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IDR Working Group

BGP Link-State Extensions for BGP-only Networks draft-ietf-idr-bgp-ls-bgp-only-fabric-06

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Agenda

- Changes since -04 (IETF 125)
- New use-case and deployment scenarios
- Implementation status and next steps

Changes since -04 (Summary)

Sections	-06
Attribute tables	Trimmed to SHOULD TLVs; others MAY be included per use case
SR Policy / SRv6 SID sections	Merged into single section; directly references RFC 9857 and RFC 9514
Procedures	Simplified; removed sections 5.4/5.5; SR-MPLS-specific guidance removed
Use-cases	Added IPFRR (section 6.2) and SRv6 deployment scenarios in SR-TE (section 6.3)
Protocol-ID/Identifier	Explicitly states Protocol-ID = 7, Identifier SHOULD be 0

New Use-Case — IPFRR in BGP-only Networks

- AI/ML DC fabrics: BGP-only Clos, loss-sensitive, strict convergence requirements
- BGP-LS topology enables LFA / TI-LFA / ERP computations
- Use-case references updated in section 6.2

SRv6 Deployment Scenarios

- **End-to-End DC Frontend + WAN**
  - Unified SRv6 domain across DC and WAN; eliminates DCI gateway translation
  - SR Policies steer traffic end-to-end with stateless service insertion
  - BGP-LS provides DC fabric topology for SR Policy computation
  - I-D.filsfils-srv6ops-srv6-e2e-dc-frontend-wan
- **Deterministic Path Placement in AI Backends**
  - AI scheduler computes optimal GPU-to-GPU paths through Clos fabric
  - SRv6 network programs encoded at source NIC; no per-flow state in fabric
  - BGP-LS provides fabric-wide topology for path computation
  - I-D.filsfils-srv6ops-srv6-ai-backend

Implementation Status

- Implemented in Sonic-FRR
  - https://github.com/FRRouting/frr/pull/20726
  - Solicit additional implementation information from the community
- Request IANA for early code point allocation for BGP Route Type TLV is done

Next steps

- Requesting Working Group (WG) review and feedback