CLAIMS

What is claimed is:

1. A method of configuring a set of conversation identifiers (IDs) at a network device in a distributed resilient network interconnect (DRNI) of a link aggregation group, wherein each conversation ID is to identify a conversation, wherein the network device and a neighbor network device are included in a first portal of the link aggregation group, wherein each of the network device and the neighbor network device implements link aggregation including aggregation ports with a single aggregator of the first portal, and wherein each of the network device and the neighbor network device includes a single gateway of the first portal, the method comprising:

   initializing the set of conversation IDs at the network device, wherein the initialization includes setting entries of a Boolean vector associated with the set of conversation IDs to be a sequence of zeroes, and wherein the Boolean vector includes values indicating processing the set of conversation IDs through the single gateway or the single aggregator of the network device;

   determining that distribution of the set of conversation IDs needs to be updated;

   setting values of an operational vector indexed by the conversation IDs, wherein the operational vector lists which network device of the first portal processes each of the set of conversation IDs; and

   setting values of the Boolean vector indexed by the conversation IDs, wherein the Boolean vector lists whether the single gateway or the single aggregator of the network device is associated with each of the conversation IDs.

2. The method of claim 1, wherein determining the distribution of the set of conversation IDs in need of update comprises checking a Boolean variable.

3. The method of claim 1, further comprising:

   updating operational states of all network devices of the first portal; and

   setting a variable indicating that the distribution of the set of conversation IDs needs to be updated.

4. The method of claim 1, wherein the set of conversation IDs is a set of gateway conversation IDs, and wherein the set of gateway conversation IDs is used to select frames passing one of the gateways of the first portal.
5. The method of claim 4, wherein the operational vector lists which network device passes each gateway conversation ID, and wherein the Boolean vector indicates whether each gateway conversation ID is allowed to pass through the single gateway of the network device.

6. The method of claim 1, wherein the set of conversation IDs is a set of port conversation IDs, and wherein the set of port conversation IDs is used to select frames passing aggregation ports of the first portal.

7. The method of claim 6, wherein the operational vector lists which network device passes each port conversation ID, and wherein the Boolean vector indicates whether each port conversation ID is allowed to be distributed through the single aggregator of the network device.

8. A network device configuring a set of conversation identifiers (IDs) in a distributed resilient network interconnect (DRNI) of a link aggregation group, wherein each conversation ID is to identify a conversation, wherein the network device and a neighbor network device are included in a first portal of the link aggregation group, wherein each of the network device and the neighbor network device implements link aggregation including aggregation ports with a single aggregator of the first portal, and wherein each of the network device and the neighbor network device includes a single gateway of the first portal, the network device comprising:

ports coupled to the physical or aggregation link of the link aggregation group, wherein the ports include aggregation ports; and

a network processor coupled to the ports, the network processor executing a DRNI function, the DRNI function operative to initialize the set of conversation IDs at the network device, wherein the initialization includes setting entries of a Boolean vector associated with the set of conversation IDs to be a sequence of zeroes, and wherein the Boolean vector includes values indicating processing the set of conversation IDs through the single gateway or the single aggregator of the network device, further operative to determine that distribution of the set of conversation IDs needs to be updated, further operative to set values of an

operational vector indexed by the conversation IDs, wherein the operational vector lists which network device of the first portal processes each of the set of conversation IDs, and further operative to set values of the Boolean vector indexed by the conversation IDs, wherein the Boolean vector lists whether the single gateway or the single aggregator of the network device is associated with each of the conversation IDs.

9. The network device of claim 8, wherein determining the distribution of the set of conversation IDs in need of update is to check a Boolean variable.

10. The network device of claim 8, wherein the DRNI function is further operative to:

update operational states of all network devices of the first portal, and
set a variable indicating that the distribution of the set of conversation IDs needs to be updated.

11. The network device of claim 8, wherein the set of conversation IDs is a set of gateway conversation IDs, and wherein the set of gateway conversation IDs is used to select frames passing one of the gateways of the first portal.

12. The network device of claim 11, wherein the operational vector is to list which network device passes each gateway conversation ID, and wherein the Boolean vector is to indicate whether each gateway conversation ID is allowed to pass through the single gateway of the network device.

13. The network device of claim 8, wherein the set of conversation IDs is a set of port conversation IDs, and wherein the set of port conversation IDs is to be used to select frames passing aggregation ports of the first portal.

14. The network device of claim 13, wherein the operational vector is to list which network device passes each port conversation ID, and wherein the Boolean vector is to indicate whether each port conversation ID is allowed to be distributed through the single aggregator of the network device.

