IPVPN Information Model

- Requirements

  <draft-iyer-ipvpn-infomodel-req-00.txt>

- Information Model

  <draft-iyer-ipvpn-infomodel-00.txt>

- Mahadevan Iyer, Arnold Jansen - Alcatel

Outline

- Context
- Requirement

- Overview

- Details
- Implementation

Context

```
-----------------
| Service Level | --> SLS capture customer requirement/service
   goals(Tequila)
-----------------


      <>---------> Service goal to network policy
                   translation
-----------------
| Network Level | --> IP VPN policies capture network
-----------------       requirements


      <>---------> Network policy to devices level
                   specifications
-----------------
| Device Level  | --> Device specific configuration(SNMP MIBS)
-----------------
```
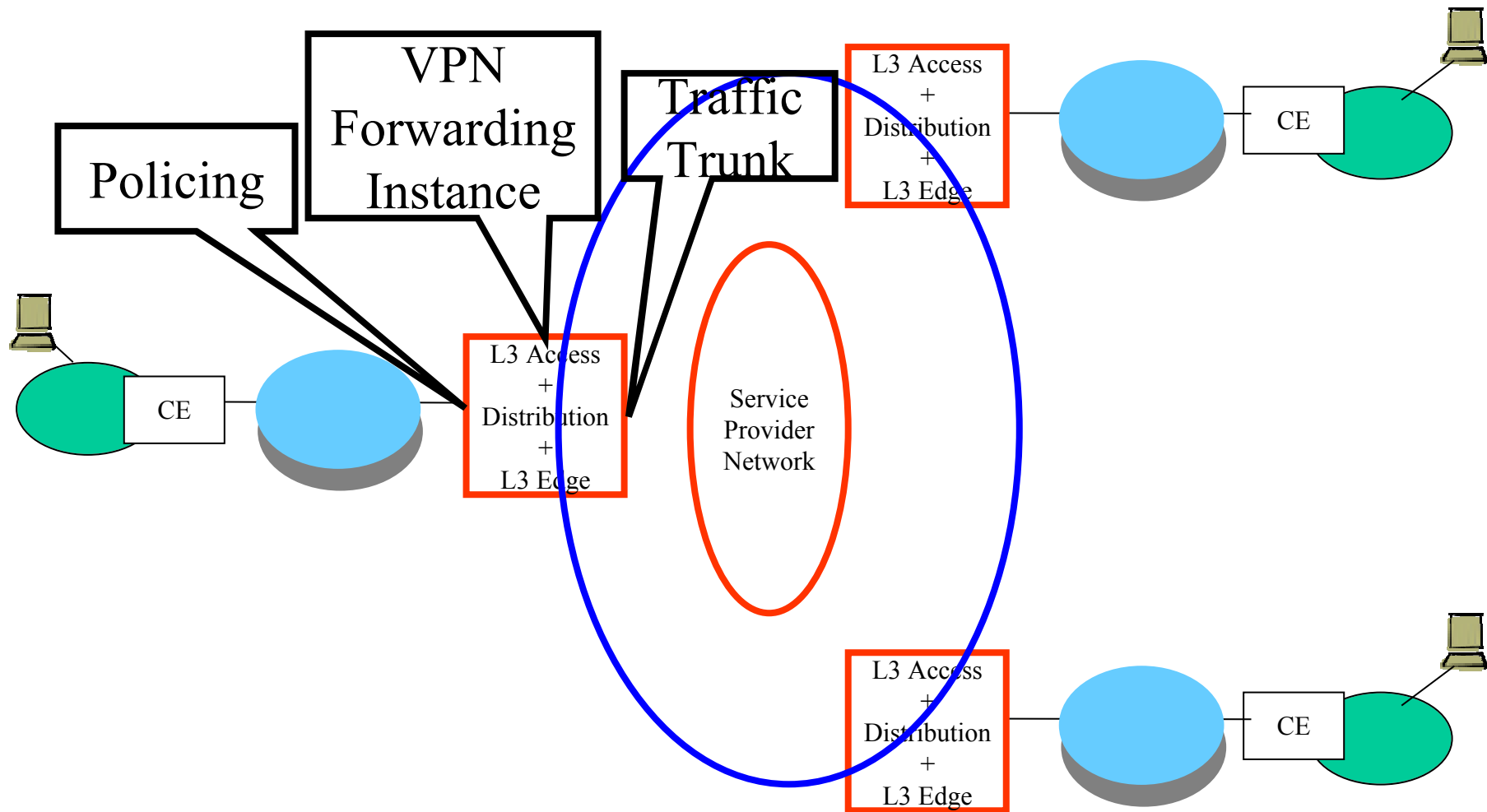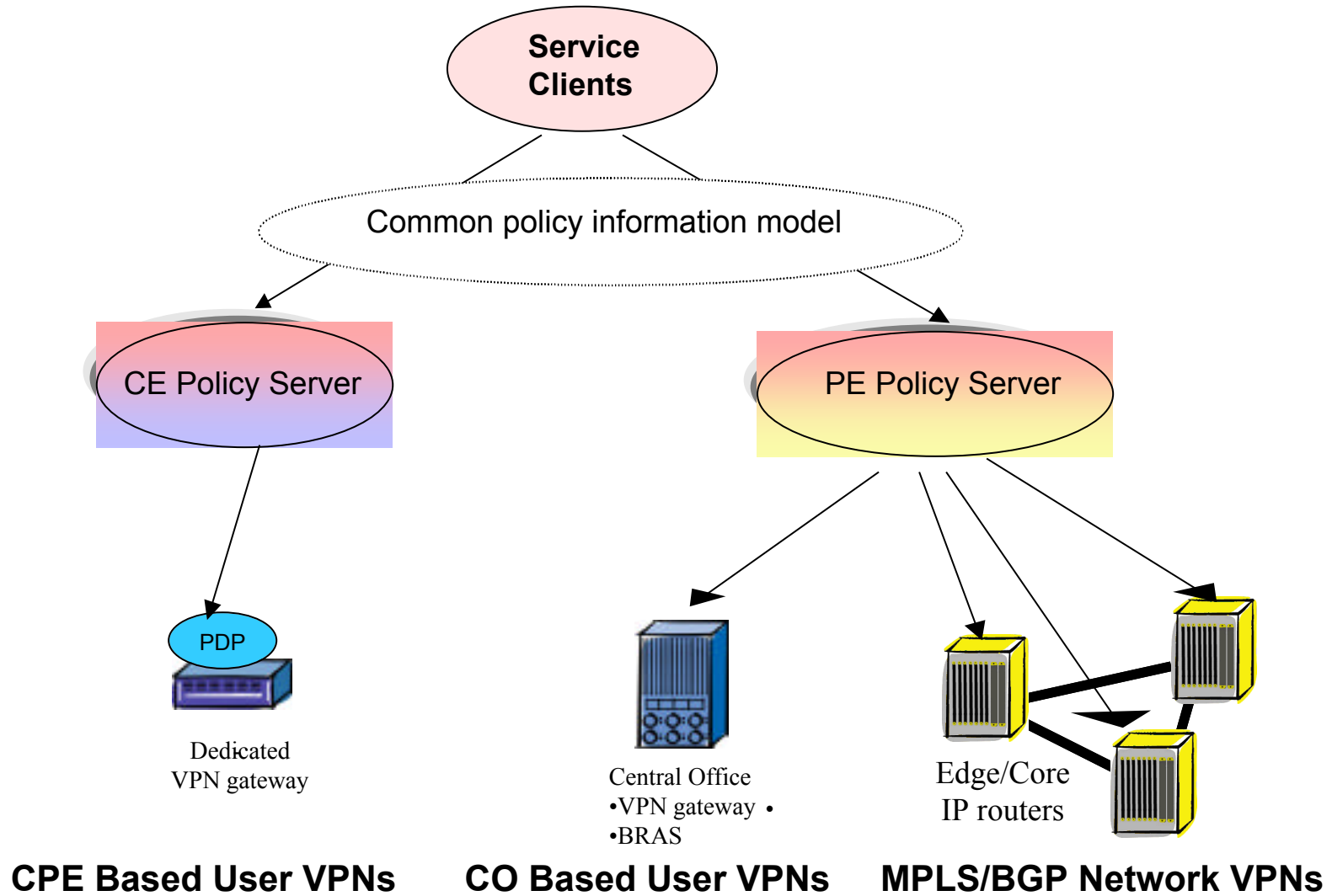
Requirement

