

# Advanced CCIE Routing & Switching v5.0

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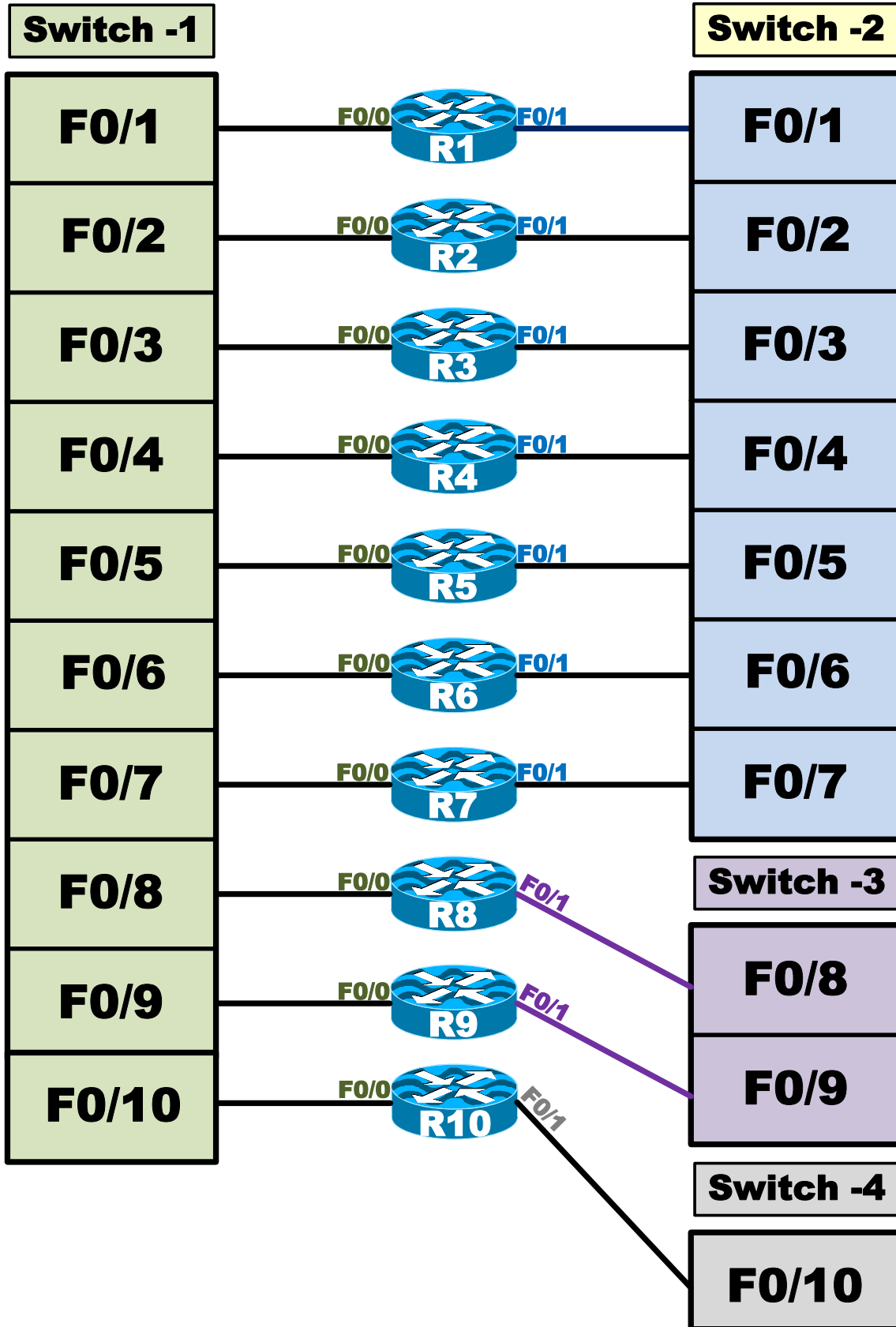
**Narbik Kocharians**  
**CCSI, CCIE #12410**  
**R&S, Security, SP**

**VOL-I**

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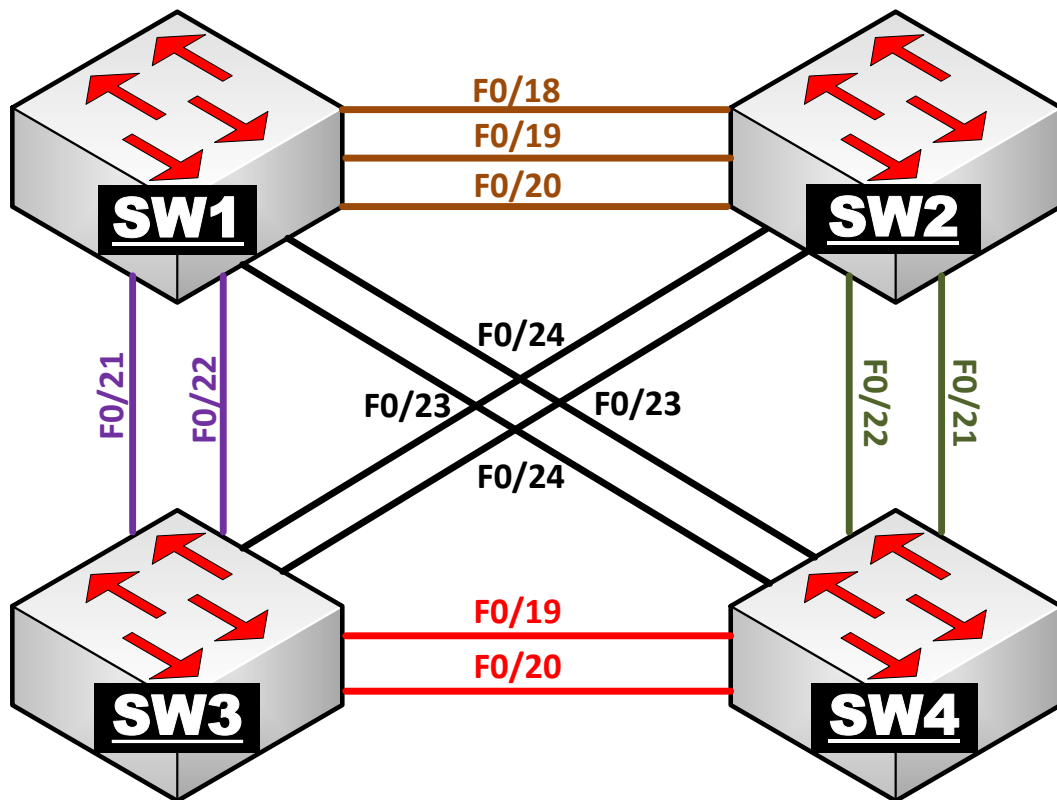


## Serial connections:

<b>Router</b>	<b>Interface</b>	<b>Router</b>	<b>Interface</b>
<b>R1</b>	<b>S1/2</b>	<b>R2</b>	<b>S1/1</b>
<b>R1</b>	<b>S1/3</b>	<b>R3</b>	<b>S1/1</b>
<b>R1</b>	<b>S1/4</b>	<b>R4</b>	<b>S1/1</b>
<b>R1</b>	<b>S1/5</b>	<b>R5</b>	<b>S1/1</b>
<b>R1</b>	<b>S1/6</b>	<b>R6</b>	<b>S1/1</b>
<b>R2</b>	<b>S1/1</b>	<b>R1</b>	<b>S1/2</b>
<b>R2</b>	<b>S1/3</b>	<b>R3</b>	<b>S1/2</b>
<b>R2</b>	<b>S1/4</b>	<b>R4</b>	<b>S1/2</b>
<b>R2</b>	<b>S1/5</b>	<b>R5</b>	<b>S1/2</b>
<b>R2</b>	<b>S1/6</b>	<b>R6</b>	<b>S1/2</b>
<b>R3</b>	<b>S1/1</b>	<b>R1</b>	<b>S1/3</b>
<b>R3</b>	<b>S1/2</b>	<b>R2</b>	<b>S1/3</b>
<b>R3</b>	<b>S1/4</b>	<b>R4</b>	<b>S1/3</b>
<b>R3</b>	<b>S1/5</b>	<b>R5</b>	<b>S1/3</b>
<b>R3</b>	<b>S1/6</b>	<b>R6</b>	<b>S1/3</b>
<b>R4</b>	<b>S1/1</b>	<b>R1</b>	<b>S1/4</b>
<b>R4</b>	<b>S1/2</b>	<b>R2</b>	<b>S1/4</b>
<b>R4</b>	<b>S1/3</b>	<b>R3</b>	<b>S1/4</b>
<b>R4</b>	<b>S1/5</b>	<b>R5</b>	<b>S1/4</b>
<b>R4</b>	<b>S1/6</b>	<b>R6</b>	<b>S1/4</b>
<b>R5</b>	<b>S1/1</b>	<b>R1</b>	<b>S1/5</b>
<b>R5</b>	<b>S1/2</b>	<b>R2</b>	<b>S1/5</b>
<b>R5</b>	<b>S1/3</b>	<b>R3</b>	<b>S1/5</b>
<b>R5</b>	<b>S1/4</b>	<b>R4</b>	<b>S1/5</b>
<b>R5</b>	<b>S1/6</b>	<b>R6</b>	<b>S1/5</b>
<b>R6</b>	<b>S1/1</b>	<b>R1</b>	<b>S1/6</b>
<b>R6</b>	<b>S1/2</b>	<b>R2</b>	<b>S1/6</b>
<b>R6</b>	<b>S1/3</b>	<b>R3</b>	<b>S1/6</b>
<b>R6</b>	<b>S1/4</b>	<b>R4</b>	<b>S1/6</b>
<b>R6</b>	<b>S1/5</b>	<b>R5</b>	<b>S1/6</b>

<b>R9</b>	<b>S0/0/0</b>	<b>R10</b>	<b>S0/0/0</b>
<b>R9</b>	<b>S0/1/0</b>	<b>R10</b>	<b>S0/1/0</b>
<b>R10</b>	<b>S0/0/0</b>	<b>R9</b>	<b>S0/0/0</b>
<b>R10</b>	<b>S0/1/0</b>	<b>R9</b>	<b>S0/1/0</b>

# Switch to Switch connections





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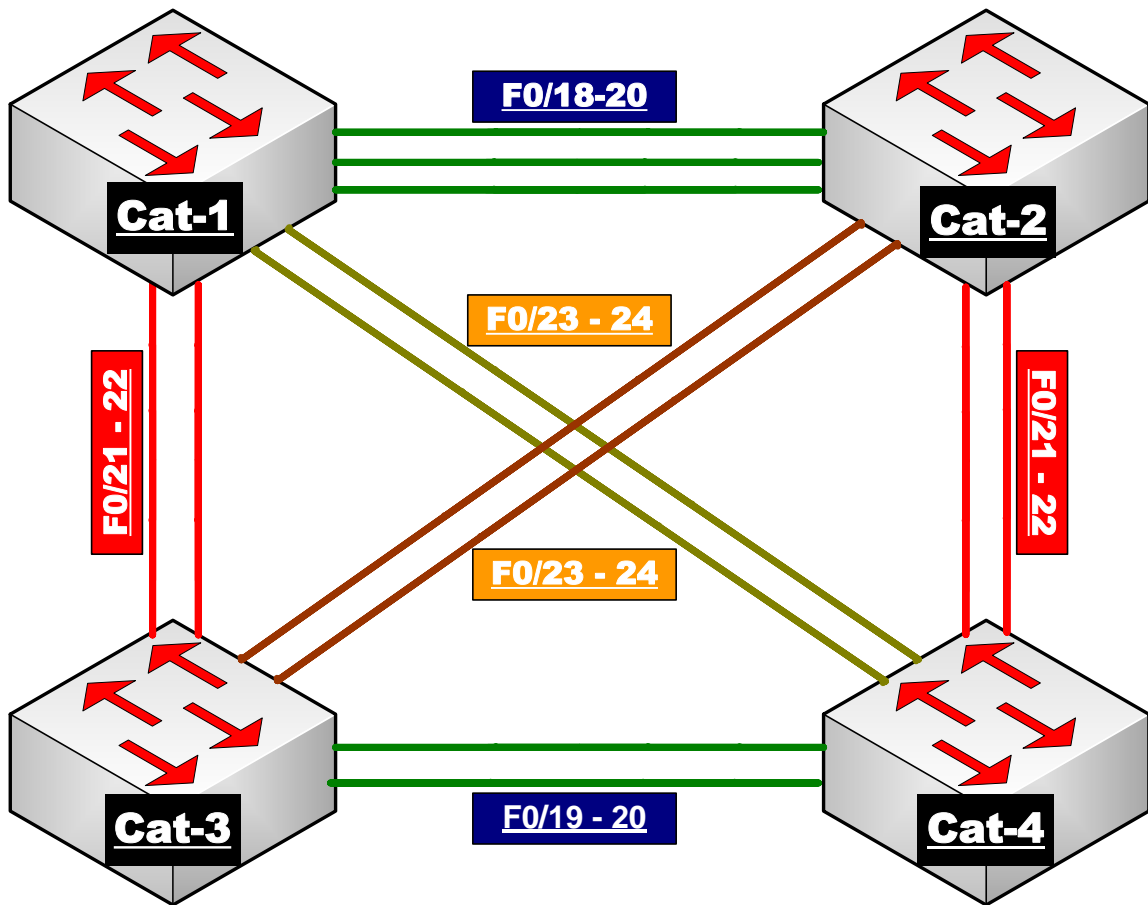
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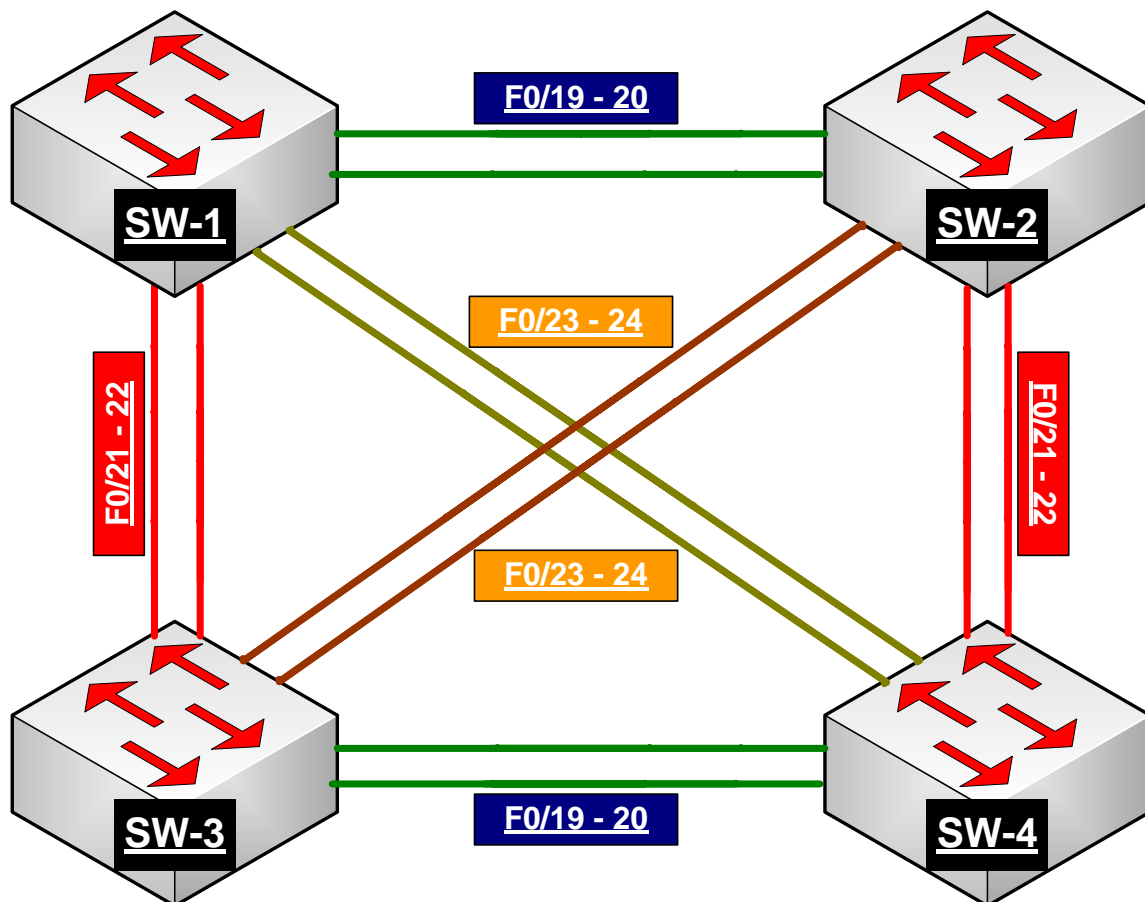
## Switching

