

R2    All Routers    R1    R2 (P)    R1 (PE)

ldp\_setup\_md5.pcapng

LDP Hello Message

|                        |          |
|------------------------|----------|
| ID LSR ID              | 10.0.0.2 |
| Hold Time              | 15       |
| Type                   | Hello    |
| IPv4 Transport Address | 10.0.0.2 |

LDP Hello Message

|                        |          |
|------------------------|----------|
| ID LSR ID              | 10.0.0.1 |
| Hold Time              | 15       |
| Type                   | Hello    |
| IPv4 Transport Address | 10.0.0.1 |

LDP Hello Message

|                        |          |
|------------------------|----------|
| ID LSR ID              | 10.0.0.2 |
| Hold Time              | 15       |
| Type                   | Hello    |
| IPv4 Transport Address | 10.0.0.2 |

LDP Hello – periodic UDP multicast (224.0.0.2) for neighbor discovery; discovered LSRs then open a TCP session to exchange labels and session parameters

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TCP (SYN)

|                  |       |
|------------------|-------|
| Source Port      | 16877 |
| Destination Port | 646   |
| Stream index     | 0     |

Frame 4 | 2020-05-03T19:12:21.301191Z

TCP (SYN, ACK)

|                  |       |
|------------------|-------|
| Source Port      | 646   |
| Destination Port | 16877 |
| Stream index     | 0     |

Frame 5 | 2020-05-03T19:12:21.301779Z

TCP (ACK)

|                  |       |
|------------------|-------|
| Source Port      | 16877 |
| Destination Port | 646   |
| Stream index     | 0     |

Frame 6 | 2020-05-03T19:12:21.302105Z

LDP Initialization Message

|           |          |
|-----------|----------|
| ID LSR ID | 10.0.0.2 |
|-----------|----------|

LDP Initialization – negotiates session parameters (keepalive timer, label advertisement mode: DU vs DoD, path vector limit); both LSRs must agree or session is torn down with a Notification

TCP (ACK)

|                  |       |
|------------------|-------|
| Source Port      | 646   |
| Destination Port | 16877 |
| Stream index     | 0     |

Frame 8 | 2020-05-03T19:12:21.321848Z

LDP Initialization Message

|           |          |
|-----------|----------|
| ID LSR ID | 10.0.0.1 |
|-----------|----------|

LDP Initialization – negotiates session parameters (keepalive timer, label advertisement mode: DU vs DoD, path vector limit); both LSRs must agree or session is torn down with a Notification

LDP Label Mapping Message

|                    |                |
|--------------------|----------------|
| ID LSR ID          | 10.0.0.2       |
| ID LSR ID          | 10.0.0.2       |
| FEC Element Type   | Prefix FEC (2) |
| FEC Element Length | 24             |
| Label              | 3              |

LDP Label Mapping – advertises a local label binding for a FEC (prefix) to the peer; downstream LSR assigns labels and propagates upstream to build the LSP hop by hop

