



Cisco CCNA and CCNP
Instructor Begzodbek Odilov



Chapter: OSPF

OSPF xususiyatlari

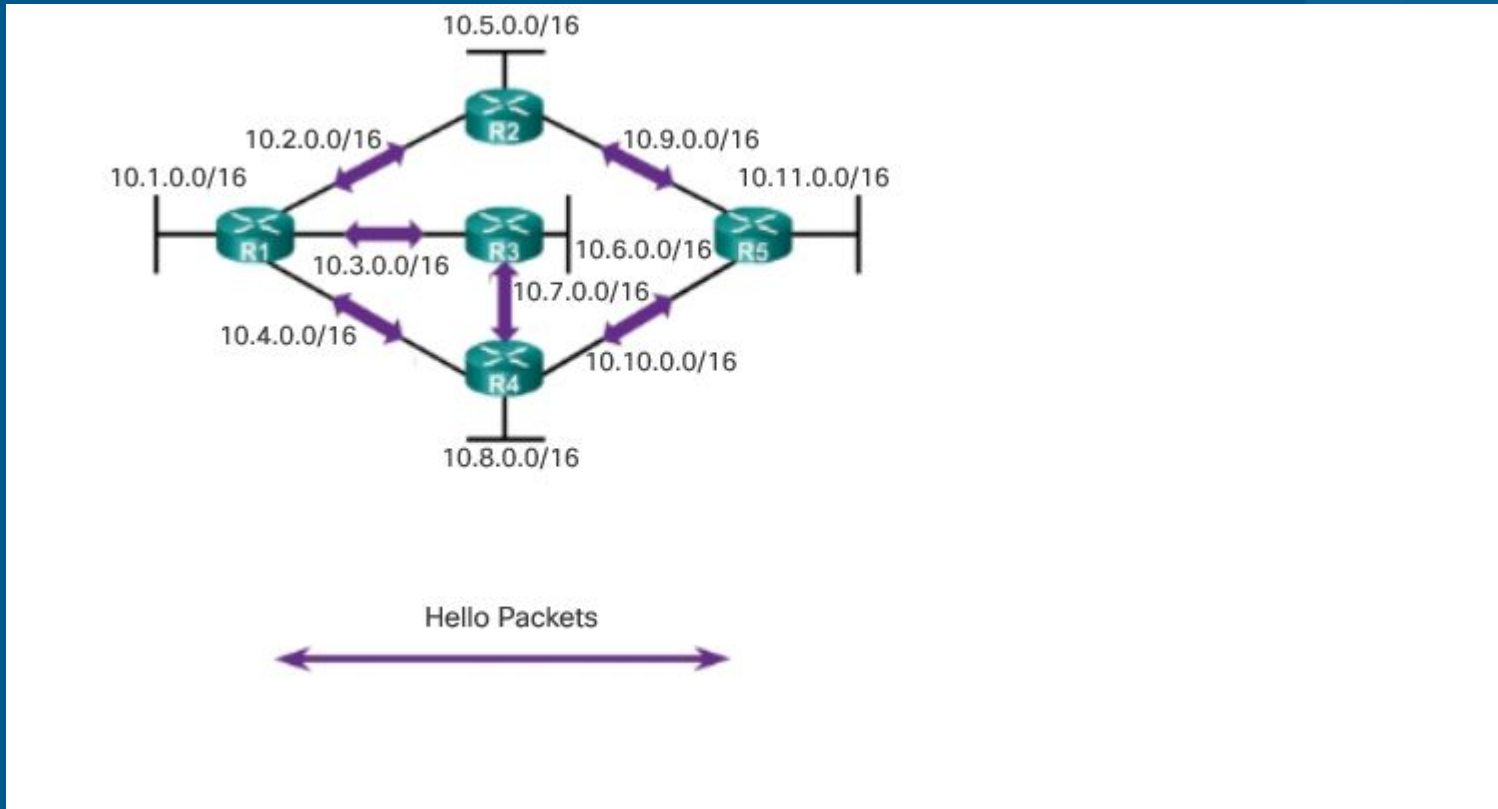
- **Classless-OSPFv2** CIDR va VLSM ni qoʻlab quvatlaydi
- **Efficient** - eng yaxshi yoʻlni talash uchun SPF algaritmdan foydalanadi
- **Fast convergence** -Tarmoq oʻzgarishini tez tarqatadi
- **Scalable**-kichik va katta tarmoqlarda yaxshi ishlaydi
- **Secure**-MD5 va Secure Hash Algorithm (SHA)
- **Administrative distance (AD)**-110
- **Multicast address** - 224.0.0.5 va 224.0.0.6
- **Algoritim** - Djikstra

