

YANG Data Model for Network Topology

draft-clemm-netmod-yang- network-topo-00.txt

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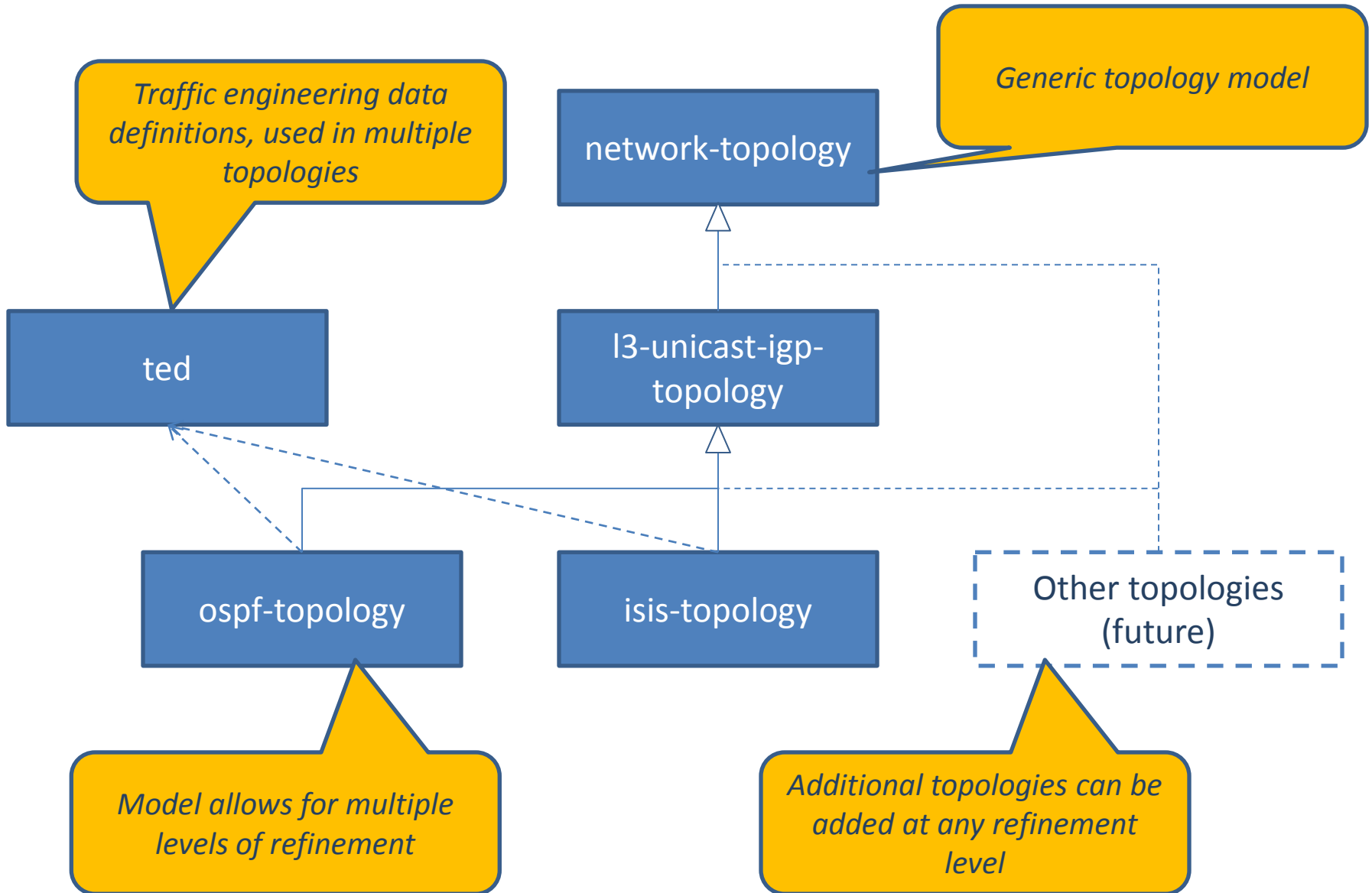
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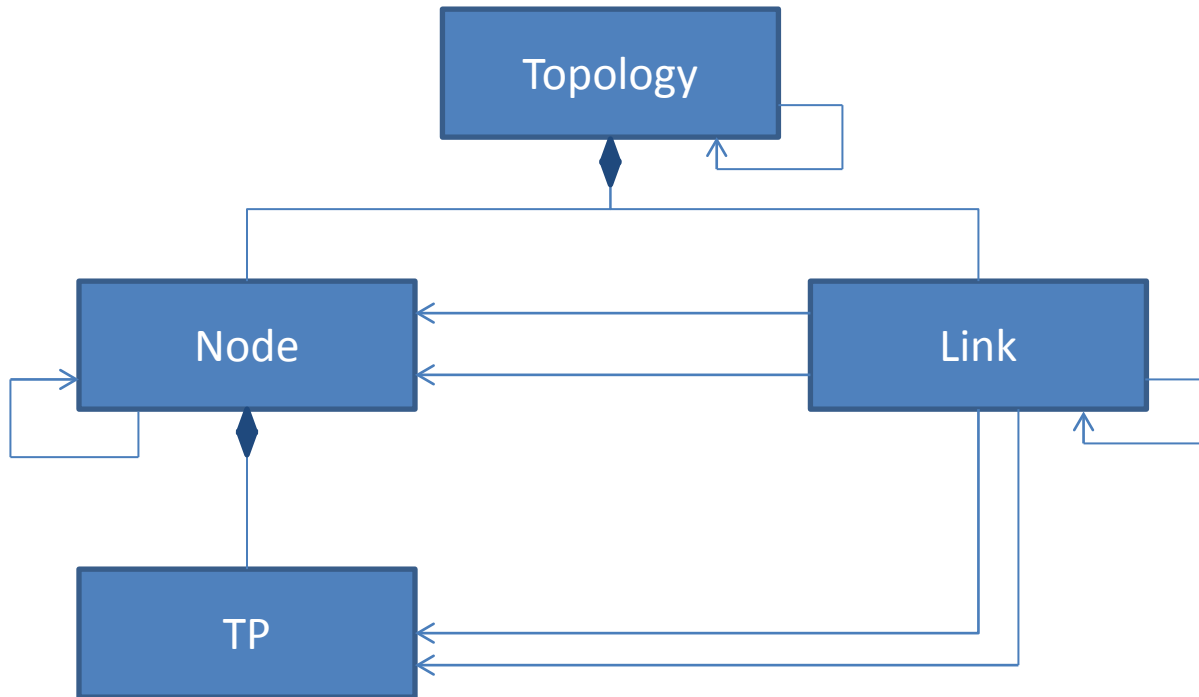
Purpose

