draft-mohanty-idr-secondary-label

The Secondary Label and its applications

IETF 123, July 2025

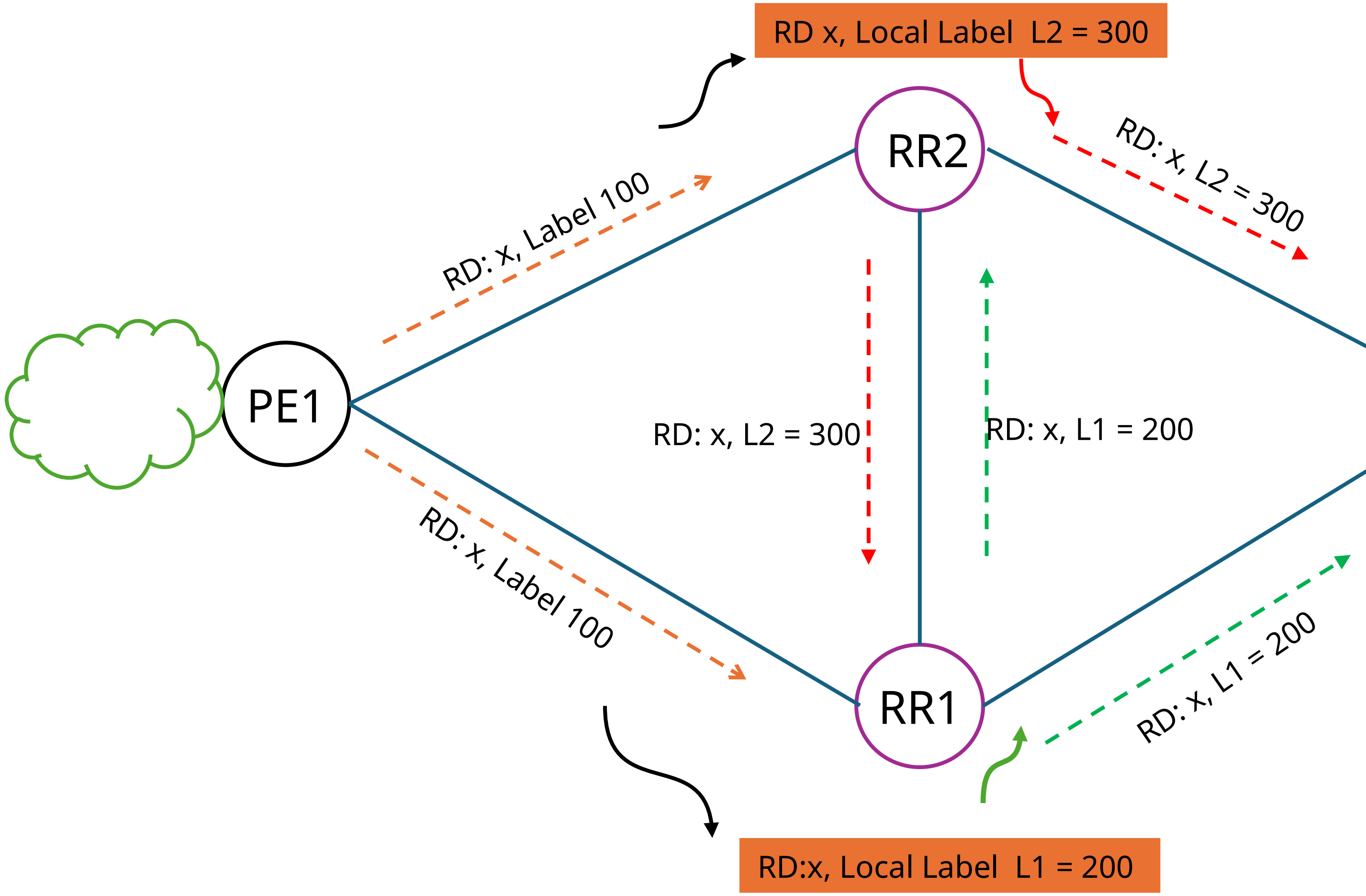
Disclaimer

- Not to trigger debate on floor.
- Bringing back the problem statement
- We would prefer to keep discussion in list
- Would prefer to hear working group input in list and update the draft in next IETF

