

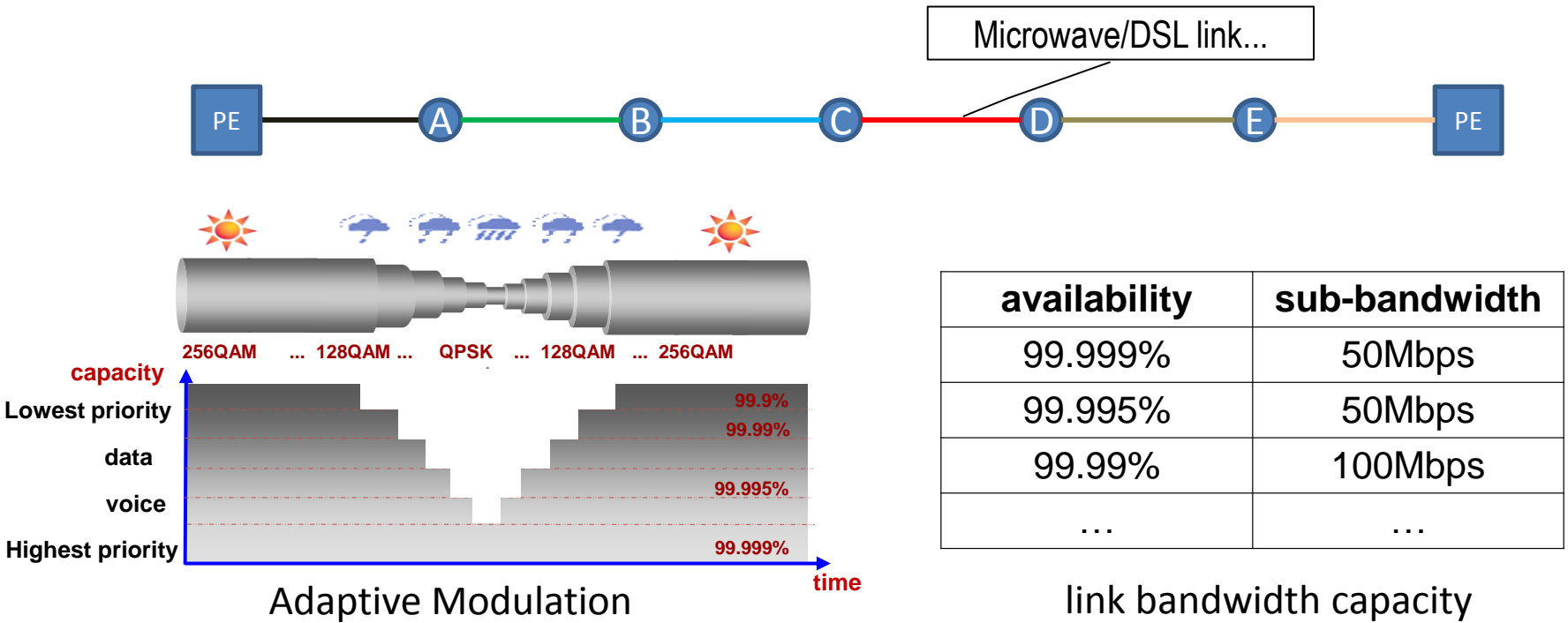
RSVP-TE Signaling Extension for Bandwidth Availability