- YANG Data Model for Network Topologies
- Generic topology model, extensions for specific topologies
 - L3 Unicast IGP, OSPF, IS-IS as part of this draft
 - Can be extended for other topologies
- Applications
 - Data nodes capture and reconcile their understanding of network topology, propagate topology info
 - Network controllers represent controller network topology
- Ask: Adopt as WG item

Data model structure

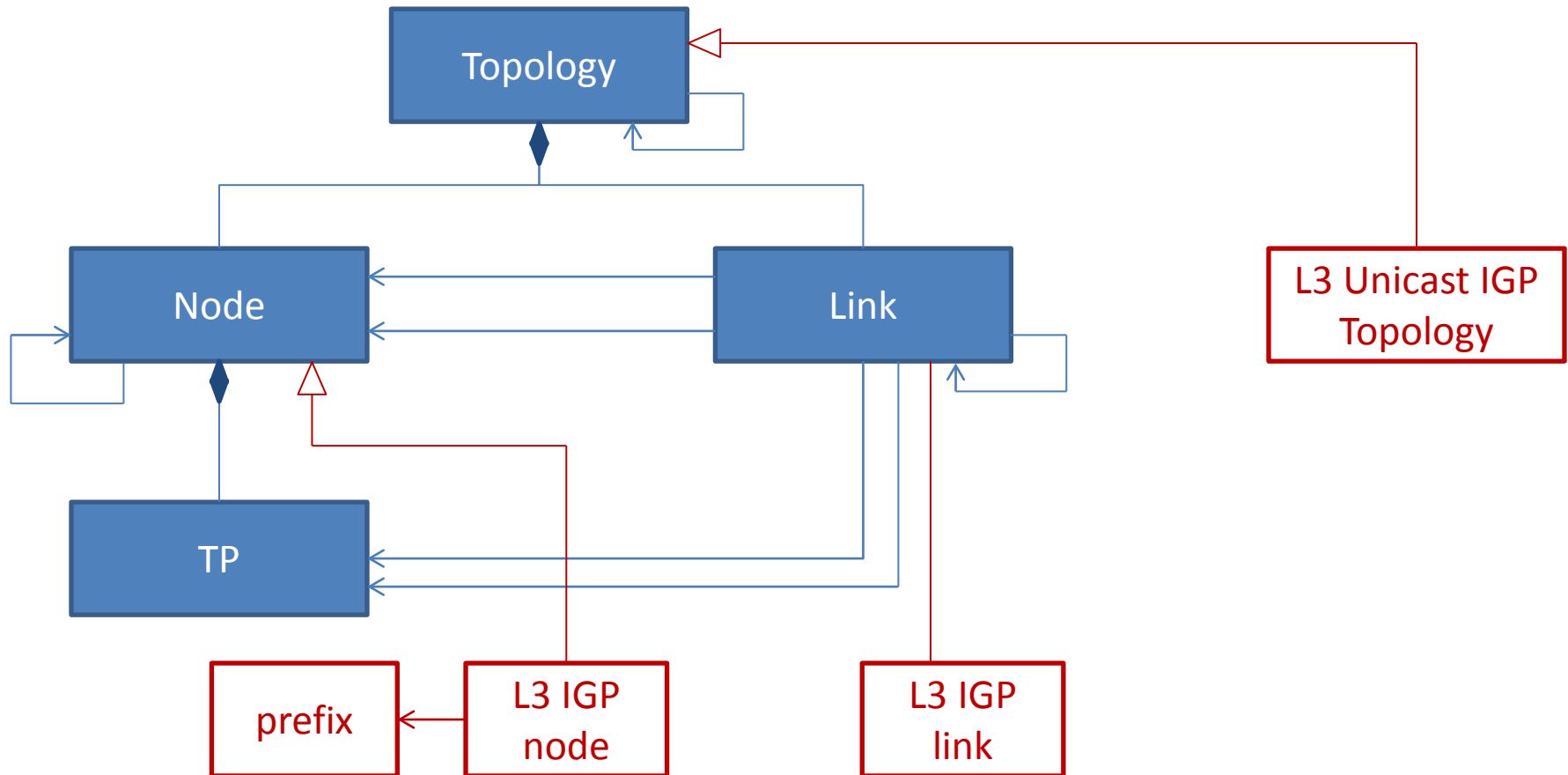


Data model structure (contd.)



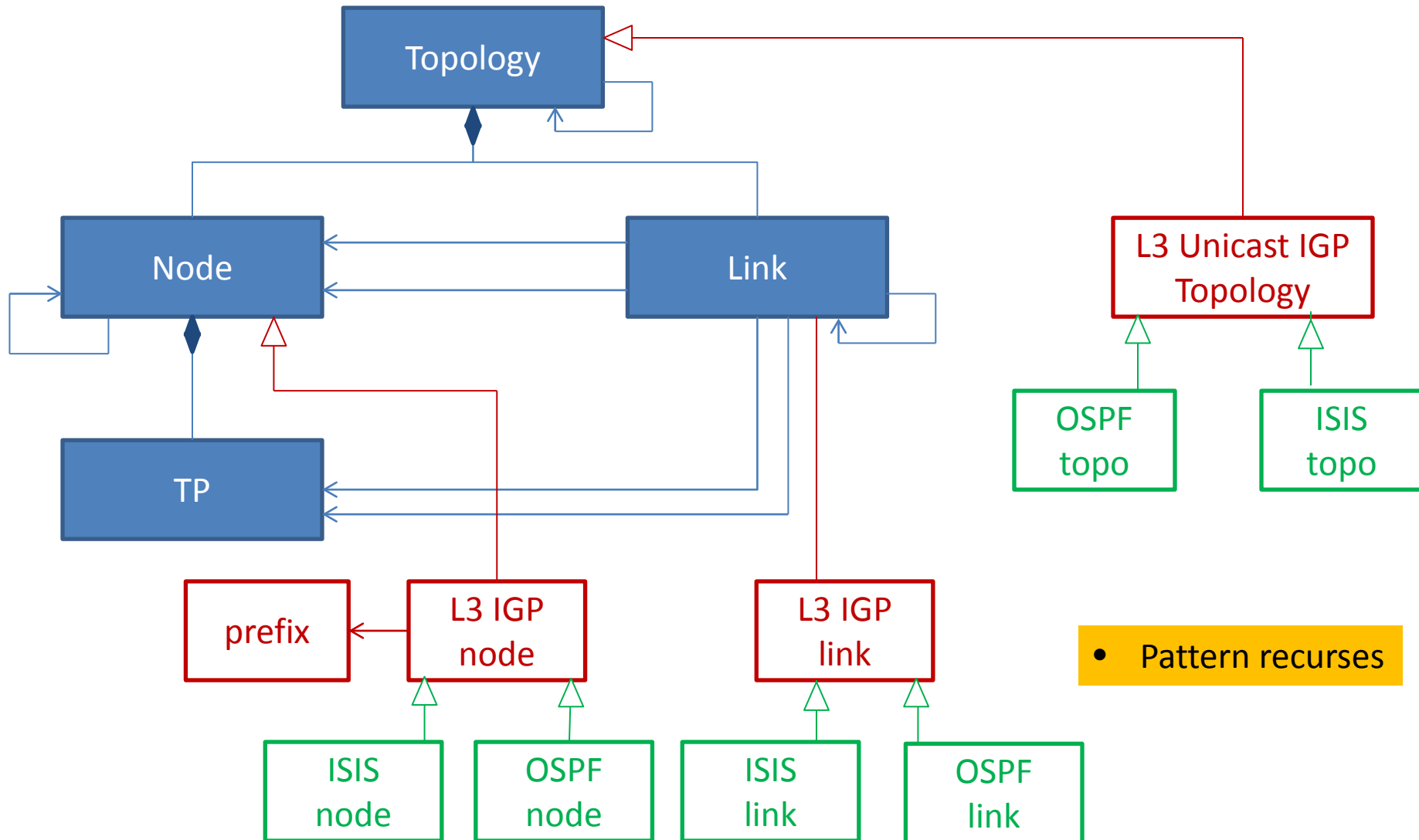
- Links connect nodes, are terminated by termination points
- Topologies can refer to underlay topologies
- Links can refer to underlay links
- Nodes can refer to underlay nodes
- Unidirectional, point-to-point links
represent non-ptp through hierarchies of nodes links

