Automatic attachment of end stations and network devices

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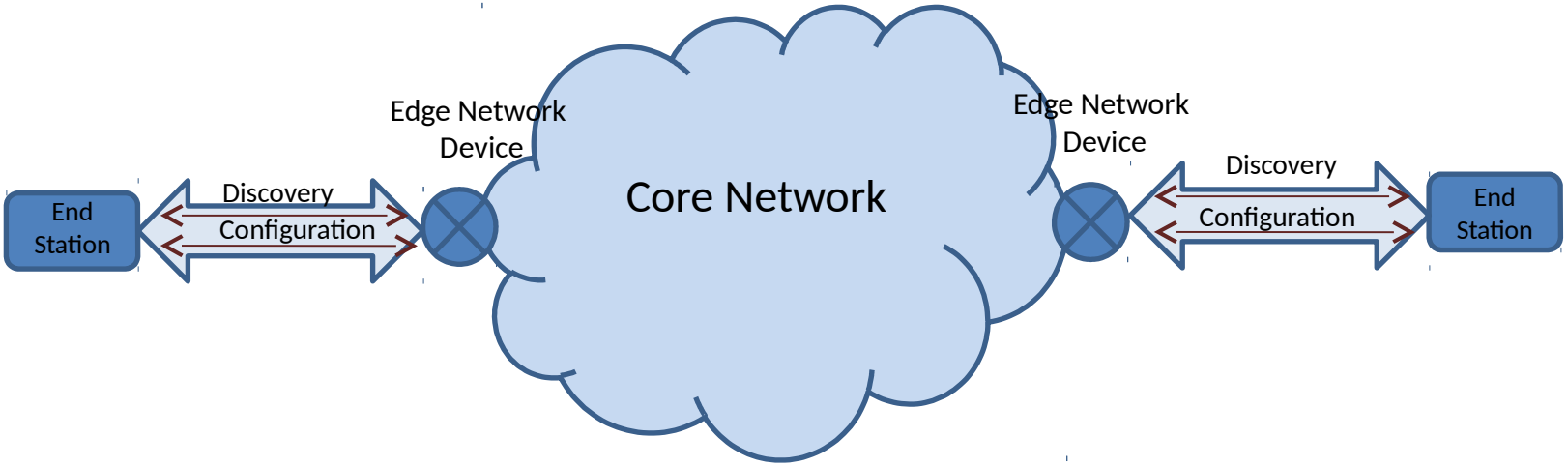
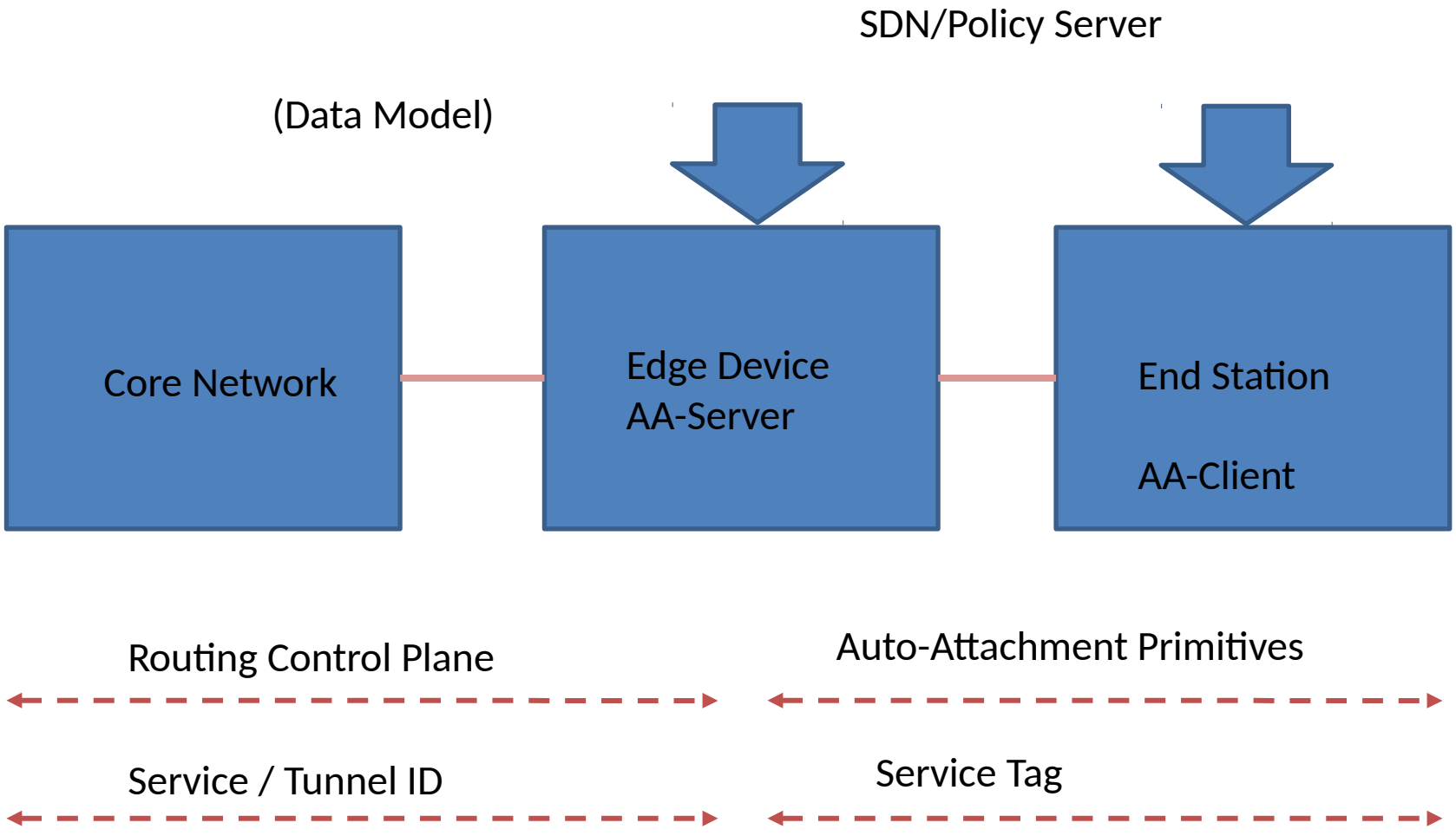
(draft-unbehagen-lldp-spb-02)