# Lab 1

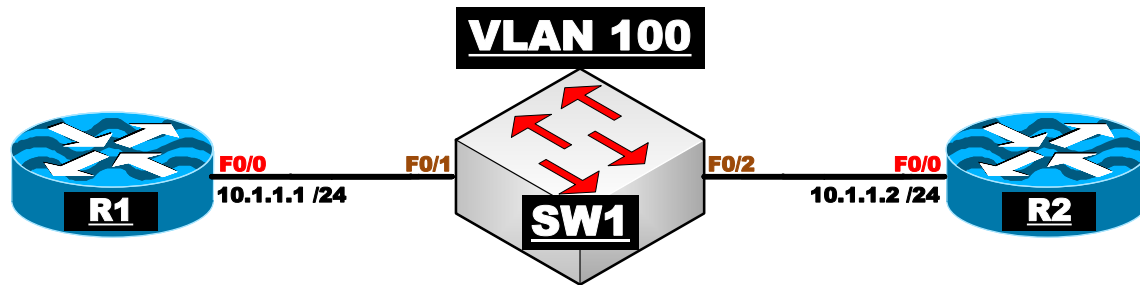
## Configuring Trunks



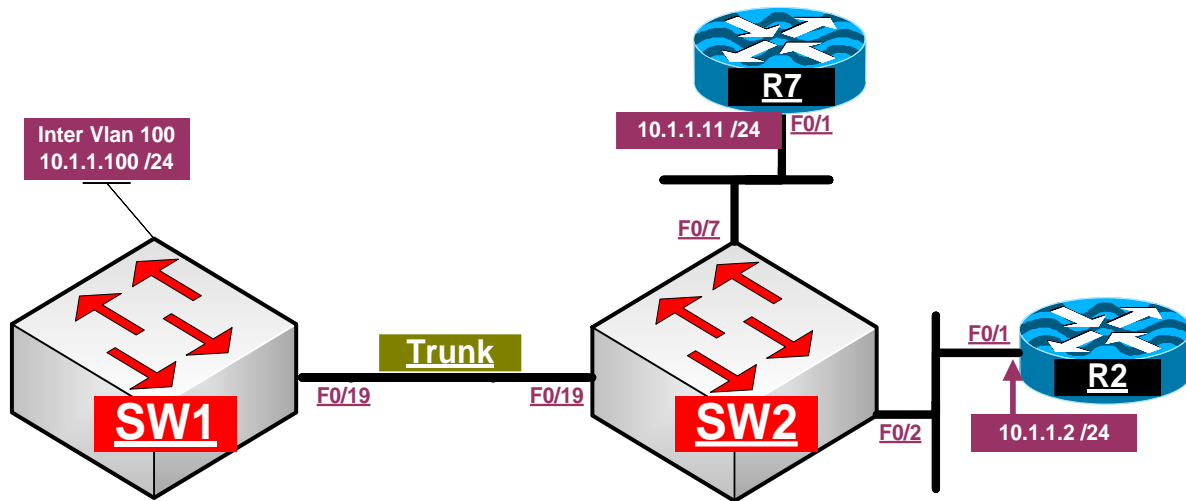
## Lab 2 Configuring EtherChannels



## Lab 3 Storm Control - I

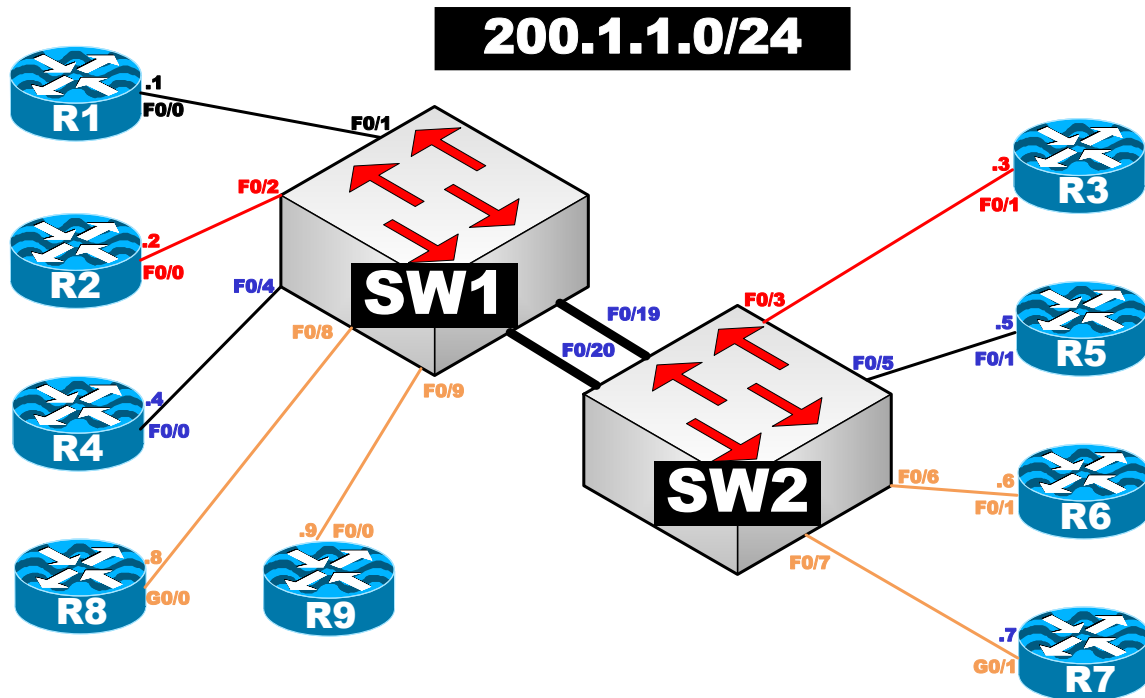


## Lab 4 Storm Control - II



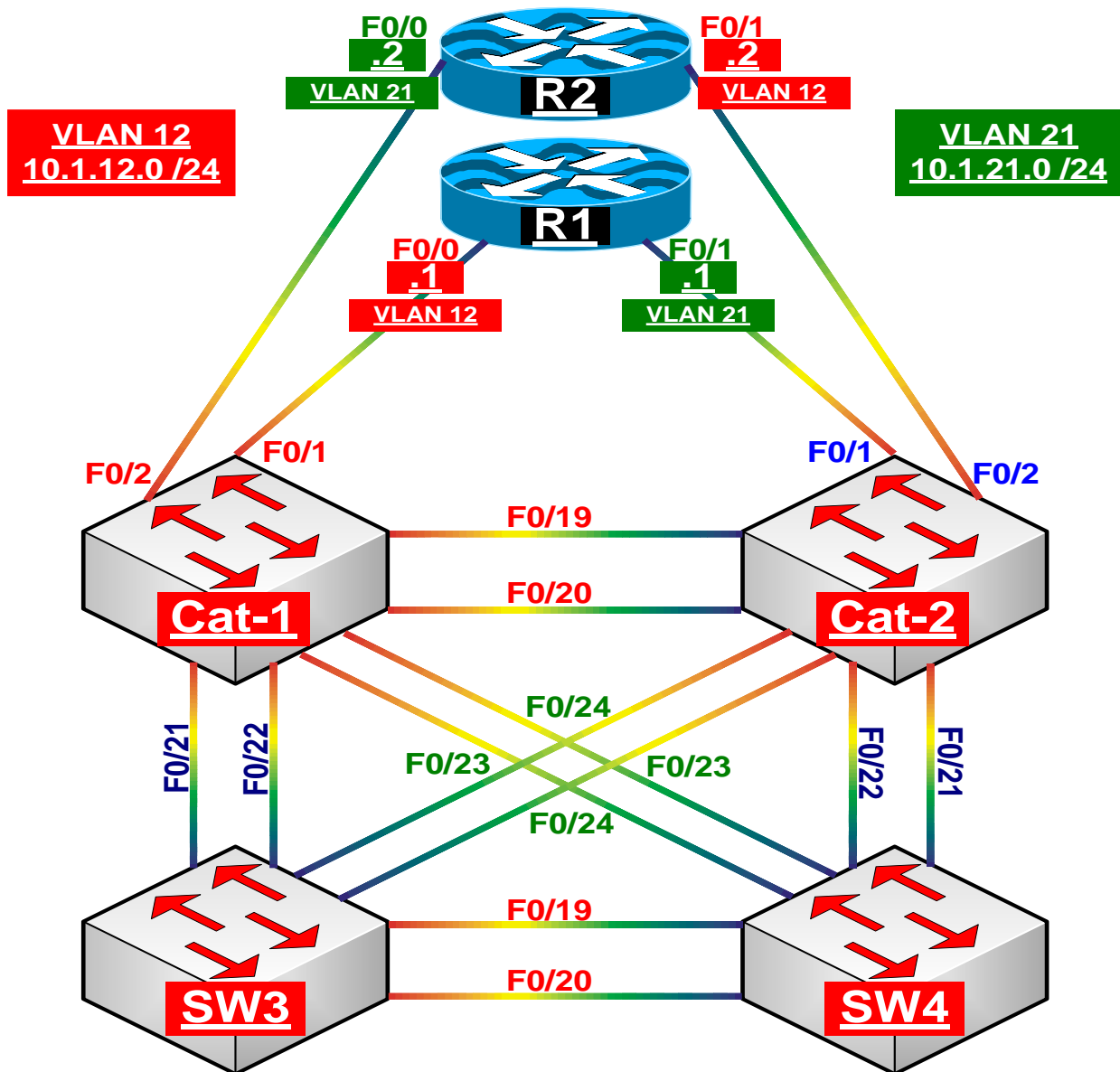
# Lab 5

## Configuring Private VLANs

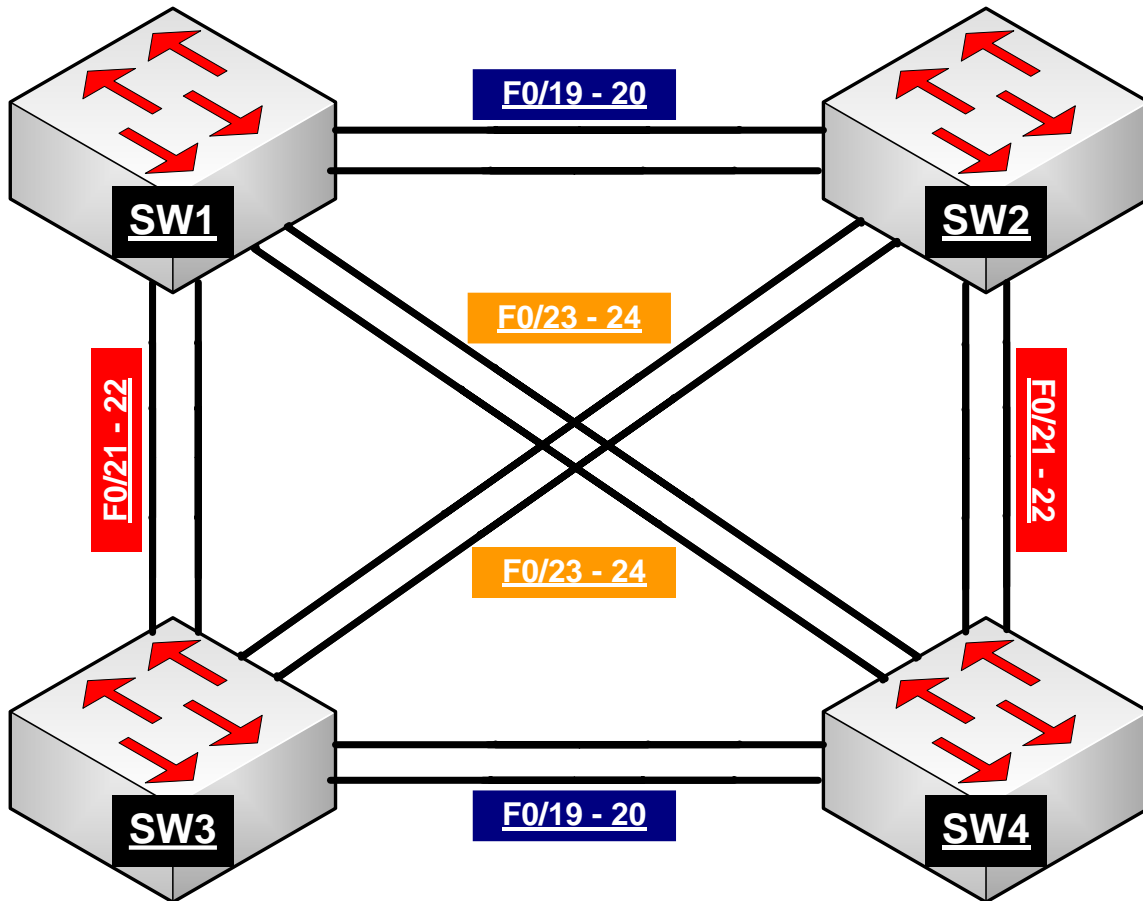


# Lab 6

## Basic Spanning-tree Configuration



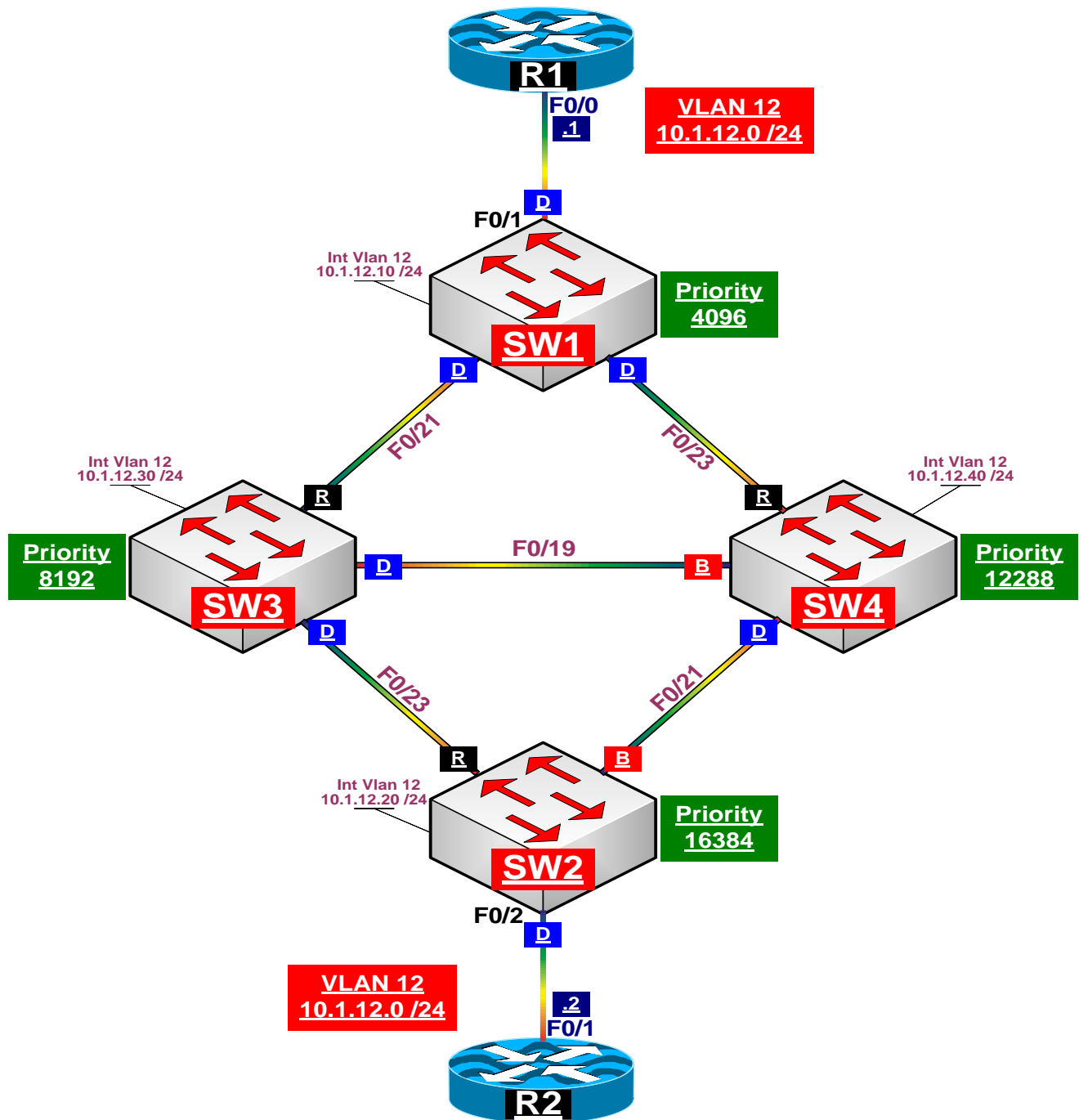
# Lab 7 Advanced Spanning-tree Configuration



