



ons

NORTH AMERICA

OPEN NETWORKING //
Enabling Collaborative
Development & Innovation

How Open Networking Helped SDN Rise Inside Hyper-Scale Data Center

Honghui Xiao @ ByteDance

xiaohonghui@bytedance.com

Hosted By

 THE **LINUX** FOUNDATION |  **LF** NETWORKING

Who are we?



Toutiao



Douyin



TikTok

Hosted By



ons

NORTH AMERICA

OPEN NETWORKING //
Enabling Collaborative
Development & Innovation

Agenda

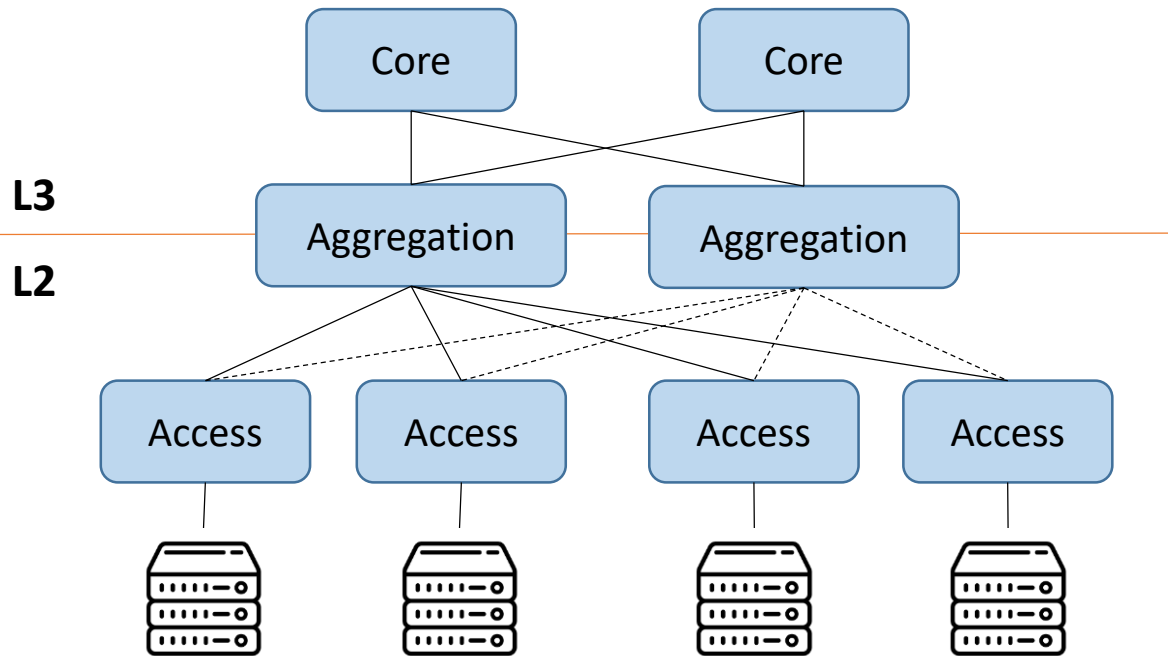
- A brief introduction to Data Center Network (DCN)
- Building SDN in an existing DCN
- Extending SDN to large-scale
- Connecting SDN networks to DCN

