RSVP-TE Signaling Extension for Bandwidth Availability

draft-long-ccamp-rsvp-te-availability-01

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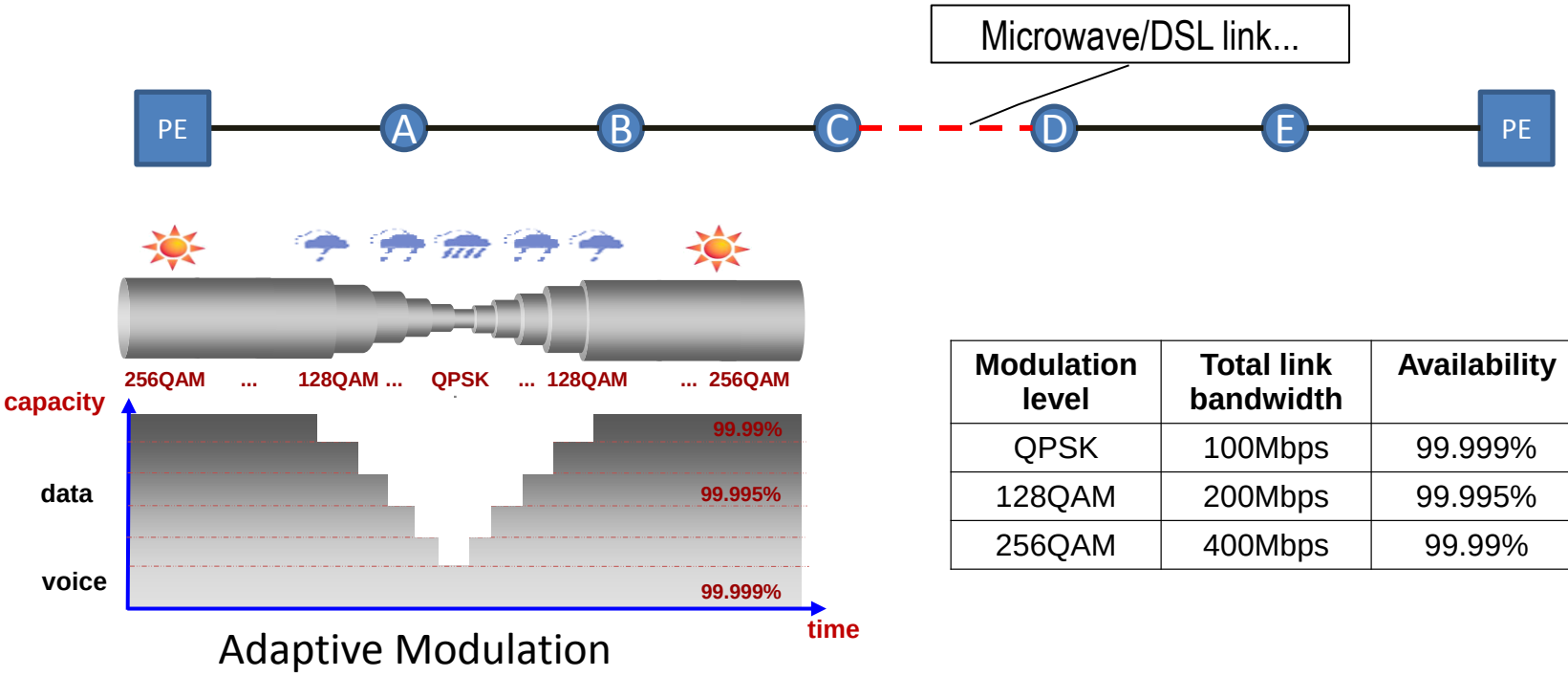
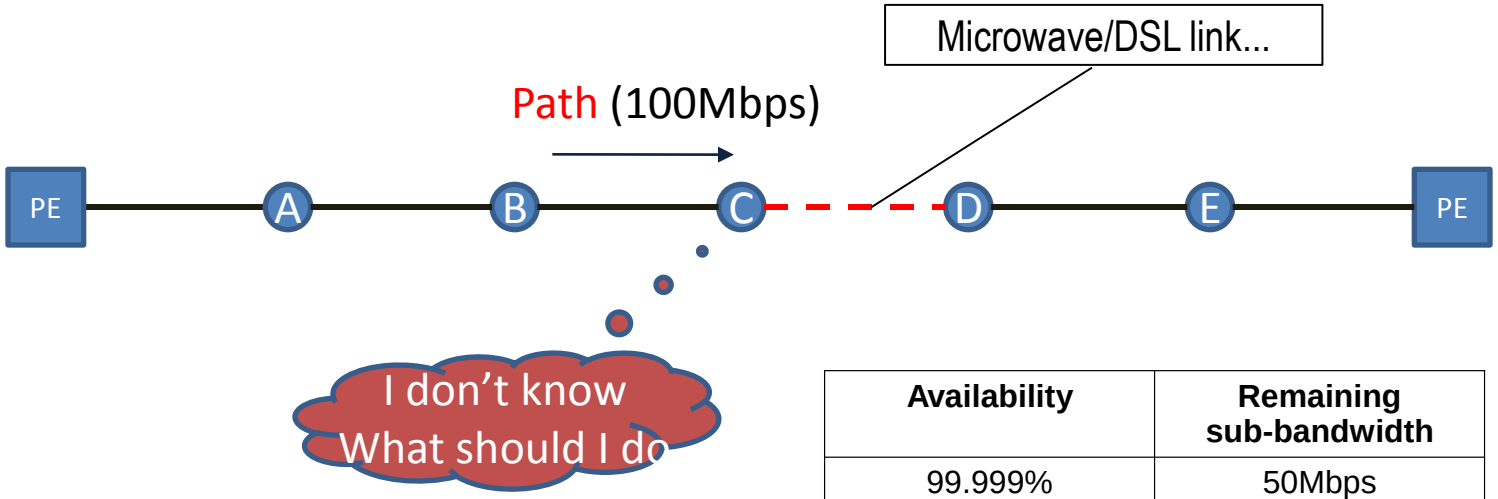
Problem Statement



