RIFT Applicability draft-wei-rift-applicability-02

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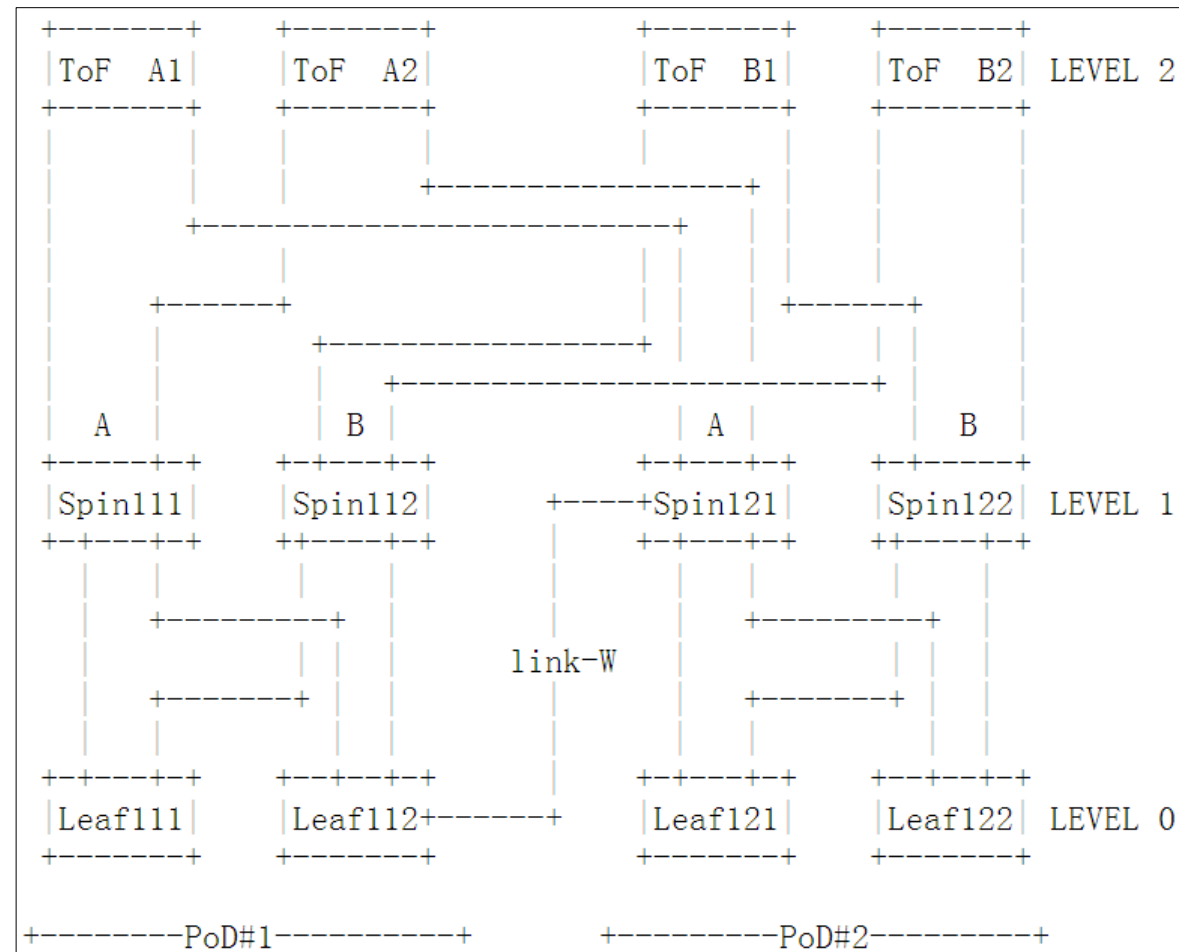
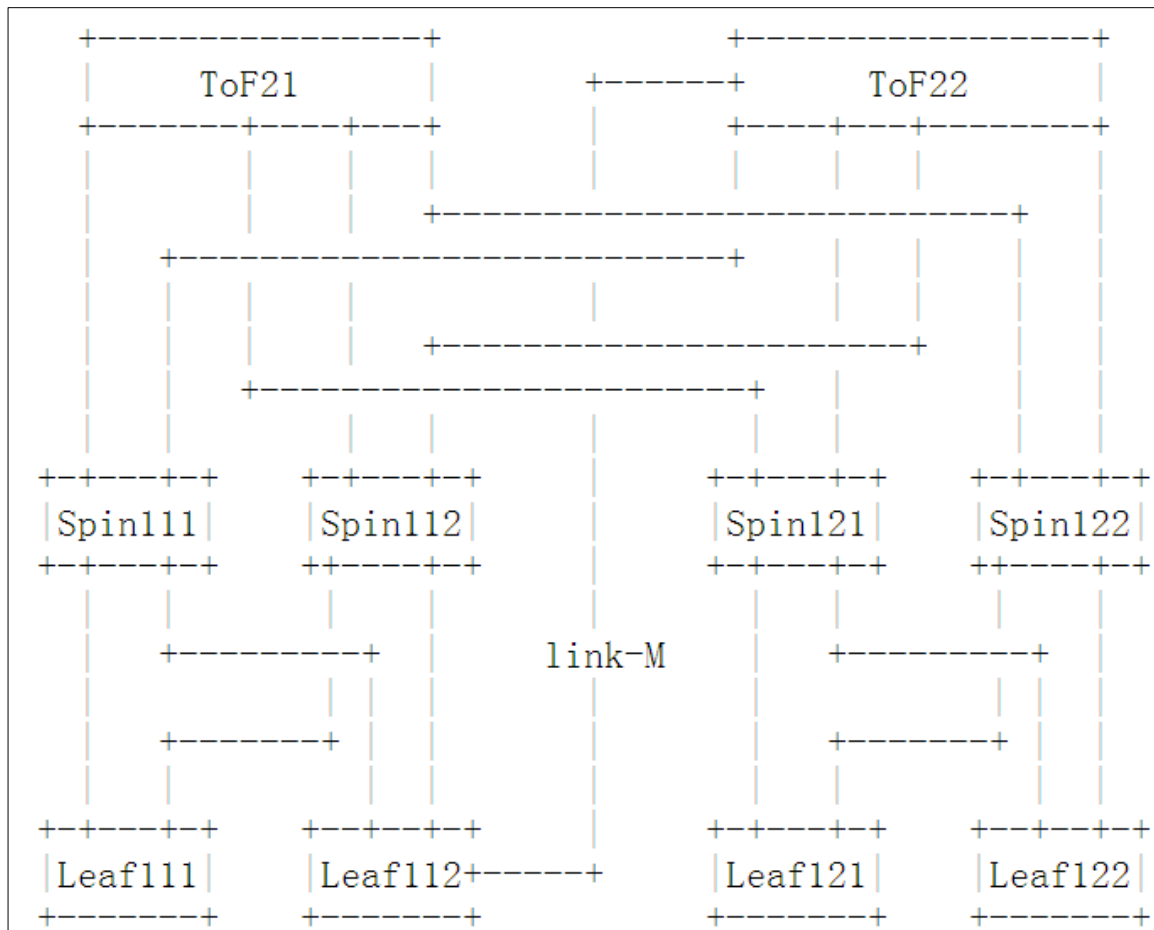Jaroslaw Kowalczyk , Orange

