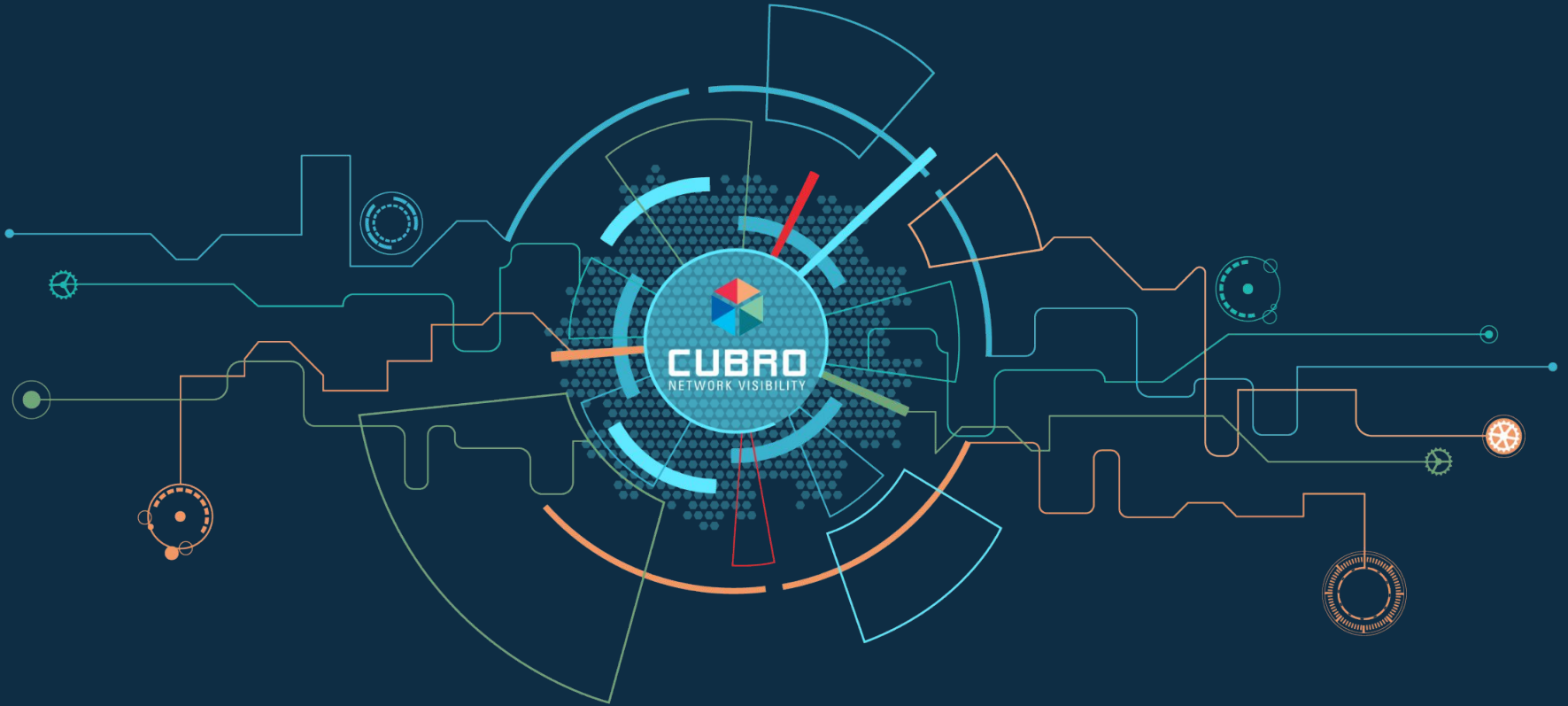




EX48800 - Technical Overview

June 2025



- 4 x 1 Gbps / 10 Gbps / 25 Gbps full duplex ports for any kind of SFP/SFP+/SFP28
- 44 x 10 Gbps / 25 Gbps full duplex ports for any kind of SFP+/SFP28
- 8 x 40 Gbps / 100 Gbps full duplex ports for any kind of QSFP/QSFP28
- No transceiver vendor lock
- Each port can be used simultaneously as input and output and is totally independent from other ports
- Non-blocking architecture (4000 Gbit/s Throughput)
- Port Licensing Model available

Port licensing model only for EX48800



The EX48800 offers 4 different licensing models defining the number of available ports.

- EX48800-12 = last 12 x 25/10G ports + 8 x 40/100G activated
- EX48800-24 = last 24 x 25/10G ports + 8 x 40/100G activated
- EX48800-36 = last 36 x 25/10G ports + 8 x 40/100G activated
- EX48800-48 = all 48 x 25/10G ports + 8 x 40/100G activated

Unlicensed ports are blocked and cannot be used for any purpose like ingress, egress or loopback.

