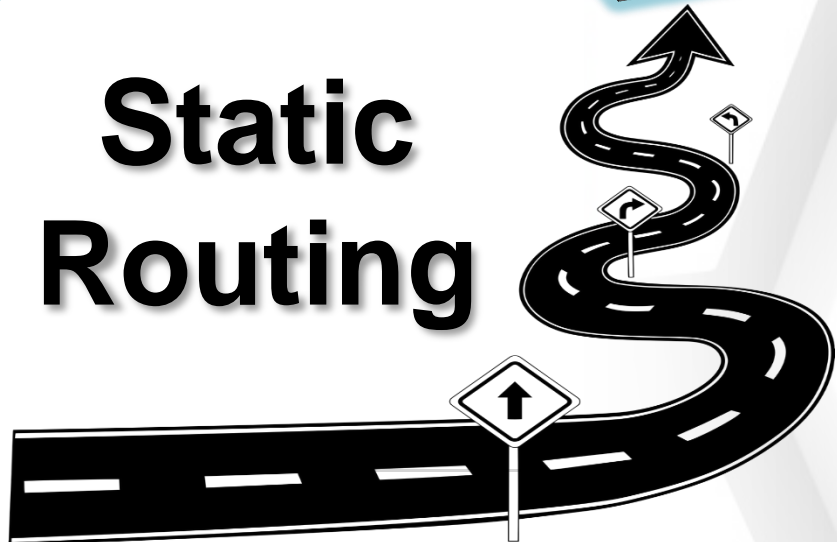


D-Link[®]
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Static Routing



D-Link[®]
ACADEMY
> WEBINARS



Alberto LM
Presales Engineer
D-Link Iberia



Agenda

Static Routing – Smart & Managed Switches



- ✓ Necesidad de Enrutamiento
- ✓ Tabla de Rutas
- ✓ IP Interfaces
- ✓ Rutas Estáticas & Hands-on



Static Routing

Feature L3

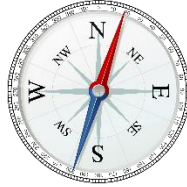


- ✓ Vlan >> Feature L2
- ✓ IP address >> Feature L3
- ✓ Mayor Flexibilidad
- ✓ Poder trabajar con ACLs



Routing Table

El mapa de la red



- ✓ Información que tiene el Switch
- ✓ Se construye automáticamente
- ✓ Las Rutas tienen Peso
- ✓ Necesaria la Ruta por Defecto

```
Switch#show ip route
```

```
Code: C - connected, S - static, R - RIP, O - OSPF,  
      IA - OSPF inter area,  
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2,  
      E1 - OSPF external type 1, E2 - OSPF external type 2,  
      * - candidate default
```

```
Gateway of last resort is not set
```

```
S 170.10.0.0/16 [60/1] via 11.0.0.2, vlan11  
O 1.0.0.0/8 [80/2] via 11.0.0.1, vlan11  
O 2.0.0.0/8 [80/2] via 11.0.0.1, vlan11  
C 11.0.0.0/8 is directly connected, vlan11  
O 12.0.0.0/8 [80/3] via 11.0.0.1, vlan11  
O 13.0.0.0/8 [80/3] via 11.0.0.1, vlan11  
O 17.0.0.0/8 [80/3] via 11.0.0.1, vlan11  
O 18.0.0.0/8 [80/3] via 11.0.0.1, vlan11  
O 30.0.0.0/8 [80/2] via 11.0.0.1, vlan11  
O 40.0.0.0/8 [80/3] via 11.0.0.1, vlan11  
R 105.100.0.0/24 [100/2] via 11.0.0.5, vlan11  
C 107.100.0.0/16 is directly connected, vlan1  
C 172.18.64.0/21 is directly connected, mgmt_ipif  
R 212.254.254.0/24 [100/2] via 11.0.0.254, vlan11
```

```
Total Entries: 14
```

IP interfaces

VLANs & IP addresses

D-Link
Building Networks for People

Refresh Interval: 10 secs

Save Tools Wizard Online Help English

Logged in as: Administrator, ... Logout

Fuzzy Search

DGS-1520-28

- System
- Management
- L2 Features
- L3 Features
 - ARP
 - Gratuitous ARP
 - IPv6 Neighbor
 - Interface
 - IPv4 Interface**
 - IPv6 Interface
 - Loopback Interface
 - Null Interface
 - UDP Helper
 - IPv4 Static/Default Route
 - IPv4 Route Table
 - IPv6 Static/Default Route
 - IPv6 Route Table
 - Route Preference
 - ECMP Settings
 - IPv6 General Prefix
 - URPF Settings

IPv4 Interface

Interface VLAN (1-4094) Apply Find

Total Entries: 5

Interface	State	IP Address	Secondary	Link Status		
vian1	Enabled	10.90.90.93/255.255.255.0 Manual	No	Up	Edit	Delete
vian2	Enabled	192.168.2.3/255.255.255.0 Manual	No	Up	Edit	Delete
vian3	Enabled	192.168.3.3/255.255.255.0 Manual	No	Up	Edit	Delete
vian4	Enabled	192.168.4.3/255.255.255.0 Manual	No	Up	Edit	Delete
vian5	Enabled	192.168.5.3/255.255.255.0 Manual	No	Up	Edit	Delete

