



RPRWG Objectives

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802.3z Objectives



- 1. Speed of 1000 Mb/s at the MAC/PLS service interface
- 2. Use 802.3/Ethernet frame format
- 3. Meet 802 FR, with the possible exception of Hamming Distance
- 4. Simple forwarding between 1000, 100, 10
- 5. Preserve min and max FrameSize of current 802.3 Std
- 6. Full and Half Duplex operation
- 7. Support star-wired topologies
- 8. Use CSMA/CD access method w/ support for at least 1 repeater/collision domain
- 9. Support Fiber media and if possible copper media

802.3z Objectives

- 10. Use ANSI Fiber Channel FC-1 and FC-0 as basis for work
- 11. Provide a family of Physical Layer specifications which support a link distance of:
 - a. At least 25 m on copper (100 m preferred)
 - b. At least 500 on multimode fiber
 - c. At least 3 km on single mode fiber
- 12. Support maximum collision domain diameter of 200m
- 13. Support media selected from ISO/IEC 11801
- 14. Adopt flow control based on 802.3x
- 15. Include a specification for an optional Media Independent Interface

RPRWG Objectives

- Key to bullets on following slides
 - Normal text implies likely agreement
 - *Italicized underlined text implies likely disagreement*
 - *Italicized text implies somewhere in the middle*
 - **Bold text requires definition of term to insure agreement on objective.**

RPRWG Objectives

- 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)**
 - *same media (link speed) on a single RPR ring*
 - *no packet loss on ring except during protection events*
 - **Inter-operability** to the level of allowing boxes from different vendors on the same ring
 - **Masterless ring**

RPRWG Objectives

- 2) New frame format that can efficiently transport packets
 - simple mapping for 802.3 frames into 802.17 frames
 - GFP <-> to RPR?
 - *extensions to support enhanced VLANs (virtual private line)*
 - mechanism to insure packets do not circulate forever
 - 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**
 - *Does not preclude TDM services / circuit emulation*

RPRWG Objectives

- 3) Define mapping of MAC frame into existing PHY layers
 - OC-48c/STM-16, OC-192c/STM-64 SONET/SDH
 - 1 Gb/s Ethernet PHY
 - 10 Gb/s Ethernet (LAN and/or WAN) PHY
 - *and not preclude the lower rates (HarryPeng-SONET)*
 - *and not to preclude higher rates*
 - *clocking and synchronization*

RPRWG Objectives

- 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 certain features / functions to upper layer

RPRWG Objectives

- 6) Class of service support
 - on the ring
 - ingress to the ring
 - egress from the ring
- 7) Support packet size up to 9K bytes
- 8) Address OAMP requirements

RPRWG Major Decisions

- 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*