Agenda

- Updates (since IETF-105)
- Next steps

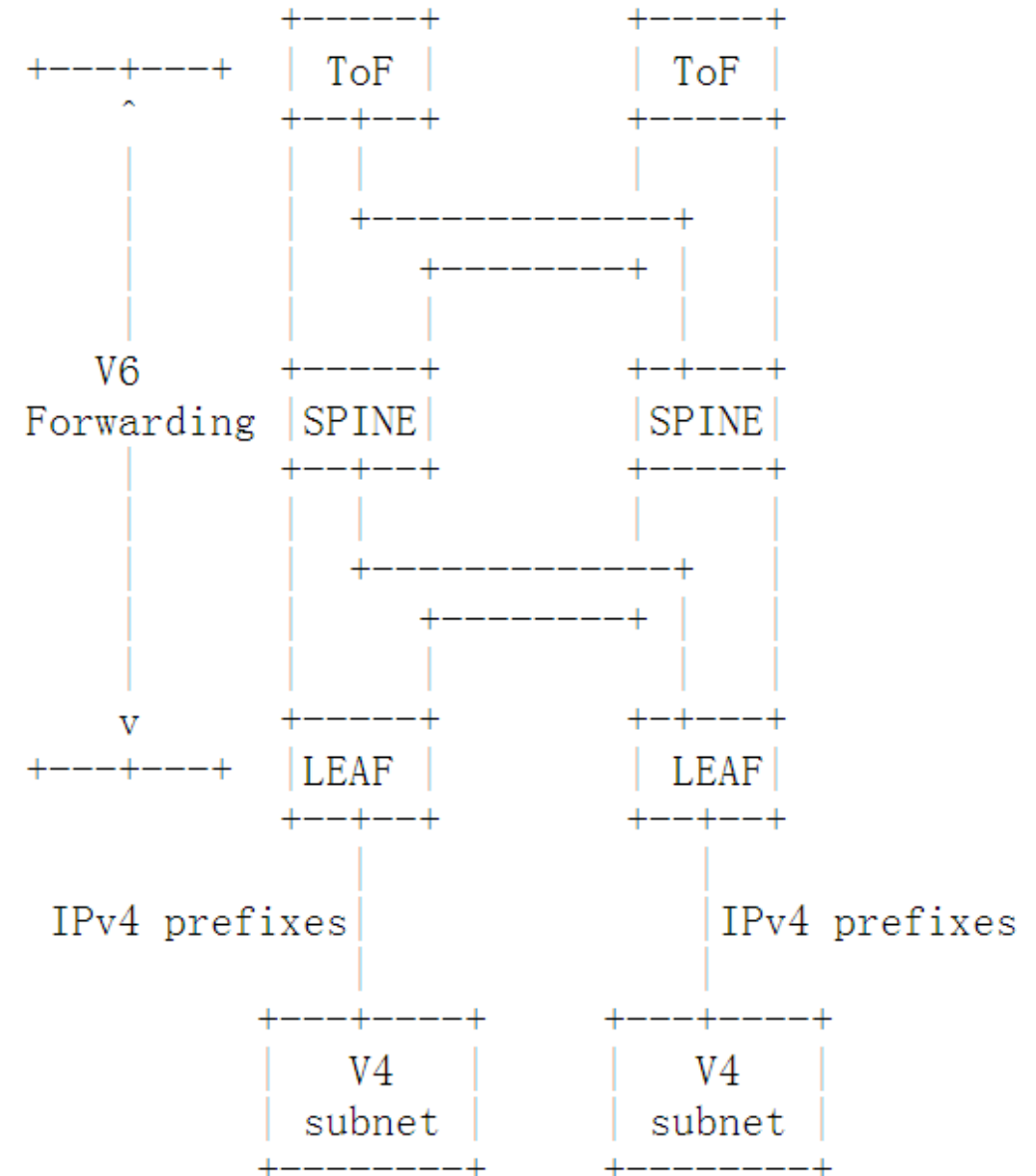# New paragraphs added to "4. Deployme nt Considerations

