Inter-op Test cases in multi-vendor scenario based on ACTN Architecture

TEAS WG, IETF 97th, Seoul, Korea

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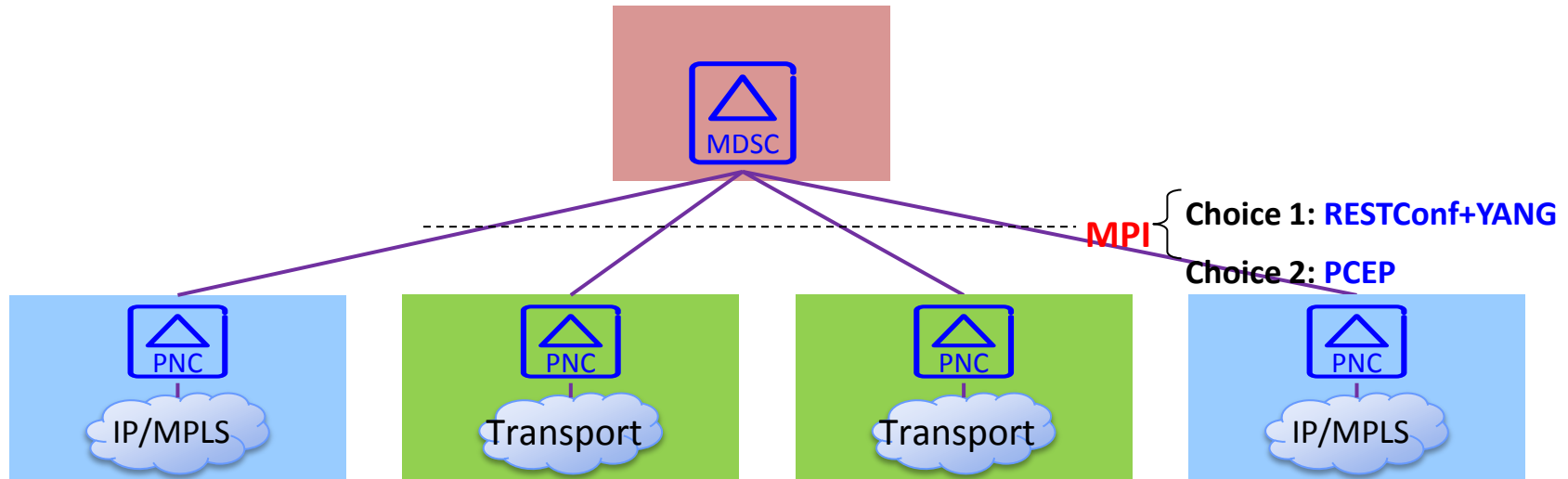Jong Yoon Shin (jongyoon.shin@sk.com)
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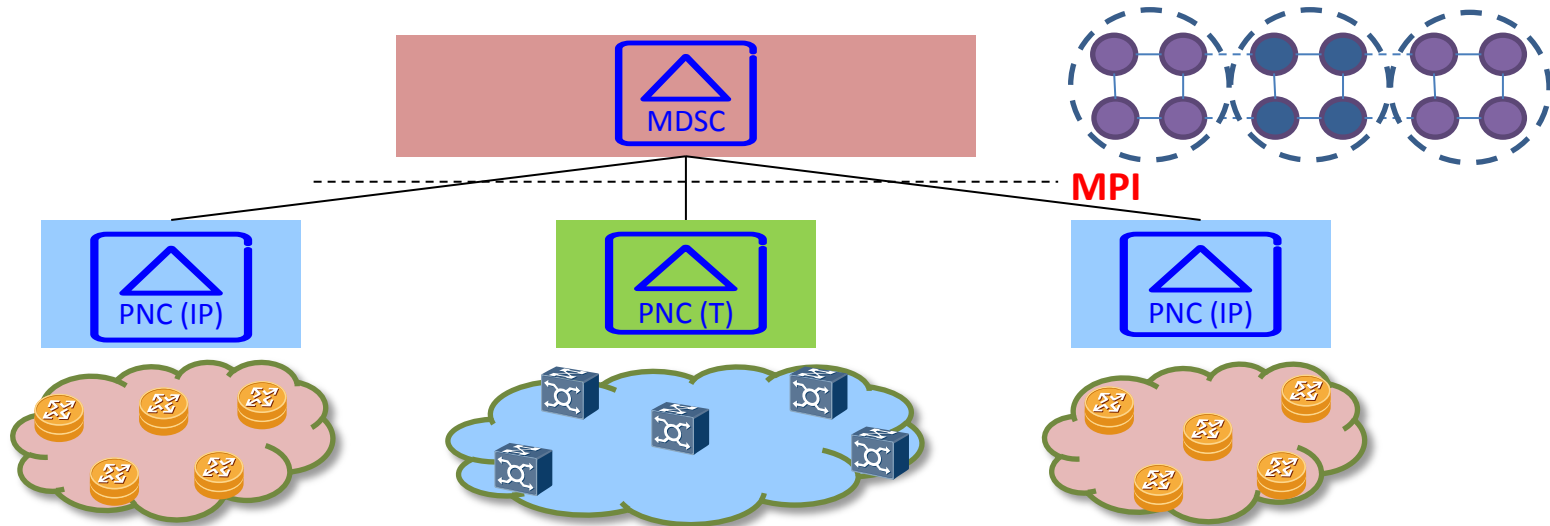
Inter-op test introduction