The port licensing model has no effect on the included features.

Pay only for what you need.
A smart, cost-efficient approach tailored to your requirements.

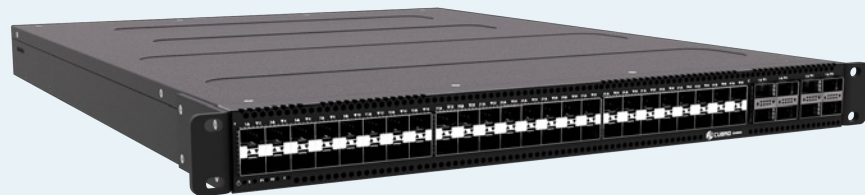
- 10G/25G/50G/100G break-out mode
- Non-blocking
- Aggregation, Filtering & Load-balancing
- Buffer memory for burst protection
- Open for third party optical modules
- NTP and PTP synchronization
- TACACS+ and RADIUS Authentication
- SNMPv2c, SNMPv3 and RSyslog
- MS Excel filter upload
- Easy to use WebUI, RestAPI and CLI
- Packet Slicing in line rate on all ports for any packet size
- > 100k filtering rule capacity (IPv4 and Ipv6)
- **Tunnel Termination and inside tunnel filtering**
 - GRE, GTP, MPLS, MPLSoGRE, MPLSoUDP, VXLAN, ERSPAN, CFP
- Superior VXLAN traffic handling (VXLAN VNI & inner IP filtering simultaneously)
- Active Tunnel Endpoint / Termination & Encapsulation

Best in-class Advanced NPB

What is Generation 5+ (G5+) of Advanced NPBs?

G5+ family consists of four products that are all based on latest generation of programmable Ethernet-Switch ASIC.

- EXA32100A - 32 x 40G/100G & 2 x 10G/25G
- EXA64100 - 64 x 40G/100G & 2 x 10G/25G
- EXA32400 - 32 x 100G/400G
- **EX48800 - 48 x 10G/25G & 8x 40G/100G**



EX48800

G5+ key points:

- Tunnel Termination
- State-of-the art VXLAN handling including VNI filtering
- Inner tunnel filtering
- Superior Load-balancing features including inner tunnel hashing
- More than 100k parallel filtering rules

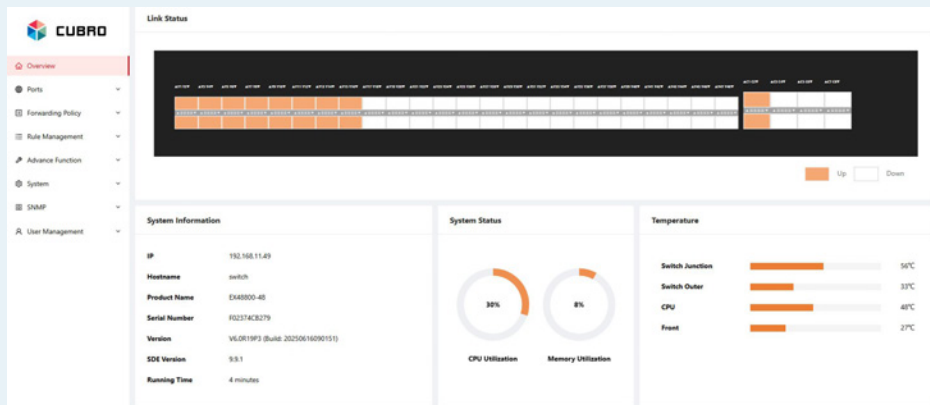
General Features and Functions



Straightforward operation via WebUI or CLI



- Straight and easy operation via WebUI or CLI; RestAPI available for easy system integration



```

  _____
 /  _  _  _  \
|  _ \| | | | | | |
| |_) | | | | |
|  _ \| | | | |
|_| \_|_|_|_|_|
Welcome to the UNIX shell of this Cubro EX48000. Please use it with care!!

Access the Cubro CLI Shell to customize your device!

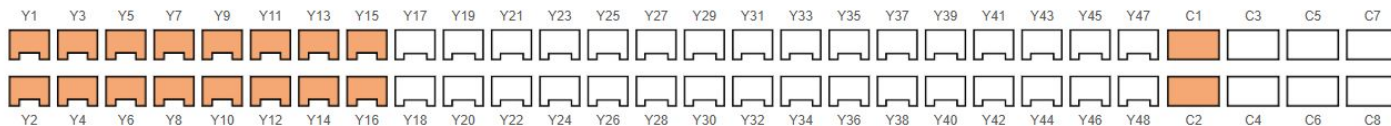
> exmenu

Last login: Wed Jun 25 06:49:04 2025 from 172.27.66.2
admin@switch:~$ sudo vtsh
[sudo] password for admin:
switch# configure terminal
switch(config)# interface 1
switch(config-if)# speed 25000
switch(config-if)# exit
switch(config)#
```