- Miscabling Examples

- IPv4 over IPv6

- Dual Homing Servers

- Fabric With A Controller

- Subnet Mismatch and Address Families

- Anycast Consideration

Miscabling Examples

Figure 5: A single plane miscabling example

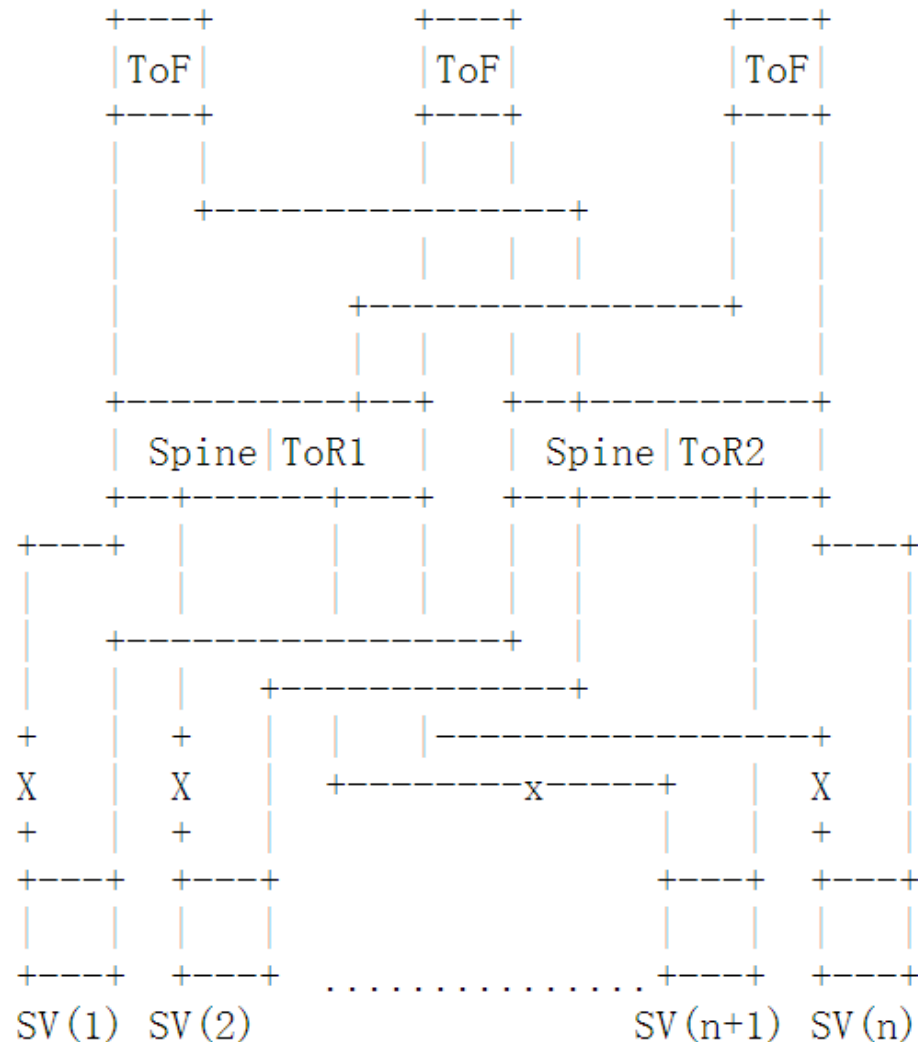Figure 6: A multiple plane miscabling example

IPv4 over IPv6

- RIFT allows advertising IPv4 prefixes over IPv6 RIFT network.

- It is expected that the whole fabric s upports the same type of forwarding of address families on all the links.

- RIFT provides an indication whether a node is v4 forwarding capable and implementations are possible where different routing tables are compute d per address family as long as the c omputation remains loop-free.

```
                    +-----+              +-----+
   +---+---+         | ToF |             | ToF |
        ^            +--+--+             +-----+
        |               |                   |
        |               |  |                |
        |               |  +-----------+    |
        |               |        +-------+ |
        |               |        |       | |
   V6   |            +-----+     +-+---+ |
Forwarding           |SPINE|     |SPINE|
        |            +--+--+     +-----+
        |               |           |
        |               |  |        |
        |               |  +-----------+
        |               |        +------+ |
        |               |        |      | |
   v    |            +-----+     +-+---+ |
   +---+---+         | LEAF |     | LEAF |
                     +--+--+      +--+--+
                        |            |
 IPv4 prefixes|                  |IPv4 prefixes
                        |            |
                        |            |
                     +---+---+     +---+---+
                     |  V4   |     |  V4   |
                     | subnet|     | subnet|
                     +-------+     +-------+
```

