

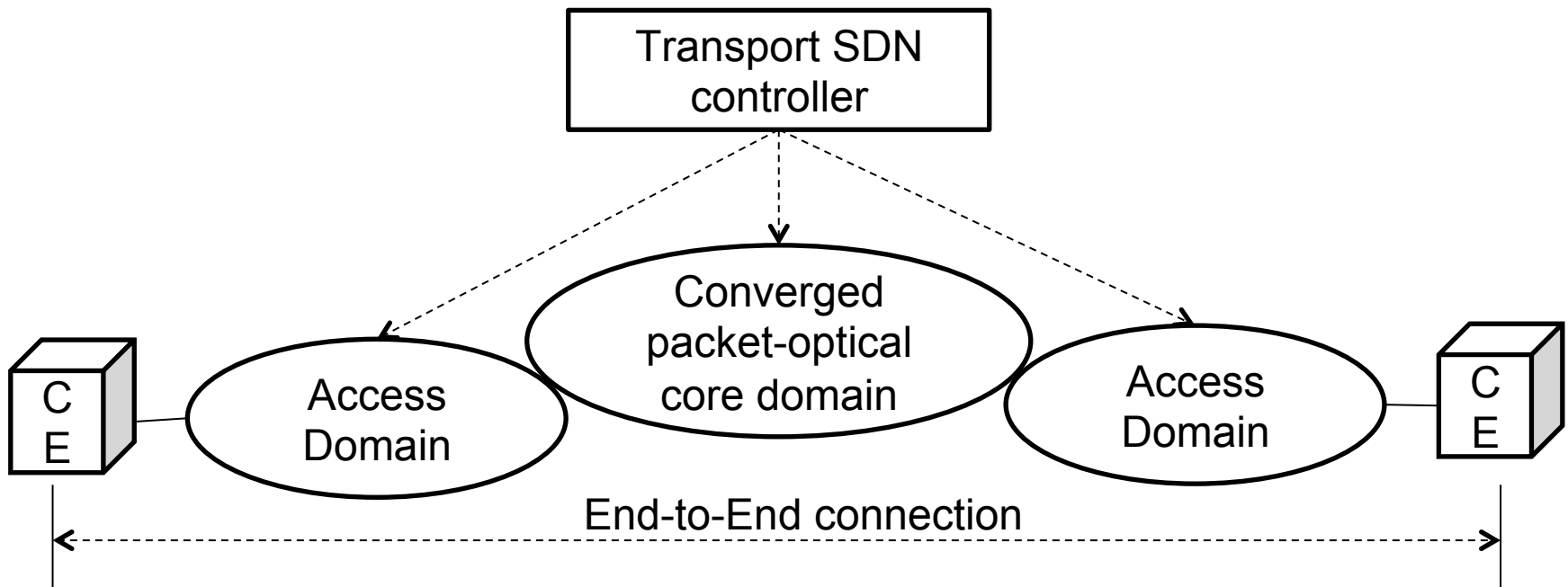
ACTN Use-case for On-demand E2E Connectivity Services in Multiple Vendor Domain Transport Networks

draft-lee-actn-connectivity-multi-vendor-domains-01

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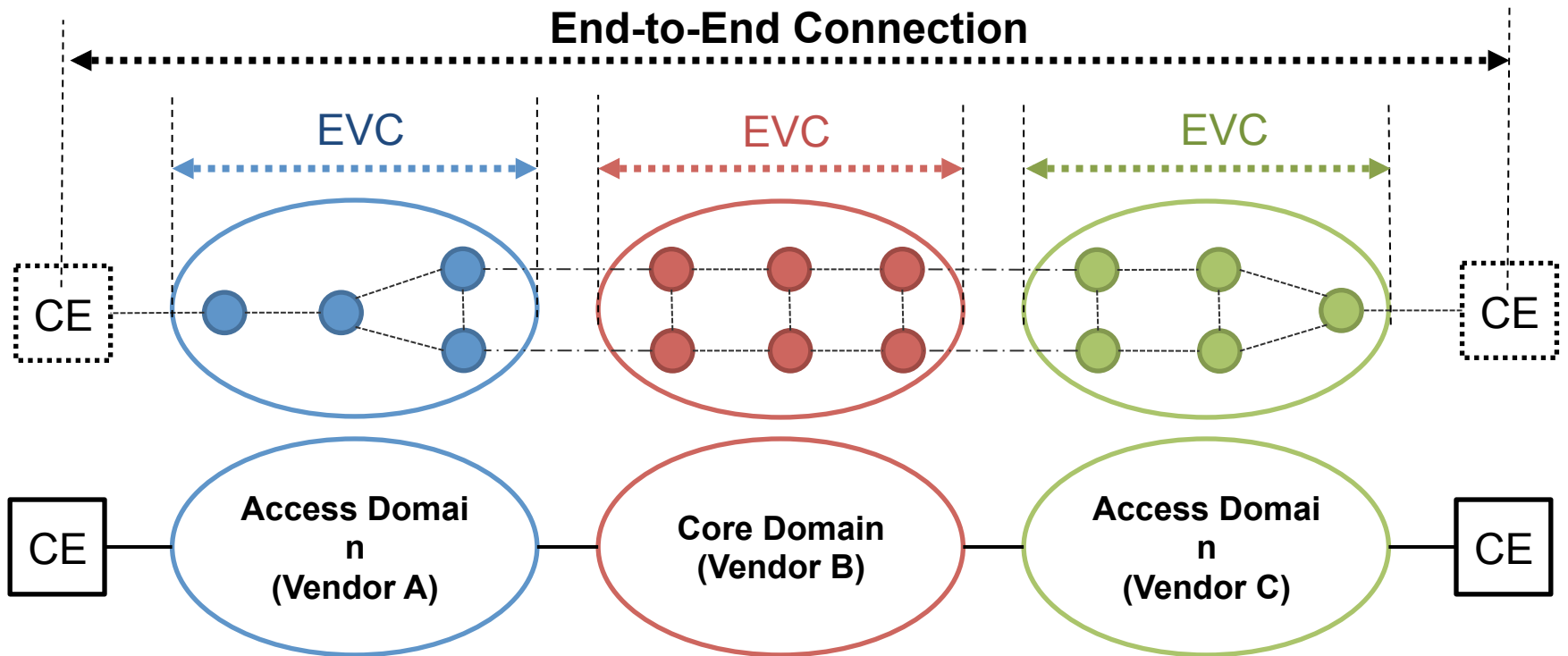
Transport SDN Strategy

