

Chapter 11

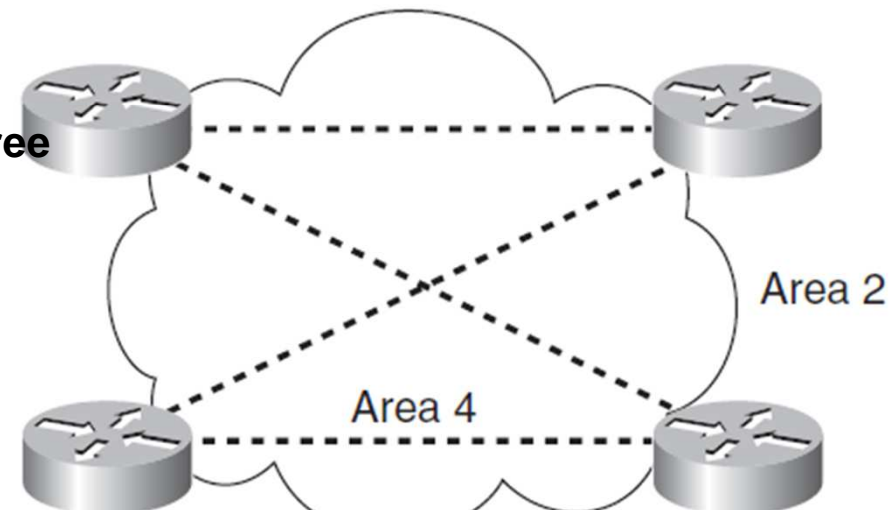
OSPFv2

- Link-State
- RFC 2328
- IGP
- VLSM & CIDR
- IP protocol 89
- Multicast (224.0.0.5 & 224.0.0.6)
- Link-state advertisement (LSA)
- Dijkstra algorithm to calculate the SPF tree