OSPF komponentlari

- OSPF uchta ma'lumotlar bazasini yaratadi va yuritadi
- **Adjacency database** - qo'shnilik jadvalni yaratadi.
- **Link-state database (LSDB)** - topologiya jadvalini yaratadi.
- **Forwarding database** - Router jadvalini yaratadi

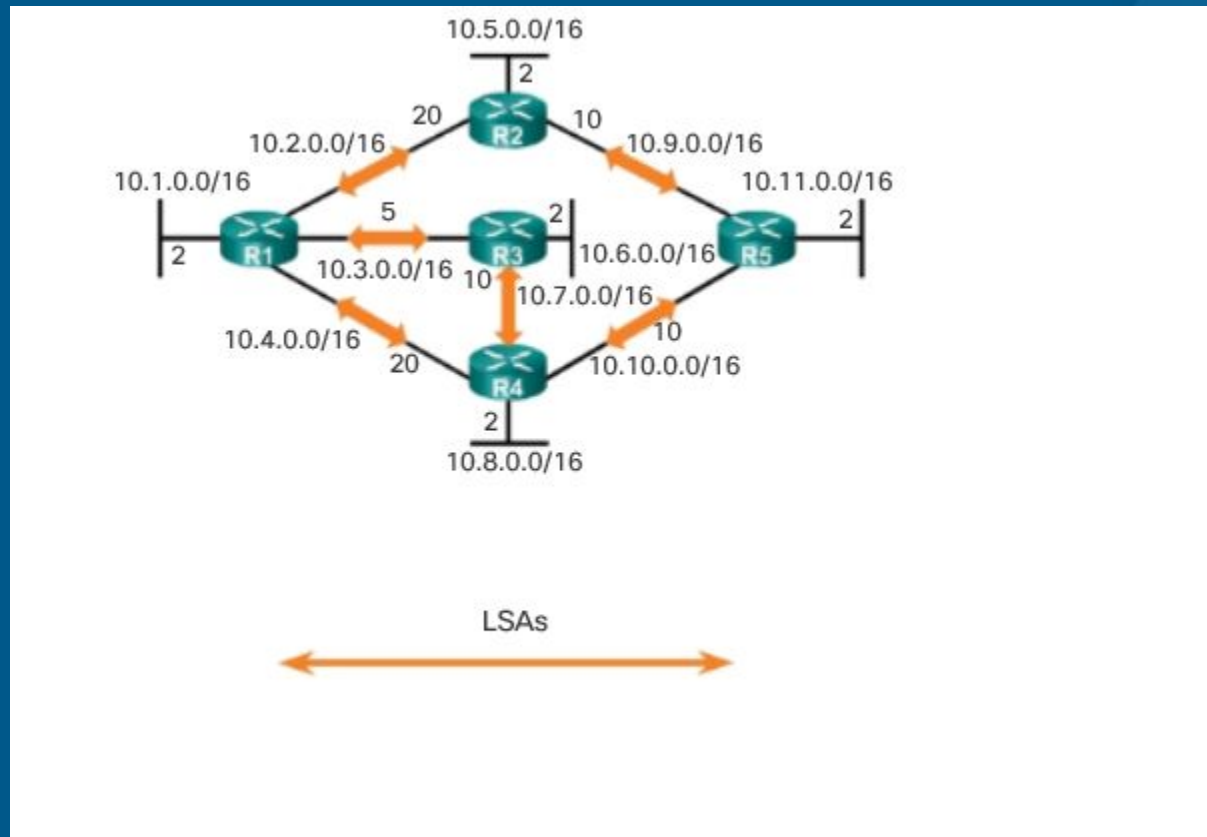
OSPF komponentlari

- Link-State Operation



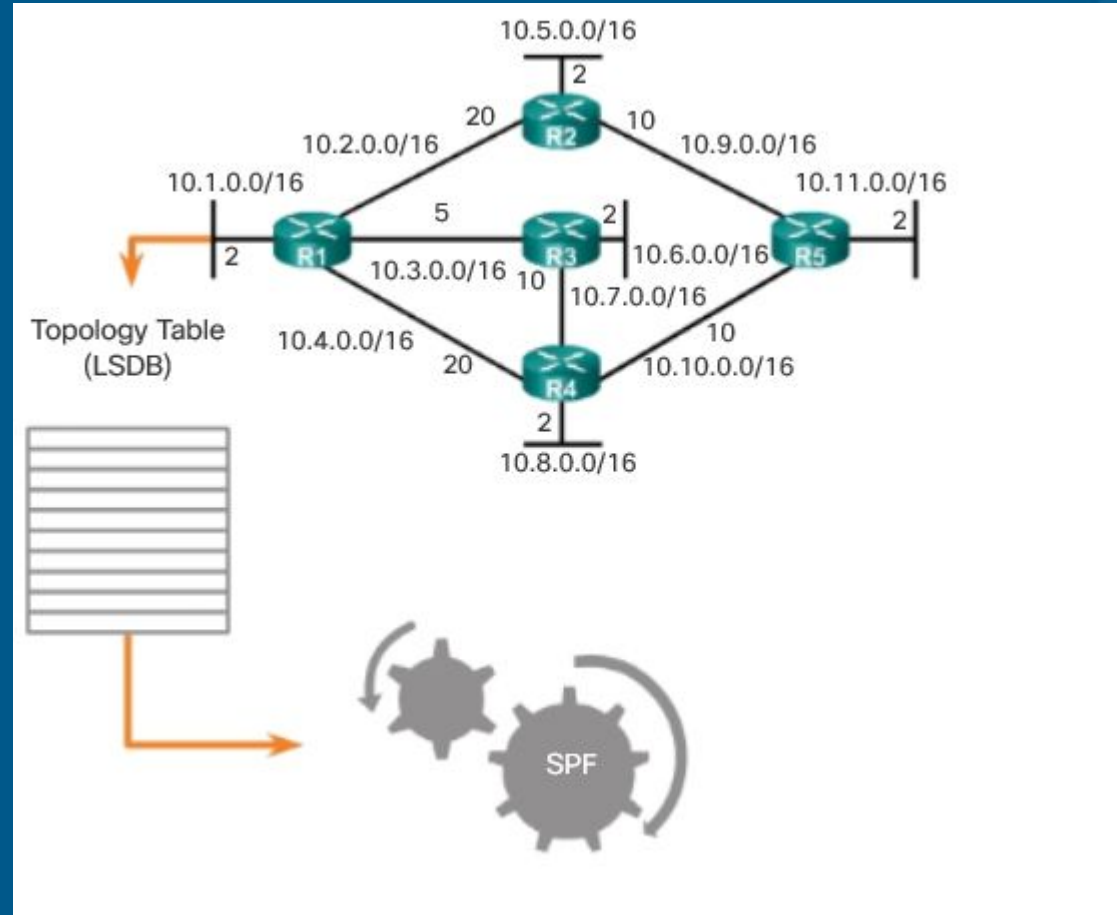
OSPF komponentlari

- Link-State Operation