15. A non-transitory machine-readable storage medium having instructions stored therein, which when executed by a processor, cause the processor to perform operations at a network device to configure a set of conversation identifiers (IDs) at the network device in a distributed resilient network interconnect (DRNI) of a link aggregation group, wherein each conversation ID is to identify a conversation, wherein the network device and a neighbor network device are included in a first portal of the link aggregation group, wherein each of the network device and the neighbor network device runs link aggregation including aggregation ports with a single aggregator of the first portal, and wherein each of the network device and the neighbor network device includes a single gateway of the first portal, the operations comprising:

initializing the set of conversation IDs at the network device, wherein the initialization includes setting entries of a Boolean vector associated with the set of conversation IDs to be a sequence of zeroes, and wherein the operational Boolean vector includes values indicating processing the set of conversation IDs through the single gateway or the single aggregator of the network device;

determining that distribution of the set of conversation IDs needs to be updated;

setting values of an operational vector indexed by the conversation IDs, wherein the operational vector lists which network device of the first portal processes each of the set of conversation IDs; and

setting values of the Boolean vector indexed by the conversation IDs, wherein the Boolean vector lists whether the single gateway or the single aggregator of the network device is associated with each of the conversation IDs.

16. The non-transitory machine-readable storage medium of claim 15, wherein determining the distribution of the set of conversation IDs in need of update comprises checking a Boolean variable.

17. The non-transitory machine-readable storage medium of claim 15, wherein the operations further comprise:

updating operational states of all network devices of the first portal; and

setting a variable indicating that the distribution of the set of conversation IDs needs to be updated.

18. The non-transitory machine-readable storage medium of claim 15, wherein the set of conversation IDs is a set of gateway conversation IDs, and wherein the set of gateway conversation IDs is used to select frames passing one of the gateways of the first portal.

19. The non-transitory machine-readable storage medium of claim 18, wherein the operational vector lists which network device passes each gateway conversation ID, and wherein the Boolean vector indicates whether each gateway conversation ID is allowed to pass through the single gateway of the network device.

20. The non-transitory machine-readable storage medium of claim 15, wherein the set of conversation IDs is a set of port conversation IDs, and wherein the set of port conversation IDs is used to select frames passing aggregation ports of the first portal.

21. The non-transitory machine-readable storage medium of claim 20, wherein the operational vector lists which network device passes each port conversation ID, and wherein the Boolean vector indicates whether each port conversation ID is allowed to be distributed through the single aggregator of the network device.

22. A method of configuring a set of conversation identifiers (IDs) at a network device in a distributed resilient network interconnect (DRNI) of a link aggregation group, wherein each conversation ID is to identify a conversation, wherein the network device and a neighbor network device are included in a first portal of the link aggregation group, wherein the network device is communicatively coupled to the neighbor network device via an intra-portal port (IPP), wherein each of the network device and the neighbor network device implements link aggregation including aggregation ports with a single aggregator of the first portal, and wherein each of the network device and the neighbor network device includes a single gateway of the first portal, the method comprising:
initializing the set of conversation IDs at the network device, wherein the initialization includes setting entries of a Boolean vector associated with the set of conversation IDs to be a sequence of zeroes, and wherein the Boolean vector includes values indicating processing the set of conversation IDs through the IPP;
determining that distribution of the set of conversation IDs needs to be updated;
setting values of a first operational vector indexed by the conversation IDs, wherein the first operational vector lists which network device of the first portal processes each of the set of conversation IDs as assigned to by the network device;

setting values of a second operational vector indexed by the conversation IDs, wherein the second operational vector lists which network device of the first portal processes each of the set of conversation IDs as assigned to by the neighbor network device; and

setting values of the Boolean vector indexed by the conversation IDs, wherein the Boolean vector lists whether the IPP of the network device is associated with each of the conversation IDs.

23. The method of claim 22, wherein determining the distribution of the set of conversation IDs in need of update comprises checking a Boolean variable.

24. The method of claim 22, wherein the set of conversation IDs is a set of gateway conversation IDs, wherein the set of gateway conversation IDs is used to select frames passing one of the gateways of the first portal.

25. The method of claim 24, wherein the first operational vector lists which network device passes each gateway conversation ID as assigned to by the network device, and wherein the second operational vector lists which network device passes each gateway conversation ID as assigned to by the neighbor network device.

26. The method of claim 22, wherein the set of conversation IDs is a set of port conversation IDs, wherein the set of port conversation IDs is used to select frames passing aggregation ports of the first portal.

27. The method of claim 26, wherein the first operational vector lists which network device passes each port conversation ID as assigned to by the network device, and wherein the second operational vector lists which network device passes each port conversation ID as assigned to by the neighbor network device.