Hosted By

 THE **LINUX** FOUNDATION |  **LF** NETWORKING

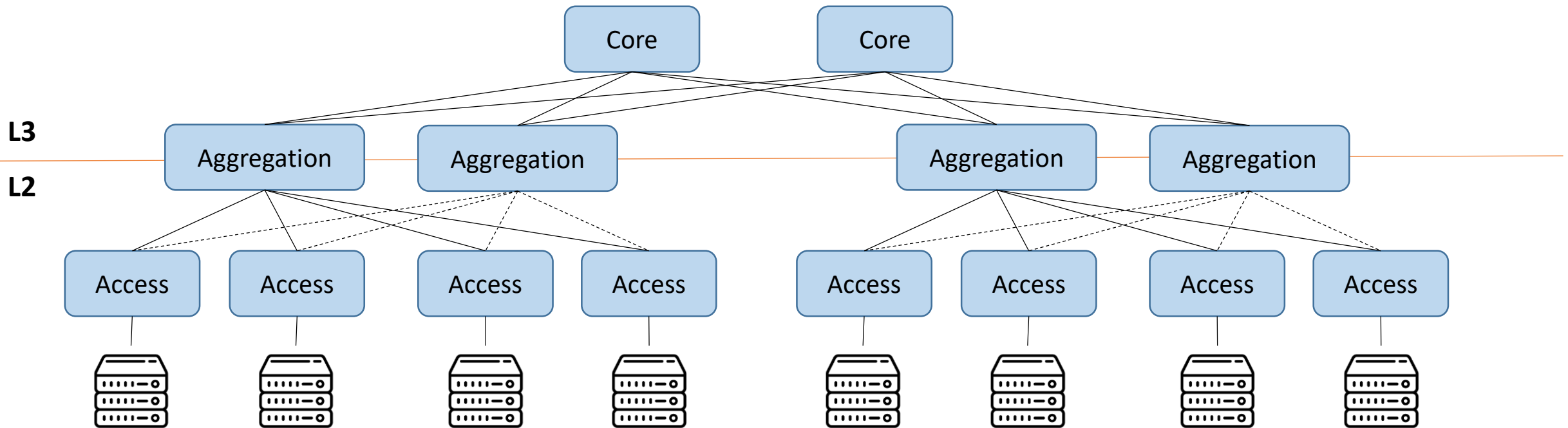


Data Center Network - 3 Tiers Network Architecture





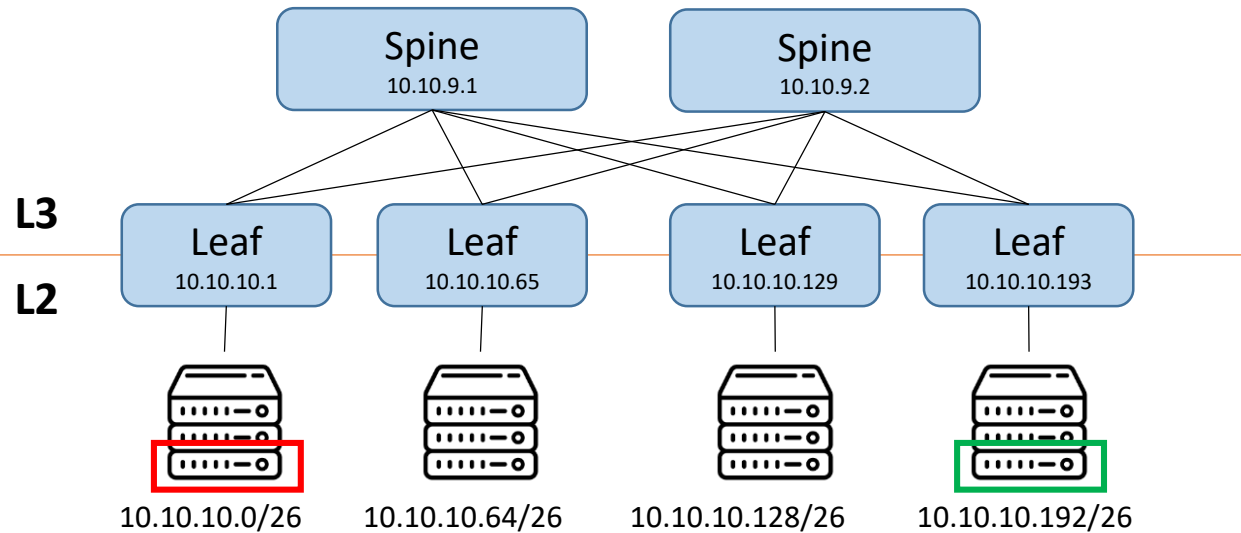
Data Center Network - 3 Tiers Network Architecture



