

# DetNet Configuration YANG Model Update

draft-ietf-detnet-yang-08

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# Status

- Merged YANG models working on Yanglint data instances for various configuration scenarios.
- Need to check terminology for consistency and clarity.
- Need to confirm data plane match data plane drafts.
- Need Updated reference pointers in the YANG model.

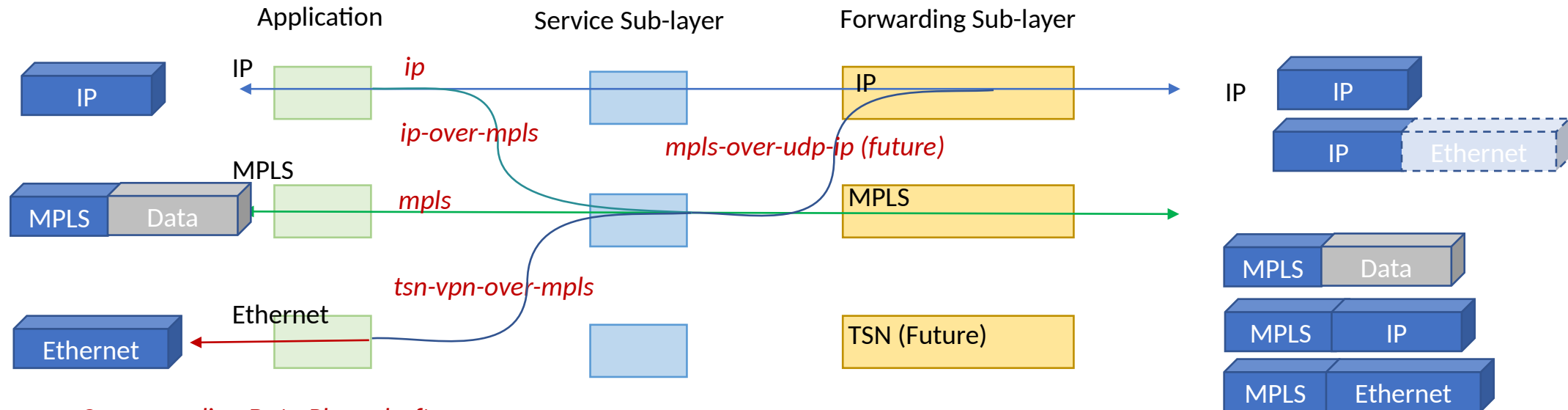
# History

- Version 00: accepted as a WG document after IETF 102
- Version 01: *ietf-detnet-topology-yang* is defined independently
- Version 02: updated following the feedback from IETF103
  - Add 'Sequence Number Generation'
    - OAM considerations
  - Add 'DetNet Service Decapsulation'
  - Add 'DetNet Transport Tunnel Decapsulation'
- Version 03: DetNet Configuration Structure Update in IETF104 and IETF105
- Version 04 :
  - Modify the scope of DetNet YANG Model
- Version 05/06:
  - Two YANG Models Discussion -> Comparison
- Version 07
  - Merging Models. Some terminology alignment.
- Version 08
  - Aggregation and Instance Models

WG Call Meeting Every Week

# Scenarios Covered by DetNet YANG Model

(w/o Aggregation)



*Corresponding Data Plane drafts:*

*draft-ietf-detnet-ip-06*

*draft-ietf-detnet-ip-over-mpls-06*

*draft-ietf-detnet-mpls-07*

*draft-ietf-detnet-mpls-over-udp-ip-06 (Partial)*

*draft-ietf-detnet-tsn-vpn-over-mpls-03 (Partial)*

*draft-ietf-detnet-mpls-over-tsn-03(Not yet)*

*draft-ietf-detnet-ip-over-tsn-03(Not yet)*

Not shown Ethernet or other  
Tunnels as be underlay

# Flow Model Attributes Supported by YANG

## App-flow, DetNet flow and DetNet service

draft-ietf-detnet-flow-information-model

### App-flow

#### Characteristics

- FlowID: unique (manag.) ID
- FlowType: Eth, MPLS, IP
- *DataFlowSpecification*:  
src/dst-addr, label, VLAN, etc.
- *TrafficSpecification*:  
interval, pkt-size, max-packet
- FlowEndPoints: Src, Dst(s)
- FlowRank
- FlowStatus

#### Requirements

- *FlowRequirements*:  
MinBW, PD, PDV, Loss, etc.
- FlowBiDir

Service Requirements similar to e.g., 802.1Qcc Attributes like UserToNetworkRequirements

### DetNet flow

#### Characteristics

- DnFlowID: unique (manag.) ID
- DnPayloadType: Eth, MPLS, IP
- DnFlowFormat: MPLS, IP
- *DnFlowSpecification*:  
Label, 6-tuple
- *DnTrafficSpecification*:  
interval, pkt-size, max-packet
- DnFlowEndPoints: Ingress, Egress(s)
- DnFlowRank
- DnFlowStatus

#### Requirements

- *DnFlowRequirements*:  
MinBW, MaxLatency, MaxLatencyVariation, MaxLoss, MaxConsecutiveLossTolerance, MaxMisordering
- DnFlowBiDir

### DN Service

- DnServiceID: unique (manag.) ID
- DnServiceDeliveryType: Eth, MPLS, IP
- DnServiceConnectivity: p2p, p2mp
- DnServiceRank
- *DnServiceDeliveryProfile*:  
MaxBW, MaxLatency, MaxLatencyVariation, MaxLoss, MaxConsecutiveLossTolerance, MaxMisordering
- DnServiceBiDir
- DnServiceStatus

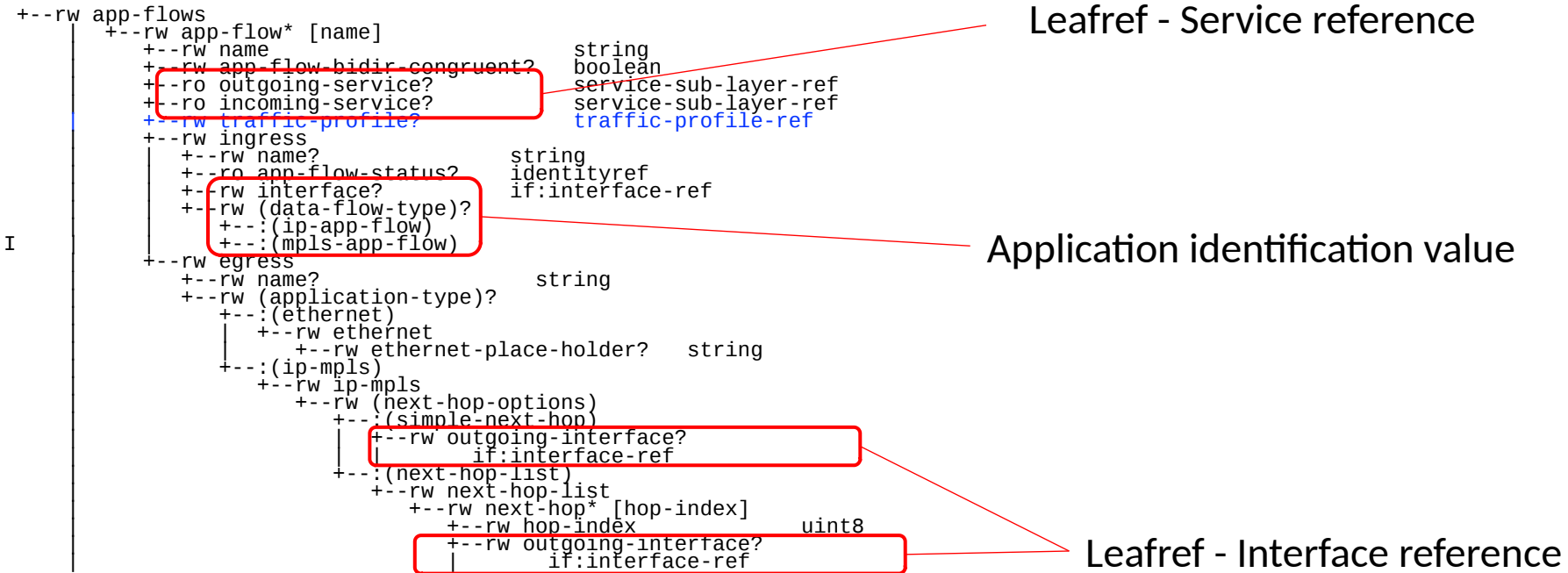
A DetNet flow contains one or more App-flows (N:1 mapping).

A DetNet service supports one or more DetNet-flows (M:1 mapping).

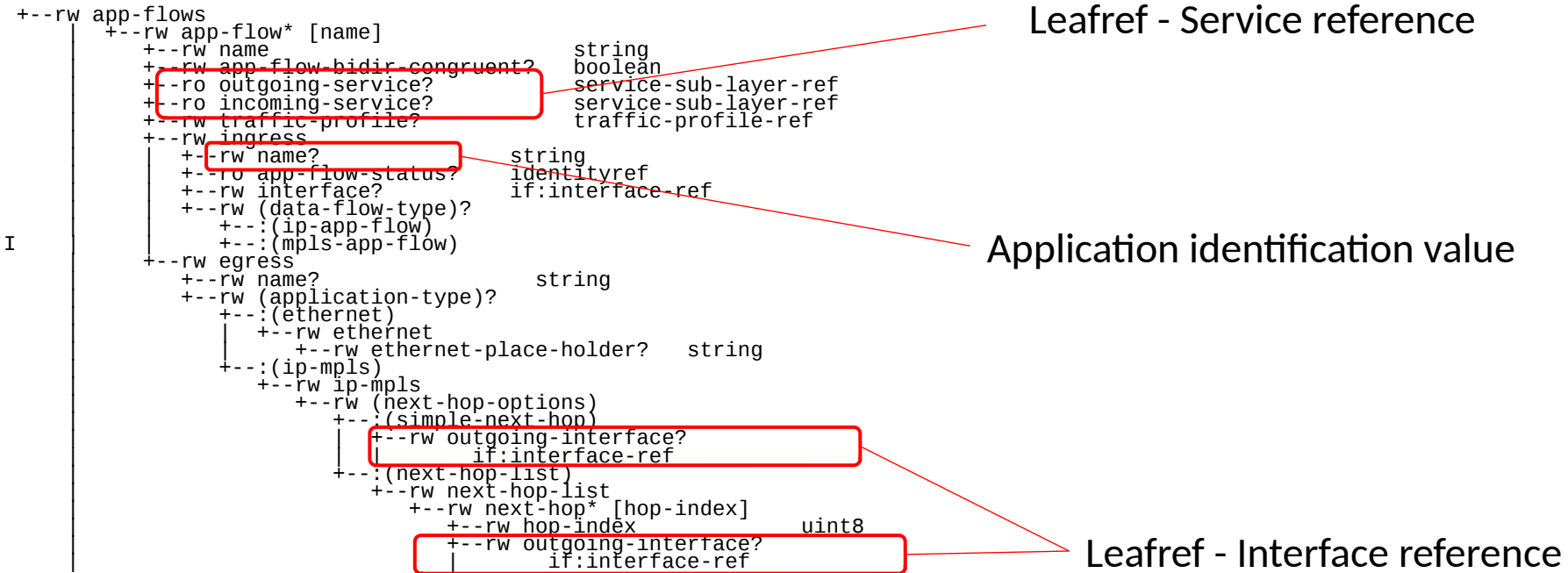
# YANG Model: Traffic Profile

```
+--rw traffic-profile* [profile-number]
  |--rw profile-number          uint16
  |--rw traffic-requirements
    |--rw min-bandwidth?        uint64
    |--rw max-latency?          uint32
    |--rw max-latency-variation? uint32
    |--rw max-loss?             uint8
    |--rw max-consecutive-loss-tolerance? uint32
    |--rw max-misordering?      uint32
  |--rw traffic-specification
    |--rw interval?             uint32
    |--rw max-packets-per-interval? uint32
    |--rw max-payload-size?      uint32
    |--rw average-packets-per-interval? uint32
    |--rw average-payload-size?  uint32
  +--ro member-applications*    app-flow-ref
  +--ro member-services*        service-sub-layer-ref
  +--ro member-groups*          aggregation-grp-ref
  +--ro member-forwarding-sublayers* forwarding-sub-layer-ref
```

