Interworking of GMPLS Control and Centralized Controller System

TEAS WG, IETF104, Prague, Czech

draft-zheng-teas-gmpls-controller-inter-work-03

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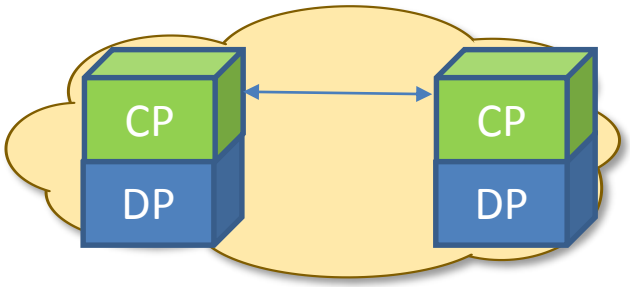
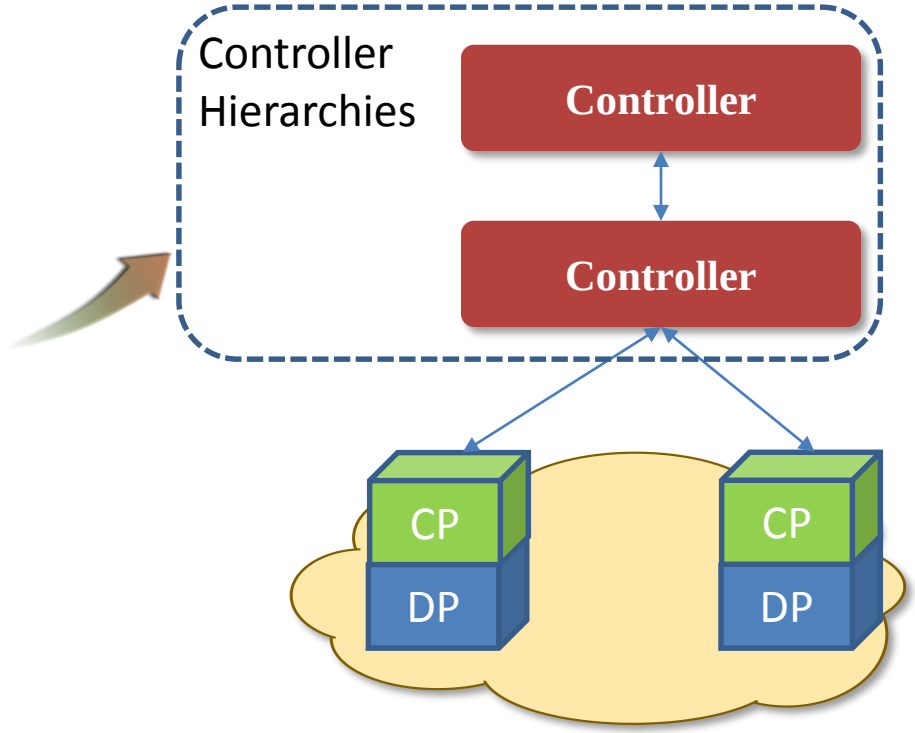
Motivation of this work

DP = Data Plane;
CP = Control Plane (with GMPLS)





GMPLS Control Plane
RSVP-TE
OSPF-TE
LMP

Inter-work?

Centralized Controllers
ACTN Controllers
Netconf/RESTconf+YANG
PCE Protocol

Major Changes since IETF 103

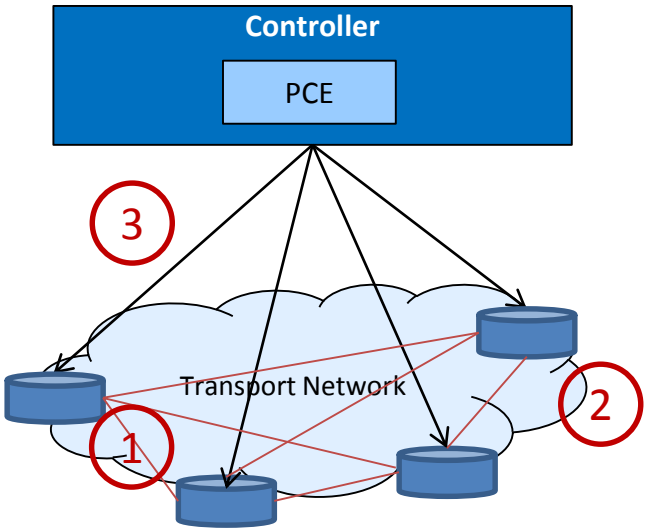
- From -01 to -03;
  - Solve the comments raised by advisor & chairs;
- In particular:
  - In section 2.3 “ACTN” is presented as an example of implementing centralized control, but not the only one;
  - Correcting descriptions on usage of existing solutions;
  - Adding security/manageability considerations;
  - References updated;

Next Step

- Ask for WG Adoption
  - Have received good support at IETF 102/103;
- To address the comments from Lou to provide detailed description in section 7 about scenarios;
  - Chairs agreed to address after WG adoption;

FOR BACKUP USE

Topology Discovery Scenario



IF Type:	Topology Initiation	Topology Update (e.g. add one node)
1	LMP	Number of LMP message: increase accordingly
2	OSPF (ISIS)	Message: each message will flood additional info
3	PCEP/ Netconf	New PCEP session from new node to PCE; / Need new message to configure the new node; Database will be updated

Interface Type

1. Neighbor Level: Local Resource Discovery (e.g. LMP)
2. NE Level: Topology Discovery with Flooding of Information among NEs (e.g., OSPF-TE)
3. From PCE/Controller to NE: Interaction between PCE/Controllers to NE

Service Provisioning Scenario

Service Provisioning Decomposition:

1. Step: Path Computation -> Path Establishment -> Database (NE/CTRL)update
2. Mode: Computation & signaling can be either centralized or distributed

	Distributed Control Plane	Centralized Path Compute + Distributed Signaling	Centralized Path Compute + Centralized Signaling
Path Compute	OSPF	PCEP/Netconf(Restconf)	PCEP/Netconf(Restconf)
Path Set up	RSVP	RSVP(inter-NE, IF#2)	PCEP/Netconf(Restconf)
Resource Update	OSPF	OSPF(inter-NE, IF #2) PCEP-LS/Netconf (IF#3)	OSPF(inter-NE, IF #2) PCEP-LS/Netconf (IF#3)
IETF Ref	RFC3473 RFC4203 RFC4872/3/4	RFC4203 RFC3473 RFC8281 RFC6241,RFC8040	RFC 4203 RFC8283, RFC6241,RFC8040