Hosted By

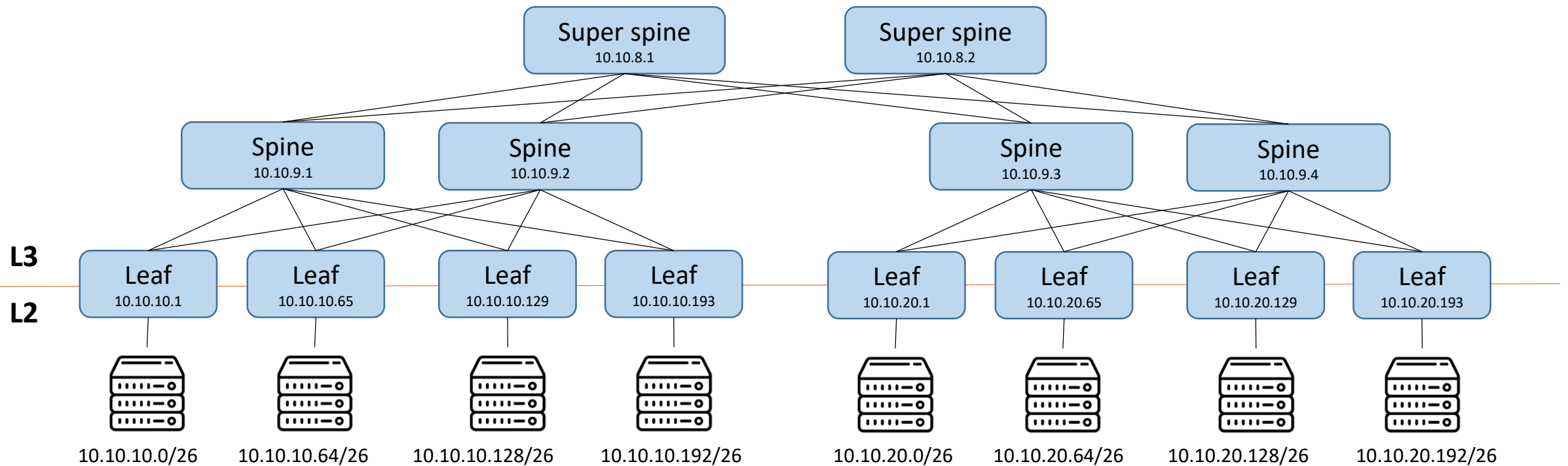


Data Center Network - CLOS Architecture





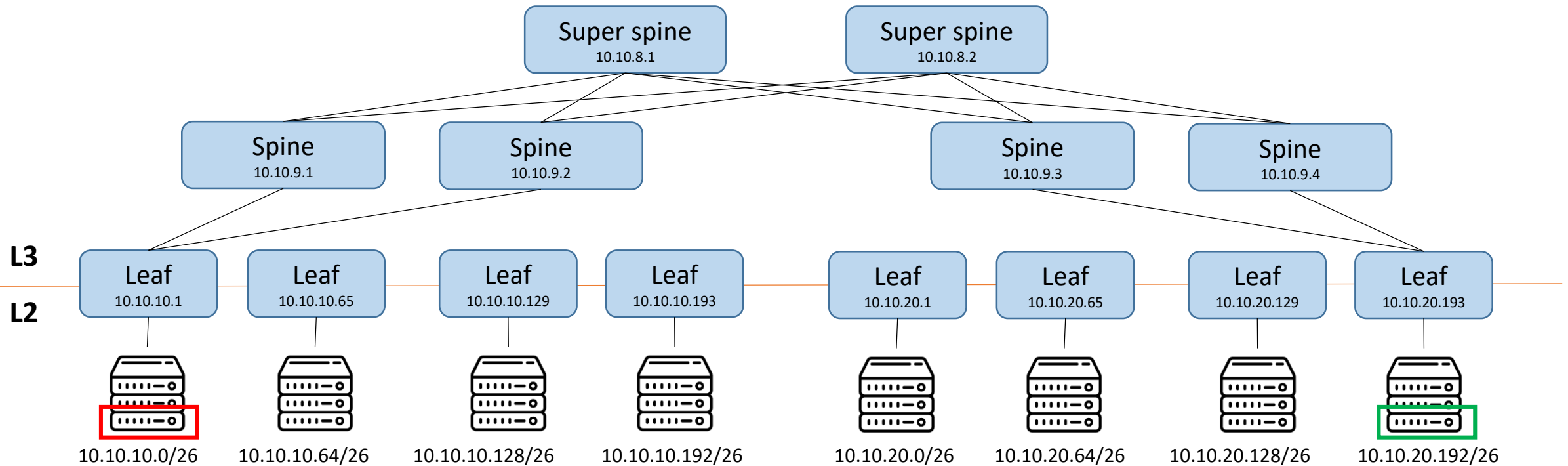
Data Center Network - CLOS Architecture



Hosted By



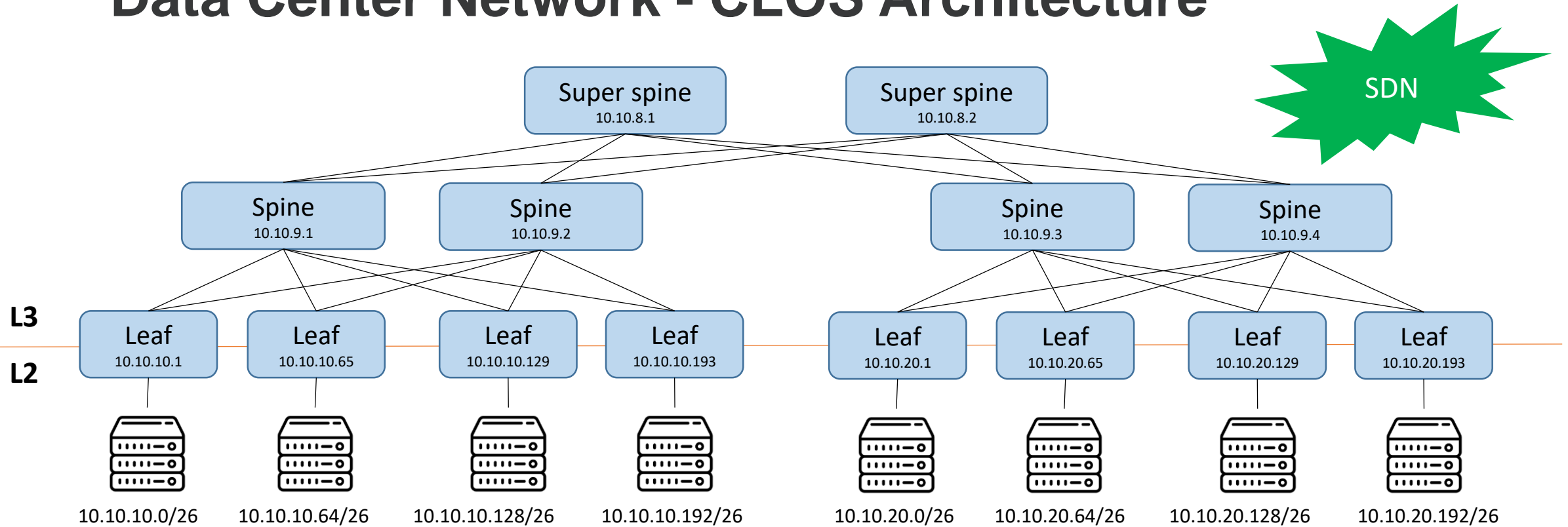
