Softwire Mesh MIB
draft-cui-softwire-mesh-mib-04

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Background

- The WG publishes RFC5565 for Softwire Mesh
- CNGI deployment in China
  - China’s Next Generation Internet
  - 4-over-6 mesh in CERNET2
  - 100 PE routers support softwire mesh AFBR functions
  - Vendor support on AFBR
- Management requirements
  - Status monitoring, traffic statistics, tunnel management, etc.
- Softwire Mesh MIB for RFC5565
Relationship with Other MIBs

- Leverage IP Tunnel MIB (RFC4087)
  - IP Tunnel MIB includes common tunnel objects
  - Objects in IP Tunnel MIB
    | Objects in IP Tunnel MIB                  | Specialization in Softwire Mesh               |
    |------------------------------------------|-----------------------------------------------|
    | tunnellIfEncapsMethod                    | a new type, “softwireMesh”                    |
    | tunnellIfRemoteInetAddress              | must be 0.0.0.0 or ::                        |
    | tunnellIfAddressType                    | address type of I-IP                         |
  - Further objects required by Softwire Mesh
    - Supported tunnel types of the AFBR
    - Encapsulation table

- Leverage BGP MIB (RFC4273)
  - Adopt BGP MIB for MP-BGP instance in Softwire Mesh
  - Further objects required by Softwire Mesh
    - A List of BGP neighbors which runs Softwire Mesh
    - Encapsulation method negotiated with these neighbors
Softwire mesh MIB structure

- swmMIB
  ::= {transmission xxx}
  
  - swmTunnelTypeTable
    ::= {swmMIB 1}
  
  - swmEncapTable
    ::= {swmMIB 2}
  
  - swmBGPNeighborInfo
    ::= {swmMIB 3}
  
  - swmMIBConformance
    ::= {swmMIB 4}
swmTunnelTypeTable ::= {swmMIB 1}

- Softwire Mesh Tunnel Type Table
  - Encapsulation methods which An AFBR supports
  - Indexed by ifIndex & swmTunnelType
  - RFC5565 encapsulation method set: {IP-IP, GRE, L2TPv3, IPsec}
swmEncapTable ::= \{swmMIB 2\}

- **Software Mesh Encapsulation Table**
  - Encapsulation rule: (E-IP prefix, I-IP dst addr) binding
  - Cover both IPv4-over-IPv6 and IPv6-over-IPv4
  - Indexed by ifIndex & swmEncapsEIPDst & swmEncapsEIPMask

<table>
<thead>
<tr>
<th>E-IP prefix</th>
<th>I-IP Dst</th>
</tr>
</thead>
<tbody>
<tr>
<td>166.111.0.0/16</td>
<td>2001:da8::5</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

An IPv4-over-IPv6 example
swmBGPNeighborInfo ::= {swmMIB 3}

- Softwire Mesh BGP Neighbor Information
  - Neighbor I-IP address
  - Encapsulation method(s) negotiated between AFBR and the neighbor
  - Indexed by ifIndex & swmBGPNeighborAddress

<table>
<thead>
<tr>
<th>swmBGPNeighborAddress</th>
<th>swmBGPNeighbor-TunnelType</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001:da8::5</td>
<td>GRE</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

4over6 BGP neighbor info example
Next step

• This document is in the Softwire Milestone
  – Nov 2011 Adopt Mesh topology MIB module document as a Working Group document
  – Nov 2012 Submit Mesh topology MIB module document for Proposed Standard

• We’ve addressed the issues raised in past meetings and mailing list

• The MIB structure & content are quite clear now

• So, request for WG adoption?