Dual Homing Servers

```
+---+          +---+          +---+
|ToF|          |ToF|          |ToF|
+---+          +---+          +---+
 |   |          |   |          |   |
 |   |  +----------------+     |   |
 |   +--+            |    |    |   |
 |      |      +-----------+   |   |
 |      |      |     |    |    |   |
 +------------+---+  +--+---------+
 |            |   |  |  |        |
 | Spine|ToR1 |   |  | Spine|ToR2 |
 +-+------+---+   |  +-+------+---+
+---+  |   |   |  |   |  |   |  +---+
|   |  |   |   |  |   |  |   |  |   |
|   |  |   |   |  |   |  |   |  |   |
|   +------------+     |  |   |  |   |
|      |   +--------------+  |   |  |   |
+      +   |   +-----------------+  |   +
|      |   |   |        |  |        |   |
X      X   |   +--------x----+  |   X
+      +   |            |    |  |   +
|      |   |            |    |  |   |
+---+  +---+            +---+  +---+
|   |  |   |            |   |  |   |
|   |  |   |            |   |  |   |
+---+  +---+  ...............+---+  +---+
SV(1)  SV(2)           SV(n+1)  SV(n)
```
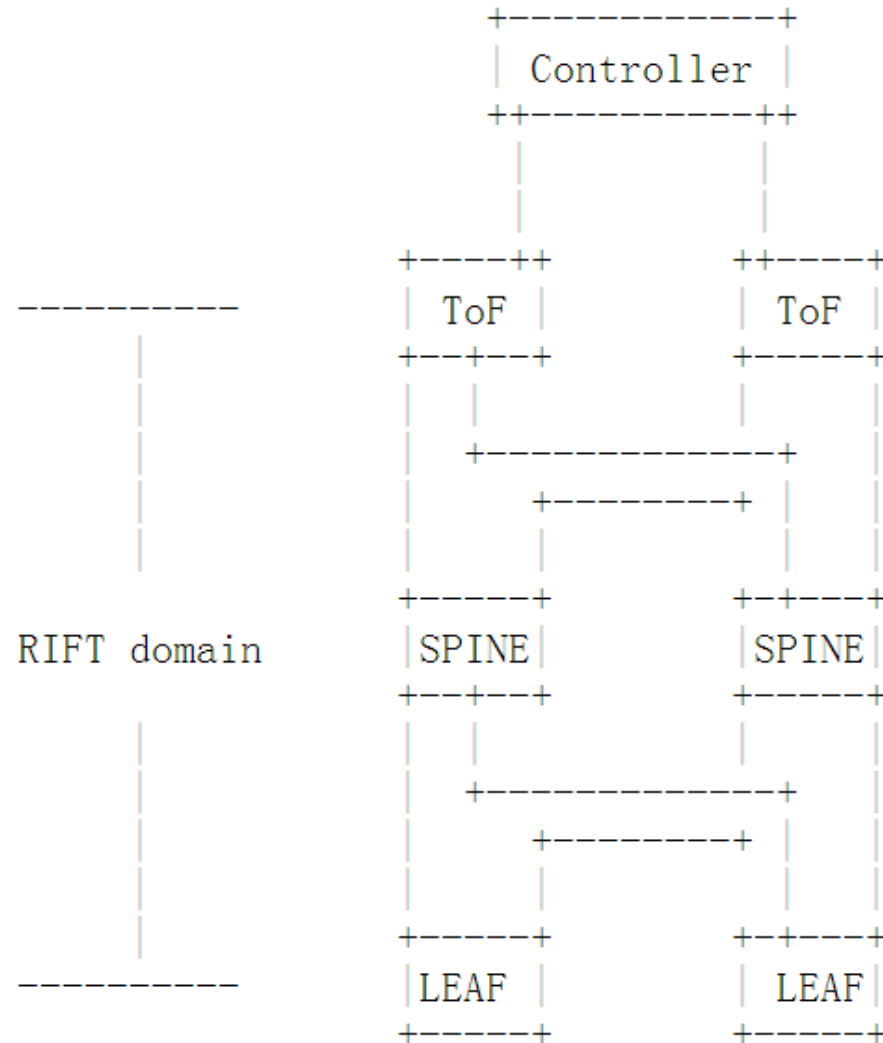
- In the single plane, the worst condition is disaggregation of every other servers at the same level. All the servers' routes are disaggregated and the FIB of the servers will be expanded with n-1 more specific routes.