1/1 < < 1 > > Go

IP interfaces

Route Table

D-Link
Building Networks for People

Refresh Interval: 10 secs

Save Tools Wizard Online Help English Logged in as: Administrator, ... Logout

Fuzzy Search

- DGS-1520-28
 - System
 - Management
 - L2 Features
 - L3 Features
 - ARP
 - Gratuitous ARP
 - IPv6 Neighbor
 - Interface
 - UDP Helper
 - IPv4 Static/Default Route
 - IPv4 Route Table**
 - IPv6 Static/Default Route
 - IPv6 Route Table
 - Route Preference
 - ECMP Settings
 - IPv6 General Prefix
 - URPF Settings

IPv4 Route Table

IPv4 Route Table

IP Address
 Network Address

RIP OSPF Connected Hardware Summary

Find Show All

Total Entries: 5

IP Address	Mask	Gateway	Interface	Distance/Metric	Protocol	Candidate Default
10.90.90.0	255.255.255.0	Directly Connected	vlan1		Connected	-
192.168.2.0	255.255.255.0	Directly Connected	vlan2		Connected	-
192.168.3.0	255.255.255.0	Directly Connected	vlan3		Connected	-
192.168.4.0	255.255.255.0	Directly Connected	vlan4		Connected	-
192.168.5.0	255.255.255.0	Directly Connected	vlan5		Connected	-

1/1 < < 1 > > Go

Smart Switches

Del DGS-1210 en adelante



DGS-1210

Static route
Up to 124 IPv4 entries
Up to 50 IPv6 entries
&
4 IPv4 interfaces
4 IPv6 interfaces



DGS-1250

Static route
Up to 124 IPv4 entries
Up to 50 IPv6 entries
&
4 IPv4 interfaces
4 IPv6 interfaces



DGS-1510

Static route
Up to 64 IPv4 entries
Up to 32 IPv6 entries
&
16 IPv4 interfaces
16 IPv6 interfaces



DGS-1520

Static route
Up to 512 IPv4 entries
Up to 256 IPv6 entries
&
16 IPv4 interfaces
16 IPv6 interfaces

Managed Switches

En todas nuestras familias de la gama Managed



DGS-2000

Static route

Up to 128 IPv4 entries

Up to 128 IPv6 entries

&

4 IPv4 interfaces

4 IPv6 interfaces



DGS-3130

Static route

Up to 512 IPv4 entries

Up to 256 IPv6 entries

&

128 IPv4 interfaces

128 IPv6 interfaces



DGS-3630

Static route

Up to 512 IPv4 entries

Up to 256 IPv6 entries

&

256 IPv4 interfaces

256 IPv6 interfaces

10/40G Switches

Tanto Smart como Managed 10G/40G Core Data Center

Smart[™]



DXS-1210

Static route
Up to 64 IPv4 entries
Up to 64 IPv6 entries
&
8 IPv4 interfaces (*)
8 IPv6 interfaces (*)



DXS-3400

Static route
Up to 256 IPv4 entries
Up to 128 IPv6 entries
&
256 IPv4 interfaces
256 IPv6 interfaces



DXS-3610

Static route
Up to 1K IPv4 entries
Up to 512 IPv6 entries
&
256 IPv4 interfaces
256 IPv6 interfaces



DXS-5000

Static route
Up to 64 IPv4 entries
Up to 64 IPv6 entries
&
128 IPv4 interfaces
128 IPv6 interfaces