Data Center Network - CLOS Architecture



Hosted By



Data Center Network - CLOS Architecture



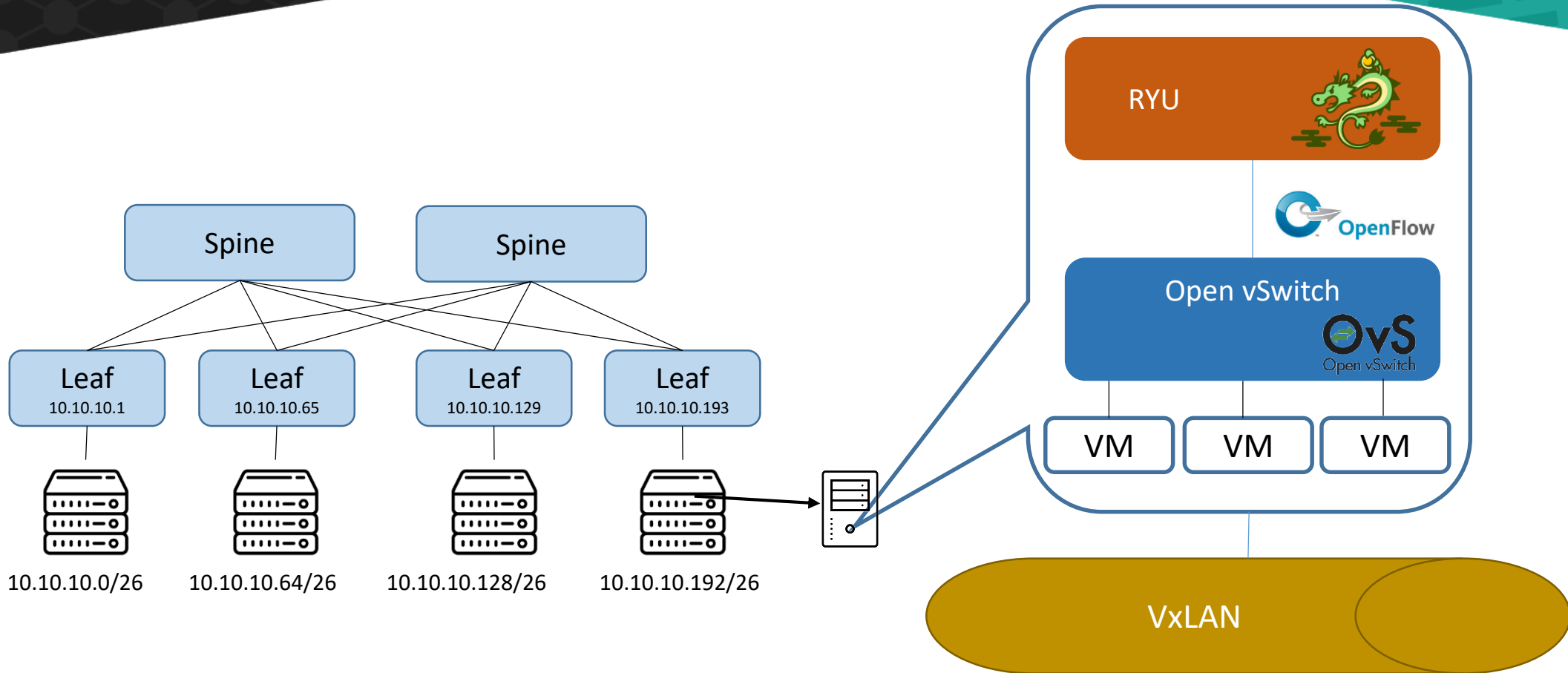
Hosted By



ons

NORTH AMERICA

OPEN NETWORKING //
Enabling Collaborative
