

802.1/17 Joint session

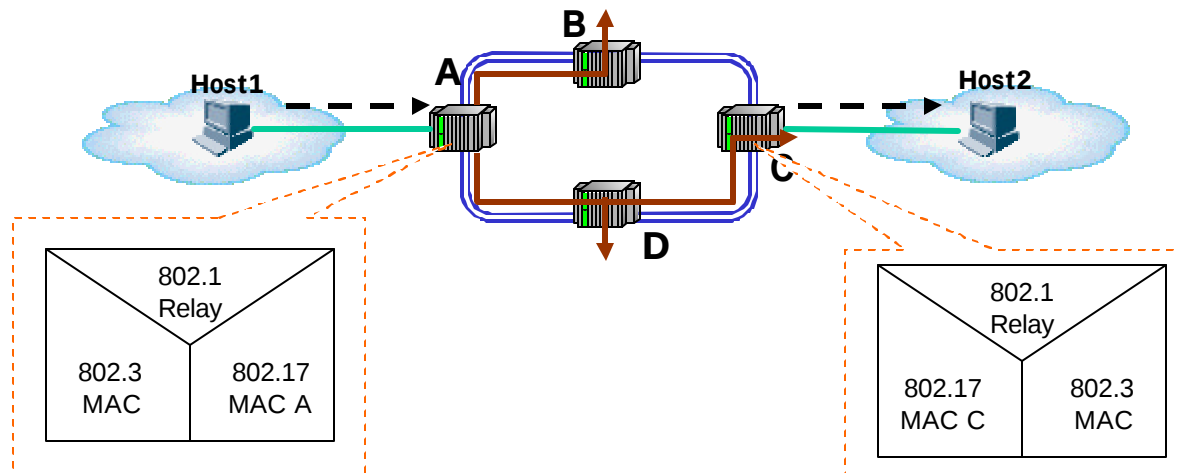
IEEE 802.17 WG
San Antonio, Texas
November 17, 2004

Items for discussion

- Spatially Aware Sublayer (SAS) overview
 - RPR group address allocation
 - Security and VLAN transparency
- Frame expansion
- Security in 802.17

Why SAS?

- Current 802.17 specifications floods all bridged frames over the ring, consequently does not achieve spatial reuse



SAS overview

- Enhance RPR MAC by introducing an optional sublayer to allow bridged frames to use directed transmissions
 - SAS associates a client provided MAC address and optional VLAN identifier, with the local MAC address of a RPR station
 - Upon transmission, frames to a remote MAC address can be directed to a local RPR station, thus providing spatial reuse

SAS issues (1)

- RPR group address
 - One proposal for SAS requires use a group address to be used between RPR stations
 - It is required that this address not be bridged off of the ring (to support compatibility with 802.17-2004)

If requested, would 802.1 be willing to allocate one of the reserved group addresses to be used for this purpose?

SAS issues (2)

- Security and VLANs
 - Location of the Q-tag field
 - Readability of the VLAN

We intend SAS to be VLAN aware. Do you see any issues with security encrypting or moving the Q-tag?

Frame expansion

- 802.17 currently provides 80 bytes of space allowed for future expansion which can be used in a similar way as the payload envelope being proposed for 802.3
- We believe 802.1 has requested a larger (i.e., > 80 bytes) payload envelope size from 802.3

Please advise us on the current status of the request to 802.3, and what 802.17 should be prepared to support.

Security in 802.17

- We are not fully aware of the progress of Link Security
- 802.17 has a different structure compared to either point-to-point Ethernet or broadcast Ethernet

Does Link Security operate differently on point-to-point links as opposed to broadcast media? What is the general model for Link Security on a broadcast media? How does this map to RPR for direct station to station or multicast communications?