(*) 4 for DXS-1210-28T/-28S

Escenario con la serie Smart

D-Link lidera el sector Smart Switching



Switch to Smart

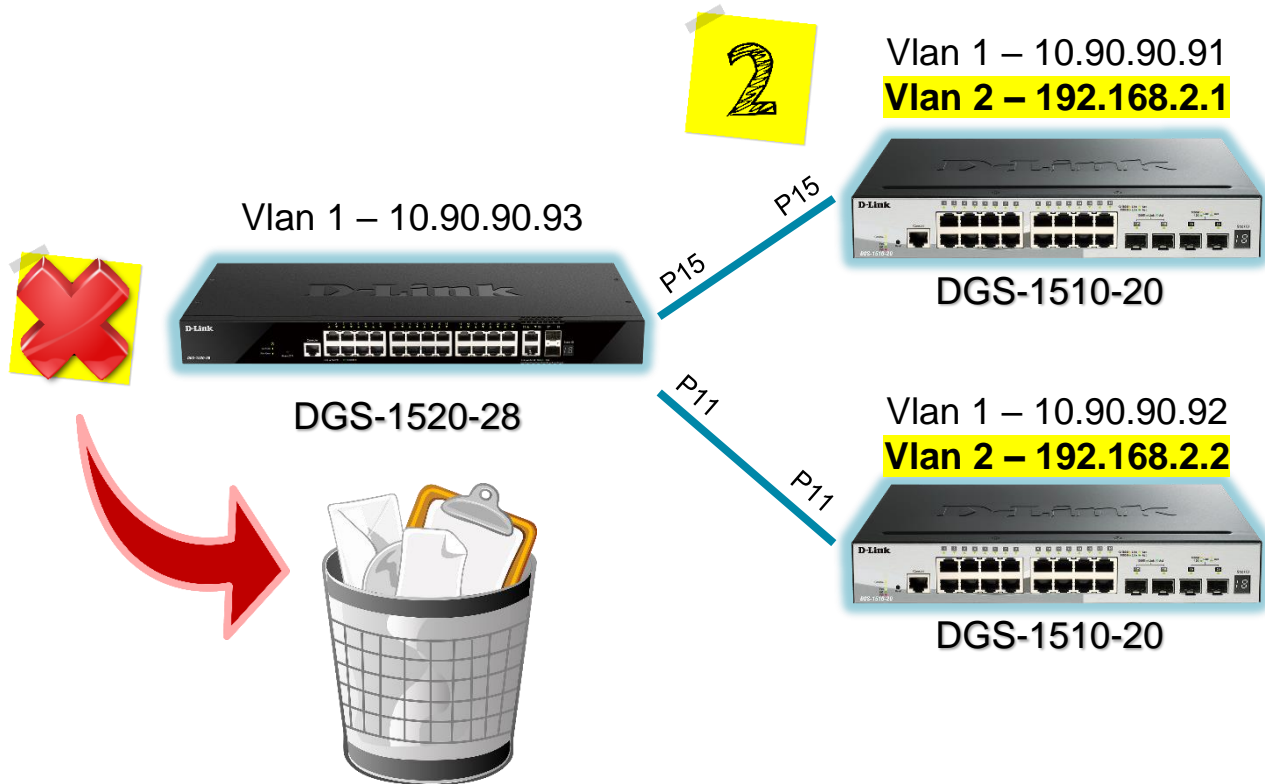
D-Link®

D-Link, líder en Smart Switching (Context 2020)



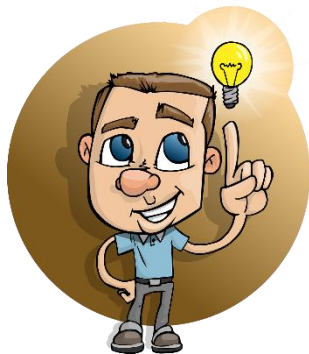
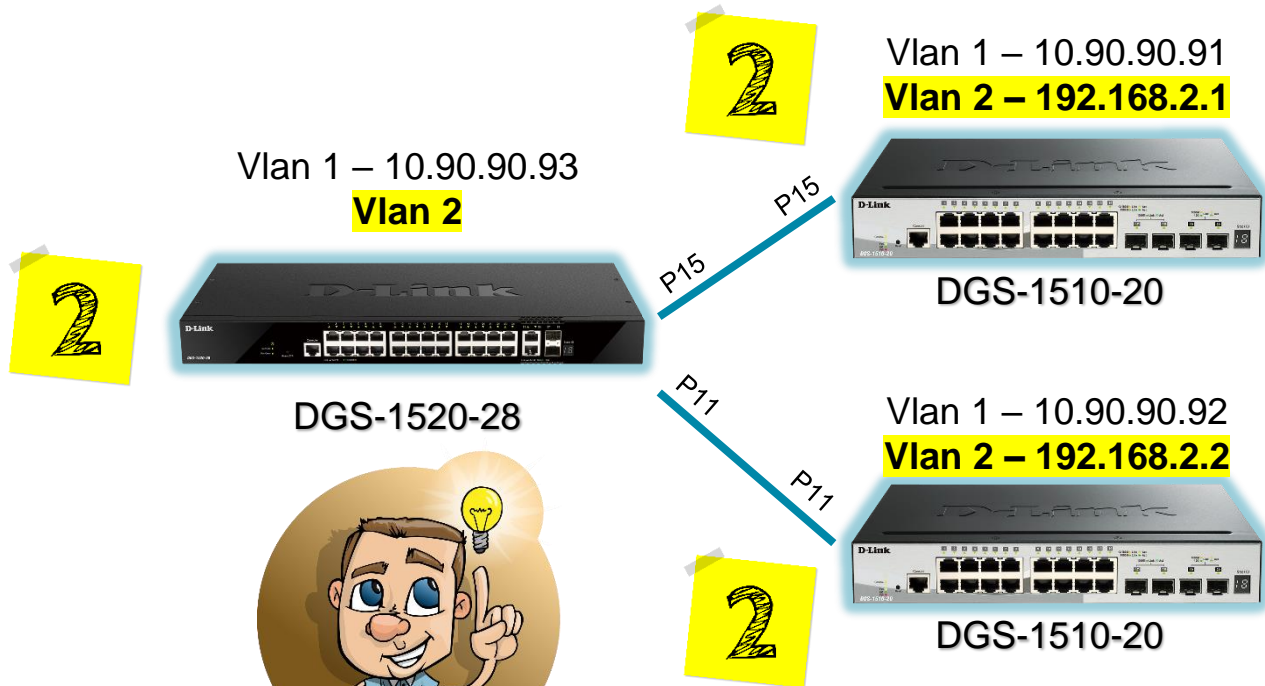
Escenario I

Topología con switches



Escenario I

Topología con switches





Demo Hands-On

Video de esta demo disponible en:

<https://www.youtube.com/user/DLINKIberiaTV>

D-Link

Conectividad a nivel 2 (Web UI)

Dejamos pasar el tráfico etiquetado con la Vlan 2

Fuzzy Search

- DGS-1520-28
 - System
 - Management
 - L2 Features
 - FDB
 - VLAN
 - VLAN Configuration Wizard
 - 802.1Q VLAN
 - VLAN Interface
 - 802.1v Protocol VLAN
 - GVRP
 - Asymmetric VLAN
 - MAC VLAN
 - L2VLAN Interface Description
 - Subnet VLAN