# YANG Model: App-flow



# YANG Model: App-flow

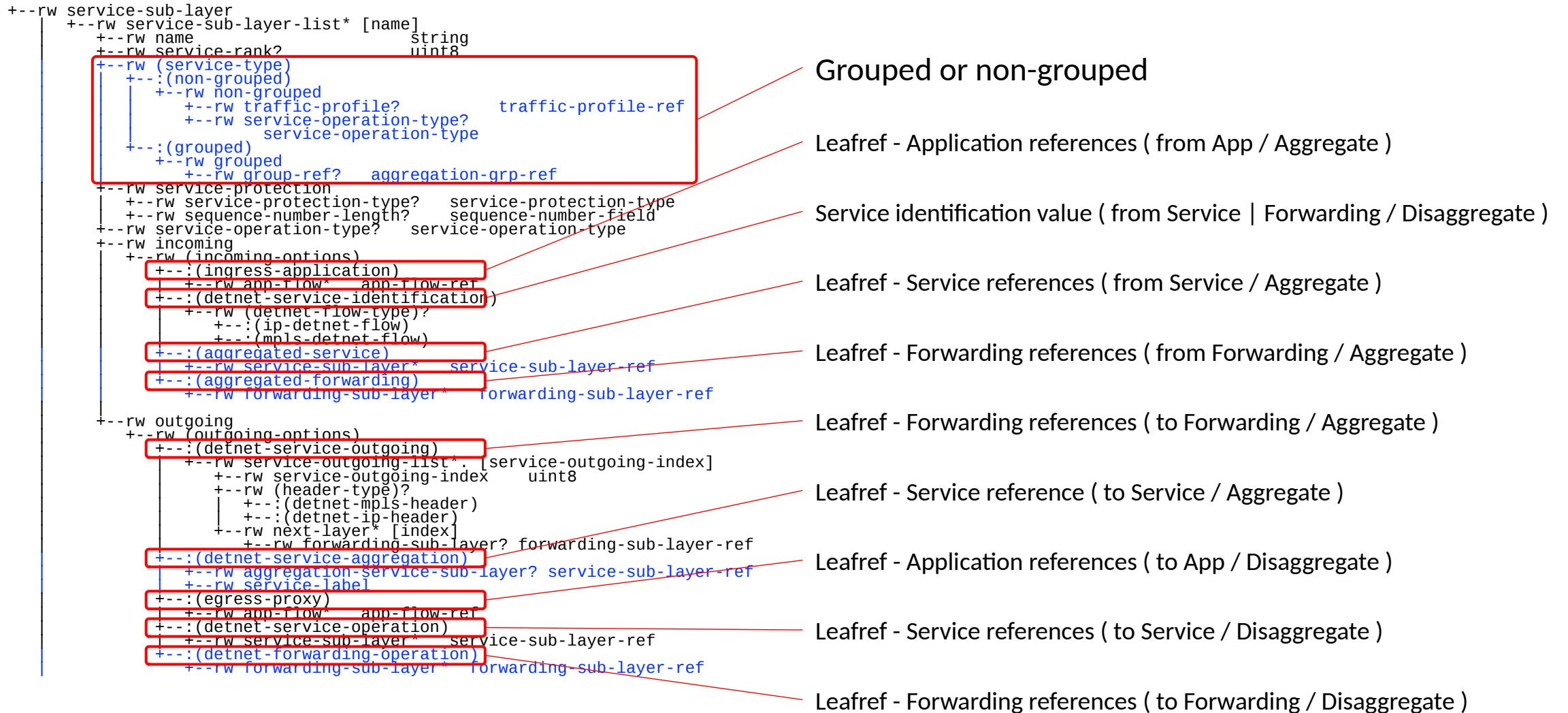




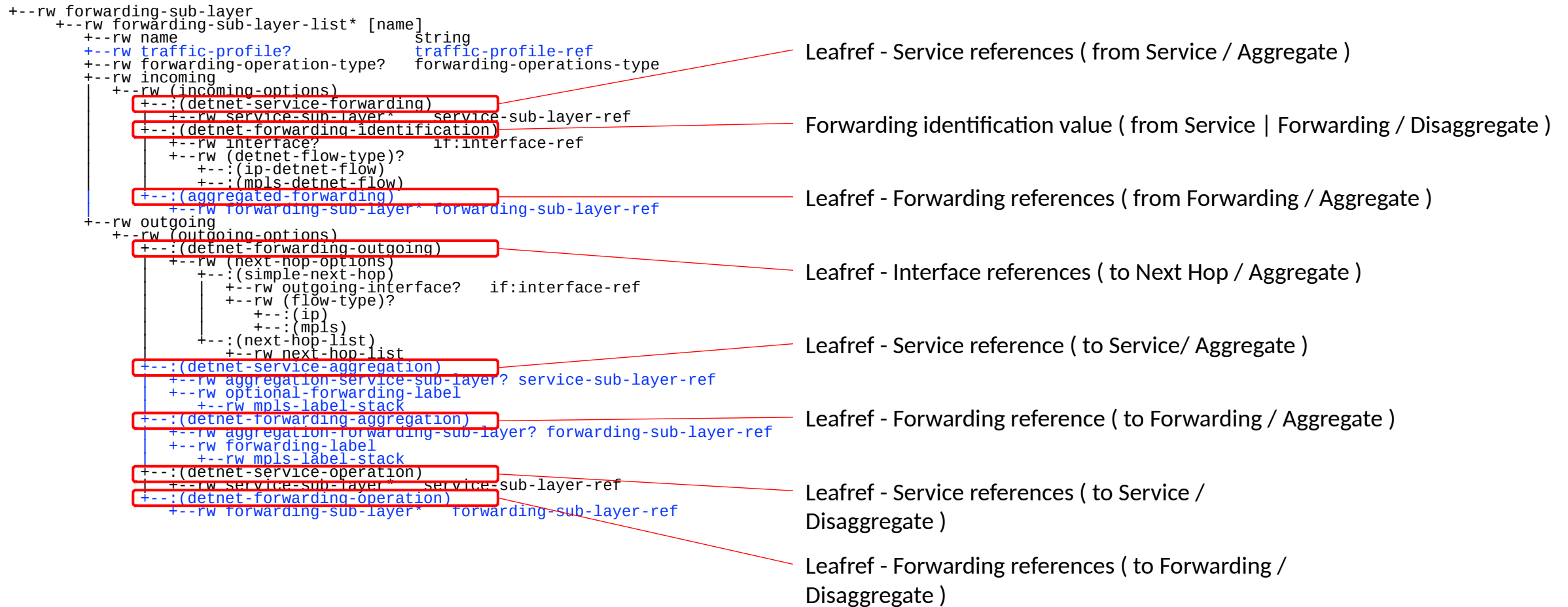
# YANG Model: Aggregation

```
+++rw service-aggregation-group* [group-name]
  +++rw group-name aggregation-group
  +++rw outgoing
    +++rw traffic-profile? traffic-profile-ref
    +++rw service-protection
      +++rw service-protection-type? service-protection-type
      +++rw sequence-number-length? sequence-number-field
    +++rw aggregation-header
      +++rw mpls-label-stack
        +++rw entry* [id]
          +++rw id uint8
          +++rw label? rt-types:mpls-label
          +++rw ttl? uint8
          +++rw traffic-class? uint8
        +++ro services* service-sub-layer-ref
  +++rw incoming
    +++rw aggregation-header
      +++rw mpls-label-stack
        +++rw entry* [id]
          +++rw id uint8
          +++rw label? rt-types:mpls-label
          +++rw ttl? uint8
          +++rw traffic-class? uint8
        +++ro services* service-sub-layer-ref
```

