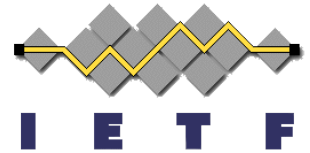
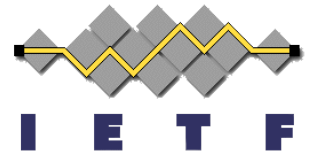


OSPFv3 Auto-Config

IETF 83, Paris

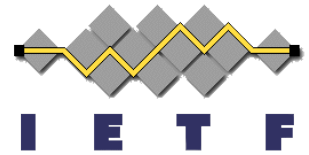
Jari Arkko, Ericsson
Acee Lindem, Ericsson





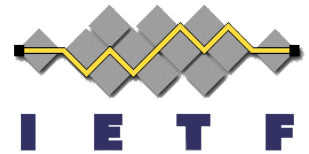
History/Requirements

- Motivated by HOMENET Routing Requirement for auto-configuration.
- Similar to past work – e.g., expired draft draft-dimitri-zospf-00.txt draft.
- Differences
 - Decouples IPv6 prefix assignment (there are may be multiple ways of doing this)
 - Handles duplicate Router-ID resolution for all routers in OSPFv3 routing domain
 - Provides extendible framework for other types of auto-configuration information



OSPFv3 Defaults

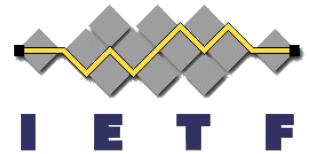
- OSPFv3 uses IPv6 link-local addresses for all protocol exchanges (except on virtual links which is not applicable).
- Unique OSPFv3 Router ID Selected (to be covered)
- All IPv6 capable interfaces run OSPFv3 in Area 0:
 - Interface type corresponds to physical interface (usually broadcast corresponding to Ethernet)
 - Interface Instance ID set to known value to prevent inadvertent adjacencies with OSPFv3 routers that aren't auto-configured.
 - Interface may be excluded from running OSPFv3 if it is known that it is not necessary (e.g., ISP interface)



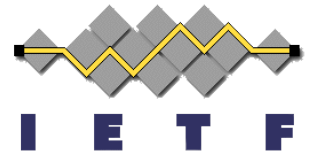
OSPFv3 Router-ID

- Router Hardware Fingerprint introduced for unique router identification
 - 32 octet minimum bit string uniquely identifying the router
 - Should contain MAC address(es) and other persistent identifiers (e.g., device serial number)
 - Hash of Router Hardware Fingerprint used a seed for pseudo-random number Router-ID
- Duplicate detection with neighbors dependent on protocol packet reception with same router-id but different router hardware fingerprint.
- Remote duplicate detection dependent on OSPFv3 Auto-Configuration (AC) LSA containing same router-id but different Router Hardware Fingerprint.

OSPFv3 Auto-Configuration (AC) LSA



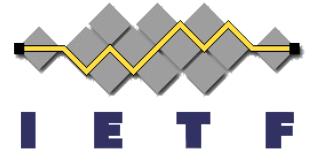
- New Link-State Advertisement (LSA) type (TBD) used to advertise all types of OSPFv3 and potentially other auto-configuration information.
- Uses same Type-Length-Value (TLV) format as the OSPFv3 Traffic Engineering (TE) LSAs.
- Initially used for duplicate OSPFv3 Router-ID detection for OSPFv3 routers that are not directly connected.
- Defined TLV will advertise the Router Hardware Fingerprint which will be used for duplicate Router-ID detection and resolution.



OSPFv3 Security

- Configuration of a single key to be used on all interfaces is **RECOMMENDED**. It is, however, not **MANDATORY** as complete auto-configuration is supported.
- If a key is configured, authentication as described in OSPFv3 Authentication Trailer (RFC 6506) will be used on all interfaces.
- Security Association (SA) ID will default to 1 and the authentication algorithm will default to HMAC-SHA-256.

Changes from IETF 82 HOMENET WG



- Start with pseudo-random number for generated Router-ID since a MAC address doesn't guarantee uniqueness.
- Added Security Recommendation
- Some editorial changes.