802.1Q VLAN

802.1Q VLAN

VID List Apply Delete

Find VLAN

VID (1-4094) Find Show All

Total Entries: 2

VID	VLAN Name	Description	Tagged Member Ports	Untagged Member Ports	VLAN Type	
1	default			1/0/1-1/0/28		Edit Delete
2	VLAN0002		1/0/11,1/0/15			Edit Delete

1/1 < < 1 > > Go

Fuzzy Search

- DGS-1520-28
 - System
 - Management
 - L2 Features
 - FDB
 - VLAN
 - VLAN Configuration Wizard
 - 802.1Q VLAN
 - VLAN Interface
 - 802.1v Protocol VLAN
 - GVRP
 - Asymmetric VLAN
 - MAC VLAN
 - L2VLAN Interface Description
 - Subnet VLAN

Configure VLAN Interface

Configure VLAN Interface

Port eth1/0/11 Clone

VLAN Mode From Port To Port

Acceptable Frame

Ingress Checking Enabled Disabled

Native VLAN Native VLAN Untagged Tagged

VID (1-4094)

Action

Allowed VLAN Range

Current Allowed VLAN Range 1-4094

Back Apply

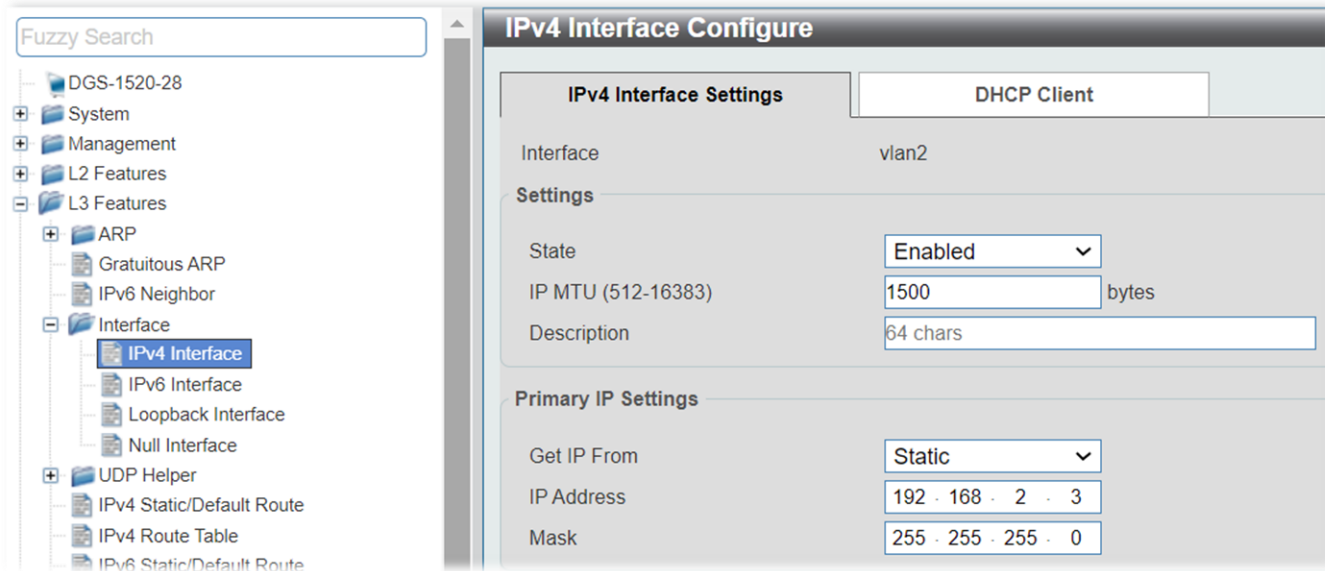
Conectividad a nivel 2 (CLI)

Dejamos pasar el tráfico etiquetado con la Vlan 2

```
Switch#configure terminal
Switch(config)#vlan 2
Switch(config-vlan)#exit
Switch(config)#interface ethernet 1/0/11
Switch(config-if)#switchport mode trunk
Switch(config-if)#interface ethernet 1/0/15
Switch(config-if)#switchport mode trunk
Switch(config-if)#exit
Switch(config)#
```

Conectividad a nivel 3 (Web UI)

Creamos una IP interface para dicha VLAN 2



The screenshot displays the D-Link Web UI configuration page for an IPv4 interface. On the left, a navigation tree shows the hierarchy: DGS-1520-28 > L3 Features > Interface > IPv4 Interface. The main panel is titled "IPv4 Interface Configure" and has two tabs: "IPv4 Interface Settings" (selected) and "DHCP Client".

