

RPR MAC objectives based on carrier requirements

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Carrier Requirements related to MAC functionality

- ✍ Customer Traffic Separation
- ✍ Quality of Service
- ✍ Efficiency
- ✍ Availability
- ✍ Optimization for Ethernet Services
- ✍ Payload Preservation
- ✍ Support for Circuit Emulation
- ✍ Ring size
- ✍ Packet loss on the ring
- ✍ Performance monitoring

Quality of Service

- ✍ Ability to provide SLAs to customers with delay, jitter, availability, and packet loss guaranties
 - ✍ Support for a set of service categories
 - ✍ Bell South (Bell) : “RPR should support –Multiple QoS types”
 - ✍ GC: “ 3 Service Categories”
 - ✍ QoS per subscriber
 - ✍ GC: “Guaranteed service contracts per customer” (delay and jitter < 10ms)

Efficiency

- ✍ Keep ring utilization as high as possible
 - ✍ SBC: “Ethernet-like RPR transport protocols are being developed with the promise of supporting shared media access for efficient bandwidth utilization ...”
 - ✍ Bell: “Q: Is the link utilization efficiency important?
A: Likely.”
 - ✍ GC: “Deploy MAN Infrastructure that maximizes fiber utilization;
> 90% bandwidth efficiency”

Availability

✍ SONET-like Protection

✍ SBC: “Ethernet-like RPR transport protocols are being developed with the promise of supporting robust protection mechanisms equivalent to SONET...”

✍ [Excite@home](#) (@home): “Path protection with “fast” recovery (sub second)”

✍ GC: “50 msec protection performance”

✍ Variable Protection i.e. the protection bandwidth equals a percentage of the working bandwidth and is configurable per customer

✍ Bell: “RPR should support packet level protection options – (e.g. protected, partially protected, unprotected etc.)”

✍ Global Crossing: “Configurable service protection per customer; percentage based”

Optimization for Ethernet Services

✍ Optimized for the delivery of Ethernet services

- ✍ SBC: “Ethernet-like RPR transport protocols are being developed with the promise of supporting better optimization for packet services”
- ✍ GC: “Optimize delivery of Metro Ethernet Services”

✍ Support for multicast

- ✍ [@home](#): “Desired RPR features – Multicast”
- ✍ GC: “Service Objectives – Multicast and Broadcast”

Payload Preservation

- ✍ The frame is not modified as it traverses the ring
- ✍ GC: “Transparent LAN service; Maintain customer’s VLAN”

Support for Circuit Emulation

- ✍ Offers the ability to carry TDM traffic

- ✍ References

- ✍ SBC: “Develop RPR objectives ... while not precluding TDM circuit transport emulation”

Performance Monitoring (FCAPS)

- ✍ GC: “Frame level (L2) statistics; Ring Segment statistics; SNMP and standardized MIB”
- ✍ Bell: “RPR must provide SONET like OAM&P diagnostics and OS”
- ✍ @home: “SNMP Management”

References

- ✍ MCI Worldcom: March meeting minutes
- ✍ Global Crossing: March meeting minutes; Presentation pages 3, 4, 5, 6, 7, 8, 9
- ✍ Bell South: March meeting minutes; Presentation page 4, 5
- ✍ SBC: Presentation pages 2, 7
- ✍ Sprint: March meeting minutes
- ✍ [Excite@home](#): Presentation pages 4, 13