802.3 Trunking Study Group

IEEE Plenary - March 1998 - Irvine

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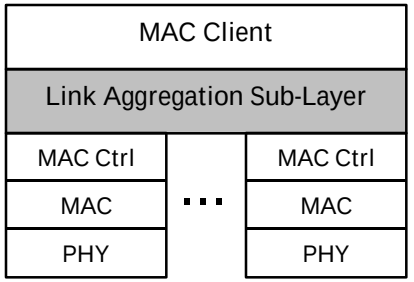
Some Objectives for Link Aggregation

Objectives to be covered

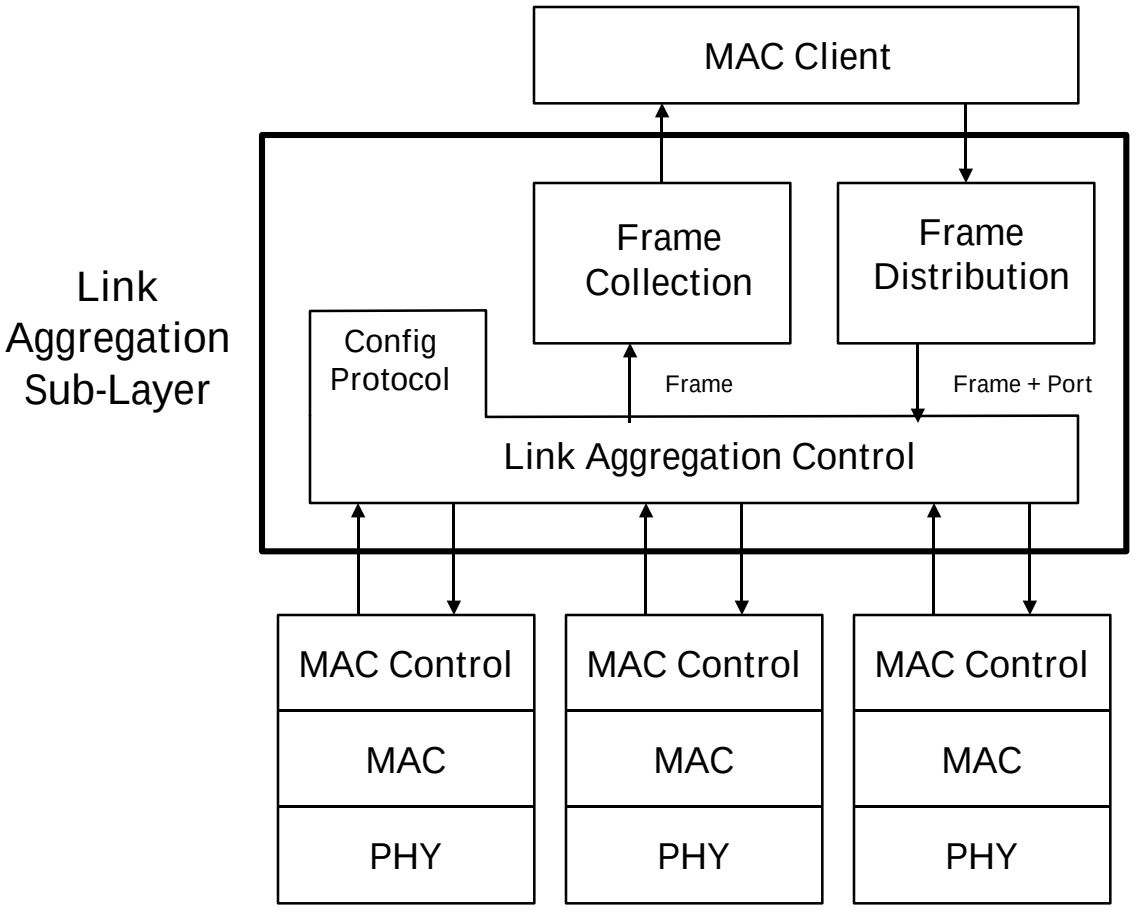
This is NOT a detailed list of objectives

This is discussion on proposed objectives for portions of a Link Aggregation Sub-layer related to:

- Frame Distribution (i.e. load balancing)
- Frame Collection
- Link Aggregation Membership
- Single MAC Client Interface
- Physical MACs Access



A Possible Reference Model



Frame Distribution Objective

Objective

This work will not specify a load balance distribution algorithm, however it will require that frames are not duplicated, and that frame order is preserved as required by higher layers.

Supporting Comments

- Previous presentations have discussed the importance of preserving order and avoiding duplication.
- There are many schemes for distributing frames. If they preserve order they will interoperate.
- Negotiating algorithms to optimize the distribution requires additional protocol complexity for limited topologies and short term gain.

Frame Collection Objective

Objective

This work will not require Frame Collection to reorder frames before delivery to the MAC client

Supporting Comments

- The sender can assure order
- Reordering at collection would require significant state and processing to be successful

Aggregation Membership Objective

Objective

This work will assure that a physical link will be a member of one and only one link group at a time.