IPv4 Interface Settings

Interface: vlan2

Settings

- State: Enabled
- IP MTU (512-16383): 1500 bytes
- Description: 64 chars

Primary IP Settings

- Get IP From: Static
- IP Address: 192 · 168 · 2 · 3
- Mask: 255 · 255 · 255 · 0

Conectividad a nivel 3 (CLI)

Creamos una IP interface para dicha VLAN 2

```
Switch#configure terminal
Switch(config)#interface vlan 2
Switch(config-if)#ip address 192.168.2.3 255.255.255.0
Switch(config-if)#
```

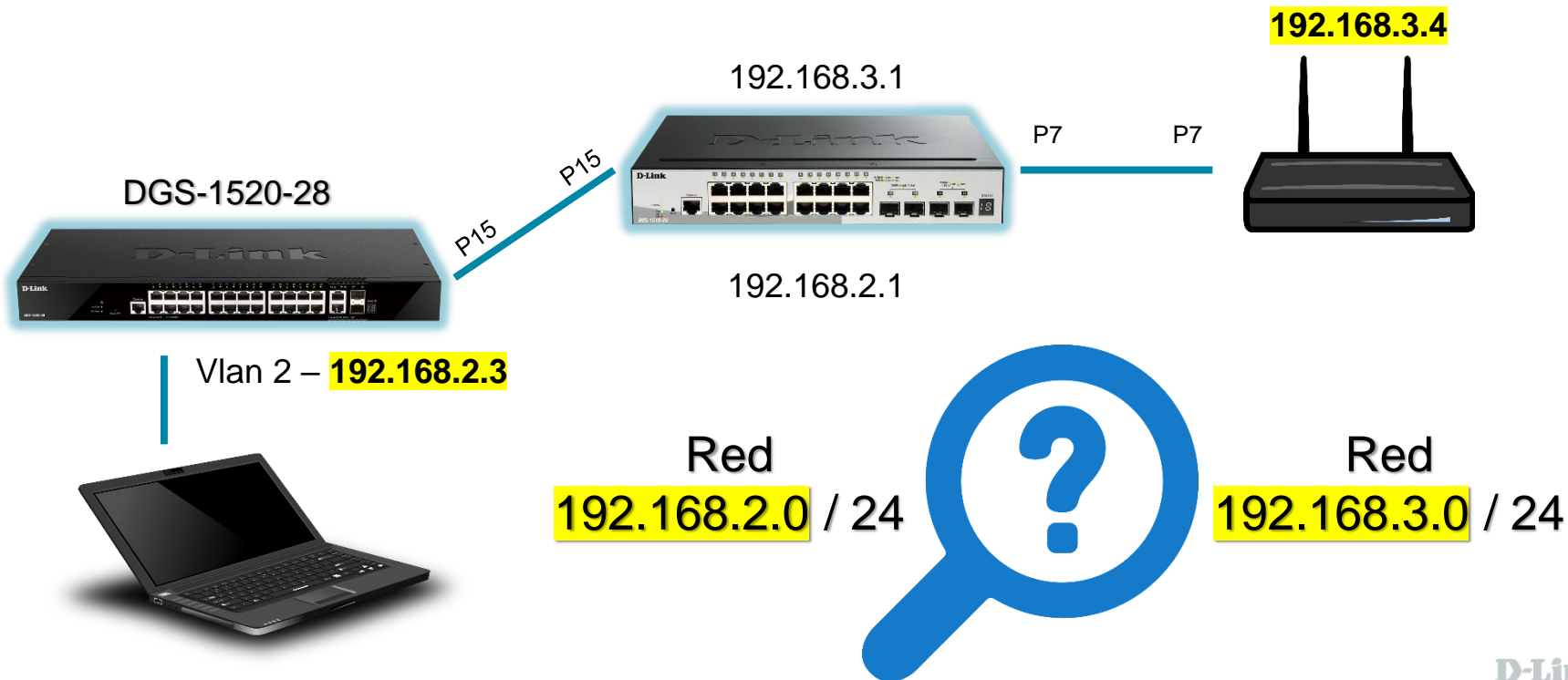
```
Switch#show ip interface brief

Interface      IP Address      Link Status
-----
vlan1          10.90.90.93     up
vlan2          192.168.2.3     up
mgmt_ipif     192.168.0.1     down

Total Entries: 3
```