Development & Innovation



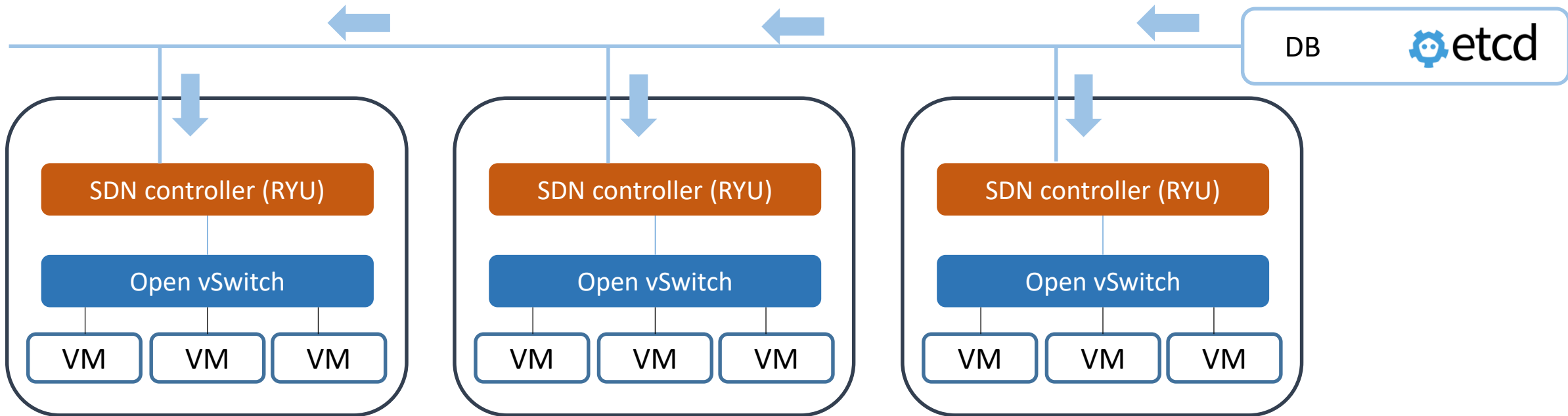
Hosted By



ons

NORTH AMERICA

OPEN NETWORKING //
Enabling Collaborative
Development & Innovation



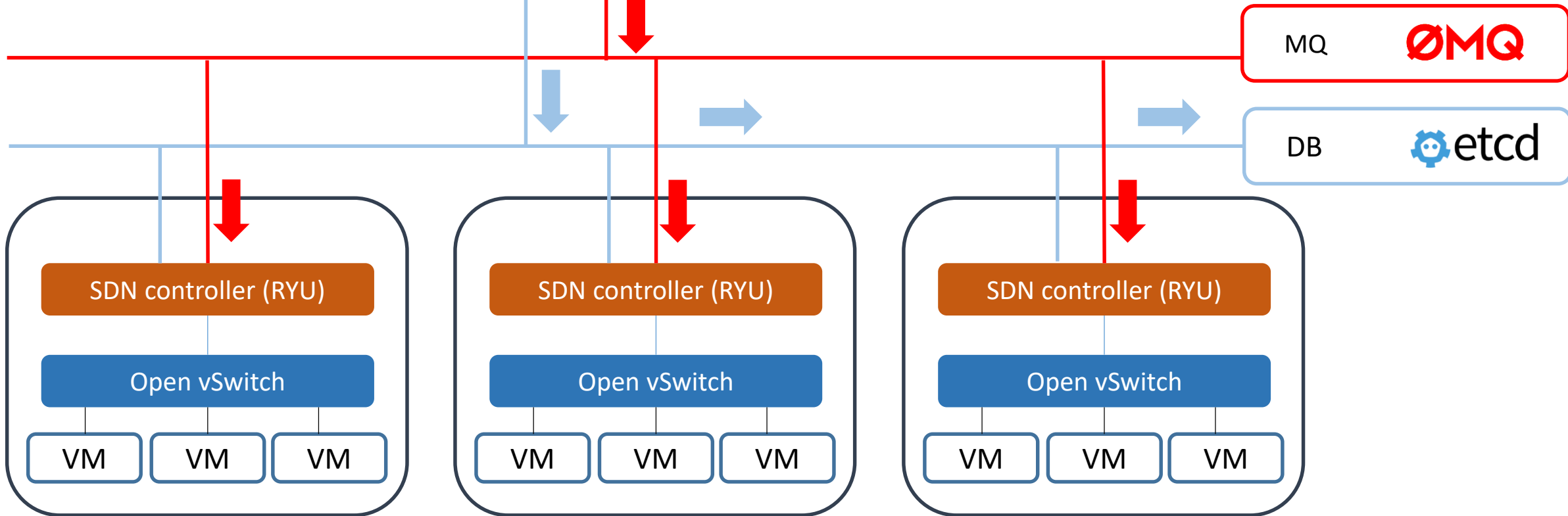
Hosted By



ons

NORTH AMERICA

