CCIE EI

EVE-NG Pro Lab guide

Dynamips.Store

Contents

In this lab we will cover multiple technologies:

ASA firewall Active/Standby, HSRP,Layer3 , Layer 2, OSPF, EIGRP, BGP, MPLS, Site to site VPN, IPSEC VPN, DMVPN, Windows server Active directory/ DHCP/DNS, SSH, ACL, VACL, VRFs, Remote access VPN with Cisco AnyConnect, Wireless Controller, Access Point, Web server with HTTP/HTTPS, BGP Route Reflector.

I. L Lab nodes

1. Image versions used in lab.

- Routers : i86bi_LinuxL3-AdvEnterpriseK9-M2_157_3_May_2018
- Switches : i86bi_linux_l2-adventerprisek9-ms.SSA.high_iron_20190423.bin
- ASA firewall : ASAv 9.17
- Web Server : Ubuntu Desktop
- User1 : Ubuntu Desktop

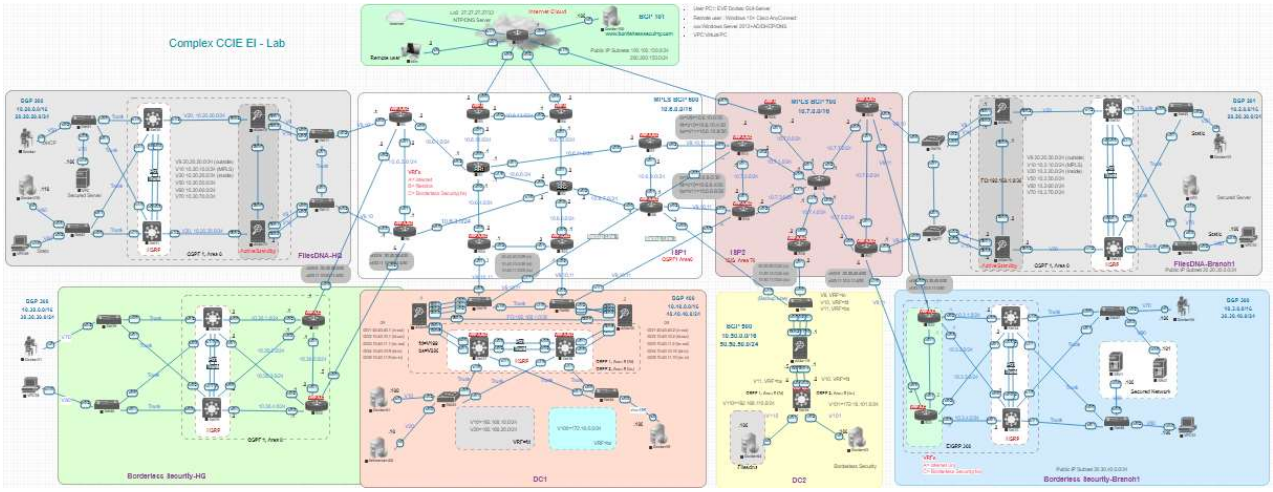
2. Initial configurations

All routers configurations are preloaded in the lab. (Startup configuration).

NOTE: before start the lab, make sure your all nodes has set proper IOL L3 image. To make this lab accessible with eve-ng community version we have removed Docker nodes and we have added Linux Ubuntu instead.

II. I Lab Components and Details

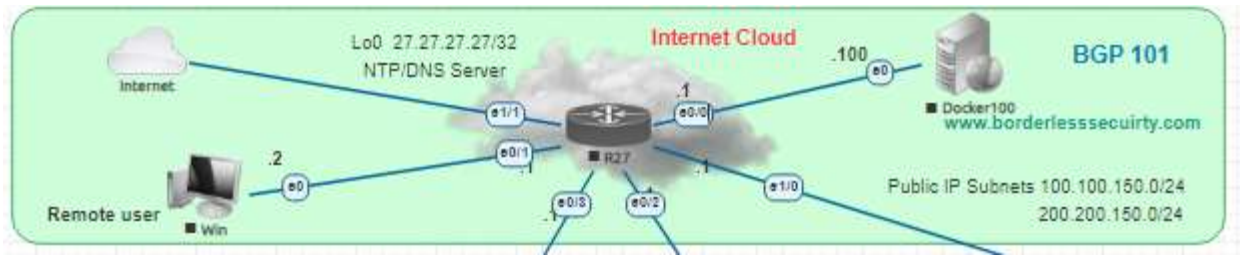
- Internet cloud
- ISP1 and ISP 2
- Filesdna HQ and FilesDNA branch office 1
- Borderless Security HQ and Borderless Security branch office 1
- Data center 1 and Data center 2