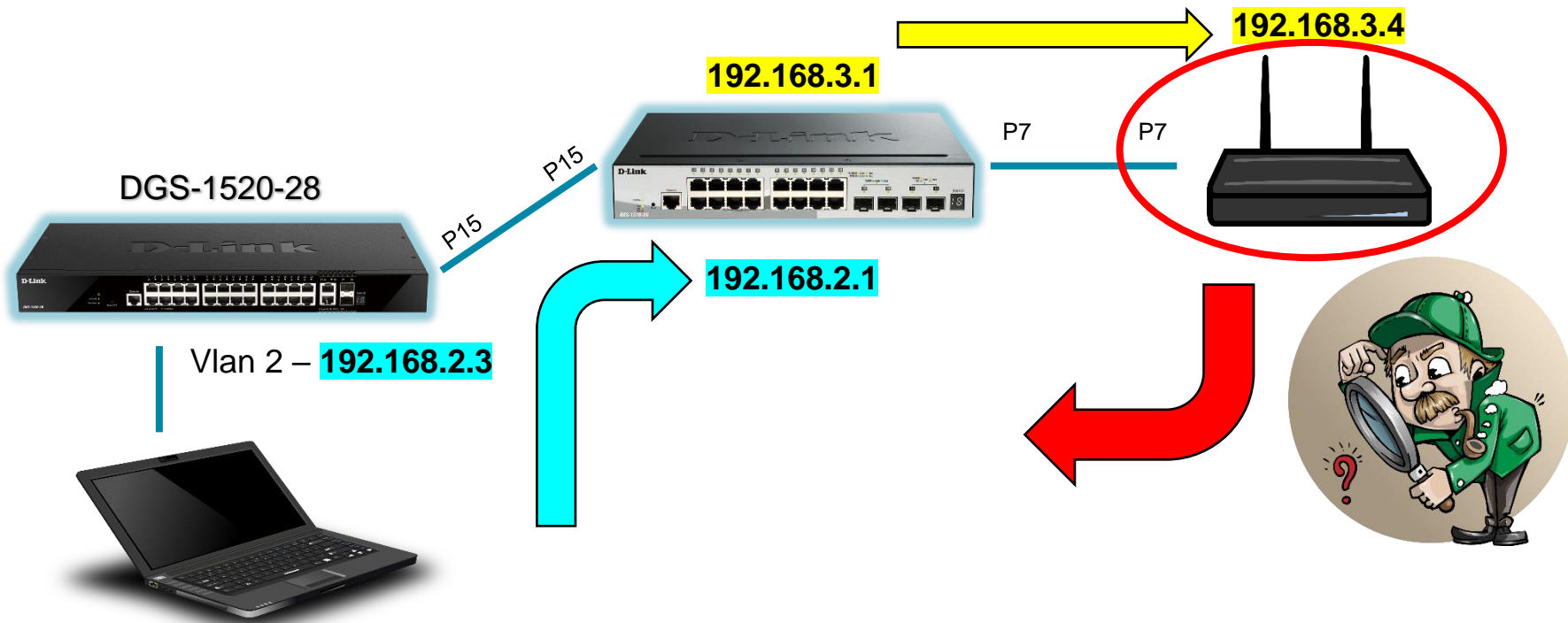
Escenario II

Red que no tenemos configurada



Escenario II

Red que no tenemos configurada



Ruta estática (Web UI)

Ruta hacia una red que no tengamos configurada

Fuzzy Search

- DGS-1520-28
 - System
 - Management
 - L2 Features
 - L3 Features
 - ARP
 - Gratuitous ARP
 - IPv6 Neighbor
 - Interface
 - UDP Helper
 - IPv4 Static/Default Route**
 - IPv4 Route Table
 - IPv6 Static/Default Route
 - IPv6 Route Table
 - Route Preference
 - ECMP Settings

IPv4 Static/Default Route

IPv4 Static/Default Route

IP Address: Mask: Default Route

Gateway:

Null Interface:

Backup State:

Total Entries: 1

IP Address	Mask	Gateway	Interface Name	
192.168.3.0	255.255.255.0	192.168.2.1	vlan2	<input type="button" value="Delete"/>

1/1 < < 1 > >

Fuzzy Search

- DGS-1520-28
 - System
 - Management
 - L2 Features
 - L3 Features
 - ARP
 - Gratuitous ARP
 - IPv6 Neighbor
 - Interface
 - UDP Helper
 - IPv4 Static/Default Route
 - IPv4 Route Table**
 - IPv6 Static/Default Route
 - IPv6 Route Table
 - Route Preference

IPv4 Route Table

IPv4 Route Table

IP Address
 Network Address
 RIP OSPF Connected Hardware Summary

Total Entries: 3

IP Address	Mask	Gateway	Interface	Distance/Metric	Protocol	Candidate Default
192.168.3.0	255.255.255.0	192.168.2.1	vlan2	60/1	Static	No
10.90.90.0	255.255.255.0	Directly Connected	vlan1		Connected	-
192.168.2.0	255.255.255.0	Directly Connected	vlan2		Connected	-

1/1 < < 1 > >

Ruta estática (CLI)

