

# Requirements for Very Fast Setup of GMPLS LSPs

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# Background

- Propose GMPLS protocol extensions for a specific problem space with:
  - Expediting LSP setup
  - Highly dynamic connection requests
  - High churn scenarios
  - High capacity connections
- Applies to both single-domain and multi-domain networks
- This document focuses on:
  - Applications driving the requirements and
  - Key protocol requirements which may be novel with respect to current GMPLS protocols.

# Draft Changes

- Removed 'implementation' flavor protocol requirements
- Broadened the discussion of key drivers
- Narrative focuses on the problem space

# Revised Protocol Requirements

- R3 LSP Establishment time should scale linearly based on number of traversed nodes.
- R4 LSP Establishment time should be bounded by a single (worst case) per-node data path (cross-connect) establishment time and not scale linearly based on number of traversed nodes, i.e., support parallel or pipelined cross-connection establishment.
- R5 LSP Establishment time shall depend on number of nodes supporting an LSP and link propagation delays and not any off (control) path transactions, e.g., PCC-PCE and PCC-PCC communications at the time of connection setup, even when PCE based approaches are used.
- R7 The protocol aspects of LSP signaling must not preclude LSP request rates of tens per second.
- R8 The above requirements should be met even when there are failures in connection establishment, i.e., LSPs should be established faster than when crank-back is used.
- R9 These requirements are applicable even when an LSP crosses one or more administrative domains / boundaries.
- R10 The above are additional requirements and do not replace existing requirements, e.g. alarm free setup and teardown, recovery, or inter-domain confidentiality.

# Next Steps

- WG acceptance of this draft
- Start work on a solution draft to satisfy the protocol improvement requirements
  - Draft may be informational or an extension as needed to meet requirements
  - Collaboration/Co-authors are encouraged