OPEN NETWORKING //
Enabling Collaborative
Development & Innovation



Hosted By



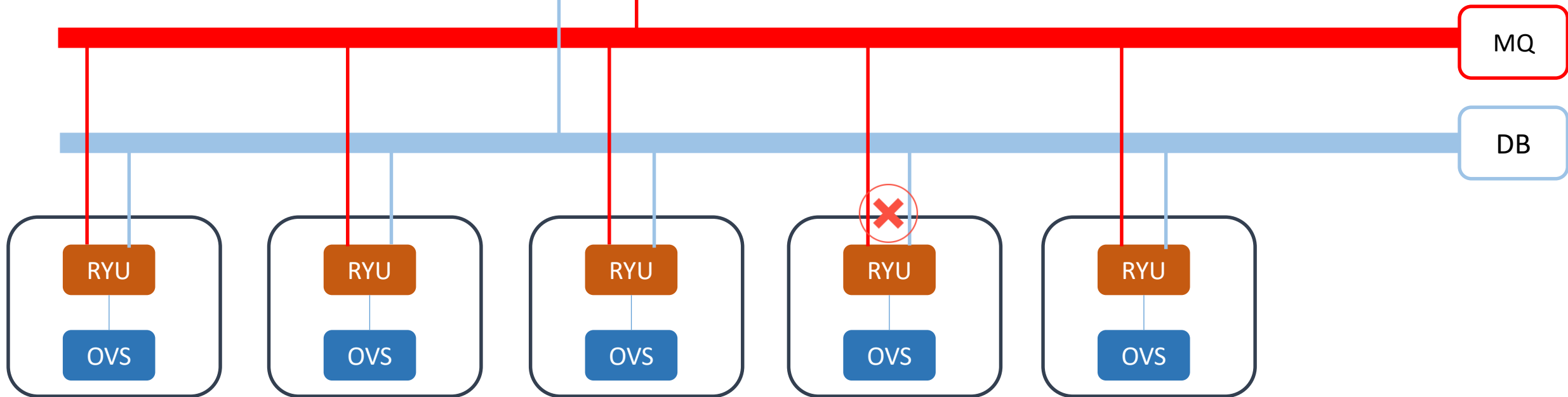
ons

NORTH AMERICA

OPEN NETWORKING //
Enabling Collaborative
Development & Innovation



openstack.