# YANG Model: Service Sub-layer



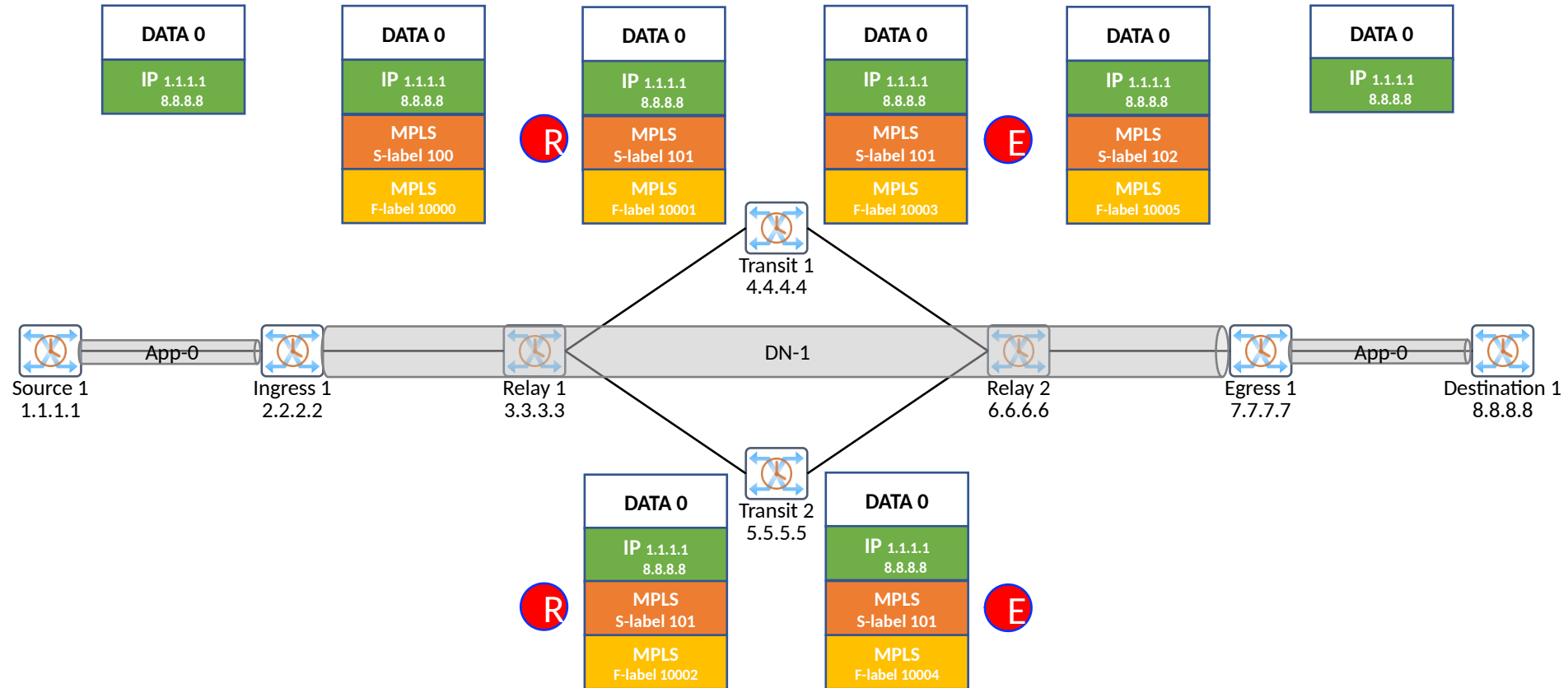
# YANG Model: Forwarding Sub-layer



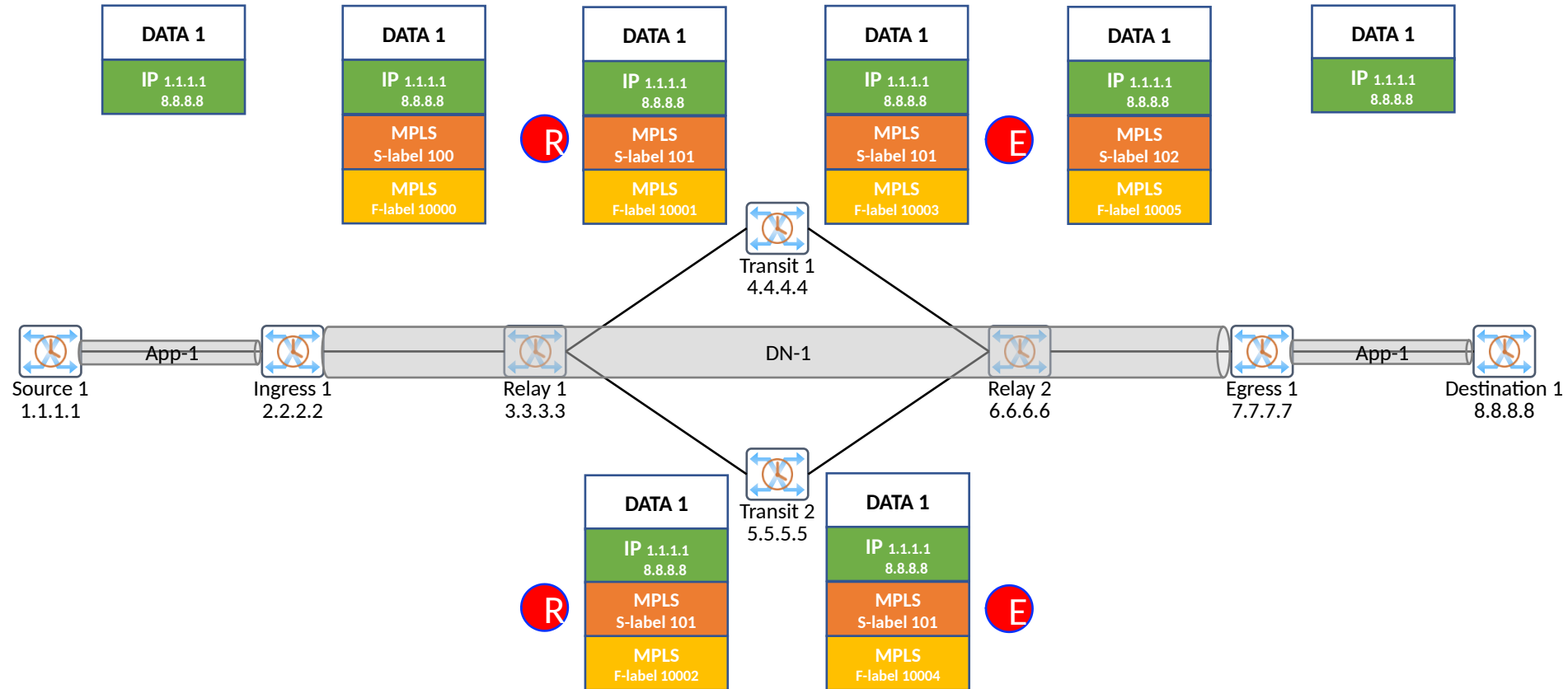
# Case A: Aggregation of multiple App-flows at an ingress node

- Case A-1: Multiple App-flows are aggregated into a service sub-layer of DetNet flow

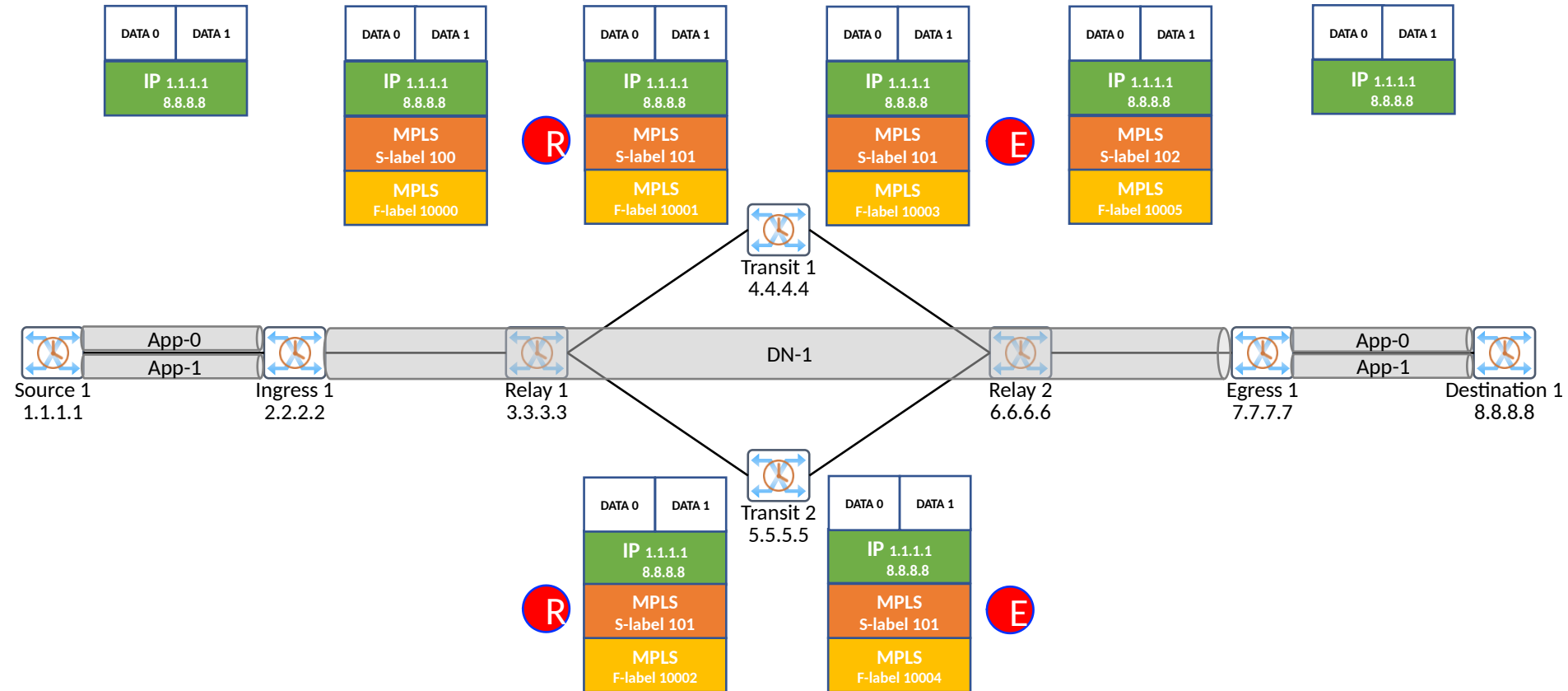
# Individual DetNet flow 1 for App-flow 0



# Individual DetNet flow 1 for App-flow 1



# Case A-1: Ingress node 1 aggregates App flows 0 and 1 into a service sub-layer of DetNet flow 1



# Case A1 Instance data

```
> data -t data -f json case-a-1.xml
```

```
{
  "ietf-interfaces:interfaces": {
    "interface": [
      {
        "name": "eth0",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-10-02T23:59:00Z"
        }
      },
      {
        "name": "eth1",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-10-02T23:59:00Z"
        }
      },
      {
        "name": "eth2",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-10-02T23:59:00Z"
        }
      },
      {
        "name": "eth3",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-10-02T23:59:00Z"
        }
      },
      {
        "name": "eth4",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-10-02T23:59:00Z"
        }
      }
    ]
  }
}, ]
```

```
"ietf-detnet-config:detnet": {
  "app-flows": {
    "app-flow": [
      {
        "name": "app-0",
        "app-flow-bidir-congruent": false,
        "outgoing-service": "ssl-1",
        "traffic-profile": 1,
        "ingress": {
          "interface": "eth0",
          "src-ip-prefix": "1.1.1.1/32",
          "dest-ip-prefix": "8.8.8.8/32",
          "traffic-class": 6
        }
      },
      {
        "name": "app-1",
        "app-flow-bidir-congruent": false,
        "outgoing-service": "ssl-1",
        "traffic-profile": 1,
        "ingress": {
          "interface": "eth0",
          "src-ip-prefix": "1.1.1.1/32",
          "dest-ip-prefix": "8.8.8.8/32",
          "traffic-class": 7
        }
      }
    ]
  }
}
```



# Case A1 Instance data

```
}, "traffic-profile": [  
  {  
    "profile-number": 1,  
    "traffic-requirements": {  
      "min-bandwidth": "1000000000",  
      "max-latency": 1000000000,  
      "max-latency-variation": 2000000000,  
      "max-loss": 2,  
      "max-consecutive-loss-tolerance": 5,  
      "max-misordering": 0  
    },  
    "member-applications": [  
      "app-0",  
      "app-1"  
    ],  
  },  
  {  
    "profile-number": 2,  
    "traffic-requirements": {  
      "min-bandwidth": "2000000000",  
      "max-latency": 1000000000,  
      "max-latency-variation": 2000000000,  
      "max-loss": 2,  
      "max-consecutive-loss-tolerance": 5,  
      "max-misordering": 0  
    },  
    "member-services": [  
      "ssl-1"  
    ],  
  },  
  {  
    "profile-number": 3,  
    "traffic-specification": {  
      "interval": 5,  
      "max-packets-per-interval": 10,  
      "max-payload-size": 1500  
    },  
    "member-forwarding-sublayers": [  
      "fsl-1"  
    ],  
  },  
],
```

```
"service-sub-layer": {  
  "service-sub-layer-list": [  
    {  
      "name": "ssl-1",  
      "service-rank": 10,  
      "non-grouped": {  
        "traffic-profile": 2,  
        "service-operation-type": "service-  
initiation"  
      },  
      "service-protection": {  
        "service-protection-type": "none",  
        "sequence-number-length": "long-sh"  
      },  
      "incoming": {  
        "app-flow": [  
          "app-0",  
          "app-1"  
        ],  
      },  
      "outgoing": {  
        "service-outgoing-list": [  
          {  
            "service-outgoing-index": 0,  
            "mpls-label-stack": {  
              "entry": [  
                {  
                  "id": 0,  
                  "label": 100  
                }  
              ],  
            },  
          },  
          {  
            "index": 0,  
            "forwarding-sub-layer": "fsl-1"  
          }  
        ],  
      },  
      "next-layer": [  
        {  
          "index": 0,  
          "forwarding-sub-layer": "fsl-1"  
        }  
      ],  
    }  
  ],  
},
```