Ruta hacia una red que no tengamos configurada

```
Switch#configure terminal
Switch(config)#ip route 192.168.3.0 255.255.255.0 192.168.2.1
Switch(config)#
```

```
Switch#show ip route

Code: C - connected, S - static, R - RIP, O - OSPF,
      IA - OSPF inter area,
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2,
      E1 - OSPF external type 1, E2 - OSPF external type 2,
      * - candidate default

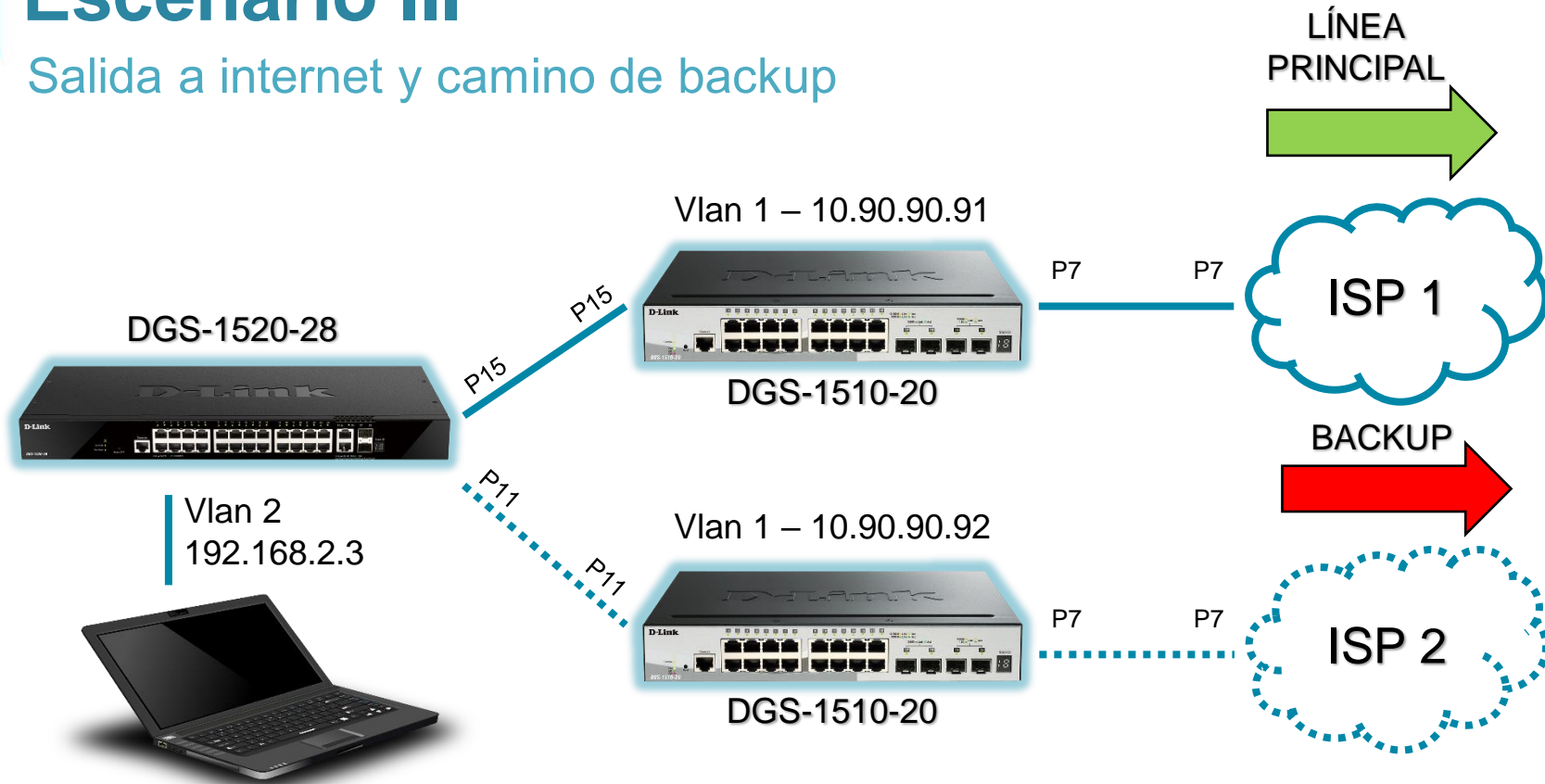
Gateway of last resort is not set

S    192.168.3.0/24 [60/1] via 192.168.2.1, vlan2
C    10.90.90.0/24 is directly connected, vlan1
C    192.168.2.0/24 is directly connected, vlan2

Total Entries: 3
```

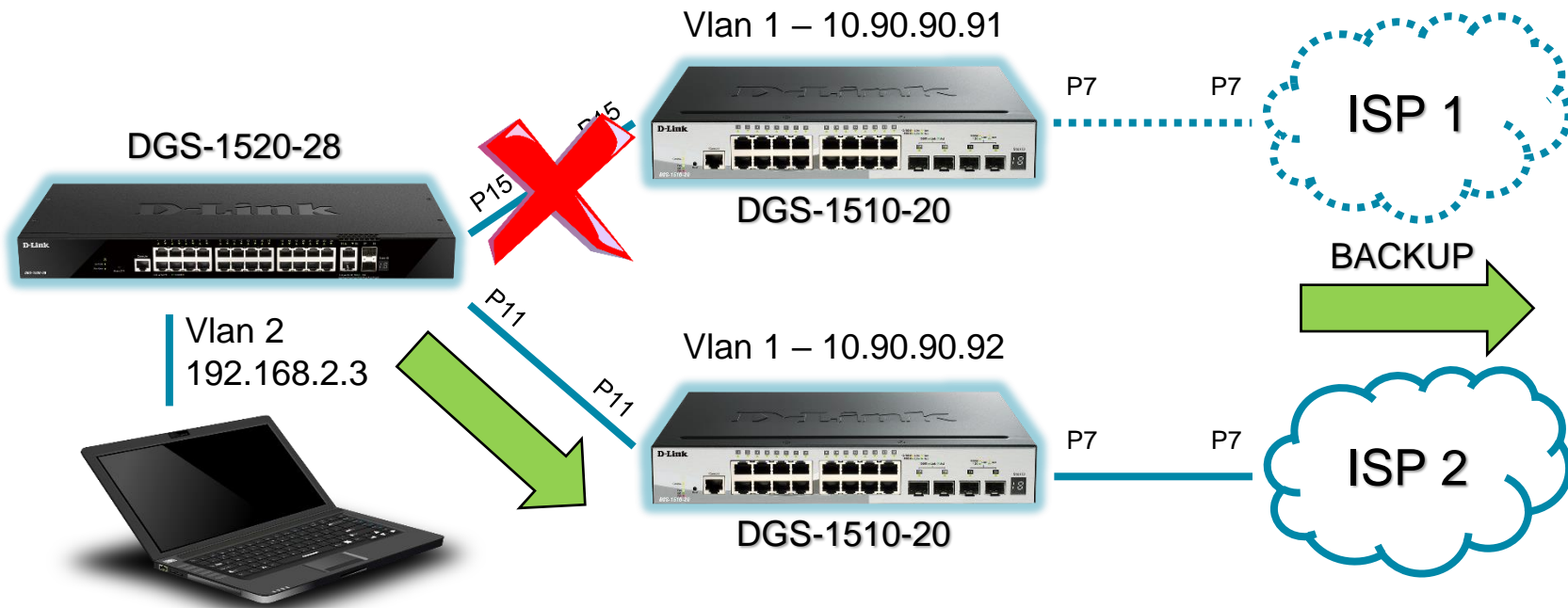
Escenario III

Salida a internet y camino de backup



Escenario III

Salida a internet y camino de backup



Ruta por defecto (Web UI)