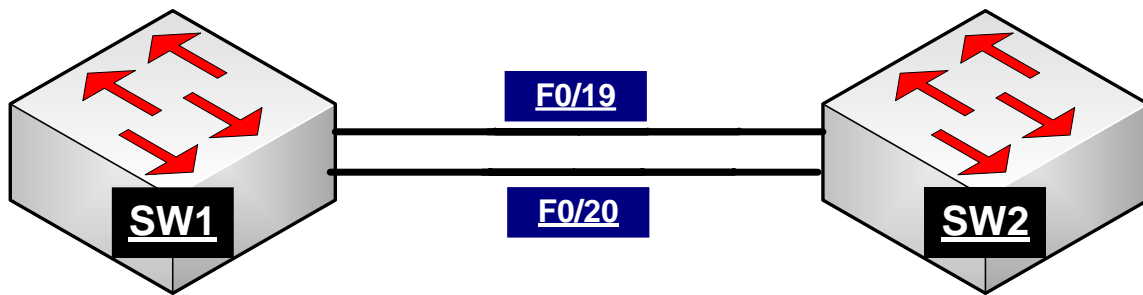


# Lab 8

## Rapid Spanning-Tree Protocol (802.1w)

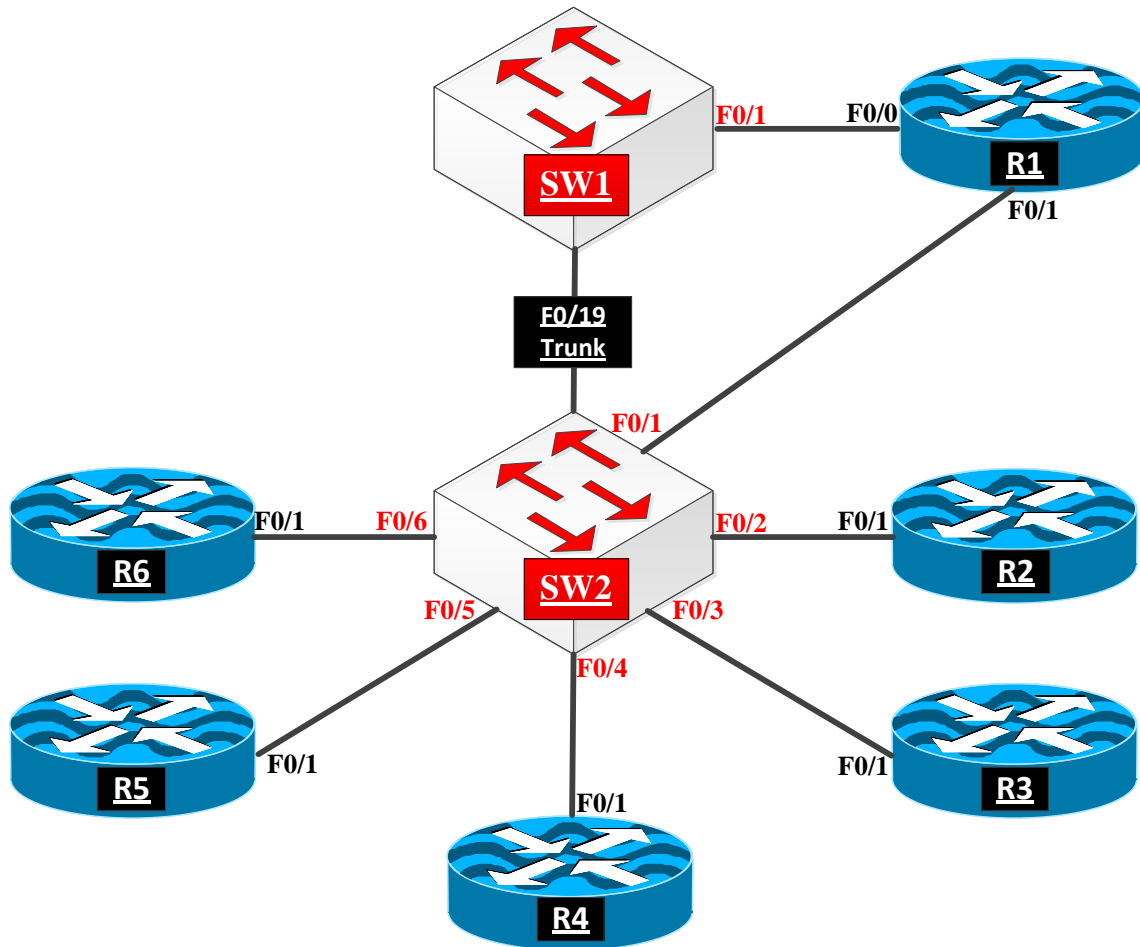


## Lab 9 Multiple Spanning Tree Protocol (802.1s)



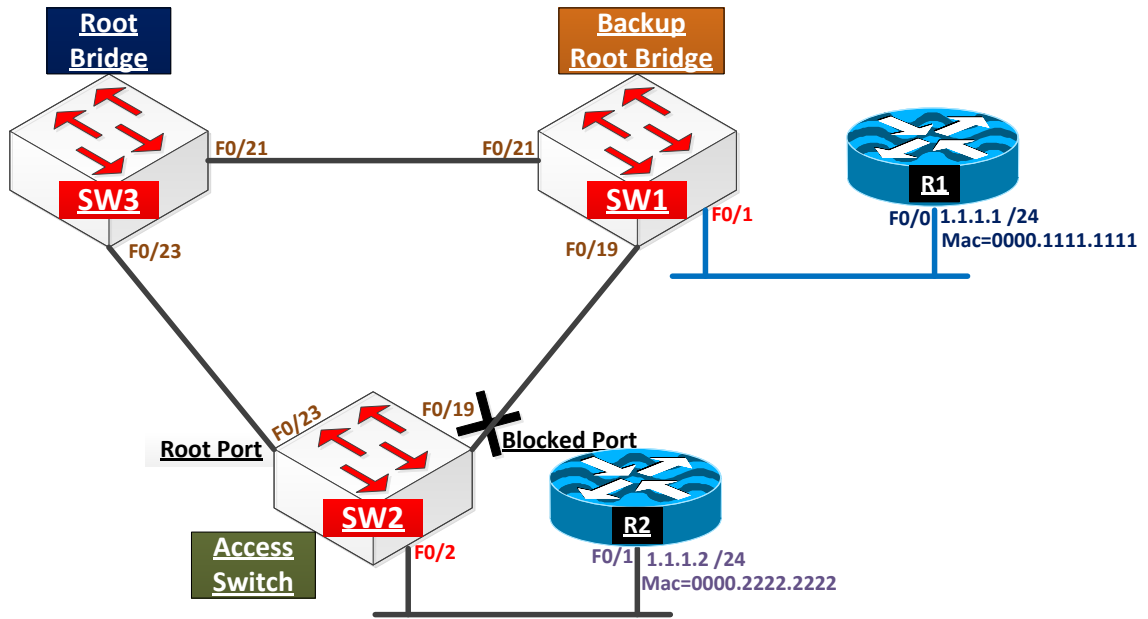
# Lab 10

## Spanning-Tree PortFast



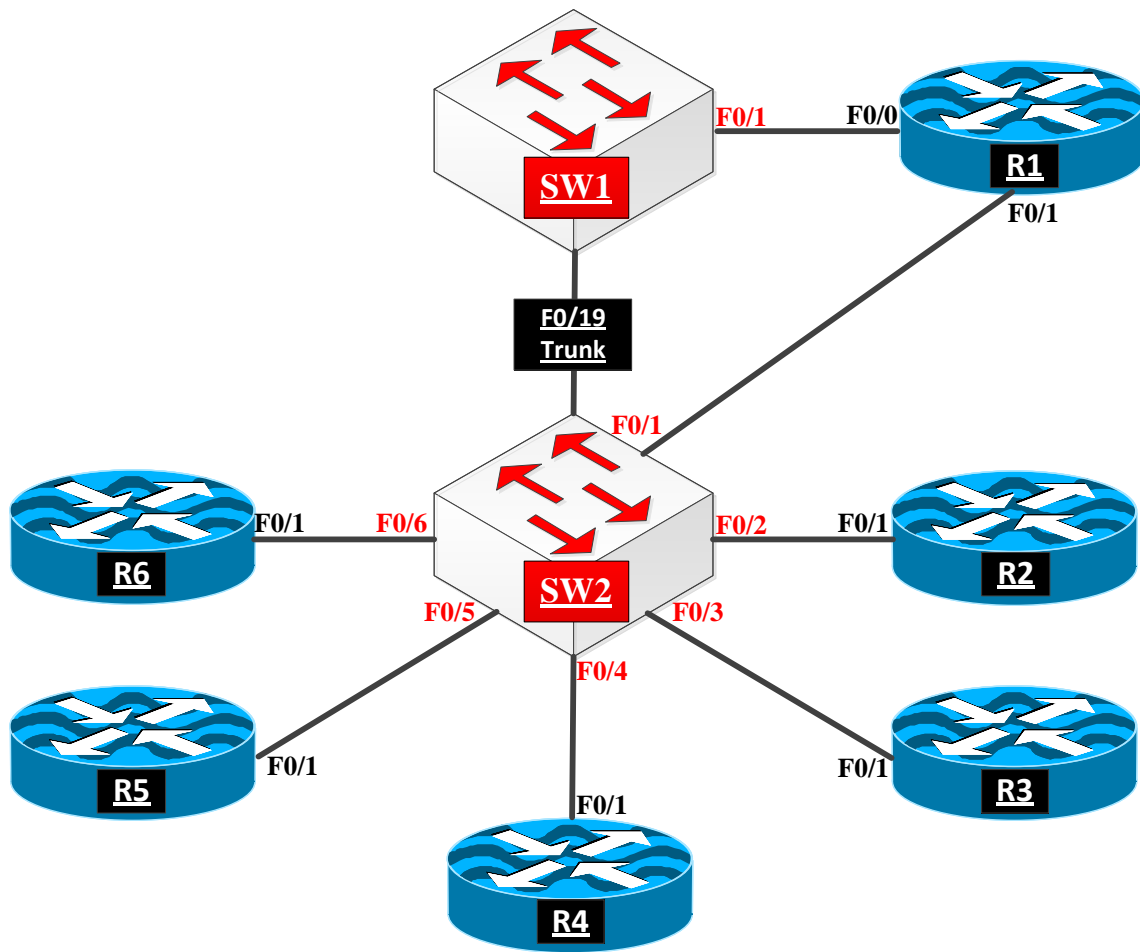
# Lab 11

## Configuring UplinkFast



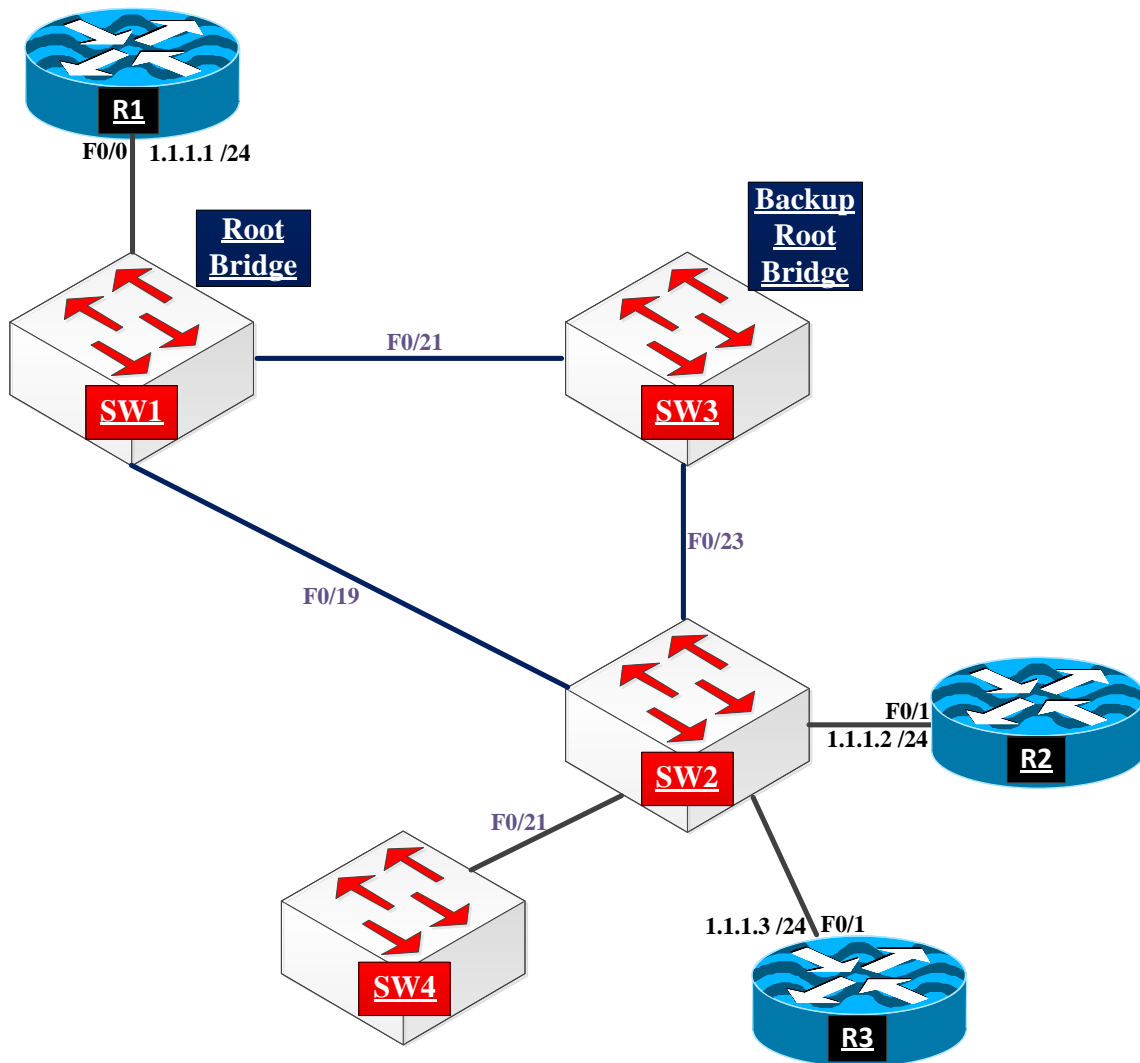
# Lab 12

## Configuring BPDUGuard



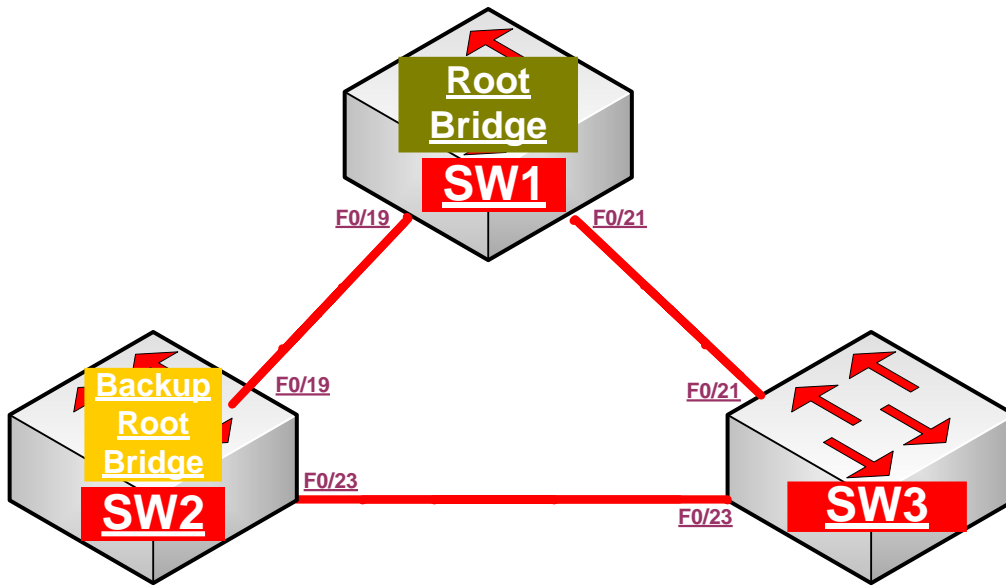
# Lab 13

## Configuring BPDUFilter



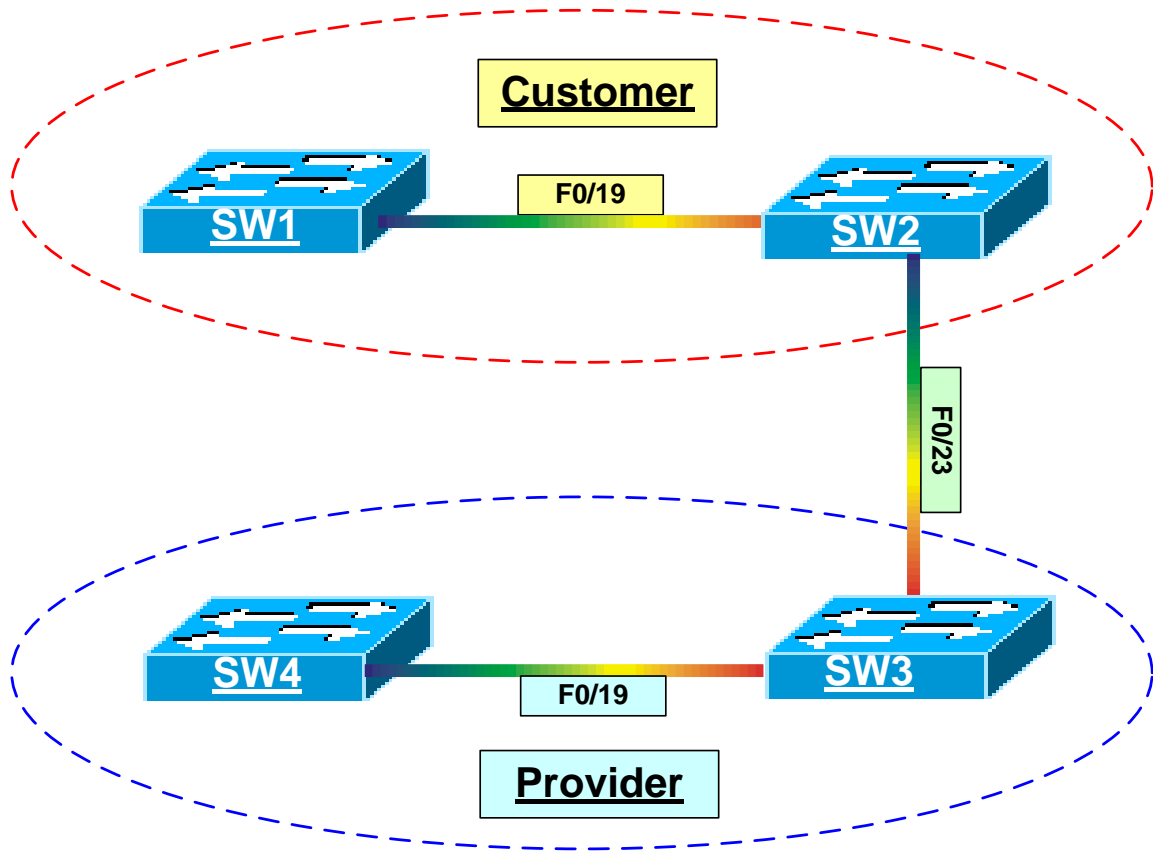
# Lab 14

## Spanning-tree BackBoneFast



# Lab 15

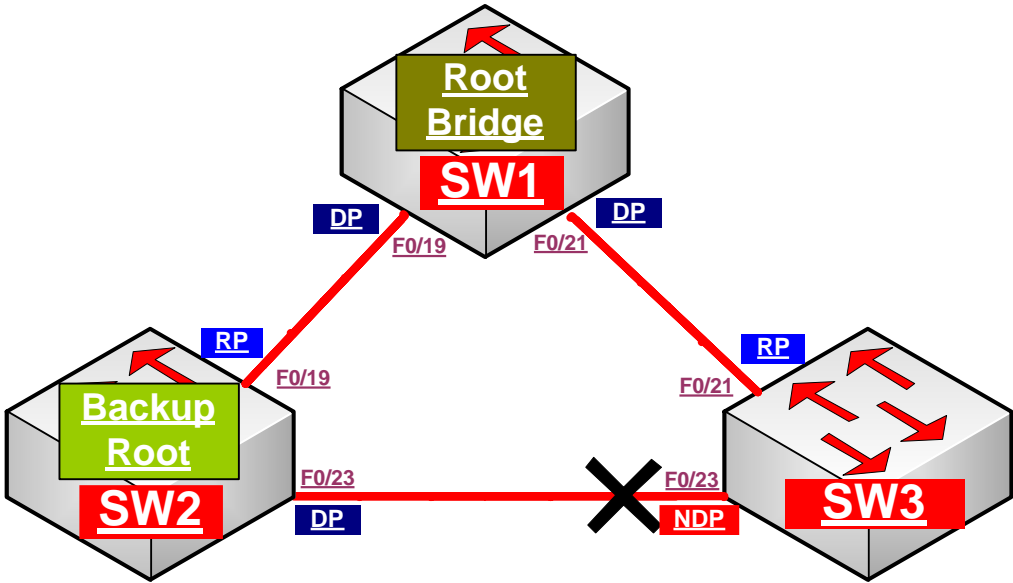
