

# Actualización

Catalonia Neutral  
Internet Exchange

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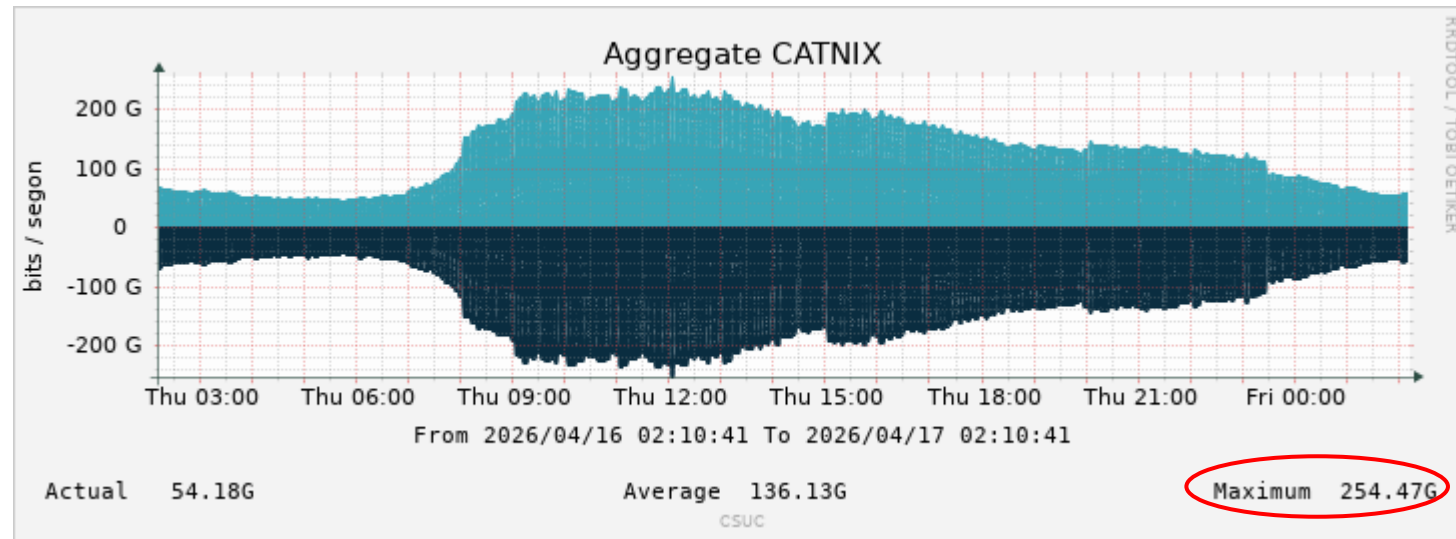
**ESNOG35**

**17 de abril de 2026**

**Universidad Carlos III de Madrid**

**CSUC**

# Tráfico intercambiado

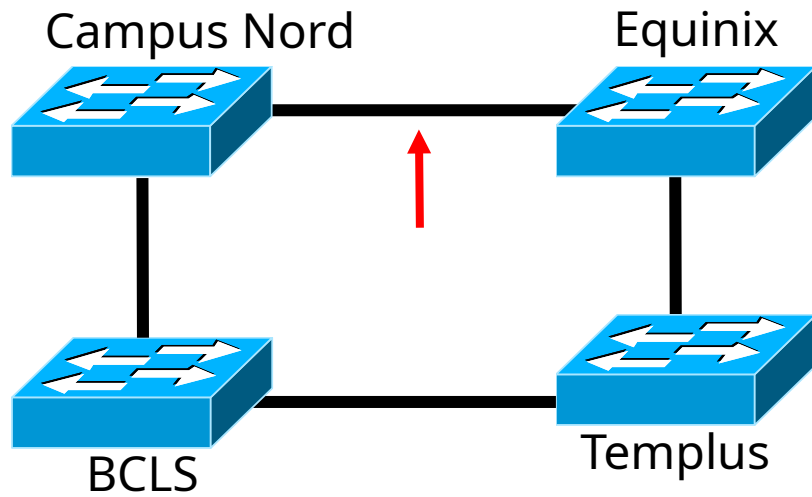


IXPManager muestra estadísticas de los enlaces de infraestructura (requiere usuario):  
<https://ixpmanager.catnix.net>

