802.1Qcc : Follow-up on Digest Proposal
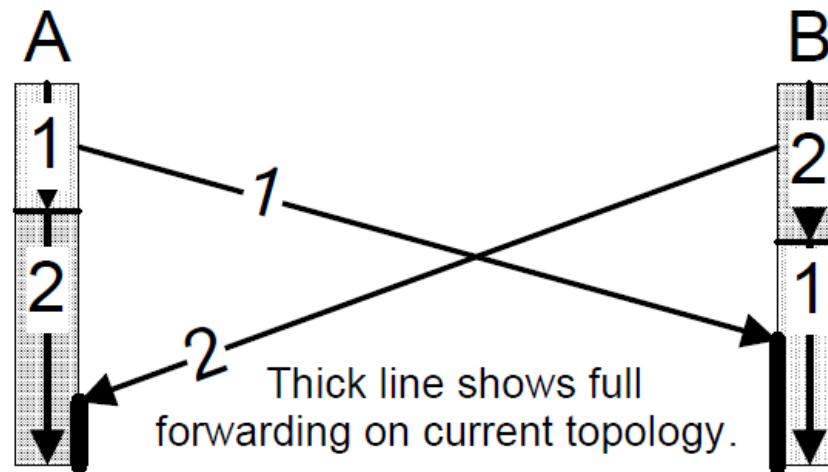
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Question from March Meeting (1 of 2)

- In Beijing face-to-face I presented 802.1Qcc D0.1

  - http://ieee802.org/1/files/private/cc-drafts/d0/802-1Qcc-d0-1.pdf

- Main feature is a new Digest feature for "more streams"

  - History provided in "Editor's introduction to draft D0.1"

  - Borrows from ISIS-SPB Digest implementation

Question from March Meeting (2 of 2)

- One of my core assumptions: Problem described in
  http://www.ieee802.org/1/files/public/docs2010/aq-seaman-agreement-protocol-0910-v2.pdf
  will occur

Thick line shows full forwarding on current topology.

- This presentation addresses question from meeting

  - Since MRP's declare-to-register is unidirectional,
    can't we avoid crossing, and make this simpler?

MRP Review

- A participant can declare and register the same attribute

Figure 10-2 illustrates the result of different end stations declaring the same attribute on different LANs. All end stations register the attribute, and some Bridges register it on more than one Port.
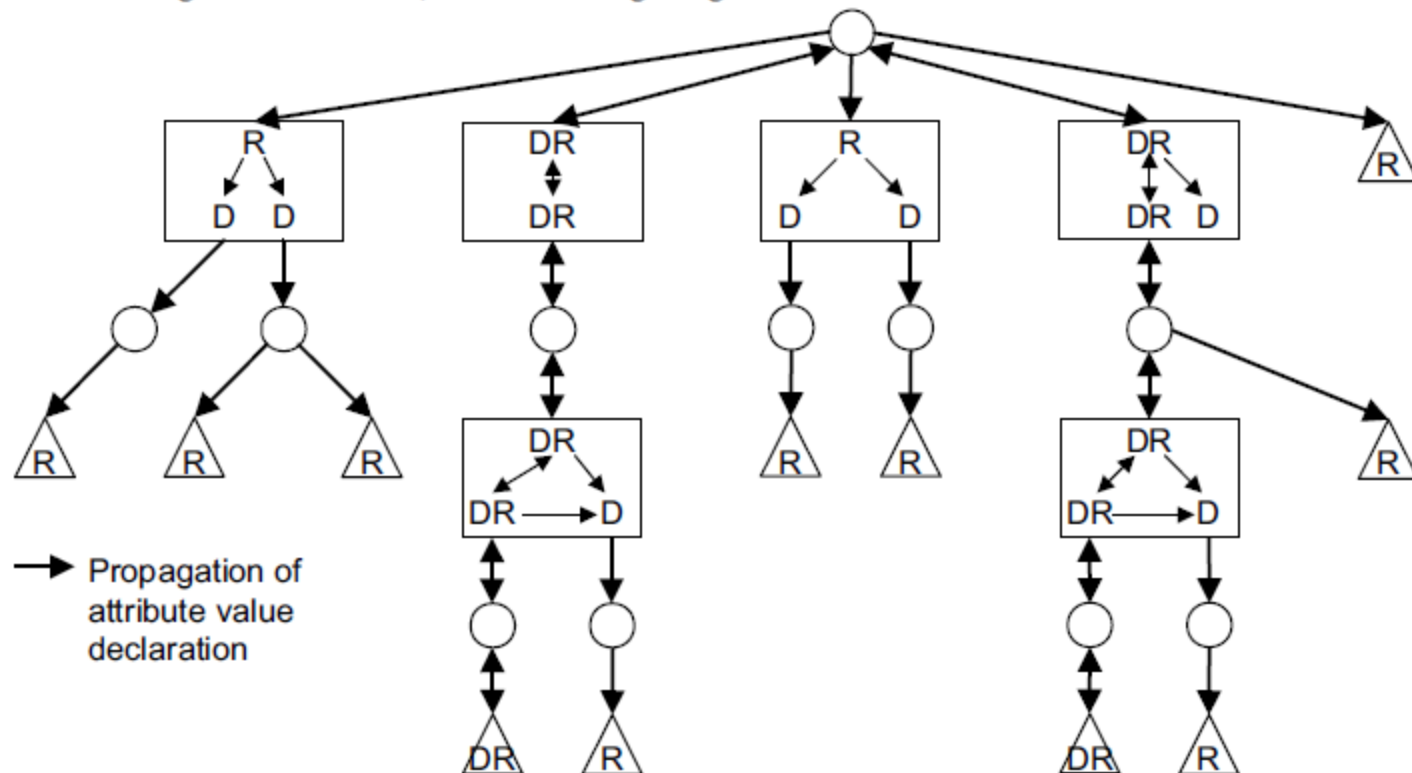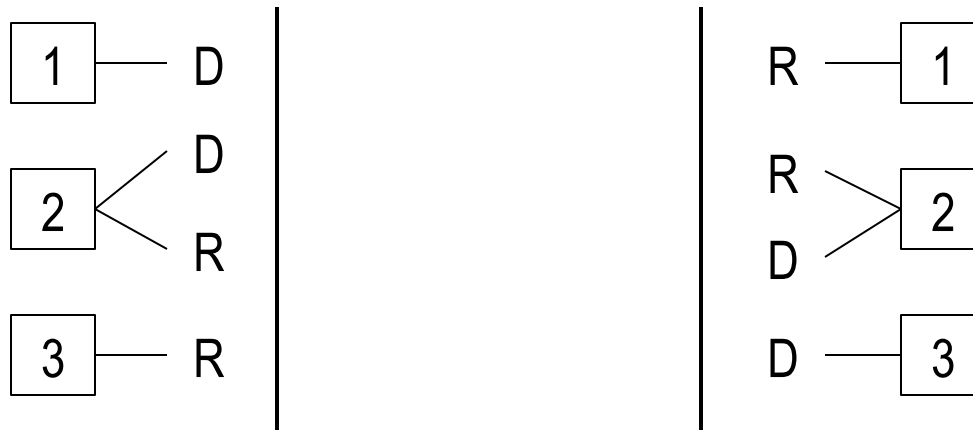