- Transport SDN (PTN/OTN)
 - Centralized Control (TCO reduction)
 - E2E On-Demand Provisioning (New Business)



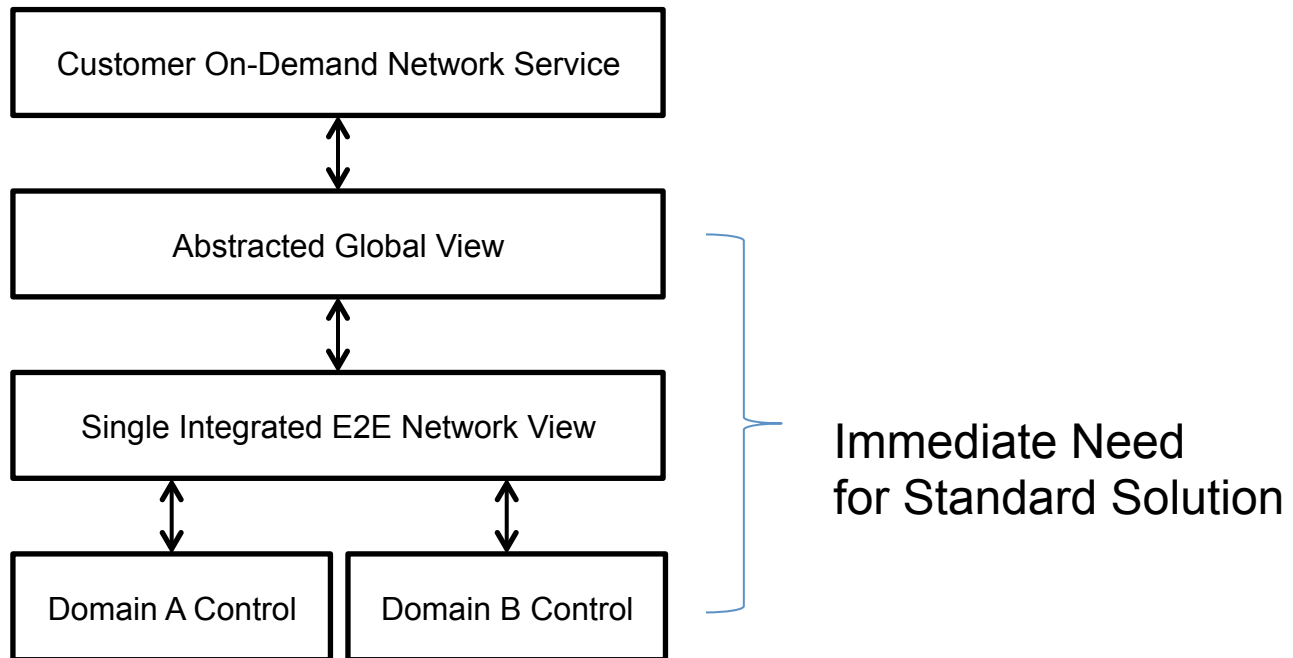
Problem of Current Transport Network

- Vendor's EMS/NMS only provides topology management and path provisioning within its own domain.
- How to establish E2E connection across multiple vendor domains?



