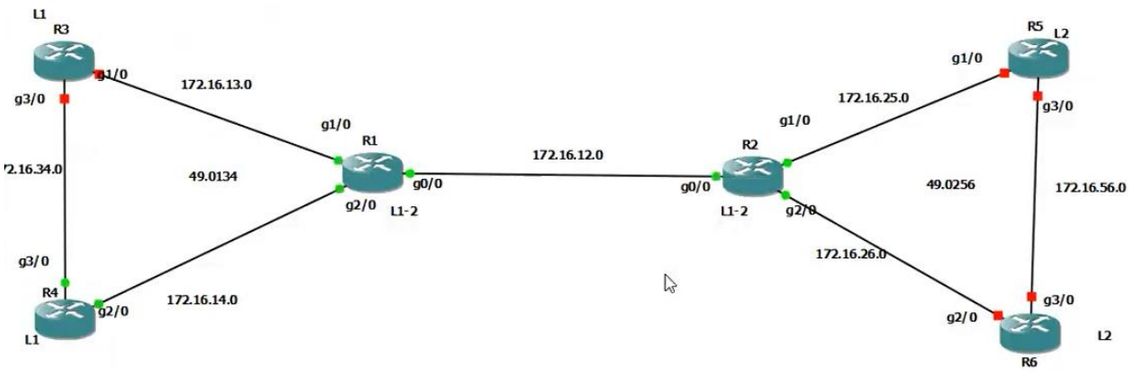
Advance Class -ISIS



** we will config ipv4 & ipv6 address on ISIS
** config ipv4 and IPv6 address on all Routers
get basic part-from the Work-book.

##Summarization

```
R6(config)#int loop 2
R6(config-if)#ip
*Jul  8 08:52:19.351: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback2,
 changed state to up
R6(config-if)#ip add 10.66.66.0 255.255.255.255
R6(config-if)#int loop 3
R6(config-if)#ip add 10.66.66.0 255.255.255.255
*Jul  8 08:52:30.315: %LINEPROTO-5-UPDOWN: Line protocol on Interface Loopback3,
 changed state to up
R6(config-if)#ip add 10.66.66.1 255.255.255.255
R6(config-if)#
```

**config the loopback 10.66.66.0 – 10.66.66.3

```
R6(config-if)#ip add 10.66.66.3 255.255.255.255
R6(config-if)#int range loop 2 -5
R6(config-if-range)#ip router isis
R6(config-if-range)#exit
R6(config)#
```

**advertise the loopbacks on ISIS.
** get all routes for all routers

```
R6(config)#router isis
R6(config-router)#summary-address 10.66.66.0 255.255.255.252 ?
  level-1     Summarize into level-1 area
  level-1-2   Summarize into both area and sub-domain
  level-2     Summarize into level-2 sub-domain
  metric      Set metric for summay route
  tag         Set tag
  <cr>

R6(config-router)#summary-address 10.66.66.0 255.255.255.252 level-2
R6(config-router)#
```

**summarize the address

```
      6.0.0.0/32 is subnetted, 1 subnets
i L2     6.6.6.6 [115/20] via 172.16.56.6, 00:10:43, GigabitEthernet3/0
      10.0.0.0/30 is subnetted, 1 subnets
i L2     10.66.66.0 [115/20] via 172.16.56.6, 00:00:18, GigabitEthernet3/0
      172.16.0.0/16 is variably subnetted, 9 subnets, 2 masks
i L2     172.16.12.0/24 [115/20] via 172.16.25.2, 00:12:19, GigabitEthernet1/0
i L2     172.16.13.0/24 [115/30] via 172.16.25.2, 00:12:09, GigabitEthernet1/0
i L2     172.16.14.0/24 [115/30] via 172.16.25.2, 00:12:09, GigabitEthernet1/0
i L2     172.16.26.0/24 [115/20] via 172.16.56.6, 00:10:43, GigabitEthernet3/0
                        [115/20] via 172.16.25.2, 00:10:43, GigabitEthernet1/0
i L2     172.16.34.0/24 [115/40] via 172.16.25.2, 00:12:09, GigabitEthernet1/0
R5#
```