Forwarding Policy via drag & drop

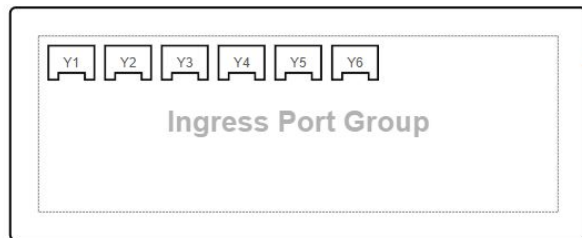
Policy

Choose Interface



+ Forward Policy

Ingress Port ▾



1 ... 5



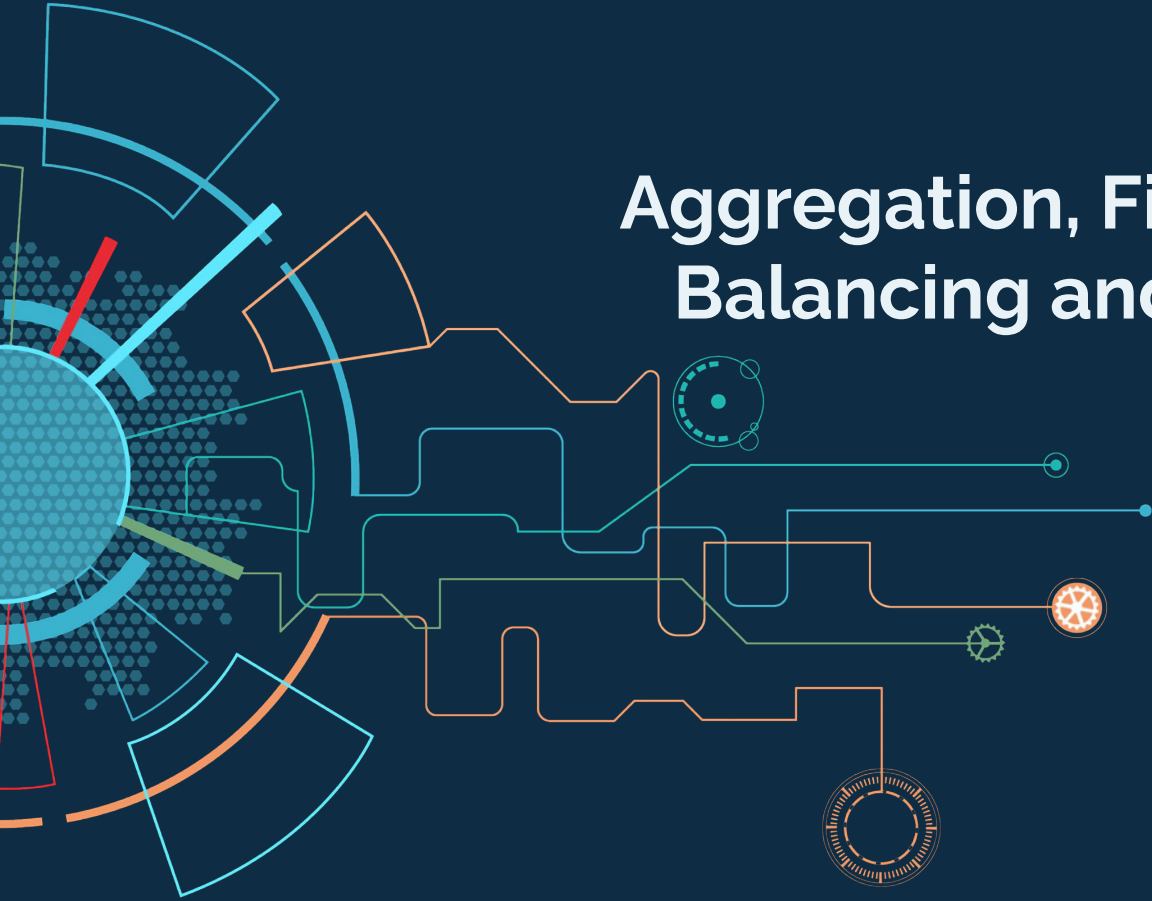
Add Egress Port Group

Graphical Throughput per port



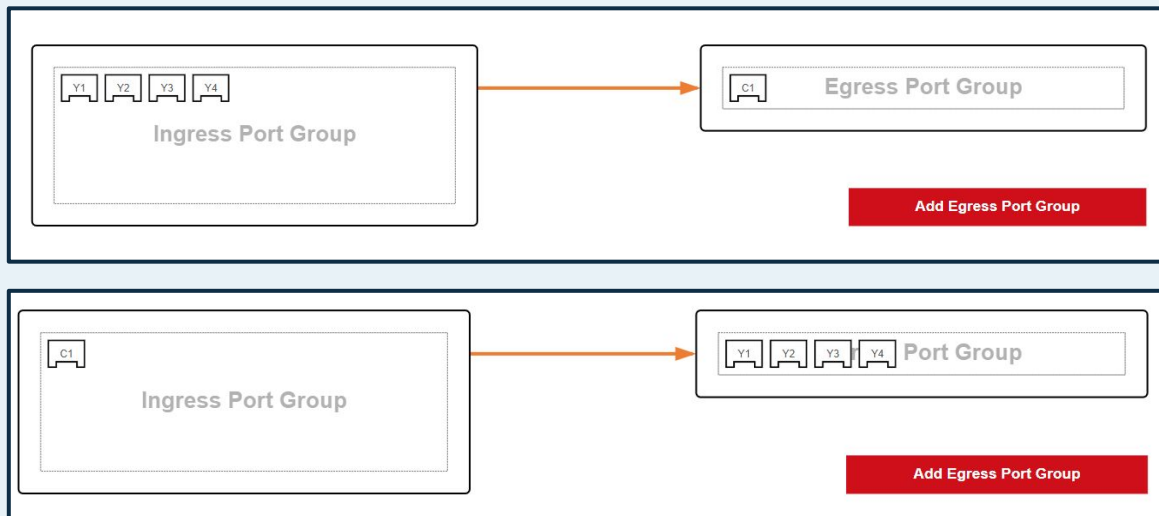
Port utilization over time to visualize traffic trends early.

Aggregation, Filtering, Load Balancing and much more



All kinds of aggregation supported :

- Many to One
- One to Many
- Many to Many



Split mode - E.g. 400G into 4 x 100G

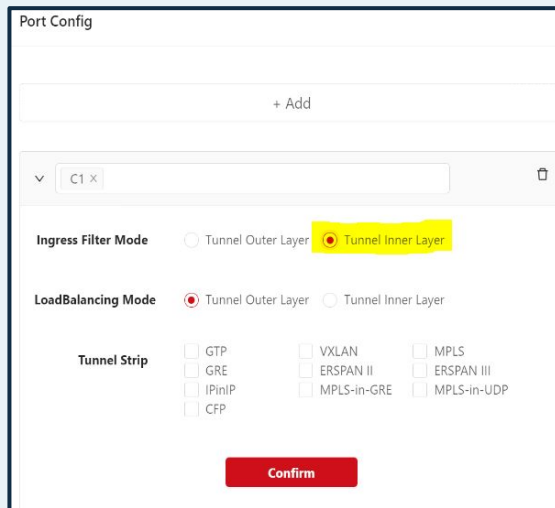
Port ID	Description	Enable	Type	Category	Hash Mode	Speed (Mbps)	Split	Split Speed	FEC
C1	TAP01/E	☒	Ingress	mixed	I3-src-dst	100000	0	-	☐
C2	TAP01/W	☒	Ingress	mixed	I3-src-dst	100000	0	-	☐
C3		☒	Bidirectional	mixed	I3-src-dst	100000	4	- ^	☐
C4		☒	Bidirectional	mixed	I3-src-dst	100000	0	25000	☐
C5		☒	Bidirectional	mixed	I3-src-dst	100000	0	10000	☐

Link Status



☒ Up ☐ Down

- Layer 2
 - MAC, VLAN (up to 4 tags)
 - Ether type
 - VXLAN VNI
- Layer 3
 - Protocol
 - DSCP
 - IPv4/IPv6 Address
 - Fragments
- Layer 4
 - Port Number
 - TCP Flag
- Payload
 - ASCII string / Hex pattern