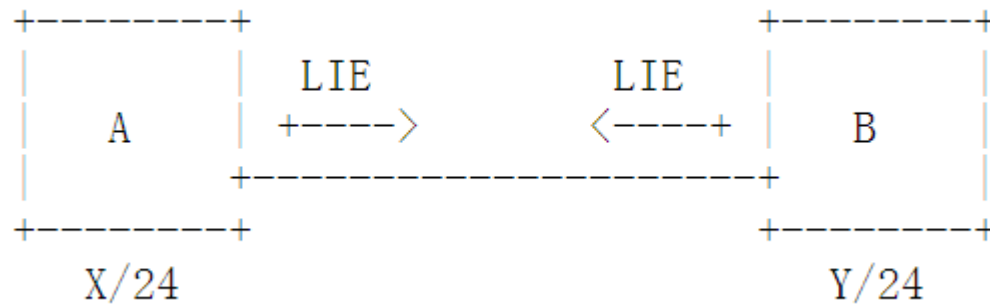- Support disaggregation from ToR to servers from start on

Fabric With A Controller

```
                    +-----------+
                    |  Controller  |
                    ++---------++
                     |          |
                     |          |
                     |          |
      +----++        ++----+
      | ToF |        | ToF |
      +--+--+        +-----+
       |  |           |
       |  |           |
       |  +-------------+  |
       |    +--------+  |  |
       |    |        |  |  |
      +-----+        +-+---+
RIFT domain |SPINE|        |SPINE|
      +--+--+        +-----+
       |  |           |
       |  |           |
       |  +-------------+  |
       |    +--------+  |  |
       |    |        |  |  |
      +-----+        +-+---+
      |LEAF |        | LEAF |
      +-----+        +-----+
```

- Controller Attached to ToFs
  - Usually uses dual-homing connections. The loopback prefix of the controller should be advertised down by the ToF and spine to leaves.
  - If the controller loses link to ToF, make sure the ToF withdraw the prefix of the controller

