

Multi layer implications in GMPLS controlled networks

draft-bcg-ccamp-gmpls-ml-implications-04

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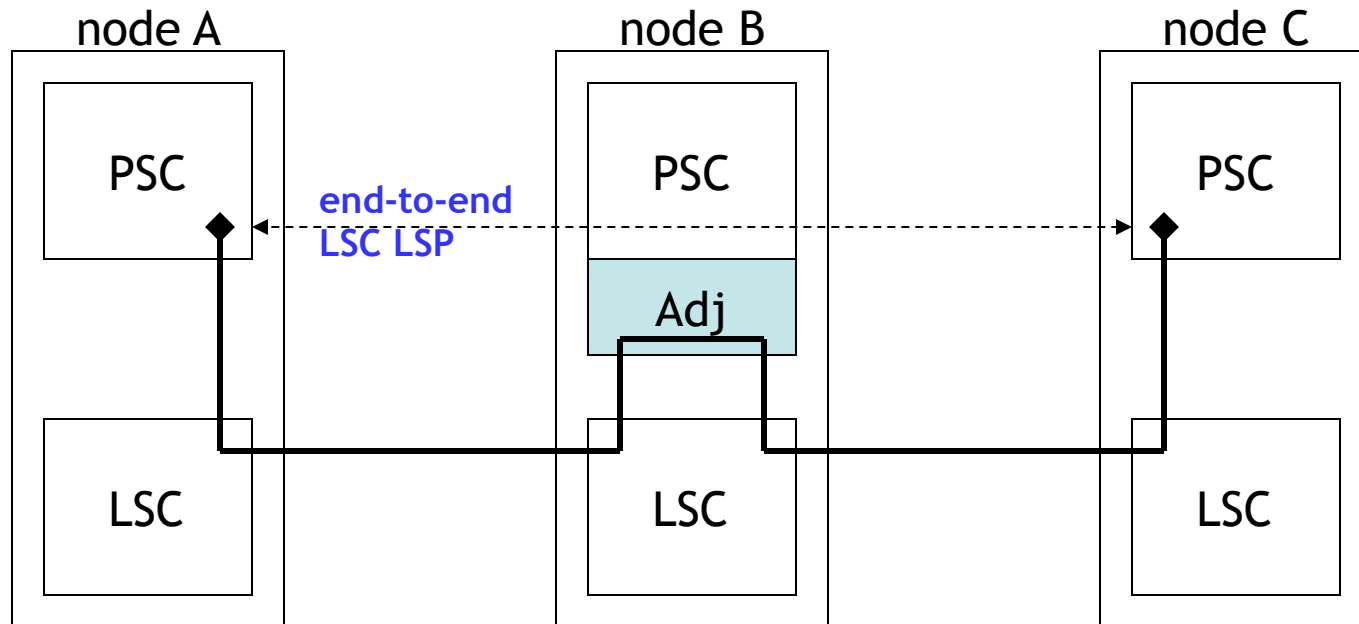
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Update since v02.txt

- MRN extends node functionality beyond "*terminate or switch*"
 - Ex.1: Transparent regeneration
 - Ex.2: Traffic grooming
- Adjustment capability and capacity (resource pool)
- Extensions to IACD sub-TLV