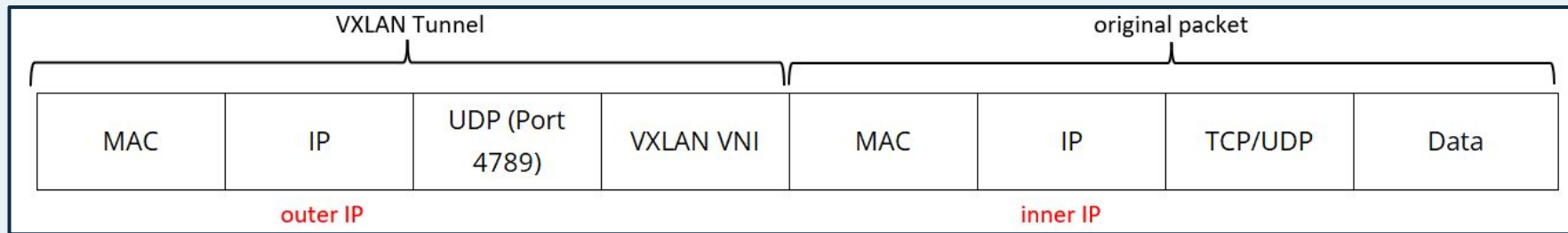
The image shows a 'Port Config' window. At the top is a '+ Add' button. Below it is a dropdown menu showing 'C1'. The 'Ingress Filter Mode' section has two radio buttons: 'Tunnel Outer Layer' and 'Tunnel Inner Layer', with the latter selected and highlighted in yellow. The 'LoadBalancing Mode' section has two radio buttons: 'Tunnel Outer Layer' (selected) and 'Tunnel Inner Layer'. Below these is a 'Tunnel Strip' section with a grid of checkboxes for GTP, GRE, IPinIP, CFP, VXLAN, ERSPAN II, MPLS-in-GRE, MPLS, ERSPAN III, and MPLS-in-UDP. A red 'Confirm' button is at the bottom.

- Ingress Filtering
- Egress Filtering
- Middle-stage filtering (via Loopback port function)

Feed only relevant traffic to the probe/analyzers

Encapsulated / Tunneled traffic handling

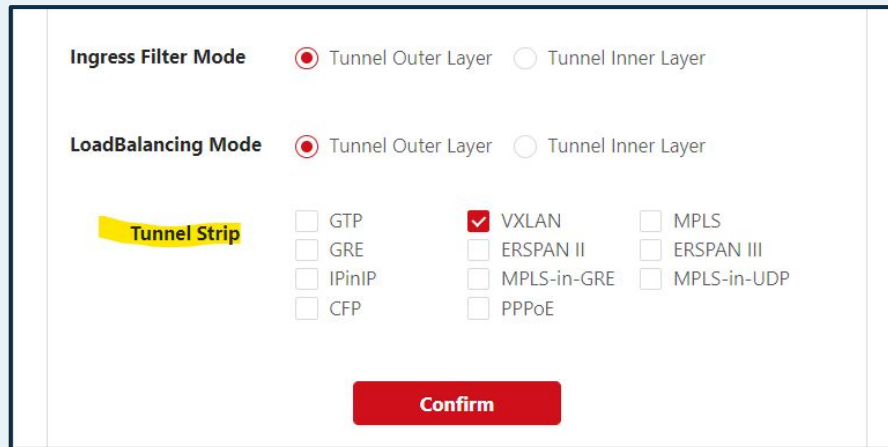
In modern overlay communication networks, packets are usually encapsulated in tunnels. Typical encapsulations used are VXLAN, GRE or ERSPAN.



Challenges & Solutions

- Information of interest is hidden inside tunnel. E.g. DNS information inside VXLAN tunnel (outer UDP port 4789, inner UDP port 53). Requires **inner tunnel filtering**
- Analytics/Probes cannot handle tunnel information or gives misleading results when tunnel is present. Requires **tunnel removal**.
- In many (or all) instances, **session-aware load-balancing** using outer IP is ineffective. Typically, sessions rely on inner IP rather than outer IP. It is necessary to **utilize inner tunnel** information for load-balancing purposes.

Allows to **remove** a wide variety of **tunnel encapsulations** by simply selecting the tunnel type that should be stripped off and that are not required / unwanted by monitoring tools.