Principal y backup

Fuzzy Search

- DGS-1520-28
 - System
 - Management
 - L2 Features
 - L3 Features
 - ARP
 - Gratuitous ARP
 - IPv6 Neighbor

IPv4 Static/Default Route

IPv4 Static/Default Route

IP Address: Mask: Default Route

Gateway:

Null Interface:

Backup State:

Fuzzy Search

- DGS-1520-28
 - System
 - Management
 - L2 Features
 - L3 Features
 - ARP
 - Gratuitous ARP
 - IPv6 Neighbor
 - Interface
 - UDP Helper
 - IPv4 Static/Default Route
 - IPv4 Route Table
 - IPv6 Static/Default Route
 - IPv6 Route Table
 - Route Preference
 - ECMP Settings
 - IPv6 General Prefix

IPv4 Static/Default Route

IPv4 Static/Default Route

IP Address: Mask: Default Route

Gateway:

Null Interface:

Backup State:

Total Entries: 2

IP Address	Mask	Gateway	Interface Name	
0.0.0.0	0.0.0.0	10.90.90.91		Delete
0.0.0.0	0.0.0.0	10.90.90.92	vlan1	Delete

1/1 < > 1 > > Go

Ruta por defecto (CLI)

Principal y backup

```
Switch#configure terminal
Switch(config)#ip route 0.0.0.0 0.0.0.0 10.90.90.91 primary
Switch(config)#ip route 0.0.0.0 0.0.0.0 10.90.90.92 backup
Switch(config)#
```

```
Switch#show ip route

Code: C - connected, S - static, R - RIP, O - OSPF,
      IA - OSPF inter area,
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2,
      E1 - OSPF external type 1, E2 - OSPF external type 2,
      * - candidate default

Gateway of last resort is 10.90.90.91 to network 0.0.0.0

S*   0.0.0.0/0 [1/1] via 10.90.90.91, vlan1
C    10.90.90.0/24 is directly connected, vlan1
C    192.168.2.0/24 is directly connected, vlan2

Total Entries: 3
```

Ruta por defecto (CLI)

Principal y backup

```
Switch#configure terminal
Switch(config)#interface ethernet 1/0/15
Switch(config-if)#shutdown
Switch(config-if)#do show ip route

Code: C - connected, S - static, R - RIP, O - OSPF,
      IA - OSPF inter area,
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2,
      E1 - OSPF external type 1, E2 - OSPF external type 2,
      * - candidate default

Gateway of last resort is 10.90.90.92 to network 0.0.0.0

S*   0.0.0.0/0 [1/1] via 10.90.90.92, vlan1
C    10.90.90.0/24 is directly connected, vlan1
C    192.168.2.0/24 is directly connected, vlan2

Total Entries: 3
```

Todos los caminos... Ilevan a D-Link

Switching, Wireless, Video Surveillance...



Programa de Canal VIP+

D-Link Value in Partnership+

Programa de Canal VIP+

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- Rebates por volumen
- Promociones exclusivas
- Herramientas online de Planificación Proyectos
- Soporte comercial y técnico dedicado
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Product Selector Pro

Simple herramienta que te permite seleccionar y comparar nuestros productos para que nuestros partners puedan ofrecer la solución más avanzada



Wi-Fi Planner Pro

Herramienta para diseño avanzado de entornos Wireless, para presentación profesional de planos de cobertura WiFi, estudios y proyectos



Surveillance Floor Planner Pro

Herramienta para diseñar instalaciones de videovigilancia CCTV, con selector de cámaras, colocación y cobertura para presentar planos profesionales



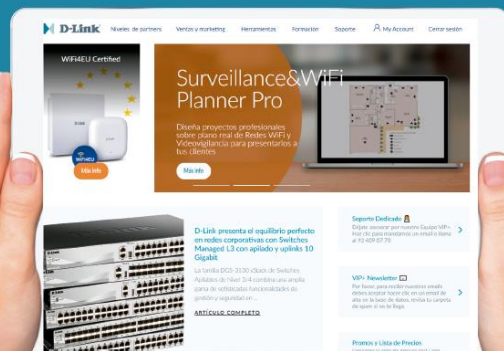
Bandwidth Calculator

Calculadora de ancho de banda para gestionar la tasa de transferencia necesaria para optimizar el tráfico de red de Cámaras IP, videograbadores NVR, etc.



GUI Emulator Pro

Herramienta Interactiva que te guía por las Interfaces gráficas de usuario (WEB GUI) de cada uno de nuestras soluciones



20 años espectaculares
D-Link IBERIA

Ya disponible en iOS & Android

Nueva app VIP+



D-Link
WEBINARS

D-Link Webinars

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D-Link
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Sesión mixta técnico-comercial

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- Interfaz y escenarios
- Licencia Cloud 5 años sin coste adicional

Ponentes:

Roger Morales, Pre Sales Engineer D-Link Iberia

Oriol Roca, Corporate Sales Account D-Link Iberia

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> WEBINARS

¡Muchas
gracias!

Muito
obrigado!

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