

Native PCE TED

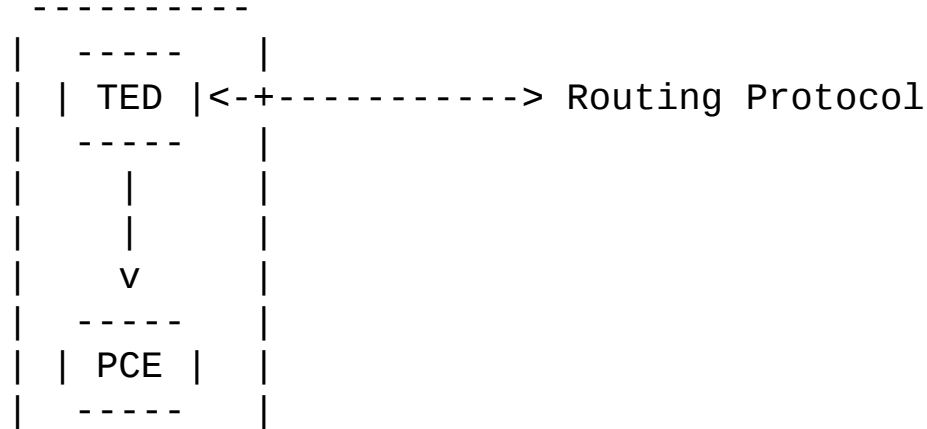
draft-chen-pce-pcc-ted-00

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Introduction

- PCE Architecture in RFC 4655

TED for PCE created using routing protocol



To remove dependency on routing protocol

To have simple and efficient way to create TED for PCE

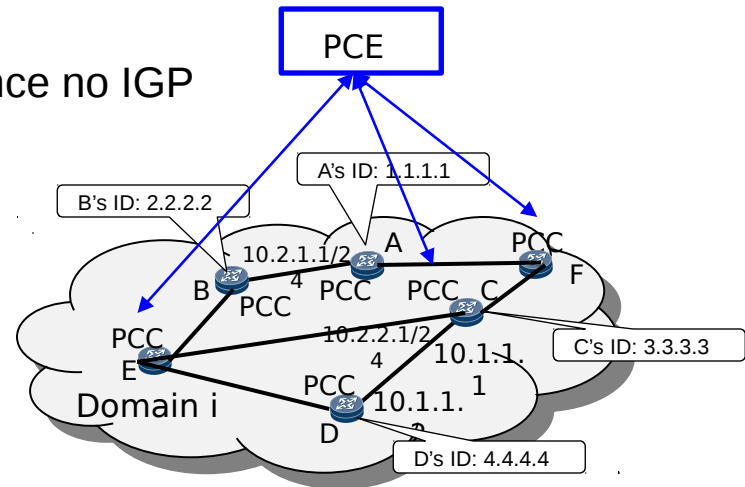
- **Extensions to PCEP for**

- **PCC to advertise info on links attached to node running PCC**
- **PCE for domain to get info and build TED**

Information on Link (no IGP running over it)

➤ P2P Link between node C and D (C's point of view)

- 1) ~~Link Type: P2P~~
~~Link ID (i.e., Router ID of neighbor D) since no IGP~~
- 2) Local IP address: 10.1.1.1
- 3) Remote IP address: 10.1.1.2
- 4) TE metric: 10
- 5) Maximum bandwidth: 100G
- 6) Maximum reservable bandwidth: 100G
- 7) Unreserved bandwidth: ...
- 8) Administrative group: ...



