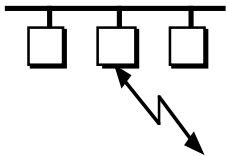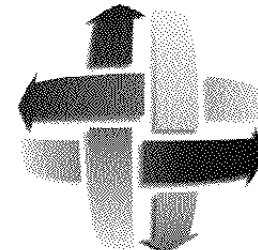# IEEE 802.3
Service Interface Issues

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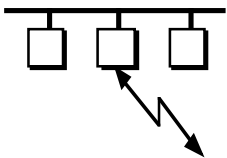seifert@netcom.com

IEEE 802 Plenary; La Jolla, CA; July 1998

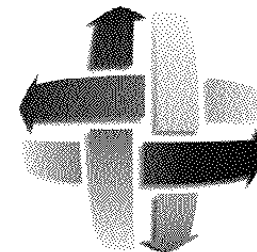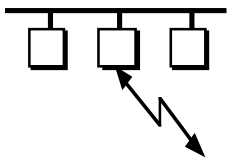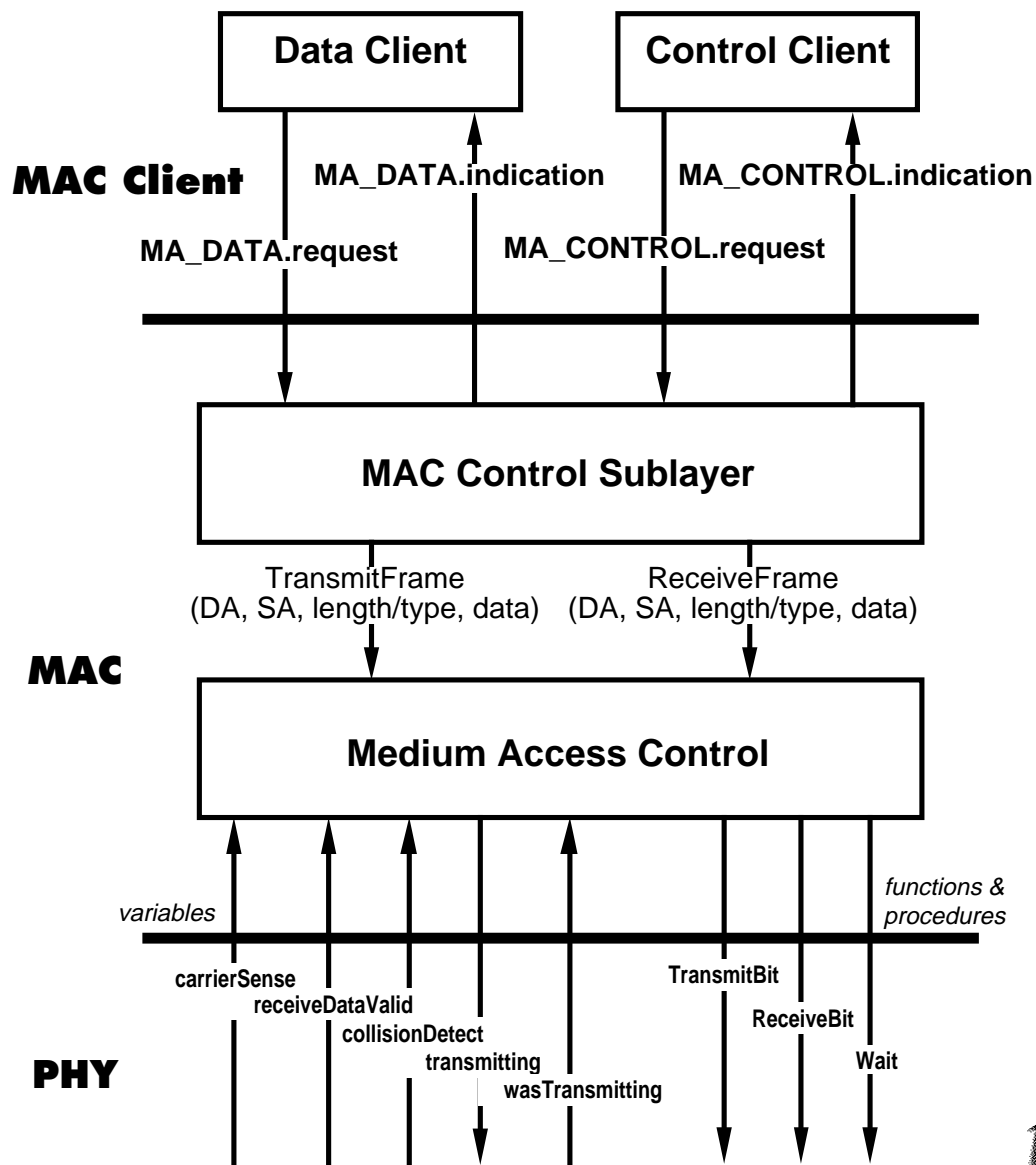*Networks and Communications Consulting*

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The Problem

❏ Link Aggregation will likely require that the MAC Client provide a Source Address for transmitted frames other than a "unique, individual address" assigned to each MAC (e.g., an address assigned to an aggregation of links, rather than each individual port).