28. A network device configuring a set of conversation identifiers (IDs) in a distributed resilient network interconnect (DRNI) of a link aggregation group, wherein each conversation ID is to identify a conversation, wherein the network device and a neighbor network device are included in a first portal of the link aggregation group, wherein the network device is communicatively coupled to the neighbor network device via an intra-portal port (IPP), wherein each of the network device and the neighbor network device

implements link aggregation including aggregation ports with a single aggregator of the first portal, and wherein each of the network device and the neighbor network device includes a single gateway of the first portal respectively, the network device comprising:

ports coupled to the physical or aggregation link of the link aggregation group, wherein the ports include aggregation ports; and

a network processor coupled to the ports, the network processor executing a DRNI function, the DRNI function operative to initialize the set of conversation IDs at the network device, wherein the initialization includes setting entries of a Boolean vector associated with the set of conversation IDs to be a sequence of zeroes, and wherein the Boolean vector includes values indicating processing the set of conversation IDs through the IPP, further operative to determine that distribution of the set of conversation IDs needs to be updated, further operative to set values of a first operational vector indexed by the conversation IDs, wherein the first operational vector lists which network device of the first portal processes each of the set of conversation IDs as assigned to by the network device, further operative to set values of a second operational vector indexed by the conversation IDs, wherein the second operational vector lists which network device of the first portal processes each of the set of conversation IDs as assigned to by the neighbor network device, and further operative to set values of the Boolean vector indexed by the conversation IDs, wherein the Boolean vector lists whether the IPP of the network device is associated with each of the conversation IDs.

29. The network device of claim 28, wherein determining the distribution of the set of conversation IDs in need of update is to check a Boolean variable.

30. The network device of claim 28, wherein the set of conversation IDs is a set of gateway conversation IDs, wherein the set of gateway conversation IDs is to be used to select frames passing one of the gateways of the first portal.

31. The network device of claim 30, wherein the first operational vector is to list which network device passes each gateway conversation ID as assigned to by the network device, and wherein the second operational vector is to list which network device passes each gateway conversation ID as assigned to by the neighbor network device.

32. The network device of claim 28, wherein the set of conversation IDs is a set of port conversation IDs, wherein the set of port conversation IDs is to be used to select frames passing aggregation ports of the first portal.

33. The network device of claim 32, wherein the first operational vector is to list which network device passes each port conversation ID as assigned to by the network device, and wherein the second operational vector is to list which network device passes each port conversation ID as assigned to by the neighbor network device.

34. A non-transitory machine-readable storage medium having instructions stored therein, which when executed by a processor, cause the processor to perform operations at a network device to configure a set of conversation identifiers (IDs) at the network device in a distributed resilient network interconnect (DRNI) of a link aggregation group, wherein each conversation ID is to identify a conversation, wherein the network device and a neighbor network device are included in a first portal of the link aggregation group, wherein the network device is communicatively coupled to the neighbor network device via an intra-portal port (IPP), wherein each of the network device and the neighbor network device implements link aggregation including aggregation ports with a single aggregator of the first portal, and wherein each of the network device and the neighbor network device includes a single gateway of the first portal, the operations comprising:

initializing the set of conversation IDs at the network device, wherein the initialization includes setting entries of a Boolean vector associated with the set of conversation IDs to be a sequence of zeroes, and wherein the Boolean vector includes values indicating processing the set of conversation IDs through the IPP;

determining that distribution of the set of conversation IDs needs to be updated;

setting values of a first operational vector indexed by the conversation IDs, wherein the first operational vector lists which network device of the first portal processes each of the set of conversation IDs as assigned to by the network device;

setting values of a second operational vector indexed by the conversation IDs, wherein the second operational vector lists which network device of the first portal processes each of the set of conversation IDs as assigned to by the neighbor network device; and

setting values of the Boolean vector indexed by the conversation IDs, wherein the Boolean vector list whether the IPP of the network device is associated with each of the conversation IDs.

35. The non-transitory machine-readable storage medium of claim 34, wherein determining the distribution of the set of conversation IDs in need of update comprises checking a Boolean variable.

36. The non-transitory machine-readable storage medium of claim 34, wherein the set of conversation IDs is a set of gateway conversation IDs, wherein the set of gateway conversation IDs is used to select frames passing one of the gateways of the first portal.

37. The non-transitory machine-readable storage medium of claim 36, wherein the first operational vector lists which network device passes each gateway conversation ID as assigned to by the network device, and wherein the second operational vector lists which network device passes each gateway conversation ID as assigned to by the neighbor network device.

38. The non-transitory machine-readable storage medium of claim 34, wherein the set of conversation IDs is a set of port conversation IDs, wherein the set of port conversation IDs is used to select frames passing aggregation ports of the first portal.

39. The non-transitory machine-readable storage medium of claim 38, wherein the first operational vector lists which network device passes each port conversation ID as assigned to by the network device, and wherein the second operational vector lists which network device passes each port conversation ID as assigned to by the neighbor network device.