Requirements For 802.17c

Tier 1 – Unanimously agreed to:

- Support rings interconnect through dual-station homing
- Provide sub 50msec protection
- Always prevent loops in steady-state operation
- Requires no changes to non-interconnect stations on the ring (running previous versions of 802.17) to benefit from PIRC
- Support strict and relaxed modes of loop prevention during the transient process between the normal and failure states
- PIRC shall provide protection between rings, wherever possible, even when the PIRC Group is unable to communicate on one of the rings
- Mandatory Load Balancing algorithms:
  - Active/Standby
- Optional Load Balancing algorithms, which might include the following:
  - VLAN, Hash, Spatial (shortest hop), Spatial (shortest distance)
- Optional support of local tributary interfaces in interconnecting stations
- Support multiple network topologies:
  - an interconnect station may belong to multiple protection groups
  - an interconnection station may peer with different interconnection stations for different interconnect groups
  - interconnect stations may occupy any relative position in a ring
- The load balancing shall allow unicast traffic to be forwarded without persistent flooding or loss of connectivity
- Provide maintenance commands (e.g. manual switch-over)
- Support services with both point-to-point and multi-point-to-multi-point topologies

Tier 2 – Either not unanimously agreed to or of secondary importance to Tier 1 requirements:

- Preferable that the mandatory profile can be implemented with existing silicon
  - optional profiles may require new silicon
- PIRC will be used on networks that do not have loops aside from those created by a single PIRC group
  - Majority but not unanimous support
  - Alternatively: PIRC will be used on networks that do not have loops aside from those created by PIRC groups
  - Alternatively: PIRC trees might be logically carved from meshes
- Allow implementation of interconnecting station as two separate stations with back-to-back connections
- Optional User configurable load balancing (this is likely going to be implemented at a non interconnect station)
  - controversial
- PIRC should achieve connectivity where possible, including when the protecting nodes are isolated from each other on a ring
  - will be done if not too much effort
- Attend the MAC table scalability issue
  - controversial (involves using station IDs)
- Support for efficient selective MAC table flush
  - presumes the use of 802.17b at the PIRC station