Example 1

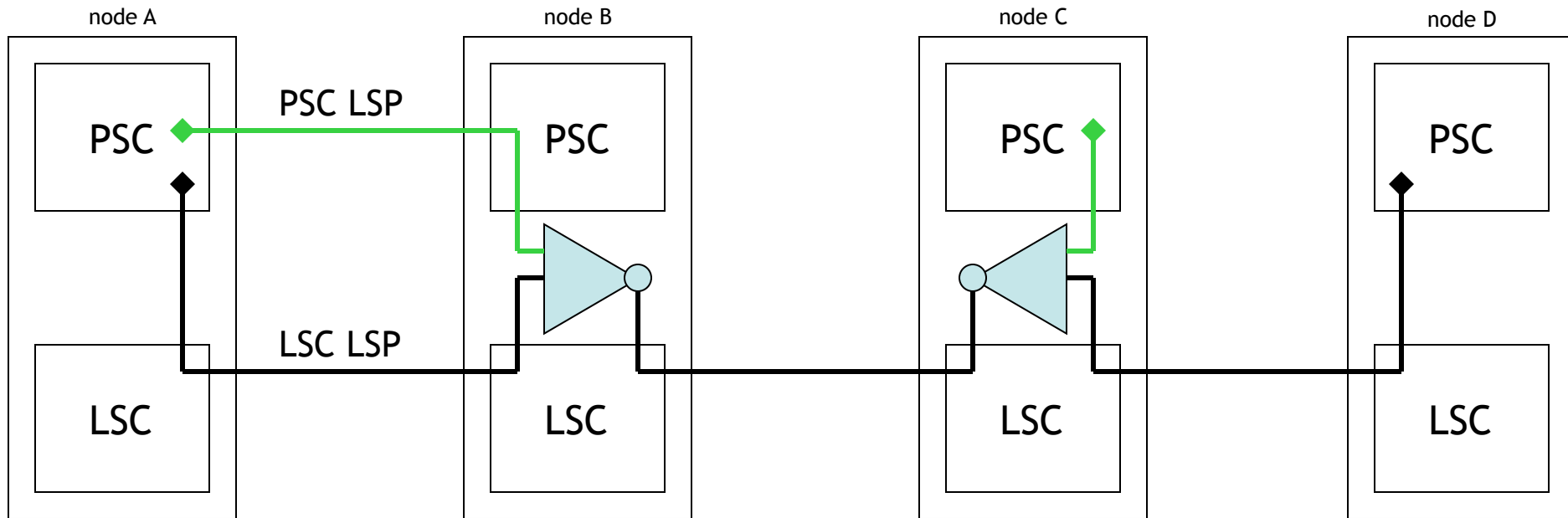
- Nodes equipped with PSC + LSC capability to regenerate the photonic signal without "interrupting" the LSC LSP
- => Setup of **e2e LSC LSP** even if certain intermediate nodes are used to regenerate the signal at PSC level



Example 2

- GMPLS doesn't enable insertion of traffic at an intermediate point along an established LSP, i.e., the control plane limits the flexibility of nesting LSPs only at the head-end of the underlying LSP
- => Multiplex and demultiplex, e.g., PSC LSP into LSC LSP even if the LSC LSP does not originate/end at the nodes where PSC LSPs are multiplexed or demultiplexed

Gain: re-use of existing LSP + avoids one-hop FA LSP



Adjustment capability

- Adjustment capability
 - Assumes the availability of adjustment capacity (a.k.a. adjustment resource pool) at given SC (say SC Z, in the following)
 - Mean by which LSPs can be
 - adapted/mapped or translated from one SC X to SC Y via Z
 - inserted (e.g. de/multiplexed) from SC X to SC Y via Z

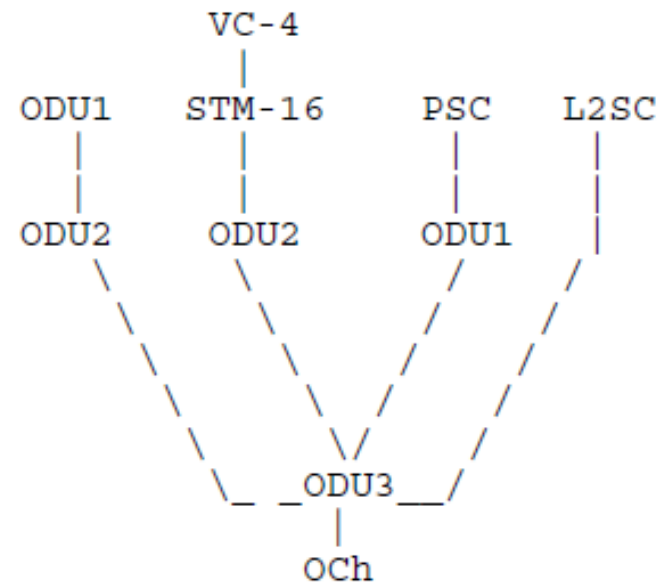
Note: SC X value MAY be identical to SC Y value and SC Z value MAY be identical to SC X or Y value
- Examples
 - Transparent regeneration: SC X = LSC = SC Y and SC Z = PSC
 - Traffic grooming: SC X = PSC and SC Y = LSC and SC Z \equiv adj. resource pool enabling the insertion of packet LSP into a lambda LSP

Check list

- Multiple mapping information from a client to a server layer.
E.g. an Ethernet signal could be mapped over and OTN hierarchy using GFP-F or GFP-T adaptation.

IACD sub-TLV includes "single" LSP encoding (like ISCD sub-TLV)

- Connectivity constraints
 - STM-16 -> ODU2 -> ODU3
not STM-16 -> ODU1 -> ODU3
 - Note: IACD sub-TLV bandwidth represent "resource pool" min-max capacity
- Multistage inter-switching capability
 - **IACD already allows advertising single-stage (single SC) multiplexing capability**
 - **IACD advertisement of multi-stage multiplexing capability (single SC) via techno-specific information**



Next Step

- Poll for WG I-D ?
- Initiate extension document (proto. spec.)