The Auto-Attachment Concept

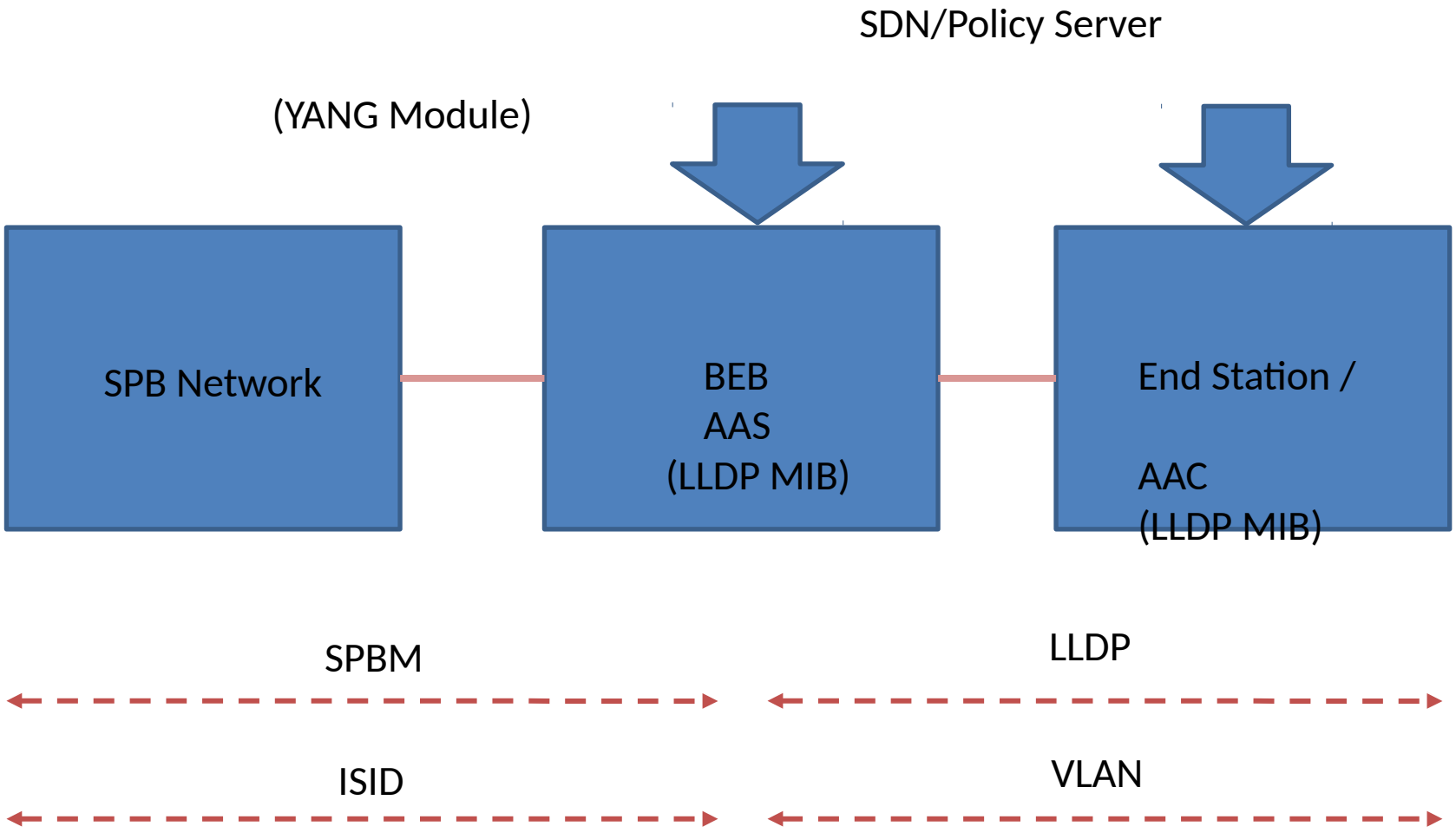
- Simplify operations procedures by automating the configuration of network devices and end-stations to individual services in a core network
- Run a simple one-hop / two steps protocol that
  - Discovers and identifies end-stations to edge devices
  - Configures the link and connects the station to the available core network resource (L2VPN, MPLS, etc.)



Conceptual Auto Attach Model



Conceptual SPB Auto Attach Model



What is in draft-unbehagen-lldp-spb-02.txt?

- From 01 to 02
  - Added auto-attachment architecture and flow description
  - More details on the LLDP instantiation
    - AA Element TLV (the discovery step)
    - AA I-SID/VLAN assignment TLV (service assignment step)
  - Error codes
  - Security Considerations

Data Models

- There are actually three data models:
  - (1) Protocol Extensions DM
    - Initial configuration parameters / defaults
    - Status
    - Errors reporting
  - (2) LLDP extension (new TLVs support)
    - Was done only until now in SMIv2 MIB modules (IEEE 802.1AB - LLDP MIB maintained by the IEEE 802.1 WG)
  - (3) Policy and Service Mapping Tables
    - For example (VLAN/ISID) in the implementation described by the I-D
    - YANG model

Status and Next Steps

- Advantages of the AA method
  - Avoids individual configuration at the end station
  - Does not require support for e2e protocols in end-stations
    - Fit for scalable IoT applications
  - Modular - can use different AA protocols with different routing/tunneling services in the core
- Status of the project
  - Implemented using extensions of the Link Layer Discovery Protocol (LLDP – IEEE 802.1AB) and core IEEE 802.1aq (Short Path Bridging) networks
  - Deployed
  - Open source code available in ODL
  - IEEE 802.1 / LLDP extensions defined in the IEEE 802.1Qcj project
- Next Steps
  - I-D detailing AA use cases, framework and architecture
  - YANG data model for policy and service configuration
  - Other protocols instantiations
  - Possible OPSAWG work item if there is interest and willing contributors

Reading List

- https://datatracker.ietf.org/doc/draft-unbehagen-lldp-spb/
- http://www.ieee802.org/1/pages/802.1cj.html