Pyang and Yanglint examples:

Example of ietf-networks:

ietf-network.yang and ietf-network-topology.yang are defined in https://tools.ietf.org/html/rfc8345

There are two models, one that defines networks of nodes and the other model that defines the links between the nodes.

Terminology:

- **Network**: Abstract representation of things and how the things are interconnected.
- **Link**: How nodes are connected
- **Node**: A generic thing
- **Termination point**: Contained in a node and serves as the anchor for a link.
- **Supporting**: Keyword used to indicate a hierarchy or stack related to the base element. For example, a network topology that has the connectivity defined for a service could have a “supporting network” that provides the Layer 2 topology and connectivity.
- **Underlay**: A supporting network.

Some concepts from RFC8345:

- “A node has a list of termination points that are used to terminate links”
- “A network can in turn be part of a hierarchy of networks, building on top of other networks. Any such networks are captured in the list "supporting-network". A supporting network is, in effect, an underlay network.”

```yaml
module: ietf-network
  +--rw networks
    +--rw network* [network-id]
      +--rw network-id     network-id
      +--rw network-types
      +--rw supporting-network* [network-ref]
      |  +--rw network-ref   --> /networks/network/network-id
      +--rw node* [node-id]
        +--rw node-id      node-id
        +--rw supporting-node* [network-ref node-ref]
        +--rw network-ref   --> ../supporting-network/network-ref
        +--rw node-ref      --> /networks/network/node/node-id
```

Simple Network:
Instance data for above (in json format):

```json
{
  "ietf-network:networks": {
    "network": [
      {
        "network-id": "network-01",
        "node": [
          {
            "node-id": "l2-n1",
            "ietf-network-topology:termination-point": [
              {
                "tp-id": "l2-1-tp1"
              }
            ]
          },
          {
            "node-id": "l2-n2",
            "ietf-network-topology:termination-point": [
              {
                "tp-id": "l2-2-tp1"
              }
            ]
          }
        ]
      }
    ],
    "ietf-network-topology:link": [
      {
        "link-id": "l2-1-2",
        "source": {
          "source-node": "l2-n1",
          "source-tp": "l2-1-tp1"
        }
      }
    ]
  }
}
```
Using example from RFC 8345:
The figure above shows two VPNs that use a common supporting network.

Instance data for above:

```json
{
    "ietf-network:networks": {
        "network": [
            {
                "network-id": "VPN1",
                "node": [
                    {
                        "node-id": "Y1",
                        "supporting-node": [
                            {
                                "network-ref": "L3TOPO",
                                "node-ref": "X1"
                            }
                        ]
                    }
                ]
            }
        ]
    }
}
```
{
  "ietf-network-topology:termination-point": [
    {
      "tp-id": "Y1-tp1"
    }
  ],
  "ietf-network-topology:termination-point": [
    {
      "tp-id": "Y1-tp1"
    }
  ],
  "node-id": "Y4",
  "supporting-node": [
    {
      "network-ref": "L3TOPO",
      "node-ref": "X4"
    }
  ],
  "ietf-network-topology:termination-point": [
    {
      "tp-id": "Y4-tp1"
    }
  ],
  "node-id": "Y5",
  "supporting-node": [
    {
      "network-ref": "L3TOPO",
      "node-ref": "X5"
    }
  ],
  "ietf-network-topology:termination-point": [
    {
      "tp-id": "Y5-tp1"
    }
  ],
  "ietf-network-topology:link": [
    {
      "link-id": "Y1-Y4",
      "source": {
        "source-node": "Y1",
        "source-tp": "Y1-tp1"
      }
    },
    "destination": {
      "source": {
        "source-node": "Y1",
        "source-tp": "Y1-tp1"
      }
    }]
}
"dest-node": "Y4",
"dest-tp": "Y4-tp1"
},
{
"link-id": "Y4-Y1",
"source": {
"source-node": "Y4",
"source-tp": "Y4-tp1"
},
"destination": {
"dest-node": "Y1",
"dest-tp": "Y1-tp1"
}
},
{
"link-id": "Y1-Y5",
"source": {
"source-node": "Y1",
"source-tp": "Y1-tp1"
},
"destination": {
"dest-node": "Y5",
"dest-tp": "Y5-tp1"
}
},
{
"link-id": "Y5-Y1",
"source": {
"source-node": "Y5",
"source-tp": "Y5-tp1"
},
"destination": {
"dest-node": "Y1",
"dest-tp": "Y1-tp1"
}
},
{
"link-id": "Y4-Y5",
"source": {
"source-node": "Y4",
"source-tp": "Y4-tp1"
},
"destination": {