## Spanning-tree RootGuard





# Lab 16

## Spanning-tree LoopGuard



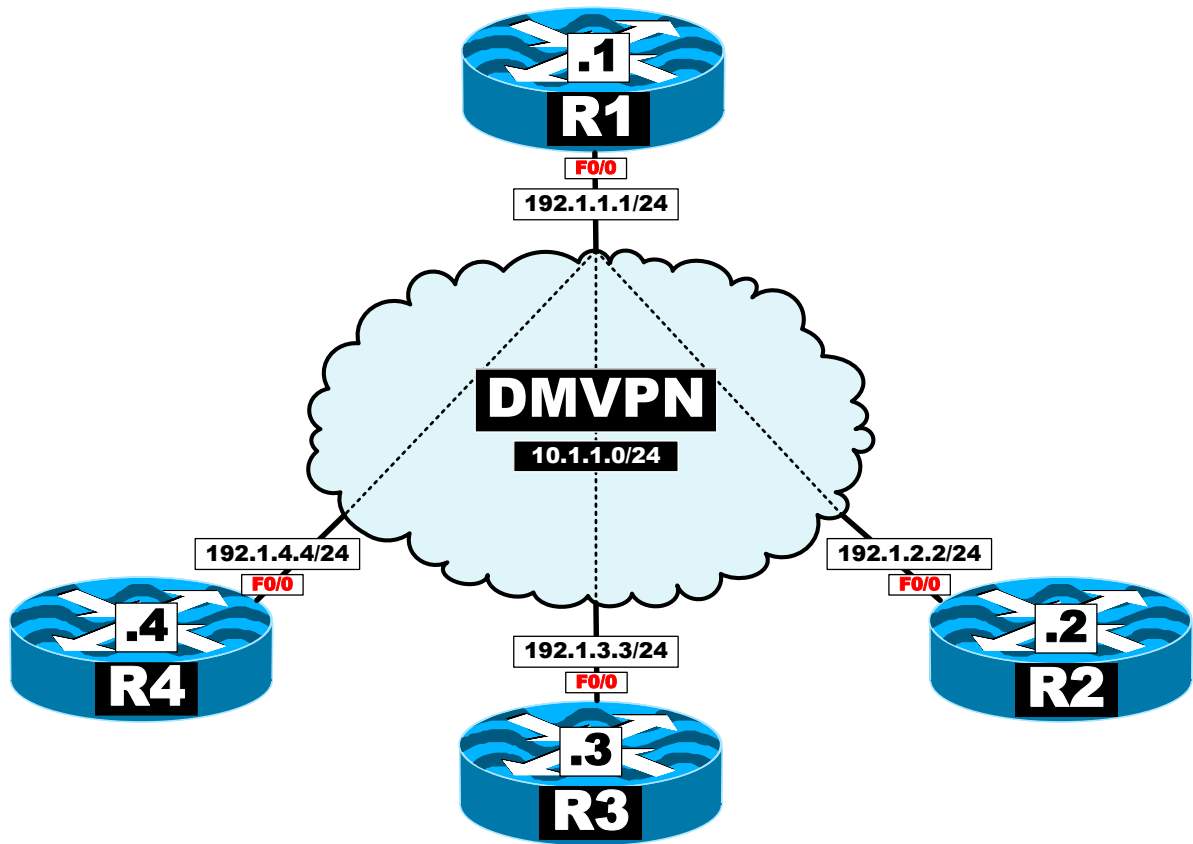
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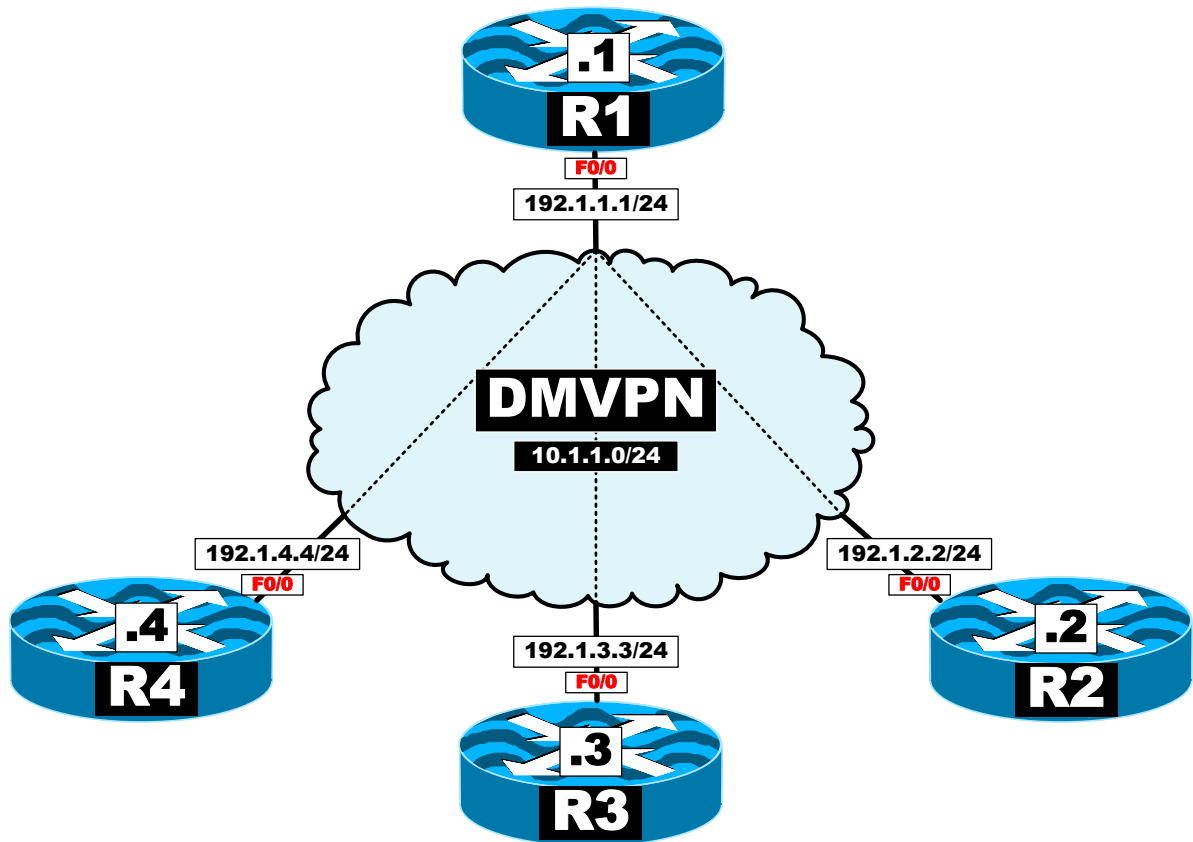
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**DMVPN**

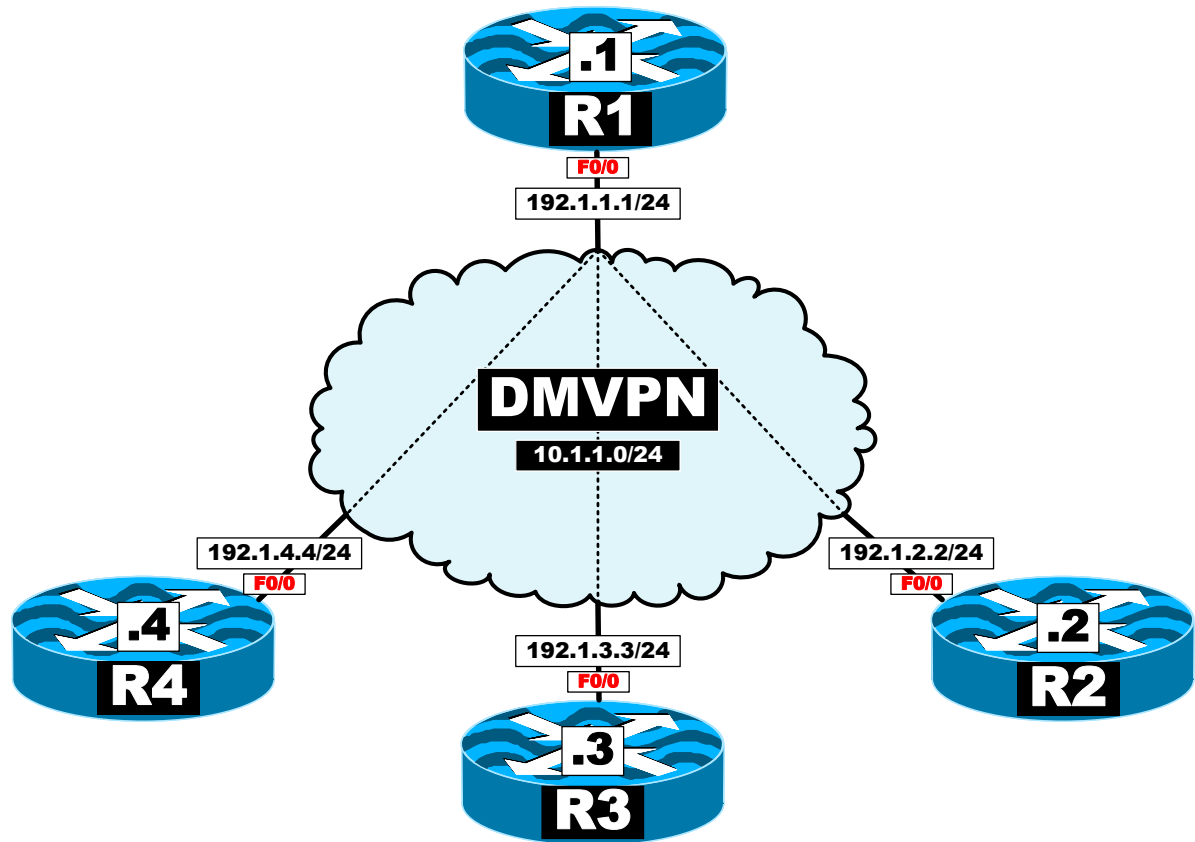
# Lab 1 - DMVPN – Phase #1 with Static Mapping



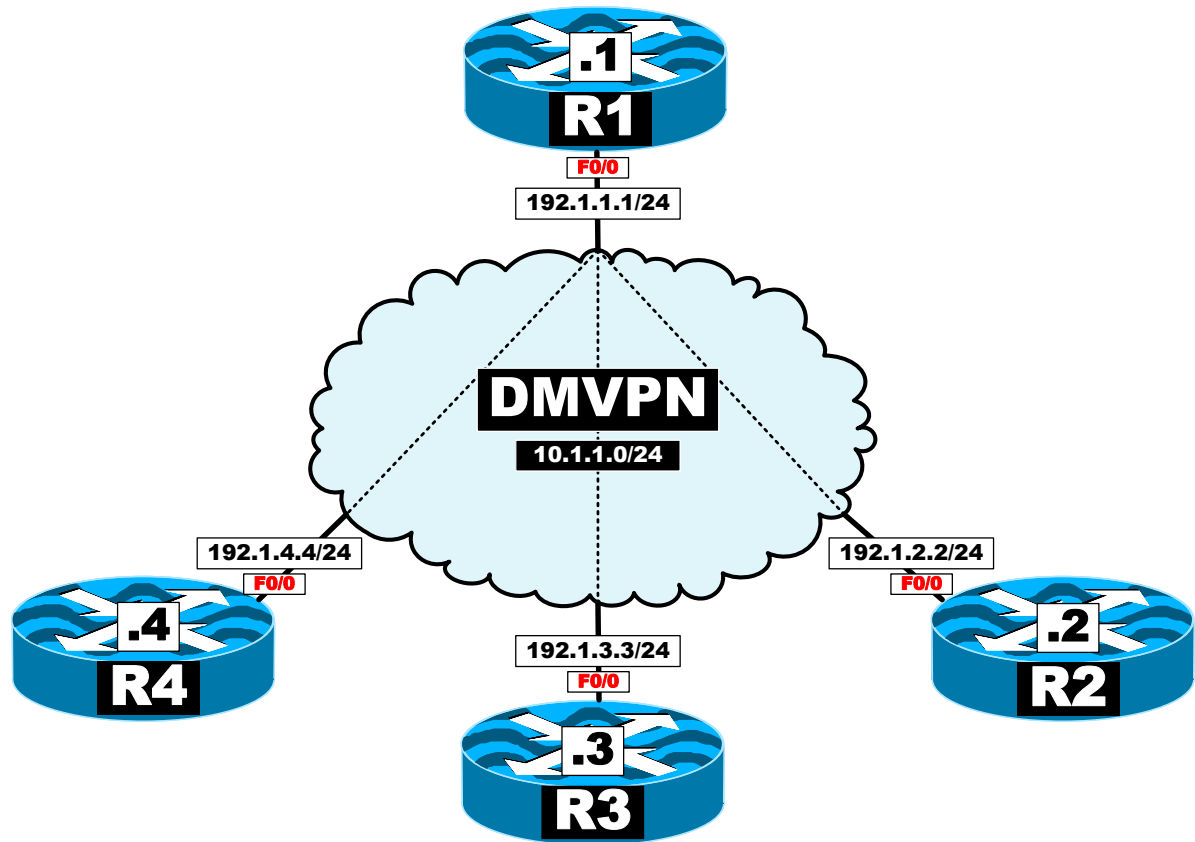
# Lab 2 - DMVPN – Phase #1 with Dynamic Mapping



## Lab 3 – DMVPN – Phase #2 Using Static Mappings

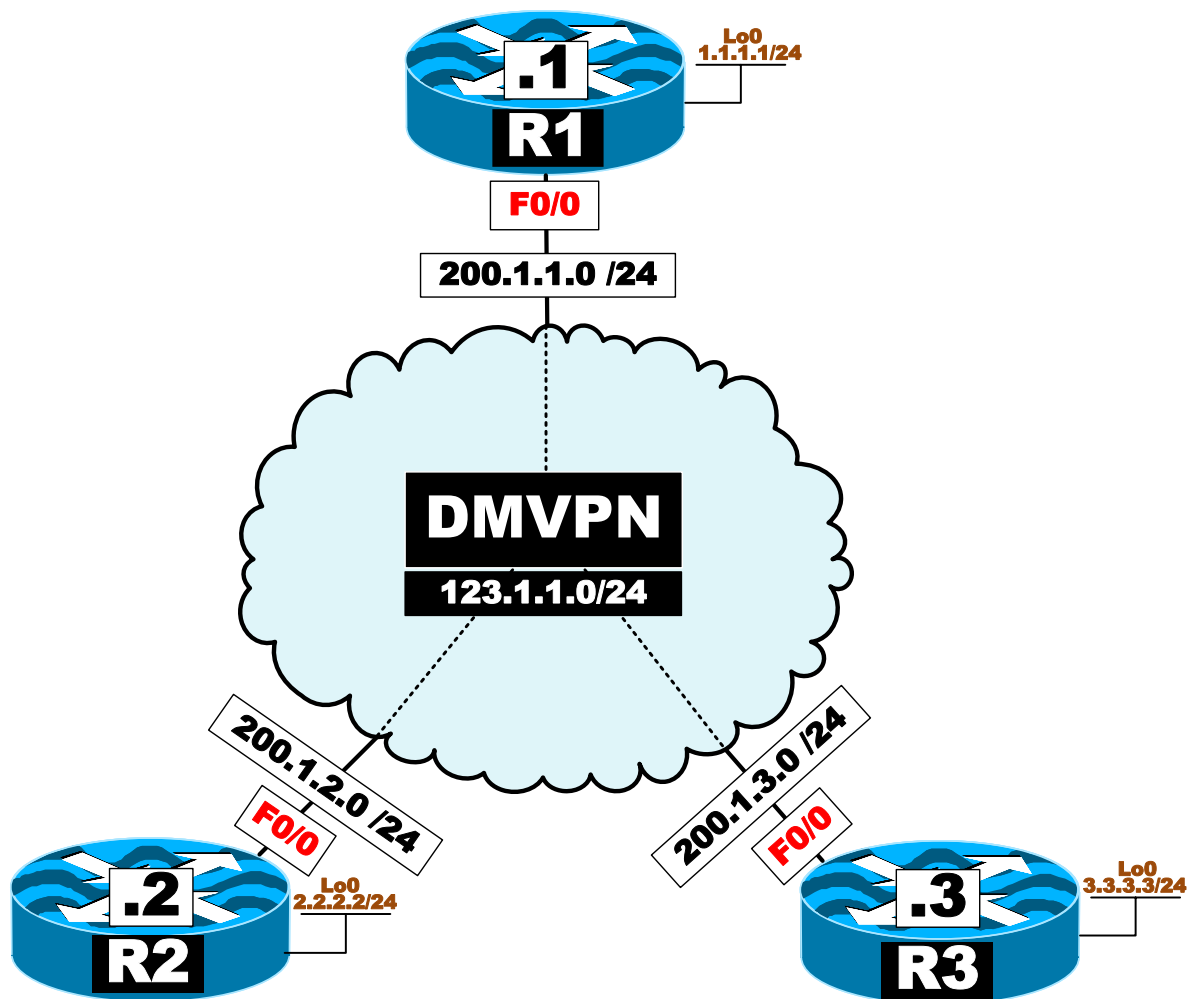


## Lab 4 – DMVPN – Phase #2 Using Dynamic Mappings



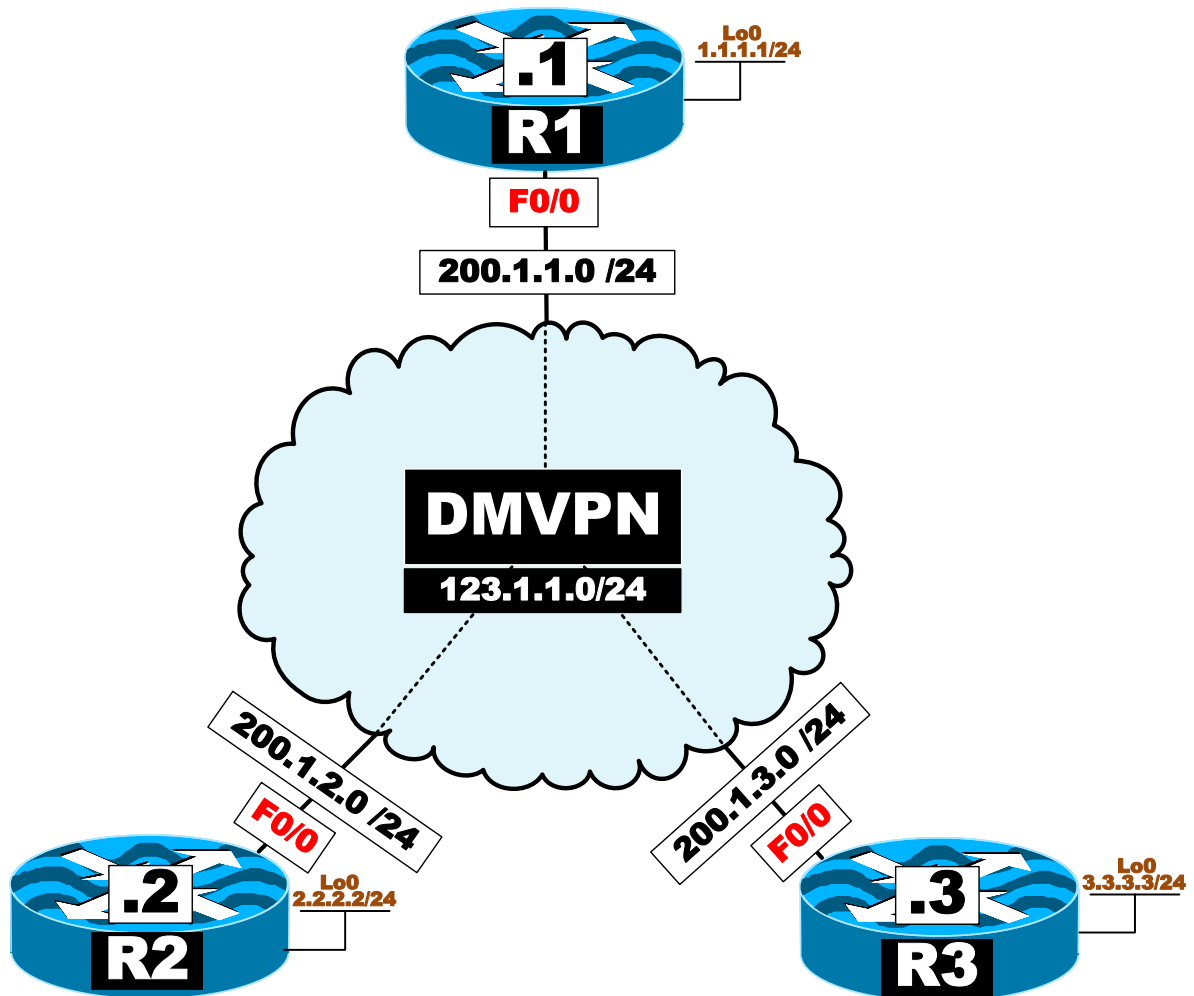
# Lab 5 – Running Routing Protocols on DMVPN