- Controller Attached to Leaf
  - If the controller is attaching from a leaf to the fabric, no special provisions are needed.
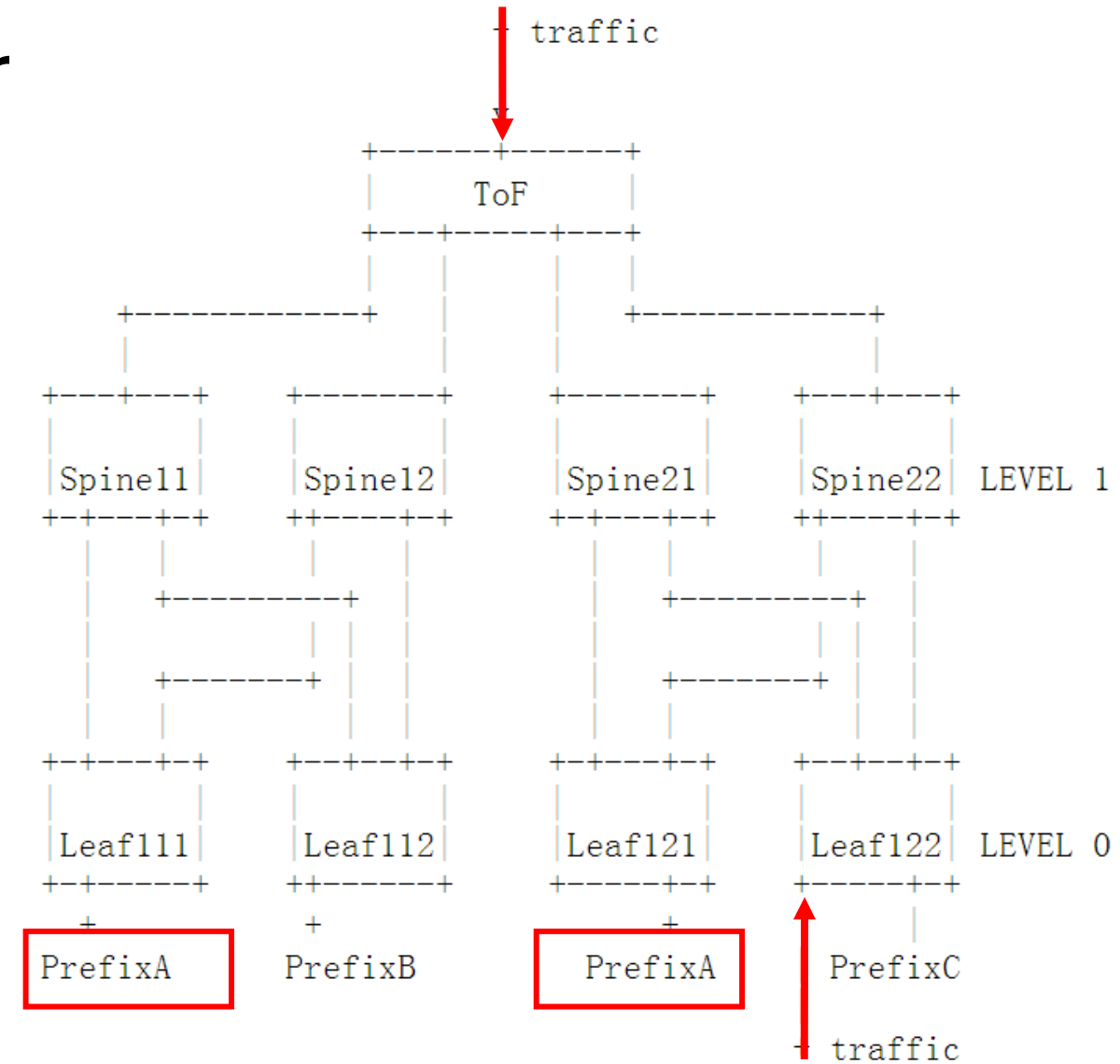
Subnet Mismatch and Address Families

- Adjacency of node A and B may form

- Forwarding between node A and node B may fail because subnet X mismatches with subnet Y

- To prevent this a RIFT implementation should check for subnet mismatch just like e.g. ISIS does

```
+--------+                          +--------+
|        |                          |        |
|        |   LIE           LIE      |        |
|   A    |  +---->        <----+    |   B    |
|        |  +------------------------+       |
|        |                          |        |
+--------+                          +--------+
 X/24                                Y/24
```

Anycast Consideratior

- If the traffic comes from ToF to Le af111 or Leaf121 which has anyca st prefix PrefixA. RIFT can deal wi th this case well.

- But if the traffic comes from Leaf 122, it will always get to Leaf121 and never get to Leaf111. If the i ntension is that the traffic should been offloaded to Leaf111, then use policy guided prefixes [PGP r eference].

Next steps

- Continue to seek comments
- Seek WG adoption

Thank you!