DLEP Extensions Update

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Post LC Drafts

- DLEP Latency Range Extension
  - draft-ietf-manet-dlep-latency-extension-04
- DLEP Link Identifier Extension
  - draft-ietf-manet-dlep-lid-extension-02
- DLEP Multi-Hop Forwarding Extension
  - draft-ietf-manet-dlep-multi-hop-extension-05
- DLEP Control Plane Based Pause Extension
  - draft-ietf-manet-dlep-pause-extension-04

Post LC, LC Comments addressed in February
Ready for pub request
Submitted to IESG
Credit Based Flow Control
DLEP Extensions Update

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Summary

- Drafts have been split according to discussions at IETF 101 and 102
  1. draft-ietf-manet-dlep-credit-flow-control-03
  2. draft-ietf-manet-dlep-traffic-classification-00
  3. draft-ietf-manet-dlep-da-credit-extension-06
  4. draft-berger-manet-dlep-ether-credit-extension-01

- Only editorial changes made as part of split

Ready for LC
Ready for adoption*
Based on Last Meeting

• Now in separate documents
  ○ Credit Window Control – draft-ietf-manet-dlep-credit-flow-control-03
    - Messages: Credit Control, Credit Control Response
    - Credit Window Data Items: Initialization, Associate, Grant, Status, Request
    - Stan (re) added as co-author
  ○ Traffic Classification Data Item – draft-ietf-manet-dlep-traffic-classification-00
    - DiffServ Traffic Classification Sub Data Item
    - Ethernet Traffic Classification Sub Data Item
  ○ No technical changes

• Other documents updated to reflect split
  ○ No technical changes
  ○ Use common credit window control and traffic classification data item
    - DiffServ Aware Credit Window Extension – draft-ietf-manet-dlep-da-credit-extension-06
    - IEEE 802.1Q Aware Credit Window Extension – draft-berger-manet-dlep-ether-credit-extension-01
Reminder: DLEP IEEE 802.1Q Aware Credit Window Extension

- Ethernet Traffic Classification defined in 
  draft-ietf-manet-dlep-traffic-classification-00

  Ethernet Traffic Classification Sub Data Item

  0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
  +----------------------------------+-
  | Must be two (2)                  |
  | Length                           |
  +----------------------------------+
  | Flow Identifier (FID)            |
  | NumPCPs| VLAN Identifier (VID)          |
  +----------------------------------+
  | Pri. 1| Pri. 2| ..... | ..... | ..... | Pad |
  +----------------------------------+

- draft-berger-manet-dlep-ether-credit-extension-01

  Defines usage of Ethernet Traffic Classification DI with Credit Window Control

  Requests IANA Extension Type
  - TBA: IEEE 802.1Q Aware Credit Window
Next Steps

• Last Call
  o draft-ietf-manet-dlep-credit-flow-control-03
  o draft-ietf-manet-dlep-traffic-classification-00
  o draft-ietf-manet-dlep-da-credit-extension-06

• Adopt
  o draft-berger-manet-dlep-ether-credit-extension-01

• If interested in RFC8175 ...
  o MIT-LL DLEP code published on github
    • DLEP stack code: https://github.com/mit-ll/LL-DLEP
    • Wireshark Dissector Plugin: https://github.com/mit-ll/dlep-wireshark-dissector
  o Minor updates coming: notably Sub-DI support
Control Plane Based Flow Control

**draft-ietf-manet-dlep-pause-extension**
- A simple flow control mechanism
  - Useful when a simple control plane “xon/xoff” capability is good enough
- Modem can send DLEP messages to pause and restart traffic
- May be device wide or per destination
  - To match different link technologies
  - May be DSCP specific
  - For modems with multiple queues
  - Somewhat equivalent to Ethernet PFC, but without C-Tags (VLANs) and flow control is per destination

**draft-ietf-manet-dlep-da-credit-extension**
- Credit-window flow control
  - More sophisticated flow control, for a wide range of applications
- Modem send initial size and credit grants, routers only send traffic when have credits
- Credit Windows are device wide
  - May be shared across destinations or per destination to match different link technologies
  - Each window maps to a modem logical transmit queue
  - May be DSCP specific
Background: Current Operation

(Per CW) Credit Window Initialization Data Item is:

<table>
<thead>
<tr>
<th>Data Item Type</th>
<th>Length (16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow Identifier (FID)</td>
<td>Reserved</td>
</tr>
<tr>
<td>Credit Value</td>
<td></td>
</tr>
<tr>
<td>Scale</td>
<td></td>
</tr>
<tr>
<td>Credit Window Size</td>
<td></td>
</tr>
</tbody>
</table>

Traffic Classification Data Item

<table>
<thead>
<tr>
<th>Data Item Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Class. Identifier (TID)</td>
<td>Num SDIs</td>
</tr>
<tr>
<td>DiffServ Credit Window Traffic Classification Sub Data Item</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Must be two (2)</td>
</tr>
<tr>
<td></td>
<td>Flow Identifier (FID)</td>
</tr>
<tr>
<td></td>
<td>DS Field 2</td>
</tr>
<tr>
<td>Ethernet Credit Window Traffic Classification Sub Data Item is:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TBD</td>
</tr>
<tr>
<td></td>
<td>Flow Identifier (FID)</td>
</tr>
<tr>
<td></td>
<td>Pri. 1</td>
</tr>
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</table>

Credit Window Associate Data Item is:

<table>
<thead>
<tr>
<th>Data Item Type</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traffic Class. Identifier (TID)</td>
<td></td>
</tr>
</tbody>
</table>