Video to explain all lab details as high-level design:
CCIE Lab 1 - General Details - Video 1
https://lnkd.in/d7mGu988

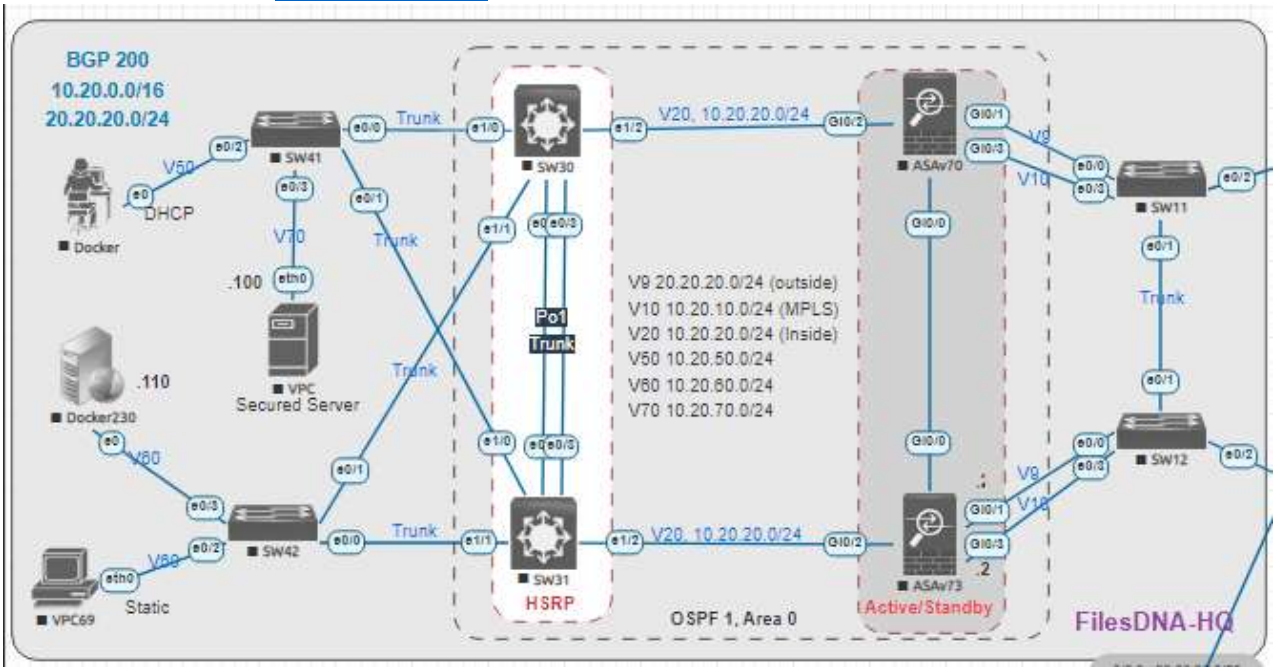
III. I Internet Cloud

- BGP 101
- Public IP subnets:
  100.100.150.0/24
  200.200.150.0/24
- R27 is the NTP/DNS server with its loopback address 27.27.27.27
- Website URL www.borderlesssecurity.com
- Real internet connection with your local router
- Remote user with WIN7