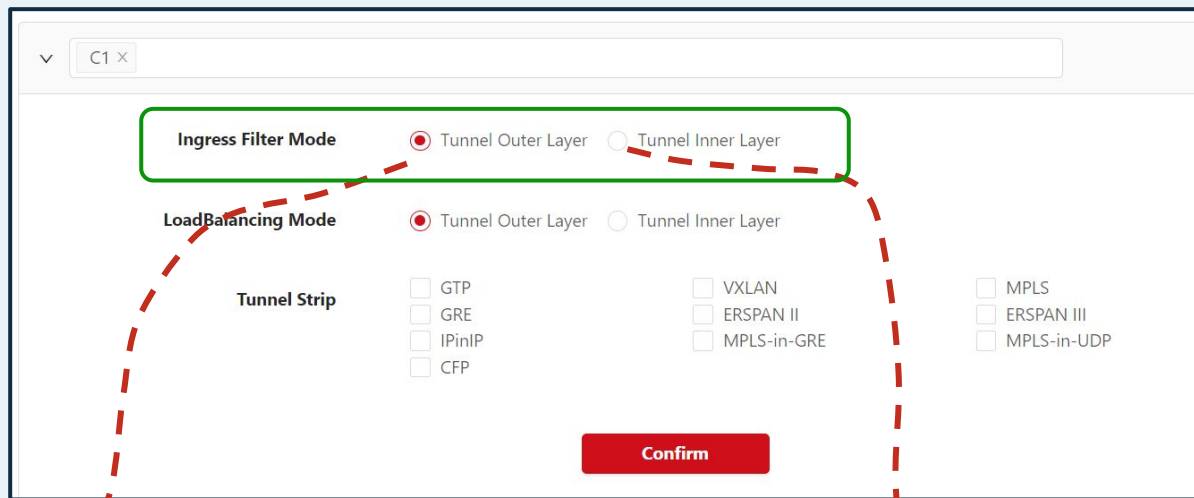


The screenshot shows a configuration window titled "Tunnel Strip" (highlighted with a yellow banner). It contains two sections: "Ingress Filter Mode" and "LoadBalancing Mode", each with radio buttons for "Tunnel Outer Layer" (selected) and "Tunnel Inner Layer". Below these are checkboxes for various tunnel types: GTP, GRE, IPinIP, CFP, VXLAN (checked), ERSPAN II, MPLS-in-GRE, PPPoE, MPLS, ERSPAN III, and MPLS-in-UDP. A red "Confirm" button is at the bottom right.

Ingress Filter Mode		☒ Tunnel Outer Layer	☐ Tunnel Inner Layer
LoadBalancing Mode		☒ Tunnel Outer Layer	☐ Tunnel Inner Layer
☐ GTP	☒ VXLAN	☐ MPLS	
☐ GRE	☐ ERSPAN II	☐ ERSPAN III	
☐ IPinIP	☐ MPLS-in-GRE	☐ MPLS-in-UDP	
☐ CFP	☐ PPPoE		
Confirm			

Outer or inner tunnel filtering

G5 plus series provides support for filtering on outer or inner tunnel packet parameters.



The screenshot shows a configuration window for 'C1'. It features three main sections: 'Ingress Filter Mode', 'LoadBalancing Mode', and 'Tunnel Strip'. Both 'Ingress Filter Mode' and 'LoadBalancing Mode' have radio buttons for 'Tunnel Outer Layer' (selected) and 'Tunnel Inner Layer'. The 'Tunnel Strip' section contains three columns of checkboxes for various tunneling protocols: GTP, GRE, IPinIP, CFP, VXLAN, ERSPAN II, MPLS-in-GRE, MPLS, ERSPAN III, and MPLS-in-UDP. A red dashed line connects the 'Tunnel Outer Layer' selection in the 'Ingress Filter Mode' section to the 'IP' field in the packet structure diagram below. Another red dashed line connects the 'Tunnel Inner Layer' selection in the 'LoadBalancing Mode' section to the 'IP' field in the packet structure diagram below.

