

# IEEE 802.3 Link Aggregation

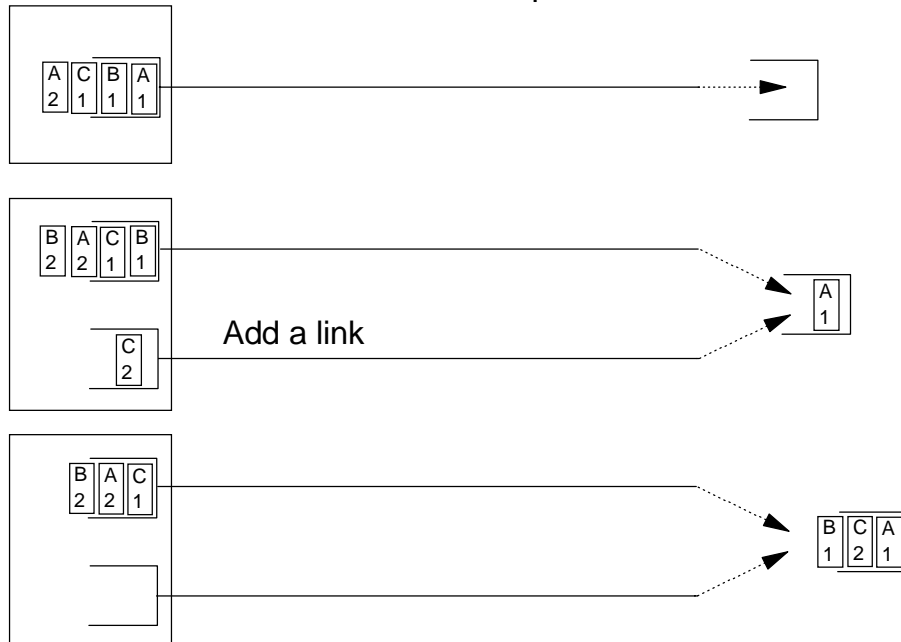
## Flush Scenarios and Requirements

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## Potential for Out of Order Frames An Example

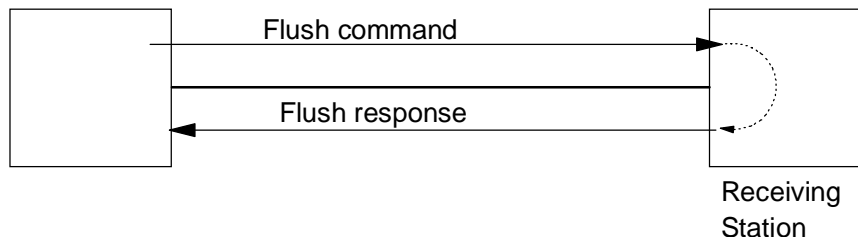


# Flush

Anytime an active flow(s) is moved from one physical link to another, a flush operation (or some other mechanism such as a timeout) is required to ensure that frames are not delivered out of order.

## Flush Operation

- **A special control frame that is transmitted to and "echoed" back by the receiving station**
- **Ensures that the link is purged of data**



## IEEE 802.3 Link Aggregation

### Potential Flush Scenarios

- **When a link is added to a LAG**
- **When a link is removed from a LAG**
- **When dynamically re-balancing active flows over a LAG**
- ...

## IEEE 802.3 Link Aggregation Flush Scenarios

- **When a link is added to a LAG**

Implementation choices include:

- leave all existing flows alone and simply add new flows to the new link
- redistribute and rebalance the existing flows over all the links including the new link
  - selectively move flows from active links to new link
  - completely rewrite forwarding tables
- ...

## IEEE 802.3 Link Aggregation Flush Scenarios

- **When a link is removed from a LAG**

Implementation choices include:

- redistribute the flows from the link being removed over the remaining links in the LAG
- redistribute and rebalance all the existing flows over the remaining links in the LAG
  - completely rewrite forwarding tables
- . . .

## IEEE 802.3 Link Aggregation Flush Scenarios

- **When dynamically re-balancing active flows over a LAG**

- Anytime that the load balancing algorithm determines that an active flow(s) needs to be moved from one physical link to another
- redistribute and rebalance the existing flows over all the links
  - selectively move flows
  - completely rewrite forwarding tables

## IEEE 802.3 Link Aggregation Flush Command

- Operational requirements
  - Flush command must be optional to send
  - Response to the Flush command is Mandatory
  - To accommodate various implementation choices for dealing with the flush scenarios, the Flush Command can be sent at anytime (in any state).
  - Flush command processed on a per link basis
    - paired command/response
    - minimizes burden on receiver