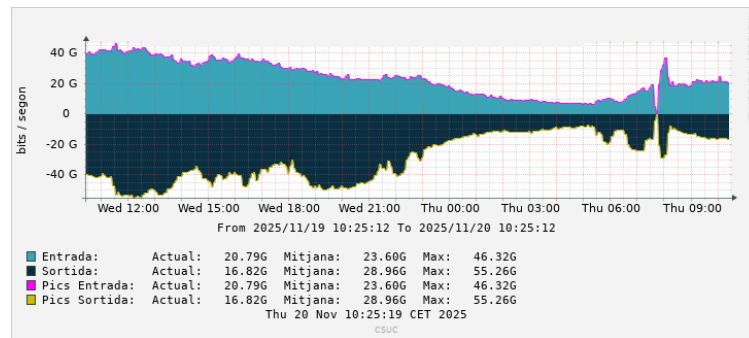
# Ampliado enlace Campus Nord - Equinix

20-11

- De 100 Gbps a 200 Gbps.



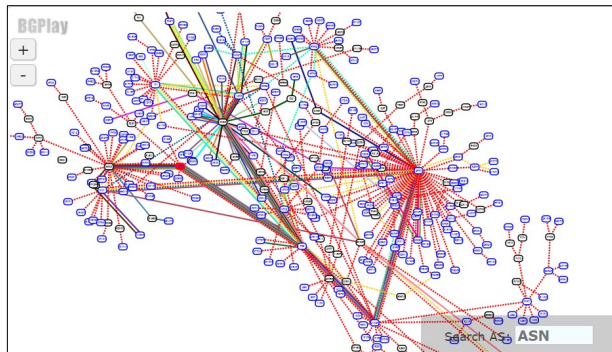
- Sin cortes. Tráfico redirigido vía el 40 Gbps de backup.



# Renovado el servidor RIPE RIS

13-11

- Hardware anterior DELL R320.
- Paso a máquina virtual.
- Para ver resultados en vivo:
  - <https://ris-live.ripe.net/>
  - Seleccionar "host: rrc18" en el desplegable.



### Routing Information Service Live (RIS Live)

RIS Live is a feed that offers BGP messages in real-time. It collects information from the RIS Route Collectors (RRCs) and uses a WebSocket JSON API to monitor and detect routing events around the world. A non-interactive full stream ("firehose") is also available.

RIS Live is one way of accessing RIS, together with RIPEstat and the RIS Raw Data dumps. Any bug reports or queries should be sent to [rislive@ripe.net](mailto:rislive@ripe.net).

RIS Live has been used by some organisations for academic and research purposes. In 2017, [INSPIRE group](#) and [CAIDA](#) used RIS Live to develop [ARTEMIS](#), a real-time BGP hijack detection tool. It is also a backend for [BGPalerter](#), a real-time BGP monitoring tool, pre-configured for visibility loss and hijacks detection.

[Get started using the RIS Live Manual](#)

#### Demo

Subscriptions to the stream are sent as a JSON object containing various filter parameters. You can adjust the parameters below and see the messages that are streamed on the right.

prefix: null

path: null

type: [v]

require: [v]

moreSpecific:

lessSpecific:

host: rrc18.ripe.net [v]

peer: null

socketOptions: {

includeRaw:

acknowledge:

}

#### Live RIS BGP messages

Connected 649 matching messages ~0 kbit/s

```
// Received at 18:12:42 (3.17 second delay)
{
  "timestamp": 1763572359.66,
  "peer": "193.242.98.38",
  "peer_asn": "13041",
  "id": "193.242.98.38-019a9d1aa1ec0000",
  "host": "rrc18.ripe.net",
  "type": "KEEPALIVE"
}
```

```
// Received at 18:12:42 (2.12 second delay)
{
  "timestamp": 1763572360.71,
  "peer": "2001:7f8:2a:0:2:1:2:9680",
  "peer_asn": "29680",
  "id": "2001:7f8:2a:0:2:1:2:9680-019a9d1aa6060000",
  "host": "rrc18.ripe.net",
  "type": "UPDATE",
  "path": [29680, 3257, 6453, 13335],
  "community": [],
  "origin": "IGP",
  "announcements": [
    {
      "next_hop": "2001:7f8:2a:0:2:1:2:9680,fe80::262:ecff:fe9f:d3c9",
      "prefixes": [
        "2a06:98c0:1c04::/48",
        "2a06:98c0:1c0a::/48",
        "2a06:98c0:1c25::/48",
        "2a06:98c0:1c5a::/48",
        "2a06:98c0:1c11::/48"
      ]
    }
  ]
}
```

#### Code examples

Below are simple examples of using the RIS Live WebSocket interface. For a full guide, see the [RIS Live manual](#).