##authentication
#R6

```
key-chain NH
key chain NH
key 206
key-string cisco
int gig2/0
isis authentication mode md5 level-2
isis authentication key-chain NH level-2
do sh his
```

** we will get authentication fail.
R2 and R6 will move to init state and Config same on the R2 Interface that is pointing towards R6

##IPV6 on ISIS

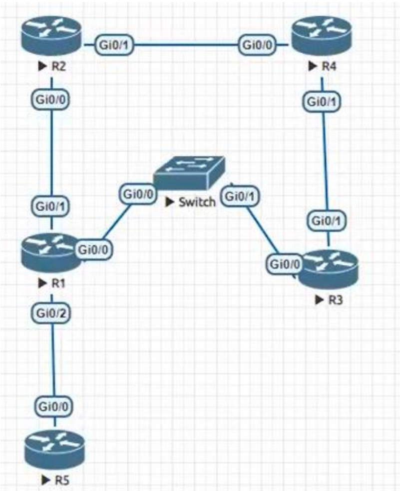
#R1

```
 router isis
  net 49.0134.0000.0000.0001.00
 metric-style wide
 address-family ipv6
 multi-topology
 int range gig0/0 , gig1/0 , gig2/0 , loop 1
 ipv6 router isis
 do sh his
```

We use this cmd bcz to extend from ipv4 to ipv6 [32bit to 128bit]

This CMD will remain same on all routers [except on net-id]

how isis is fast then OSPF



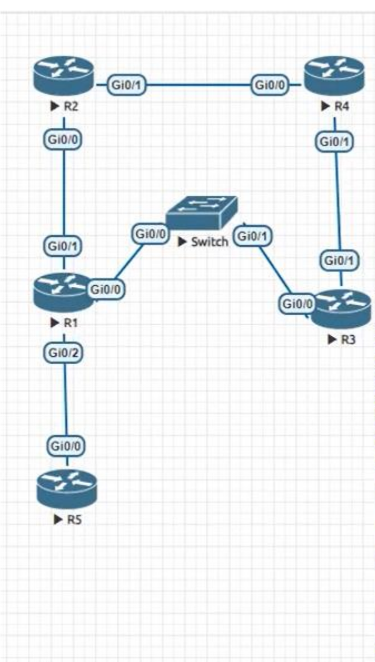
config the basic ip and loopbacks for all routers and Router IS-IS.

##[isis type level-2 only same on all routers]

```
Gateway of last resort is not set

      10.0.0.0/32 is subnetted, 5 subnets
i L2     10.1.1.1 [115/20] via 172.16.13.1, 00:04:08, GigabitEthernet0/0
i L2     10.2.2.2 [115/30] via 172.16.34.4, 00:02:01, GigabitEthernet0/1
                  [115/30] via 172.16.13.1, 00:02:01, GigabitEthernet0/0
i L2     10.4.4.4 [115/20] via 172.16.34.4, 00:02:01, GigabitEthernet0/1
i L2     10.5.5.5 [115/30] via 172.16.13.1, 00:00:22, GigabitEthernet0/0
      172.16.0.0/16 is variably subnetted, 7 subnets, 2 masks
i L2     172.16.12.0/24 [115/20] via 172.16.13.1, 00:04:08, GigabitEtherne
i L2     172.16.15.0/24 [115/20] via 172.16.13.1, 00:04:08, GigabitEtherne
i L2     172.16.24.0/24 [115/20] via 172.16.34.4, 00:02:01, GigabitEtherne
R3#tr
```

**** we have 2 path for 10.2.2.2**




```
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int gig0/0
Switch(config-if)#shut
*Jul  8 03:58:54.266: %PNP-6-PNP_DISCOVERY_STOPPED: PnP Discovery stop
ped (Config Wizard)
Switch(config-if)#
*Jul  8 03:59:02.739: %LINK-5-CHANGED: Interface GigabitEthernet0/0, c
hanged state to administratively down
*Jul  8 03:59:03.740: %LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0, changed state to down
```

