

Five Criteria for 802.1AXb? – Link Aggregation Amendment: Resilient Network Network Interface

1. Broad Market Potential

a. Broad sets of applicability

Link Aggregation is used in a large variety of deployments. In any situation where it carries services protected by OAM packets, whether for Bridges or for Routers, these enhancements to LACP are applicable. These include, but are not limited to, Ethernet service providers.

b. Multiple vendors and numerous users

There has been interest expressed by multiple vendors in this capability. Link Aggregation has been implemented by multiple vendors and is widely deployed. Non-interoperable extensions of Link Aggregation with these capabilities currently exist.

c. Balanced costs (LAN versus attached stations)

The changes to Link Aggregation have no effect on the balance of costs with respect to existing technology other than the well-known trade-offs between enhanced capabilities and enhanced software complexity.

2. Compatibility

The changes to LACP have no effect on its compatibility with respect to other existing standards. The ability of LACP to support a wide range of routing and bridging protocols, including non-IEEE standards, will not be affected, although those protocols may require enhancement to take advantage of network topologies to be supported by the improved LACP.

3. Distinct Identity

a. Substantially different from other IEEE 802 standards

There is only one link aggregation standard in IEEE 802. There are none for Network Network Interfaces.

b. One unique solution per problem (not two solutions to a problem)

As this project enhances the only existing IEEE 802 standard for link aggregation, it does not create a second solution.

c. Easy for the document reader to select the relevant specification

IEEE Std 802.1AX is the only current IEEE 802 standard for link aggregation, and there are none for Network Network Interfaces.

4. Technical Feasibility

a. Demonstrated system feasibility

Similar techniques have been deployed as proprietary enhancements to IEEE 802 link aggregation. The redundancy and isolation techniques are straightforward applications of existing bridge components as described in IEEE 802.1Q and its amendments. Five Criteria for LinkAgg Addressing .

b. Proven technology, reasonable testing

Link aggregation and bridge component definition are proven technologies and test methodologies are well understood.

c. Confidence in reliability

Link aggregation is often deployed to enhance the reliability of data communication networks. The intended changes improve this aspect of the link aggregation capability. By totally isolating the fault recovery and load sharing capabilities of provider Ethernet networks, the reliability of the combined network is enhanced.

d. Coexistence of 802 wireless standards specifying devices for unlicensed operation

Not applicable.

5. Economic Feasibility

a. Known cost factors, reliable data

The proposed changes have no impact on the cost factors applicable to link aggregation, as the necessary changes are in the software control plane.

b. Reasonable cost for performance

The proposed changes have negligible impact on the cost factors applicable to link aggregation or provider bridging.

c. Consideration of installation costs

The proposed changes require a certain amount of inter-provider negotiation to configure a jointly-operated NNI buffer network. This is consequent to and commensurate to the new capabilities offered, and eliminates a large amount of similar effort currently required in the absence of a standard.