## Phase #1



# Lab 6 – Running Routing Protocols on DMVPN

## Phase #2 and Phase #3





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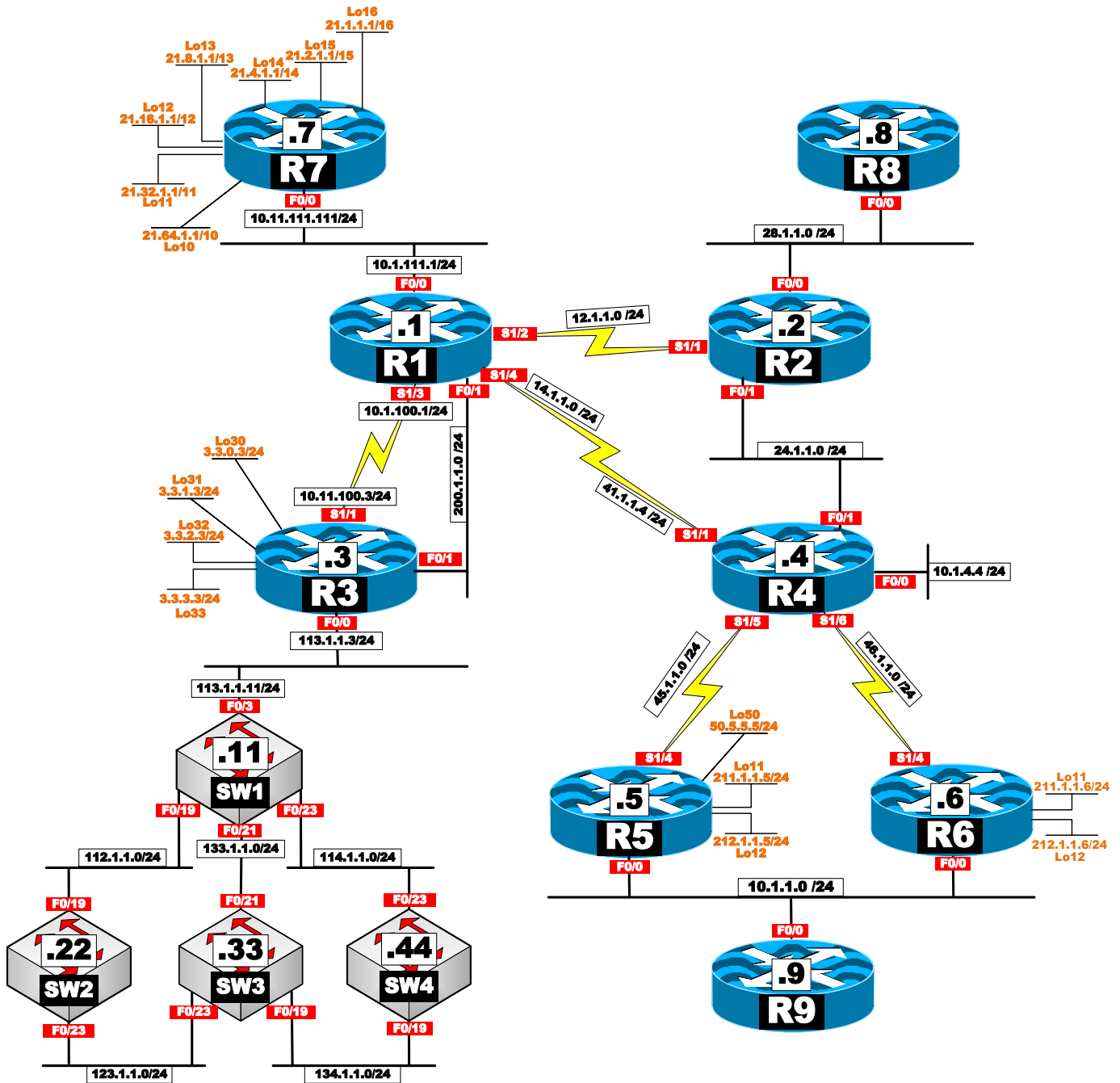
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## RIPv2

# Lab 1

## Configuring RIPv2



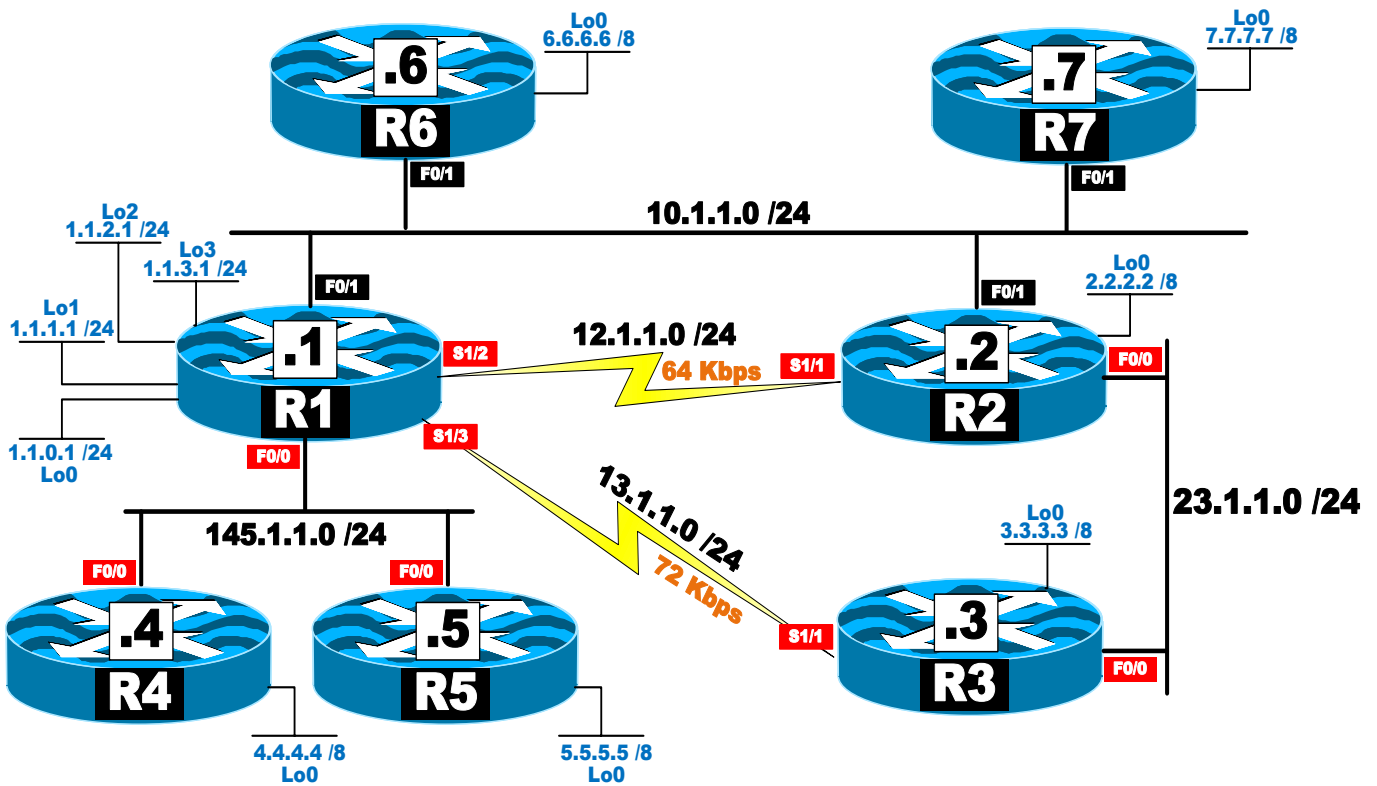
# Advanced CCIE Routing & Switching v5.0

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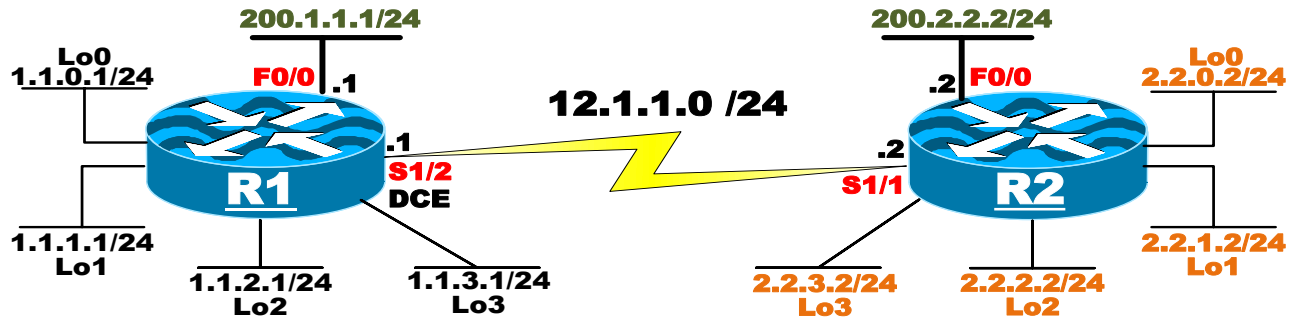
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## **EIGRP**

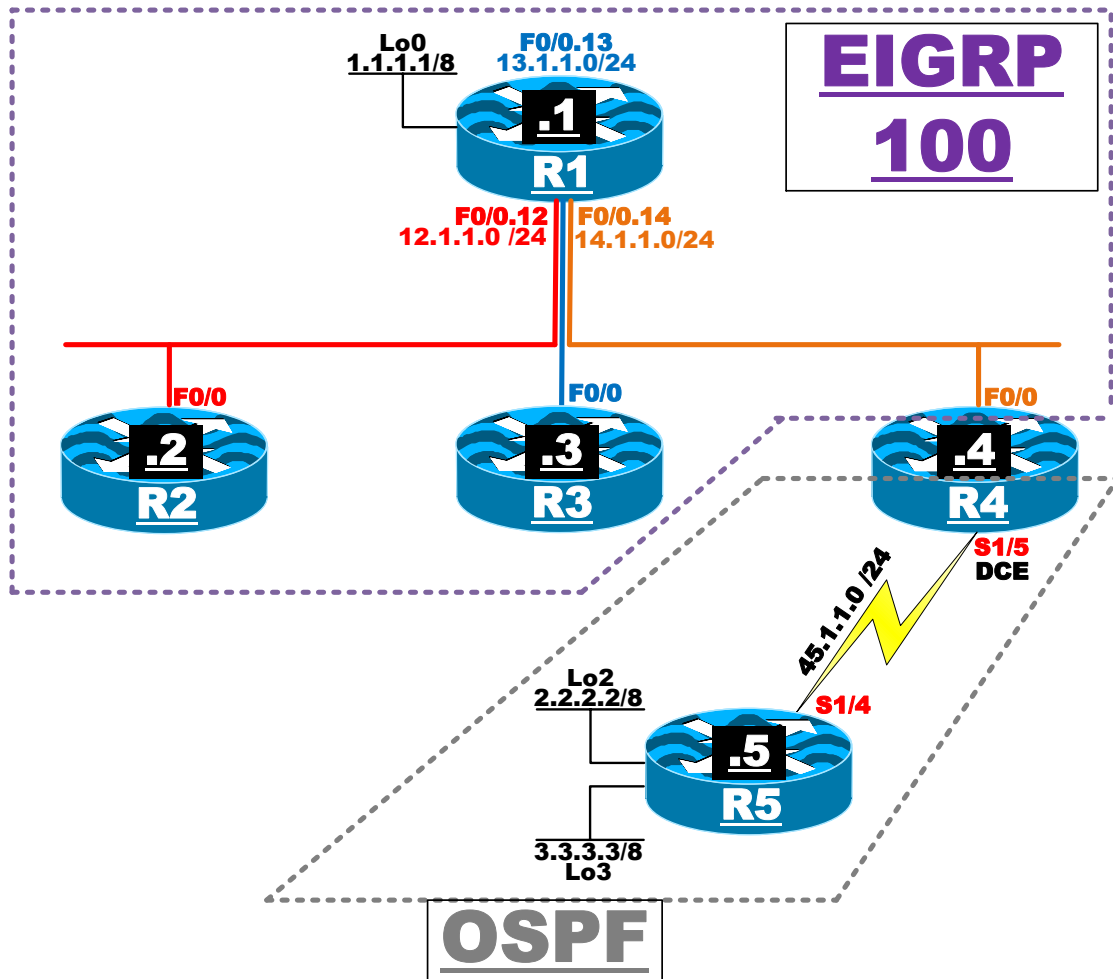
# Lab 1 - EIGRP Named Configuration



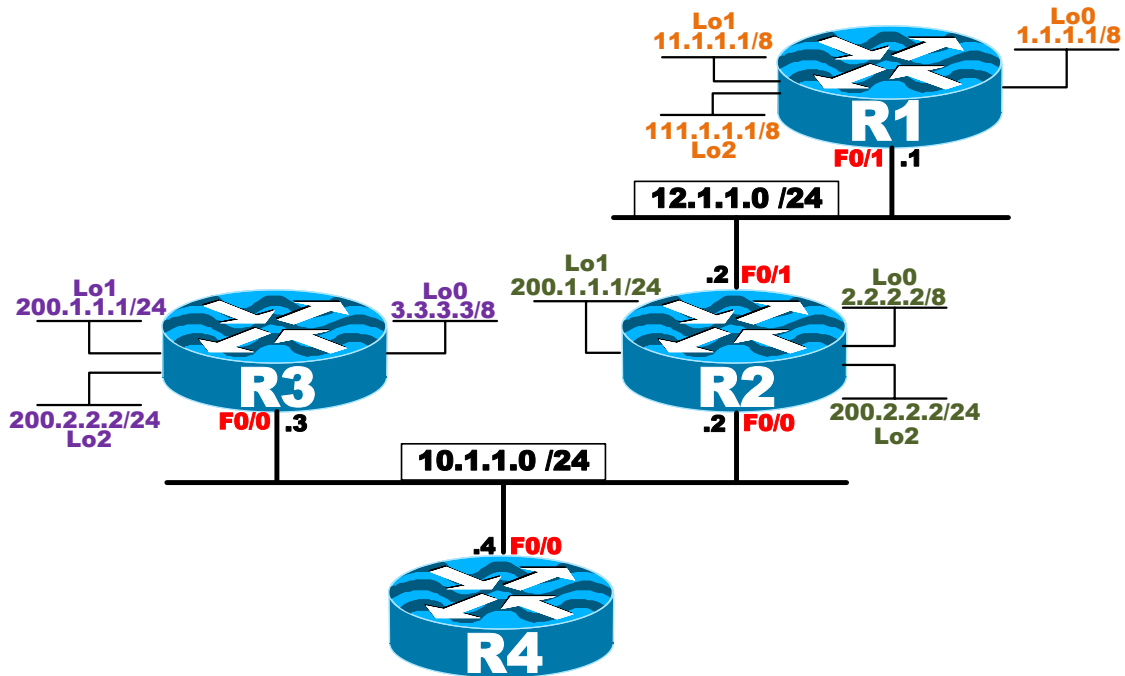
## Lab 2 - EIGRP Stub



## Lab 3 – Advanced EIGRP Stub Configuration

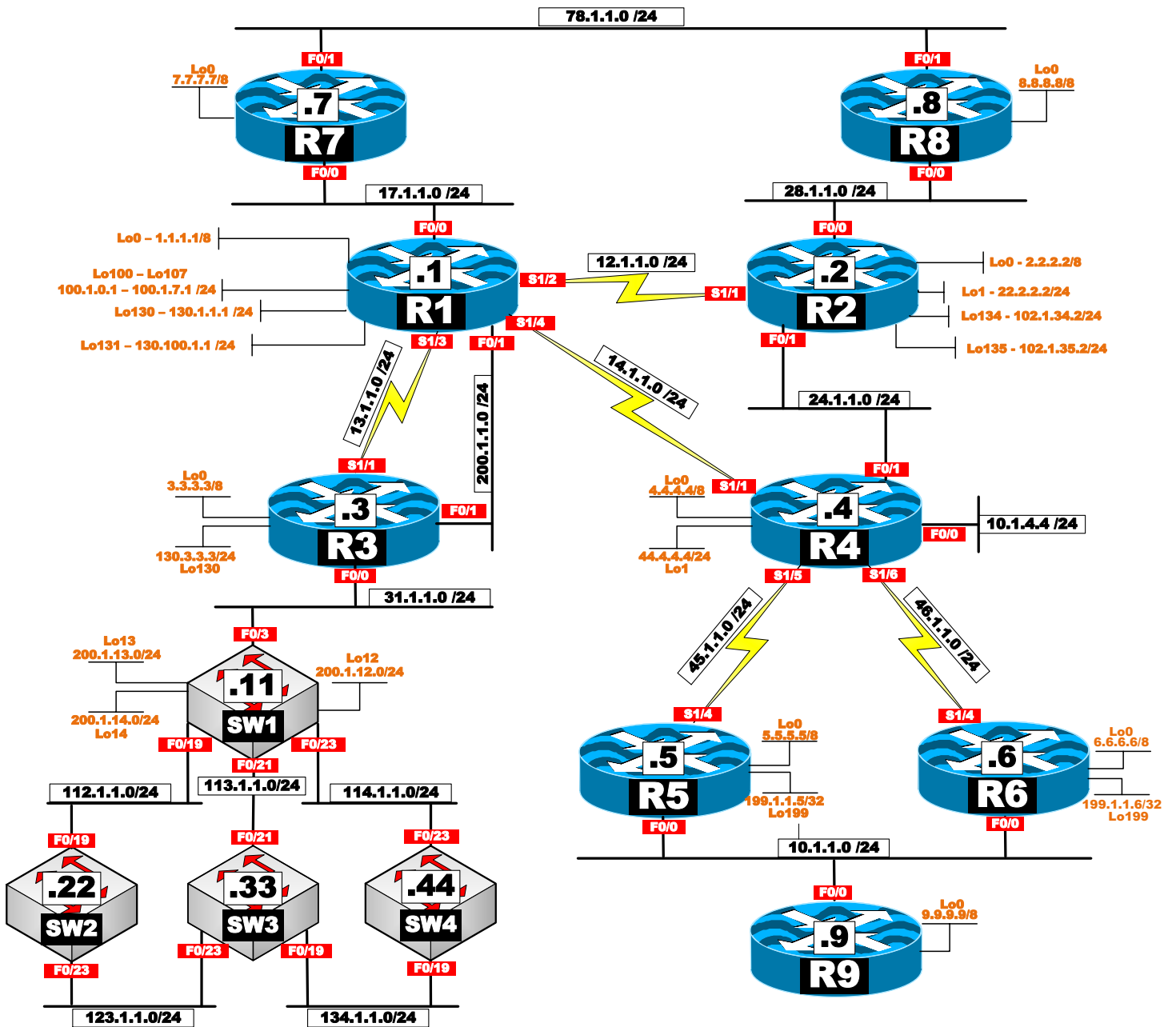


## Lab 4 – EIGRP Filtering



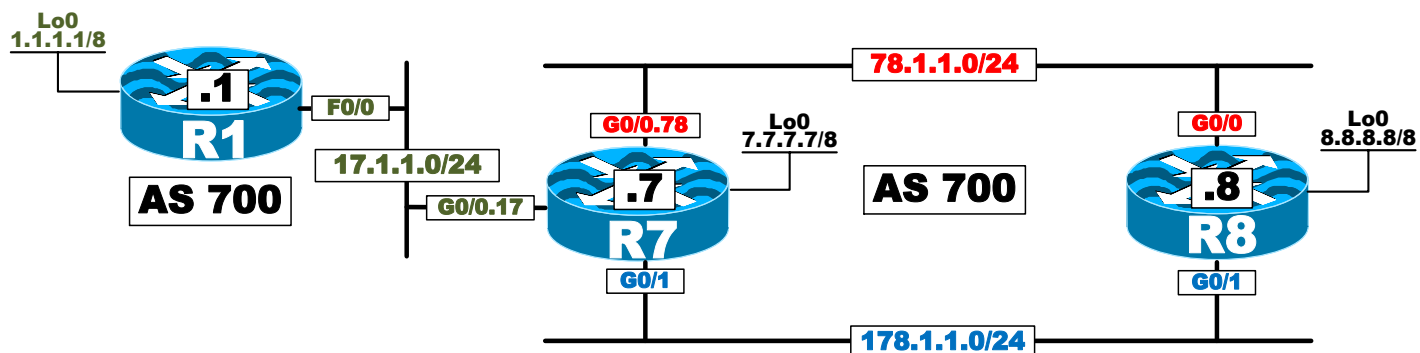
# Lab 5

## EIGRP Mock Lab





# Lab 6 Configuring EIGRP SHA-2 256 Authentication



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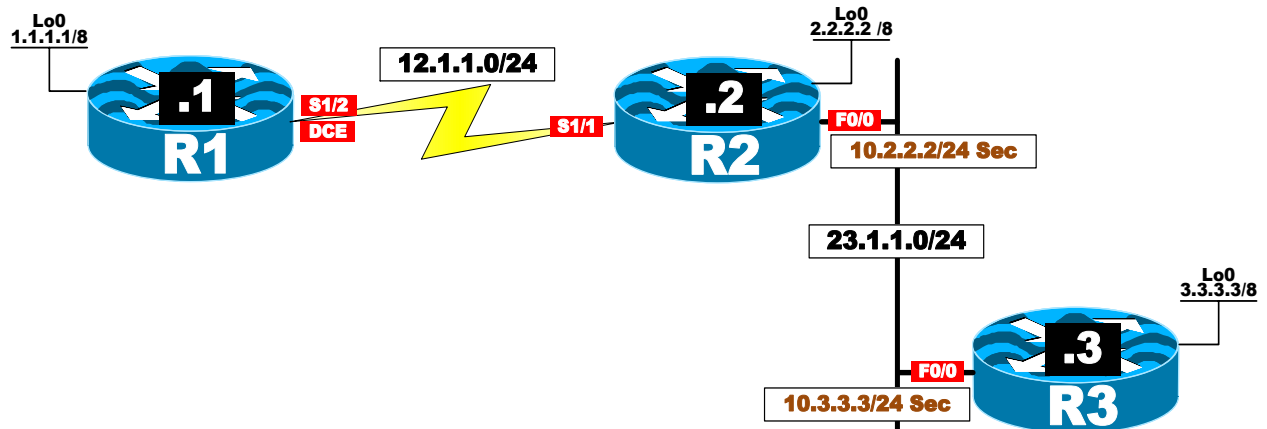
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## OSPF