R3

```
R3#
R3#ping 10.5.5.5 source 10.3.3.3 re
R3#ping 10.5.5.5 source 10.3.3.3 repeat 400
Type escape sequence to abort.
Sending 400, 100-byte ICMP Echos to 10.5.5.5, timeout is 2 seconds:
Packet sent with a source address of 10.3.3.3
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!.......!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Success rate is 98 percent (393/400), round-trip min/avg/max = 4/5/10 ms
R3#
```

**** only 6 echo's has dropped [on OSpf 19 echo will drop]**

##Bidirectional forwarding link dictation[R1 & R3]

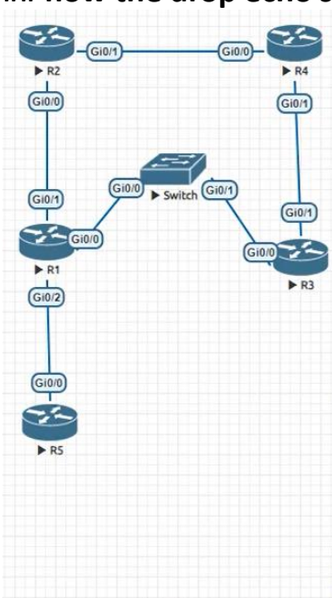
```
R1>
R1>
R1>en
R1#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#
R1(config)#router isis
R1(config-router)#bfd all-interface
R1(config-router)#
*Jul  8 04:01:36.287: %BFD-6-BFD_SESS_CREATED: BFD-SYSLOG: bfd_session_cre
neigh 172.16.12.2 proc:ISIS, idb:GigabitEthernet0/1 handle:1 act
R1(config-router)#
```

R3

```
                  [115/30] via 172.16.13.1, 00:00:02, GigabitEthernet0/0
i L2     10.4.4.4 [115/20] via 172.16.34.4, 00:05:08, GigabitEthernet0/1
i L2     10.5.5.5 [115/30] via 172.16.13.1, 00:00:02, GigabitEthernet0/0
      172.16.0.0/16 is variably subnetted, 7 subnets, 2 masks
i L2     172.16.12.0/24 [115/20] via 172.16.13.1, 00:00:02, GigabitEtherne
i L2     172.16.15.0/24 [115/20] via 172.16.13.1, 00:00:02, GigabitEtherne
i L2     172.16.24.0/24 [115/20] via 172.16.34.4, 00:05:08, GigabitEtherne
R3#config t
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#
R3(config)#
R3(config)#router isis
R3(config-router)#bfd all-interface
R3(config-router)#
```

```
R1(config-if)#bfd interval 50 min_rx 50 multiplier 3
R1(config-if)#
*Jul  8 04:06:14.178: %BFD-6-BFD_IF_CONFIGURE: BFD-SYSLOG: bfd config apply
:GigabitEthernet0/0
```

now the drop echo's will reduce.




```
Switch(config-if)#
Switch(config-if)#
Switch(config-if)#
Switch(config-if)#shut
Switch(config-if)#
*Jul  8 04:07:24.469: %LINK-5-CHANGED: Interface GigabitEthernet0/0, c
hanged state to administratively down
*Jul  8 04:07:25.469: %LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0, changed state to down
```

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!
*Jul  8 04:07:29.302: %LINK-2-INTVULN: In critical region with interrup
, intfc=GigabitEthernet0/0 -Process= "Exec", ipl= 0, pid= 3
-Traceback= 225BE1z 140333z 175DE35z 1779E61z 14FA2Ez 14F0A4z 15A7EAz 1
AF6Bz 1B1CC86z 1B488CCz 1B48434z 1B48356z 1B5A75Bz 1B5A532z 1B5A36Ez
*Jul  8 04:07:30.343: %BFDFSM-6-BFD_SESS_DOWN: BFD-SYSLOG: BFD session
le:1,is going Down Reason: ECHO FAILURE ..!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
!!!!!!!!!!
Success rate is 99 percent (497/500), round-trip min/avg/max = 4/6/16 m
R3#
```

** now only 3echo's has dropped
[that's way isis is faster then osps]