Ⅳ. F FilesDNA HQ

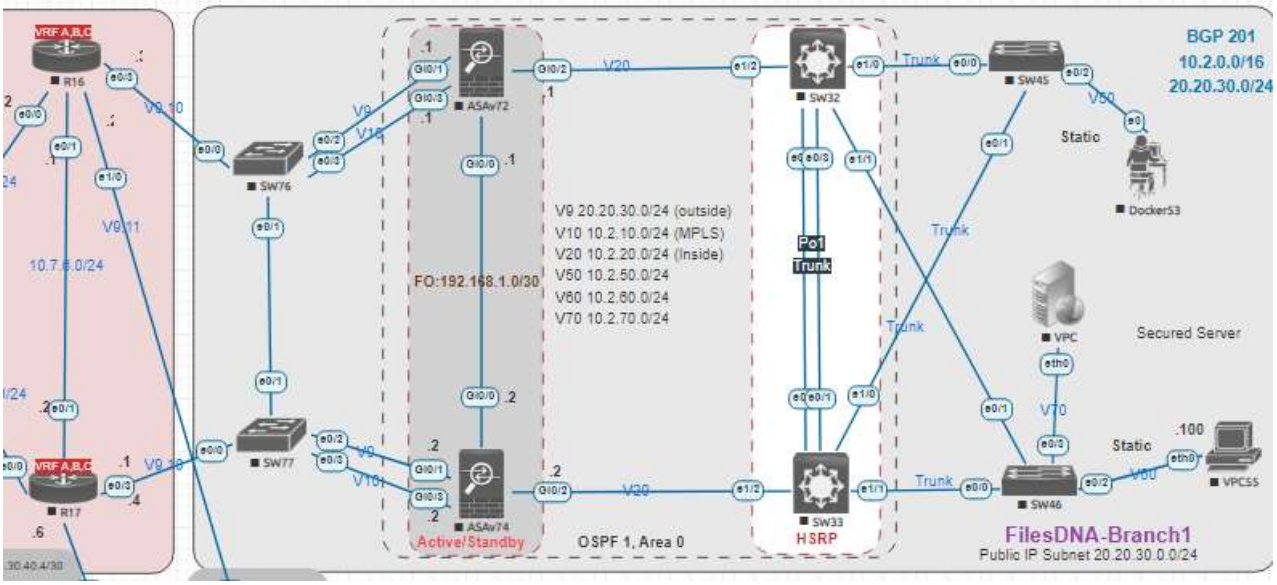
- BGP 200
- Public IP subnets: 20.20.20.0/24
  Private IP subnet: 10.20.0.0/16
- OSPF 1 Area 0
- Website URL www.filesdna.com



CCIE Lab 1- FilesDNA HQ - Video 2
https://lnkd.in/d72dr6-E

V. F FilesDNA Branch office 1

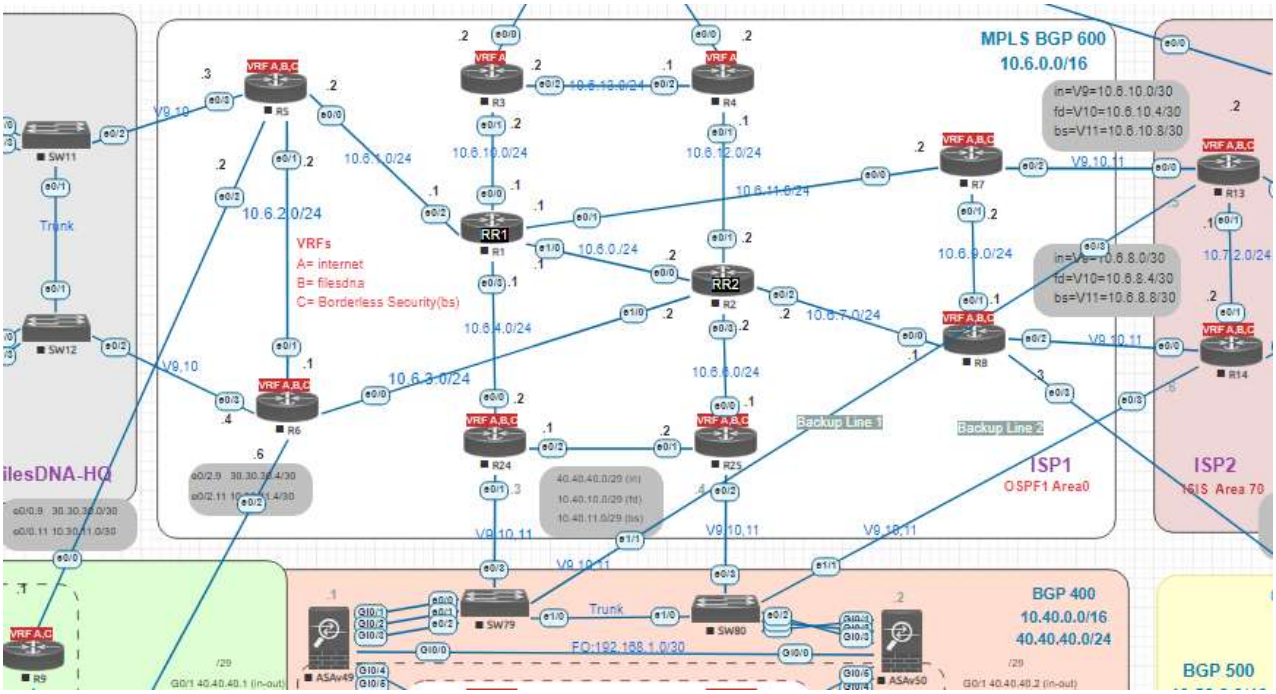
- BGP 201
- Private IP subnets: 10.2 0.0/16
- Public IP subnet :20.20 30.0/24
- VRFs
    - A >> internet (in)
    - B >> filesdna (fd)
- OSPF 1, Area 0