- Based on **Emulators**;
- Inter-op focused on **ACTN MPI**:
  - Operators are welcomed to discuss or develop their own MDSC;
  - Vendors are expected to have PNC and device emulators with corresponding solution on Southbound Interface
- Multi-layer, multi-domain and multi-protocol is supported;

Related IETF work

- ACTN:
  - draft-ietf-teas-actn-requirements
  - draft-ietf-teas-actn-framework
- Applicability:
  - draft-zhang-teas-actn-yang
  - draft-dhody-pce-applicability-actn
- Yang model (with RESTconf)
  - For Topology: Based on draft-ietf-teas-yang-te-topo-04
  - For Services: Based on draft-zhang-teas-transport-service-model-00
- PCEP:
  - For Topology: draft-dhodylee-pce-pcep-ls-04
  - For Services: draft-ietf-pce-pce-initiated-lsp-05/draft-dhodylee-pce-stateful-hpce
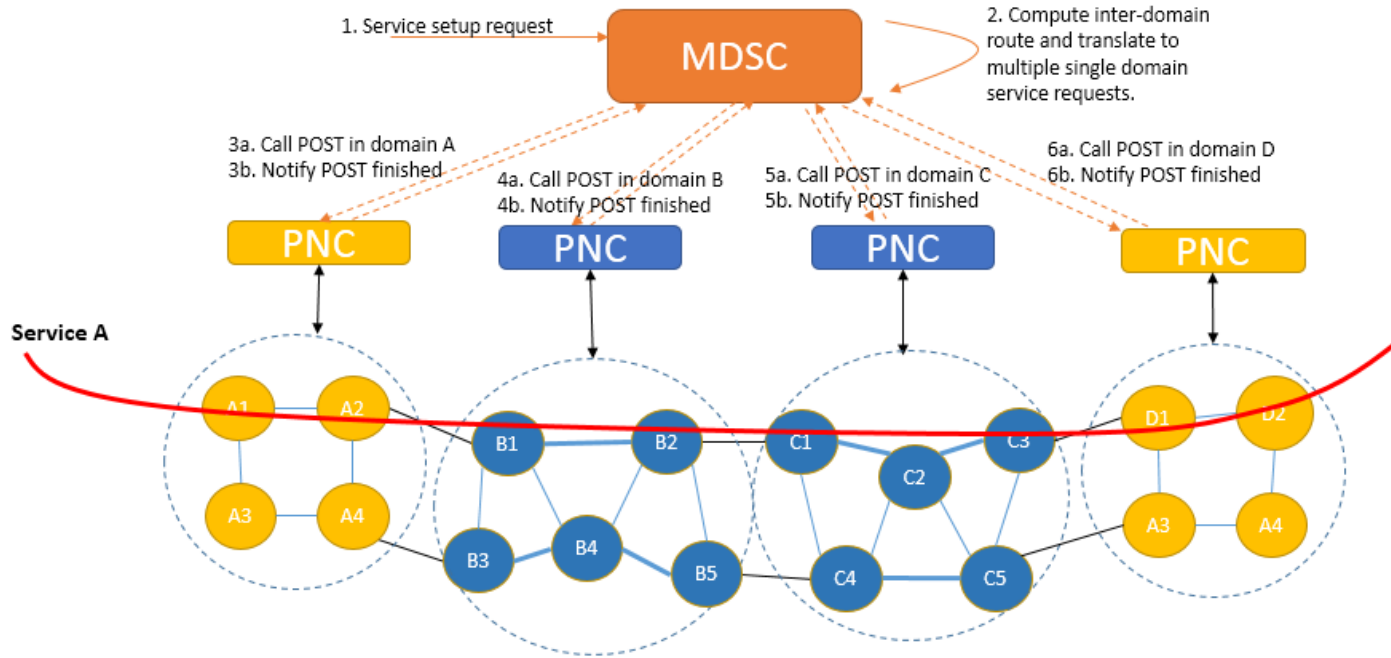
ACTN Test Case (1) – Topology Abstraction