Javascript Python

```
/*
Subscribe to a RIS Live stream and output every message to the
javascript console.
*/
```

\*RIPEstat, BGPlay, Artemis y BGPalerter usan RIPE RIS.

RRC18	CATNIX, Barcelona	12654	193.242.98.118	2001:7f8:2a:0:1:1:1:2654
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# Renovado el servidor L-Root (ICANN)

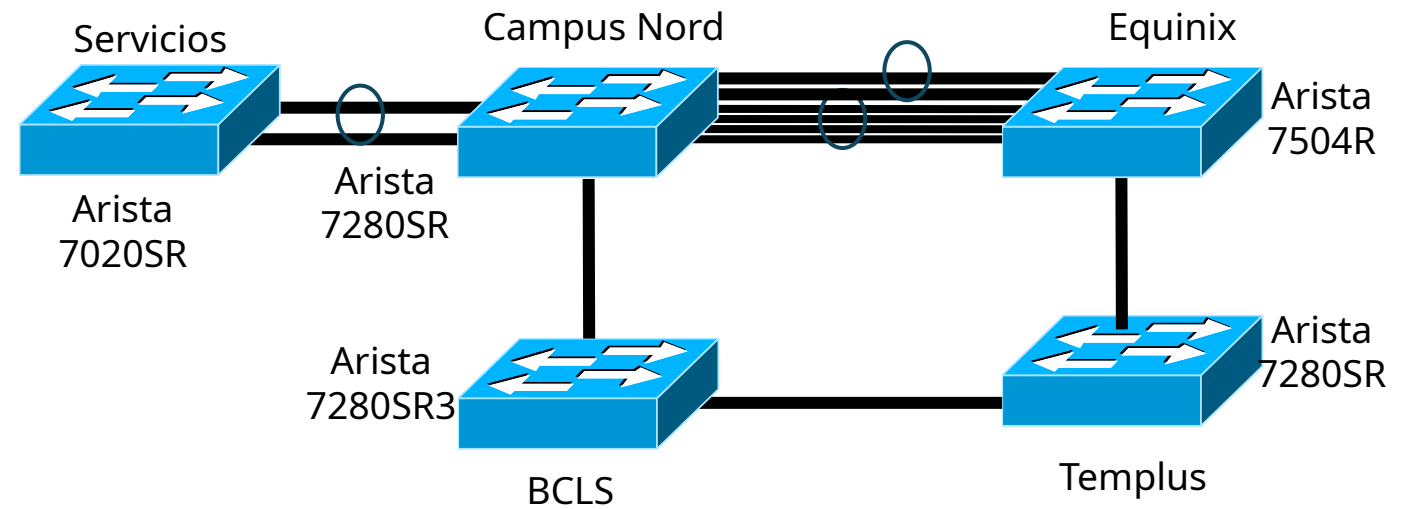
- Equipo Dell PowerEdge R260 preconfigurado.
- Infierno de aduanas.
- 8 (6) servidores raíz de DNS accesibles desde CATNIX.



