Realtime Application QOS Monitoring (RAQMON)

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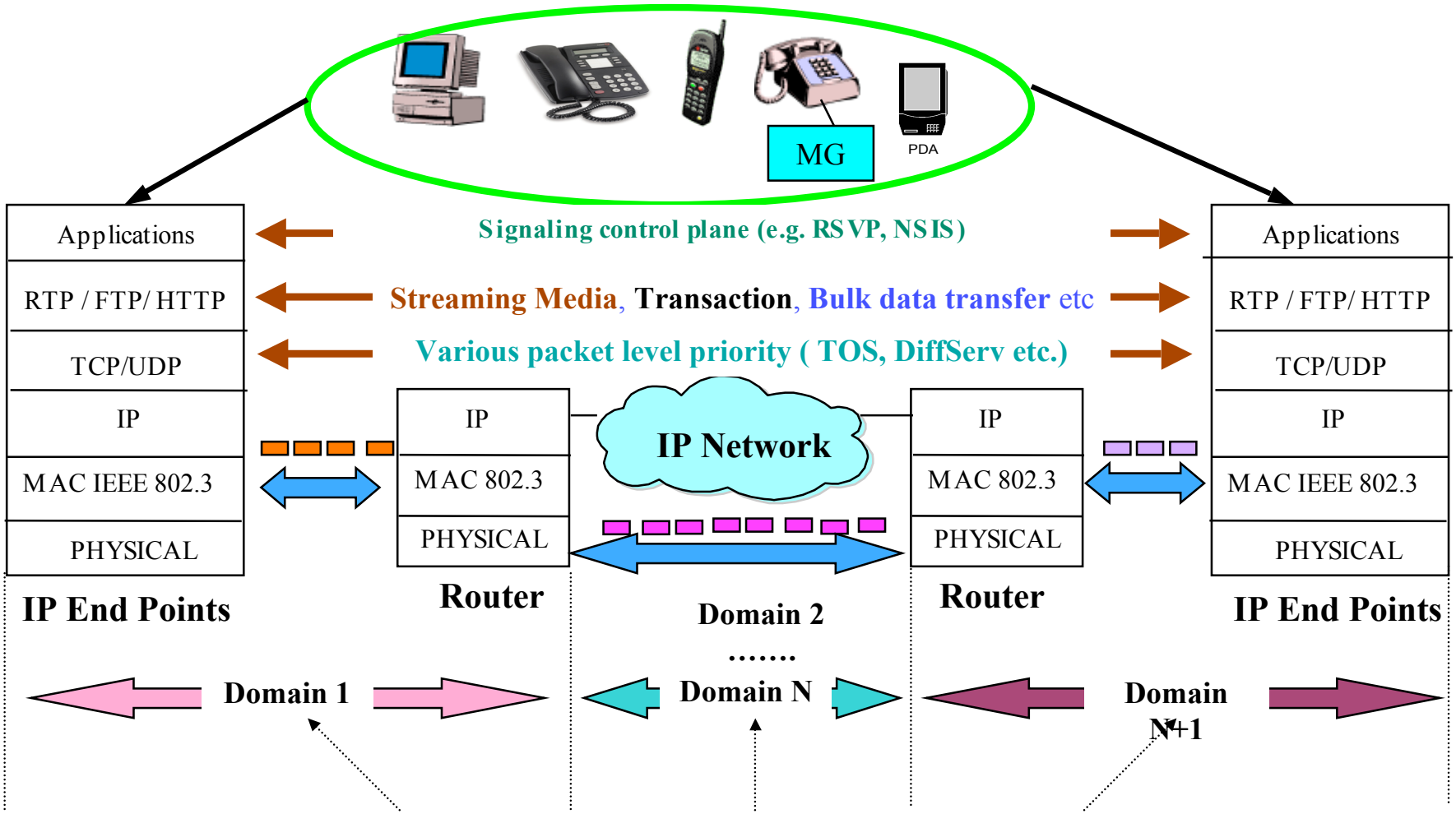
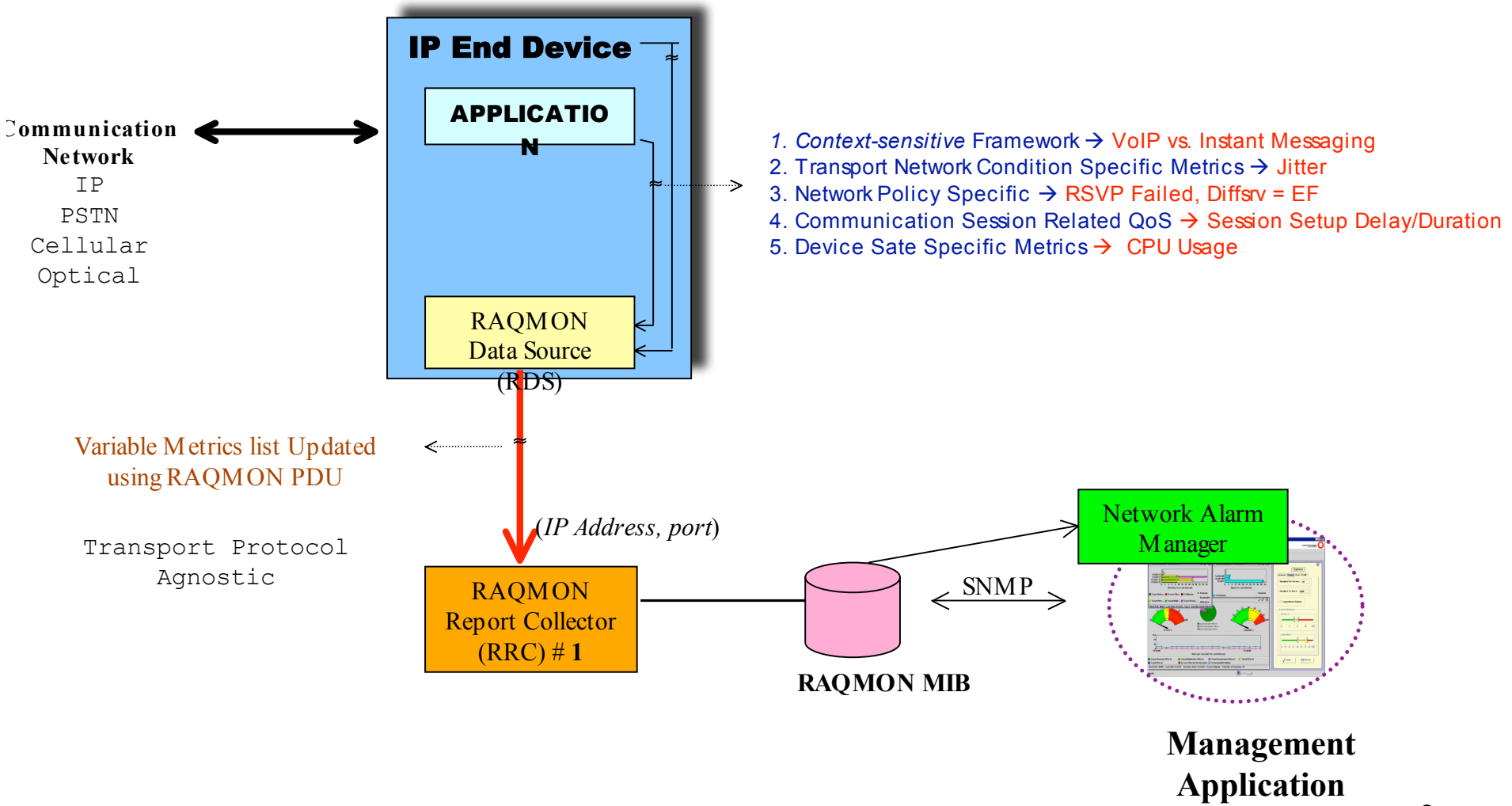