- A mutual understanding between the service level and the network on how the service is to be provisioned in the network
  - A standardized means of communicating requirements from the service level to the provider network
  - A standardized means of accepting requirements on the network and aligning the network elements
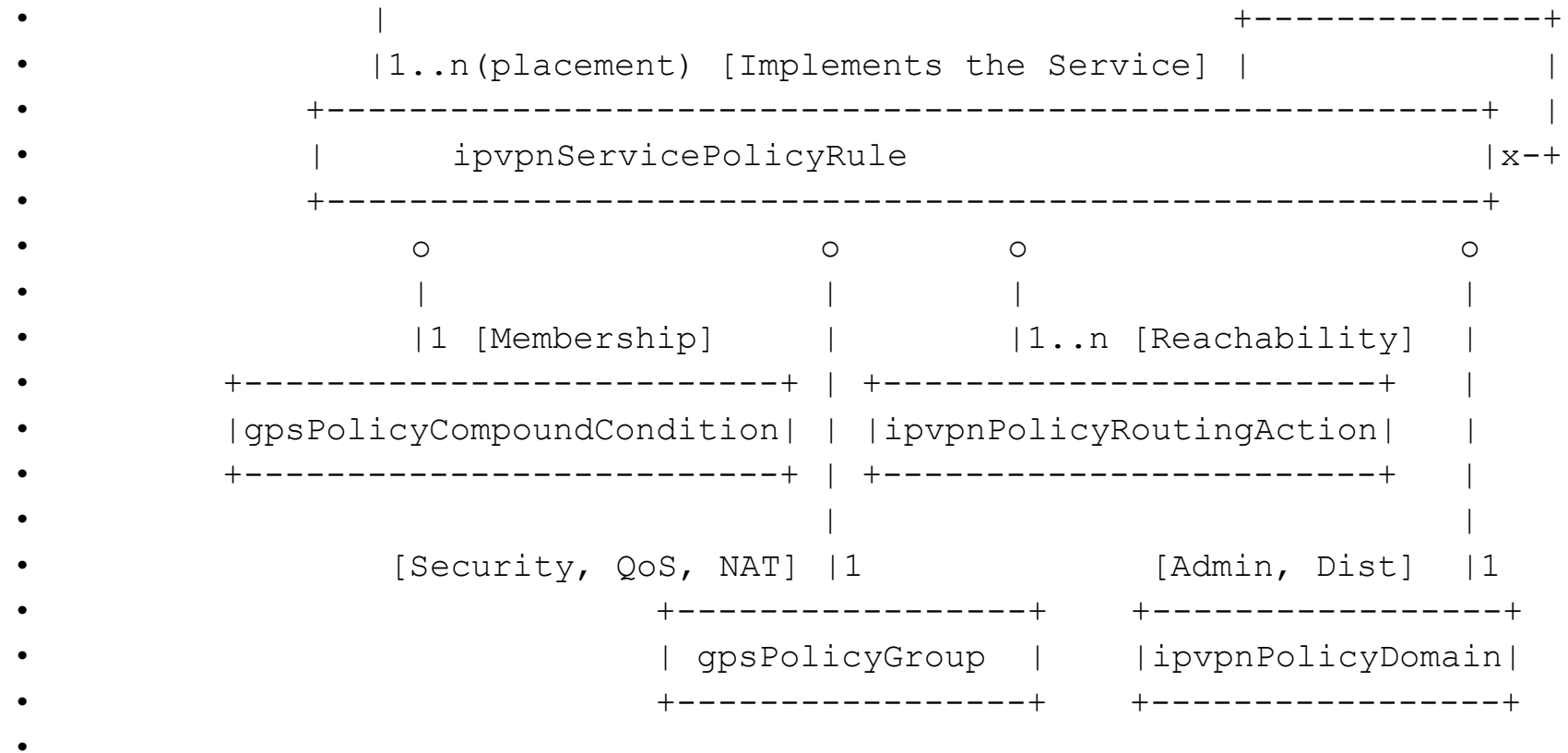
Network Requirement

