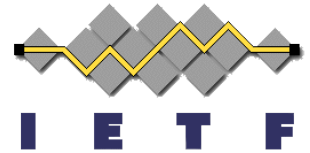
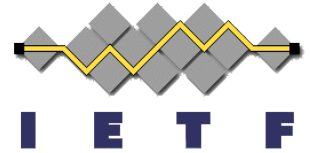


# OSPFv3 LSA Extendability IETF 89, London

Acee Lindem, Ericsson  
Sina Mirtorabi, Cisco  
Abhay Roy, Cisco  
Fred Baker, Cisco

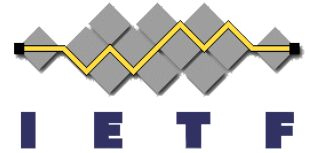


# OSPFv3 LSA Extension History (Review)



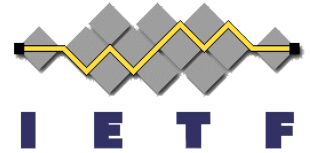
- LSA Extension proposed in “Multi-topology Routing for OSPFv3” years ago.
- Base RFC 5340 LSAs are fixed format – need variable format to allow additional information to be advertised w/o multiple LSAs and additional lookups.
- Presented in Berlin and Vancouver
- Made Standards Track WG Document
- Backward compatibility discussed and evolved on OSPF WG List

# Backward Compatibility Modes



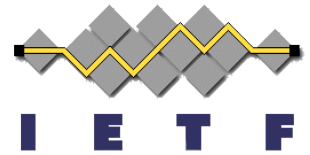
- OSPFv3 Instance ExtendedLSASupport Settings:
  - None – No Extended LSAs advertised (Default)
  - MixedModeOriginateOnly – Extended LSAs will be originated along with the existing non-extended LSAs but not used.
  - MixedModeOriginateSPF – Extended LSAs will be originated and used for the SPF calculation. Non-extended LSAs still originated.

# Backward Compatibility Modes (continued)



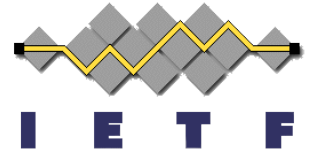
- Full – Extended LSAs advertised and used in SPF calculation. No non-extended LSAs originated. No adjacencies with OSPFv3 routers not supporting.

# Suggested Extended LSA Migration



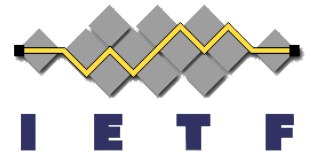
- Configure OSPFv3 router ExtendedLSASupport to MixedModeOriginateOnly. When complete the routing domain will contain all the OSPFv3 Extended LSAs.
- Configure OSPFv3 routers ExtendedLSASupport to MixedModeOriginateSPF. When you are complete, all the routers will be using the OSPFv3 Extended LSAs.

# Suggested Extended LSA Migration (Continued)



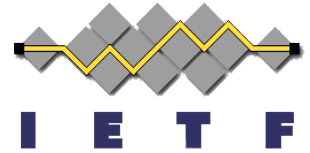
- Configure OSPFv3 routers  
ExtendedLSASupport to Full to suppress OSPFv3 migration and avoid adjacencies with OSPFv3 routers not supporting the OSPFv3 extended LSAs (OSPFv3 Hello EL-Bit checking).
  - EL-Bit is set in every mode but None. It is only checked in Full mode.

# Area Level Extended LSA Support



- AreaExtendedLSASupport – Allows migration of one area at a time. Default is to inherit the global setting. Other settings are the same as the instance level ExtendedLSASupport.
- Applies only to area and link scoped extended LSAs within the area. It takes precedence over the instance level setting for applicable LSAs.
- When ExtendedLSASupport is configured as Full – lower levels for regular area

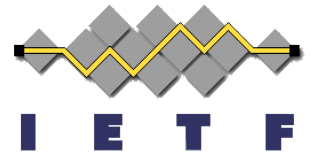
# Extended LSA Backward Compatibility Applicability



- ExtendedLSASupport – None and Full are required for every OSPFv3 Extended LSA implementation. InheritGlobal required for AreaExtendedLSASupport.
- MixedModeOriginateOnly and MixedModeOriginateSPF are optional and dependent on the applicability. For example, a HOMENET router wouldn't need them.



# Area Level Extended LSA Support (Continued)



- When ExtendedLSASupport is configured as Full – configuring lower levels of support for regular areas (not stub or NSSA) is contradictory since AS External Extended LSAs are flooded into these areas.

# Next Steps for Draft

- Critical to OSPF(v3) advancement.
- Consensus on backward compatibility and backward compatibility applicability?
- EL-bit in LSA options – My take is to have it mirror the Hello/DD packet options for debugging purposes.
- Implementation interest?