MPI

> **Topology Abstraction Steps:**

- Preparation (respective TED & Abstraction Algorithm as per PNC):

- Each PNC report abstracted topology to MDSC; MDSC create its TED;

  - RESTconf: Get message with topo model for initial topo, with notification on changes;

  - PCEP-LS: LSRpt message for both initial topology and changes;

- MDSC need to detect the cross-domain link, and stitching to get full topology;
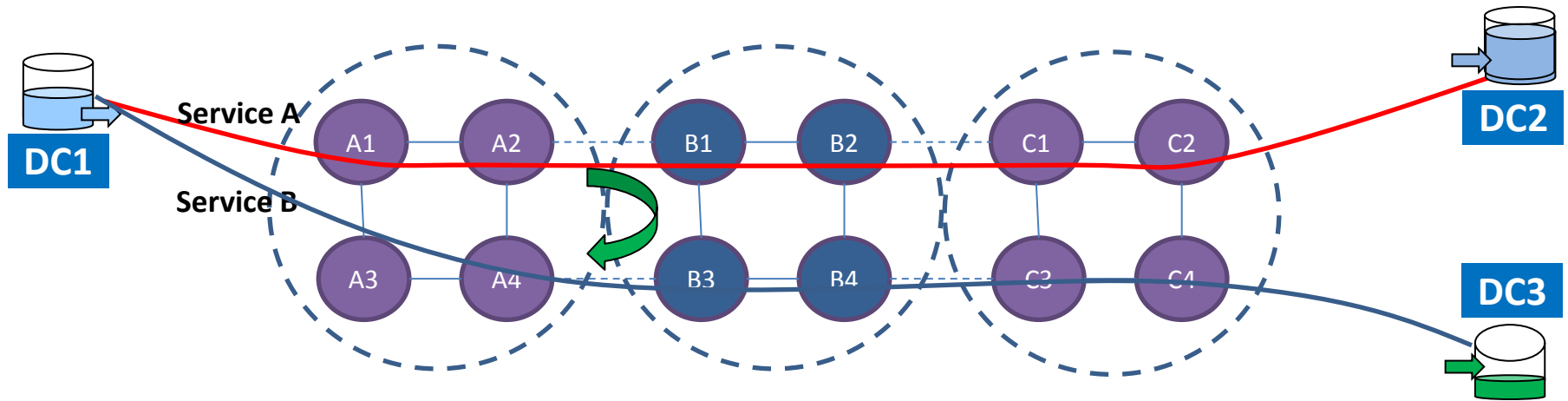
ACTN Test Case(2) – E2E Service Provision