Figure 10-2—Example—Attribute value propagation from two stations
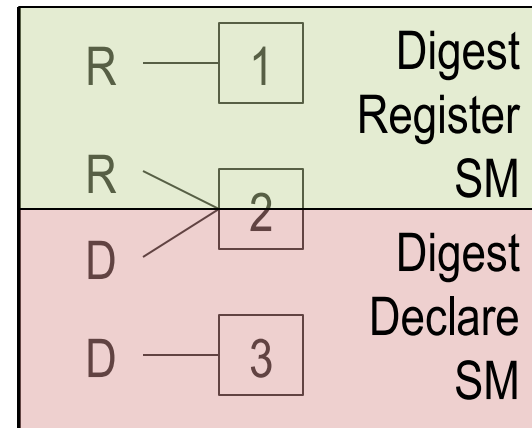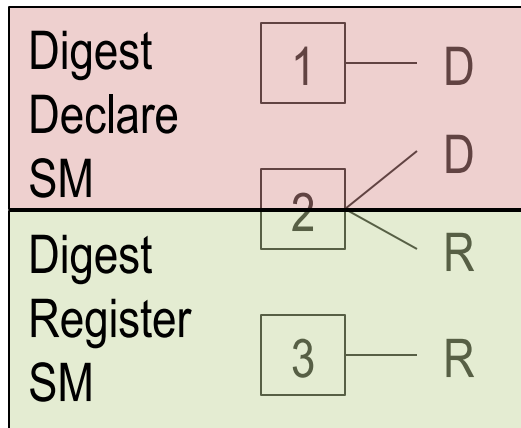
Non-crossing Solution (1 of 3)

