



VXLAN Functionality

Cubro EXA48600 & EXA32100

June 2018

www.cubro.com

This presentation consists of two parts.

Part one contains technical background information about VXLAN.

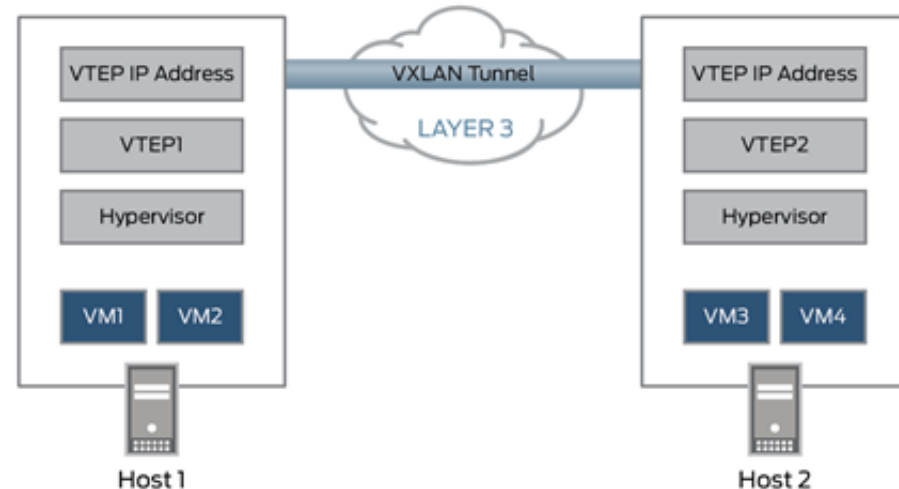
Part two explains VXLAN features of the Cubro Sessionmaster EXA48600 & EXA32100.

VXLAN

Technical Background

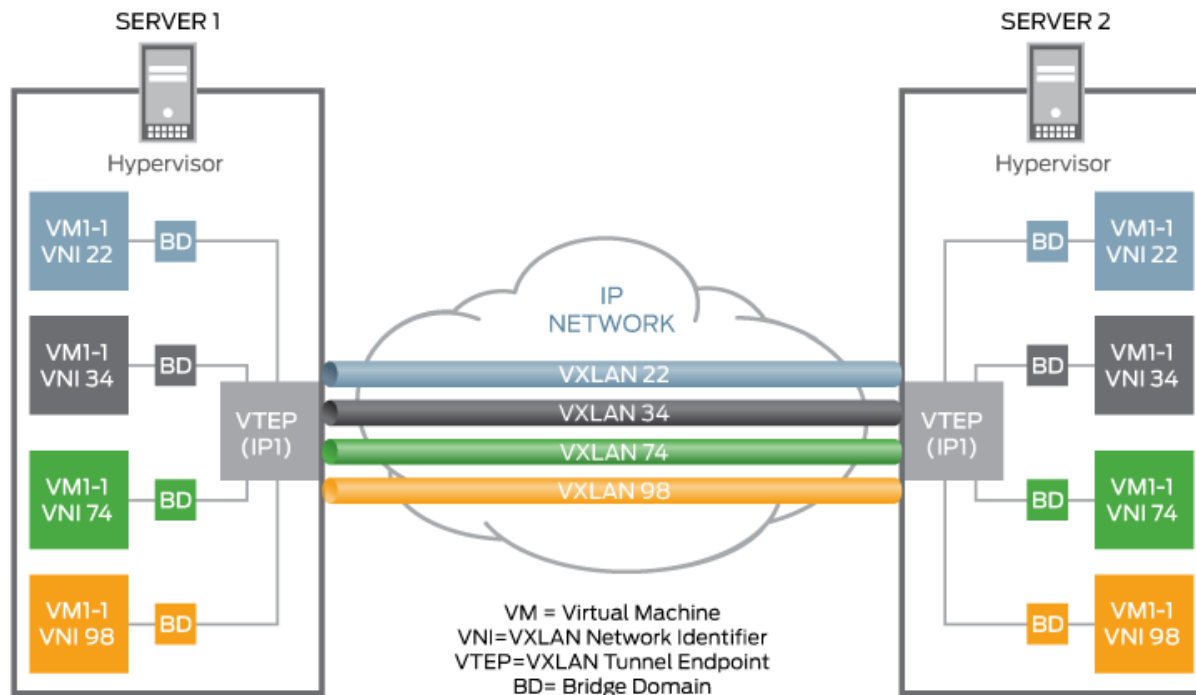
What is VXLAN?

