IETF / IEEE 802.1 Liaison

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Topics

- TRILL charter and 802.1 dependencies
- Bridge MIB transfer
- DNA link up review
- ND Proxy review
- Radius Extensions 802 Attributes

TRILL

- The TRILL WG will design a solution for shortest-path frame routing in multi-hop IEEE 802.1-compliant Ethernet networks with arbitrary topologies, using an existing link-state routing protocol technology
- This work will initially be based on draft-perlman-rbridge-03.txt.
- The design should have the following properties:
  - Minimal or no configuration required
  - Load-splitting among multiple paths
  - Routing loop mitigation (possibly through a TTL field)
  - Support of multiple points of attachment
  - Support for broadcast and multicast
  - No significant service delay after attachment
  - No less secure than existing bridged solutions

TRILL and 802.1

- Any changes introduced to the Ethernet service model should be analyzed and clearly documented. To ensure compatibility with IEEE VLANs and the Ethernet service model, the WG will request an IEEE liaison relationship with IEEE 802.1, and IEEE 802.1 will be asked to review the architecture document and specification(s) before they are submitted to the IESG.
- It is not an explicit requirement that the solution should be able to run on existing IP routers or IEEE 802 switches as a software upgrade. However, the working group should take deployment considerations into account, to ensure that the solution can interwork with bridges in a flexible manner (e.g., to allow incremental deployment into LANs that currently use 802.1D bridges).
- The TRILL working will work with the L2VPN WG to develop interworking between TRILL and 802.1D bridges at the edge, such that a bridged sub-cloud could be attached to TRILL devices in more than one place for redundancy.

TRILL Work Items

1. Develop a problem statement and architecture document that describes the high-level TRILL architecture, discusses the scalability of that architecture, describes the threat model and security impacts of the TRILL solution, and describes the expected impacts (if any) of the TRILL solution on the Ethernet service model.
2. Define the requirements for a TRILL-capable routing protocol, and select one or more existing routing protocols that could meet those requirements.
3. Work with the appropriate Routing area working group to extend an existing routing protocol to meet the TRILL working group requirements.
   - Note: The TRILL working group is not chartered to develop a new routing protocol or to make substantial modifications to an existing routing protocol. If, during the requirements definition and selection phase, the TRILL working group discovers that no existing routing protocol will meet their needs, we will need to re-assess the TRILL WG charter to determine how/if this work should proceed.
4. Produce a (set of) TRILL specification(s) for standards track publication that define(s) what information must be carried in an encapsulation header for data packets. Although this work will initially be undertaken only for 802.1-compliant links, it may later be expanded to non-802.1 links, so the design should be link-layer agnostic to whatever extent possible.

TRILL Goals and Milestones

Aug-05	Accept architecture document as a WG work item
Sep-05	Accept base protocol specification as a WG document
Oct-05	Accept routing protocol requirements as a WG work item
Nov-05	Submit architecture document to IEEE/IETF expert review
Jan-05	Submit architecture document to the IESG for publication as an Informational RFC
Mar-05	Submit routing protocol requirements to the IESG for publication as an Informational RFC
Mar-05	Choose routing protocol(s) that can meet the requirements
Apr-05	Start work with routing area WG(s) to undertake TRILL extensions
Aug-05	Submit base protocol specification to IEEE/IETF expert review
Oct-05	Base protocol specification submitted to the IESG for publication as a Proposed Standard RFC
Feb-05	Re-charter or shut down the WG

Bridge MIB Transfer

- 802.1 MIB PAR awaiting approval (802.1ap)
- All IETF chartered deliverables have been submitted to AD or IESG for final approval (i.e. they basically are done).
- MSTP and 802.1ad extension MIB modules will be initial work item for 802.1
  - We have initial submissions on MSTP, but minimal interactions with authors since San Antonio.
- Desired IETF document on transfer process
  - Considered using the IETF/IEEE relationship document, however a focused Bridge WG and 802.1 WG document is more appropriate
  - Looking for document volunteers. David Harrington to edit, Dan R and Paul C to assist.

Transfer Issues to document

- Process for MIB Doctor Review
- 802.1 ballot process vs traditional IETF comment process
- Communications between IETF/IEEE (e.g. Mailing lists)
- Differences between traditional 802.1 management variables and SNMP SMI objects (e.g. persistence, change control)
- IETF vs IEEE 802.1 OID registration branches
- Minor modifications to IETF branches
- Copyright transfer from IETF to IEEE
- Others?

DNA WG link-up review

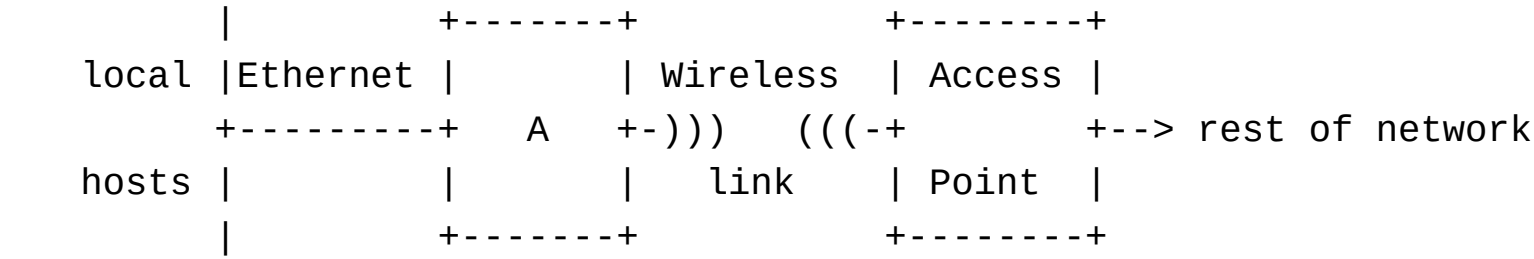
- Request for 802.1 and 802.3 to review link indications discussion in draft
- http://www.ietf.org/internet-drafts/draft-ietf-dna-link-information-01.txt
- Comments were provided by Mick Seaman
  - Impact of RSTP and bridge port parameters on link forwarding delays in bridge<->bridge, bridge<->end-station, end-station<->end-station topologies
  - How indications provided by LLDP may contribute

ND Proxy Draft – What is it?

