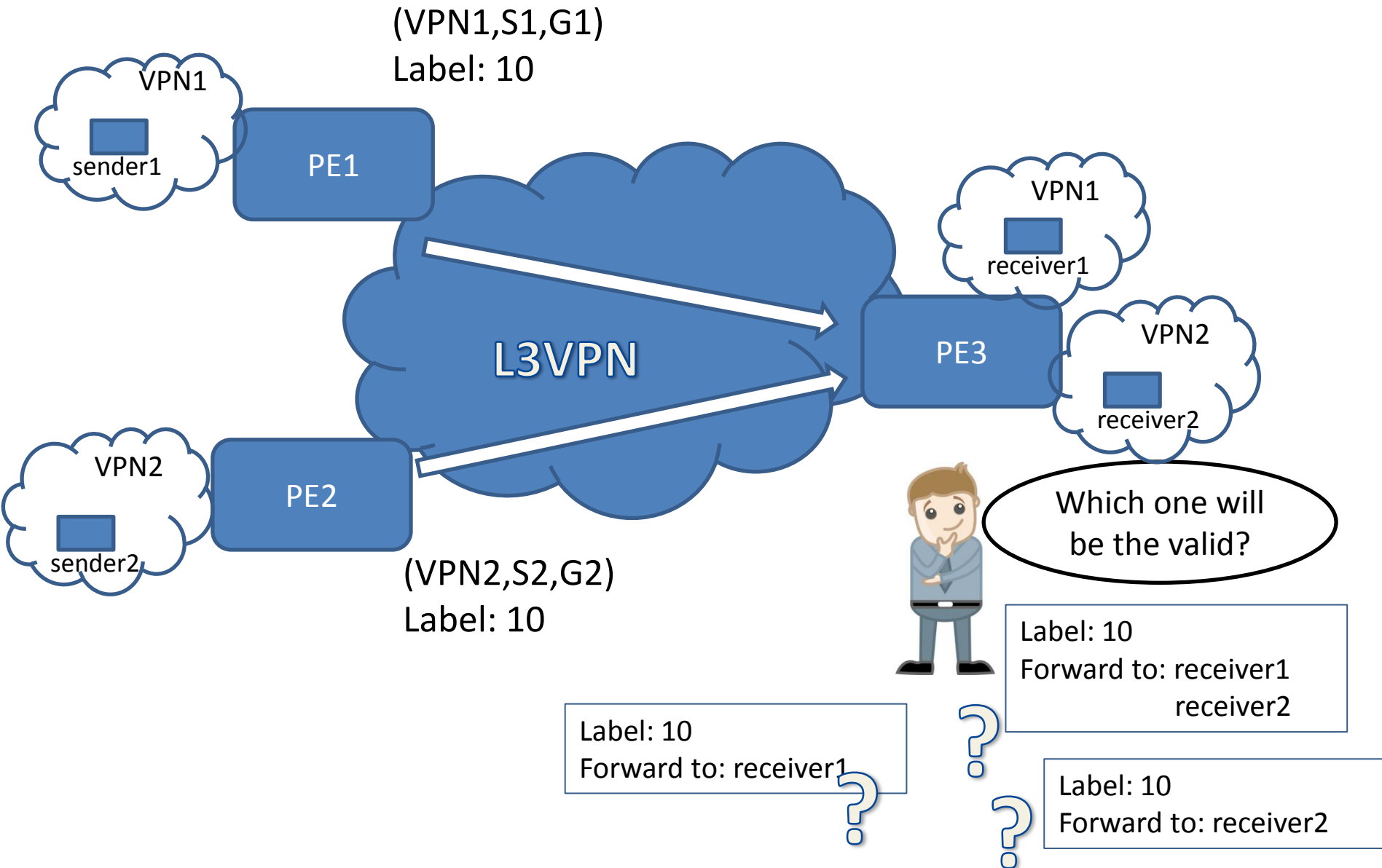# Upstream Assigned Label Collision Solution
### draft-zhang-idr-upstream-label-collision-solution-00

Sandy Zhang (ZTE Corporation)

Ying Cheng (China Unicom)

# Problem Statement

(VPN1,S1,G1)
Label: 10

VPN1

sender1

PE1

L3VPN

VPN1

receiver1

PE3

VPN2

receiver2

VPN2

sender2

PE2

(VPN2,S2,G2)
Label: 10

Which one will be the valid?

Label: 10
Forward to: receiver1
          receiver2

Label: 10
Forward to: receiver1

Label: 10
Forward to: receiver2

# Problem Statement

## Why do the collision happen?

- In present network, the network administrator must allocate the label space on every PE in advance.

- There are tens of PEs in one domain.

- The network is developing. The MVPN and DC will consume a great number of upstream-assigned labels.

-------The numbers of MVPN S-PMSIs will become larger.

-------The BUM of DC may consume more upstream-assigned labels.

- If the label space that is reserved on every PE is large, then many labels may be waste.

- If the label space that is reserved on every PE is small, then some PEs will use up all its labels.

- The network administrator adjust the label space on every upstream PEs. The adjustment is not foreseeable and consume large manpower.

# Solution

The algorithm:

- Each upstream PE advertise routes with the timestamp attribute.
- When downstream PEs finds that there are two upstream PEs advertise routes with a same upstream-assigned label:

------The downstream PEs choose the route with the earlier timestamp to be valid.

- All the PEs include upstream and downstream PEs will receive the routes.

------The upstream PEs that advertise route with later timestamp will adjust the label.

- Tie-Break

------If two upstream PEs advertise route with same timestamp, we make the tie-break on the IP-address of upstream PEs.

# Advantage of solution

- Why we use timestamp to describe the route?

------Someone may think that we may use the local-preference/MED/cost and so on.

- The timestamp will mark the origination time of the routes.

- The routes which have been originated early should have more priority.

- The method will improve the network stability.

- Comments welcome

# Thanks!