- VXLAN ... Virtual Extensible Local Area Network
- VXLAN is a network virtualization technology that attempts to **address the scalability problems** associated with large cloud computing deployments.
- It uses a VLAN-like **encapsulation technique** to encapsulate layer 2 Ethernet frames within layer 4 UDP datagrams.



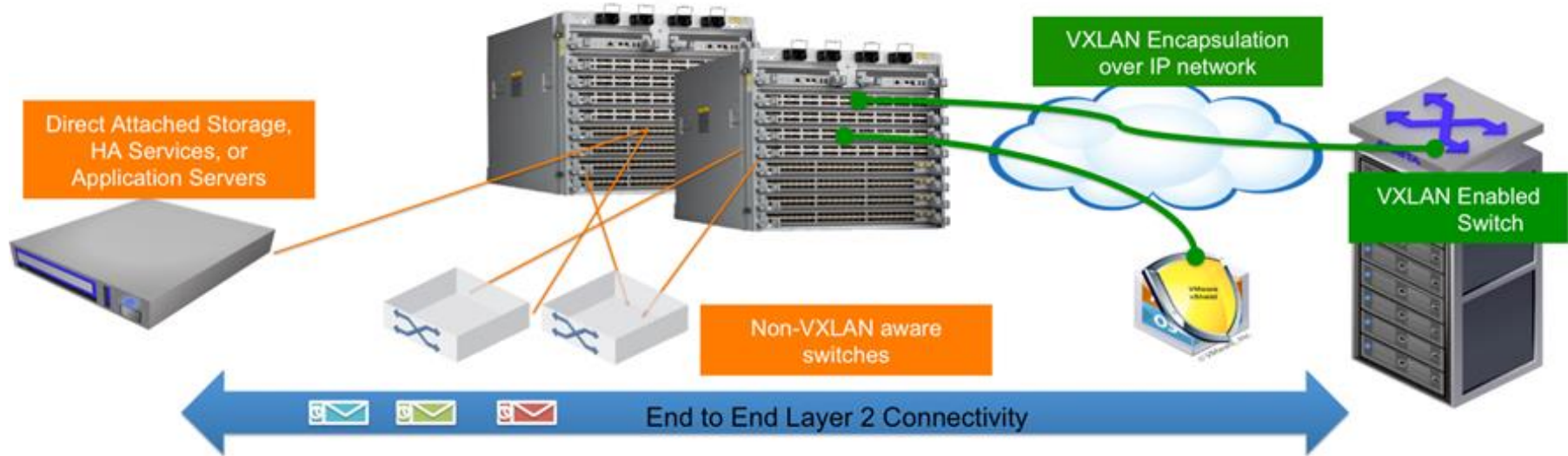
Where is it used?

- In data centers, VXLAN is the most commonly used protocol to **create overlay networks** that sit on top of the physical network, enabling the use of a virtual network of switches, routers, firewalls, load balancers, and so on.