Video will be same as in the HQ as design is same.

VII. I ISP 1

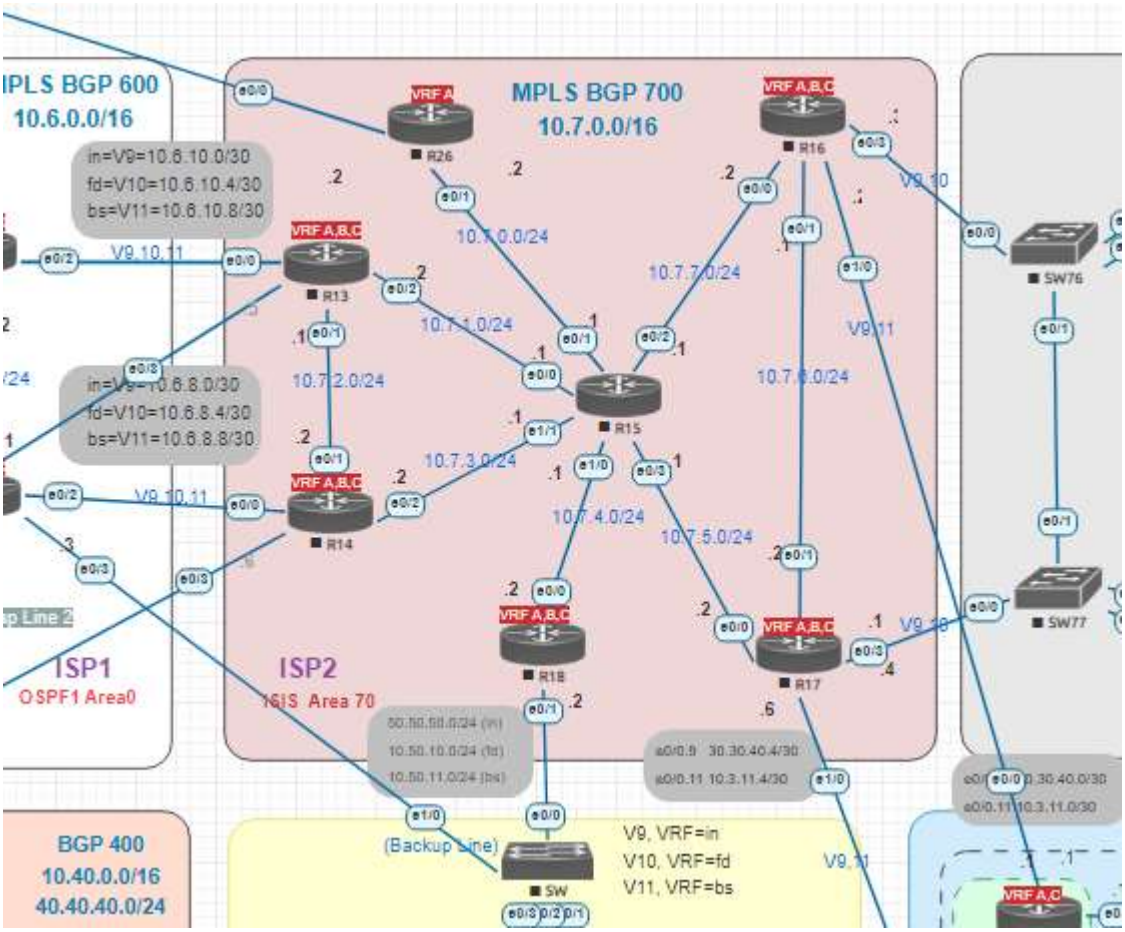
- BGP 600
- Private IP subnets: 10.6.0.0/16
- VRFs
    - A >> internet (in)
    - B >> filesdna (fd)
    - C >> Borderless security (bs)
- OSPF 1, Area 0
- Route reflector 1 and 2