- For Digest purposes, can't we just separate declare/register (direction) from the attribute's value?
  - Let's take a look at an example of how that would work…
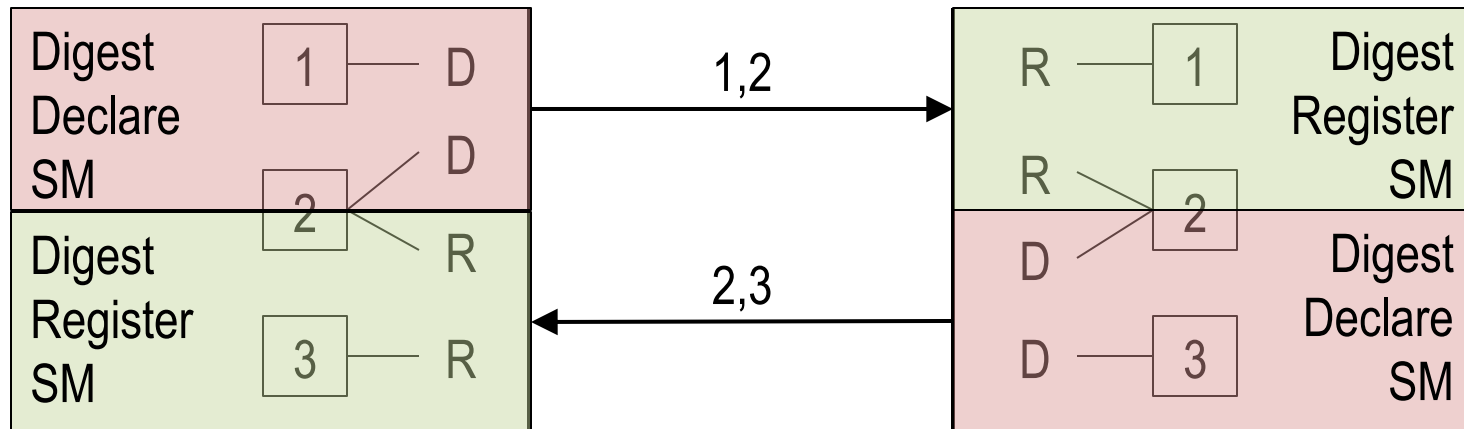   - Numbers represent attribute values

Non-crossing Solution (2 of 3)

- Each participant has
  - Digest state machine for all Declared attributes
  - Digest state machine for all Registered attributes
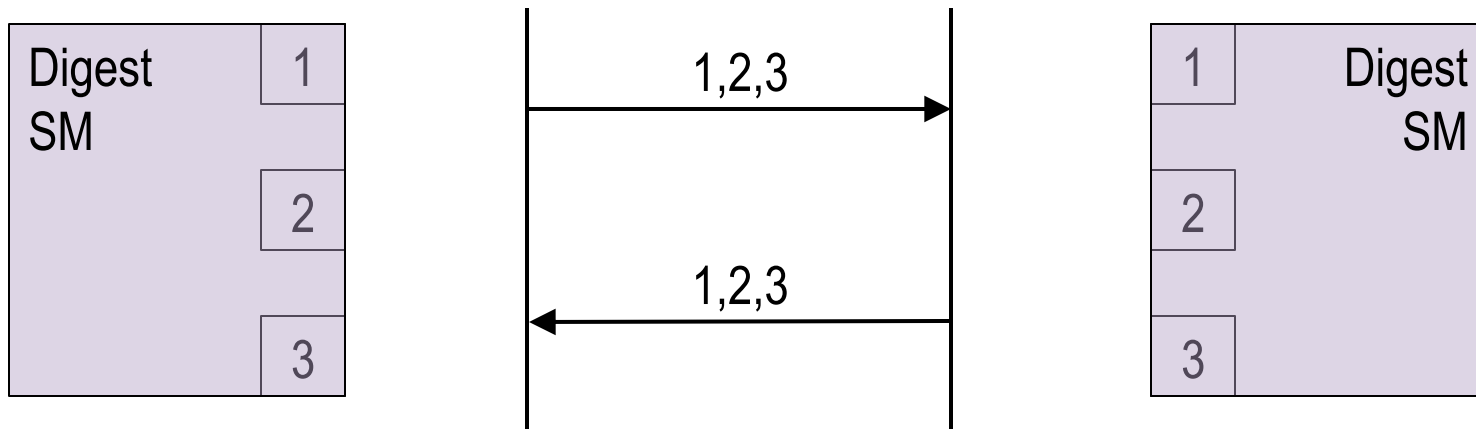- Attribute 2 is 'digested' by both state machines

Non-crossing Solution (3 of 3)

- Declare side sends the digest message
  - Hash over all declared attribute values
- Register side evaluates that message
  - If its local digest agrees, it is silent
  - If its local digest disagrees, it sends LeaveAll as a 'nack'

802.1Qcc D0.1 Solution

- Single digest state machine
  - Hash over all attribute values, declared or registered
- State machine invokes Agreement Protocol (math) to resolve crossing, misordering, and other issues

Comparison of Solutions

- Hash algorithm: Same

- Amount of steady-state traffic: Same

  - Digest message in each direction

- State machines: More for non-crossing

  - Two versus one

- Procedures: More for D0.1

  - State machine invokes procedures

Recommendation

- In the opinion of the editor, D0.1 is
    - Simpler in 802.1Q text
    - Simpler to implement
        - Calling a small procedure from a state machine is much easier than implementing a second state machine
    - Robust, as proven for ISIS-SPB

Thank You