Modulation level	Total link bandwidth	Availability
QPSK	100Mbps	99.999%
128QAM	200Mbps	99.995%
256QAM	400Mbps	99.99%

- Packet switching network may pass through the links with variable discrete bandwidth
  - Microwave: affected by environment, e.g., rain, fog, dust, snow,…
  - DSL: affected by environment, e.g., noise interference,….
- Availability is used to describe the bandwidth for such links.

Problem Statement



Availability	Remaining sub-bandwidth
99.999%	50Mbps
99.995%	50Mbps
99.99%	100Mbps

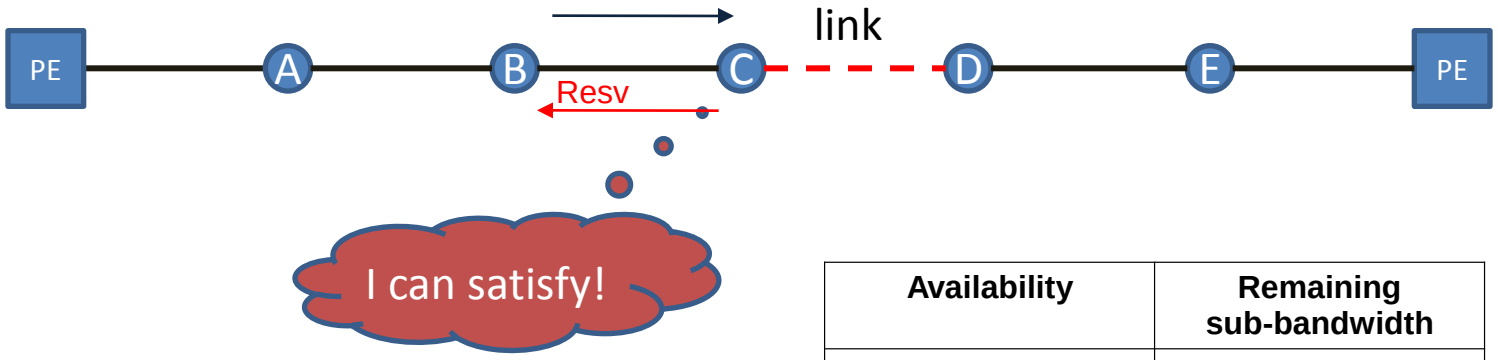
link bandwidth capacity table

- Node C don't know whether the link can satisfy the bandwidth requirement
  - Have no idea which bandwidth capacity should be used ;

Proposed Solution

Example 1

Path (<30Mbps, 99.999%>, e.g., for voice
<30Mbps, 99.995%>, e.g., for video
<40Mbps, 99.99%>) e.g., for VPN



Availability	Remaining sub-bandwidth
99.999%	50Mbps
99.995%	50Mbps
99.99%	100Mbps