<https://root-servers.org/>

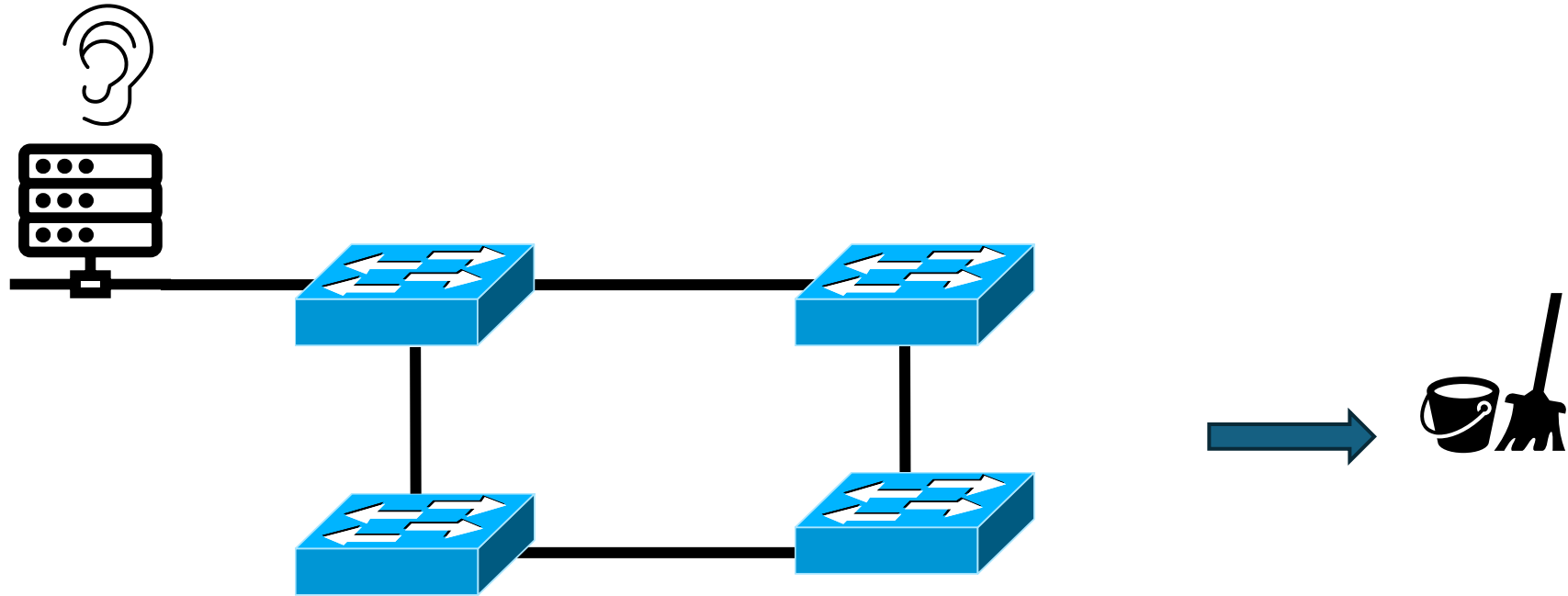
# Próxima renovación de equipos

- En proceso de licitación
  - 4 equipos de peering
  - 1 equipo de servicios
- Puesta en marcha prevista en junio



# Cazando paquetes revoltosos

Equipo escuchando tráfico a nivel 2 en la LAN del CATNIX con IXP-watch.



IXPwatch genera dumps analizables con wireshark (pcap)

# Discovery Protocols

No.	Time	Source	Destination	Protocol	Length Info
82	2.275362093		CDP/VTP/DTP/PagP/UD...	CDP	152 Device ID:
197	7.080047628		CDP/VTP/DTP/PagP/UD...	CDP	147 Device ID:
698	28.041936603		CDP/VTP/DTP/PagP/UD...	CDP	189 Device ID:
699	28.041980135		CDP/VTP/DTP/PagP/UD...	CDP	277 Device ID:
831	32.277228036		CDP/VTP/DTP/PagP/UD...	CDP	152 Device ID:
925	36.505788322		CDP/VTP/DTP/PagP/UD...	CDP	277 Device ID:
938	37.079645823		CDP/VTP/DTP/PagP/UD...	CDP	147 Device ID:
939	37.080709857		CDP/VTP/DTP/PagP/UD...	CDP	192 Device ID:
940	37.080740561		CDP/VTP/DTP/PagP/UD...	CDP	251 Device ID:
1040	40.919719479		CDP/VTP/DTP/PagP/UD...	CDP	448 Device ID:
1041	40.919724746		CDP/VTP/DTP/PagP/UD...	CDP	406 Device ID:
1516	62.283322049		CDP/VTP/DTP/PagP/UD...	CDP	152 Device ID:
1642	67.079818304		CDP/VTP/DTP/PagP/UD...	CDP	147 Device ID:
2098	88.037632755		CDP/VTP/DTP/PagP/UD...	CDP	189 Device ID:
2099	88.037638424		CDP/VTP/DTP/PagP/UD...	CDP	277 Device ID:
2199	92.282650586		CDP/VTP/DTP/PagP/UD...	CDP	152 Device ID:
2310	96.508906934		CDP/VTP/DTP/PagP/UD...	CDP	277 Device ID:
2324	97.081053272		CDP/VTP/DTP/PagP/UD...	CDP	147 Device ID:
2325	97.081922610		CDP/VTP/DTP/PagP/UD...	CDP	192 Device ID:
2326	97.081955079		CDP/VTP/DTP/PagP/UD...	CDP	251 Device ID:
2413	100.548469978		CDP/VTP/DTP/PagP/UD...	CDP	448 Device ID:
2414	100.548509355		CDP/VTP/DTP/PagP/UD...	CDP	406 Device ID:
3016	122.277479238		CDP/VTP/DTP/PagP/UD...	CDP	152 Device ID:
3129	127.080628589		CDP/VTP/DTP/PagP/UD...	CDP	147 Device ID:
3693	148.037376328		CDP/VTP/DTP/PagP/UD...	CDP	189 Device ID:
3694	148.037422063		CDP/VTP/DTP/PagP/UD...	CDP	277 Device ID:
3850	152.279540416		CDP/VTP/DTP/PagP/UD...	CDP	152 Device ID:
3907	153.791982195		CDP/VTP/DTP/PagP/UD...	CDP	448 Device ID:
3908	153.791990069		CDP/VTP/DTP/PagP/UD...	CDP	406 Device ID:
4011	156.514720816		CDP/VTP/DTP/PagP/UD...	CDP	277 Device ID:

