

OSPF Area ID TLV

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Road to this Draft

- For cross-area LSPs
 - CSPF needs ABR whereabouts
 - ABR manual configuration
 - works
 - But tedious
 - And error prone
 - Need ABR auto discovery
 - Consensus seen

Ways of auto-discovery

- First we thought of RFC 4970
 - TE bit -- too coarse
 - Section 2.5
 - For example, a router may be an area border router but only support traffic engineering (TE) in a subset of its attached areas.
 - Need per area granularity
 - An area can have multiple neighboring areas (TE minded)
 - Area ID to differentiate them
- That is the *OSPF Area ID TLV*

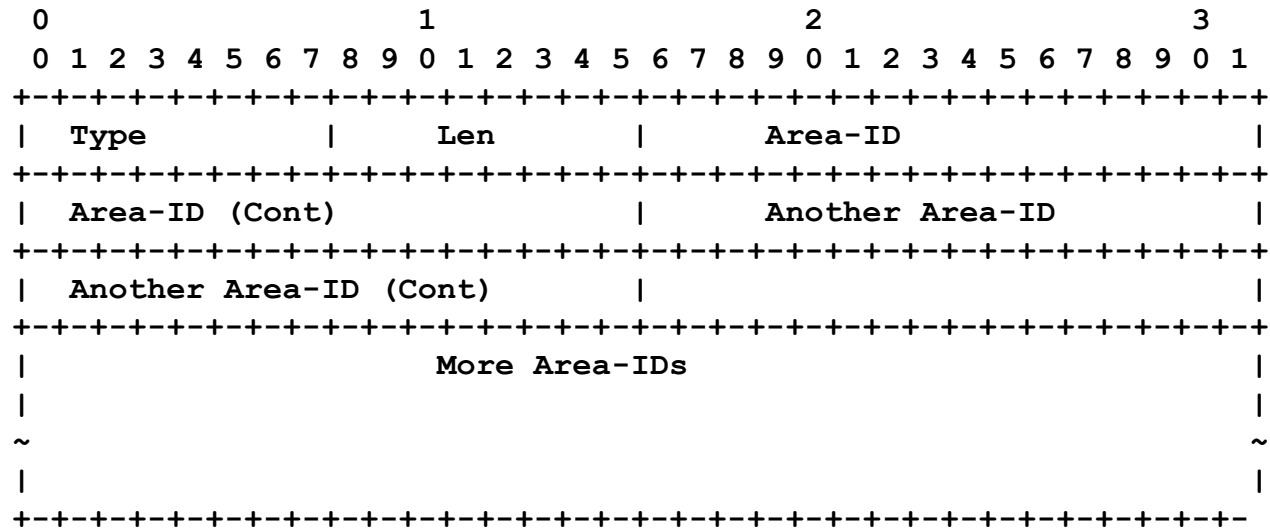


TE Info Exchange Framework

- RFC 3630 *OSPF TE Extensions*
 - Horizontal: OSPF to OSPF (flooding)
 - Vertical: OSPF to TED
- Proprietary approaches
 - Diagonal: IPC(OSPF – PCE)
 - Promiscuous: sniffing (TE & Non-TE LSAs) and filtering
- Design goal
 - Decoupling TE from non-TE
 - Using proven and standardized infrastructure
 - TE-Extensions to handle TE affairs
 - Framework is maturely available

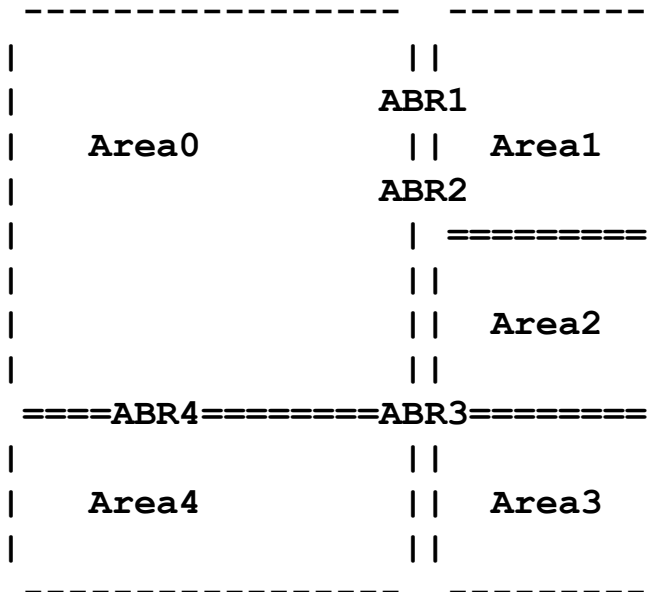


Area ID TLV



- Code point: OSPF TE LSA / OSPF TE Extensions
- Originating point: OSPF TE functions
- Access point: TE database

Area IDs for Nbr Areas

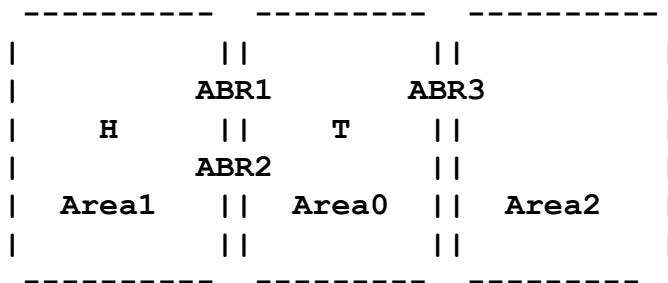


```

=====
|To           |Type| Len|Area-IDs      ...|
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|Area0        |  3|  8|0 0 0 2|0 0 0 3|
|Area2        |  3|  8|0 0 0 0|0 0 0 3|
|Area3        |  3|  8|0 0 0 0|0 0 0 2|
|Area4        | None|   |          |
=====
  
```

- ABR3 sits over 4 areas
 - Area4 is not TE enabled
 - Through ABR3
 - Area0 can exit to Area2 and Area3
 - Or Area2 => Area0 & Area3
 - Or Area3 => Area0 & Area2

Use-Case



- Crankback approach
 - “H” learns **from Area-ID TLV**
 - ABR list: ABR1 & ABR2
 - Used to be manually provisioned
- BRPC Approach
 - VSPT(2) is built from “T” in Area0
 - Assuming area sequence is Area0 -> Area1
 - **From Area-ID TLVs**
 - Candidate exit ABRs ABR1, ABR2 & ABR3
 - ABR3 disqualified
 - PCE in Area1 -> VSPT(1)

Scope

- Inter-area Path Computation
- Why not cover multi-AS ?
 - Considerably complicated to cover all protocols
 - Don't bundle the complexity to multi-area
 - Do one thing, and do it well.
 - OSPF TE Extensions – area scope
 - Works very well
 - Use it

Questions?