Point-to-Point
Network

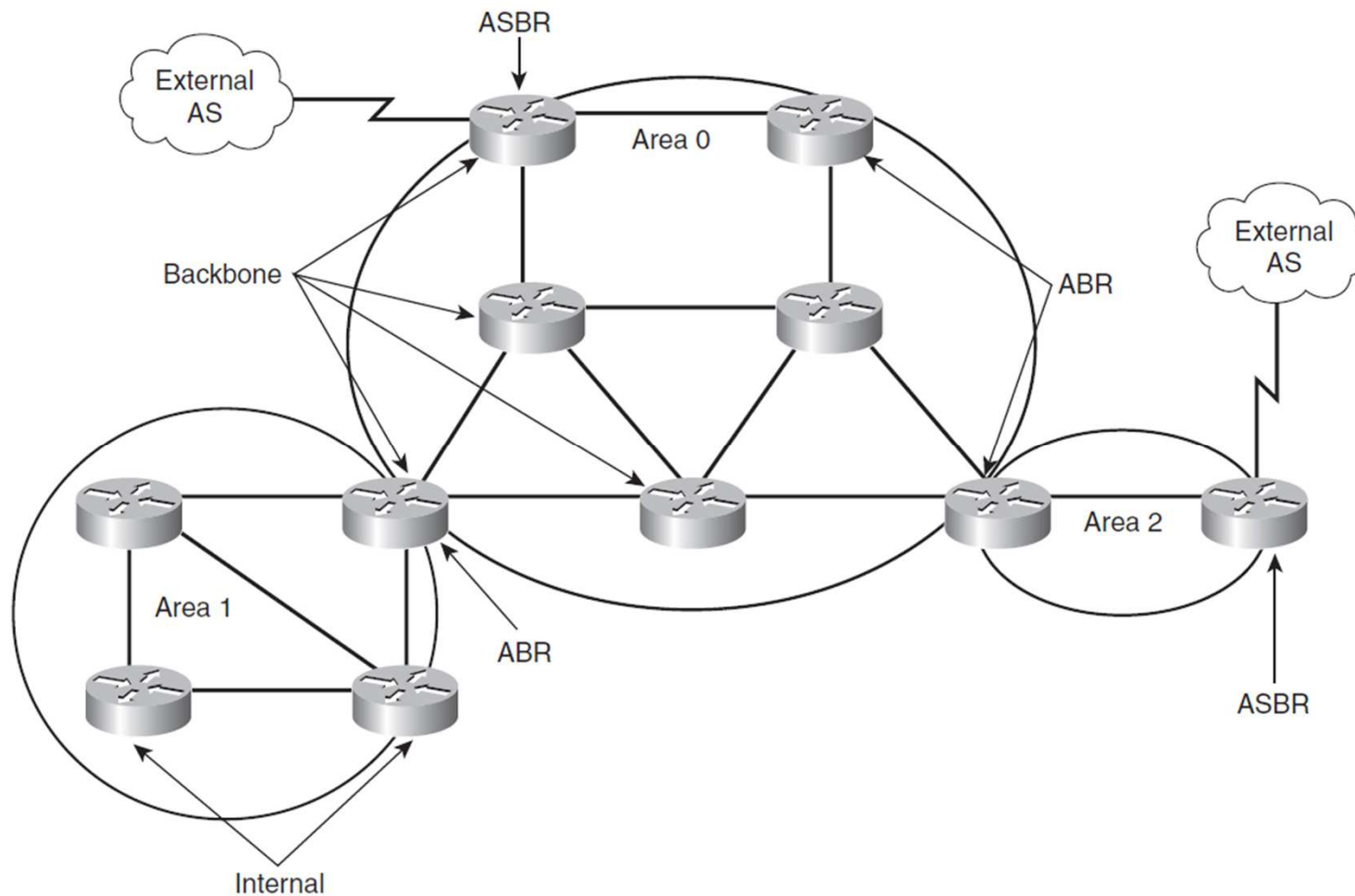


Nonbroadcast
Multiple-Access
Network



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OSPFv2 Areas



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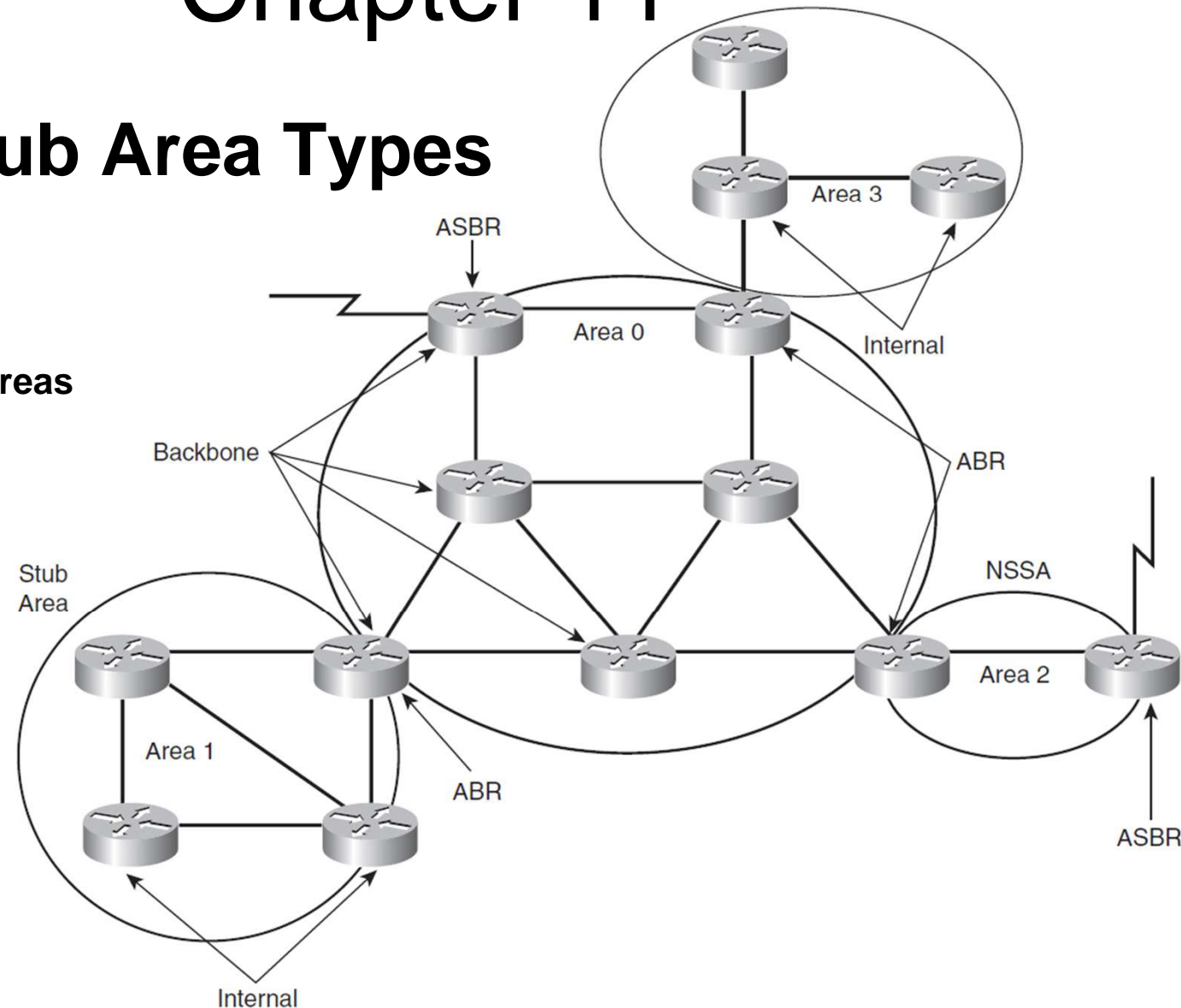
LSA Types

