simon Assouad
Thien Vuong
Vincent Bemmel
William Dai
Adisak Mekkittikul
Ajay Sahai
Albert Herrera
Alexander Smith
Allan Pepper
Aravind Gopalan
Benjamin Chen
Bill Lee
Bob Sultan
Bruce B Johnson
Byoung-Joon Lee
Cheng-chung Shih
Cliff Davis
Dave Meyer
David B Gustavson
David Cheon
David James
Dennis Lee
Denny Scharf
Donghui Xie
Eli Aloni
Fred DiBerto
Frederic Thepot
Gal Mor
Gary Nelson
Gary Turner
George Young
Glen Kramer
Gunes Aybay
Guy Trotter
Harry Peng
Heng Liao
Hossein Sahabi
Ingrid Van De Voorde
James Chan
Jan Jorgensen

Jason Fan
Jean-Lou Dupont
Jeff Timbs
Jingsong Fu
John Hawkins
Kanaiya Vasani
Kevin Rea
Khaled Amer
Kurt Shiraishi
Lars Ramfelt
Lauren Schlicht
Lorna Sutherland
Luc Roy
Mannix O'Connor
Martin Wollensak
Michael McDonald
Mike Davis
Nader Vijeh
Necdet Uzun
Nigel Cole
Nirdosh Bhatnagar
Offer Pazy
Pankaj Jha
Paul Ansder
Raj Sharma
Robert D Love
Robin Olsson
Roy Bynum
Sanjay K Agraival
Satoshi Obara
Shahid Akhtar
Stein Gjessing
Steven Wood
Steven Wright
Tom Mathey
Vish Ramamurti
Wil Costales
Yongbum Kim

End of Meeting Minutes