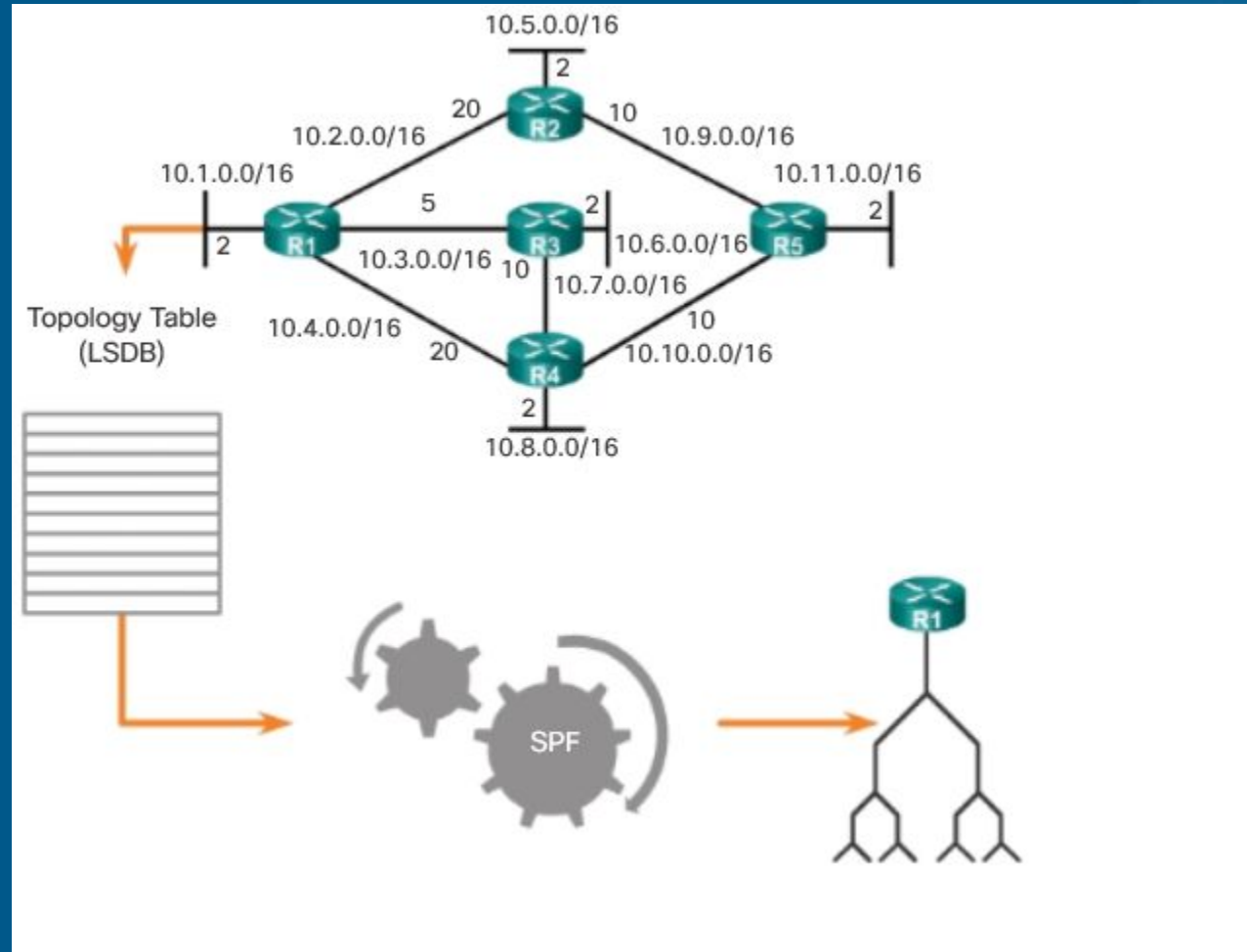
OSPF komponentlari

- Link-State Operation



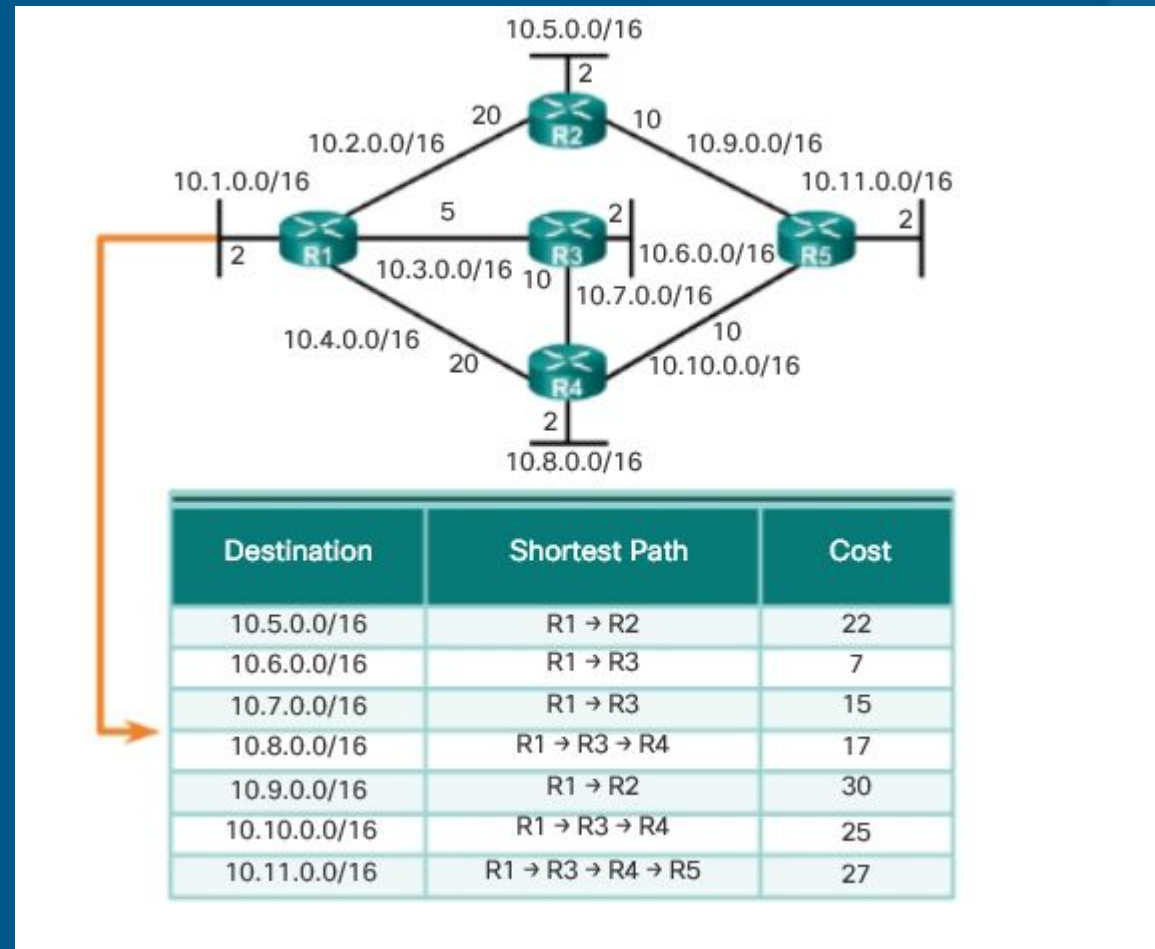
OSPF komponentlari

- Link-State Operation



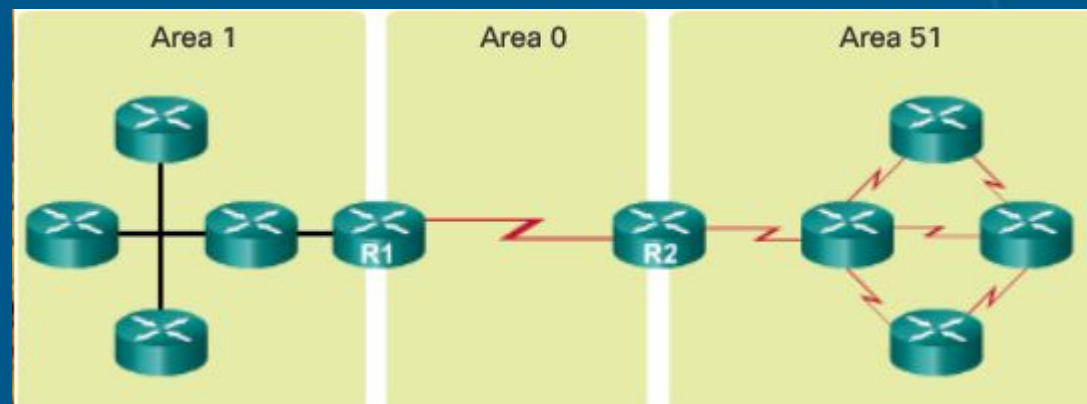
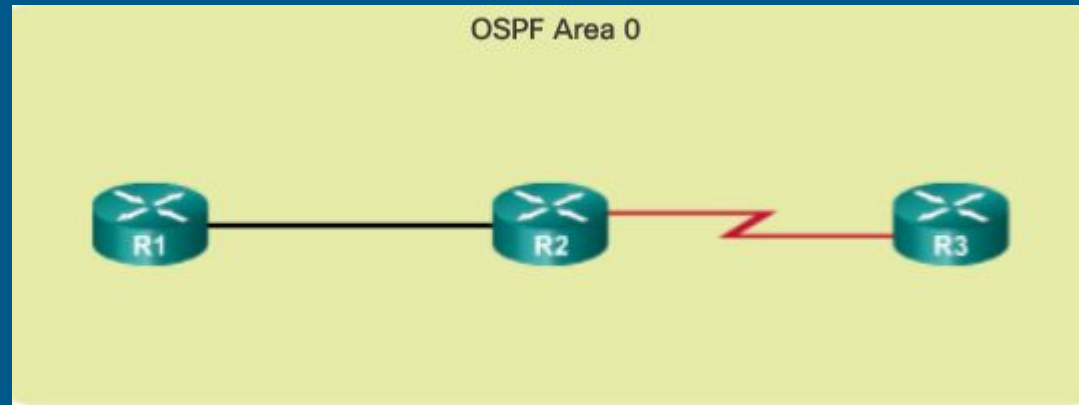
OSPF komponentlari

- Link-State Operation



Single-Area and Multiarea OSPF

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Types of OSPF Packets