"dest-node": "Y5",
"dest-tp": "Y5-tp1"
},
{
"link-id": "Y5-Y4",
"source": {
"source-node": "Y5",
"source-tp": "Y5-tp1"
},
"destination": {
"dest-node": "Y4",
"dest-tp": "Y4-tp1"
}
}
",
{
"network-id": "VPN2",
"node": [
{
"node-id": "Z2",
"supporting-node": [
{
"network-ref": "L3TOPO",
"node-ref": "X2"
}
],
"ietf-network-topology:termination-point": [
{
"tp-id": "Z2-tp1"
}
]
},
{
"node-id": "Z3",
"supporting-node": [
{
"network-ref": "L3TOPO",
"node-ref": "X3"
}
],
"ietf-network-topology:termination-point": [
{

"tp-id": "Z3-tp1"
},
},
{
"node-id": "Z5",
"supporting-node": [
{
"network-ref": "L3TOPO",
"node-ref": "X5"
}
],
"ietf-network-topology:termination-point": [
{
"tp-id": "Z5-tp1"
}
]
},
],
"ietf-network-topology:link": [
{
"link-id": "Z2-Z3",
"source": {
"source-node": "Z2",
"source-tp": "Z2-tp1"
},
"destination": {
"dest-node": "Z3",
"dest-tp": "Z3-tp1"
}
},
{
"link-id": "Z3-Z2",
"source": {
"source-node": "Z3",
"source-tp": "Z3-tp1"
},
"destination": {
"dest-node": "Z2",
"dest-tp": "Z2-tp1"
}
},
{
"link-id": "Z2-Z5",
"source": {
"source-node": "Z2",
"source-tp": "Z2-tp1"
},
"destination": {
"dest-node": "Z5",
"dest-tp": "Z5-tp1"
}
}
}
{  
"network-id": "L3TOPO",
"node": [
  
{"node-id": "X1",
"ietf-network-topology:termination-point": [
  
{"tp-id": "X1-tp1"}
  
],
  
},

{"node-id": "X2",
"ietf-network-topology:termination-point": [
  
{"tp-id": "X2-tp1"}
  
],
  
},

{"node-id": "X3",
"ietf-network-topology:termination-point": [
  
{"tp-id": "X3-tp1"}
  
],
  
},

{"node-id": "X4",
"ietf-network-topology:termination-point": [
  
{"tp-id": "X4-tp1"}
  
],
  
},

{"node-id": "X5",
"ietf-network-topology:termination-point": [
  
{"tp-id": "X5-tp1"}
  
],
  
},

}
"ietf-network-topology:link": [
  {
    "link-id": "X1-X2",
    "source": {
      "source-node": "X1",
      "source-tp": "X1-tp1"
    },
    "destination": {
      "dest-node": "X2",
      "dest-tp": "X2-tp1"
    }
  },
  {
    "link-id": "X2-X1",
    "source": {
      "source-node": "X2",
      "source-tp": "X2-tp1"
    },
    "destination": {
      "dest-node": "X1",
      "dest-tp": "X1-tp1"
    }
  },
  {
    "link-id": "X1-X4",
    "source": {
      "source-node": "X1",
      "source-tp": "X1-tp1"
    },
    "destination": {
      "dest-node": "X4",
      "dest-tp": "X4-tp1"
    }
  },
  {
    "link-id": "X4-X1",
    "source": {
      "source-node": "X4",
      "source-tp": "X4-tp1"
    },
    "destination": {
      "dest-node": "X1",
      "dest-tp": "X1-tp1"
    }
  }
]

{
  "link-id": "X1-X5",
  "source": {
    "source-node": "X1",
    "source-tp": "X1-tp1"
  },
  "destination": {
    "dest-node": "X5",
    "dest-tp": "X5-tp1"
  }
},
{
  "link-id": "X5-X1",
  "source": {
    "source-node": "X5",
    "source-tp": "X5-tp1"
  },
  "destination": {
    "dest-node": "X1",
    "dest-tp": "X1-tp1"
  }
},
{
  "link-id": "X2-X5",
  "source": {
    "source-node": "X2",
    "source-tp": "X2-tp1"
  },
  "destination": {
    "dest-node": "X5",
    "dest-tp": "X5-tp1"
  }
},
{
  "link-id": "X5-X2",
  "source": {
    "source-node": "X5",
    "source-tp": "X5-tp1"
  },
  "destination": {
    "dest-node": "X2",
    "dest-tp": "X2-tp1"
  }
}