YANG Model for IPIPv4 Tunnel

draft-liu-intarea-ipipv4-tunnel-yang

Y. Liu, Ericsson
A. Foldes, Ericsson
G. Zheng, Huawei
Z. Wang Huawei
Y. Zhuang Huawei

YANG Model for GRE Tunnel

draft-liu-intarea-gre-tunnel-yang

Y. Liu, Ericsson

Q. Chen, Ericsson

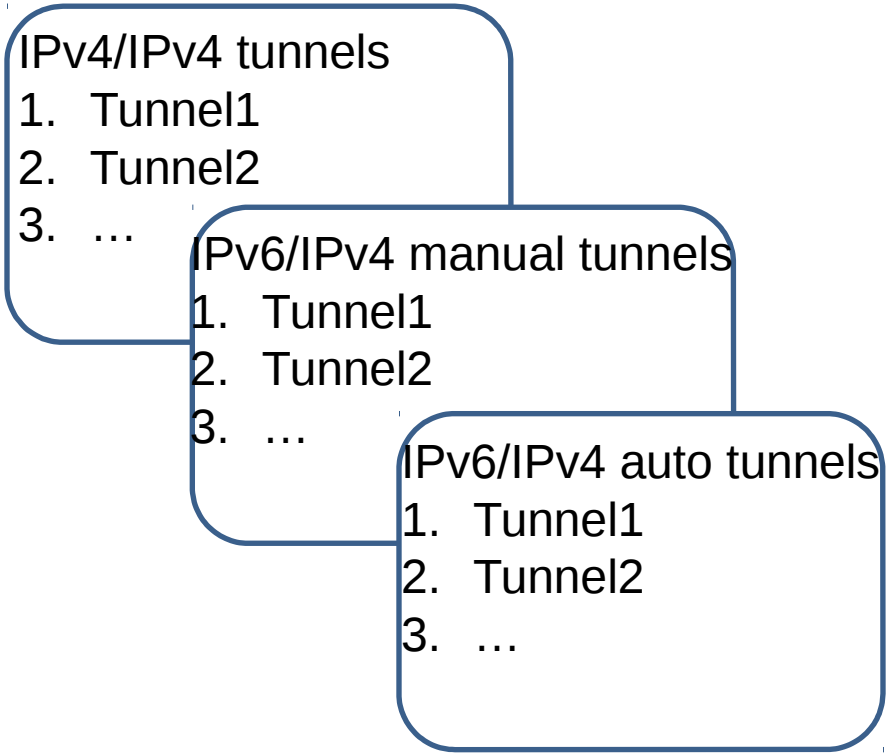
A. Foldes, Ericsson

History

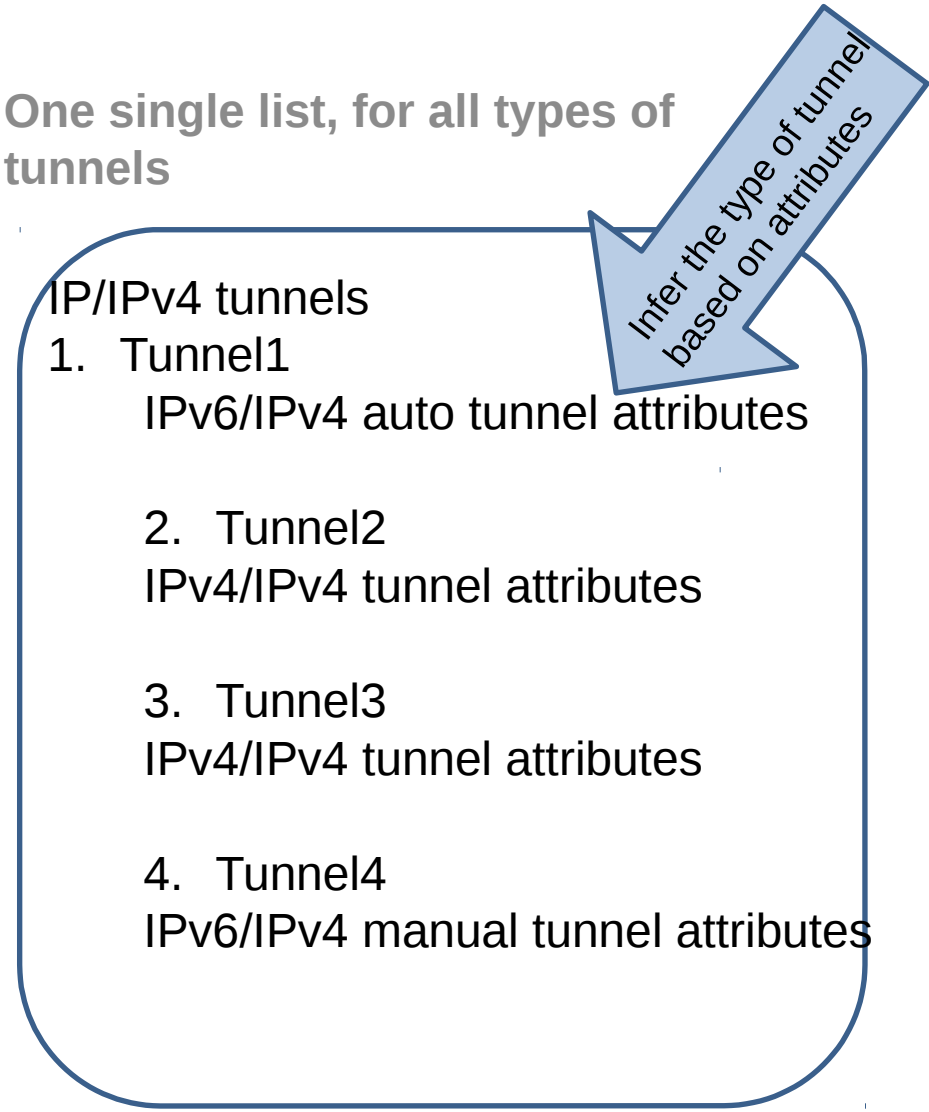
- draft-liu-rtgwg-ipipv4-tunnel-yang
- draft-zheng-intarea-tunneling-for-ipv6-yang

Two Ways to Organization Data

Separate lists, each for a type of tunnel



One single list, for all types of tunnels



Question to the WG---
Which data organization?

