802.3ad
Link Aggregation Task Force

November 9, 1998
Albuquerque, NM
Link Aggregation Agenda

• Introductory Remarks and Introductions
• Work Plan / Timetable
• Minutes from San Diego, Austin meetings
• Call for Patents
• Presentations
• Discussion:
  – Hot Issues List
  – Authorize writing of first draft
• Plans for next meeting
E-mail Reflector & Website

• The IEEE has set up a reflector for this study group:
  stds-802-3-trunking@ieee.org
  To be added to the reflector, send an E-mail containing:
  subscribe stds-802-3-trunking <your email address>
  to:
  majordomo@majordomo.ieee.org

• There is also a web site for our use at:
  http://grouper.ieee.org/groups/802/3/ad/index.html
  The web site contains links to the minutes and presentations from all prior meetings, and an archive of the email reflector
November 802.3ad Objectives

- Cutoff date for new proposals for Link Aggregation
  - Selection of a Link Aggregation Control Protocol proposal for inclusion in the first draft of the standard.

- Primary objective of this meeting is to resolve any open issues and authorize the editor(s) to generate a first draft of the 802.3ad Link Aggregation standard.

- Presentations:
  - Tony Jeffree    Link Aggregation Control
  - Jeff Lynch      Selection Rules
“Big Ticket” Issues

• Specification of Distributor frame ordering constraints
  – Current frame ordering constraint is adequate.
  – A brief informative annex with example traffic distribution rules may be included.

• Architectural Model: # of aggregate ports required
  – # of aggregate ports may be <= to # of physical ports

• Addressing: MAC address per aggregate or per physical
  – Aggregate port has one individual MAC address
  – Physical MACs are only required to recognize a single individual MAC address at any given time.
  – When bound to an Aggregate, the Physical MAC recognizes the MAC address of the Aggregate.
  – When not bound to an Aggregate, it is recommended that each Physical MAC recognize a unique individual address.
“Big Ticket” Issues

• Dynamic Key modification rules
  – To be discussed following Tuesday’s presentations

• Selection rules
  – To be discussed following Tuesday’s presentations

• MAC addresses in LA Control frames
  – Will request a new Ethertype to be assigned for LA Control frames
  – Will request a new group MAC address from the 802.1 block.
  – The address should be re-usable by other compatible protocols.

• Extensibility of LA Control frames
  – To be discussed following Tuesday’s presentations

• Managed objects for LA Control and “logical MAC”
  – Action Item to a small group to create a proposal by Wednesday
Link Aggregation Reference Model

OSI REFERENCE MODEL LAYERS

APPLICATION
PRESENTATION
SESSION
TRANSPORT
NETWORK
DATA LINK
PHYSICAL

LAN CSMA/CD LAYERS

MAC Client

HIGHER LAYERS

LINK AGGREGATION SUBLAYER

MAC CTRL | MAC CTRL | MAC CTRL
MAC | MAC | MAC
PCS | PCS | PCS
PMA | PMA | PMA
PMD | PMD | PMD

STANDARDIZED LINK AGGREGATION COMPONENTS
Link Aggregation Control Model

### Diagram

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<th>Link Aggregation Sub-layer</th>
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**Link Aggregation Control**

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### Notes
- MAC CLIENT and MAC Aggregator:
  - MAC CTRL
  - MAC
  - Recconcil.
  - PCS
  - PMA
  - PMD

- LA state:
  - MAC CTRL
  - MAC
  - Recconcil.
  - PCS
  - PMA
  - PMD

- Link Aggregation Sub-layer:
  - MAC CTRL
  - MAC
  - Recconcil.
  - PCS
  - PMA
  - PMD