CCIE Lab 1- ISP 1 - Video 3
https://lnkd.in/dK_SeGB6

VII. I ISP 2

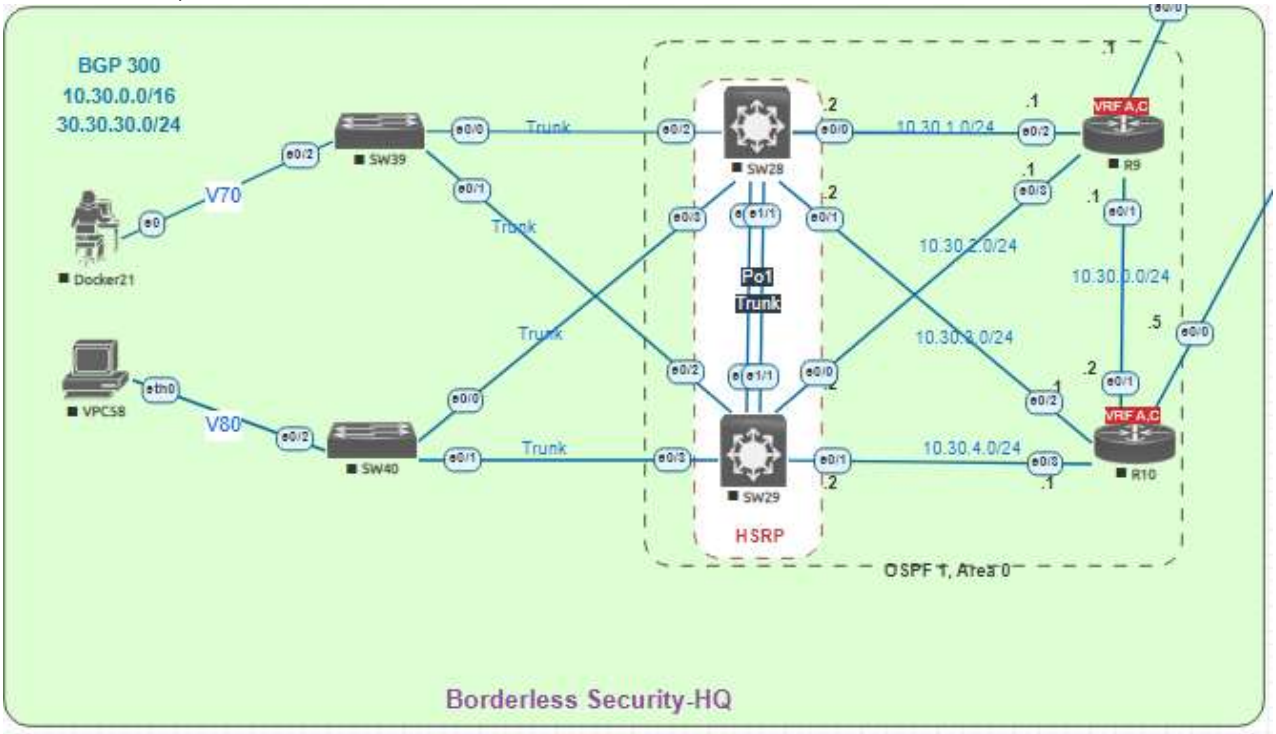
- BGP 700
- Private IP subnets: 10.7.0.0/16
- VRFs
    - A >> internet (in)
    - B >> filesdna (fd)
    - C >> Borderless security (bs)
- ISIS, Area 70



Video to explain all details about ISP 2
CCIE Lab 1- ISP 2 - Video 4
https://lnkd.in/d5Tidvgh

VIII. B Borderless Security HQ

- BGP 300
- Private IP subnets: 10.30.0.0/16
- Public IP subnets: 30.30.30.0/24
- VRFs
    - A >> internet (in)
    - C >> Borderless security (bs)
- OSPF 1, Area 0