Policing

VPN Forwarding Instance

Traffic Trunk

L3 Access + Distribution + L3 Edge

CE

CE

Service Provider Network

L3 Access + Distribution + L3 Edge

L3 Access + Distribution + L3 Edge

CE

CE

Usage

Details

```
        |                                      +-------------+
        |1..n(placement) [Implements the Service] |             |
      +---------------------------------------------------+  |
      |        ipvpnServicePolicyRule                     |x-+
      +---------------------------------------------------+
         o                      o       o                o
         |                      |       |                |
        |1 [Membership]         |  |1..n [Reachability]  |
  +---------------------------+ | +-----------------------+   |
  |gpsPolicyCompoundCondition| | |ipvpnPolicyRoutingAction|   |
  +---------------------------+ | +-----------------------+   |
                                |                             |
      [Security, QoS, NAT] |1              [Admin, Dist]  |1
                   +-----------------+    +-----------------+
                   | gpsPolicyGroup  |    |ipvpnPolicyDomain|
                   +-----------------+    +-----------------+
```

PolicyValue Extensions

- +----gpsPolicyValue[QPIM]
- |
- +-------gpsPolicyIPv4AddrValue[QPIM]
- |
- +-------gpsPolicyIPv6AddrValue[QPIM]
- |
- +-------ipvpnApplicationSignatureValue(this document)
- |
- +-------ipvpnEnforcerProfileValue(this document)

Policy Action Extensions

```
+----PolicyAction[PCIM]
     |
     +-------ipvpnPolicyRoutingAction(this document)
     |
     +-------ipvpnPolicyNATAction(this document)
     |
     +-------ipvpnPolicyTrafficTrunkAction(this document)
     |
     +-------ipvpnPolicyFirewallAction(this document)
     |
     +-------ipvpnPolicyEncryptionAction(this document)
     |
     +-------qoSPolicyPRAction[QPIM]
     |
     +-------qoSPolicyRSVPAction[QPIM]
     |
     +-------qoSPolicyRSVPSignalCtrlAction[QPIM]
     |
     +-------qoSPolicyRSVPInstallAction[QPIM]
```

IP Service Description

- Simple example of an IP service
  - Connect specific sites S1, S2, S3 (hub-spoke)
  - Provide QoS assurances for certain IP flows between the sites
  - Provide internet access and protect the sites
  - Encrypt all the traffic between S1 and S2

IP VPN Definition

- Connectivity Requirement
  - Membership
    - PolicyEnforcerCondition = PE1, PE2, …
  - Reachability
    - RoutingAction = S1 – PE1 – PE2 – S2
- PolicyGroup
  - QoS Requirement
    - Specific flow has min/max bandwidth, DSCP marking
    - Traffic trunk requirements over PE1 – PE2
  - Security requirement
    - Firewall traffic from the internet to the sites
    - Encrypt traffic between S1 and S2

Implementation

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Usage