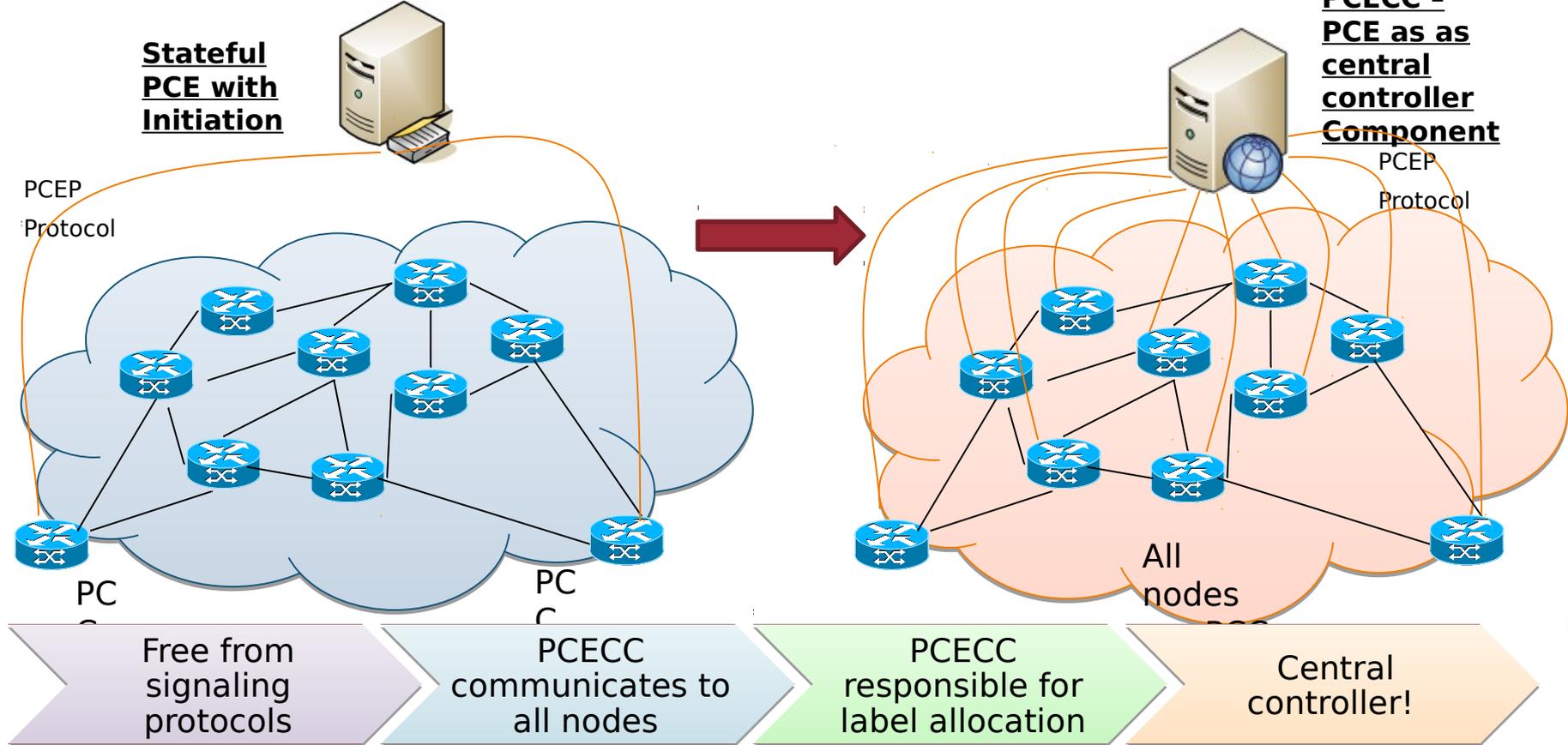


Use Cases for Using PCE to act as a Central Controller (PCECC) Component

[draft-zhao-teas-pce-central-controller-use-cases-00.txt](#)

Stateful PCE to PCECC!