❏ Other entities (e.g. MAC Control functions used for LA Configuration) may require each MAC (port) to be individually identifiable.

❏ Currently, the 802.3 MAC Service Interface assumes that each MAC has a unique individual address that is used as the SA in transmitted frames. The MAC is assumed to insert this SA on all transmitted frames. There is no provision for passing this Source Address parameter across the service interface.

❏ This is not a "new" problem. IEEE 802.1D Bridge operation requires that the client (e.g., Bridge Relay Entity) provide a SA for transmitted frames. This 802.3 Service Interface problem has been "hand-waved" away for many years. Link Aggregation simply brings the problem completely within 802.3.
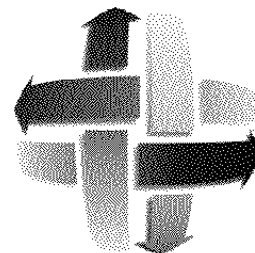
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Current 802.3 Service Interface Architecture

Data Client

Control Client

MAC Client

MA_DATA.indication

MA_CONTROL.indication

MA_DATA.request

MA_CONTROL.request

MAC Control Sublayer

TransmitFrame
(DA, SA, length/type, data)

ReceiveFrame
(DA, SA, length/type, data)

MAC

Medium Access Control

variables

functions & procedures

carrierSense

receiveDataValid

collisionDetect

transmitting

wasTransmitting

TransmitBit

ReceiveBit

Wait

PHY

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Current IEEE 802.3 MAC Service Interfaces

MA_DATA.request

destination_address
M-SDU
service_class

MA_DATA.indication

destination_address
source_address
M-SDU
reception_status

MA_CONTROL.request

destination_address
opcode
request_operand_list

MA_CONTROL.indication

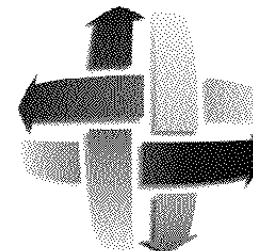destination_address
indication_operand_list

NOTES:

- **Source Address is inserted by the MAC for both MA_DATA.request and MA_Control.request**

- **FCS is never passed to the client, and always appended by the MAC
  (issue for Bridges, but probably not for Link Aggregation)**

- **MAC Control frames themselves are not passed through to the MAC Control client
  (although any needed information can be passed through an indication_operand)**
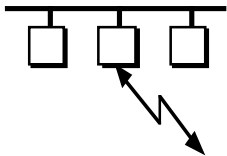
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Current IEEE 802.1D/Q MAC Service Interfaces

MA_UNITDATA.request

Internal Sublayer Service
frame_type (always user data in 802.3)
mac_action (always request-with-no-response in 802.3)
destination_address
source_address
mac_service_data_unit
user_priority (ignored in 802.3)
access_priority (ignored in 802.3)
FCS
Extended Internal Sublayer Service (VLAN support)
CFI
VLAN_classification
RIF_information (optional)
include_tag
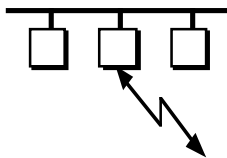
MA_UNITDATA.indication

Internal Sublayer Service
frame_type (always user data in 802.3)
mac_action (always request-with-no-response in 802.3)
destination_address
source_address
mac_service_data_unit
user_priority (ignored in 802.3)
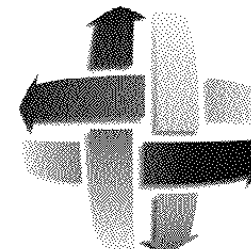FCS
Extended Internal Sublayer Service (VLAN support)
CFI
VLAN_identifier
RIF_information (optional)

NOTES:
- **Source Address is passed across the interface in both directions**
- **FCS is passed across the interface in both directions (optional for request)**
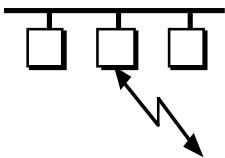
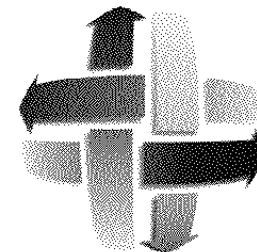IEEE 802 Plenary; La Jolla, CA; March 1996
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Possible Changes to Consider

❏ Change MA_DATA.request (and possibly MA_CONTROL.request) to allow the client to provide a Source Address

❏ Change MA_DATA.request and MA_DATA.indication to allow FCS to be passed to, and provided by, the client (to support Transparent Bridging)

- **May require some editorial and/or minor technical changes to the text of Clause 4 (MAC), Clause 31 (MAC Control) and Clause 30 (Management)**

❏ Provide a new service interface to allow MAC Control frames to be passed to a Control Client (if necessary)

- **Would imply significant architectural and technical changes to Clause 31.**

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