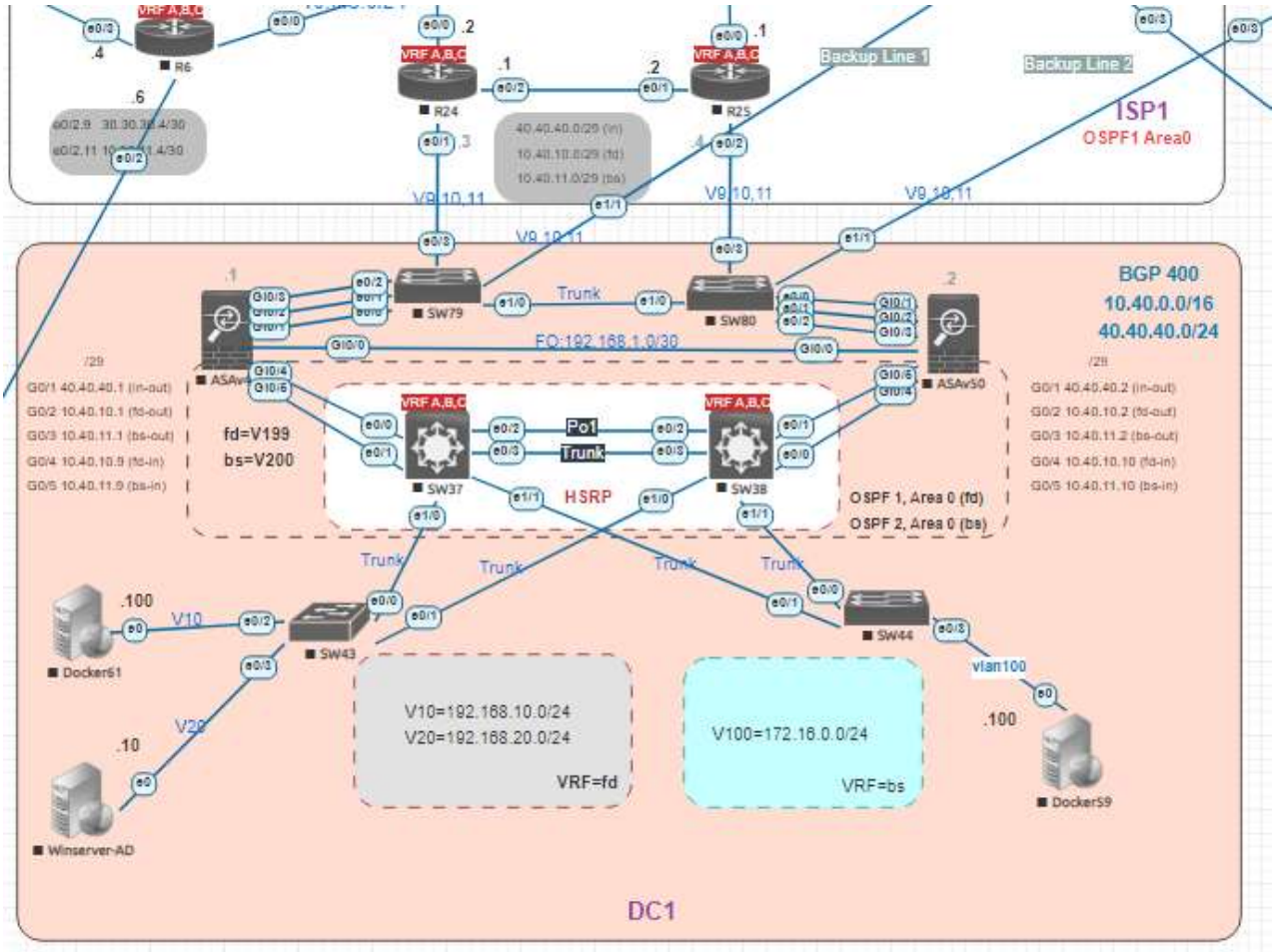


Video to explain all details about Borderless Security HQ

CCIE Lab 1- Borderless Security HQ - Video 5
https://lnkd.in/dwrjtPXG

IX. D Data Center 1

- BGP 400
- Private IP subnets: 10.40.0.0/16
- Public IP subnets: 40.40.40.0/24
- VRFs
    - A >> internet (in)
    - B >> filesdna (fd)
    - C >> Borderless security (bs)
- OSPF 1, Area 0 >> filesdna VRF(fd)
- OSPF2, Area 0 >> borderless security VRF (bs)