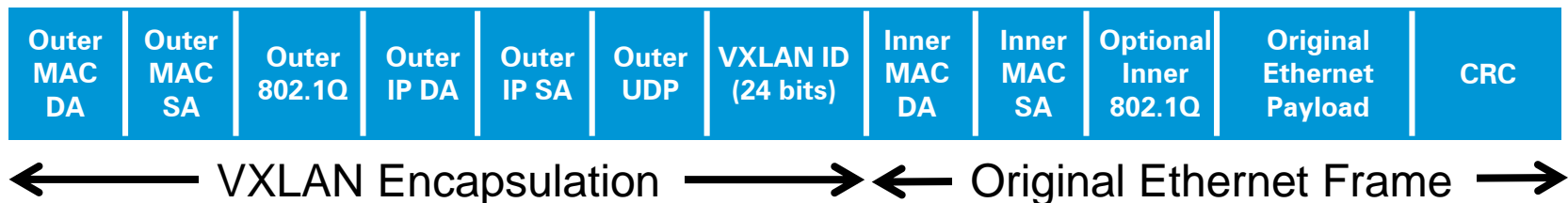


VXLAN Use Cases

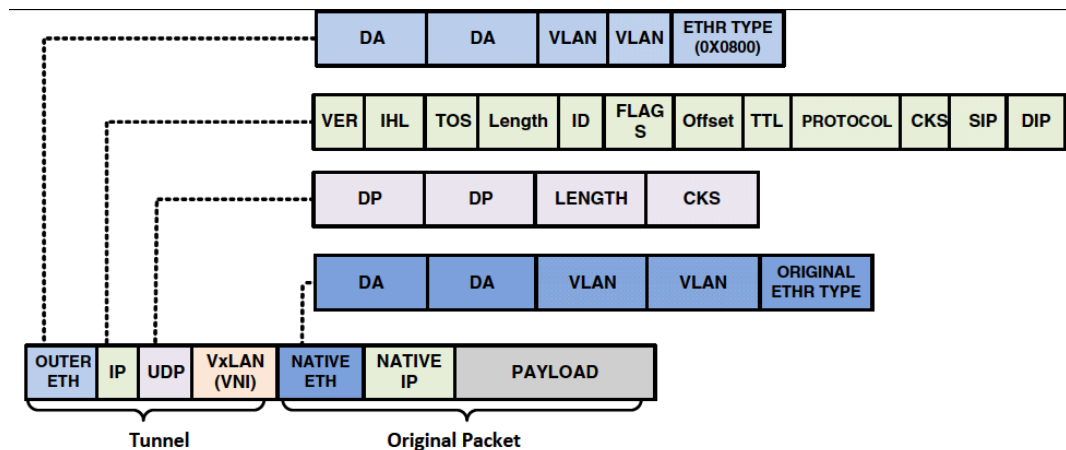
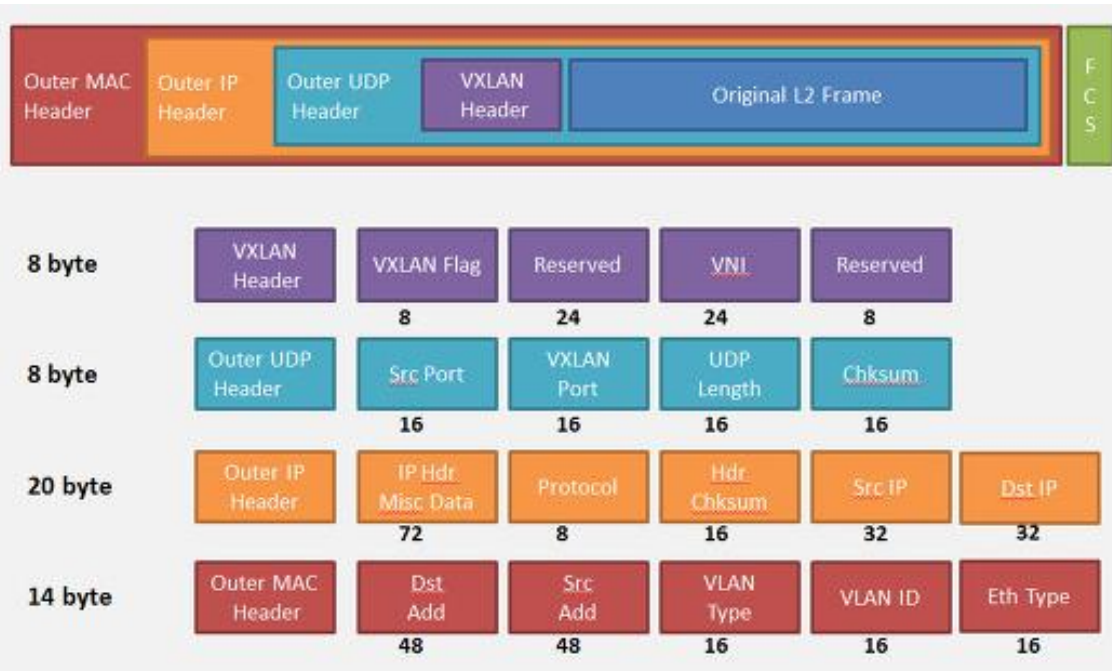
- Physical to Virtual internetworking
- Multi-hypervisor connectivity and integration
- Multi-tenant Cloud environments



- Encapsulation Method, used in Data Center / Virtual Environments
 - Ethernet in IP overlay network
 - Entire L2 frame encapsulated in UDP
 - **50 bytes** of overhead
 - Include 24 bit VXLAN Identifier (VNI tag)
 - 24 bit → 16 M logical networks