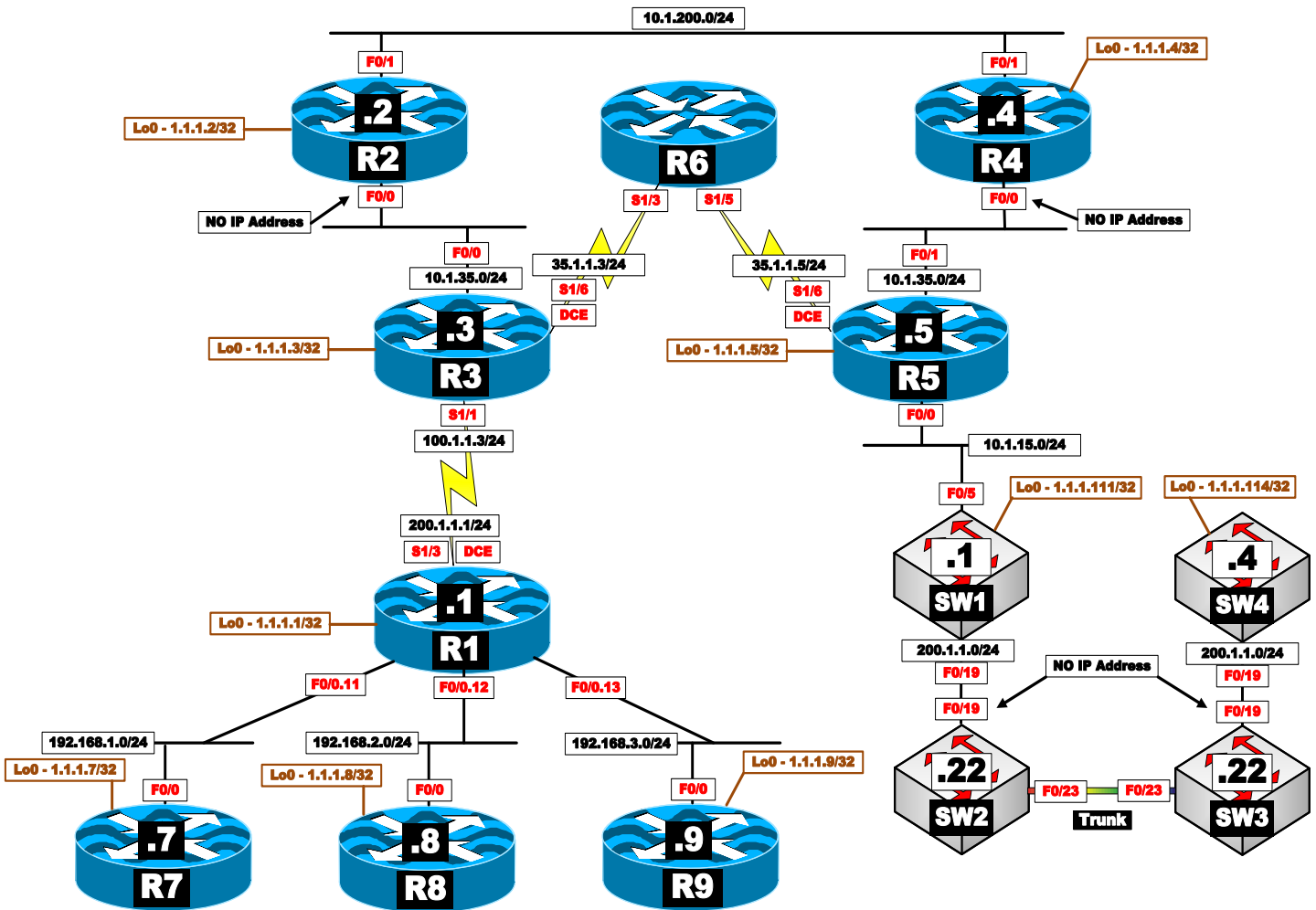
# Lab 1

## Running OSPF on the interfaces

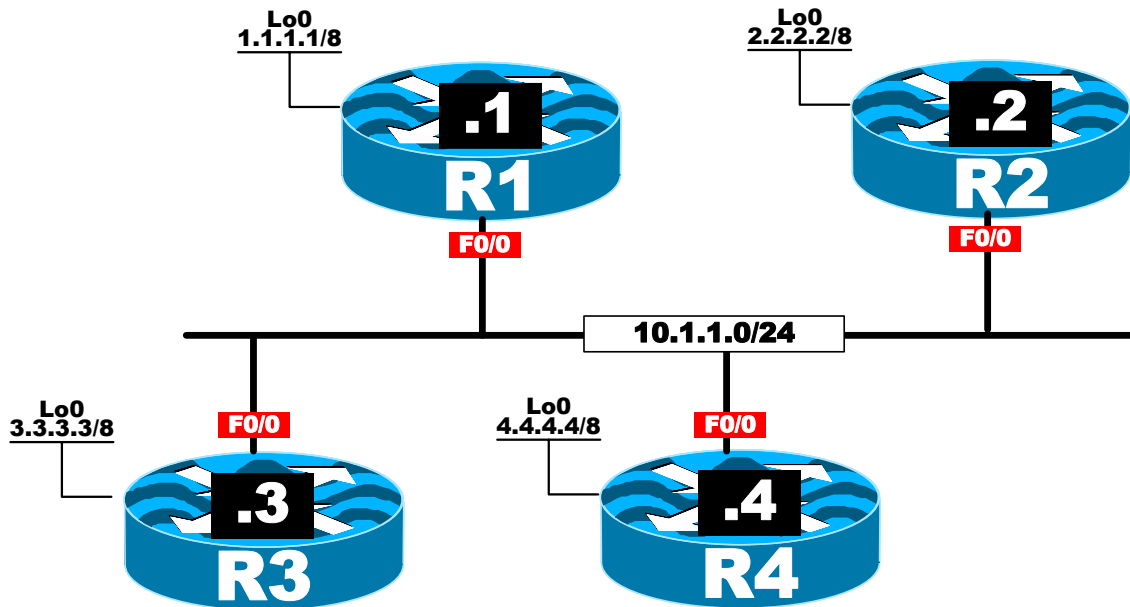


# Lab 2

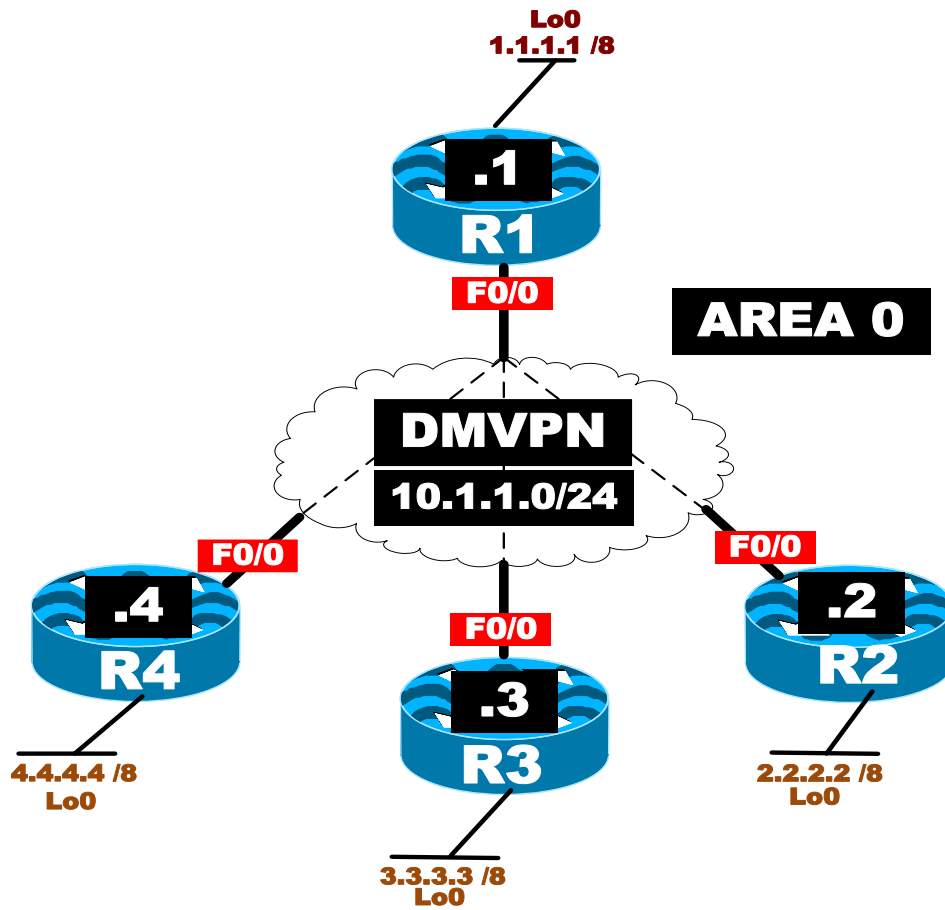
## Establishing OSPF Adjacency



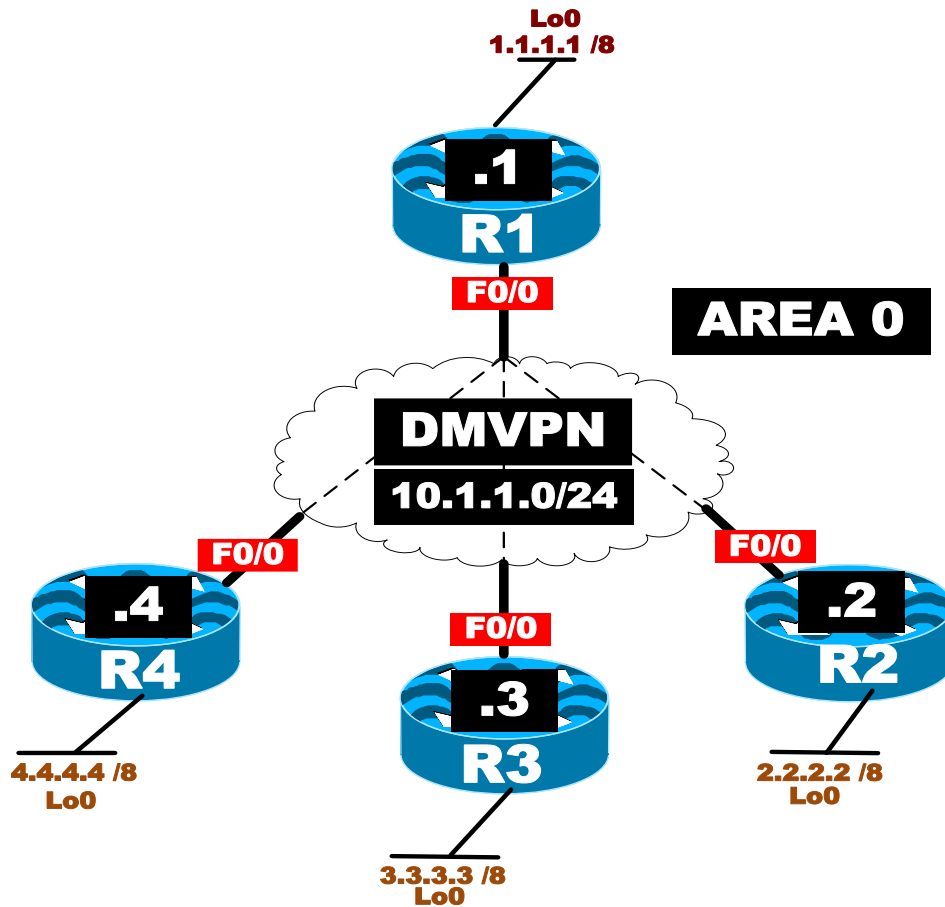
## Lab 3 – OSPF Broadcast Networks



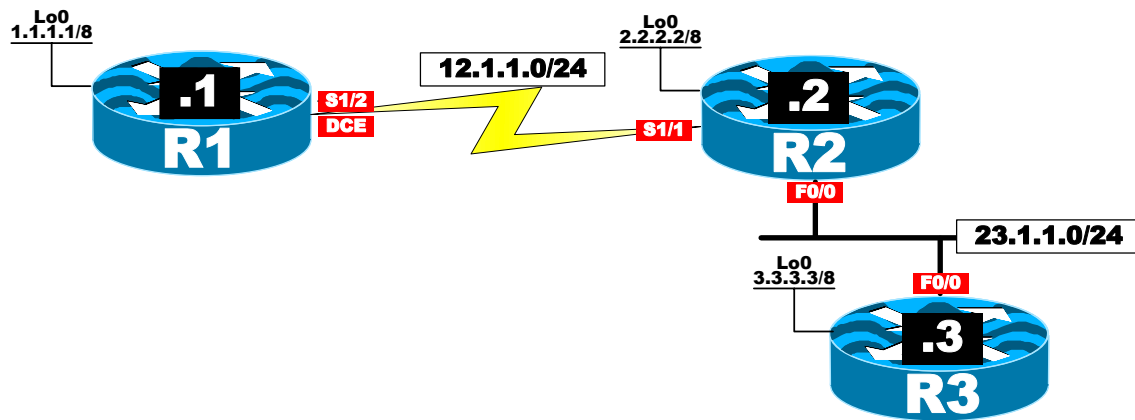
## Task 2



## Lab 4 – OSPF Non-Broadcast Networks

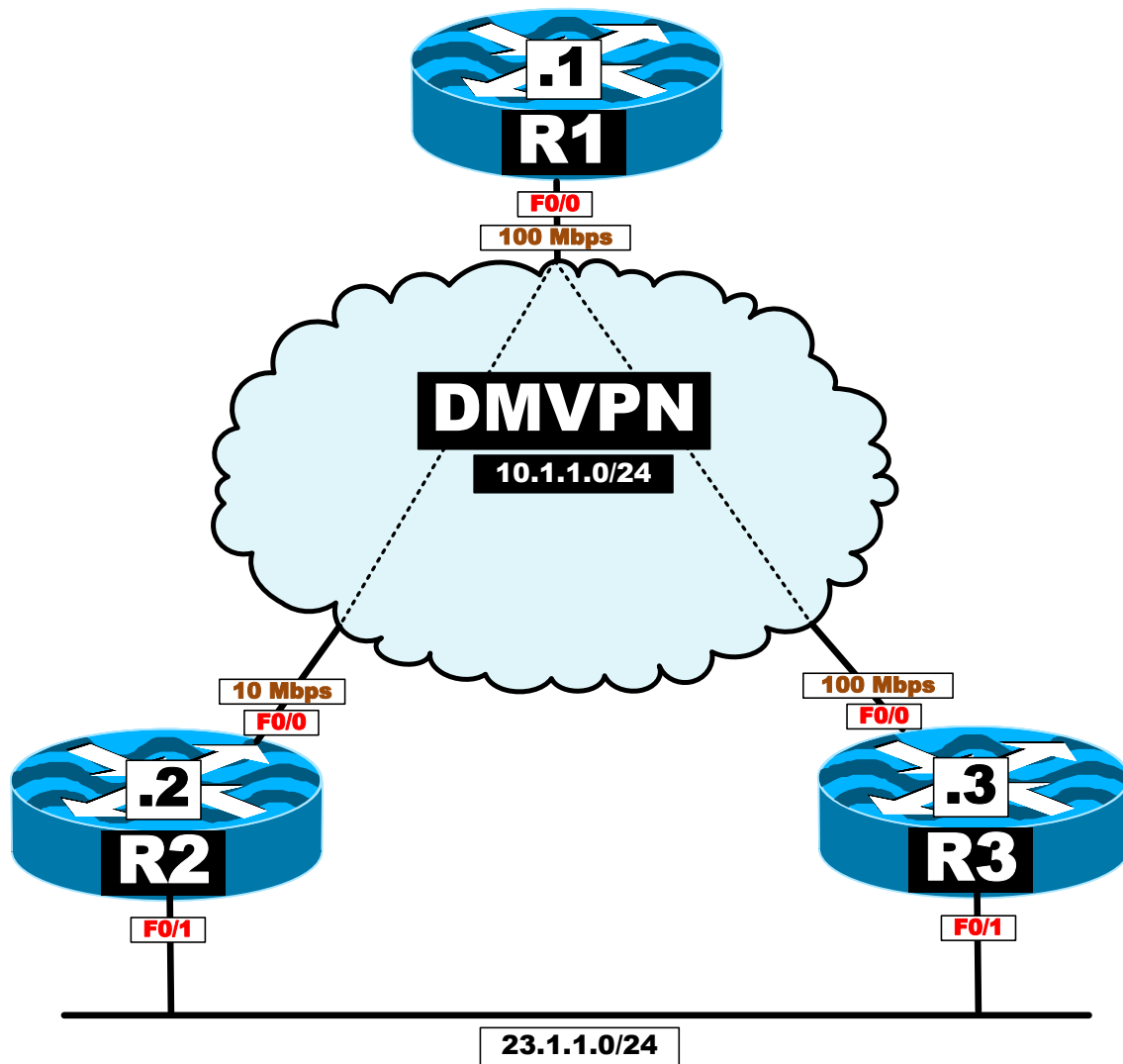


## Lab 5 – OSPF Point-to-Point Networks

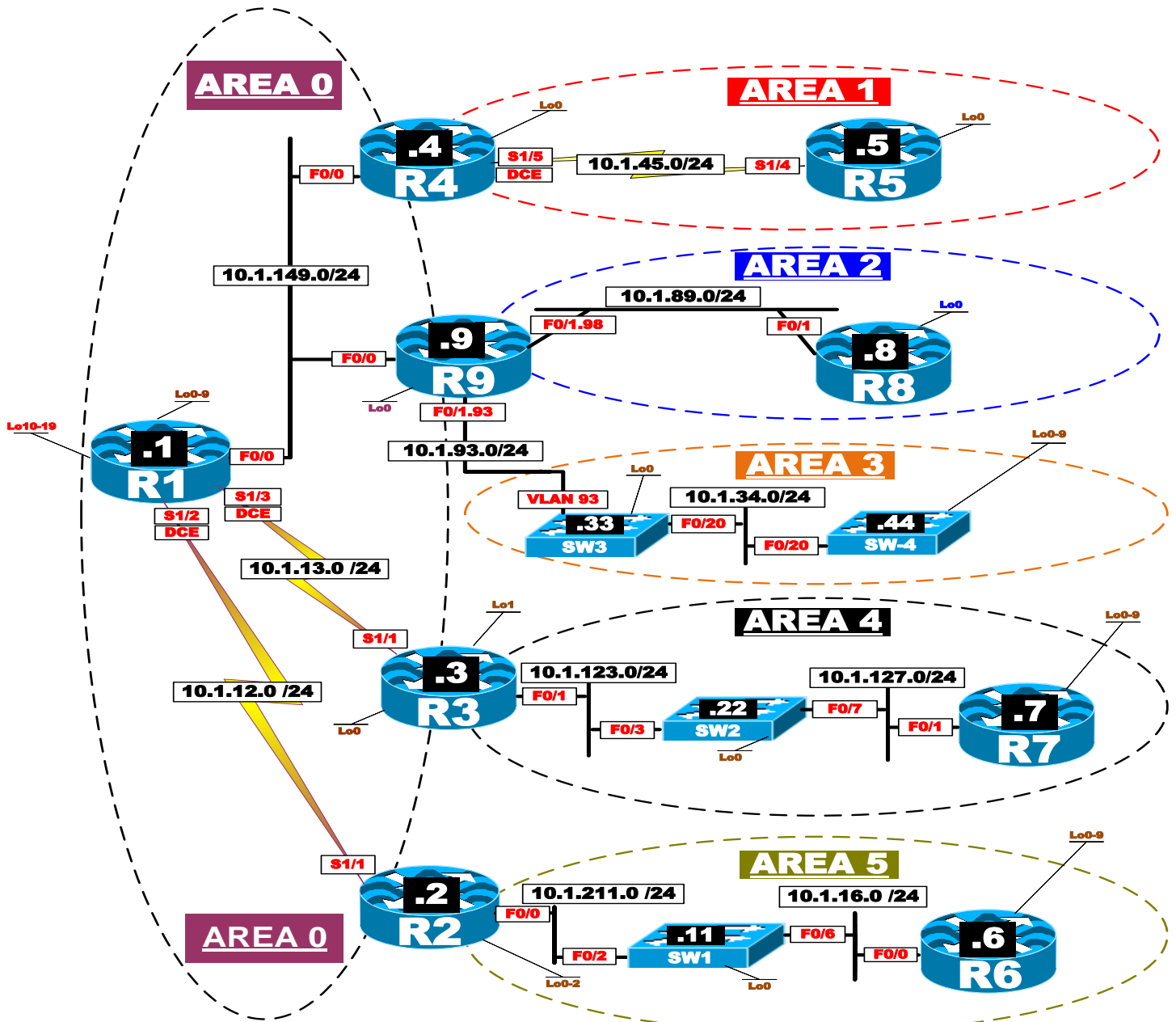




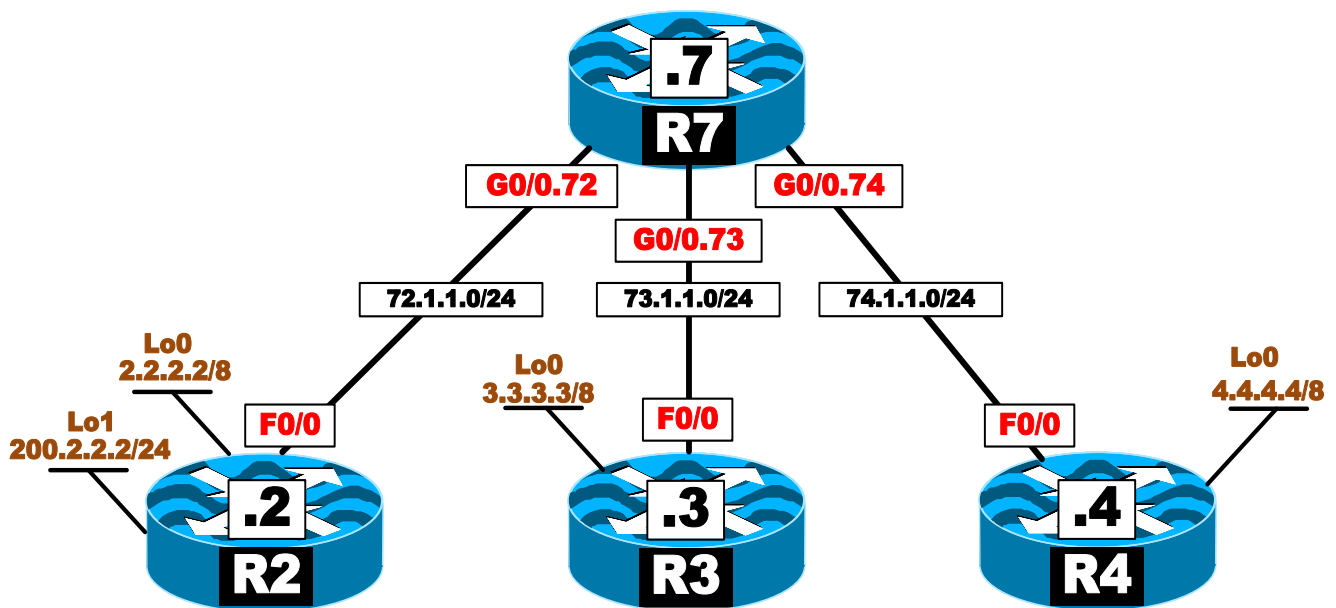
## Lab 6 – OSPF “Point-to-Multipoint” & “Point-to-Multipoint Non-Broadcast” Networks