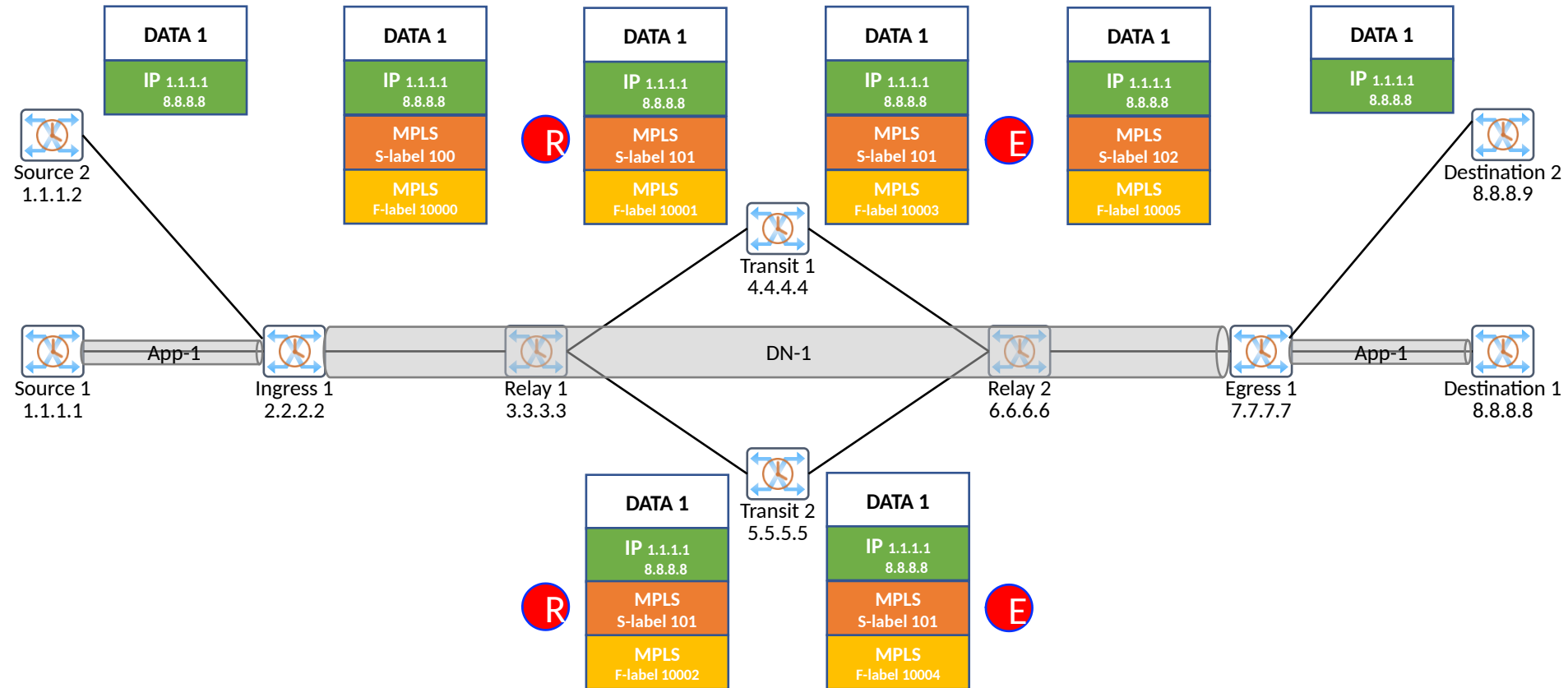
# Case A1 Instance data

```
"forwarding-sub-layer": {
  "forwarding-sub-layer-list": [
    {
      "name": "fsl-1",
      "traffic-profile": 3,
      "forwarding-operation-type": "impose-and-
forward", "incoming": {
      "service-sub-layer": [
        "ssl-1"
      ]
    }, "outgoing": {
      "outgoing-interface": "eth2",
      "mpls-label-stack": {
        "entry": [
          {
            "id": 0,
            "label": 10000
          }
        ]
      }
    }
  ]
}
}, } ] } } ] }
```

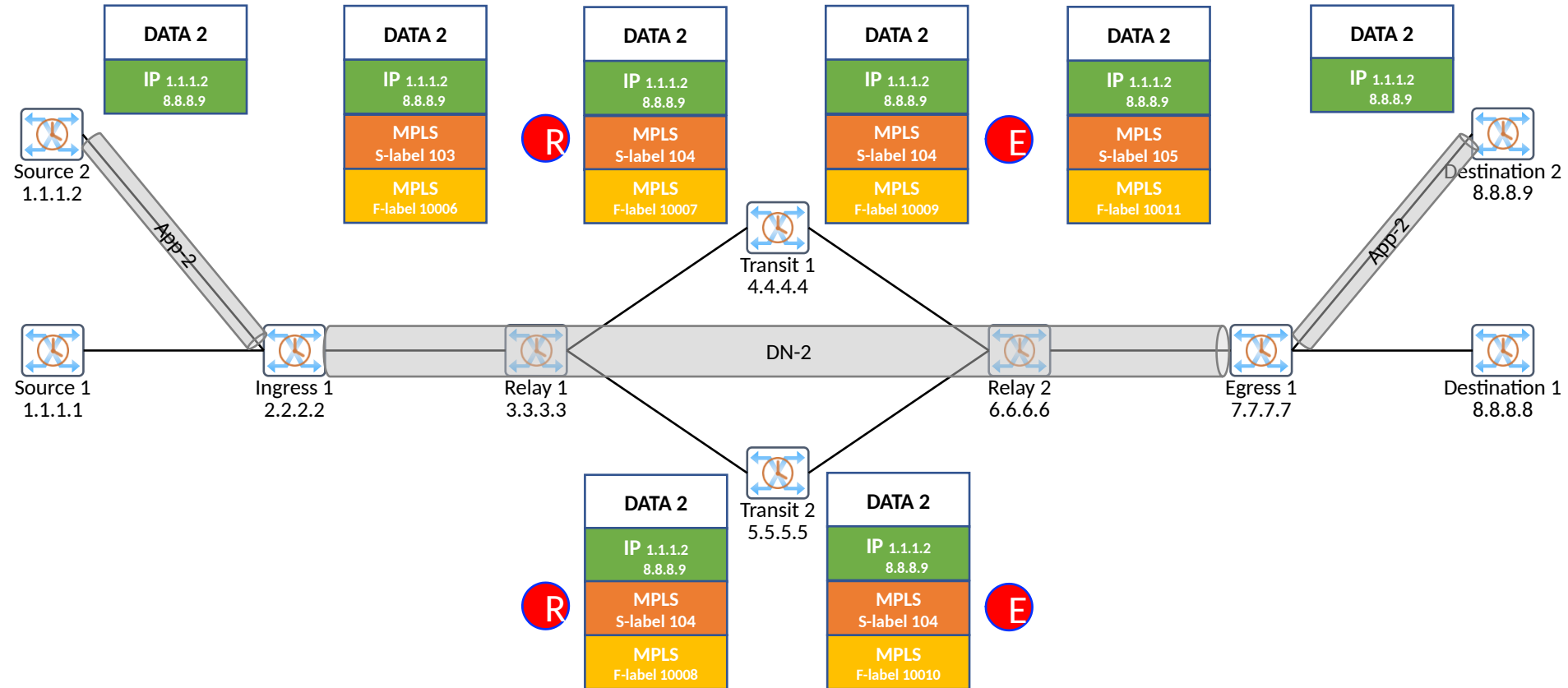
# Case B: Aggregation of multiple DetNet flows at an ingress node

- Case B-1: Multiple service sub-layers of DetNet flows are aggregated into a forwarding sub-layer
- Case B-2: Multiple service sub-layers of DetNet flows are aggregated into a service sub-layer of a new aggregated DetNet flow