PCECC Use Cases

1. Use Cases of PCECC for Label Resource Reservations
2. Using PCECC for SR without the IGP Extension
 - Use Cases of PCECC for SR Best Effort(BE) Path
 - Use Cases of PCECC for SR Traffic Engineering (TE) Path
3. Use Cases of PCECC for TE LSP
4. Use Cases of PCECC for Multicast LSPs
 - ❑ Using PCECC for P2MP/MP2MP LSPs' Setup
 - ❑ Use Cases of PCECC for the Resiliency of P2MP/MP2MP LSPs
 - PCECC for the End-to-End Protection of the P2MP/MP2MP LSPs
 - PCECC for the Local Protection of the P2MP/MP2MP LSPs
5. Use Cases of PCECC for LSP in the Network Migration
6. Use Cases of PCECC for L3VPN and PWE3
7. Using PCECC for Traffic Classification Information

PCECC Basic Use Cases

TE LSP

Forwarding similar to RSVP-TE without RSVP-TE signaling

Use of local label along the LSP path

PCECC allocates local label and downloads to LSR

P2MP LSP

Forwarding similar to mLDP/P2Mp RSVP-TE LSP without mLDP and P2Mp RSVP-TE signaling

Use of local label along the P2Mp LSP path

PCECC allocates Local label and distribute them

PCECC SR-TE

Forwarding similar to IGP-SR-TE

Use of SR node and Adj label allocated and distributed by PCECC

Rest processing similar to stateful PCE with SR

PCECC – Basic TE LSP

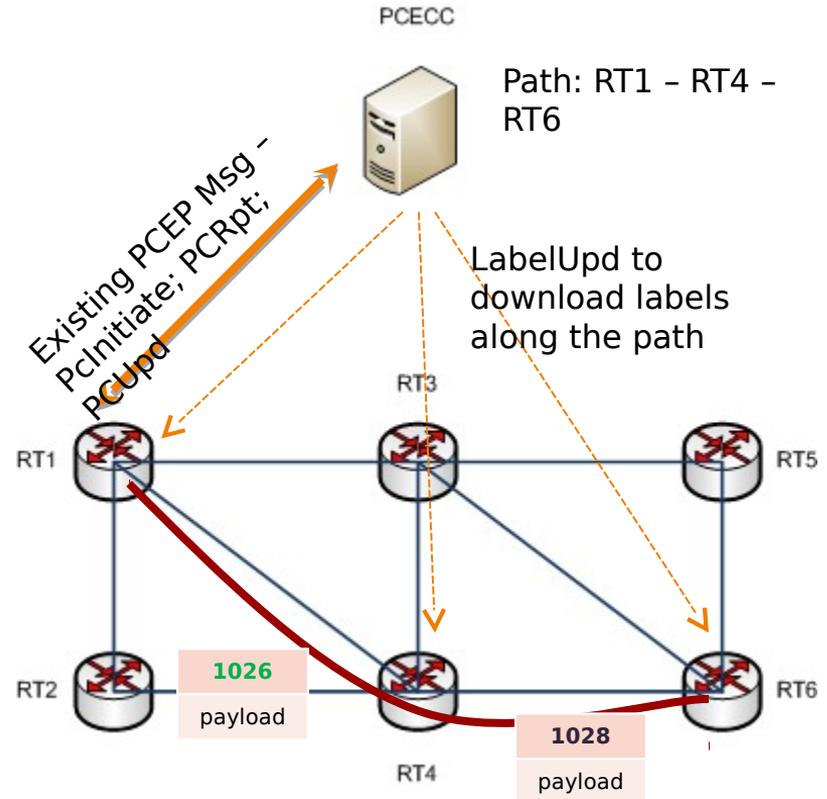
1. Request PCECC to initiate LSP

2. PCECC computes the path and allocates label along the path for each node

3. PCE sends PCInitiate message to the ingress and Ingress sends PCRpt message back

4. PCECC sends PCLabelUpd to each node along the path with label information to download

5. PCECC sends PCUpd to the ingress and PCC sends PCRpt back with status-up.



PCECC – P2MP LSP

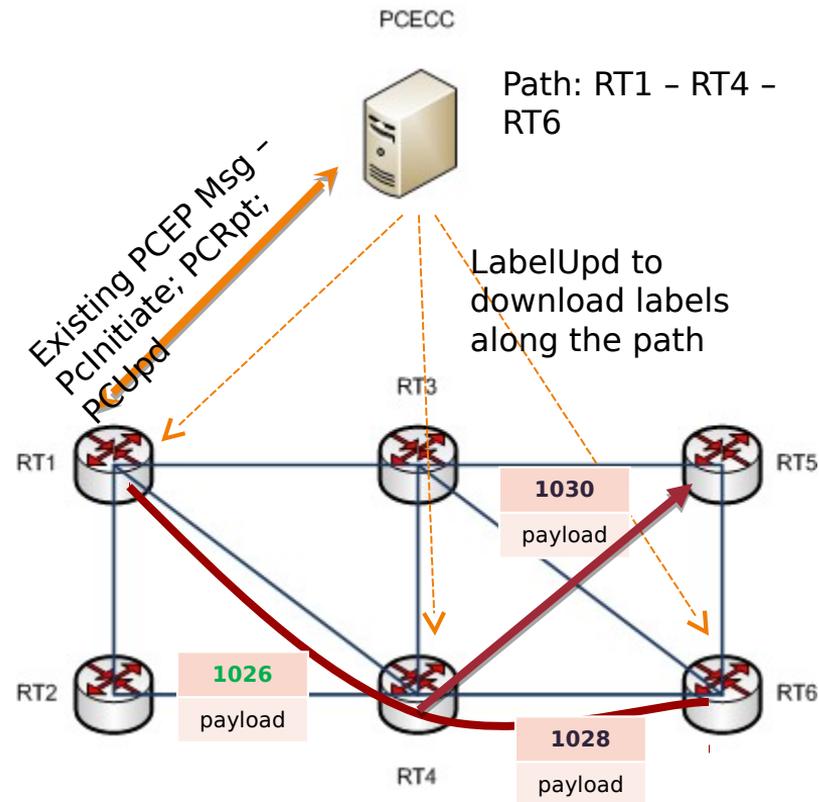
1. Request PCECC to initiate LSP

2. PCECC computes the path and allocates label along the path for each node

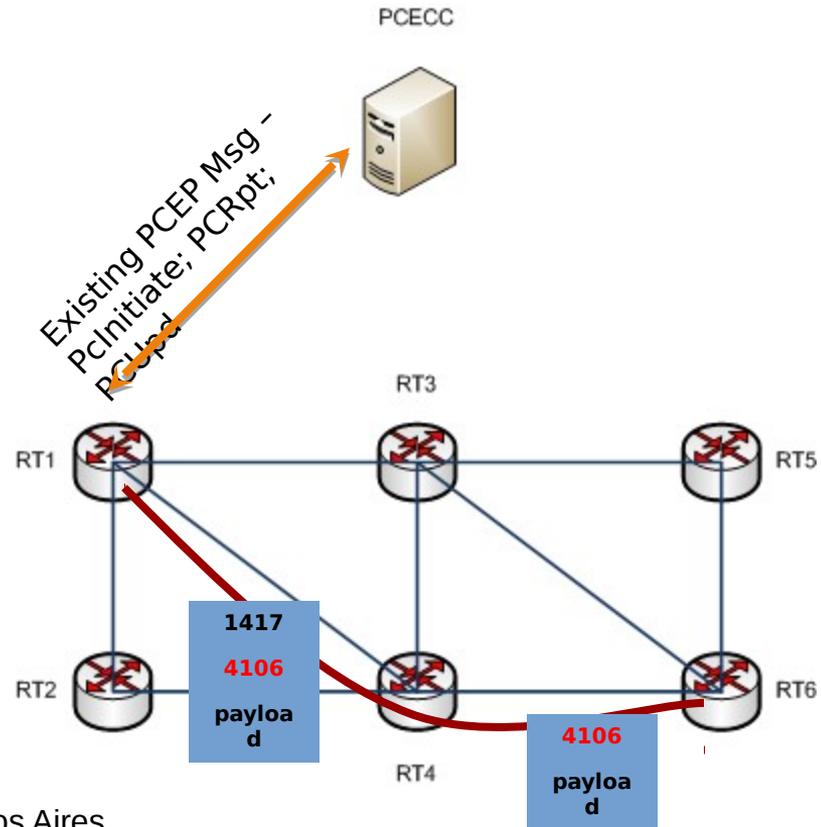
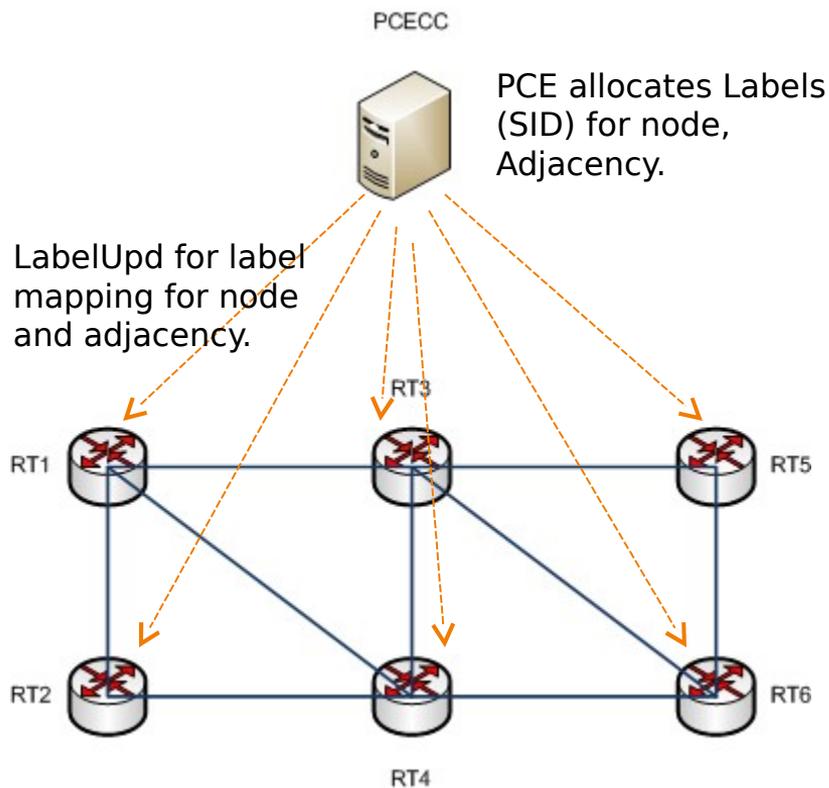
3. PCE sends PCInitiate message to the ingress and Ingress sends PCRpt message back