VXLAN Packet view



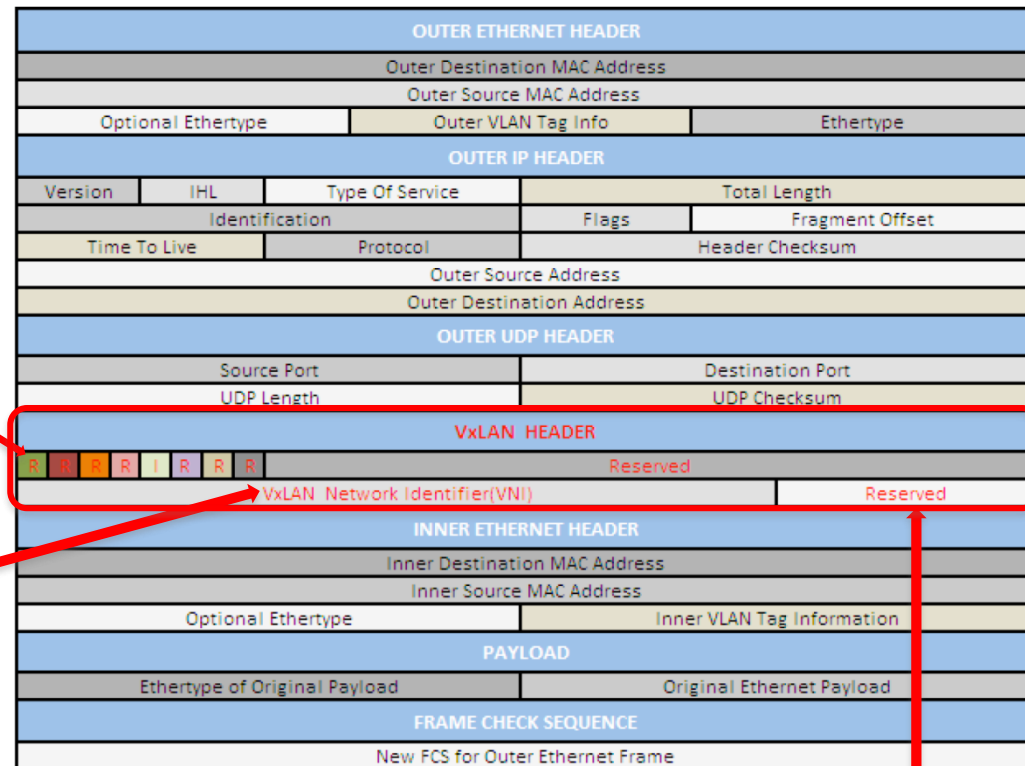
VXLAN Header



- VXLAN Header is a 8 Byte field comprising of:
 - Flags (8 Bits)
 - VxLAN Network Identifier (VNI) (24 Bits)
 - Reserved (24 & 8 Bits) – Always set to zero.