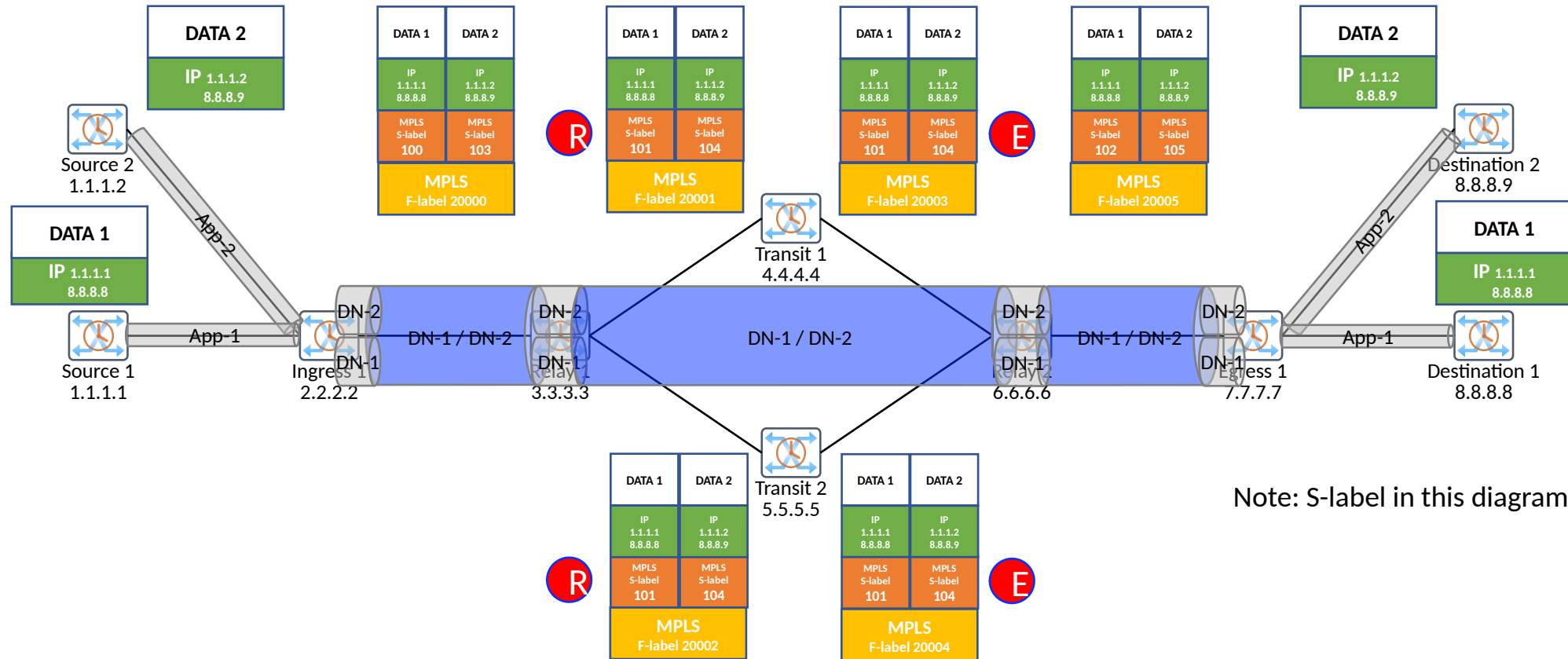
# Individual DetNet flow 1



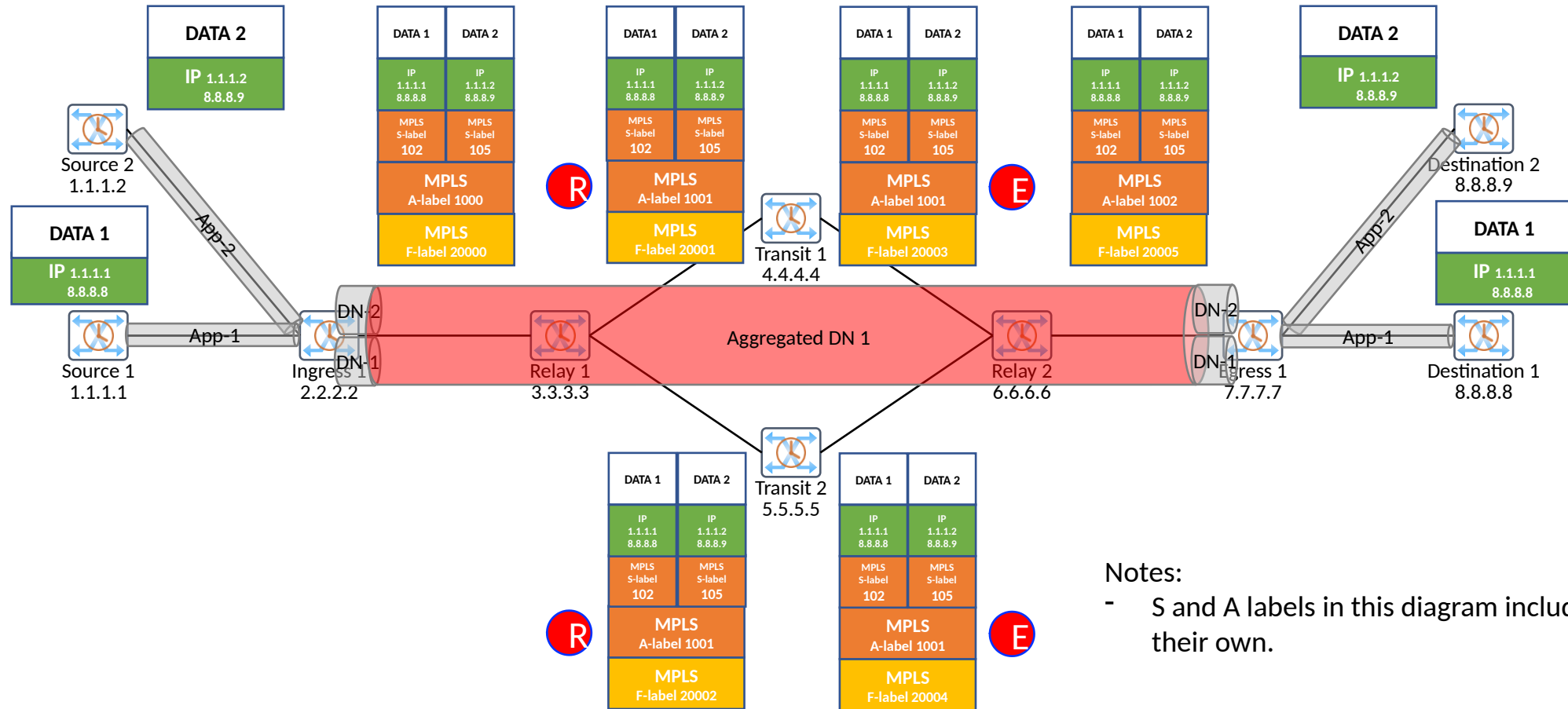
# Individual DetNet flow 2



# Case B-1: The **service sub-layers** of DetNet flows 1 and 2 are aggregated into a **forwarding sub-layer**



# Case B-2: The **service sub-layers** of DetNet flows 1 and 2 are aggregated into a **service sub-layer** of Aggregated DetNet flow 1



## Notes:

- S and A labels in this diagram include d-CWs of their own.

# Instance Data Notes

- The merged model currently has two ways to achieve aggregation labels
- The first one does it all in the service sublayer branch and creates a service aggregation label.
- The second one has an aggregation layer for grouping the service sub layers.
- We need to get to one way to do it.
- Instance data for both are shown.



# Case B2 Instance data

```
> data -t data -f json case-b-2.xml
{
  "ietf-interfaces:interfaces": {
    "interface": [
      {
        "name": "eth0",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-10-02T23:59:00Z"
        }
      },
      {
        "name": "eth1",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-10-02T23:59:00Z"
        }
      },
      {
        "name": "eth2",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-10-02T23:59:00Z"
        }
      },
      {
        "name": "eth3",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-10-02T23:59:00Z"
        }
      },
      {
        "name": "eth4",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-10-02T23:59:00Z"
        }
      }
    ]
  }
}, ]
```

```
"ietf-detnet-config:detnet": {
  "app-flows": {
    "app-flow": [
      {
        "name": "app-1",
        "app-flow-bidir-congruent": false,
        "outgoing-service": "ssl-1",
        "traffic-profile": 1,
        "ingress": {
          "interface": "eth0",
          "src-ip-prefix": "1.1.1.1/32",
          "dest-ip-prefix": "8.8.8.8/32"
        }
      },
      {
        "name": "app-2",
        "app-flow-bidir-congruent": false,
        "outgoing-service": "ssl-2",
        "traffic-profile": 1,
        "ingress": {
          "interface": "eth1",
          "src-ip-prefix": "1.1.1.2/32",
          "dest-ip-prefix": "8.8.8.9/32"
        }
      }
    ]
  }
}, ]
```

# Case B2 Instance data part 2

```
"traffic-profile": [  
  {  
    "profile-number": 1,  
    "traffic-requirements": {  
      "min-bandwidth": "100000000",  
      "max-latency": 100000000,  
      "max-latency-variation": 200000000,  
      "max-loss": 2,  
      "max-consecutive-loss-tolerance": 5,  
      "max-misordering": 0  
    },  
    "member-applications": [  
      "app-1",  
      "app-2"  
    ],  
    "member-services": [  
      "ssl-1",  
      "ssl-2"  
    ]  
  },  
  {  
    "profile-number": 2,  
    "traffic-requirements": {  
      "min-bandwidth": "200000000",  
      "max-latency": 100000000,  
      "max-latency-variation": 200000000,  
      "max-loss": 2,  
      "max-consecutive-loss-tolerance": 5,  
      "max-misordering": 0  
    },  
    "member-services": [  
      "asl-1"  
    ]  
  },  
  {  
    "profile-number": 3,  
    "traffic-specification": {  
      "interval": 5,  
      "max-packets-per-interval": 10,  
      "max-payload-size": 1500  
    },  
    "member-forwarding-sublayers": [  
      "af1-1"  
    ]  
  }  
],
```

```
"service-sub-layer": {  
  "service-sub-layer-list": [  
    {  
      "name": "ssl-1",  
      "service-rank": 10,  
      "traffic-profile": 1,  
      "service-operation-type": "service-initiation"  
    },  
    {  
      "service-protection": {  
        "service-protection-type": "none",  
        "sequence-number-length": "long-sn"  
      }  
    },  
    {  
      "incoming": {  
        "app-flow": [  
          "app-1"  
        ]  
      }  
    },  
    {  
      "outgoing": {  
        "aggregation-service-sub-layer": "asl-1",  
        "service-label": {  
          "mpls-label-stack": {  
            "entry": [  
              {  
                "id": 0,  
                "label": 102  
              }  
            ]  
          }  
        }  
      }  
    }  
  ]  
}
```

# Case B2 Instance data part 3

```
{
  "name": "ssl-2",
  "service-rank": 10,
  "traffic-profile": 1,
  "service-operation-type": "service-initiation"
  "service-protection": {
    "service-protection-type": "none",
    "sequence-number-length": "long-sn"
  }
  "incoming": {
    "app-flow": [
      "app-2"
    ]
  }
  "outgoing": {
    "aggregation-service-sub-layer": "asl-1",
    "service-label": {
      "mpls-label-stack": {
        "entry": [
          {
            "id": 0,
            "label": 105
          }
        ]
      }
    }
  }
},
}
```

```
{
  "name": "asl-1",
  "service-rank": 10,
  "traffic-profile": 2,
  "service-operation-type": "service-initiation"
  "service-protection": {
    "service-protection-type": "none",
    "sequence-number-length": "long-sn"
  }
  "incoming": {
    "service-sub-layer": [
      "ssl-1",
      "ssl-2"
    ]
  }
  "outgoing": {
    "service-outgoing-list": [
      {
        "service-outgoing-index": 0,
        "mpls-label-stack": {
          "entry": [
            {
              "id": 0,
              "label": 1000
            }
          ]
        }
      }
    ]
    "next-layer": [
      {
        "index": 0,
        "forwarding-sub-layer": "af1-1"
      }
    ]
  }
},
}
```

# Case B2 Instance data part 4

```
}, "forwarding-sub-layer": {  
  "forwarding-sub-layer-list": [  
    {  
      "name": "af1-1",  
      "traffic-profile": 3,  
      "forwarding-operation-type": "impose-and-forward",  
      "incoming": {  
        "service-sub-layer": [  
          "as1-1"  
        ]  
      },  
      "outgoing": {  
        "outgoing-interface": "eth2",  
        "mpls-label-stack": {  
          "entry": [  
            {  
              "id": 0,  
              "label": 20000  
            }  
          ]  
        }  
      }  
    }  
  ]  
},  
},  
}
```

# Case B2 (Group Model ) Instance data

```
> data -t data -f json case-b2-grouped.xml
{
  "ietf-interfaces:interfaces": {
    "interface": [
      {
        "name": "eth0",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-09-02T23:59:00Z"
        }
      },
      {
        "name": "eth1",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-09-02T23:59:00Z"
        }
      },
      {
        "name": "eth2",
        "type": "iana-if-type:ethernetCsmacd",
        "oper-status": "up",
        "statistics": {
          "discontinuity-time": "2020-09-02T23:59:00Z"
        }
      }
    ]
  }
}, ] }
```

```
"ietf-detnet-config:detnet": {
  "app-flows": {
    "app-flow": [
      {
        "name": "app-1",
        "app-flow-bidir-congruent": true,
        "outgoing-service": "ssl-1",
        "traffic-profile": 1,
        "ingress": {
          "name": "port1",
          "app-flow-status": "ready",
          "interface": "eth0",
          "src-ip-prefix": "1.1.1.1/32",
          "dest-ip-prefix": "8.8.8.8/32",
          "traffic-class": 40
        },
        "egress": {
          "name": "port1",
          "ip-mps": {
            "outgoing-interface": "eth0"
          }
        }
      },
      {
        "name": "app-2",
        "app-flow-bidir-congruent": true,
        "outgoing-service": "ssl-1",
        "traffic-profile": 1,
        "ingress": {
          "name": "port2",
          "app-flow-status": "ready",
          "interface": "eth1",
          "src-ip-prefix": "1.1.1.2/32",
          "dest-ip-prefix": "8.8.8.9/32",
          "traffic-class": 40
        },
        "egress": {
          "name": "port2",
          "ip-mps": {
            "outgoing-interface": "eth1"
          }
        }
      }
    ]
  }
}, ] }
```

# Case B2 (Group Model ) Instance data part 2

```
"traffic-profile": [
  {
    "profile-number": 1,
    "traffic-requirements": {
      "min-bandwidth": "1000000000",
      "max-latency": 1000000000,
      "max-latency-variation": 2000000000,
      "max-loss": 2,
      "max-consecutive-loss-tolerance": 5,
      "max-misordering": 0
    },
    "member-applications": [
      "app-1",
      "app-2"
    ]
  },
  {
    "profile-number": 2,
    "traffic-requirements": {
      "min-bandwidth": "1000000000",
      "max-latency": 1000000000,
      "max-latency-variation": 2000000000,
      "max-loss": 2,
      "max-consecutive-loss-tolerance": 5,
      "max-misordering": 0
    },
    "member-groups": [
      "ag1"
    ]
  },
  {
    "profile-number": 3,
    "traffic-specification": {
      "interval": 5,
      "max-packets-per-interval": 10,
      "max-payload-size": 1500
    },
    "member-forwarding-sublayers": [
      "fsl-1"
    ]
  }
],
```

```
"service-aggregation-group": [
  {
    "group-name": "ag1",
    "outgoing": {
      "traffic-profile": 2,
      "service-protection": {
        "service-protection-type": "none",
        "sequence-number-length": "long-sh"
      },
      "aggregation-header": {
        "mpls-label-stack": {
          "entry": [
            {
              "id": 0,
              "label": 1000
            }
          ]
        }
      },
      "services": [
        "ssl-1",
        "ssl-3"
      ]
    }
  }
],
```

# Case B2 (Group Model ) Instance data part 3

```
"service-sub-layer": {
  "service-sub-layer-list": [
    {
      "name": "ssl-1",
      "service-rank": 10,
      "grouped": {
        "group-ref": "ag1"
      }
      "service-protection": {
        "service-protection-type": "none",
        "sequence-number-length": "long-sh"
      }
      "service-operation-type": "service-initiation",
      "incoming": {
        "app-flow": [
          "app-1"
        ]
      }
      "outgoing": {
        "service-outgoing-list": [
          {
            "service-outgoing-index": 0,
            "mpls-label-stack": {
              "entry": [
                {
                  "id": 0,
                  "label": 100
                }
              ]
            }
          }
        ]
        "next-layer": [
          {
            "index": 0,
            "forwarding-sub-layer": "fsl-1"
          }
        ]
      }
    ]
  ]
},
}
```

```
{
  "name": "ssl-3",
  "service-rank": 10,
  "grouped": {
    "group-ref": "ag1"
  }
  "service-protection": {
    "service-protection-type": "none",
    "sequence-number-length": "long-sh"
  }
  "service-operation-type": "service-initiation",
  "incoming": {
    "app-flow": [
      "app-2"
    ]
  }
  "outgoing": {
    "service-outgoing-list": [
      {
        "service-outgoing-index": 0,
        "mpls-label-stack": {
          "entry": [
            {
              "id": 0,
              "label": 101
            }
          ]
        }
      }
    ]
    "next-layer": [
      {
        "index": 0,
        "forwarding-sub-layer": "fsl-1"
      }
    ]
  }
}
]
```