4. PCECC sends PCLabelUpd to each node (including the branch node) along the path with label information to download

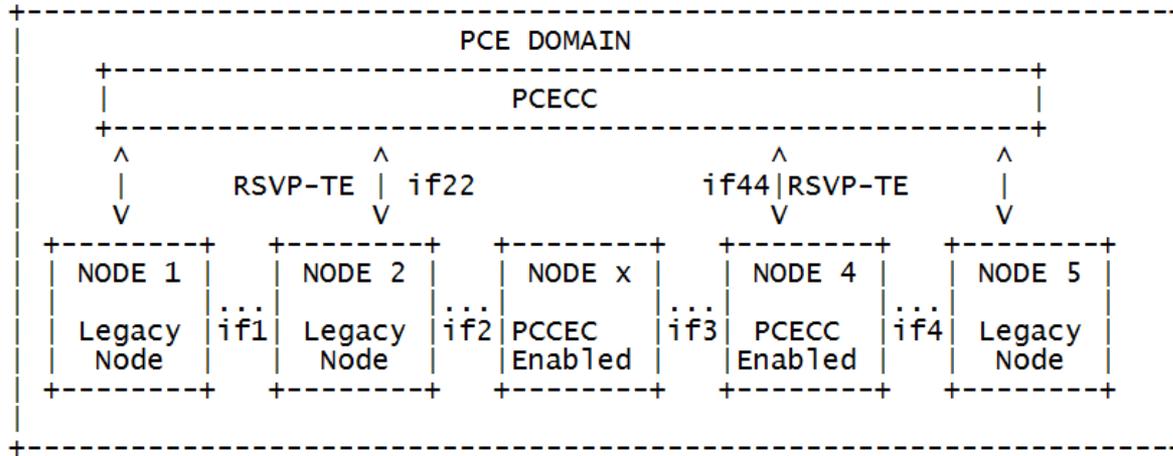
5. PCECC sends PCUpd to the ingress and PCC sends PCRpt back with status-up.



PCECC - SR



PCECC Use Case for SDN Migration



- o Node1 sends a path request message for the setup of LSP which has destination as Node5.
- o PCECC sends a reply message for LSP setup with path (node1, if1), (node2, if22), (node-PCECC, if44), (node4, if4), Nnode5.
- o Node1, Node2, Node-PCECC, Node 5 will setup the LSP to Node5 normally using the local label as normal.
- o Then the PCECC will program the out-segment of Node2, the in-segment of Node4, and the in-segment/out-segment for NodeX.

Next Steps

- Looking for further feedbacks from the working group.
- Add more use cases such as:
 - Using PCECC in a distributed deployment scenarios for the network with large routes in a inter-domain environments
- Add new contributors:
 - After we posed these drafts we have been approached by people working at another PCE vendor saying that they want to get involved, so we hope that they will be able to make contributions to the work in future revisions.

Related Drafts

Experimental I-D. - PCEP Procedures and Protocol Extensions for Using PCE as a Central Controller (PCECC) of LSPs

<http://www.ietf.org/id/draft-zhao-pce-pcep-extension-for-pce-controller-03.txt>

Thanks!