Appendix

Spatially aware sublayer (SAS)

- SAS is below MAC service interface (and within data link layer)
- An optional sublayer of RPR MAC

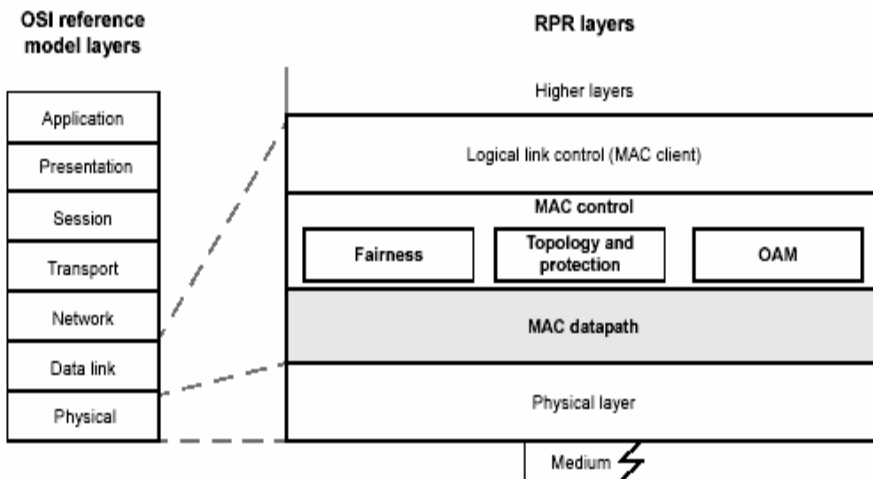
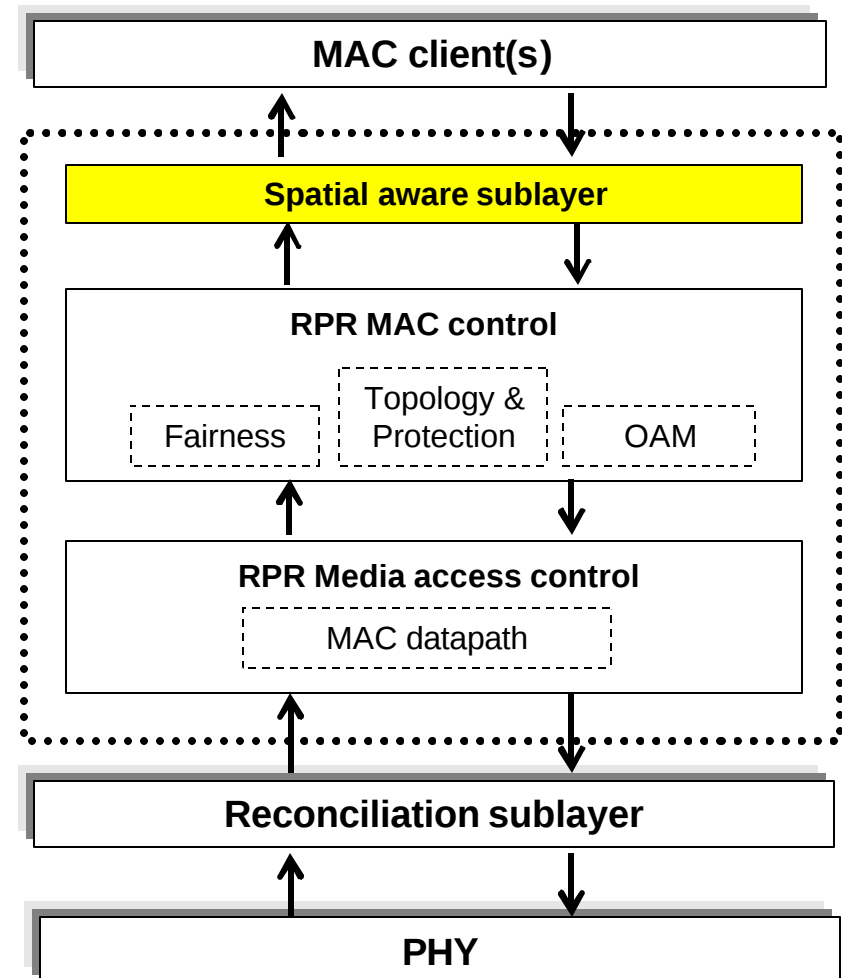
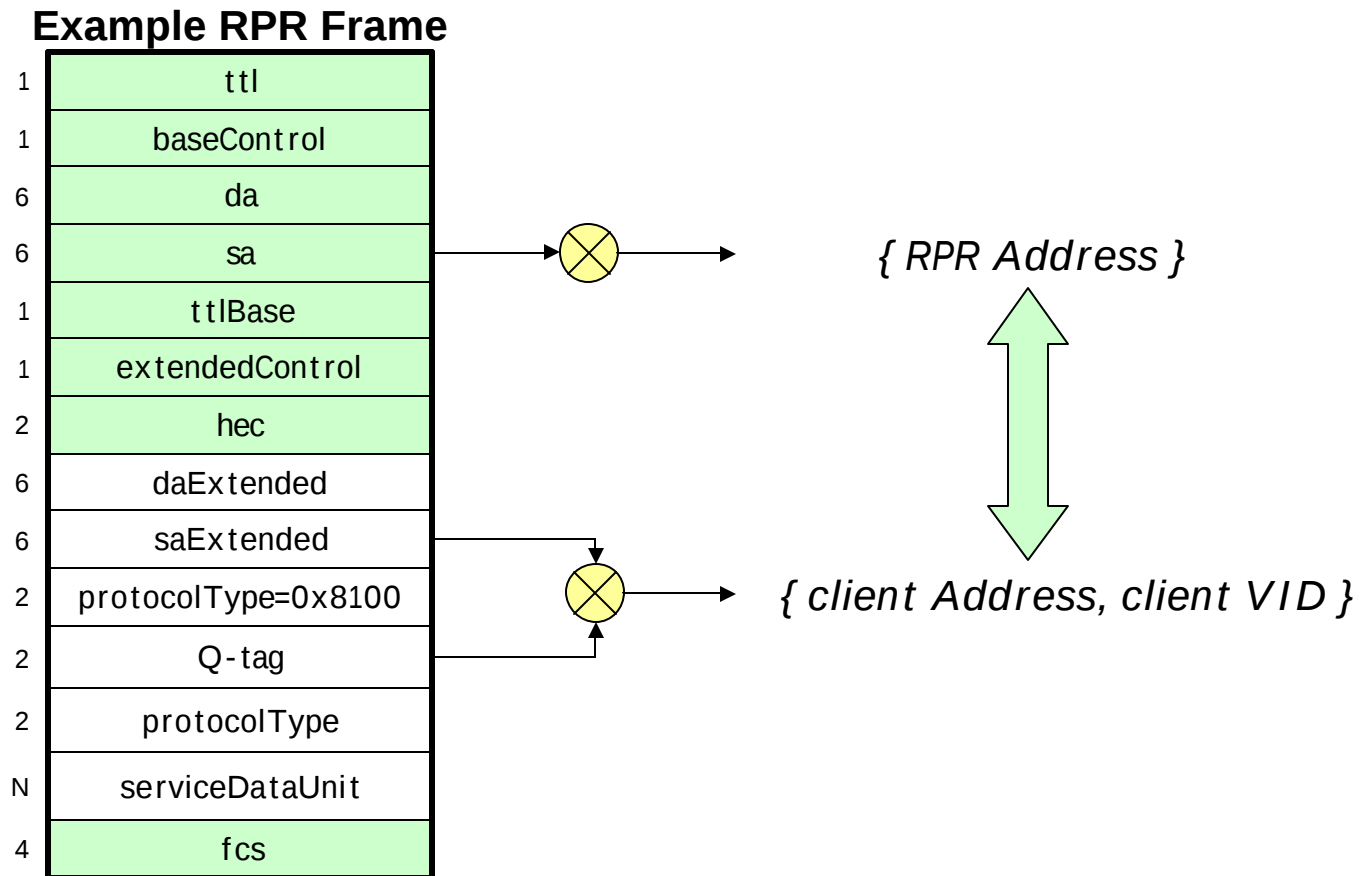


