draft-ietf-ospf-segment-routing-extensions-02

draft-ietf-ospf-ospfv3-segment-routing-extensions-00

P. Psenak, S.Previdi, C. Filsfils – Cisco Systems
H. Gredler – Juniper Networks
W. Henderickx - Alcatel-Lucent
R. Shakir - British Telecom
Jeff Tantsura - Ericsson

OSPF SR Drafts Evolution

- Originally posted in June 2013 – before IETF 87

- Presented in IETF 88, IETF 90

- Drafts went through several rounds of updates

- OSPFv2/v3 SR drafts have been accepted as WG documents

- OSPFv2 SR draft split
  - draft-ietf-ospf-prefix-link-attr-01
  - draft-ietf-ospf-segment-routing-extensions-02

OSPF SR Evolution – Prefix Range

- SID advertisement or label binding for range of prefixes
  - Applicability: e.g. SR Mapping Server
  - Range Size originally part of
    - Prefix SID sub-TLV
    - SID/Label Binding Sub-TLV
  - Several people objected to the specification of a range in these sub-TLVs
    - Sub TLV redefines the scope of parent TLV – parent TLV has the 'Prefix Length'
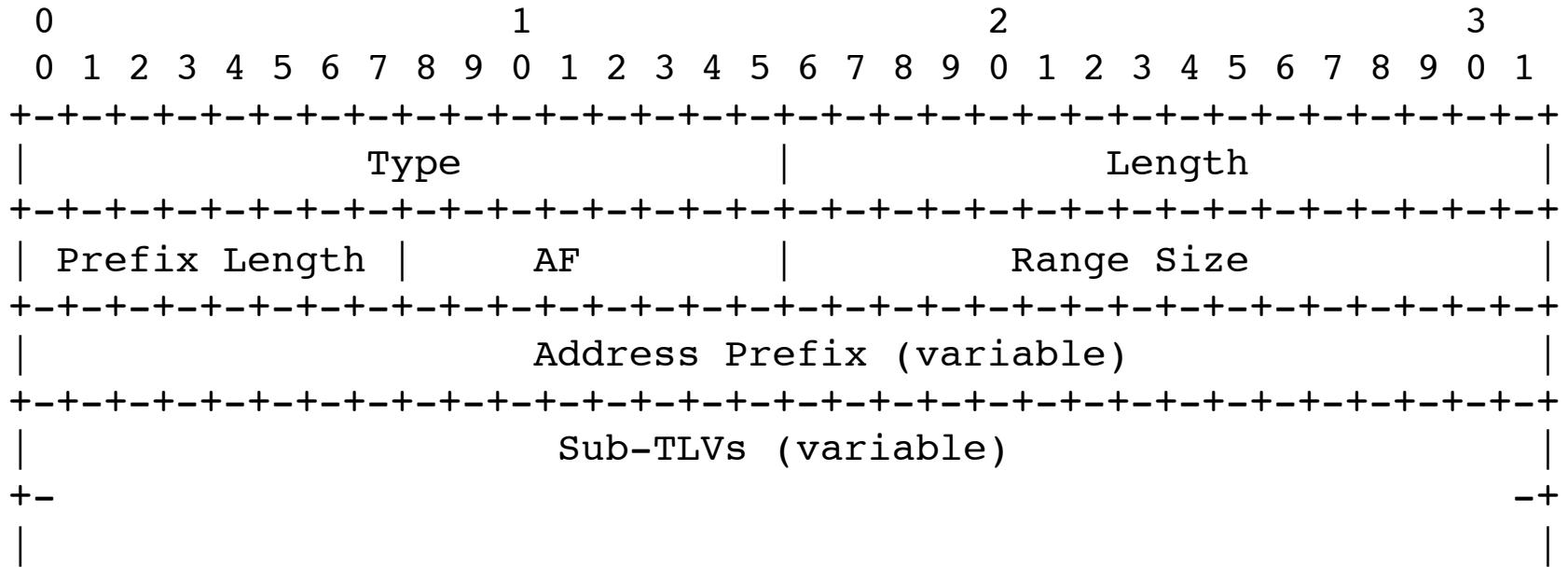
OSPF SR Evolution – Extended Prefix Range TLV

- Introduction of OSPF Extended Prefix Range TLV
  - OSPFv2: top level TLV of the Extended Prefix LSA
  - OSPFv3: top level TLV of the following Extended LSAs:
    - E-Intra-Area-Prefix-LSA
    - E-Inter-Area-Prefix-LSA
    - E-AS-External-LSA
    - E-Type-7-LSA

Extended Prefix Range TLV

- When a Prefix-SID is advertised in an Extended Prefix Range TLV, then the value advertised in Prefix SID Sub-TLV is interpreted as a starting SID value.

OSPF: Extended Prefix Range TLV

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|              Type              |             Length            |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| Prefix Length |      AF        |            Range Size         |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                    Address Prefix (variable)                  |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                     Sub-TLVs (variable)                       |
+-                                                             -+
|                                                               |
```

- Similar encoding for OSPFv3
- 'Flags' field will be added to the TLV in next version

Status

- Multiple OSPF SR implementations are available

- Interoperability testing has been performed

- No major churns in encodings are expected