IEEE 802.3ad Link Aggregation

Another Algorithm for Associating PhyPorts with AgPorts

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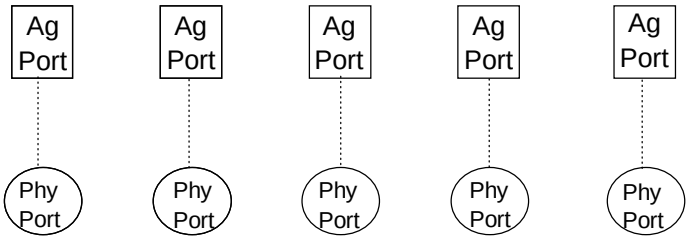
Unnecessary Complications

- **Selection rules based on the "lowest numbered" link in a LA Group raises unnecessary complications for dynamically reconfiguring trunk groups.**
- **MAC address of LA could change if:**
  - **If the low "numbered" link is removed from a LA Group**
  - **If a link is added to an active LA Group and it has the lowest link number**
- **Could enforce configuration restrictions to minimize this**
  - **treat "low numbered" link special. But....**

Characteristics of Alternative Algorithm

- **Compatible with Tony Jeffree's protocol proposal**
  - **Aggregation based on SystemID & Key**
- **The allocation of PhyPorts to AgPorts is deterministic**
  - **Final configuration is not dependent on the sequence of events**
  - **High degree of predictability**
- **Results are intuitive to the user**

Assumptions



- **Same as Tony Jeffree's proposal**
  - **Each MAC has a PhyPort and an AgPort**
  - **Aggregation = attachment of a PhyPort to an AgPort (it's own or someone else's).**
  - **Each Phy Port is always attached to one AgPort**

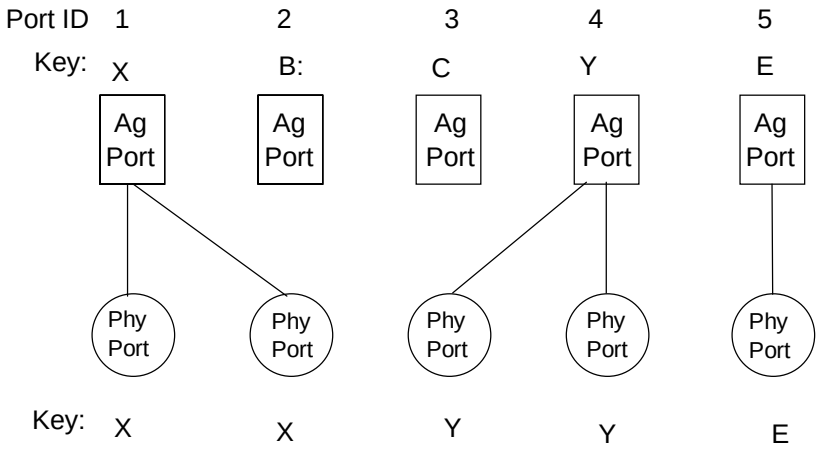
Selection Logic

- Each physical port is assigned a Key
- Each AgPort is assigned a Key
  - Each AgPort Key is unique at the Ag level
- Matching the physical port and AgPort keys determines trunk groups.
- If a link is not to be aggregated, its port is given a unique key.
  - That matches its aggregator

Address Associations

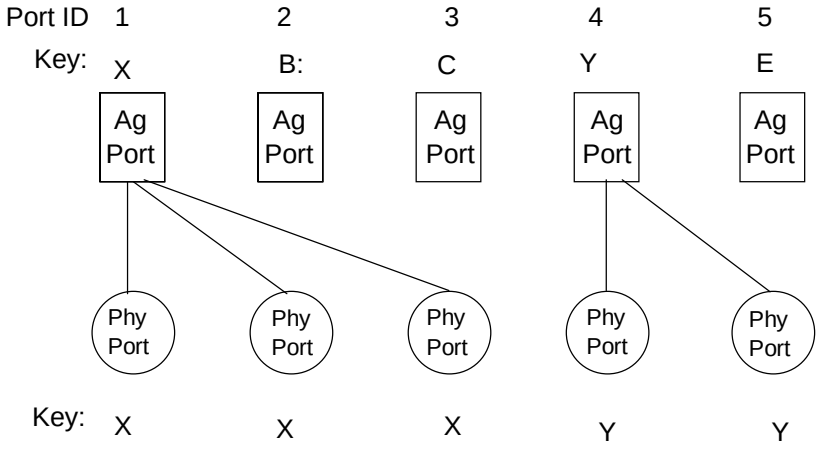
- Aggregators are assigned MAC addresses, Either:
  - Assigned from a pool of universal MAC addresses stored with "system"
    - Aggregators given addresses only when activated
    - Address assignment is deterministic
      - If the physical configuration of the system does not change, the same address will always be assigned
  - Statically
    - Each potential aggregator given an address, or
    - Only aggregators expected to be used are given addresses
- Aggregators are assigned Port_IDs

Legal Associations - Example 1



Each Ag Key is unique at the Ag level

Legal Associations - Example 2



Each Ag Key is unique at the Ag level

Conclusions

- Alternative selection algorithms exist that also have deterministic behavior
- Standard should not dictate a specific algorithm
  - an example algorithm for cases of AgPort ambiguity may be necessary
    - Such as an environment where factory settings are used as the initial configuration
  - This algorithm should not be required by implementations that do not have ambiguous AgPort configurations.