# Case B2 (Group Model ) Instance data part 4

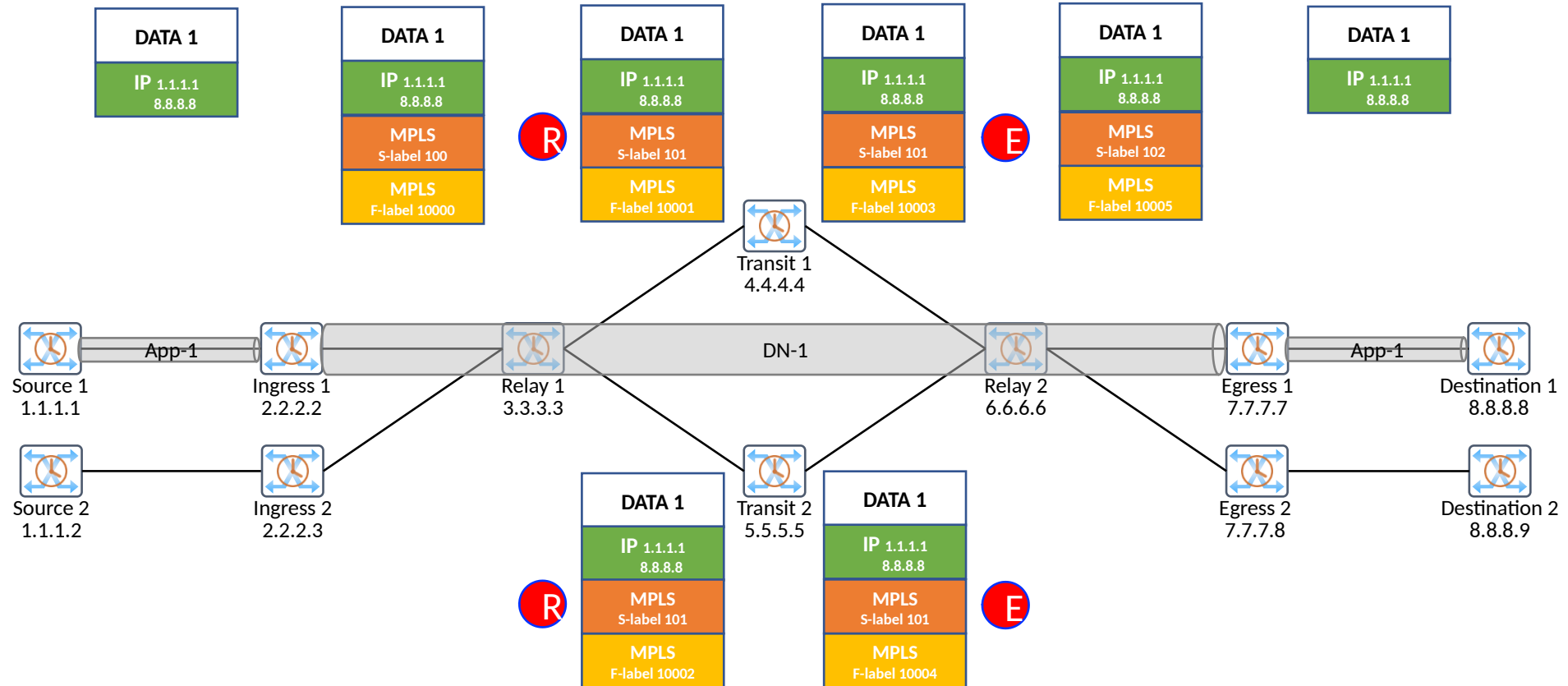
```
"forwarding-sub-layer": {
  "forwarding-sub-layer-list": [
    {
      "name": "fsl-1",
      "traffic-profile": 3,
      "forwarding-operation-type": "impose-and-forward",
      "incoming": {
        "service-sub-layer": [
          "ssl-1",
          "ssl-3"
        ]
      },
      "outgoing": {
        "outgoing-interface": "eth2",
        "mpls-label-stack": {
          "entry": [
            {
              "id": 0,
              "label": 10000
            }
          ]
        }
      }
    }
  ]
},
}
```



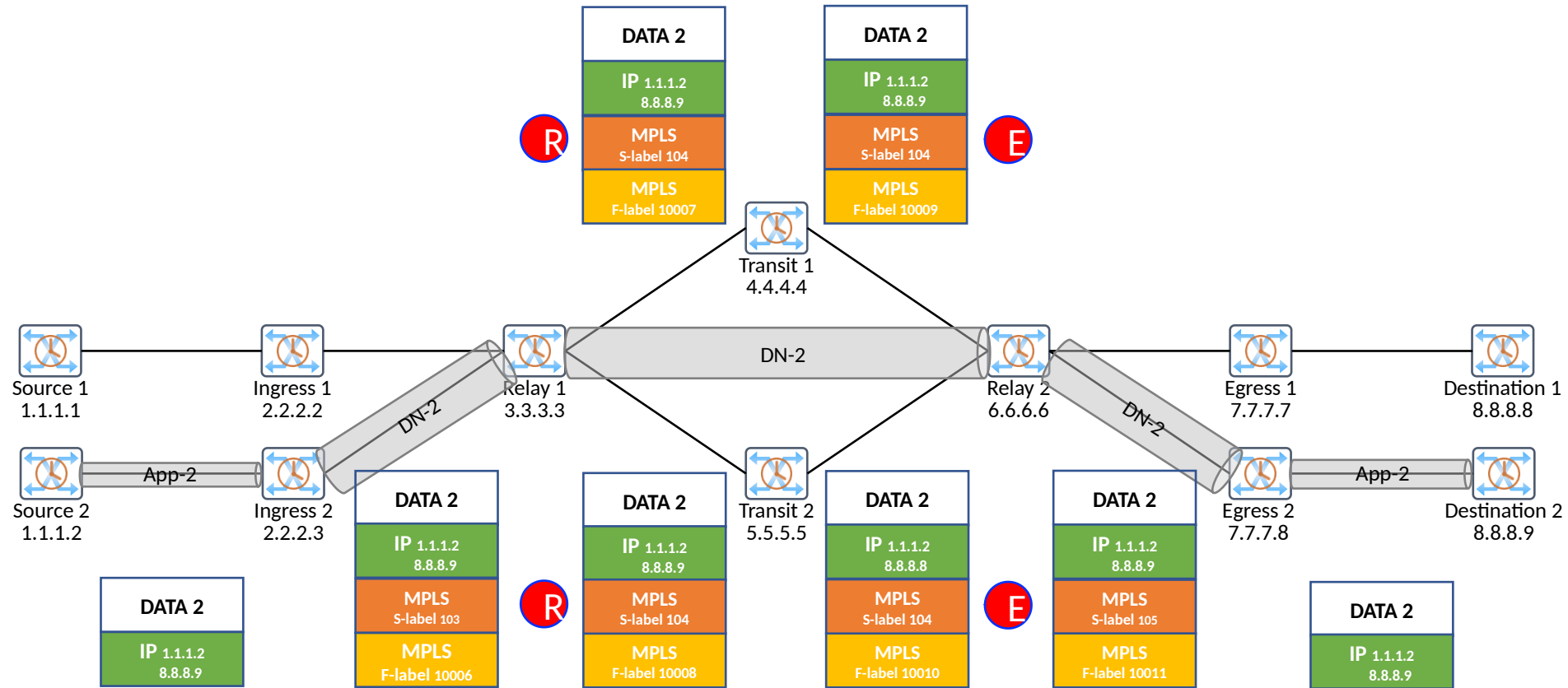
# Case C: Aggregation of multiple DetNet flows at a relay node

- Case C-1: Multiple forwarding sub-layers of DetNet flows are aggregated into a forwarding sub-layer
- Case C-2: Multiple service sub-layers of DetNet flows are aggregated into a forwarding sub-layer
- Case C-3: Multiple service sub-layers of DetNet flows are aggregated into a service sub-layer of a new aggregated DetNet flow
- Case C-4: Multiple forwarding sub-layers of DetNet flows are aggregated into a service sub-layer of a new aggregated DetNet flow

