

# Path Computation Element (PCE) Discovery using Domain Name System(DNS)

draft-wu-pce-dns-pce-discovery-05

Qin Wu (sunseawq@huawei.com )  
Dhruv Dhody (dhruv.dhody@huawei.com )  
Daniel King (daniel@olddog.co.uk )  
Diego R. Lopez (diego@tid.es )  
Jeff.Tantsura@ericsson.com  
IETF 89  
London, UK

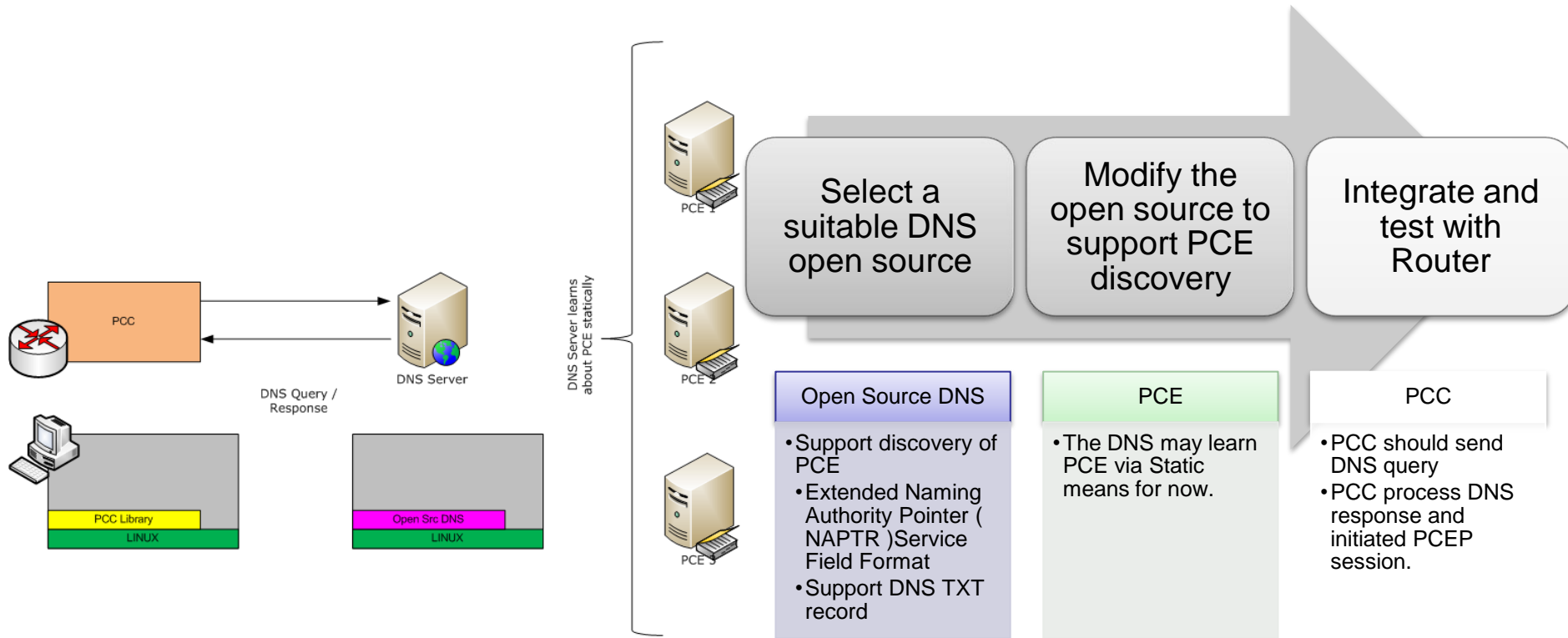
# Recap.

- Gaps exist using IGP based PCE discovery mechanism for:
  - Inter-AS Path Computation
    - PCE in each AS participating in different IGP
  - Hierarchical PCE
    - parent PCEs and child PCEs are not a part of the same routing domain.
  - Northbound distribution using BGP
    - A external PCE doesn't participate in the same IGP
  - SDN Controller/NMS/OSS
    - PCC is Controller/NMS/OSS that doesn't participate in IGP
    - PCE is part of an NMS/OSS that doesn't support IGP and collects topology info from other means.
- Additional benefits of using DNS based PCE discovery
  - Inherent load sharing
  - Avoid generating unwanted traffic due to IGP flooding
  - Flexible for transport protocol selection
  - Feature negotiation

# Status of this I-D

- First presented in IETF 87, Berlin meeting, agreed to address differences between the PCE and DNS domains
- Follow-up in IETF 88 Vancouver meeting
  - Allow NAPTR query for a specific PCE domain by linking PCE domain with DNS domain name (i.e., PCE domain added as subdomain of DNS domain name)
  - Define format of TXT record value field using syntax defined in RFC1464
  - Allow feature Negotiation capability by extending NAPTR service field format
  - Support Discovery of PCE server with TLS support by extending NAPTR transport field format
- The latest Update is v-04, Change compared to v-03:
  - Use “pce+acronym” instead of “pce+apX” in the NAPTR service field format
  - Remove text record format for path computation scope

# Implementation plan for Open Source prototype



# Next Steps

- Well discussed on PCE list
  - Integrated cross WG input
- Plan to propose to Open Daylight (SDO)
- Are other vendors interested in work?
- (Re)requesting WG adoption

Questions?

# DNS Based PCE Discovery

1. PCCs (or other PCEs) first decide in which realm to look for a PCE(search path)
  1. Search path can be preconfigured or discovered using Diameter, DHCP etc.
2. PCCs (or other PCEs) then decide which application id they are interested in and which transport protocol they use
3. PCCs (or other PCEs) then determine PCE address by performing S-NAPTR Query and SRV Query, A/AAA record lookup respectively
4. PCCs (or other PCEs) then determine PCE scope, capability, PCE domain, PCE neighboring domain(s) by using DNS TXT record