Hosted By



EVPN

- RFC7432
- L2 VPN
- A VxLAN Control Plane protocol
- An address family in BGP

RD (8 octets)
Ethernet Segment Identifier (10 octets)
Ethernet Tag ID (4 octets)
MAC Address Length (1 octet)
MAC Address (6 octets)
IP Address Length (1 octet)
IP Address (0, 4, or 16 octets)
L2 VXLAN ID (3 octets)
L3 VXLAN ID (0 or 3 octets)

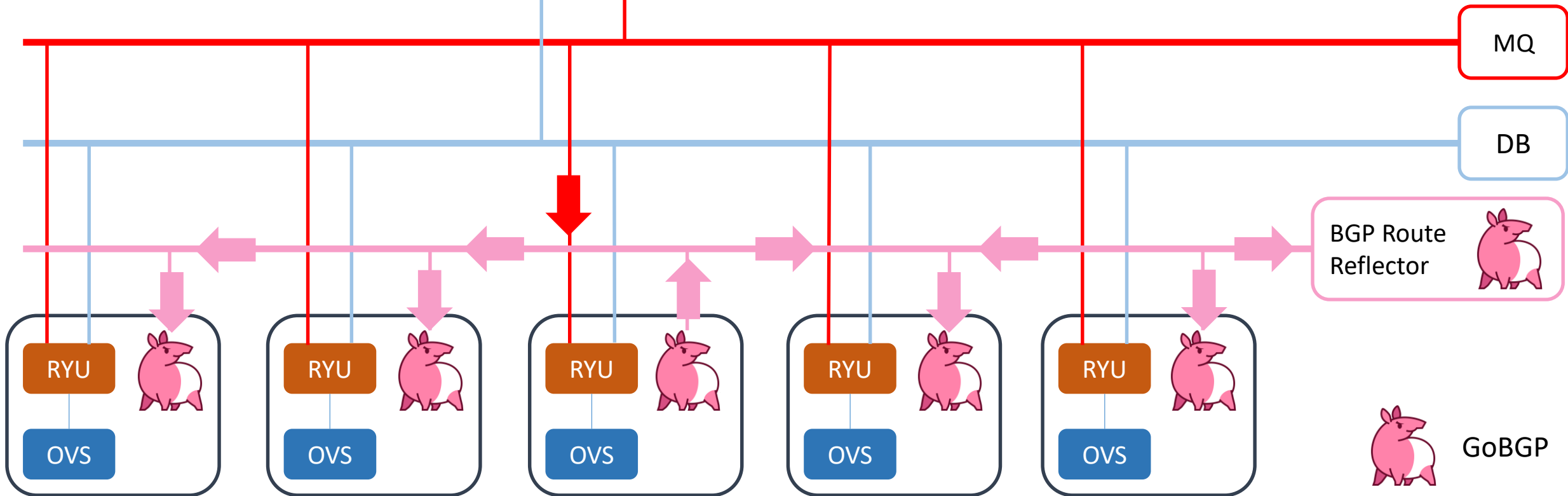


ons

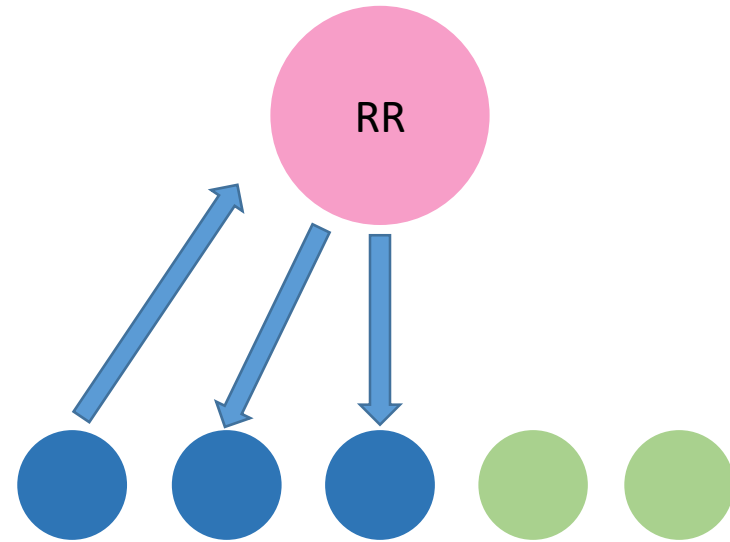
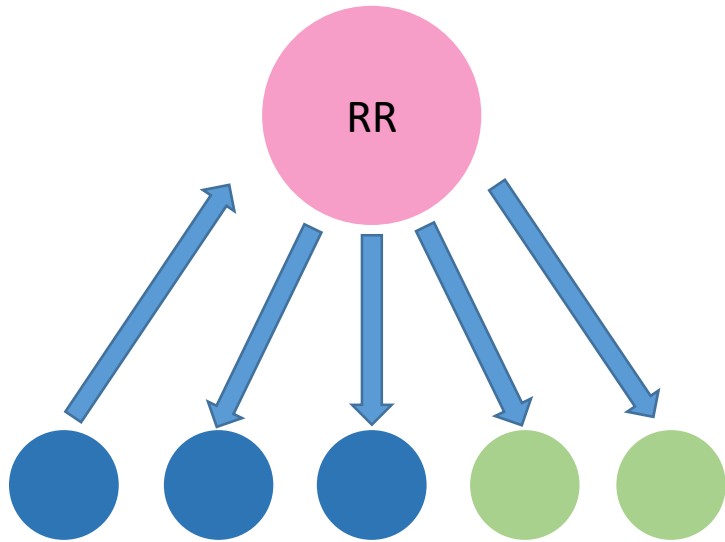
NORTH AMERICA