Label Allocation mode

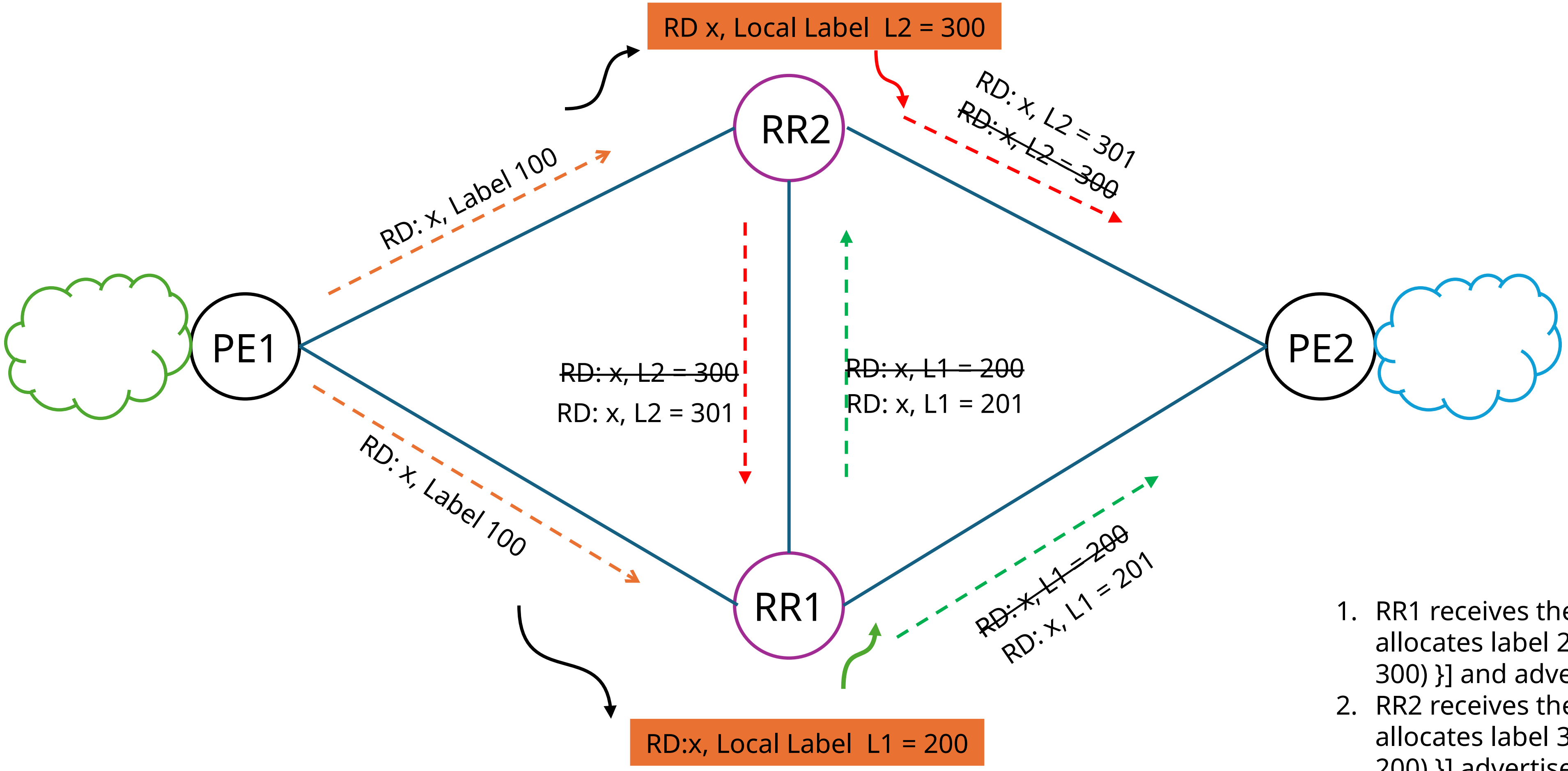
- Allocation mode :
  - per prefix
  - per vrf
  - per next-hop-received-label.
- per next-hop-received-label
  - Label Allocation context for this mode is set of {(nhop, recvd_label)} tuples.
  - Useful to conserve labels at the RR with next-hop-self or ASBR

Base Case



1. Label mode used is per-nexthop-recvd-label.
2. Context (ctx) for local label allocation is {(nexthop, received label)} tuples.
3. Leads to a continuous label allocation issue in symmetric PIC deployments.

Problem



1. RR1 receives the update from RR2, allocates label 201 [ctx {(PE1, 100), (RR2, 300) }] and advertises to RR2
2. RR2 receives the update from RR1, allocates label 301 [ctx {(PE1, 100), (RR1, 200) }] advertises to RR1.
3. This will result in new label allocations at RR1 and RR2 and this process will go on
4. Net result is the devices RR1 and RR2 will engage in a continuous label churn and hit the platform limitations soon

Label signaling – current draft proposal

- Use a new optional transitive attribute ("Secondary Label")
- Encodes one or more secondary labels
- Used by the receiver when selecting a backup path pointing to the sender
- ***Rethinking – we can avoid the need for a new attribute and re-use existing mechanisms***

Label signaling – new proposal

- Coming in next draft revision (or create a new draft ?)
- Two possible options
  1. NHC attribute
     - Use a new TLV Type of NHC attribute (draft-ietf-idr-entropy-label)
     - TLV to encode one or more additional labels
     - Label propagation rules are closely aligned with NHC specification
  2. Extended community
     - Define a new extended community to carry additional labels
     - Need to define propagation rules similar to NHC

Next Step

- Please provide comments in list
- Will update the draft by next IETF