draft-long-ccamp-rsvp-te-availability-00

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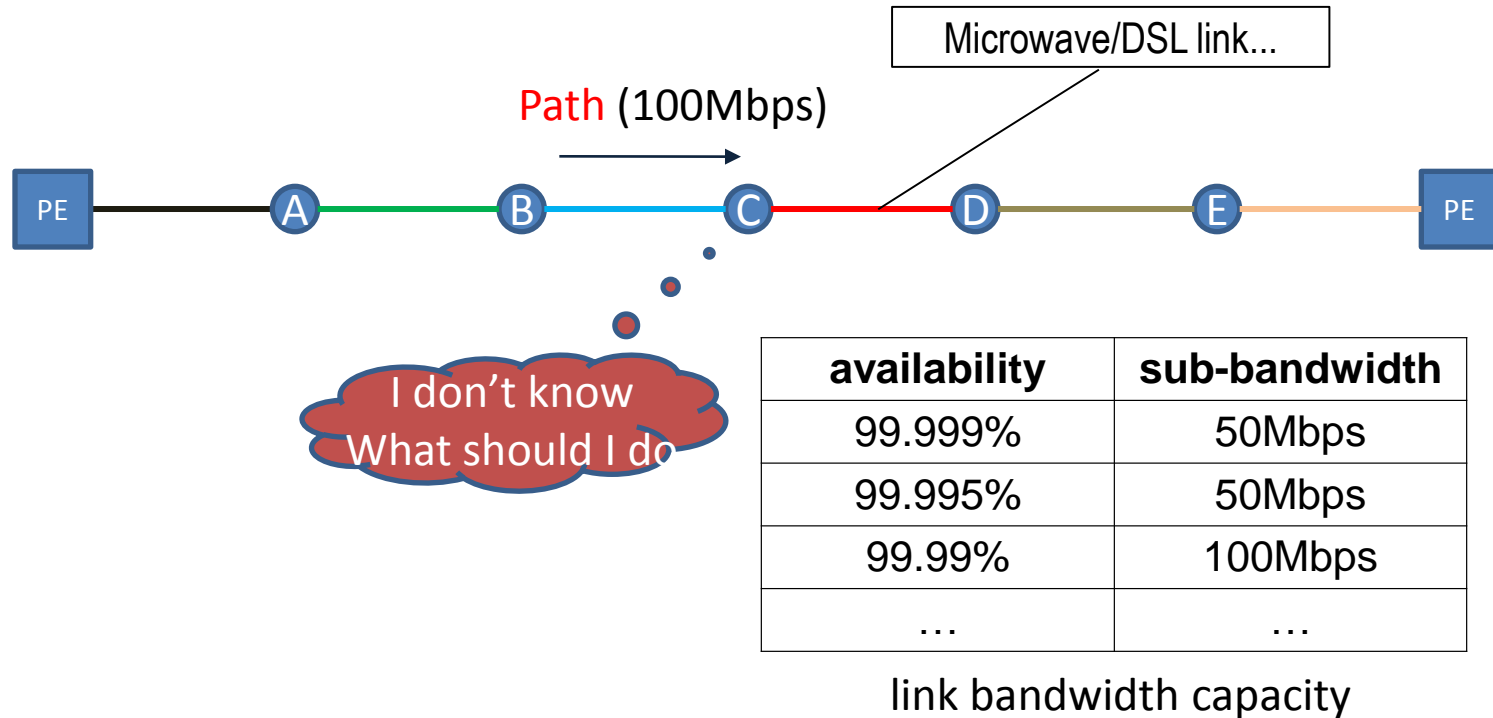
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Problem Statement



- Packet switching network may pass through the links with variable bandwidth
 - Microwave: affected by environment, e.g., rain, fog, dust, snow,...
 - DSL: affected by environment, e.g., noise interference,....

Problem Statement

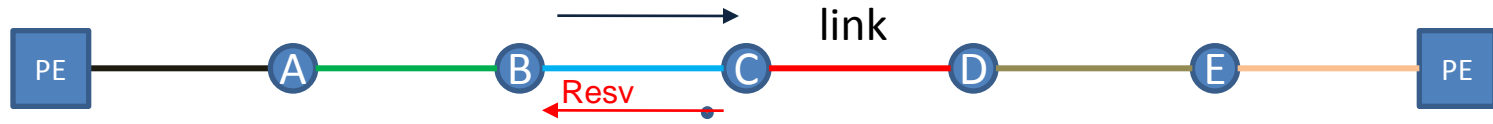


- Node C don't know whether the link can satisfy the bandwidth requirement
 - Have no idea which bandwidth capacity should be used ;

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



I can satisfy!

availability	sub-bandwidth
99.999%	50Mbps
99.995%	50Mbps
99.99%	100Mbps
...	...

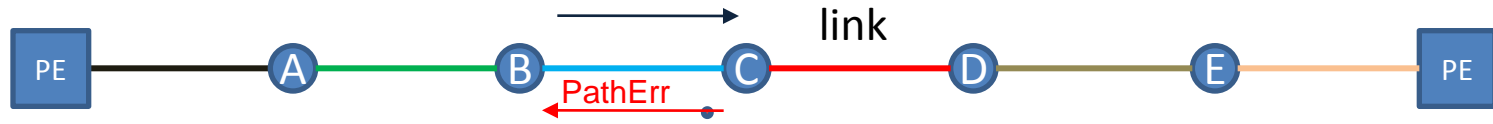
link bandwidth capacity

- 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



I can't satisfy!

availability	bandwidth
99.999%	50Mbps
99.995%	50Mbps
99.99%	100Mbps
...	...

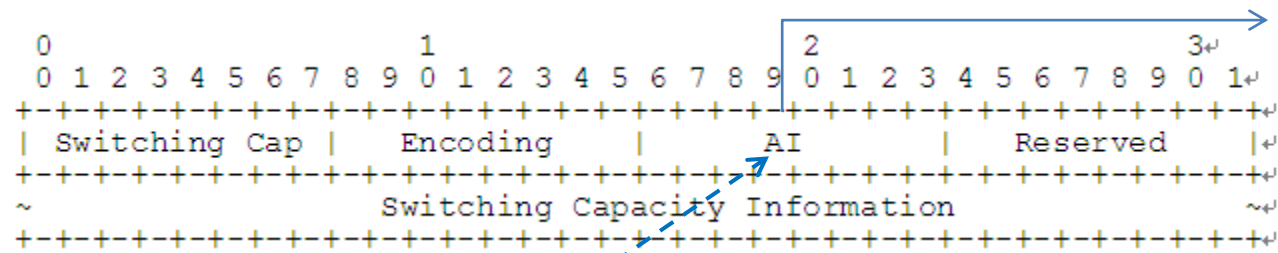
link bandwidth capacity

- 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" .