Information Flow Requirements

- ACTN Use-case Information Flow Requirements
 - ACTN can solve the interoperability problems between multiple vendor domain transport networks



High-level Requirements

- Single Integrated E2E Network View
 - collect domain-level data such as topology and capability.
 - compute paths and provision the end-to-end paths that traverse multiple vendor domains.
 - coordinate a signaling flow for end-to-end connections to each domain involved.
- Domain border information
 - discovery of inter-connection information such as domain border nodes and links between each domain.
 - should recognize interoperability method between each domain.

High-level Requirements

- Programmable API
 - Need to common API for on-demand connectivity service
 - Following items are required:
 - Abstraction of network resource (e.g. topology, inter-domain gateway)
 - Physical network constraints (e.g. SRLG, link types)
 - Domain preference and local policy (e.g. operator's policy)
 - Domain network capability (e.g. support of push/pull model)

Virtual Network Operation for Multiple Domain in a Single Operator Network

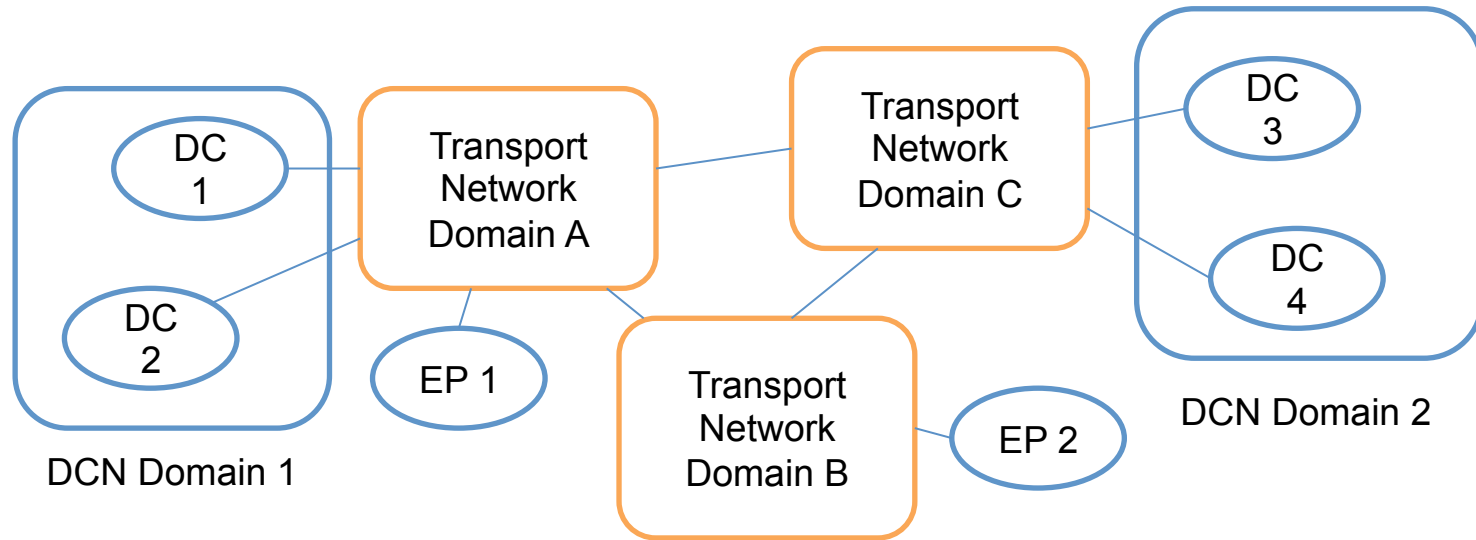
draft-lopez-actn-vno-multidomains-00.txt

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Overview

- We have a similar use-case with KT, but with different contexts/scenarios.
- We have global network operations in different continents dealing with different transport domains (internal/trusted) f or end-to-end connectivity.

Global Network Operation



- Heterogeneous domains:
 - Transport Technology (MPLS-TE/TP, OTN, WSON, etc.)
 - Domain Control (SDN for DCN, GMPLS/PCE for some transport domains and EMS-based for other transport domains)
 - Vendor Domain
 - Administration Domain (A, B, C belong to different admin under Telefonica)
- Dynamic Reconfiguration Requirement
 - End-to-end coordination, End-to-end resource view, domain-boundary info

Our Goal

- The creation of a virtualized environment allowing operators to view the abstraction of the underlying multi-admin, multi-vendor, multi-technology networks
- The operation and control/management of these multiple networks as if it is a single virtualized network.

How can we get there

- We need a control hierarchy
 - A central global control interfacing domain controls
- We need a common resource abstraction model from each heterogeneous domain control
- We need a common control mechanism that support:
 - End-to-end Path computation
 - End-to-end Connection with dynamicity requirements
 - End-to-end Connection Life Cycle Management
 - End-to-end Path Rerouting

Thank You!