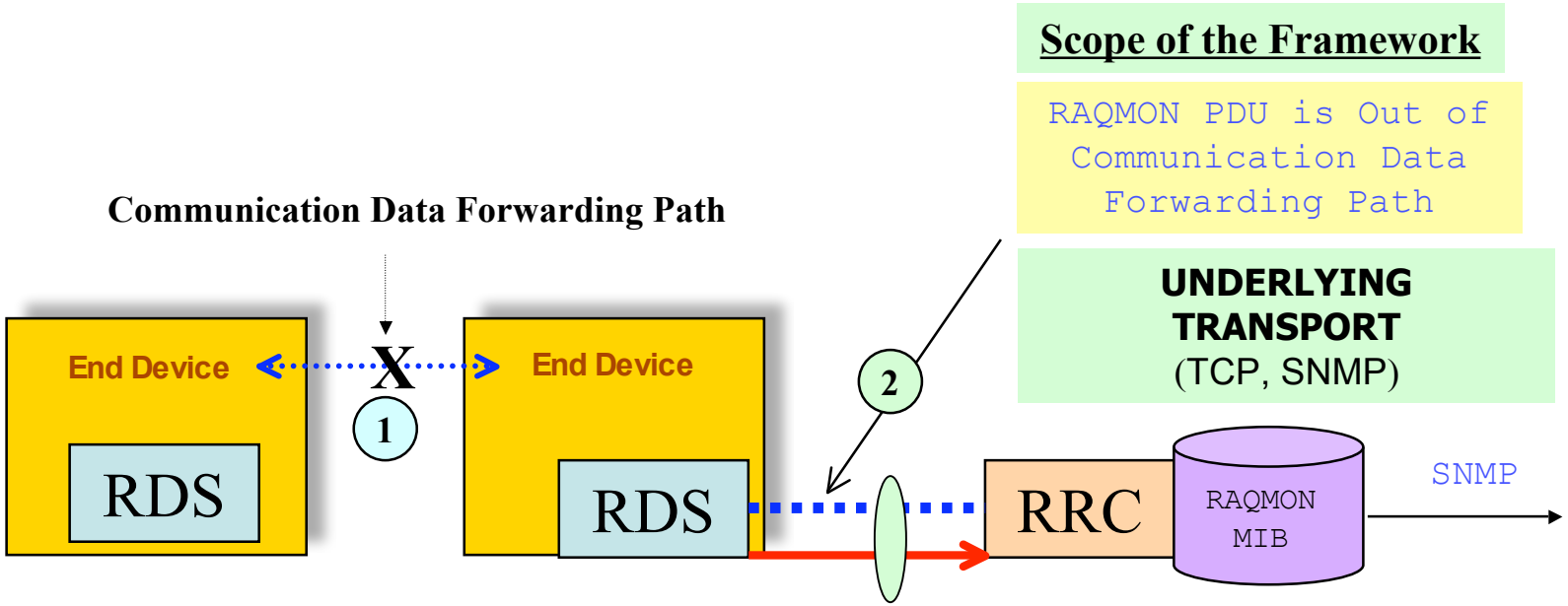
RAQMON Context Setting



