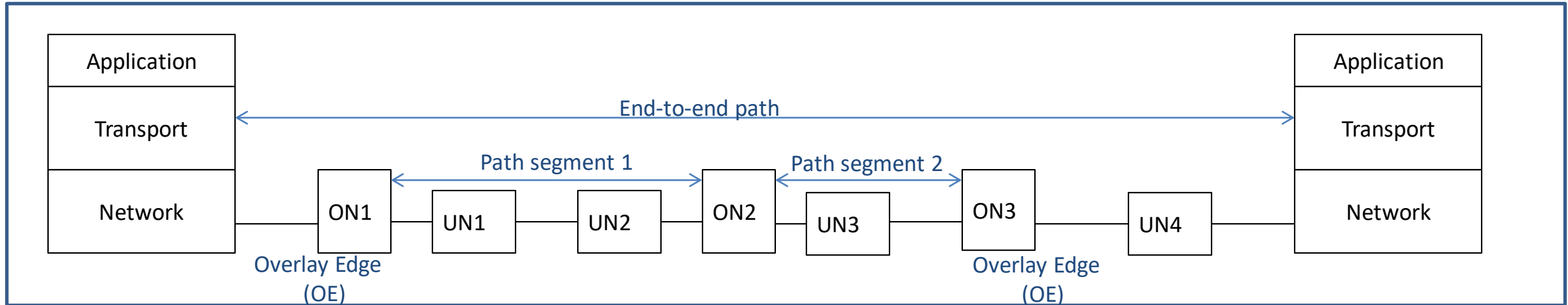# Localized Optimizations
On Path Segment (LOOPS)

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Localized Optimizations On Path Segment (LOOPS) to provide local (ON to ON) best-effort reliability

ON - Overlay node
UN - Underlay node

Application

Transport

Network

End-to-end path

Path segment 1

Path segment 2

ON1

UN1

UN2

ON2

UN3

ON3

UN4

Overlay Edge (OE)

Overlay Edge (OE)

Application

Transport

Network

Background and Opportunities:
- Performance enhancing proxies (PEPs, RFC 3135) is coming to an end with increasing deployment of encryption
- Network nodes including virtual nodes are becoming powerful, viable to trade processing power against path/segment quality

What is LOOPS trying to do?
- Capture those opportunities to provide the optimization within segments of e2e path.

LOOPS main feature: Local in-network recovery, retransmission and/or FEC

Elements of a LOOPS solution
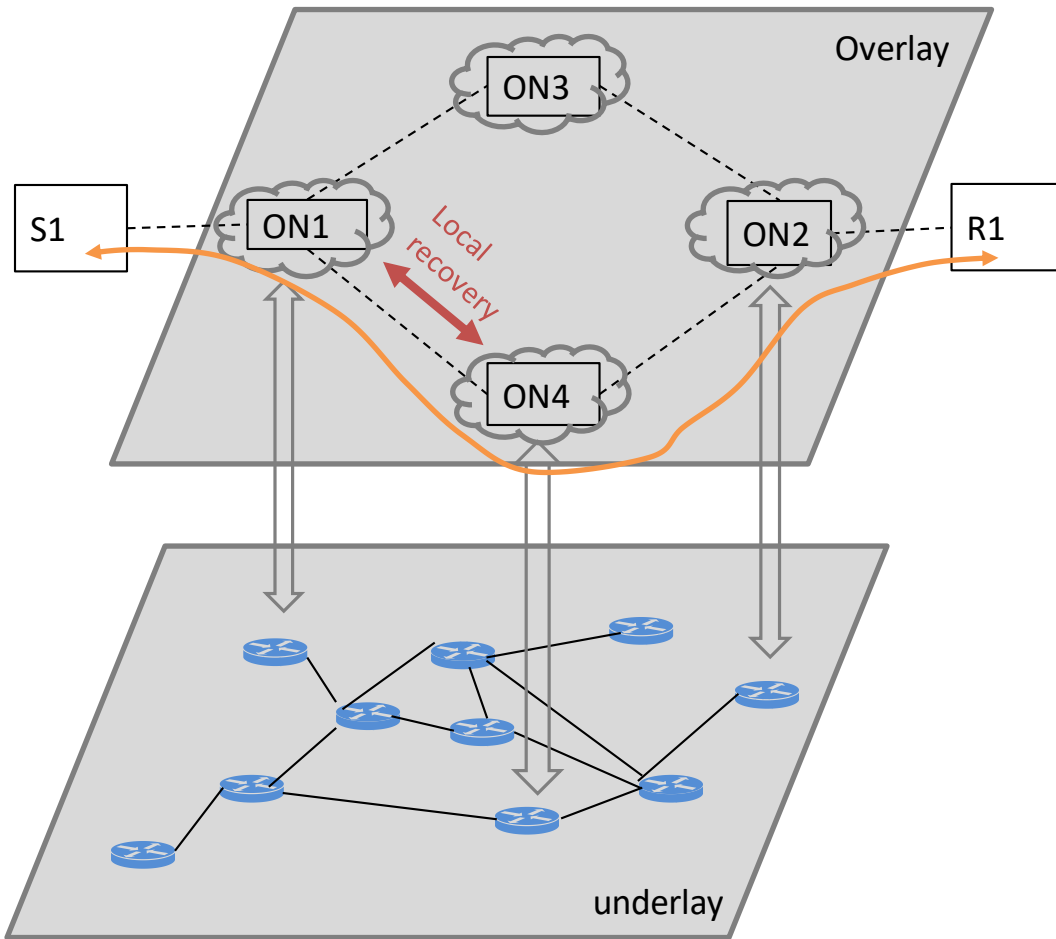
1. Local recovery
   - Aggregated flows in a tunnel
   - Loss detection
   - Local retransmission and/or FEC
2. Local measurement
   - Segment delay/variation
   - Help decide whether a packet was lost due to local congestion
3. Congestion control interaction
   - Use ECN for congestion caused loss
   - Benefit the non-congestion loss most

Side meeting

- Title: Localized Optimizations On Path Segment (LOOPS) Discussion
- Time: Wednesday (March 27) 13:45-14:45 (14:45-15:00 as buffer)
- Room: Athens/Barcelona
- Purpose: discuss problems and opportunities; are we ready for a BoF?
- Related drafts:
  - LOOPS Problem Statement and Opportunities(draft-li-tsvwg-loops-problem-opportunities-01)
  - Sub-path Transport Layer Problem Statement (https://tools.ietf.org/html/draft-herbert-sub-path-ps-00)