Figure 7.1—MAC datapath sublayer relationship to the ISO/IEC OSI reference model



SAS Rx operations

- Observes source MAC address and VLAN of client and associates with local RPR source MAC address



SAS Tx operations

- Requests by MAC clients to dispatch a frame over the RPR media are processed by the SAS
- SAS not involved in ring local transmissions
- Otherwise, SAS looks up client provided destination address (and optional vid) in SAS DB
 - If target RPR MAC address found, then da field of RPR header is populated with associated value and directed transmission of frame is used,
 - Else, an undirected transmission of frame is used (i.e., the frame is flooded over the ring)

SAS DB operations

- Operation of SAS DB is similar to operation (e.g., learning, aging, etc.) of 802.1D/Q specified FDB
 - Support of static and dynamic entries
 - Dynamic entries can be aged out
 - DB can be queried by management entity
 - Etc.

RPR frame formats

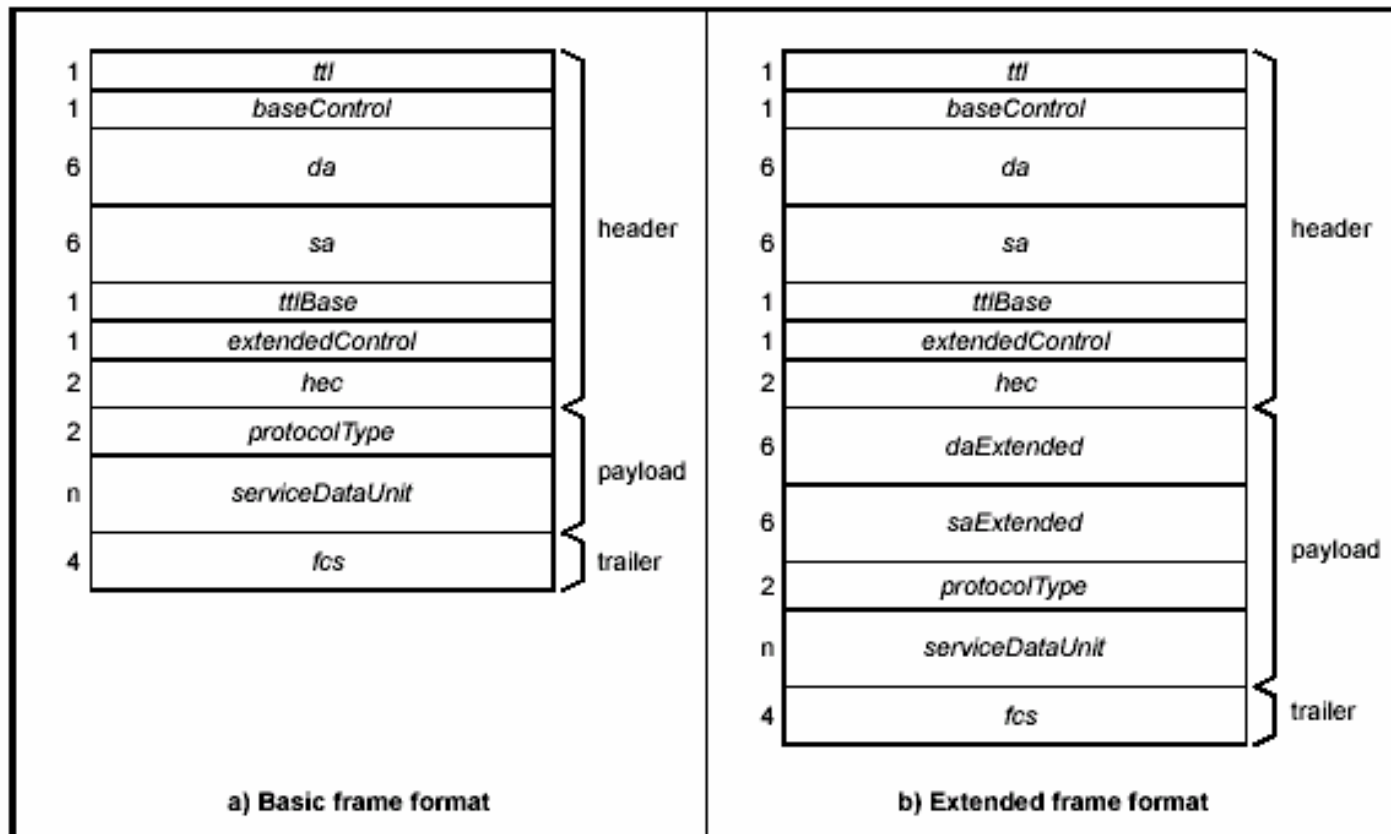
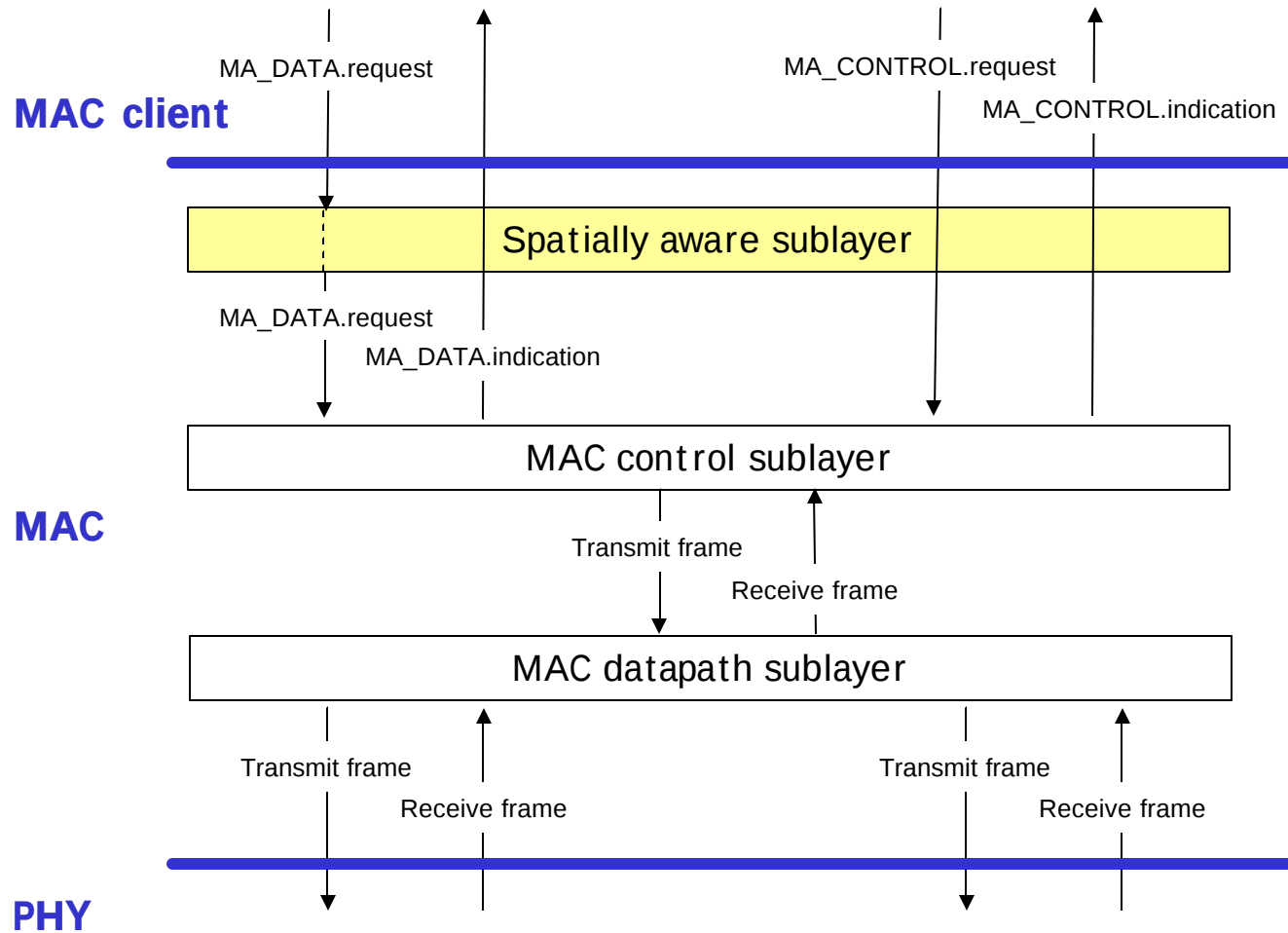
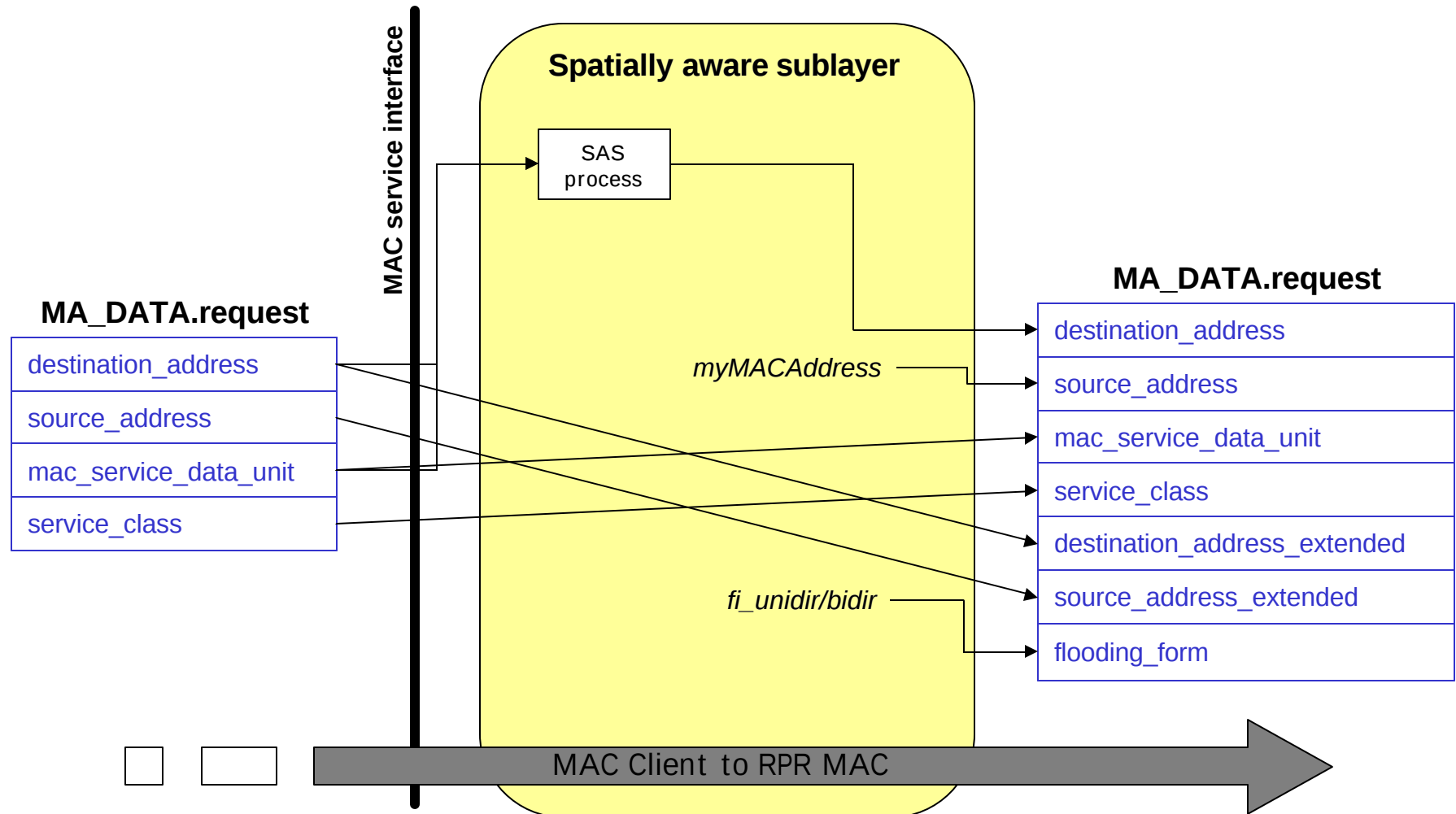