Data model structure (contd.)



- Derive Layer 3 Unicast IGP topology object classes
- Integrity rules ensure links, nodes, topology of matching type

Data model structure (contd.)



YANG structure

```
module: network-topology
  +--rw network-topology
    +--rw topology [topology-id]
      +--rw topology-id          topology-id
      +--rw topology-types
      +--rw underlay-topology [topology-ref]
        | +--rw topology-ref    topology-ref
      +--rw node [node-id]
        | +--rw node-id          node-id
        | +--rw supporting-node [node-ref]
        | | +--rw node-ref      node-ref
        | +--rw termination-point [tp-id]
        | | +--rw tp-id        tp-id
        | | +--ro tp-ref*     tp-ref
      +--rw link [link-id]
        +--rw link-id            link-id
        +--rw source
          | +--rw source-node    node-ref
          | +--rw source-tp?     tp-ref
        +--rw destination
          | +--rw dest-node      node-ref
          | +--rw dest-tp?      tp-ref
        +--rw supporting-link [link-ref]
          +--rw link-ref        link-ref
```

YANG structure (contd.)

```
module: network-topology
  +--rw network-topology
    +--rw topology [topology-id]
      +--rw topology-types
        | +--rw l3t:l3-unicast-igp-topology?
      +--rw node [node-id]
        | +--rw termination-point [tp-id]
        | | +--rw l3t:igp-termination-point-attributes
        | |   +--rw (termination-point-type)?
        | |     +--:(ip)
        | |       | +--rw l3t:ip-address*      inet:ip-address
        | |       +--:(unnumbered)
        | |         +--rw l3t:unnumbered-id?   uint32
        | +--rw l3t:igp-node-attributes
        |   +--rw l3t:name?      inet:domain-name
        |   +--rw l3t:flag*     flag-type
        |   +--rw l3t:router-id* inet:ip-address
        |   +--rw l3t:prefix [prefix]
        |     +--rw l3t:prefix   inet:ip-prefix
        |     +--rw l3t:metric?  uint32
        |     +--rw l3t:flag*    flag-type
      +--rw link [link-id]
        | +--rw l3t:igp-link-attributes
        |   +--rw l3t:name?      string
        |   +--rw l3t:flag*     flag-type
        |   +--rw l3t:metric?   uint32
      +--rw l3t:igp-topology-attributes
        +--rw l3t:name?      string
        +--rw l3t:flag*     flag-type
```


Questions?