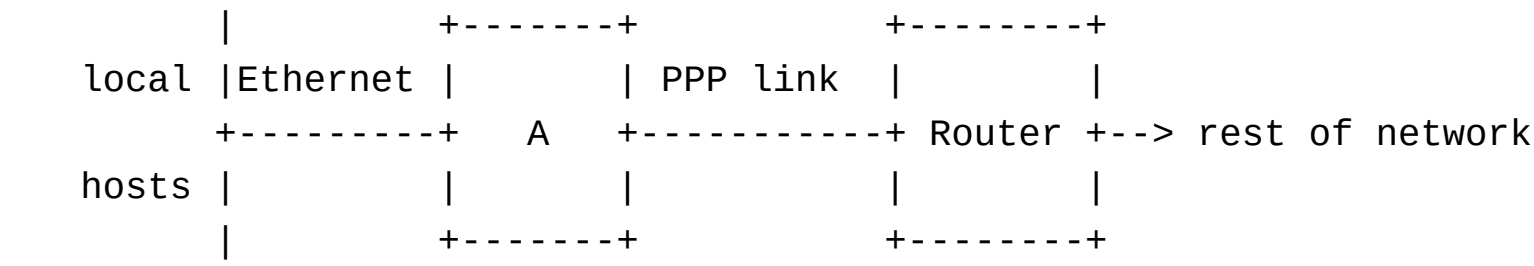
- Experimental draft focused on how to bridge multiple links using a single subnet prefix in an IPv6 environment. Also describes an IPv4 ARP Proxy role in bridging certain types of links (e.g. 802.11 bridges).
- http://www.ietf.org/internet-drafts/draft-ietf-ipv6-ndproxy-03.txt

Scenario’s covered

Wireless bridge proxy (IPv4 and IPv6)



PPP gateways (IPv6)



Proxy Forwarding Behavior

- Protocols that carry link layer addresses in the payload must be proxied if forwarded
  - IPv4 ARP
  - DHCPv4
  - Others?
  - IPv6 Neighbor Discovery (ND)
  - IPv6 Router Discover
  - IPv6 Redirects
- To Proxy a frame, replace link layer addresses in payloads with Proxy addresses
- Forwarded frames replace the link layer header with one using the proxy's address

802.1 Interest in this draft?

- IEEE 802 architectural alignment?
- Interaction with RSTP, MSTP and future Spanning Tree directions unclear
- Interaction with Virtual LAN topologies?

NOTE: Environment where these technologies are used is typically the home or very small office

Radius Extensions – 802 Attributes

- Draft moving to WG last call that creates new Radius attributes for VLANs, Priority and traffic redirection
- http://www.ietf.org/internet-drafts/draft-ietf-radext-ieee802-00.txt
- Separate draft related to bandwidth management provisioning (draft-lior-radius-bandwidth-capability-01.txt)
- Several other SDOs are interested in this document (TCG, 3GPP, 802.1)
- Initial work started nearly 2 years ago. Long history of attributes moving in an out of the draft.

Current Attribute Summary

VLAN attributes
- Egress-VLAN-ID
- Ingress-Filter
- VLAN-Name

Quality of Service Attributes
- User-Priority-Table
- QoS-Filter-Rule

Access Control Attributes
- NAS-Filter-Rule

~~Key Management~~
- ~~Redirect-Host~~
- ~~Origin-Realm~~

Accounting
- Acct-EAP-Auth-Method
- Acct-NAS-Filter-Rule

Interested Parties in Draft

- Trusted Network Connect (TNC) of the TCG (Mauricio S.)
  - RADIUS Attribute documents have been referenced in proposal of standardization of interface (IF-PEP) between NAS and Authentication Service
    - https://www.trustedcomputinggroup.org/downloads/background_docs/TNC_FAQ_revised_020305.pdf
  - Interface PEP (Policy Enforce Point) of the TNC reference model relies on Radius attributes to configure isolation behavior on NAS
  - The following IETF documents are currently of interest:
    - RFC 3580
    - RFC 3576
    - draft-ietf-radext-ieee802-00-txt
    - draft-adrangi-radius-bandwidth-capability-01.txt
- 3GPP / GSMA IR61 WLAN Roaming (Farid A., Heinrich B.)
  - 3GPP / GSMA IR61 has dependency on the following
    - draft-ietf-radext-ieee802-00-txt (GSMA IR61)
    - draft-ietf-geopriv-radius-lo-02.txt (GSMA IR61, 3GPP Rlease 6)
    - draft-ietf-radext-chargeable-user-id-03.txt (GSMA IR61, 3GPP Release 6)
  - The following IETF documents are currently of interest
    - draft-lior-radius-bandwidth-capability-00.txt (GSMA IR61)
    - draft-lior-radius-prepaid-extensions-07.txt (GSMA IR61)
    - draft-lior-radext-end-to-end-caps-00.txt (GSMA IR61)

Issues and Work Items

- Draft has gone to last call
  - Expect (substantial) discussion on RADEXT mailing list
- Expect completion by end of year