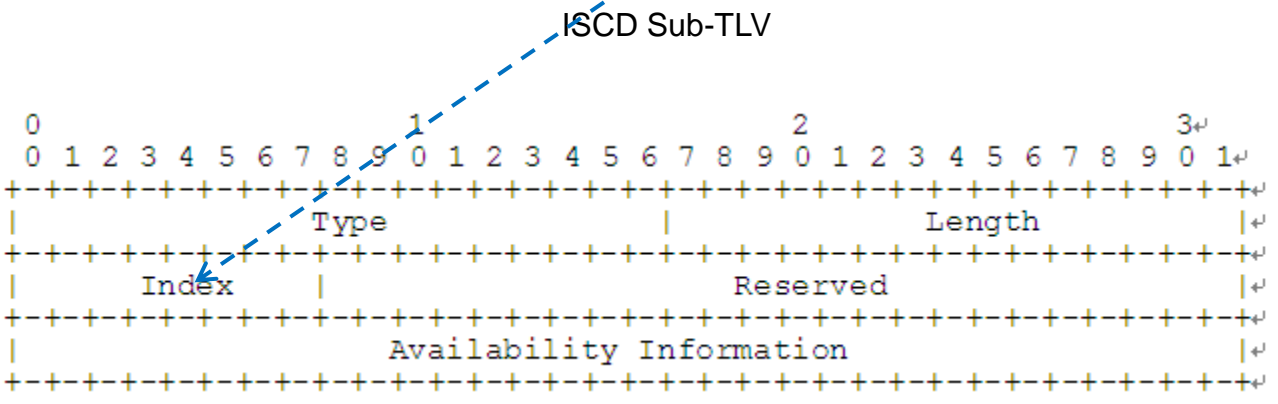
Technical Requirements

- R1: The routing message should carry availability information during the interface switching capacity propagation for routing computation.
- R2: The path message should carry multiple bandwidth requirements for different availability;

Proposed Extension to Routing



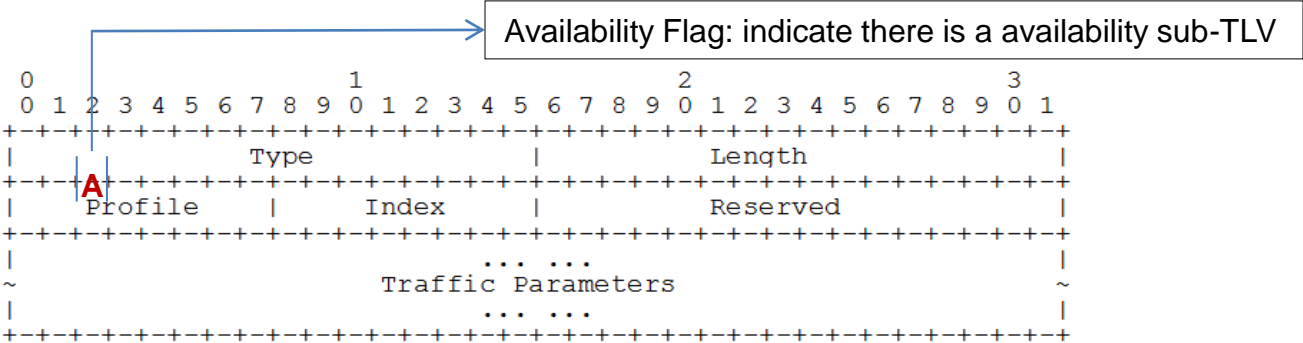
Availability sub-TLV index : to indicate the index of availability sub-TLV



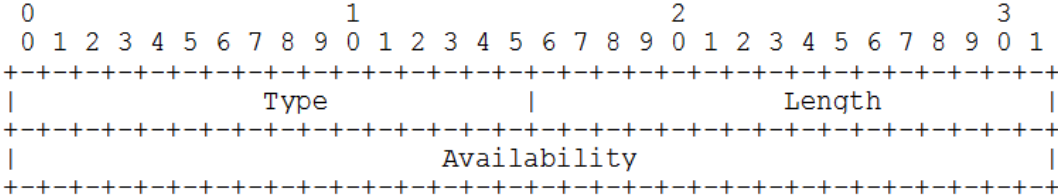
Availability sub-TLV

- Define an availability index field in the ISCD sub-TLV
- Define an availability sub-TLV to notify the availability information
 - RFC 4203 supports one link state advertisement message carries multiple ISCDs (interface switching capacity descriptor) for one interface. Extension is required for associating each ISCD sub-TLV with an availability sub-TLV by an index value

Proposed Extension to RSVP-TE



Bandwidth Profile TLV



Availability Sub-TLV

- 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

Next step

Comments are welcome.

Thanks