Functional RAQMON Architecture



RAQMON Framework Definition



1 **Communication Data Forwarding Path** (e.g. RTP, RTCP, HTTP, FTP, TLS, SIP, H.323)

2 **RDS/RRC RAQMON PDU Path**

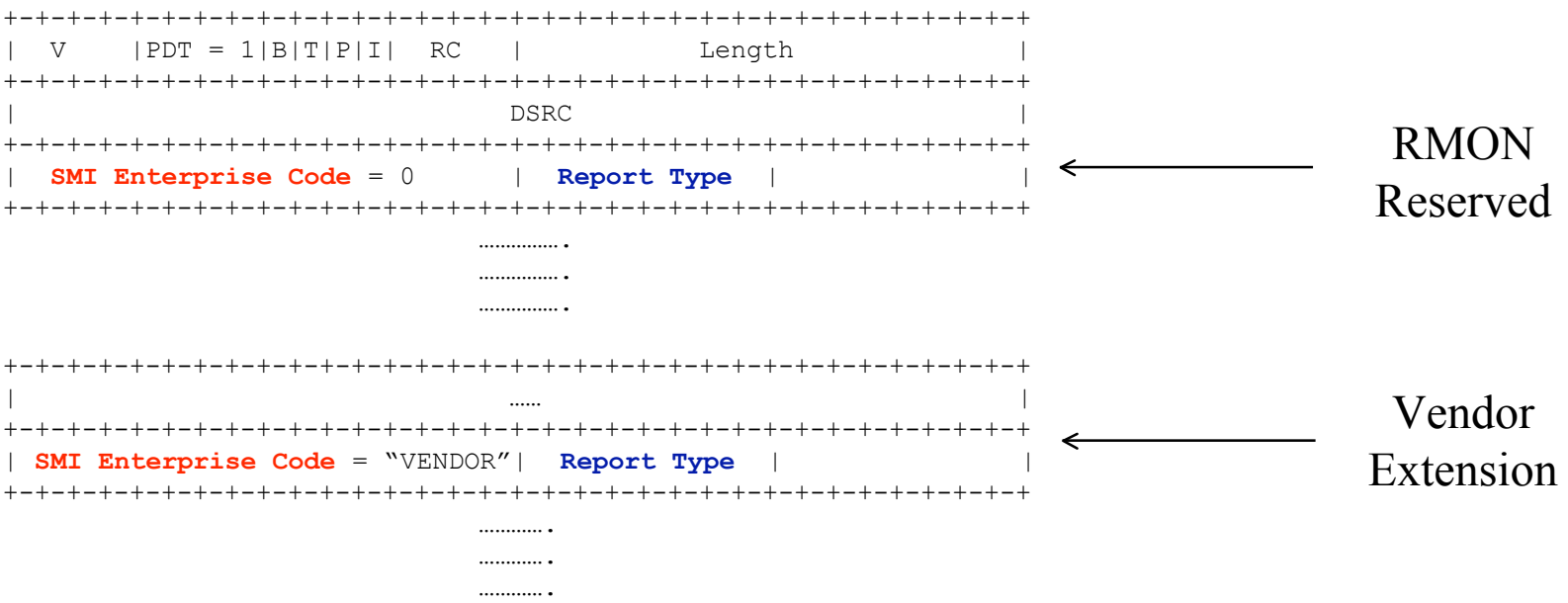
RAQMON Architecture Overview

- **A set of RAQMON Application level PDUs to have "common formats" for reporting statistics**
  - Between a RAQMON Data Source (RDS) and a RAQMON Report Collector (RRC)
  - Session specific metrics
  - Device status
- **RAQMON PDUs will be transported over existing protocols**
  - TCP
  - SNMP Notifications
- **RDS and RRC as Peer-to-Peer entities**
  - RDS reports what "IT" feels to be appropriate for the "application context"
  - RRC consumes what "IT" feels to be appropriate for the "application context"
- **RDS ↔ RRC communication is stateless**
  - No setup transaction to tell the collector which metrics the data source will be sending later on.
  - RTCP BYE and TIME OUTS are used to terminate reporting between RDS and RRC

Parameters “pushed” by the RDS to RRC

- Data Source Address (DA)
- Receiver Address (RA)
- Data Source Name (DN)
- Receiver Name (RN)
- Data Source Device Port used
- Receiver Device Port used
- Session Setup Date/Time
- Session Setup Delay
- Session duration
- Session Setup Status
- Round Trip End-to-End Net. Delay
- One-way End-to-End Net. Delay
- Inter Arrival Jitter
- IP Packet Delay Variation
- Total number of App. Packets Received
- Total number of App. Packets Sent
- Total number of App. Octets Received
- Total number of App. Octets Sent
- Cumulative App. Packet Loss
- Packet Loss in Fraction (in %)
- Cumulative App. Discards
- Packet Discards in Fraction (in %)
- Source Payload Type
- Receiver Payload Type
- Source Layer 2 Priority
- Source Layer 3 Priority
- Destination Layer 2 Priority
- Destination Layer 3 Priority
- CPU utilization in Fraction (in %)
- Memory utilization in Fraction (in %)
- Application Name/version

RAQMON PDU Overview



Static parameters – static notifications
- once per session, and
- when sub-sessions start or end