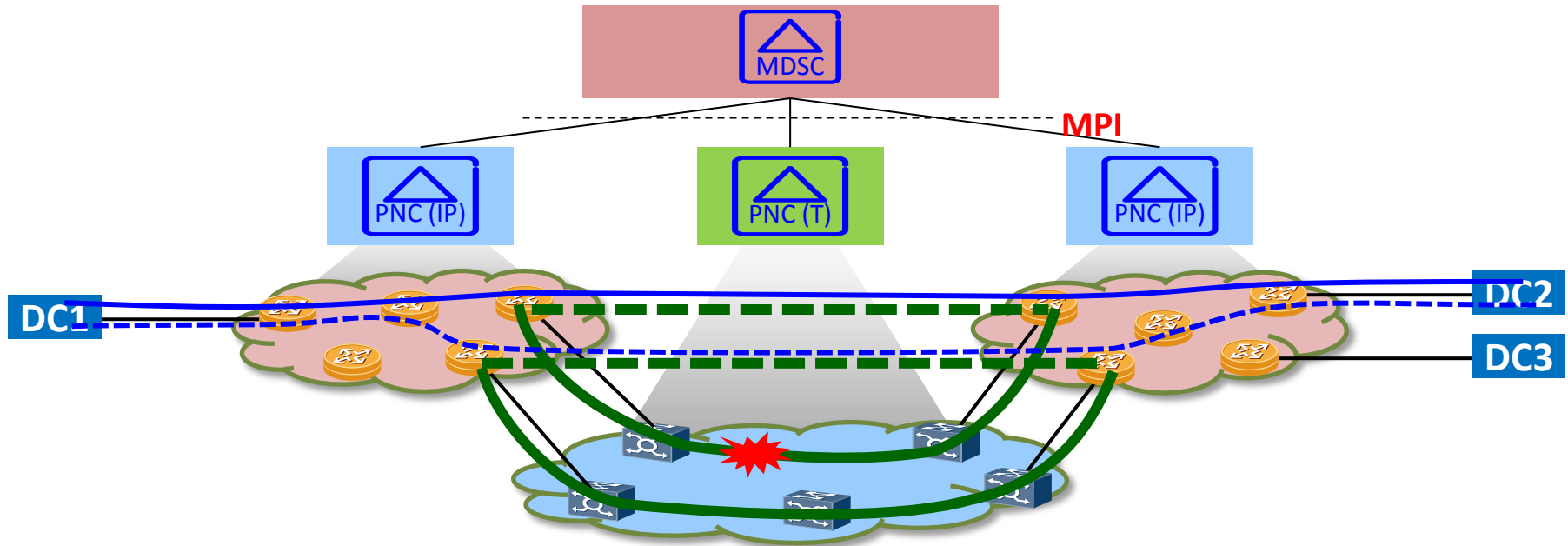- **Service Provisioning Steps:**
  - MDSC initiate a service provisioning request;
    - RESTconf: POST message with Service YANG model;
    - Use Hierarchical PCInitiate for PCEP;
  - Each PNC compute intra-domain path, and establish it respectively;
    - Process is domain-specific, report to MDSC via standard HTTP message;
  - MDSC should have DELETE operation;

ACTN Test Case(3) – Bandwidth Adjustment

- Bandwidth adjustment Steps:
  - Set up two 'existing' LSPs, say 30G and 10G respectively;
  - Update the bandwidth for two LSPs:
    - RESTconf: PUT message with Service model;
    - PCEP: PCUpd and PCRpt message;
  - Looks like a 'DC load balance';

ACTN Test Case(4) – Inter-domain Restoration

- Inter-domain Restoration Steps
  - Create one service between DC1 and DC2;
  - Detect a 'failure' in transport domain, and assume there is not enough resources to do intra-domain restoration; need to report to MDSC;
  - MDSC create backup inter-layer paths based on failure notification;

Future work

- Future Work:
  – Continue our job on inter-op test;
  – Result will be published in ACTN wiki after IETF: https://sites.google.com/site/openactn/interoperability-demo/multi-vendor-inter-op-test ;
  – We are willing to see interests and partners to work together.

- Comments?

THANK YOU!

BNB DEMO AVAILABLE ON THURSDAY NIGHT!