Gap Analysis of Remaining Objectives

Michael Takefman
Chair IEEE 802.17 RPRWG
Cisco Systems

Agenda

- Advice from Howard Frazier
- Consider the passed objectives, areas of disagreement and what gaps exist
- 6 different groups of objectives
  - BW Management
  - Interoperability
  - Management
  - Physical
  - Resiliency
  - Services

Advice from Howard

- We already have a ton of objectives
  - We got a lot agreed to in a reasonable period of time
    - Too many in his opinion
- If we think there are a few more to consider, do so
  - If we cannot agree on any more its time to move on
  - Start focusing on proposals – spend a few meetings
    - Presenting detailed proposals and fleshing out details
      - so that writing the standard is easier (Bob has been saying this for a while!)
    - Improving the proposals if you think the critiques are valid
    - Explaining why the critiques are invalid
    - Negotiating common ground

BW Management

- *The 802.17 standard shall support dynamic weighted bandwidth distribution*
- *The 802.17 standard shall provide support for services that require bounded delay and jitter, and guaranteed bandwidth*
  - These are the essential requirements on the algorithms

- There is disagreement on the type of BW algorithm
  - The transit path design tends to be integral to the algorithm
  - Provisioned versus non-provisioned services
  - Can the ring be over-subscribed or not?

- It is too early to decide which approach to take given that all information is not available on all options
  - This is the real work to be done!

Interoperability

- *The MAC shall allow for 802.17 inter-operability to the level of allowing boxes from different vendors on the same ring*
- *The 802.17 RPR standard shall support a mechanism that allows for topology discovery*
- *Initially the 802.17 RPR Standard shall support a Dual Counter Rotating Ring network topology*
- *The 802.17 RPR Standard shall support a fully distributed access method without a master node within the same ring.*
- *The 802.17 standard shall allow a new station to transit and optionally insert packets without manual configuration (plug and play)*

Interoperability

- There is some disagreement on the likelihood of boxes from different vendors being on the same ring
  - BW management and the ability for boxes with differing schemes to co-exist with good BW sharing and delay and jitter being met is the tricky bit
  - No point in passing any objectives here
    - Either the group decided to go with 1 BW Management scheme or
    - A scheme that works acceptably for multiple applications will emerge
    - There is no reasonable way to set an objective as to how good the scheme needs to be

Interoperability Gaps

- Ring size / Node Counts
  - This is required in order to have reasonable bounds for BW management work
- Minimum and Maximum sized frames
  - Some presentations have been done on maximum, none on minimum
  - This is not a pressing issue and can wait for a bit
- Customer Separation
  - New motion will likely pass – but can we do this within our PAR ?

Management

- *The MAC shall support a set of operations that enable identification, collection and management of objects related to operation and performance*
- *The 802.17 RPR Standard should support Operation Administration, Maintenance and Provisioning*
- *The 802.17 RPR Standard shall define the managed objects in ASN.1 format.*
  - No disagreements that I can see on these objectives
- 802.1F is a guide for most management issues

Physical

- *The 802.17 MAC shall be PHY agnostic*
- *The RPR MAC shall support SONET / SDH physical layers*
- *The 802.17 RPR Standard shall support and comply with Gigabit Ethernet SAP (Service Access Point)*
- *The 802.17 RPR Standard shall support and comply with 10Gigabit Ethernet SAP (Service Access Point)*
- *Requirement: The MAC must be capable of supporting speeds of 1Gb/s and above*
- *The 802.17 RPR Standard shall be capable of supporting speeds of 10Gb/s and above. To support higher speeds some parameters of the standard may be modified*
- *The 802.17 standard shall allow support of speeds ranging from 155MBit/s to above 10Gb/s*

Physical

- Last three objectives could be combined

- Disagreement on the need for GFP versus POS
  - No need to pass an objective on POS and/or GFP
  - Let the SONET/SDH proposals be completely described and then see if a proposal is accepted
  - For safety we may want to request that T1X1 to reserve a mode for .17 in case GFP is selected as an option

Resiliency

- *Requirement: There shall be a mechanism to ensure packets do not circulate forever*
- *RPR Protection switching shall be complete in less than 50ms for a single failure*
  - *Disagreement on wrapping versus steering*
    - Lets see what is put in the overall concrete proposals
- Gap
  - is a hierarchy of protection a requirement ?
  - Is there a requirement for a user initiated resiliency actions ?
  - Is there an error rate where the protocols should function properly
    - Not necessary to decide now, but it should be part of the evaluation

Service

- *Requirement: The MAC shall support destination removal for uni-cast packets during normal operation.*
- *Requirement: The MAC shall support multi-cast*
- *The 802.17 working group shall define a MAC header and frame format*
- *Require: The MAC shall support multiple types of service*
- *The RPR MAC shall preserve the Service Data Unit*
- *The 802.17 MAC shall be payload agnostic*
  - Disagreement on frame formats / header
  - Support for TDM, does it require explicit support in MAC and should .17 standardize it
  - Disagreement on provisioned versus non-provisioned services

Service

- Need to clean up language to be consistent
- Last three seem similar

- Gaps
  - what do to about 802.1D / Encapsulating bridging