# Paquetes MPLS

2026-03-15-00-00.pcap

Archivo Edición Visualización Ir Captura Analizar Estadísticas Telefonía Wireless Herramientas Ayuda

Idp

No.	Time	Source	Destination	Protocol	Length	Info
32	0.737222788	172.31.31.3	224.0.0.2	LDP	76	Hello Message
131	4.094118750		224.0.0.2	LDP	76	Hello Message
167	5.736744522	172.31.31.3	224.0.0.2	LDP	76	Hello Message
247	9.086415937		224.0.0.2	LDP	76	Hello Message

Frame 32: Packet, 76 bytes on wire (608 bits). 76 bytes captured (608 bits) on interface 0

Ethernet II, Src: Pobrecito hablador, Dst: IPv4mcast\_02 (01:00:5e:f8:f9:40)

- Destination: IPv4mcast\_02 (01:00:5e:f8:f9:40)
- Source: Pobrecito hablador

Type: IPv4 (0x0800)  
[Stream index: 14]

Internet Protocol Version 4, Src: 172.31.31.3, Dst: 224.0.0.2

- Version: 4
- Header Length: 20 bytes (5)
- Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
- Total Length: 62
- Identification: 0xf8f9 (63737)
- Flags: 0x2, Don't fragment
- Fragment Offset: 0
- Time to Live: 1
- Protocol: UDP (17)
- Header Checksum: 0xd590 [validation disabled]
- Source Address: 172.31.31.3
- Destination Address: 224.0.0.2

User Datagram Protocol, Src Port: 646, Dst Port: 646

Label Distribution Protocol

Specifies if this is an individual (unicast) or group (broadcast/multicast) address (eth.src.ig), 1 bit(s)

Paquetes: 2835911 · Displayed: 34557 (1.2%) Perfil: Default

LDP usa el puerto 646 y la dirección multicast 224.0.0.2

# OSPF!

No.	Time	Source	Destination	Protocol	Length	Info
56	1.273872679		224.0.0.5	OSPF	82	Hello Packet
240	8.944419623		224.0.0.5	OSPF	82	Hello Packet
300	11.269461418		224.0.0.5	OSPF	82	Hello Packet
465	18.944466677		224.0.0.5	OSPF	82	Hello Packet
524	21.267548929		224.0.0.5	OSPF	82	Hello Packet
727	28.944513910		224.0.0.5	OSPF	82	Hello Packet
798	31.268798027		224.0.0.5	OSPF	82	Hello Packet
986	38.944563075		224.0.0.5	OSPF	82	Hello Packet
1051	41.273172831		224.0.0.5	OSPF	82	Hello Packet
1233	48.944662528		224.0.0.5	OSPF	82	Hello Packet
1297	51.272853803		224.0.0.5	OSPF	82	Hello Packet
1450	58.945058217		224.0.0.5	OSPF	82	Hello Packet
1500	61.273710843		224.0.0.5	OSPF	82	Hello Packet
1682	68.954701712		224.0.0.5	OSPF	82	Hello Packet
1730	71.265513734		224.0.0.5	OSPF	82	Hello Packet
1900	78.953520807		224.0.0.5	OSPF	82	Hello Packet
1941	81.269682425		224.0.0.5	OSPF	82	Hello Packet
2122	88.950346088		224.0.0.5	OSPF	82	Hello Packet
2173	91.270067497		224.0.0.5	OSPF	82	Hello Packet
2373	98.954839541		224.0.0.5	OSPF	82	Hello Packet
2433	101.269170911		224.0.0.5	OSPF	82	Hello Packet
2640	108.954893147		224.0.0.5	OSPF	82	Hello Packet
2699	111.269423746		224.0.0.5	OSPF	82	Hello Packet
2923	118.954977270		224.0.0.5	OSPF	82	Hello Packet
2993	121.267323456		224.0.0.5	OSPF	82	Hello Packet
3177	128.954980195		224.0.0.5	OSPF	82	Hello Packet
3237	131.272123609		224.0.0.5	OSPF	82	Hello Packet
3434	138.955035062		224.0.0.5	OSPF	82	Hello Packet
3485	141.267125340		224.0.0.5	OSPF	82	Hello Packet
3723	148.955075985		224.0.0.5	OSPF	82	Hello Packet