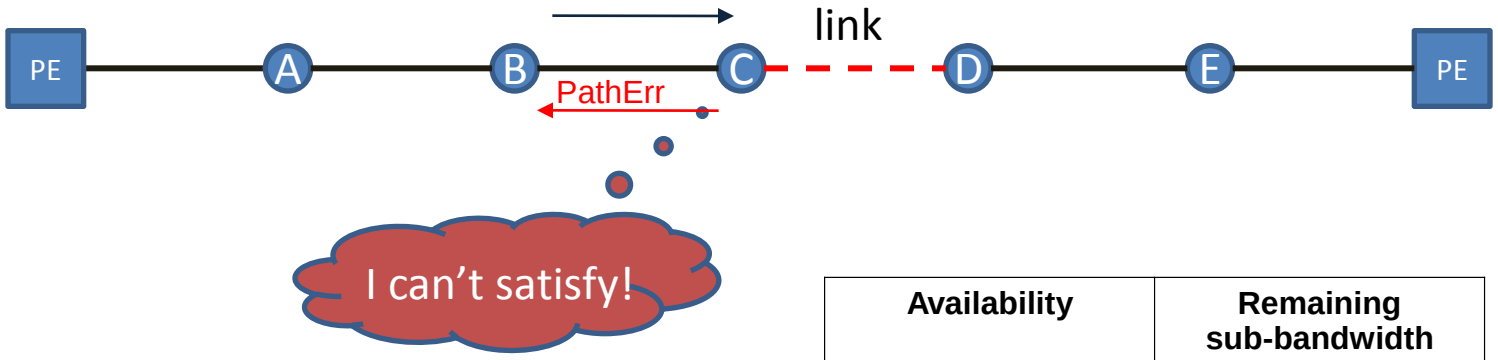
link bandwidth capacity table

- If specify sub-bandwidth-requirement with availability requirement
- If all bandwidth requirements can be satisfied , Node C should allocate the bandwidth resource from each unallocated bandwidth portion

Proposed Solution

Example 2

Path (<70Mbps, 99.999%>, e.g., for voice
<20Mbps, 99.995%>, e.g., for video
<10Mbps, 99.99%>) e.g., for VPN

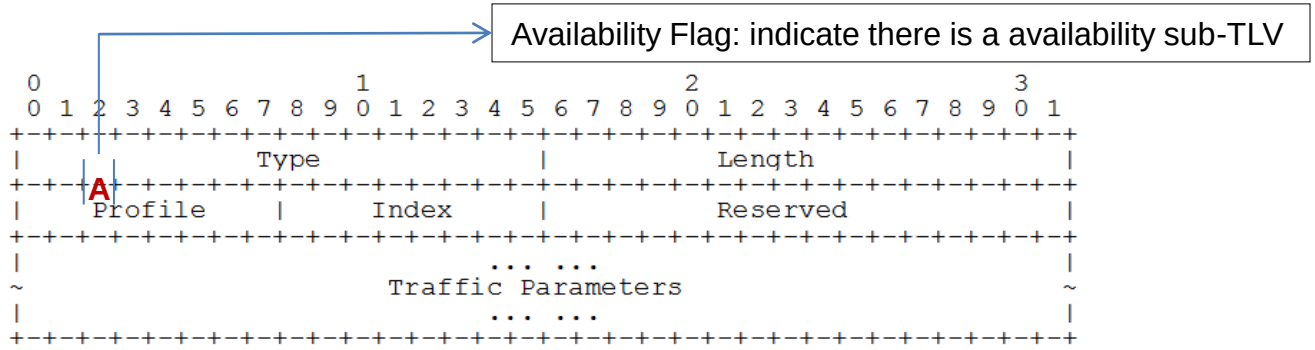


Availability	Remaining sub-bandwidth
99.999%	50Mbps
99.995%	50Mbps
99.99%	100Mbps

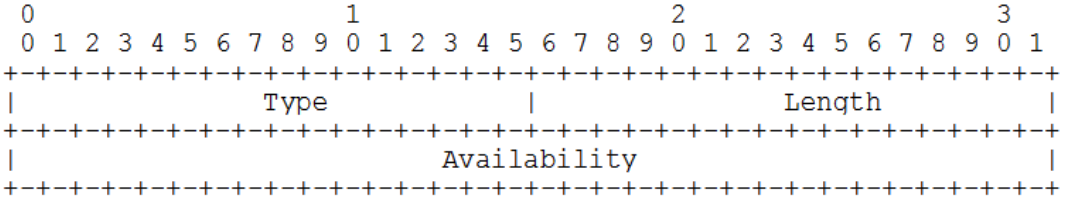
link bandwidth capacity table

- If at least one bandwidth requirement cannot be satisfied, Node C should generate PathErr message with the error code "Traffic Control Error" and the error value "Bad Tspec value" .

Proposed Extension to RSVP-TE



Bandwidth Profile TLV



Availability Sub-TLV

- The path message should carry multiple bandwidth requirements for different availability;
- Define an Availability flag in the “Profile” filed in bandwidth Profile TLV
- Define an availability sub-TLV to specify the availability requirement
  - RFC6003 has specified one Sender_TSpec can carry multiple bandwidth Profile TLVs. Extension is required to include availability sub-TLV

Changes from -00

- v-01 removed out the routing extension text to a new I-D
- Text improvements

Next step

- Solicit comments
- Update draft for next meeting

Thanks