A socket API to control Multipath TCP: updates

IETF 101
draft-hesmans-mptcp-socket-03

Benjamin Hesmans <benjamin.hesmans@uclouvain.be>
Fabien Duchêne <fabien.duchene@uclouvain.be>
Olivier Bonaventure <olivier.bonaventure@uclouvain.be>
- Added the *IPv6 Segment routing extension* section

  ... *Multipath-TCP can leverage SRv6 to establish subflows that use a specific path.*
Segment Routing v6

- Segment Routing (SR) [I-D.ietf-spring-segment-routing] allows a node to steer packets through specific paths inside a network.

- The IPv6 dataplane relies on the IPv6 Segment Routing Header

- MTCP can leverage SRv6 to establish subflows that use a specific path.
Segment Routing v6 Header

<table>
<thead>
<tr>
<th>Next Header</th>
<th>Hdr Ext Len</th>
<th>Routing Type</th>
<th>Segments Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Entry</td>
<td>Flags</td>
<td>Tag</td>
<td></td>
</tr>
</tbody>
</table>

Segment List[0] (128 bits IPv6 address)

...

Segment List[n] (128 bits IPv6 address)

// Optional Type Length Value objects (variable)
MPTCP + SRv6

memset(&srh->segments[0], 0, sizeof(struct in6_addr));
inet_pton(AF_INET6, "2001:DB8:2222::1", &srh->segments[1]);

sub_tuple->ipv6_srh = srh;

error = getsockopt(sockfd, IPPROTO_TCP, MPTCP_OPEN_SUB_TUPLE, sub_tuple, &optlen);
Use cases

- Disjoint path

- Traffic engineered path

- ....
Questions ?