Dynamic parameters – dynamic notifications

RAQMON Extensibility

- **RAQMON PDUs is extensible for future**

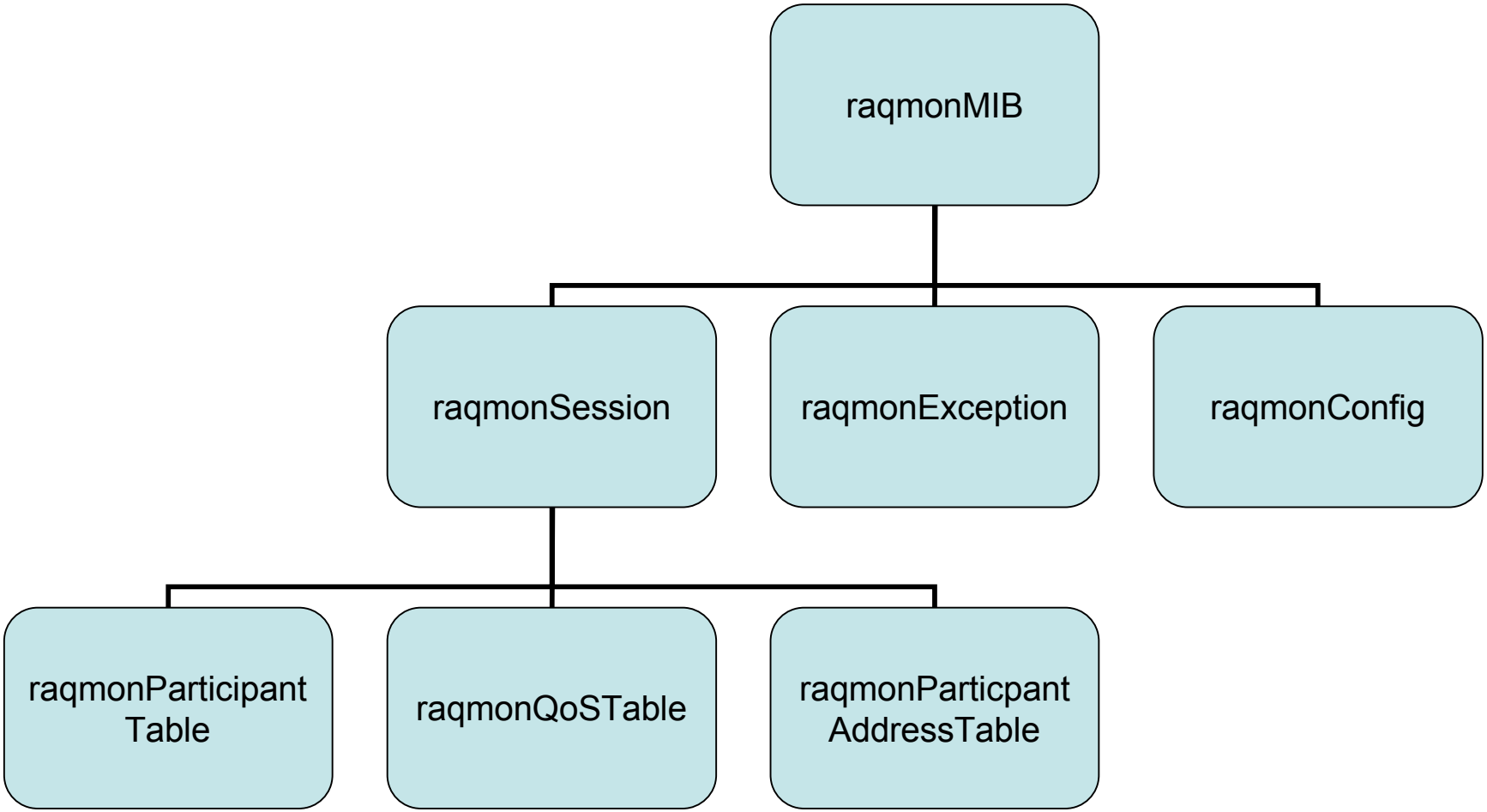
a. SMI Enterprise Code (16 bit)

- 0 Reserved for RMON WG
- Vendor IDs are allowed for extension
  - »http://www.iana.org/assignments/enterprise-numbers

b. Report Type (8 bit)

- Allows Additional Parameters/Profiles to be added
- WG can add new Report Type for SMI Enterprise ID = 0
- Other Standards Development Organizations or Vendors can add Any Report Type for Vendor Specific SMI Enterprise ID

RAQMON MIB


raqmonMIB
raqmonSession
raqmonException
raqmonConfig
raqmonParticipant Table
raqmonQoSTable
raqmonParticpant AddressTable

RAQMON at a Glance

- Part of the RMON family of protocols
- Application view
  - Support for multiple concurrent applications
- Not related to a specific application transport
- Scalable
- Extensible
- Endpoint oriented
  - Works well with encrypted payload and signaling

Internet-Drafts

- Framework
  - http://www.ietf.cnri.reston.va.us/internet-drafts/draft-ietf-rmonmib-raqmon-framework-11.txt
- RAQMON PDU
  - http://www.ietf.cnri.reston.va.us/internet-drafts/draft-ietf-rmonmib-raqmon-pdu-10.txt
- RAQMON MIB
  - http://www.ietf.cnri.reston.va.us/internet-drafts/draft-ietf-rmonmib-raqmon-mib-08.txt