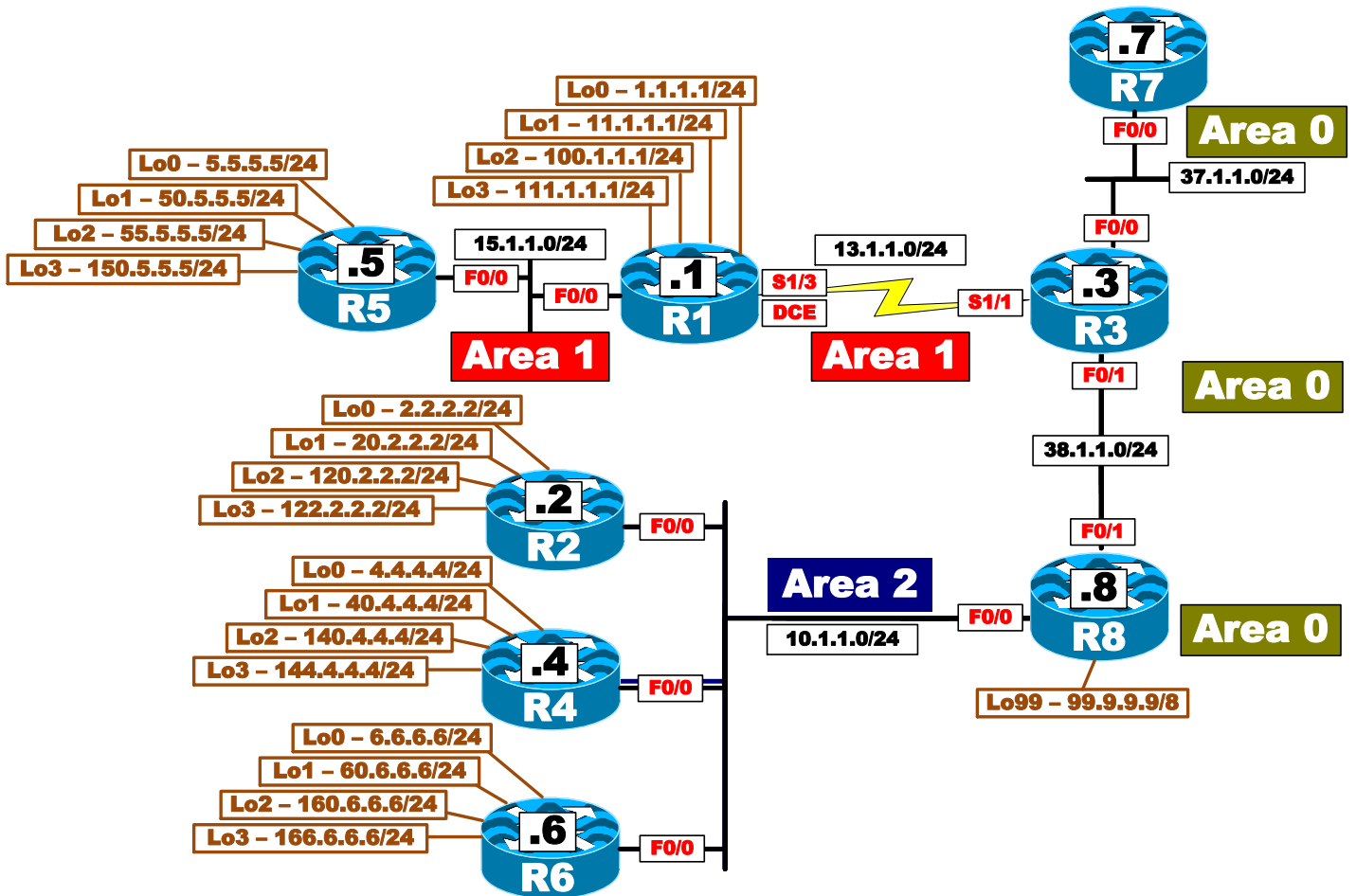
# Lab 7 – OSPF Area Types



## Lab 8 - OSPF Filtering - I

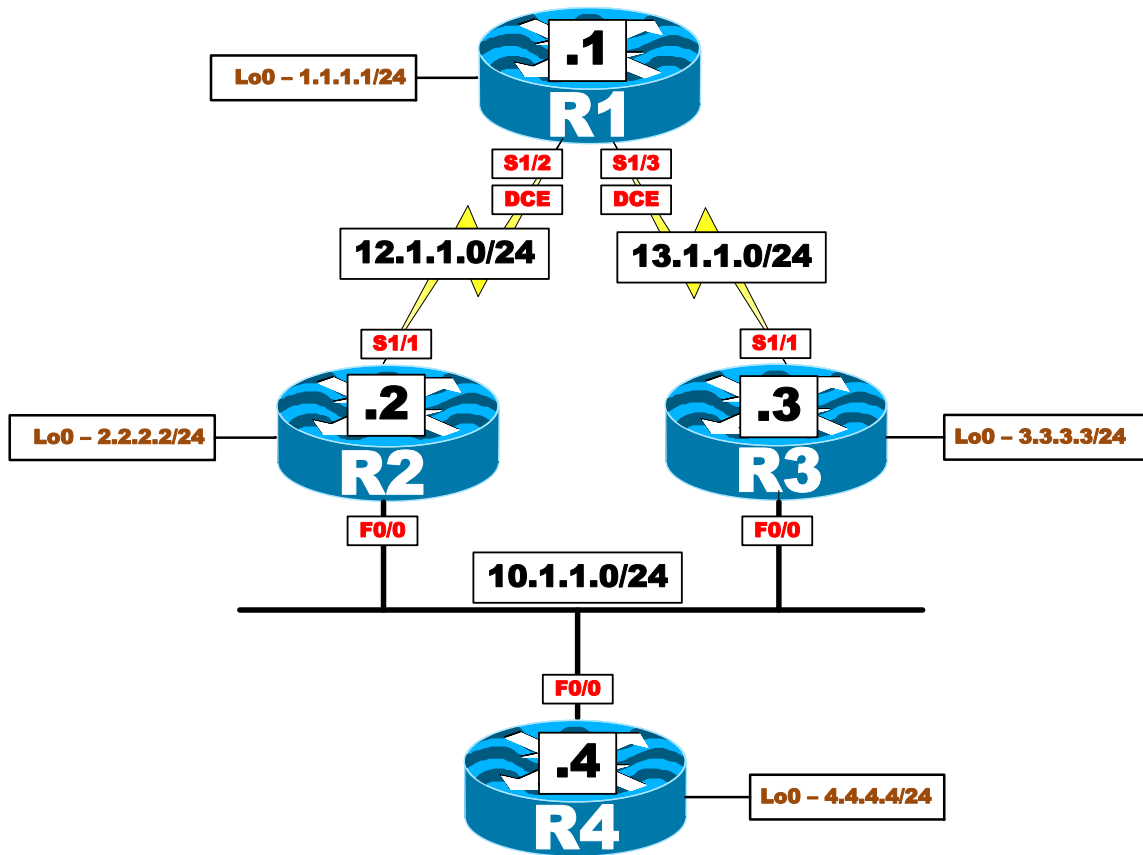


# Lab 9 – OSPF Filtering - II



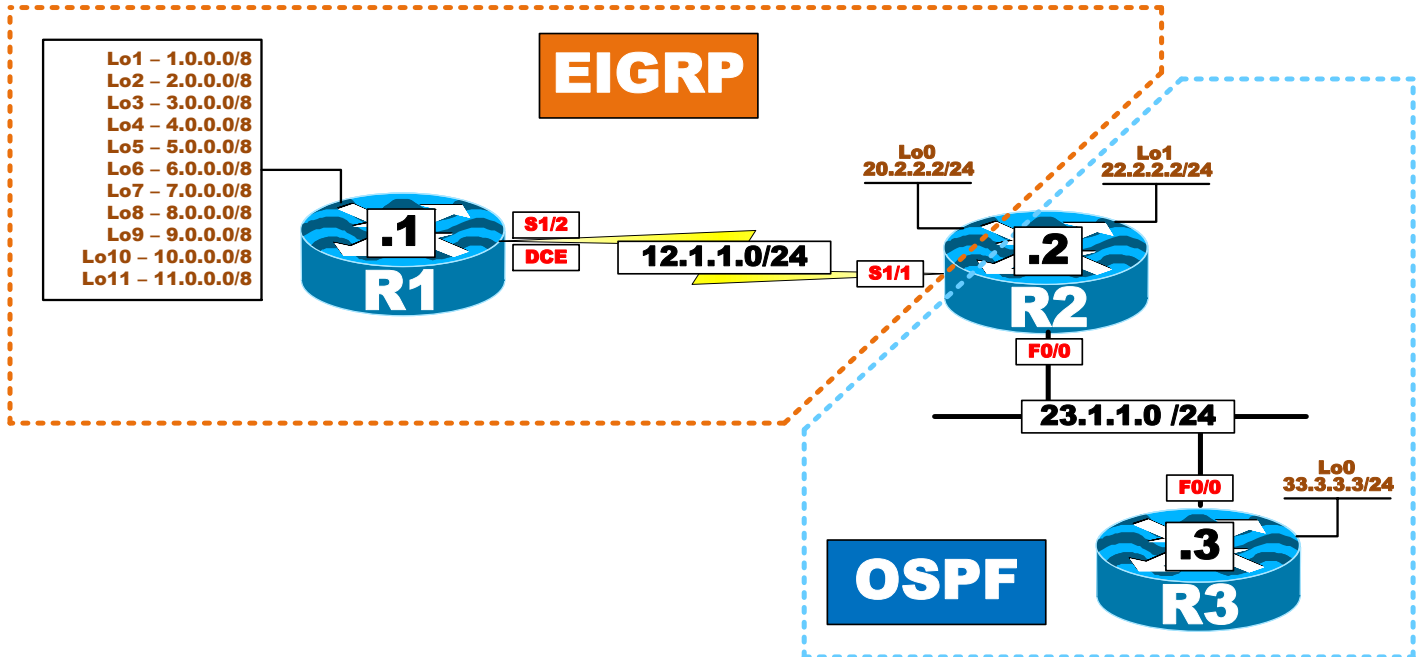
# Lab 10

## Redirecting Traffic in OSPF



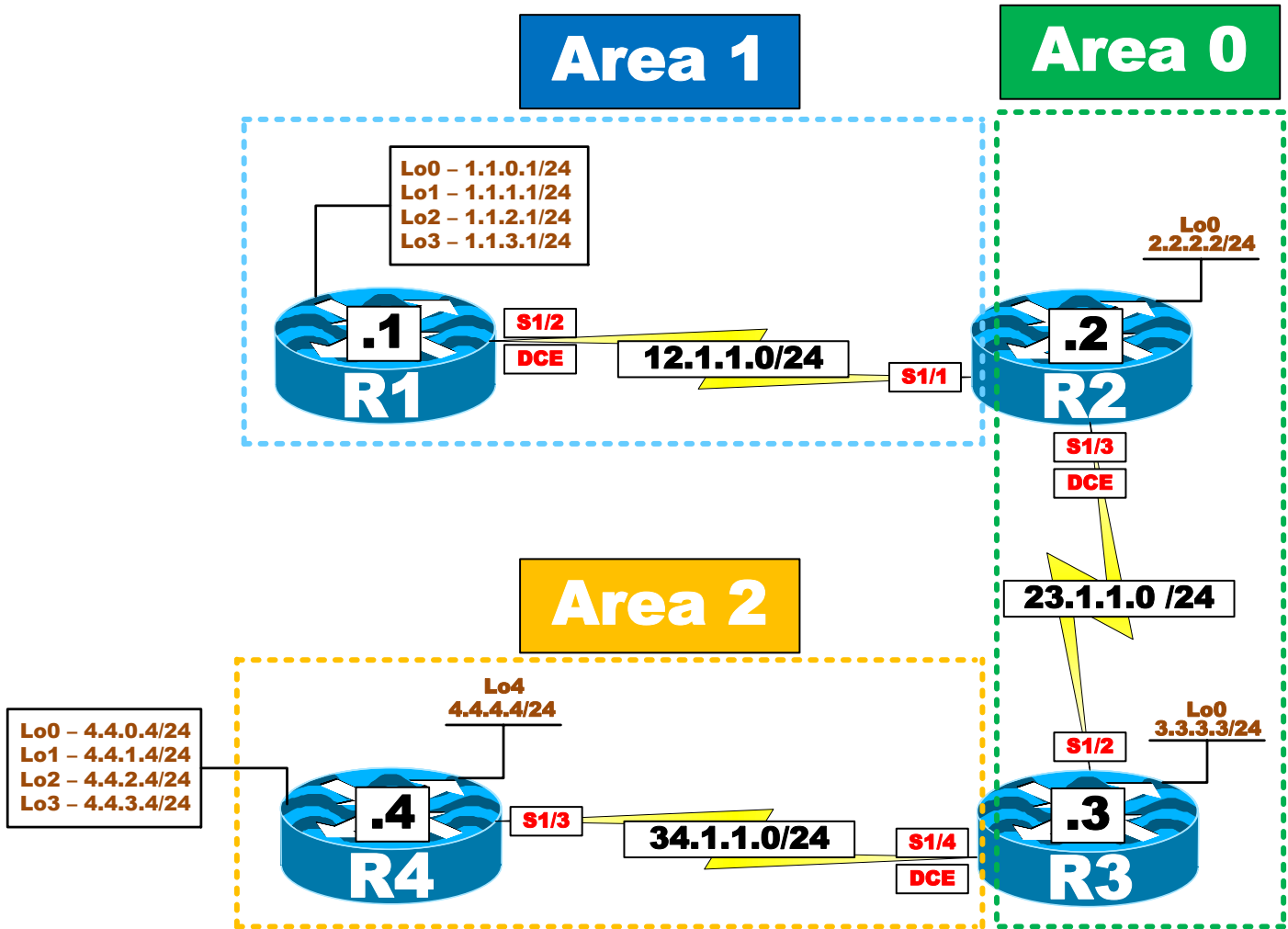
# Lab 11

## Database Overload Protection



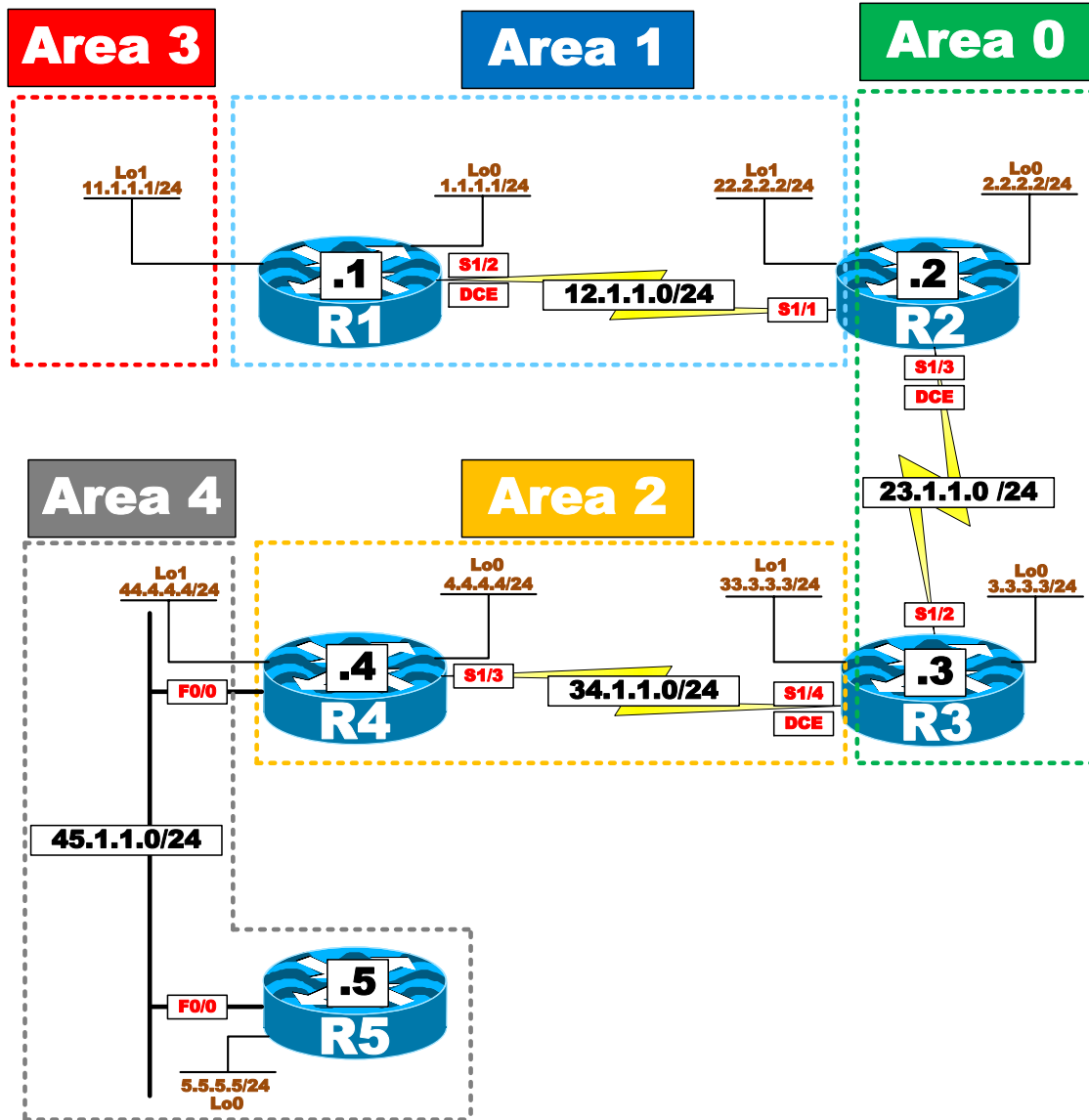
# Lab 12

## OSPF Summarization



# Lab 13

## Virtual-Links and GRE Tunnels

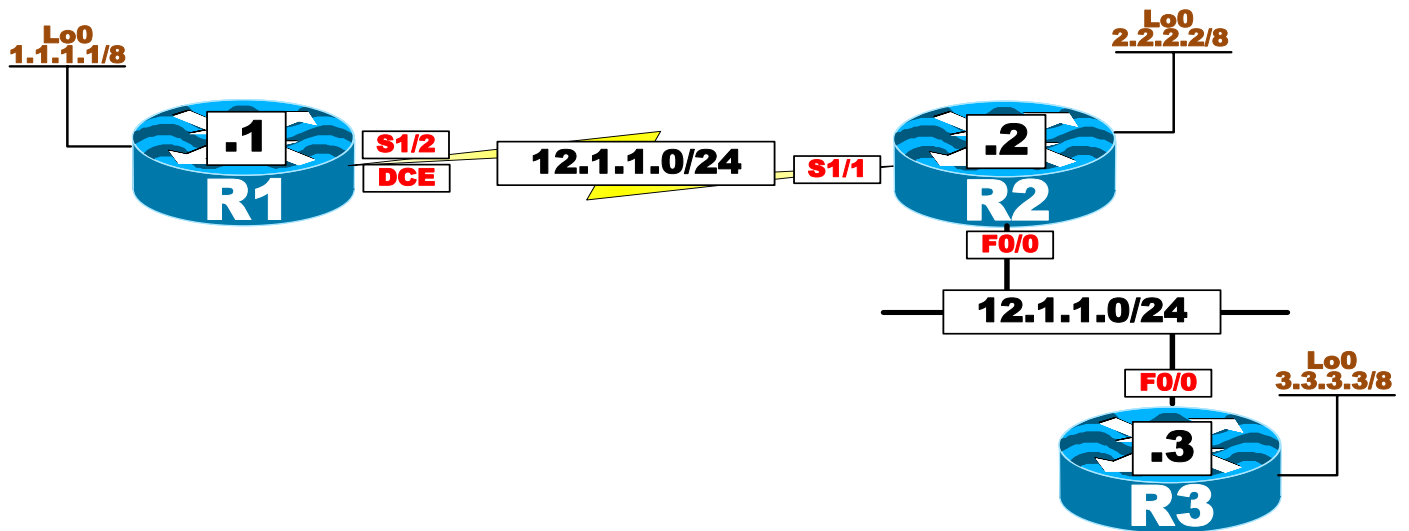




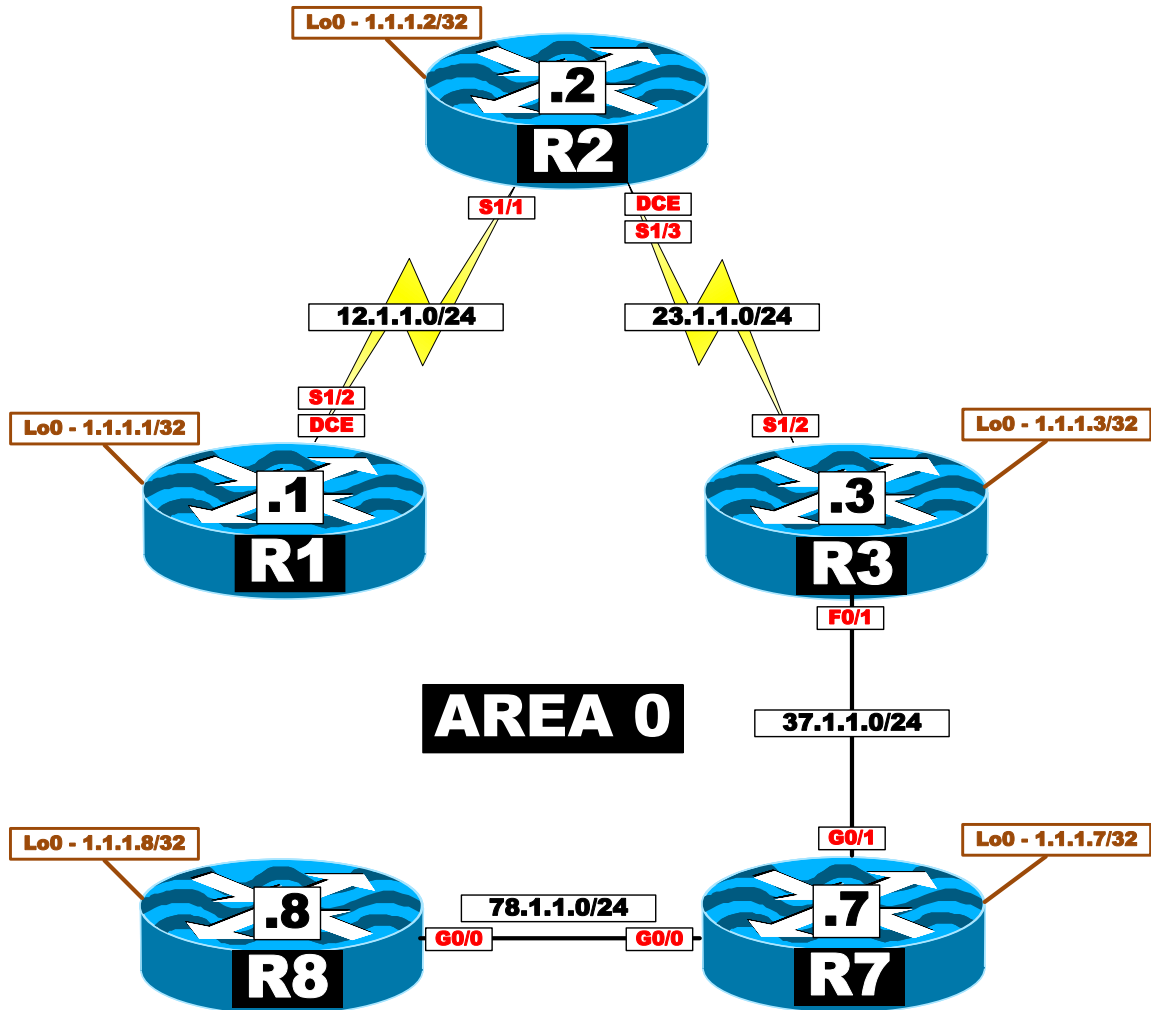