Ingress Filter Mode ☒ Tunnel Outer Layer ☐ Tunnel Inner Layer

LoadBalancing Mode ☒ Tunnel Outer Layer ☐ Tunnel Inner Layer

Tunnel Strip

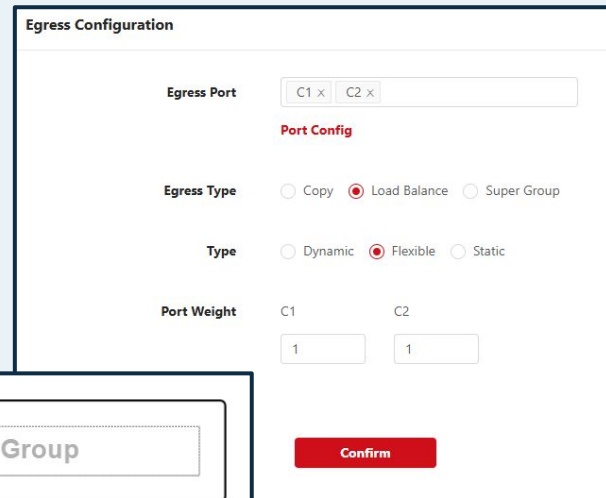
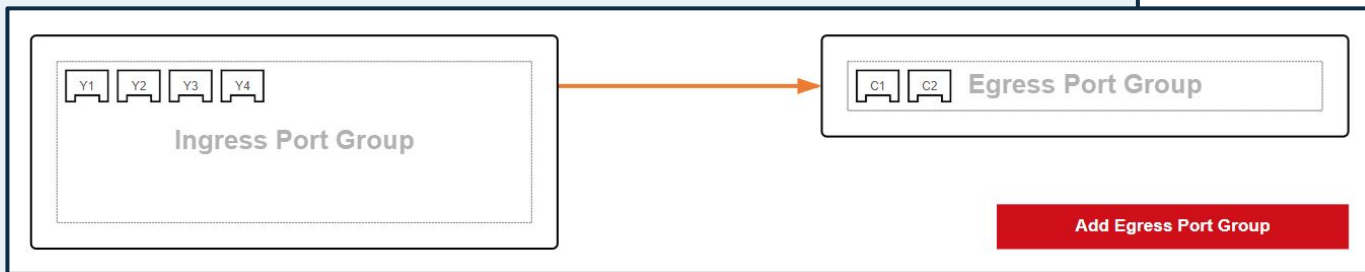
- ☐ GTP
- ☐ GRE
- ☐ IPinIP
- ☐ CFP
- ☐ VXLAN
- ☐ ERSPAN II
- ☐ MPLS-in-GRE
- ☐ MPLS
- ☐ ERSPAN III
- ☐ MPLS-in-UDP

Confirm

MAC	IP	UDP (Port 4789)	VXLAN VNI	MAC	IP	TCP/UDP	Data
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Load-balancing

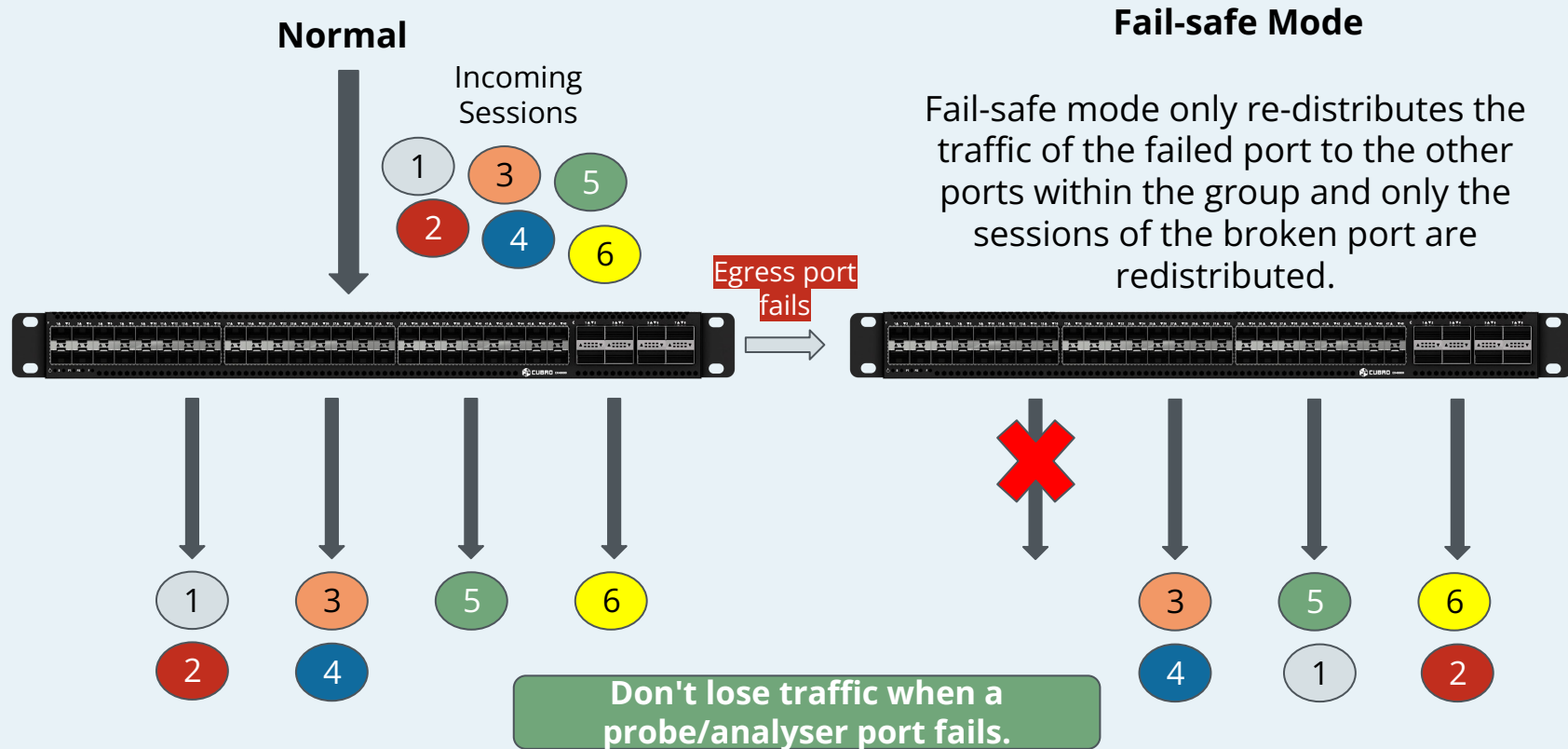
Load-balancing is a vital function to distribute traffic across different monitoring tools evenly and correctly. The Cubro G5+ series supports **session-aware load balancing**. With this feature of the G5+, every packet that belongs to the same conversation/flow is sent to the same physical output port within a load-balancing group.