# OSPF!

```
▼ Frame 56: Packet, 82 bytes on wire (656 bits), 82 bytes captured (656 bits) on interface: 0000 01 00 5e 00 00 05 Pobrecito hablador 00 45 00 ..^.....W.....E
  Section number: 1
  Interface id: 0 (em2:1)
  Encapsulation type: Ethernet (1)
  Arrival Time: Mar 15, 2026 00:00:03.095060077 Hora estándar romance
  UTC Arrival Time: Mar 14, 2026 23:00:03.095060077 UTC
  Epoch Arrival Time: 1773529203.095060077
  [Time shift for this packet: 0.000000000 seconds]
  [Time delta from previous captured frame: 93.769 microseconds]
  [Time since reference or first frame: 1.273872679 seconds]
  Frame Number: 56
  Frame Length: 82 bytes (656 bits)
  Capture Length: 82 bytes (656 bits)
  [Frame is marked: False]
  [Frame is ignored: False]
  [Protocols in frame: eth:ethertype:ip:ospf]
  Character encoding: ASCII (0)
  [Coloring Rule Name: Routing]
  [Coloring Rule String: hsrp || eigrp || ospf || bgp || cdp || vrrp || carp || gvrp ||
  ▼ Ethernet II, Src: Pobrecito hablador , Dst: IPv4mcast_05 (01:00:5e:00:00:05)
    ▶ Destination: IPv4mcast_05 (01:00:5e:00:00:05)
    ▶ Source: Pobrecito hablador
      Type: IPv4 (0x0800)
      [Stream index: 21]
    ▶ Internet Protocol Version 4, Src: Pobre Hablador, Dst: 224.0.0.5
    ▶ Open Shortest Path First
  0010 00 44 07 b7 40 00 01 59 c6 83 ac 11 11 02 e0 00 .D..@..Y.....
  0020 00 05 02 01 00 30 0a ff ff fe 00 00 00 00 e6 13 .....0.....
  0030 00 00 00 00 00 00 00 00 00 ff ff ff ff 00 0a .....
  0040 02 80 00 00 00 28 00 00 00 00 00 00 0a ff .....(.....
  0050 ff 0b .....
```

Open Shortest Path First: Protocol

Paquetes: 2835911 · Displayed: 17849 (0.6%)

Perfil: De

OSPF manda paquetes a 224.0.0.5

# Una vez cazados

1. Nos ponemos en contacto con los propietarios de la dirección MAC.
2. Aplicamos filtros a nivel de switch.

Estamos aplicando filtros progresivamente a todos los puertos, en IPv4 y en IPv6.

# ¿Qué podéis hacer vosotros?

- Deshabilitar STP en las interfaces hacia CATNIX. El puerto se bloquea si recibe BPDUs.  
    no spanning-tree vlan CATNIX
- Una sola MAC por puerto. Actualizad el filtro en “Mi portal”. El puerto se bloquea si aparece una MAC que no estaba registrada.
- Desactivar protocolos de autoconfiguración tipo DHCP o BOOTP.  
    no service dhcp
- Desactivar protocolos de auto-descubrimiento como CDP, MNDP, LLDP, EDP...  
    no cdp enable
- Deshabilitar proxy-arp  
    no ip proxy-arp



Consorti de  
Serveis Universitaris  
de Catalunya

**¡Muchas gracias!  
(¡Gracias Geovanna!)**

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**CATNIX**

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YouTube