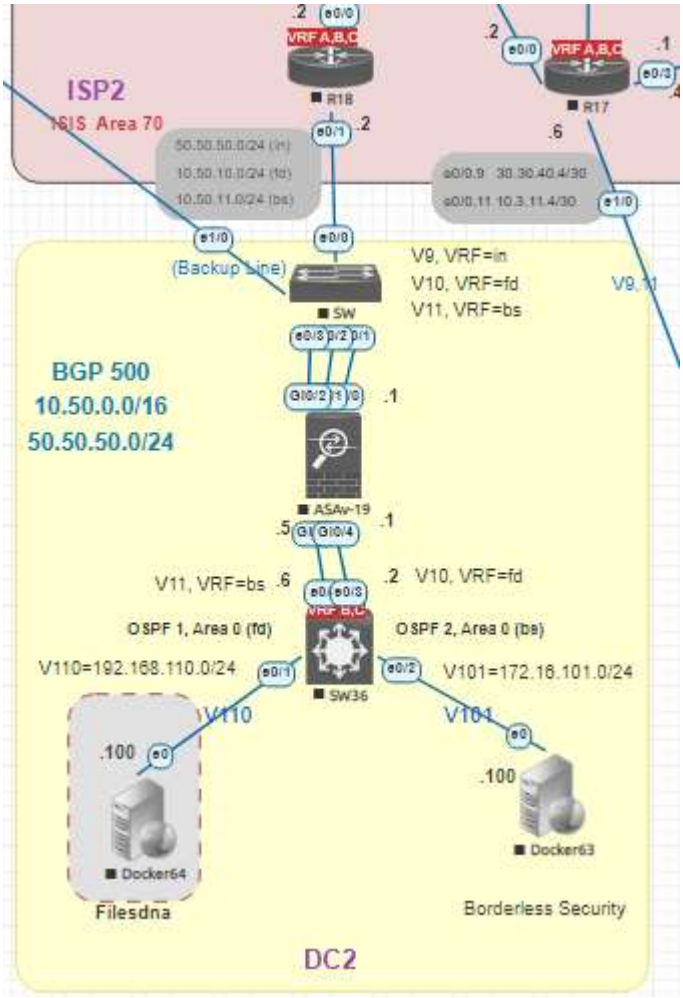


Video to explain all details about Data Center 1

CCIE Lab 1- Data Center 1 - Video 6
https://lnkd.in/d8V-ueue

X. D Data Center 2

- BGP 400
- Private IP subnets: 10.50.0.0/16
- Public IP subnets: 50.50.50.0/24
- VRFs
    - A >> internet (in)
    - B >> filesdna (fd)
    - C >> Borderless security (bs)
- OSPF 1, Area 0 >> filesdna VRF(fd)
- OSPF2, Area 0 >> borderless security VRF (bs)