Type Code	Type	Description
1	Router LSA	Produced by every router. Includes all the router's links, interfaces, state of links, and cost. This LSA type is flooded within a single area.
2	Network LSA	Produced by every DR on every broadcast or NBMA network. It lists all the routers in the multiaccess network. This LSA type is contained within an area.
3	Summary LSA for ABRs	Produced by ABRs. It is sent into an area to advertise destinations outside the area.
4	Summary LSA for ASBRs	Originated by ABRs. Sent into an area by the ABR to advertise the ASBRs.
5	AS external LSA	Originated by ASBRs. Advertises destinations external to the OSPF AS, flooded throughout the whole OSPF AS.
7	Not-so-stubby area (NSSA) external LSA	Originated by ASBRs in an NSSA. It is not flooded throughout the OSPF autonomous system, only to the NSSA. Similar to the Type 5 LSA.

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OSPF Stub Area Types

- Stub Areas
- Totally Stubby Areas
- NSSAs



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OSPFv3

- RFC 2740
- Version number is 3
- No authentication
- New Link LSA
- New Intra-Area-Prefix LSA

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OSPFv3 LSAs

LSA Name	LS Type	Description
Router LSA	0x2001	State of router interfaces
Network LSA	0x2002	Generated by DR routers in broadcast or NBMA networks
Inter-Area-Prefix LSA	0x2003	Routes to prefixes in other areas
Inter-Area-Router LSA	0x2004	Routes to routers in other areas
AS-External LSA	0x4005	Routes to networks external to the AS
Group-Membership LSA	0x2006	Networks that contain multicast groups
NSSA Type 7 LSA	0x2007	Routes to networks external to the AS, injected into the NSSA
Link LSA	0x0008	Link-local addresses and list IPv6 prefixes associated with the link
Intra-Area-Prefix LSA	0x2009	IPv6 prefixes associated with a router, a stub network, or an associated transit network segment

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IS-IS

- RFC 1142
- Link-state
- OSI Connectionless Network Protocol (CLNP)
- Classless
- Not recommended for enterprise networks
- Mostly used in ISP Networks
- Administrative distance is 115.