Separate lists, each for a type of tunnel

- Tunnel name within a particular type of tunnel list identifies a tunnel
  - Almost like the name of tunnel and the type of tunnel uniquely identifies a tunnel
- There are vendors that implement this

One single list, for all types of tunnels

- Tunnel name uniquely identifies a tunnel
- There are vendors that implement this

Comparison: Naming

Separate lists, each for a type of tunnel

```
<tunnels>
  <ip-in-ip>
    <name>Tunnel1</name>
    <peer-end-point>
      <local>1.1.1.1</local>
      <remote>2.2.2.2</local>
    </peer-end-point>
  </ip-in-ip>
  <ip-in-ip>
    <name>Tunnel2</name>
    <peer-end-point>
      <local>11.11.11.11</local>
      <remote>22.22.22.22</remote>
    </peer-end-point>
  </ip-in-ip>
  <ipv6tov4>
    <name>Tunnel1</name>
    <peer-end-point>
      <local>10.10.10.10</local>
    </peer-end-point>
  </ipv6tov4>
</tunnels>
```

One single list, for all types of tunnels

```
<Tunnels>
  <tunnel>
    <name>Tunnel1</name>
    <ip-in-ip>
      <local>1.1.1.1</local>
      <remote>2.2.2.2</local>
    </ip-in-ip>
  </tunnel>
  <tunnel>
    <name>Tunnel2</name>
    <ip-in-ip>
      <local>11.11.11.11</local>
      <remote>22.22.22.22</remote>
    </ip-in-ip>
  </tunnel>
  <tunnel>
    <name>Tunnel3</name>
    <ipv6tov4>
      <local>10.10.10.10</local>
    </ipv6tov4>
  </tunnel>
</Tunnels>
```

Comparison: Attribute Change (1)

Separate lists, each for a type of tunnel

Change to /ip/IPTunnel/1 to ipv6v4-manual type tunnel

```
<tunnels>
 <ip-in-ip>
  <name>Tunnel1</name>
  <peer-end-point>
   <local>1.1.1.1</local>
   <remote>2.2.2.2</local>
  </peer-end-point>
 </ip-in-ip>
 <ip-in-ip>
  <name>Tunnel2</name>
  <peer-end-point>
   <local>11.11.11.11</local>
   <remote>22.22.22.22</remote>
  </peer-end-point>
 </ip-in-ip>
 <ipv6tov4>
  <name>Tunnel1</name>
  <peer-end-point>
   <local>10.10.10.10</local>
  </peer-end-point>
 </ipv6tov4>
</tunnels>
```

- Step 1
  - Delete ip-in-ip list entry with name “Tunnel1”
- Step 2
  - Create a new ipv6v4-manual list entry with the same endpoints

```
<tunnels>
 <ipv6v4-manual>
  <name>Tunnel1</name>
  <peer-end-point>
   <local>1.1.1.1</local>
   <remote>2.2.2.2</local>
  </peer-end-point>
 </ipv6v4-manual>
</tunnels>
```

  - Back-end implication:
    - Configuration management information back-end to delete old tunnel, set up new tunnel

Comparison: Attribute Change (2)

One single list, for all types of tunnels

Change ip-in-ip type Tunnel1 to ipv6v4-manual type tunnel

```
<Tunnels>
 <tunnel>
  <name>Tunnel1</name>
  <ip-in-ip>
   <local>1.1.1.1</local>
   <remote>2.2.2.2</local>
  </ip-in-ip>
 </tunnel>
 <tunnel>
  <name>Tunnel2</name>
  <ip-in-ip>
   <local>11.11.11.11</local>
   <remote>22.22.22.22</remote>
  </ip-in-ip>
 </tunnel>
 <tunnel>
  <name>Tunnel3</name>
  <ipv6tov4>
   <local>10.10.10.10</local>
  </ipv6tov4>
 </tunnel>
</Tunnels>
```

- Step 1
  - Delete ip-in-ip attribute from list entry with name “Tunnel1”
- Step 2
  - Insert ipv6v4-manual attribute into list entry with name “Tunnel1”

```
<Tunnels>
 <tunnel>
  <name>Tunnel1</name>
  <ipv6v4-manual>
   <local>1.1.1.1</local>
   <remote>2.2.2.2</local>
  </ipv6v4-manual>
 </tunnel>
</Tunnels>
```

- Back-end implication
  - Configuration management informs back-end the change of attributes
  - Back-end need to know to bring down previous tunnel and set up a new IPv6 over IPv4 tunnel

GRE Tunnel vs. IPIPv4 Tunnel

- Should there be one single tunnel module?
  - With multiple tunnel lists, one for each type?
  - With one single list keyed by the name of the tunnel?
  - With one single list keyed by the name and type of tunnel?
- Should IPIPv4 tunnel be the base model for GRE tunnel?

Question for the WG

- Solicit comments on how to organize different types of tunnels, including GRE tunnels
  - Choose one way to organize data
  - Define a new way to organize data

Q&A