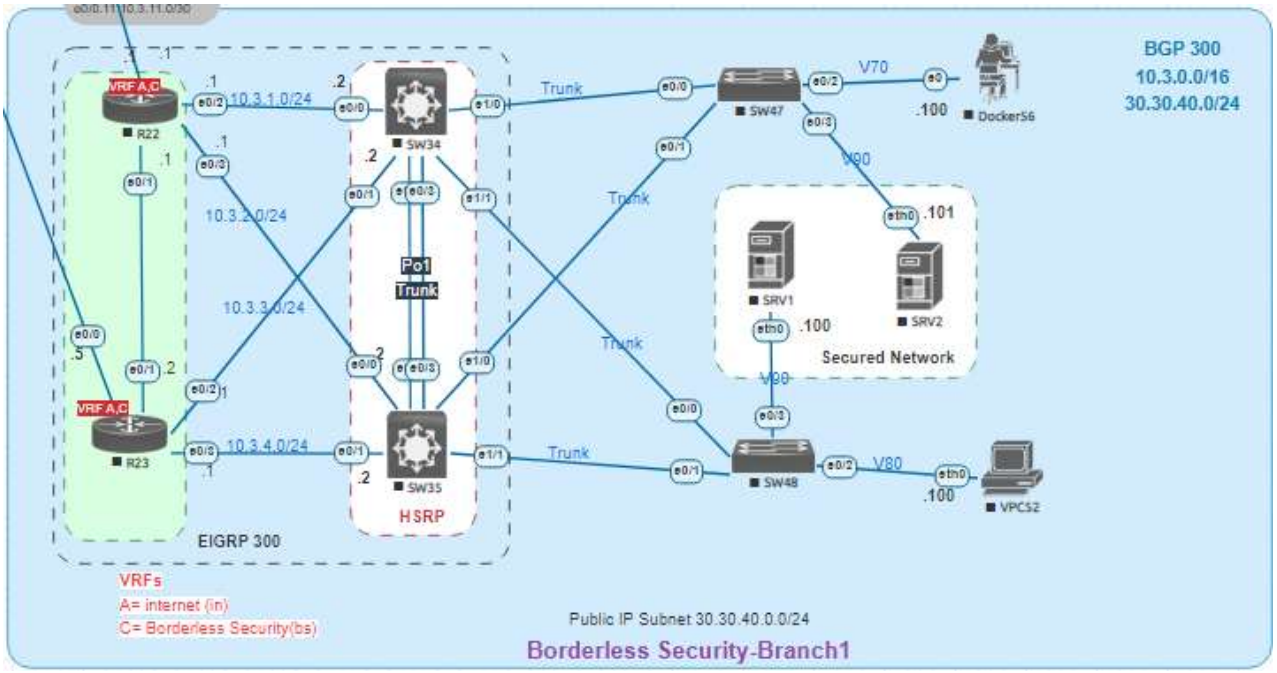


Video to explain all details about Data Center 2

CCIE Lab 1- Data Center 2 - Video 7
https://lnkd.in/dq_9kZGb

XI. B Borderless Security - Branch 1

- BGP 300
- Private IP subnets: 10.3.0.0/16
- Public IP subnets: 30.30.40.0/24
- VRFs
    - A >> internet (in)
    - C >> Borderless security (bs)
- EIGRP 300



CCIE Lab 1- Borderless Security - Branch 1 - Video 8
https://lnkd.in/dHtBxpRQ

I. C Challenges Part 1

Here are the list of all challenges that you could do:

1-Show pc DNS config and how
2-Show websites links
3-Show DHCP and add another DHCP (R27 is the DNS)
4-Show traffic for v50,60 to other branch
5- Show FilesDNA NAT IP
6- Add VLAN 70 to the VPN tunnel
7- Make R6 the primary router for FilesDNAHQ (now it's R5)
8- Test if R1 is down, how R2 will take over.
9- Make NTP for all lab is R27 with authentication
10- Create a site to site VPN between FilesDNA -HQ and R9/R10, traffic between FilesDNA -HQ-V70 and borderless security-V70

CCIE Lab 1- Challenges Part 1- Video 9
https://lnkd.in/dHtBxpRQ

I. C Challenges Part 2

Here is the list of all challenges that you could do:

11- Create a site to site VPN between borderless security HQ and its branch office, traffic will be between HQ-V70 and Branch 1-V90

12- Create DMVPN between Borderless Security HQ-R10 and R23, this will be back up VPN if above VPN will be down.

13- Create DHCP in windows server in DC1 as DHCP server for all VLANs of FilesDNA.

14-Check main line and backup lines for all MPLS connections between all sites.

15-Create a backup connection for Borderless Security-HQ to ISP2

16-Create a backup connection for FilesDNA -HQ to ISP2

17- Create a backup connection for FilesDNA -Branch1 to ISP1

18- Create a backup connection for Borderless Security-Branch1 to ISP1

19- Add new DHCP/AD server in DC1 for borderless security and configure DHCP ranges for their VLANs.

20- Change traffic path for FilesDNA -HQ-V70 to Borderless Security-HQ-V70 as primary path is the new VPN tunnel, if that VPN tunnel is down, then it will go by the MPLS.

21- FilesDNA -branch1 traffic, make R16 is the primary router for going to DC1 and to HQ and R17 is the primary router if traffic needs to go to DC2 only, if that fail then it will use other router automatically.

22- Create remote VPN access on FilesDNA-HQ and test that from the remote user (internet cloud)
user must be able to communicate directly with VLANs 50,60 and 70

CCIE Lab 1- Challenges Part 2- Video 10
https://lnkd.in/dBuBjJEv

End of Lab