The "Egress Configuration" form is used to set up load balancing. It includes the following fields and options:

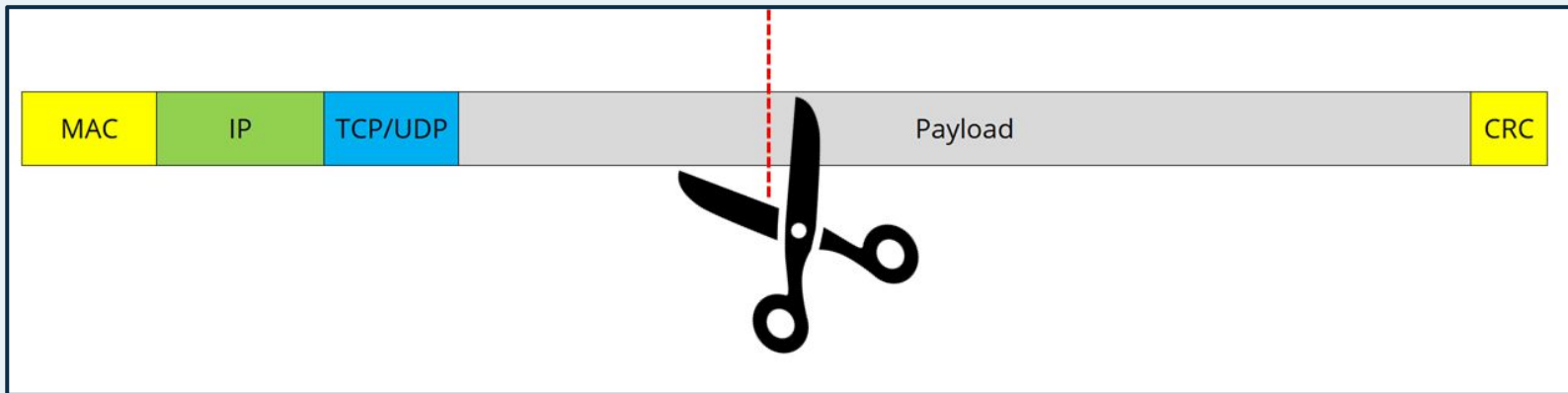
- Egress Port:** A text box containing "C1 x" and "C2 x".
- Port Config:** A red label.
- Egress Type:** Radio buttons for "Copy", "Load Balance" (selected), and "Super Group".
- Type:** Radio buttons for "Dynamic", "Flexible" (selected), and "Static".
- Port Weight:** Two text boxes, one for "C1" and one for "C2", both containing the value "1".
- Confirm:** A red button at the bottom right.

Fail-safe Load Balancing



Slicing for any packet size to reduce output bandwidth

- Cubro G5+ Advanced NPBs allow to set the slicing size to **any value between 64B and 9192 Byte**.
- FCS is automatically corrected; all other fields inside the packet stay unchanged.



Reduces the output bandwidth sent to analytics and probing by removing parts of a packet that are not needed.

Easy output port redundancy

Allows to define spare port for any output port. When main output port fails, traffic is moved to backup port within **milliseconds**.

Also possible for complete load-balancing groups.

Port

 **Display/Hide Columns**

Add

Delete

Cancel Choose All

Spare▼



☒	Port	Spare	Spare Work Type	Linkages
☒	C1	Port: C5	Single	

<

1

>

10 / page▼



We have operations in all time zones.
Reach us at: support@cubro.com