- **Hello packet** - Qo'shnilikni o'rnatish
- **Database Description (DBD)** - LSDB ni tashlaydi va o'rganadi
- **Link-State Request (LSR)** - DBD haqida qo'shimcha malumot so'raydi
- **Link-State Update (LSU)** - LSR ga javob berish va yangilanishlarni yuboradi LSU ni 11 ta turi mavjud
- **Link-State Acknowledgment (LSAck)** - LSU paketlariga javob paket

Hello Packet

Multicast address 224.0.0.5 ipv6 FF02::5

- Router-id
- Hello time
- Died time
- Area-id
- Ip address va maska
- DR va BDR adreslar
- Qo'shnilar ro'yxari
- **Router Priority**

Salom Paket intervallari

- point-to-point networks - 10 sec
- non-broadcast multiple access [NBMA] networks; for example, Frame Relay - 30 sec

- Died time = 4 x hello

OSPF operatsion holatlari

- Down state - hello jo'natadi
- Init state - Helloni yetib borganiga ishonch hosil qiladi
- Two-Way state - Qo'shni bo'ladi
- ExStart state - DBD bazasini jonatadi
- Exchange state - DBD larni almashadi
- Loading state - o'ziga kerakli LSU , LSR larni so'raydi
- Full state - tayor

OSPF configuration

- Router ospf 10
 - Router-id 1.1.1.1
 - Network 192.168.1.0 0.0.0.255 area 0
 - Network 172.16.1.0 0.0.0.255 area 0
 - passive-interface gig 0/0
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- OSPF cost = $10^8/bw$