

Advertising Unreachable Links in OSPF

draft-gong-lsr-ospf-unreachable-link-03

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Overview

- There is currently no effective way to advertise unreachable links in OSPF. This draft aims to address it.
- Presented at interim-2022-lsr-01 and 115 meeting.
- Updates:
 - New co-author: Acee Lindem.
 - Only the solution based on Maximum Link Metric is retained.
 - Add "Management Considerations" section.
 - Some text optimization

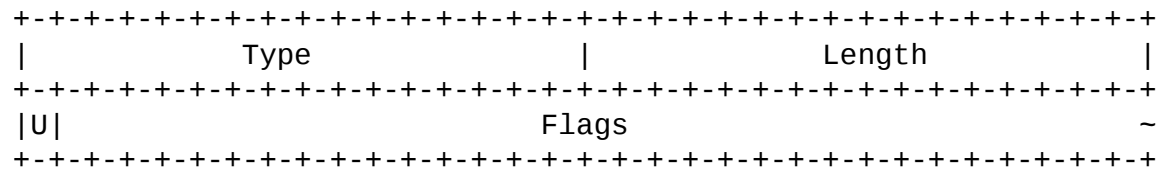
Solutions

Solution A: Maximum Link Metric ✓

- Use MaxLinkMetric (0xffff) to advertise unreachable links.

Solution B: Unreachable Link Flag

- A new-defined OSPF Link Flags sub-TLV carried in OSPFv2 Extended Link TLV and OSPFv3 Router-Link TLV



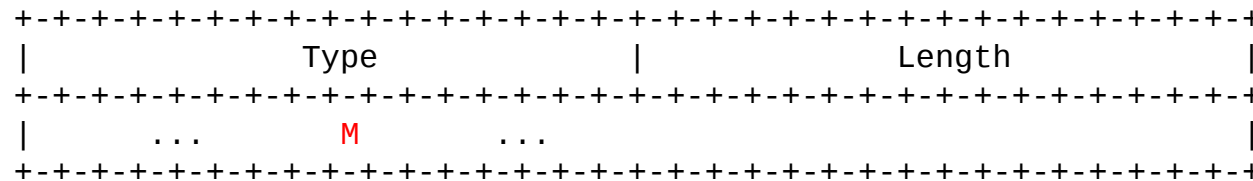
- U-Flag: Unreachable Link Flag. The associated link MUST be treated as unreachable during SPF calculation.

Advantages of Solution A

- For OSPF prefixes, the maximum metric is already defined as infinity.
- Solution B requires the advertising and accessing of OSPFv2 Extended Link TLV for the OSPF SPF calculation. But solution A does not.
- IS-IS defines the maximum link metric as infinity
- Implementation would be cleaner.

Extensions for MaxLinkMetric

- A new Bit in Router Functional Capabilities TLV [RFC7770] :



M-bit: MaxLinkMetric support

- MaxLinkMetric is applicable for TLVs/LSAs:
 - The Router-LSA
 - The OSPFv2 Extended Link TLV of OSPFv2 Extended Link Opaque LSA
 - The Router-Link TLV of OSPFv3 E-Router-LSA
- All routers supporting the MaxLinkMetric feature must advertise the capability.
- If detecting the presence of a reachable Router-LSA/Extended Link Opaque LSA/E-Router-LSA without a companion RI LSA that has the M-bit set, all routers **MUST** recalculate routes without considering MaxLinkMetric.

Management Considerations

- Support of the MaxLinkMetric capability SHOULD be configurable. In some networks, the operator may still want links with maximum metric to be treated as reachable. For example, the auto-costing of links is used and there is a mix of low- and high-speed links. In such cases, the updated routers can disable that capability and still treat links with maximum metric as reachable.
- It is also RECOMMENDED that implementations supporting this document and auto-costing limit the maximum cost to $\text{MaxLinkMetric} - 1$

Next Steps

- Any questions and comments are Welcome
- Ask for WG adoption.

Thanks