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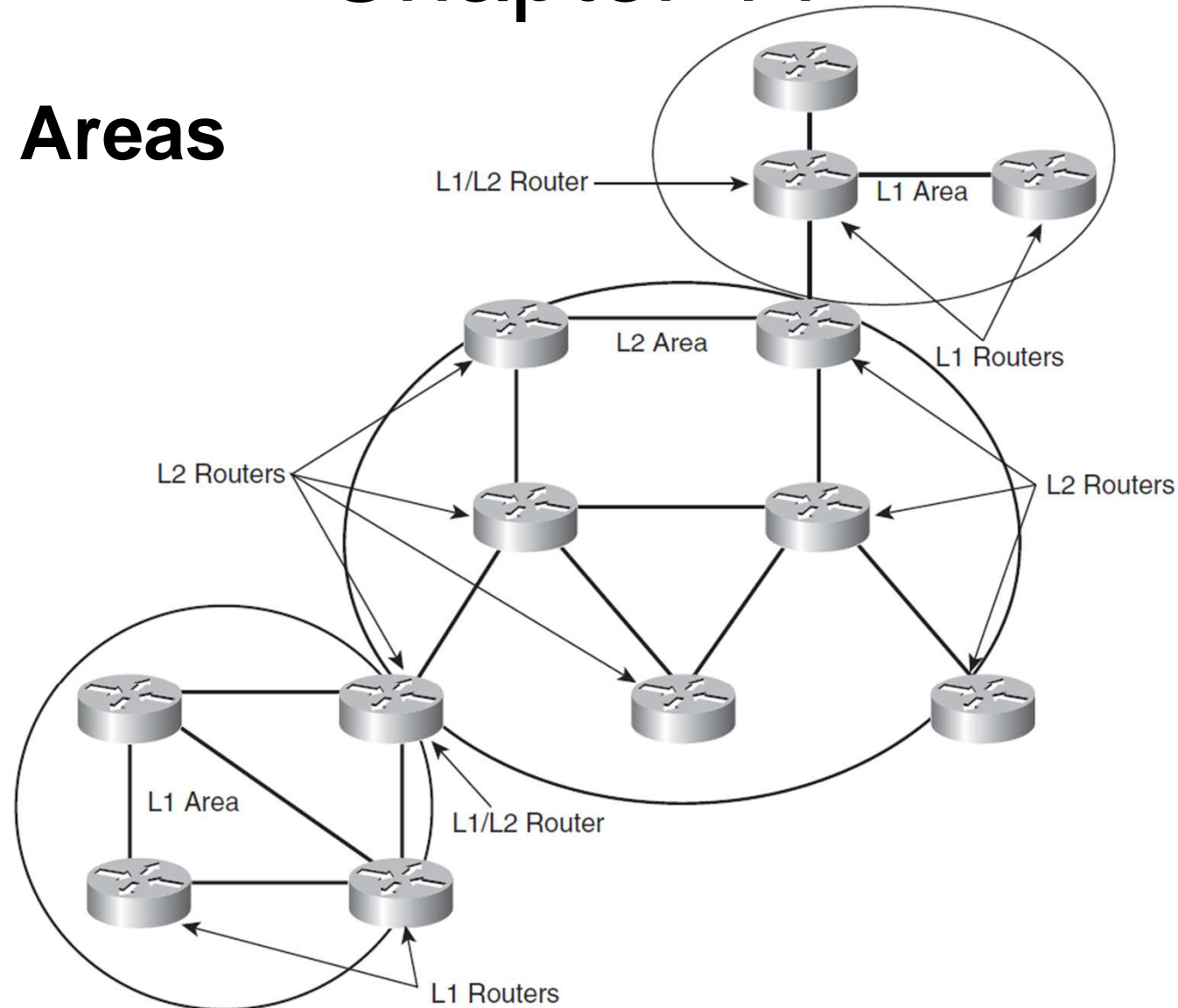
IS-IS NET Addresses

Area ID	System ID	SEL
	6 bytes	00

net 49.0001.00aa.0101.0001.00

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IS-IS Areas



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