IS-IS Multicast Synchronization Digest

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Digest Proposal

• High quality LSP digest, based on a cryptographic hash function (e.g. SHA-256)
  • Normalize each node LSP information to a fixed-size quantity
• Topology digest is the XOR of all the digests of the LSPs in the LSP database for the area
  • Order independent
  • Supports incremental updates
• Invalid, expired, or purged LSPs must be excluded
  • LSPs for nodes for which LSP zero is not present or for which LSP zero has a remaining lifetime of 0 are excluded
  • LSPs with checksum errors, with a 0 sequence number, or with a remaining lifetime of 0 or greater than MaxAge are also excluded
Figure 1

1. **Wait for LSP update**
2. **Unicast computation**
   - Install unicast and remove ‘unsafe’ mcast FDB entries
3. **Update digest and send it to neighbors**
4. **Multicast computation**
   - Install ‘safe’ mcast FDB entries
5. **Wait for digests synch**
   - Install ‘unsafe’ mcast FDB entries
Figure 2

IS-IS LSDB

Fixed Header
PDU Length
Remaining Lifetime
LSP Identifier
Sequence Number
Checksum
Flags
Payload
Payload
Payload

32 byte LSP digest
XOR
32 byte LSP digest
XOR
32 byte LSP digest
XOR
32 byte LSDB digest