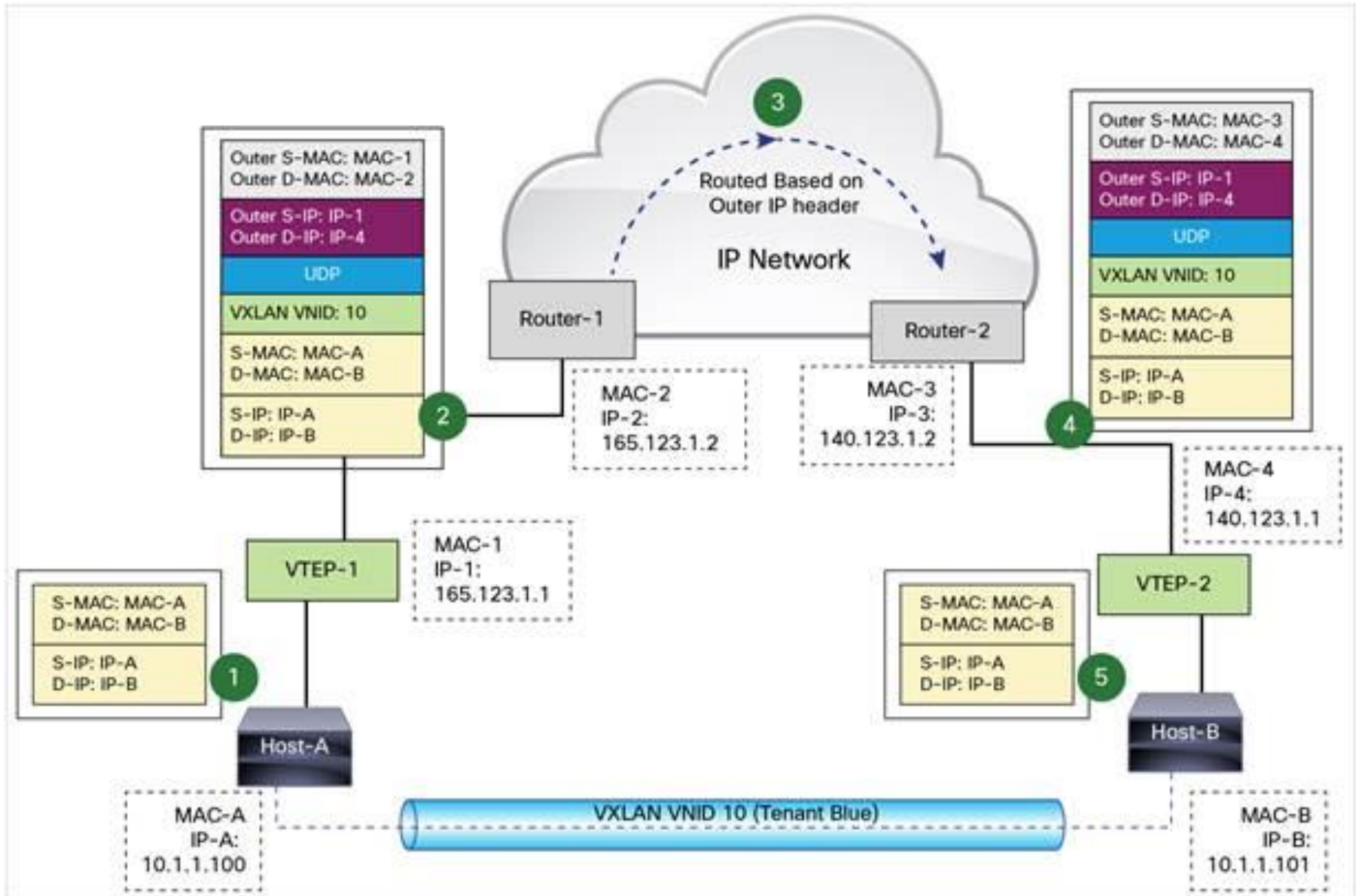
Flags (8 Bits) – 1 flag is set to 1 for a valid VxLAN Network ID (VNI). The remaining 7 bits (designated "R") are reserved fields and set to zero.

VxLAN Network Identifier (VNI) (24 Bits) – Used for identification of the individual VxLAN overlay network on which the communicating VMs are situated. VMs in different VxLAN overlay networks cannot communicate.



Reserved (24 & 8 Bits) – Always set to zero.

Full picture



VXLAN functionality

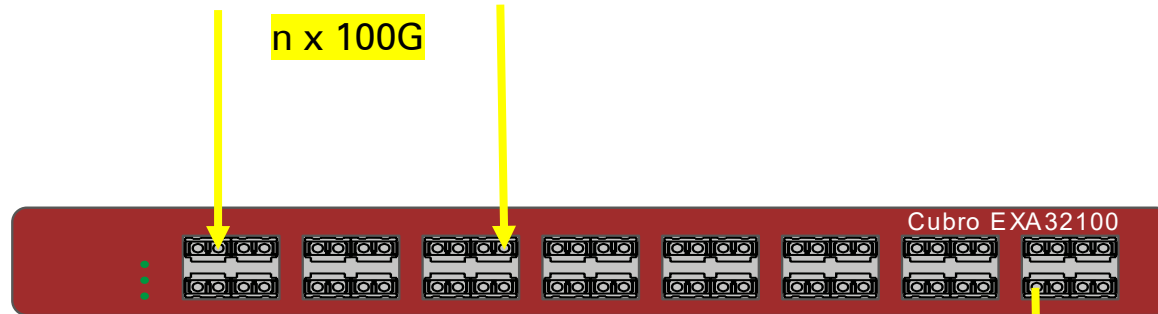
Sessionmaster EXA48600 & EXA32100



- EXA48600 & EXA32100 support following VXLAN features
 - VXLAN header removal
 - Filtering on outer IP (tunnel IP)
 - Filtering on VXLAN VNI
 - Filtering on inner IP and/or inner layer 4 port nr.
 - Filtering on VXLAN VNI and/or inner IP and/or inner layer 4 port nr.