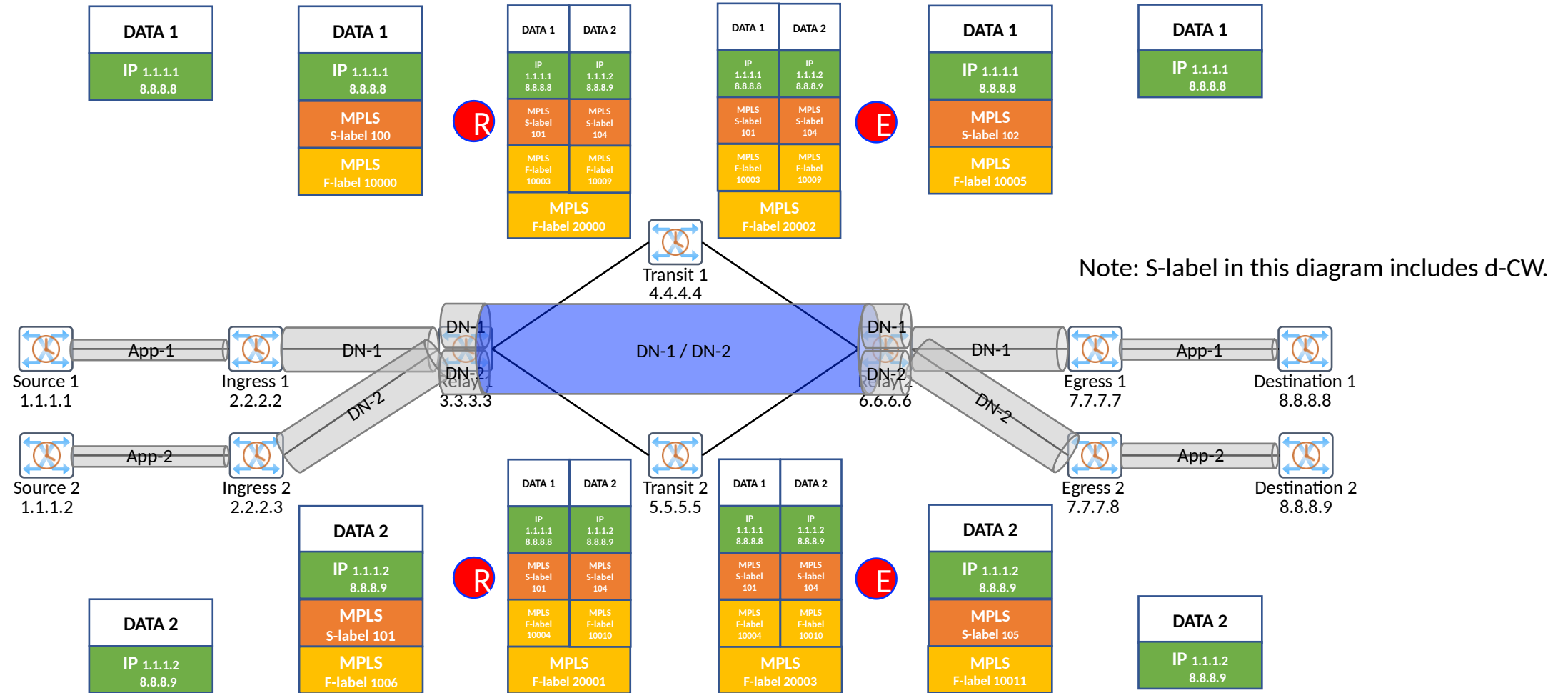
# Individual DetNet flow 1



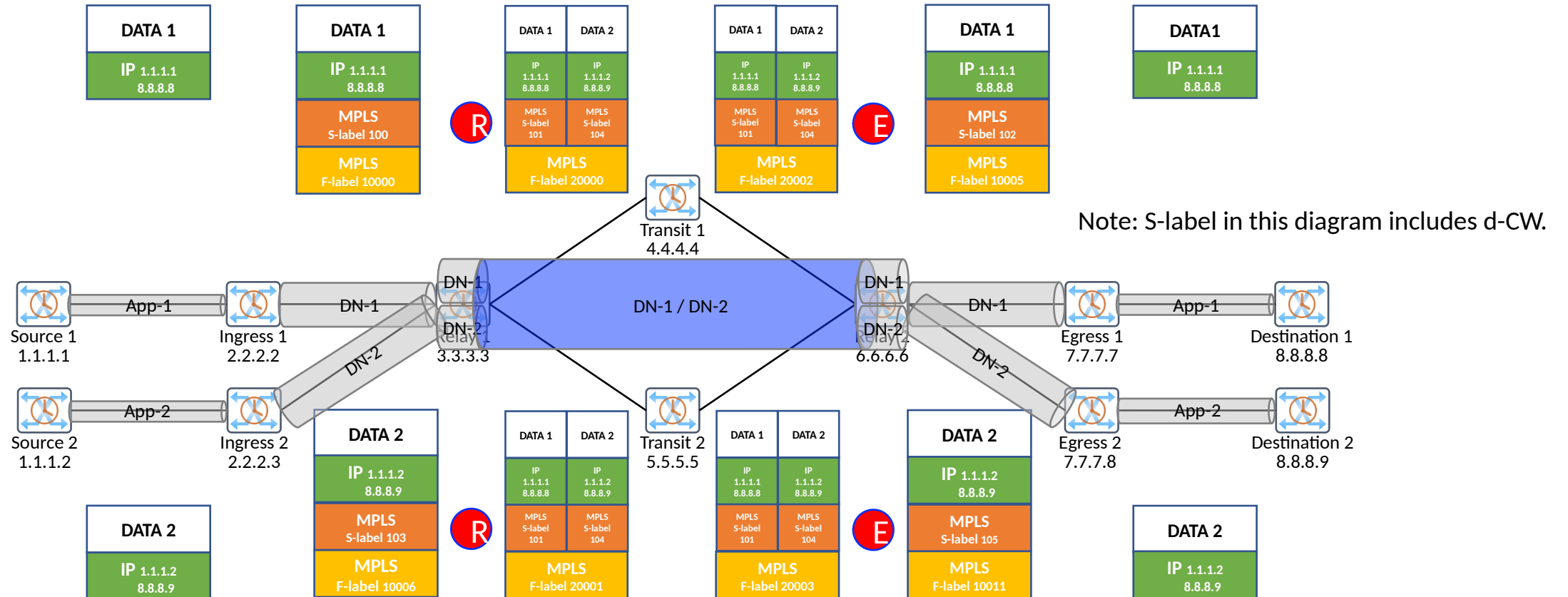
# Individual DetNet flow 2



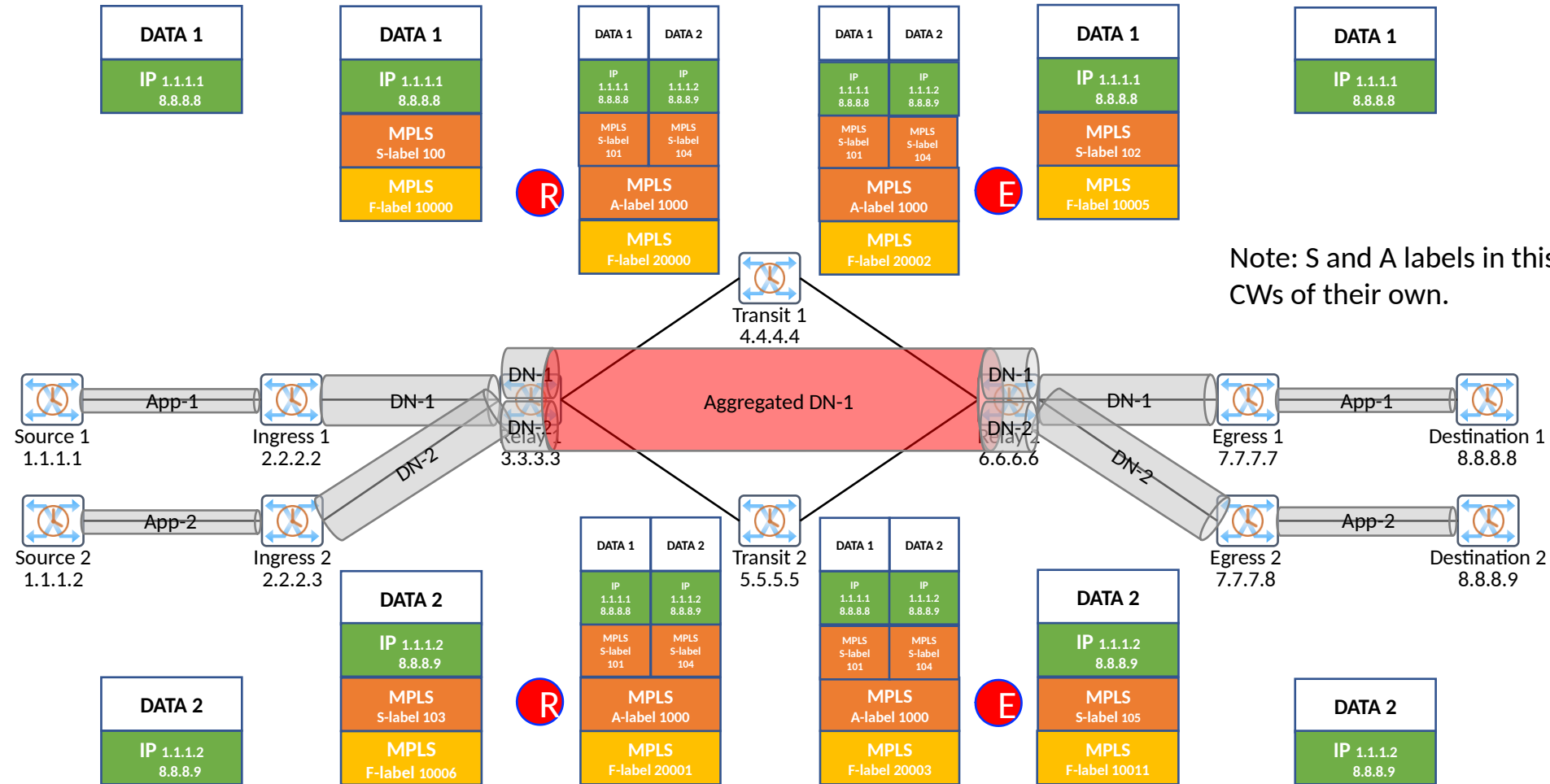
# Case C-1: Relay node 1 aggregates the forwarding sub-layers of DetNet flows 1 and 2 into a forwarding sub-layer



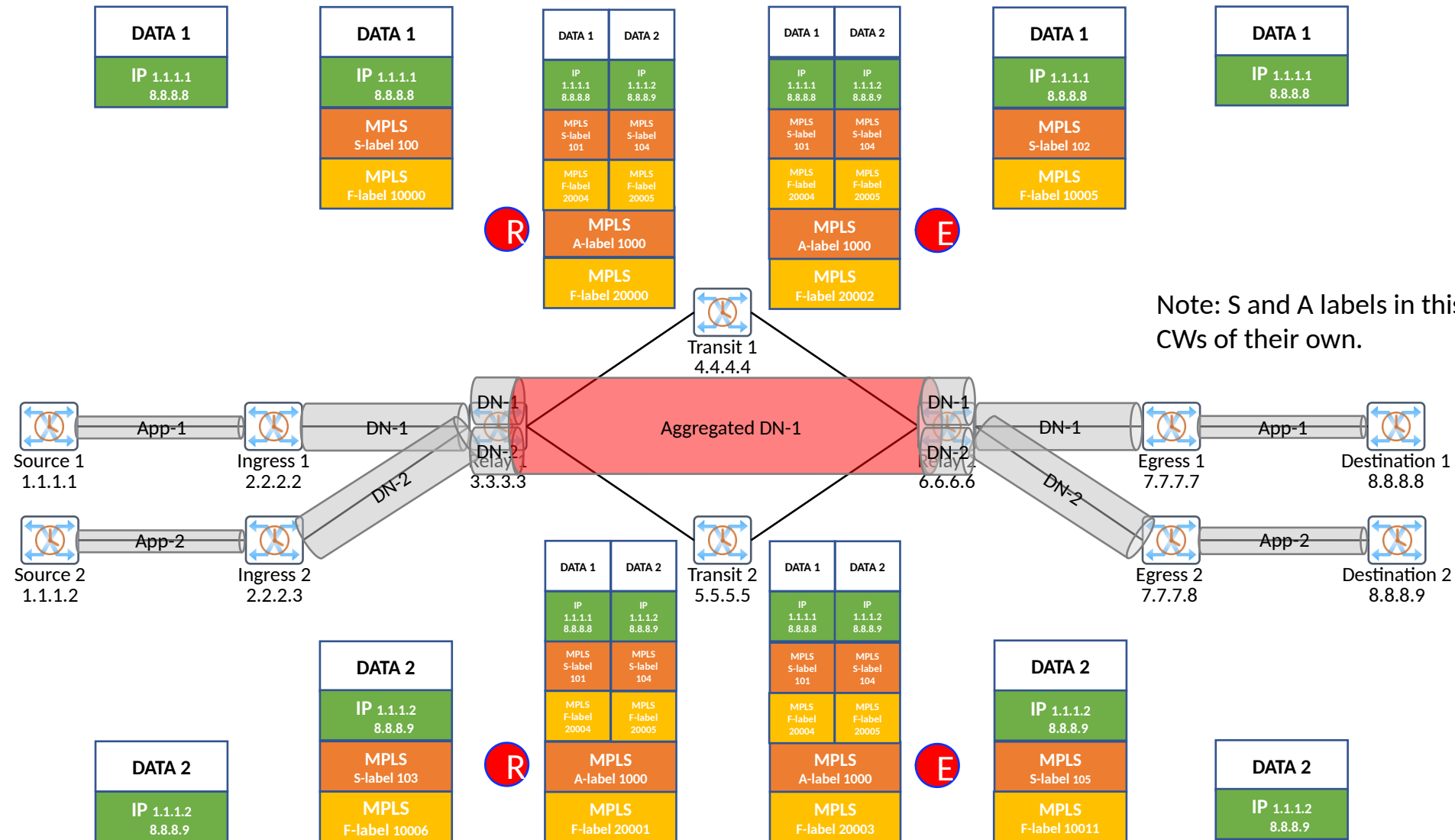
# Case C-2: Relay node 1 aggregates the service sub-layers of DetNet flows 1 and 2 into a forwarding sub-layer



# Case C-3: Relay node 1 aggregates the **service sub-layers** of DetNet flows 1 and 2 into **a service sub-layer** of Aggregated DetNet flow 1



# Case C-4: Relay node 1 aggregates the forwarding sub-layers of DetNet flow 1 and 2 into a service sub-layer of Aggregated DetNet flow 1