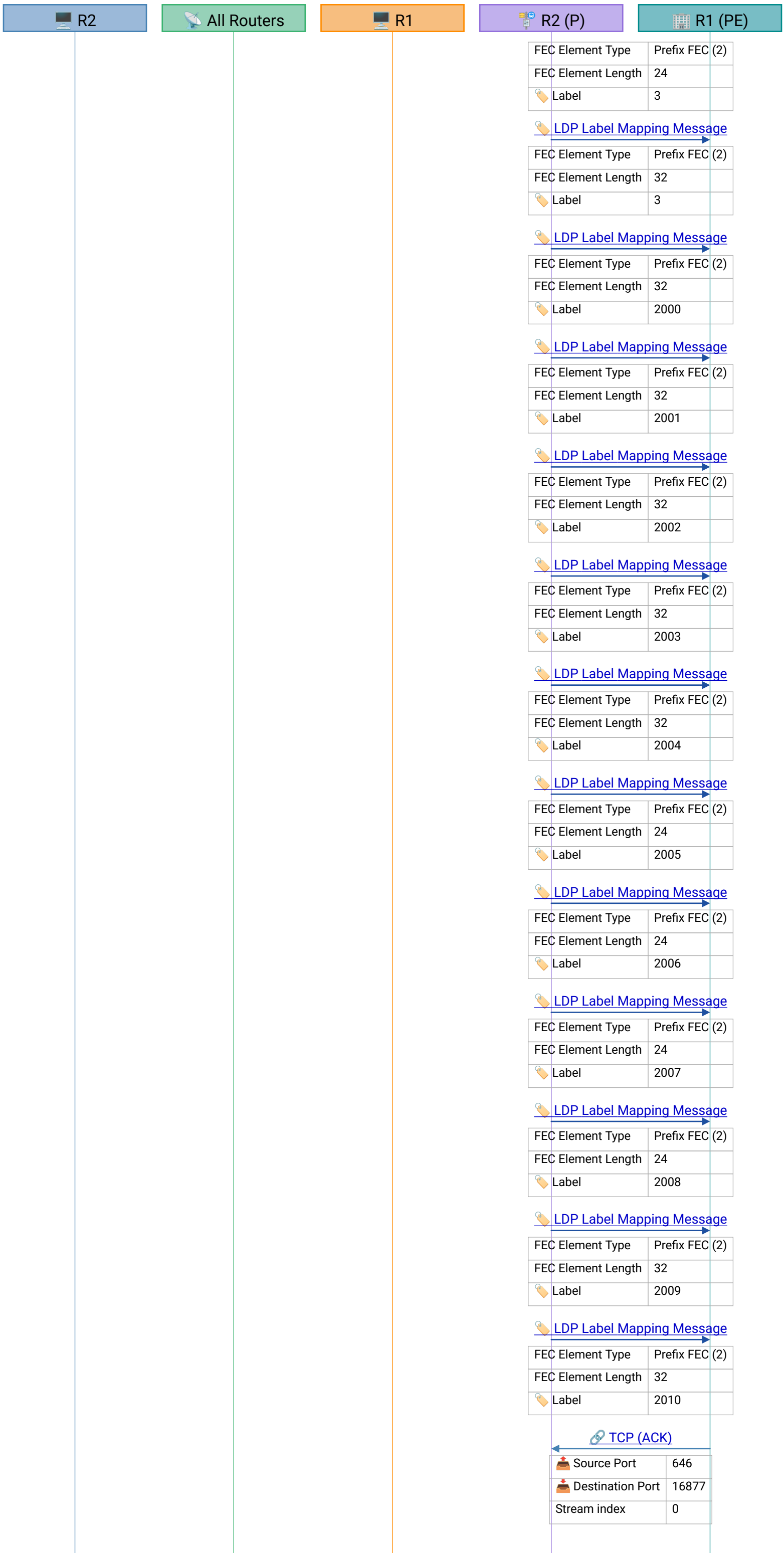
LDP Label Mapping Message

|                    |                |
|--------------------|----------------|
| FEC Element Type   | Prefix FEC (2) |
| FEC Element Length | 24             |
| Label              | 3              |

LDP Label Mapping Message

|                    |                |
|--------------------|----------------|
| FEC Element Type   | Prefix FEC (2) |
| FEC Element Length | 24             |
| Label              | 3              |

LDP Label Mapping Message



Frame 11 |  
2020-05-03T19:12:21.35924Z

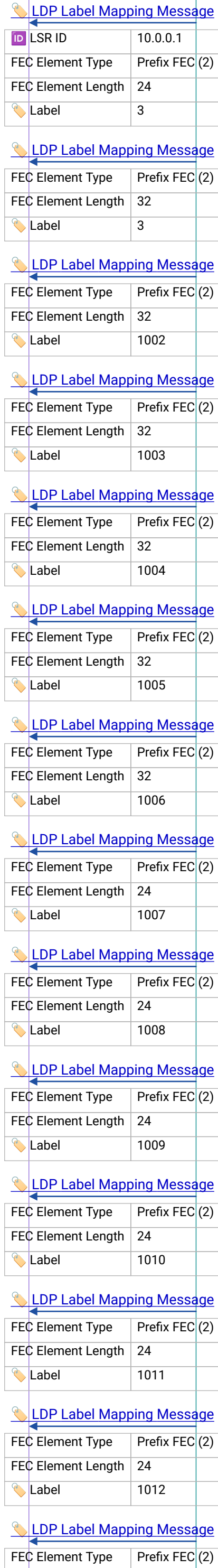
R2

All Routers

R1

R2 (P)

R1 (PE)



💡 LDP Label Mapping – advertises a local label binding for a FEC (prefix) to the peer; downstream LSR assigns labels and propagates upstream to build the LSP hop by hop

R2

All Routers

R1

R2 (P)

R1 (PE)

|                    |      |
|--------------------|------|
| FEC Element Length | 24   |
| Label              | 1013 |

LDP Label Mapping Message

|                    |                |
|--------------------|----------------|
| FEC Element Type   | Prefix FEC (2) |
| FEC Element Length | 32             |
| Label              | 1014           |

LDP Label Mapping Message

|                    |                |
|--------------------|----------------|
| FEC Element Type   | Prefix FEC (2) |
| FEC Element Length | 32             |
| Label              | 1015           |

TCP (ACK)

|                  |       |
|------------------|-------|
| Source Port      | 16877 |
| Destination Port | 646   |
| Stream index     | 0     |

Frame 13 |  
2020-05-03T19:12:21.37387Z