

ACTN Information Model

draft-leebelotti-teas-actn-info-01

IETF 94 – Yokohama

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Why an information model?

- The aim of this draft is to provide a conceptual view of the information needed to be exchanged on the defined ACTN interface to cover the requirements contained in <http://datatracker.ietf.org/doc/draft-ietf-teas-actn-requirements/>
- This to prevent ambiguity when a specific data model/protocol will be used to implement the ACTN interfaces since interface implementation is derived from the same semantics.
 - All ACTN interfaces (e.g., MPI&CMI) and derivative thereof could be implemented with **one common model**

ACTN Model

- The model is described in terms of
 - **Action Primitives** : they are basic actions needed to support different ACTN network control functions e.g. network topology retrieve , VN service creation/deletion/modifications, path computation, VN service policy negotiation/enforcement
 - **Objects and their properties (attributes)** : the object represents ACTN resources needed to be exchanged along interfaces and used in the context of primitives.

Action Primitives

VN Action	Description
VN Instantiate	Customer/application (C/A) requires their VNs (1)
VN Modify	C/A request for modification of an VN (1)
VN Delete	C/A request to delete a VN (1)
VN Path Compute	C/A request for a priory exploration to estimate network resource availability before making a VN instantiate decision (1) (2)
VN Query	Permit to get topology view (pull model)
VN Update	Refers to any update to the VN that need to be reported to the subscribers (push model)

(1) This primitive can also be applied from an MDSC to a PNC requesting a VN (if the domain the PNC supports can instantiate the entire VN) or a part of VN elements

(2) This action is also necessary for an MDSC to PNCs in determining end-to-end multi-domain paths, in this case a double-stage PC is first on the abstracted end-to-end network view (happening at CNC-MDSC), and on the second stage it shall be expanded by each PNC.

Objects

Objects	Description
VN Identifier	Unique VN identifier
VN Topology Metric	Describe requirements, characteristics of VN that C/A want to instantiate
Traffic Matrix	Describes connectivity-level attributes to be conveyed by CMI/MPI , End-Point List , Connectivity Type, Connectivity Metric (BW, latency, Latency-variation, Packet-Loss)
VN Suvivability	VN protection attributes and suvivability policy enforced by C/A e.g. Local Reroute Allowed, Push Allowed, ...
VN Action status	Result of a VN action
VN Topology	Details TBD
VN Connectivity Topology	It refers to instatiated VN property (not only links/nodes also LSP connection istantiated is considered)
VN Service Preference	It refers to End Point Location's support for certain VNF (security, firewall) , client-specific preference enforcement to permit correct selection from the network of the destination related at the indicated VNF .

Interface Recursiveness

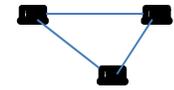


Next Steps

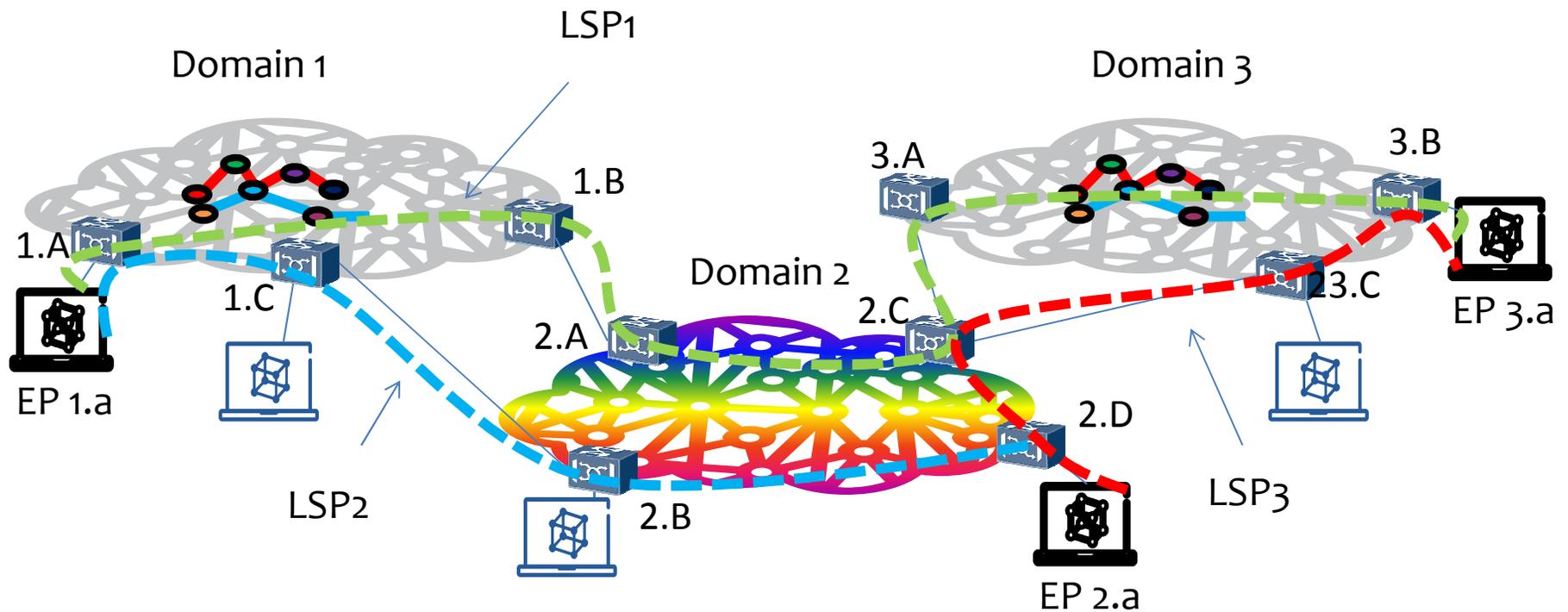
- Consolidate the draft with mapping of objects to specific action primitives.
- Valuate completeness of the model against introduction of new missing objects.
- Assure consistency between topology related primitives/object and teas topology Yang models.
- **Begin to work on solution drafts based on the info model.**

BACKUP

How to represent a VN



VN Traffic Matrix is a set of E2E connectivity (in a simplest form)



- Need a unique VN ID to which three LSPs belong.
- Three End-to-End LSPs:
 - LSP1: {EP1.a- 1.A- 1.B- 2.A- 2.C- 3.A- 3.B- EP3.a}
 - LSP2: {EP1.a- 1.C- 2.B- 2.D – EP2.a}
 - LSP3: {EP2.a – 2.D- 2.C- 3.C – 3.B – EP3.a}