# Lab 14

## OSPF Cost



# Lab 15 – OSPF Authentication



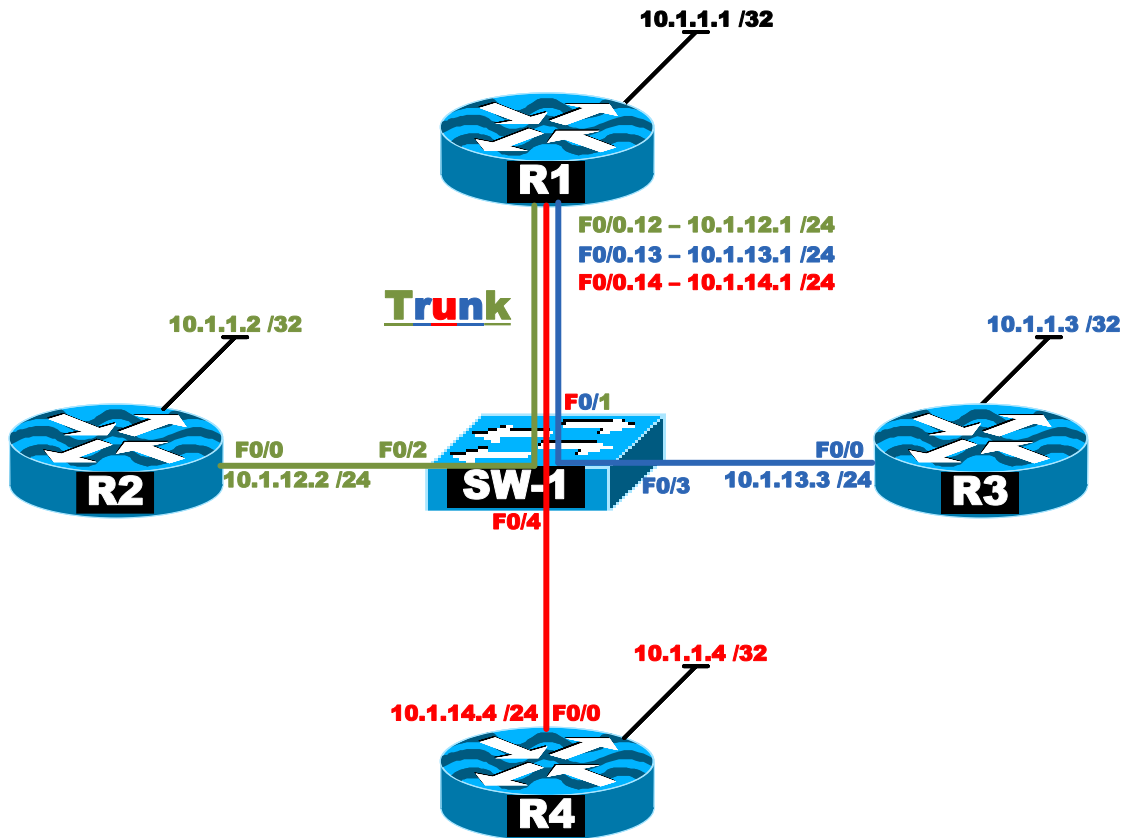
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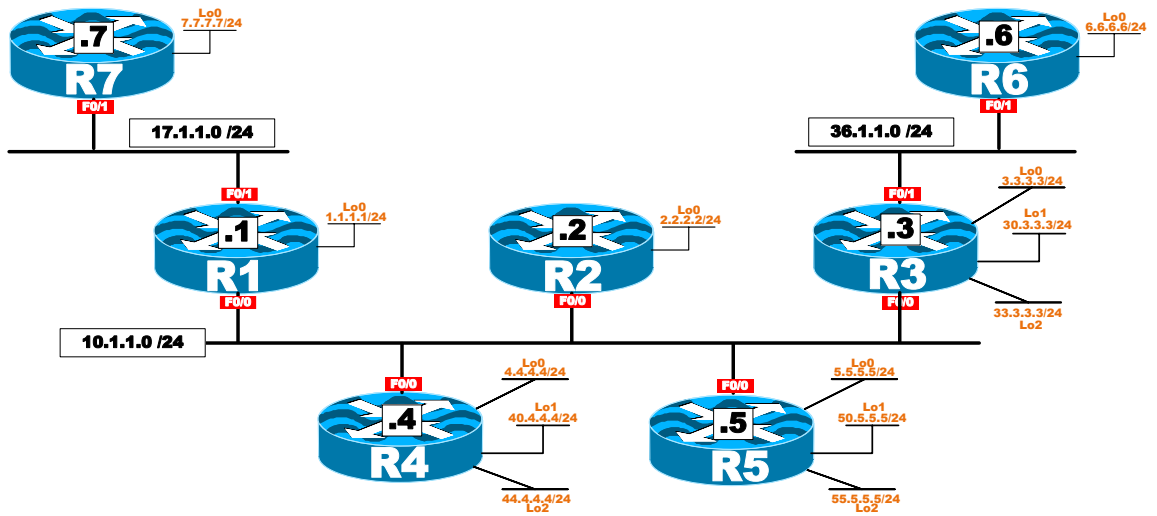
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**CCSI, CCIE #12410**  
**R&S, Security, SP**

## Redistribution

# Lab 1 – Basics of Redistribution

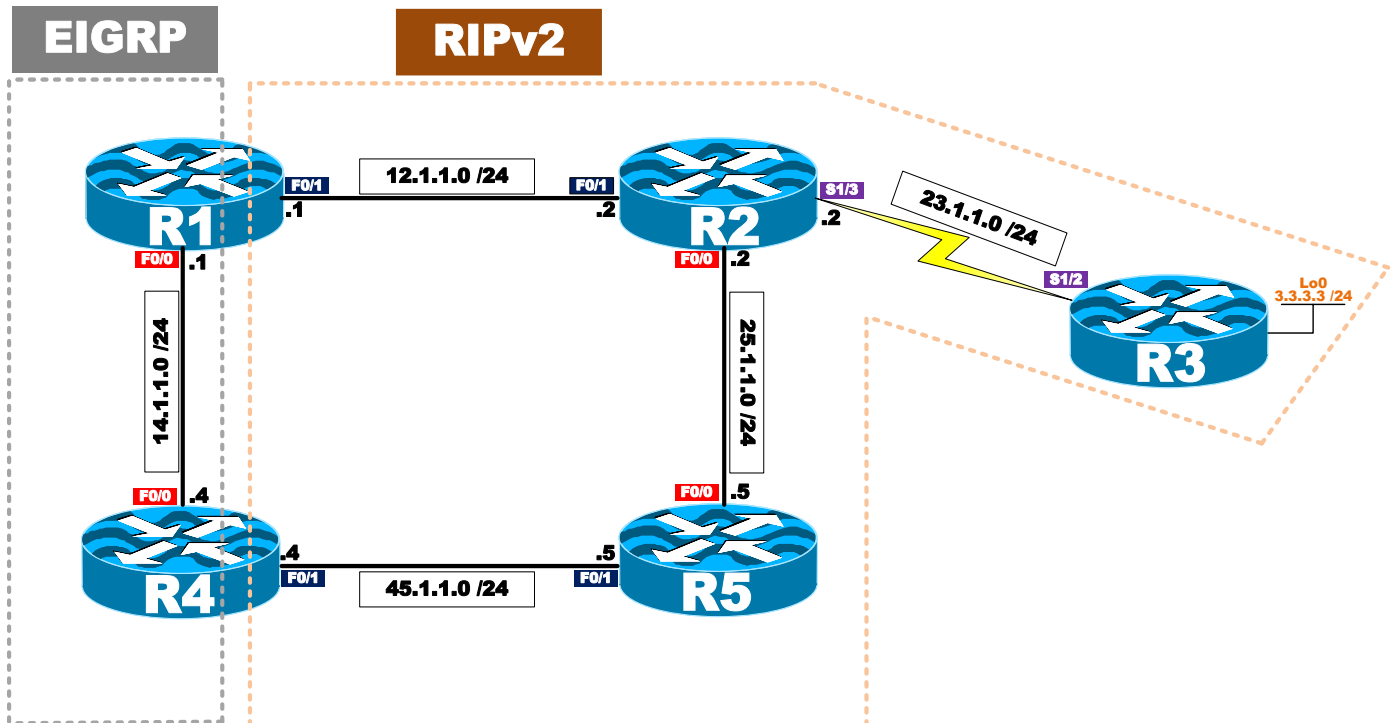


## Lab 2 – Basics of Redistribution-II



# Lab 3

## Redistribution – RIPv2 & Eigrp



# Lab 4

## Redistribution – RIPv2 & OSPF

