Interworking of GMPLS Control and Centralized Controller System

CCAMP WG, IETF102, Montreal, Canada

draft-zheng-ccamp-gmpls-controller-inter-work-02

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Motivation of this work

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

| GMPLS Control Plane	Centralized Controllers
RSVP-TE	ACTN Controllers
OSPF-TE	Netconf/RESTconf+YANG
LMP	PCE Protocol
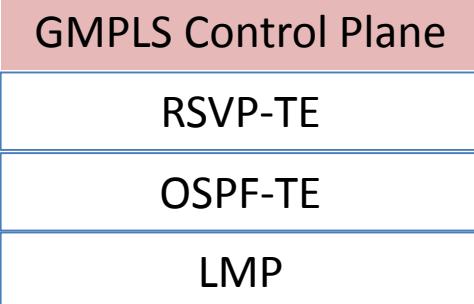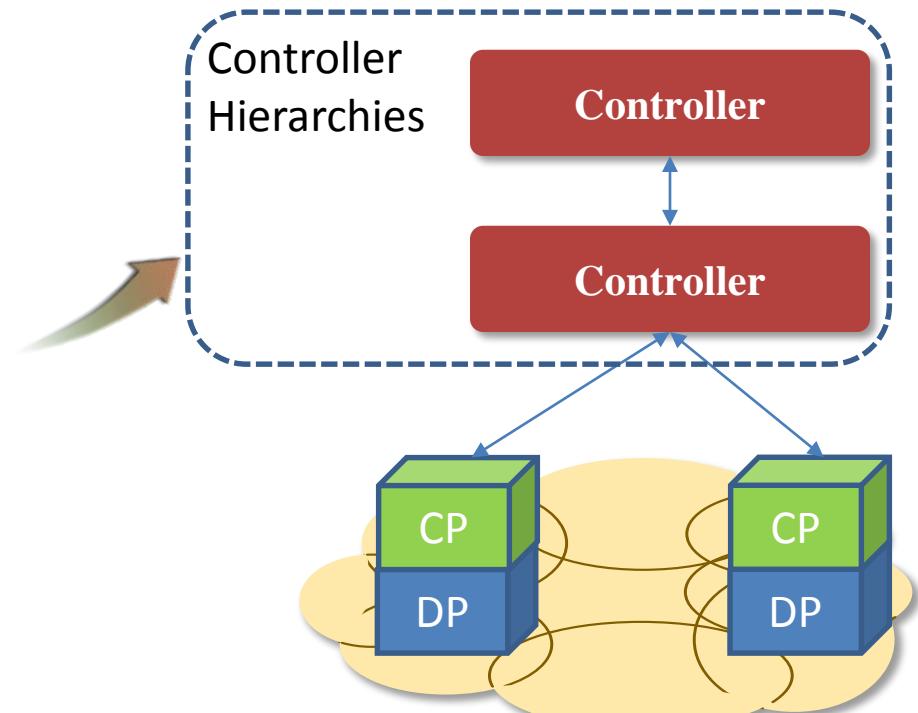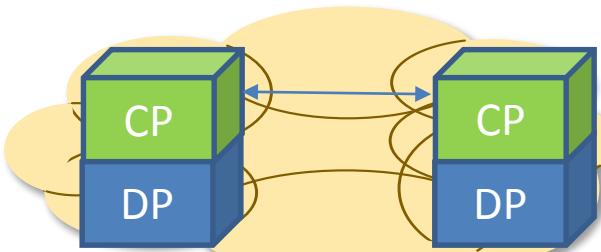
Inter-work?
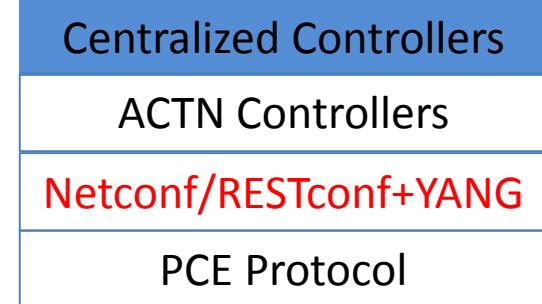
Major Changes since -01

- Two new co-authors added
- Abstract polished to better summarize the content
- More detailed description provided regarding the usage of Netconf/RESTconf in conjunction with IETF YANG models in mixed multi-domain scenarios
- Path computation session updated with the focus on optimal path computation in multi-domain in order to overcome the limitations of abstraction
- Paragraphs on existing GMPLS protocols improved
- References updated

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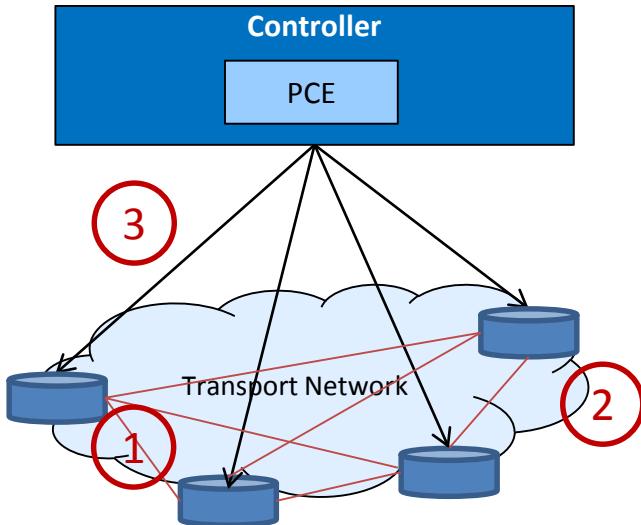
IF Type:	Topology Initiation	Topology Update (e.g. add one node)
1	LMP	Number of LMP message: increase accordingly
2	OSPF (ISIS)	Message: each message will flood additional info
3	PCEP/ Netconf	New PCEP session from new node to PCE; / Need new message to configure the new node; Database will be updated

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, RFC4872/3/4	RFC8281 RFC6241,RFC8040	RFC8283, RFC6241,RFC8040

Summary & Next Step

- Have received good support at IETF 101
  - Consensus on co-existence and interworking between distributed and centralized control
  - Open to suggestions regarding more detailed descriptions of scenarios and protocols involved

- Ask for WG Adoption