Figure 9.1—Data frame formats

Service primitives

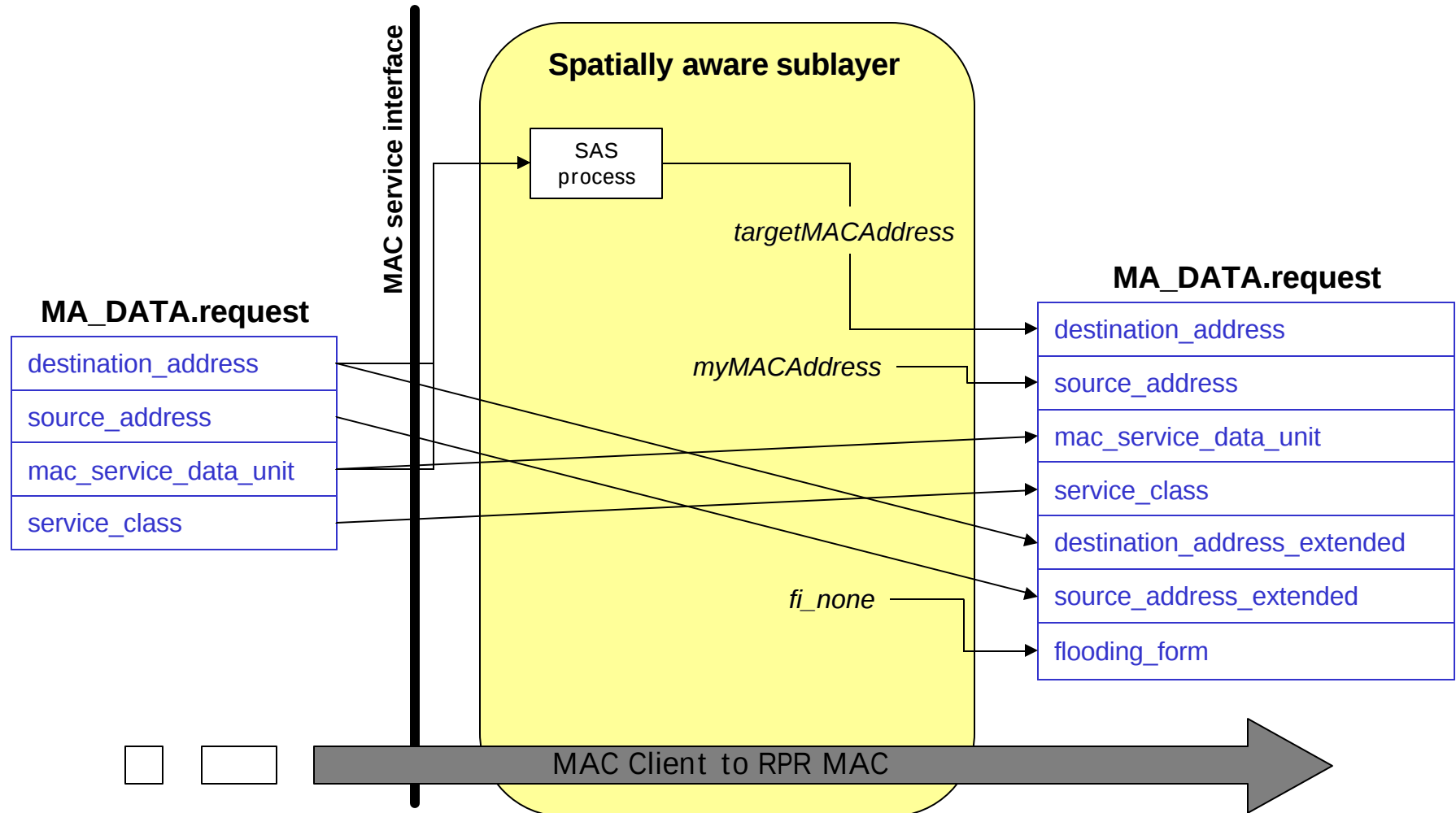


Service data request primitive



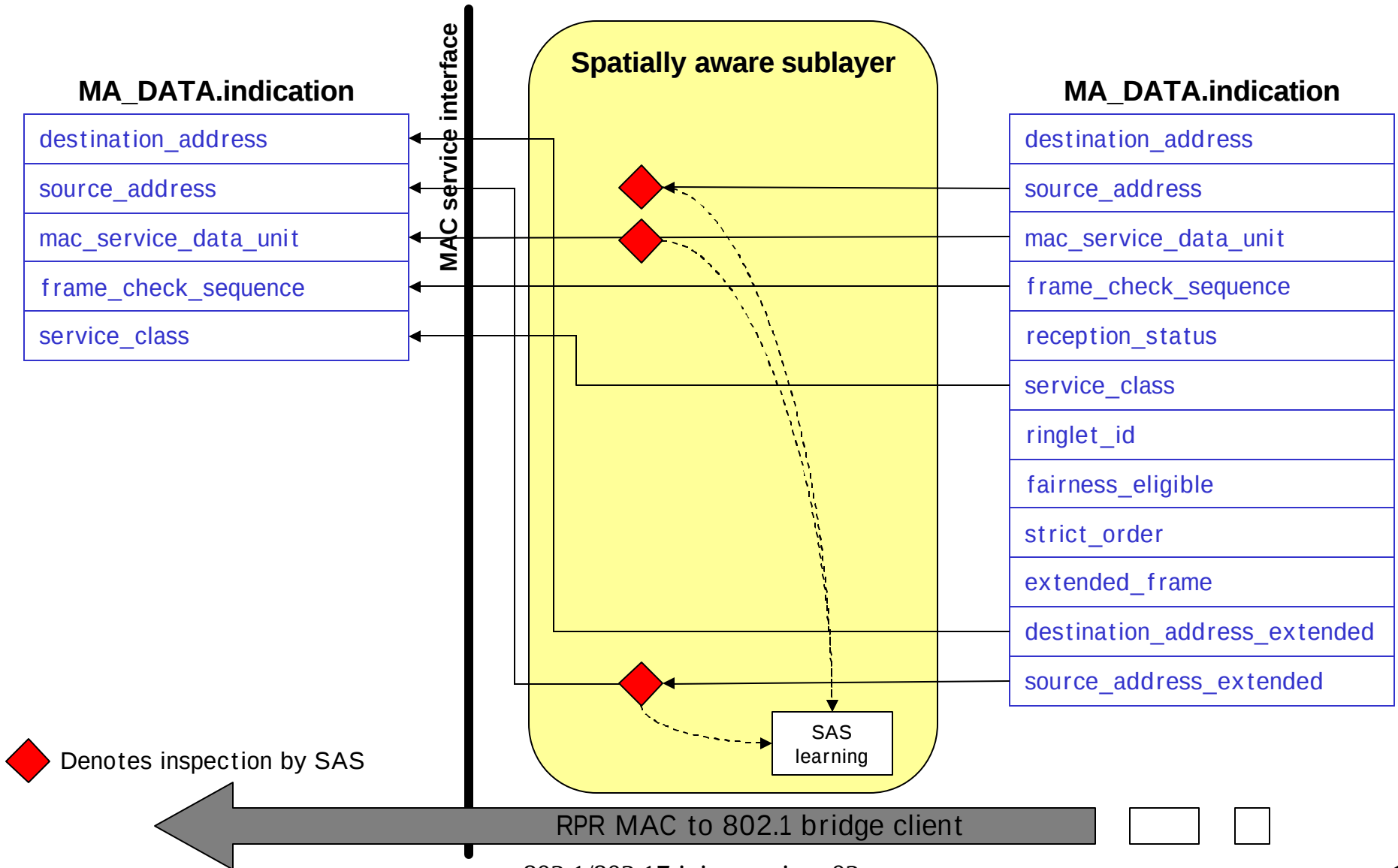
Assumptions: The provided *source_address* parameter is not *myMACAddress* and the provided *destination_address* parameter is remote. Undirected transmission is used since destination address is not found in SAS DB.

Service data request primitive



Assumptions: The `destination_address` parameter is remote. Directed transmission is used since destination address found in SAS DB.

Service data indication primitive



Service data indication primitive