Complete VXLAN solution

VXLAN header removal

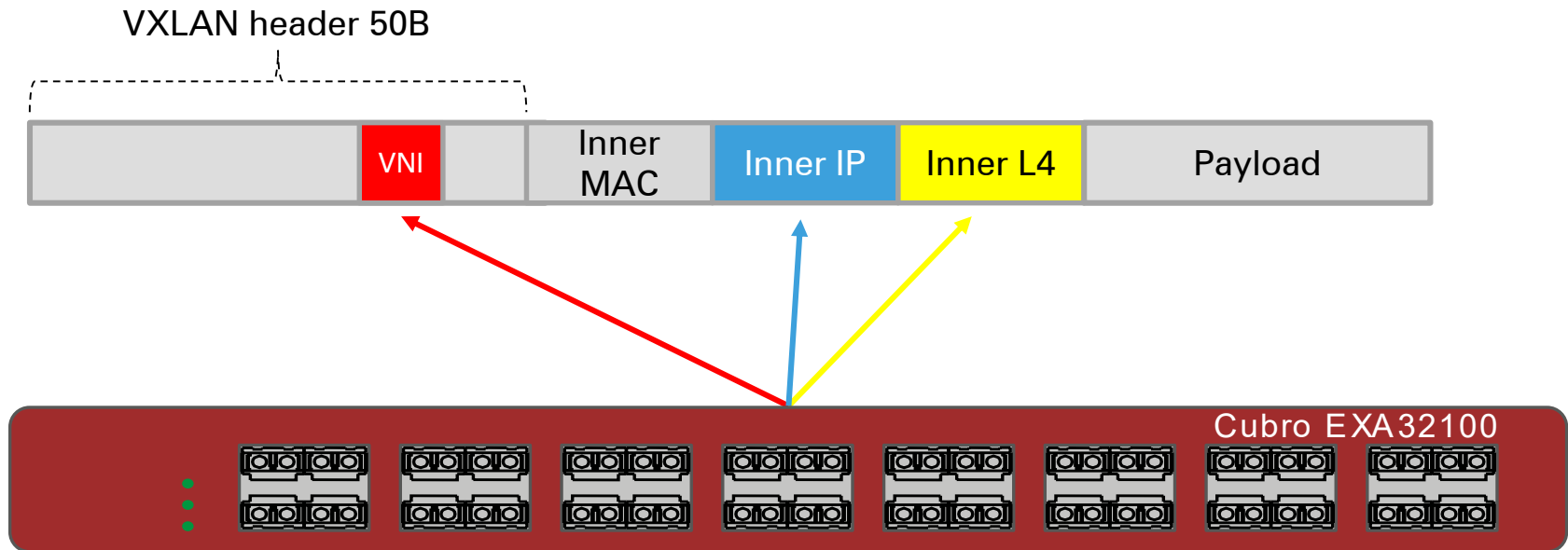


- **Removes VXLAN** header and aggregates traffic to single/multiple outputs.
- **Packet Slicing** possible to further reduce output bandwidth.



- Allows to use non-VXLAN monitoring equipment

VNI and inner IP filtering

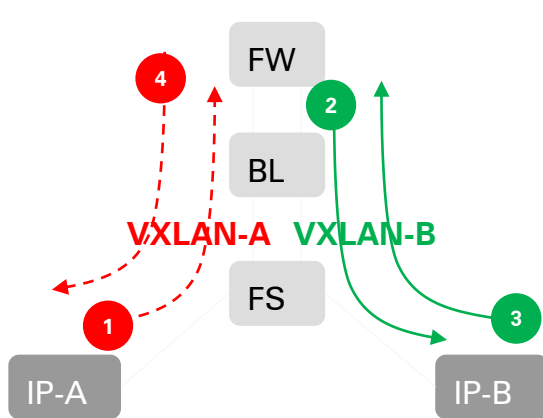


- Allows simultaneous filtering on
 - VXLAN identifier
 - Inner IP source and/or destination
 - Inner L4 /TCP/UDP) source port and/or destination port

VNI and IP filtering – Use case



Rule	Packet #	Source IP	Dest IP	VXLAN	Action	Direction
S6a-rule	1	IP-A	IP-B	VXLAN-A	Filter - drop	Fabric → Border
	2	IP-A	IP-B	VXLAN-B	Send to Probe	Border → Fabric
	3	IP-B	IP-A	VXLAN-B	Send to Probe	Fabric → Border
	4	IP-B	IP-A	VXLAN-A	Filter - drop	Border → Fabric



Rule: Match VXLAN VNI + Source_IP + Dest_IP
Action: Drop or send to output

- Cubro Sessionmaster drops non-required packets and thus helps to keep monitoring consistent

- VXLAN plays an important role in virtual environments.
- Cubro Sessionmaster EXA48600 & EXA32100 are a perfect choice for this growing applications and support a full range of VXLAN features.

Thank you

EMEA



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