➤ Broadcast Link connecting multiple nodes C, E, ... (C's point view)

- a) Link Type: Multi-access
~~Link ID (i.e., interface address of DR) since no IGP selects DR~~
- b) Local IP address with mask length: 10.2.2.1/24 [changes 2) above]
+ 4), 5), 6), 7) and 8) above

PCC sends PCE info on links

PCE builds TED according to info

Message Extensions

Message Extensions (2 options):

1) Extensions to NOTIFICATION object in Notification (PCNtf) Message (Details below)

New NT and NVs, TLVs in NOTIFICATION Object

2) New Message (Details in Appendix)

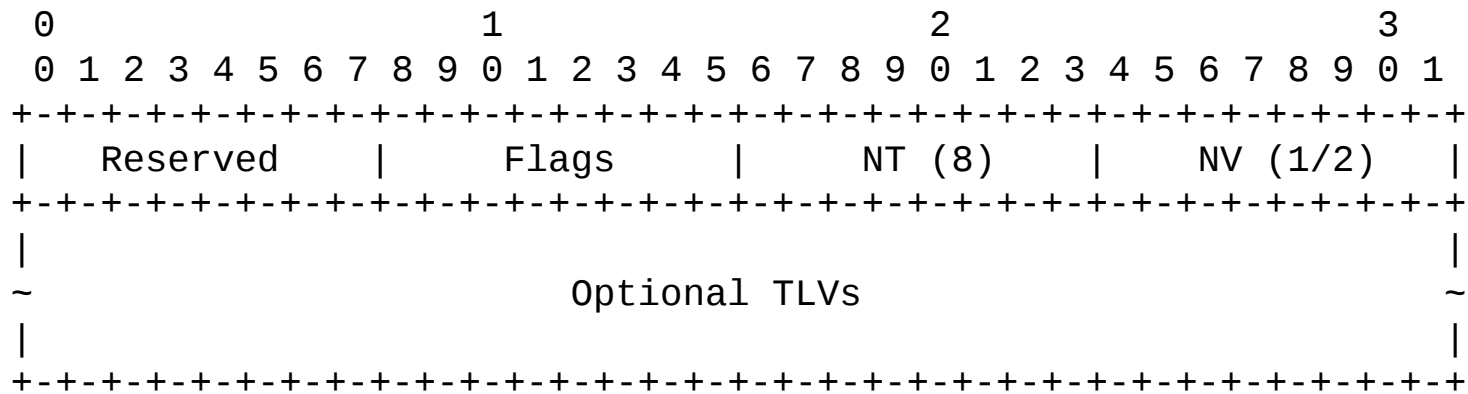
NT=8 (TBD): Links

* NV=1: Updates on Links

* NV=2: Withdraw Links

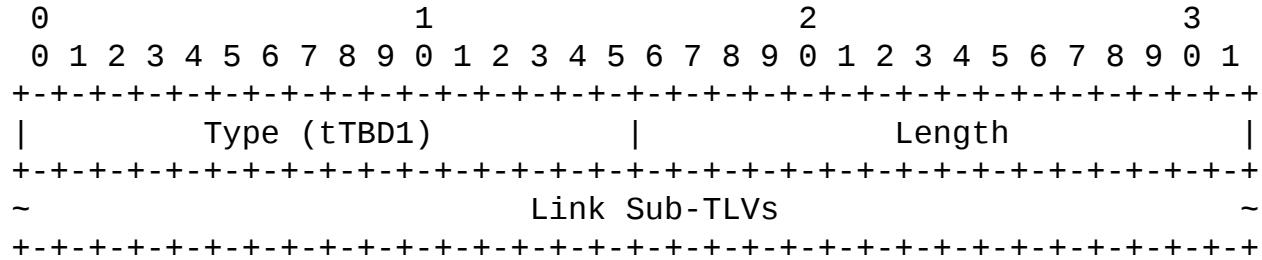
TLVs in NOTIFICATION contains information on Links
(Link TLV, Router-ID TLV)

NOTIFICATION object body:



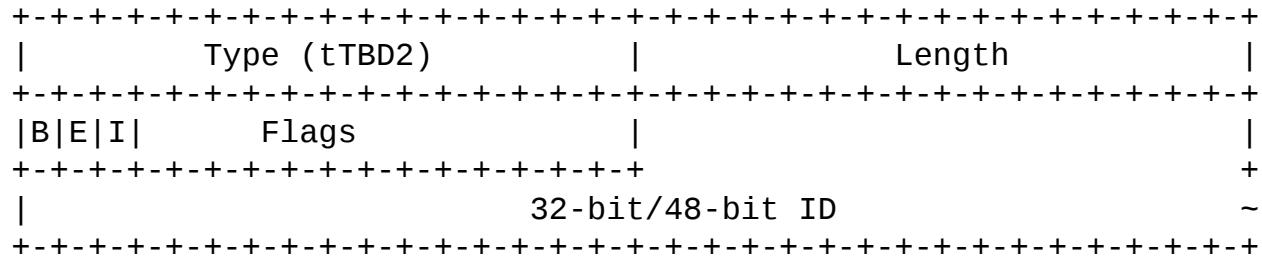
New TLVs and Sub-TLVs

Inter-Domain Link TLV:

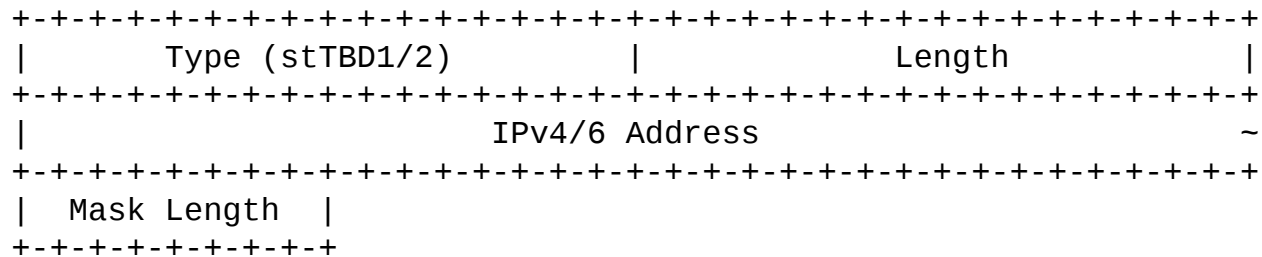


Sub-TLVs are some of those/equivalents in RFC 3630 + one new below

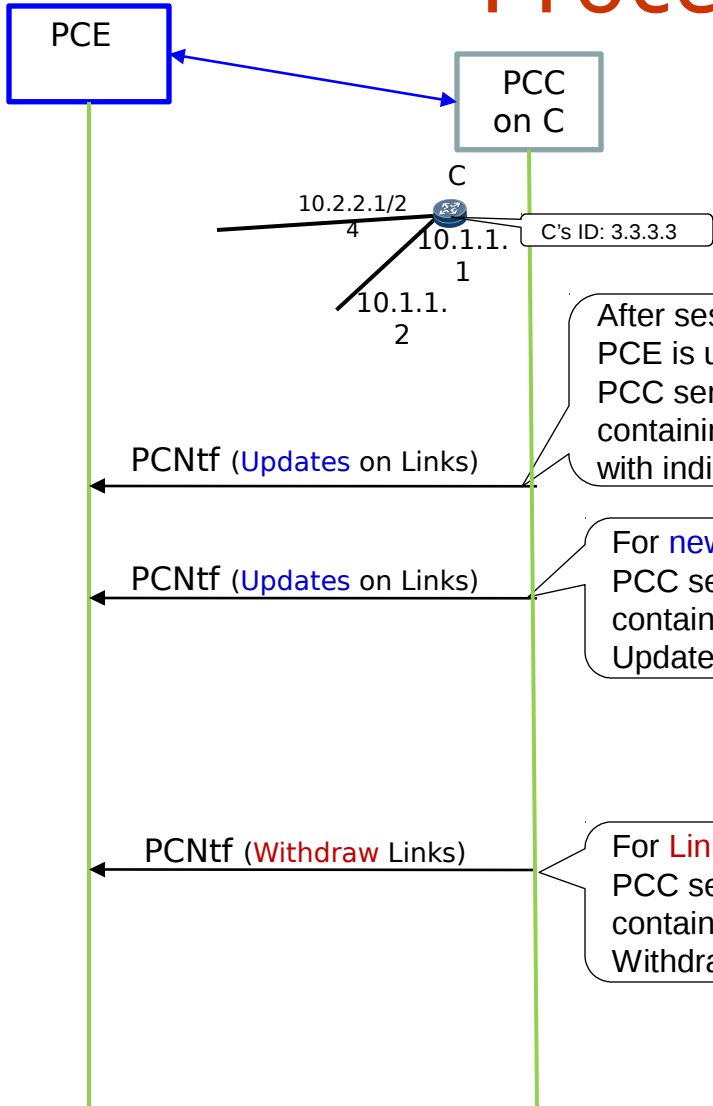
Router ID TLV:



Local IPv4/6 address with mask Sub-TLV:



Procedures – PCC

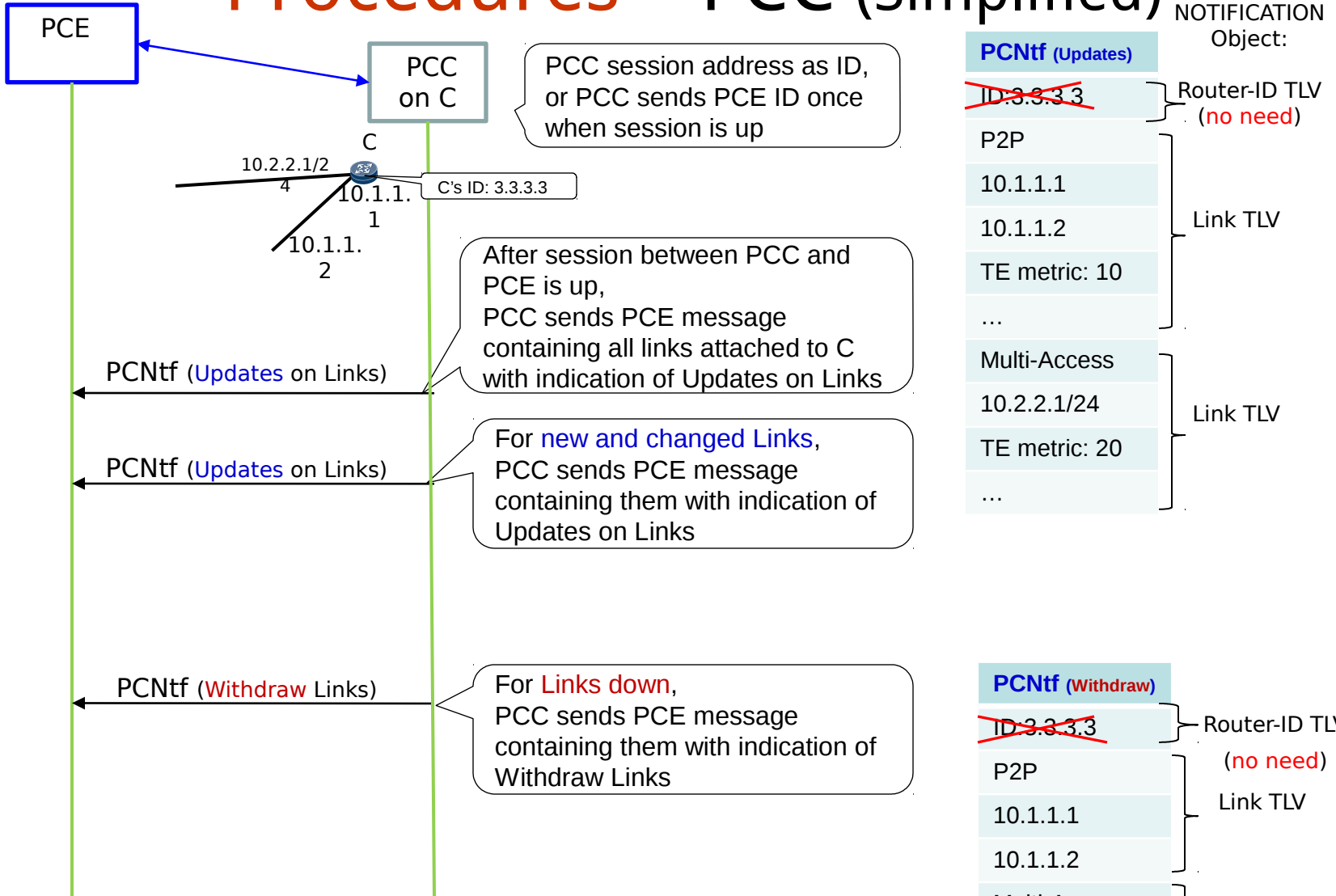


NOTIFICATION Object:

PCNtf (Updates)	
ID:3.3.3.3	Router-ID TLV
P2P	Link TLV
10.1.1.1	
10.1.1.2	
TE metric: 10	Link TLV
...	
Multi-Access	
10.2.2.1/24	Link TLV
TE metric: 20	
...	

PCNtf (Withdraw)	
ID:3.3.3.3	Router-ID TLV
P2P	Link TLV
10.1.1.1	
10.1.1.2	
Multi-Access	Link TLV
10.2.2.1/24	

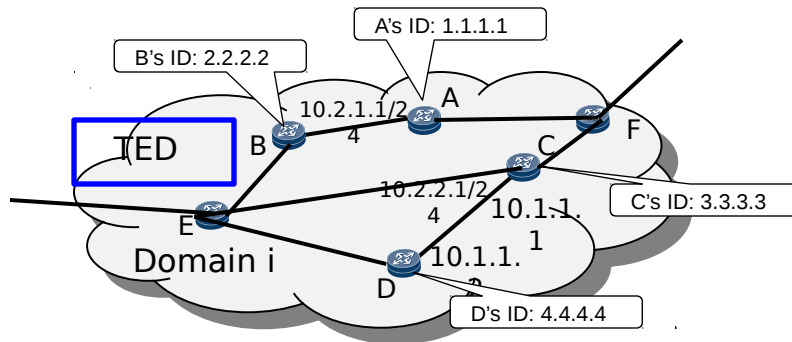
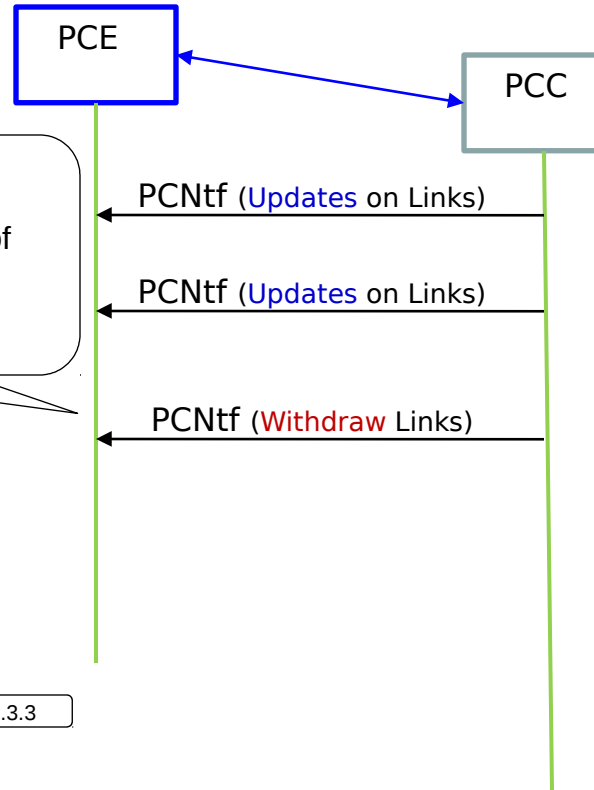
Procedures – PCC (Simplified)



Procedures – PCE

According to messages received, **PCE**

- builds and maintains TED;
- stores and maintains Links for each of nodes in domain it is responsible;
- when a node is down, removes Links attached to the node



Summary

Native PCE TED

- Simple

- Extensions to an existing object
- PCC sends PCE Link Info configured
- PCE builds TED from Info

- Efficient

- Minimum info is sent from PCC to PCE

- No dependency on other routing protocols

Next Step

- Request for comments and suggestions