Supporting Comments

- Existing MAC implementations would not be able to distinguish which aggregation frames belong to.
- Multiple group membership may violate the point-to-point requirements.
- Just common sense

Single MAC Client Objective

Objective

The Link Aggregation Sub-layer will present a single MAC client interface to the higher layers. The MAC client will be addressed with a single MAC address.

Supporting Comments

- A single MAC interface and address provides the desired level of transparency.
- Underlying links can only be active in one link aggregation anyway

Physical MAC Access Objective

Objective

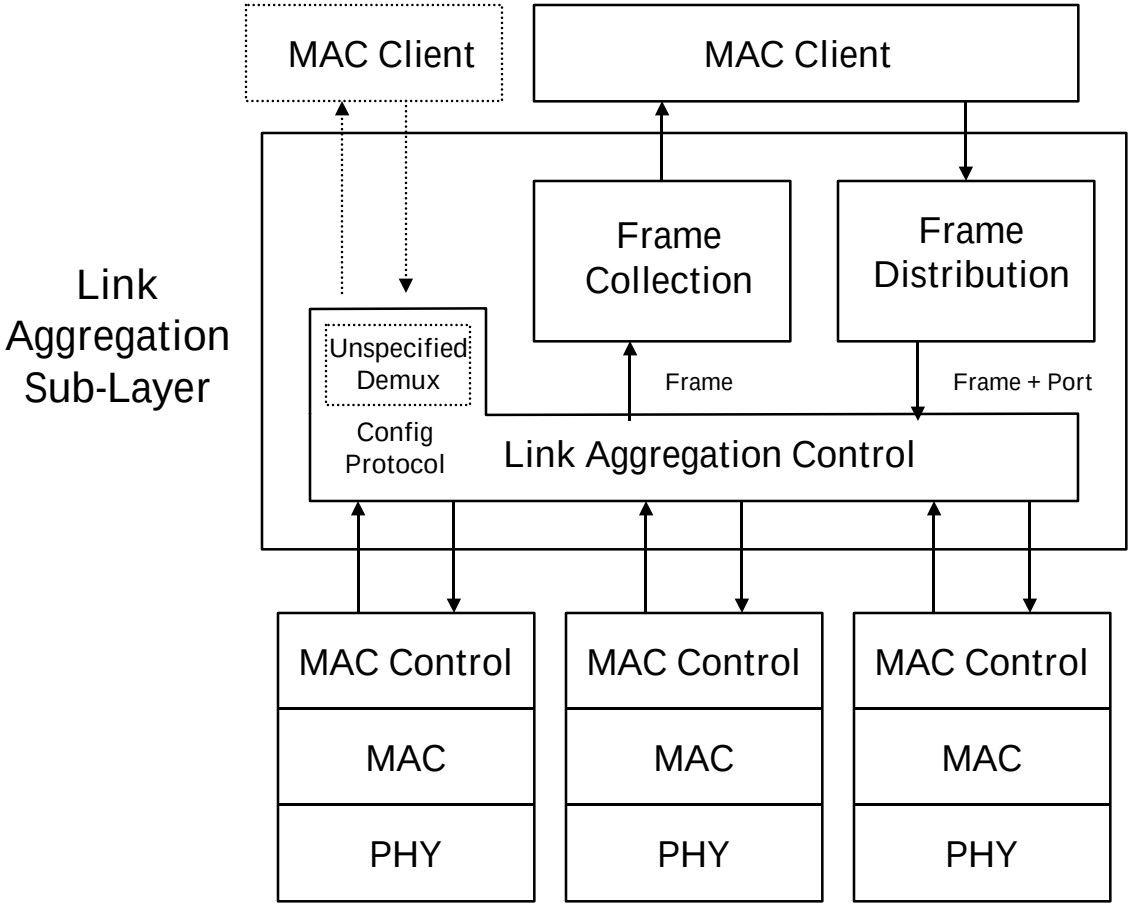
This work should not specify access to the individual physical MACs from above the Ling Aggregation Sub-layer. It should also not prohibited such access.

Supporting Comments

- Link Aggregation control can be made to demultiplex traffic for the individual MACs, but this adds complexity and is not needed.
- Configuration protocols can use Multicast destination addresses and physical port MAC source addresses.
- Physical port MAC addresses should only be used as destination addresses if they represent the MAC address for the single aggregated MAC client
- Requires promiscuous mode or NICs which match 2 addresses

A Way to Access Physical MACs

This should not be specified



Conclusions

Recommend adding some form of the above statements to the Link Aggregation Objectives list

Objective Summary

1. Specify distribution requirements not algorithm.
2. Frame collection does not need to reorder frames.
3. Physical links are a member of a single aggregation.
4. A single MAC client interface and address.
5. Physical MAC access from above is not specified.