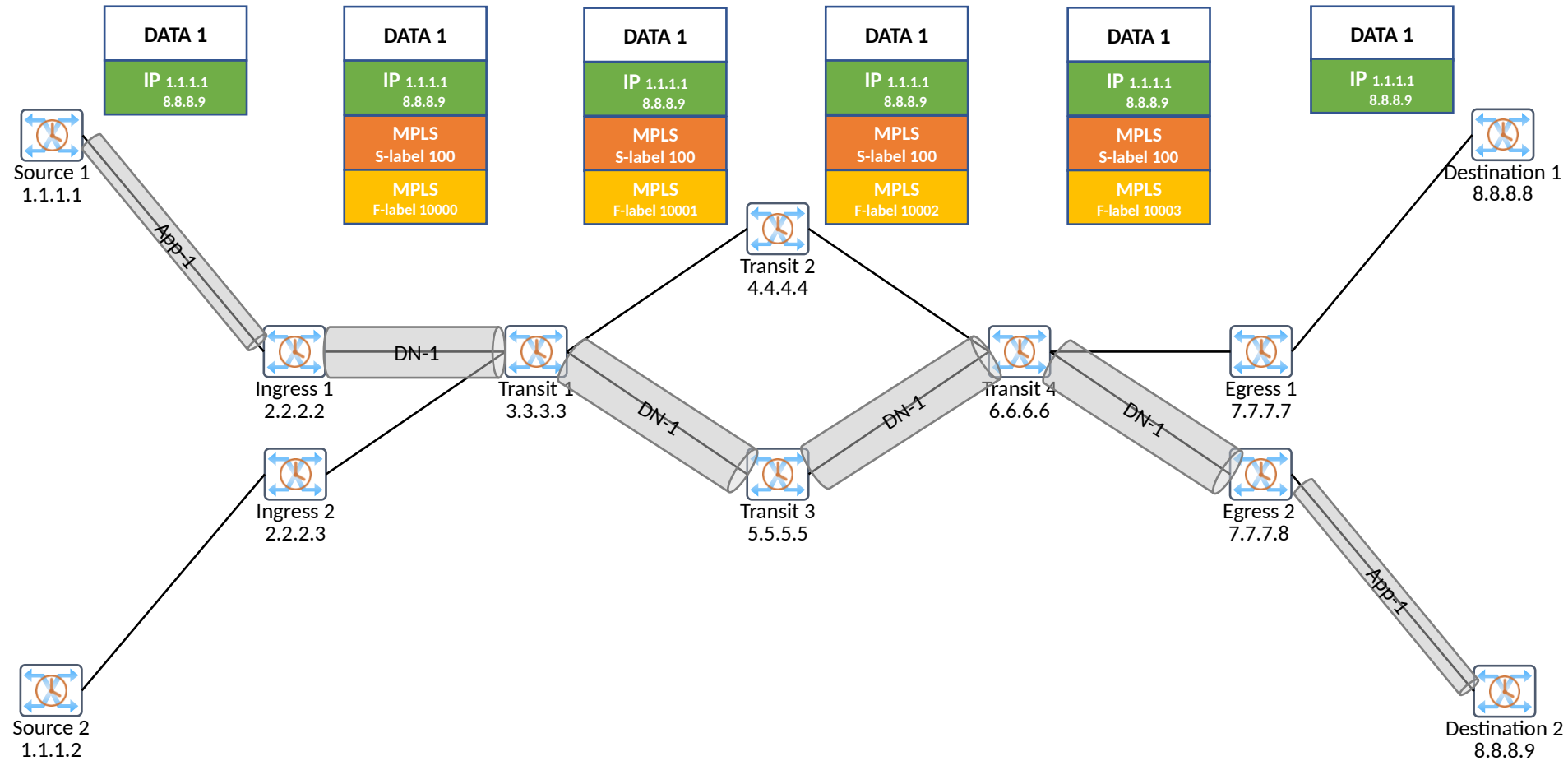


# Case D: Aggregation of multiple DetNet-flows at a transit node

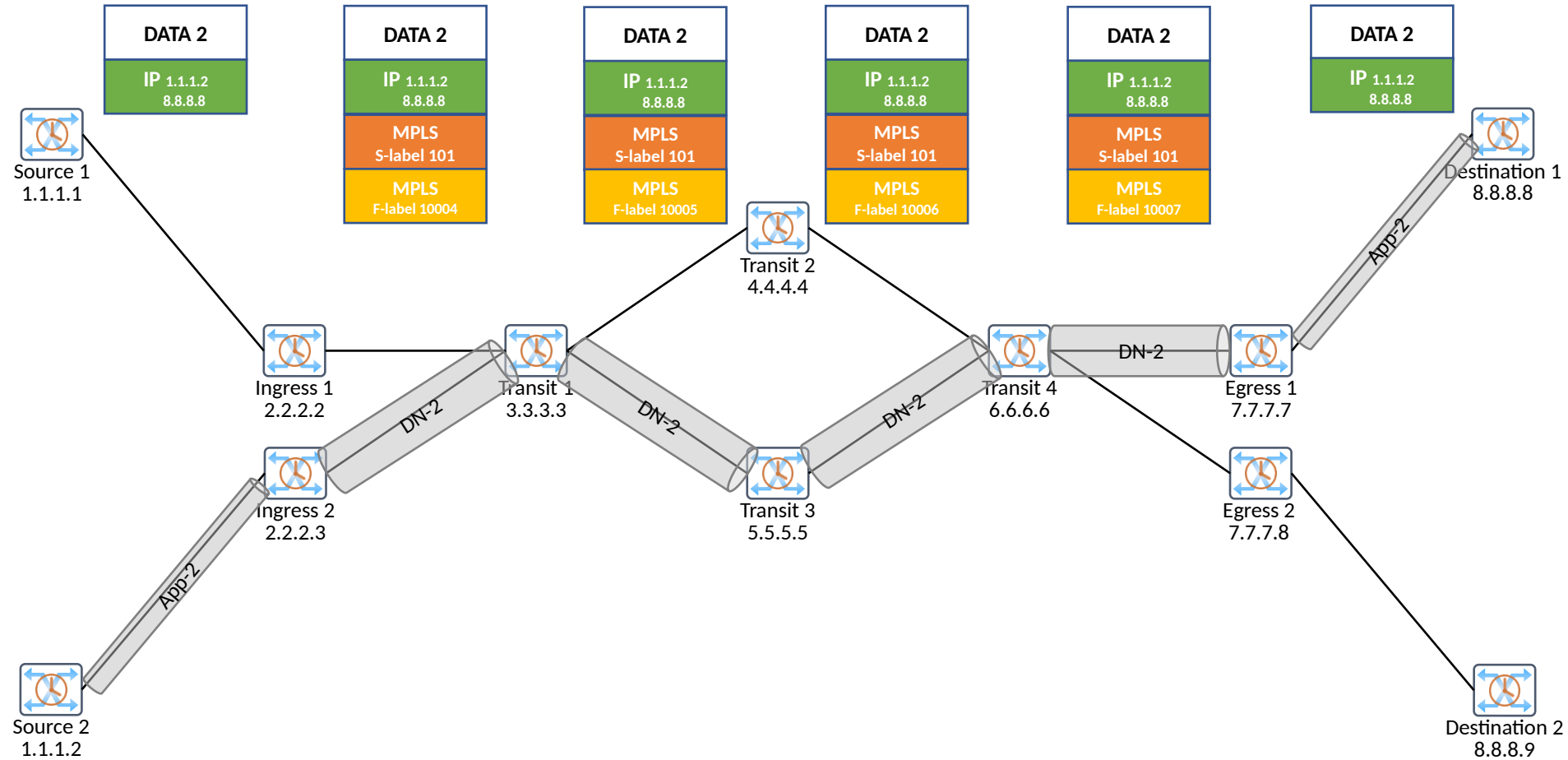
- Case D-1: Multiple forwarding sub-layer of DetNet flows are aggregated a forwarding sub-layer



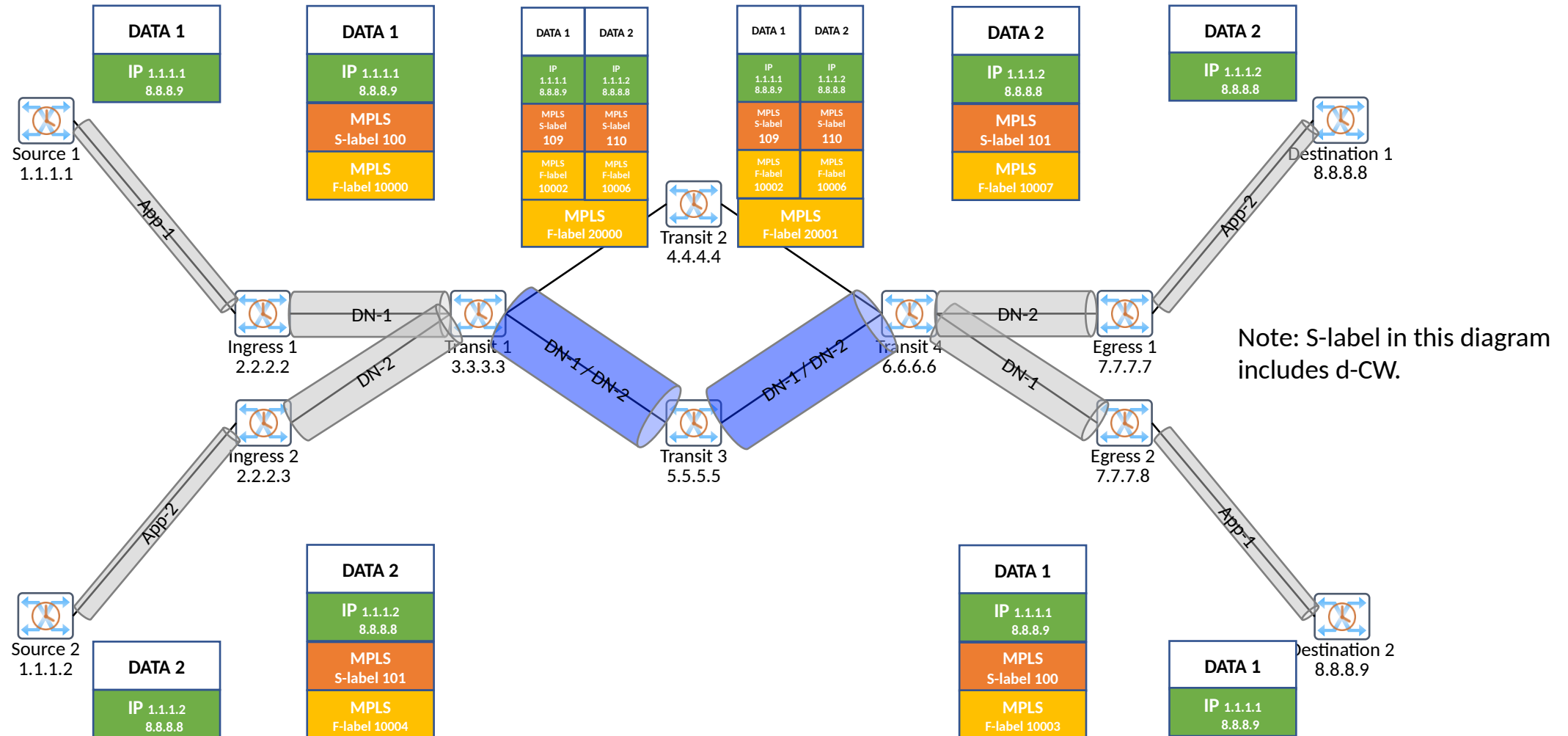
# Individual DetNet flow 1



# Individual DetNet flow 2



# Case D-1: Transit node 1 aggregates the forwarding sub-layers of DetNet flow 1 and 2 into a forwarding sub-layer



# Plan

- Comments and reviewing the current Model.
  - Terminology consistency
  - Double check Flow Model consistency
  - Removing unnecessary cases.
- General clean up
  - Add references
  - Include Yanglint sample configuration

Thanks