OPEN NETWORKING //
Enabling Collaborative
Development & Innovation



openstack.



Hosted By



Route Target Constraint



ons

NORTH AMERICA

OPEN NETWORKING //
Enabling Collaborative
Development & Innovation

EVPN MAC Mobility Extended Community

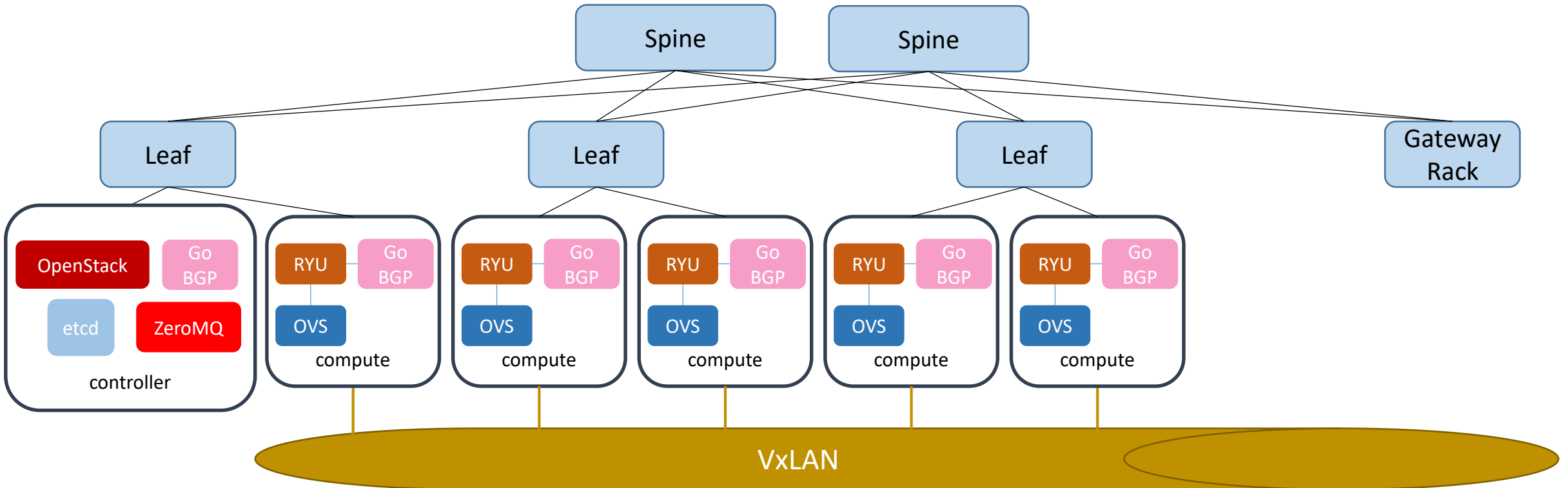
- Use the version field from OpenStack Neutron
- Notify the update of a port field that is not in EVPN route
- Filter unnecessary update

Hosted By

 THE **LINUX** FOUNDATION |  **LF** NETWORKING

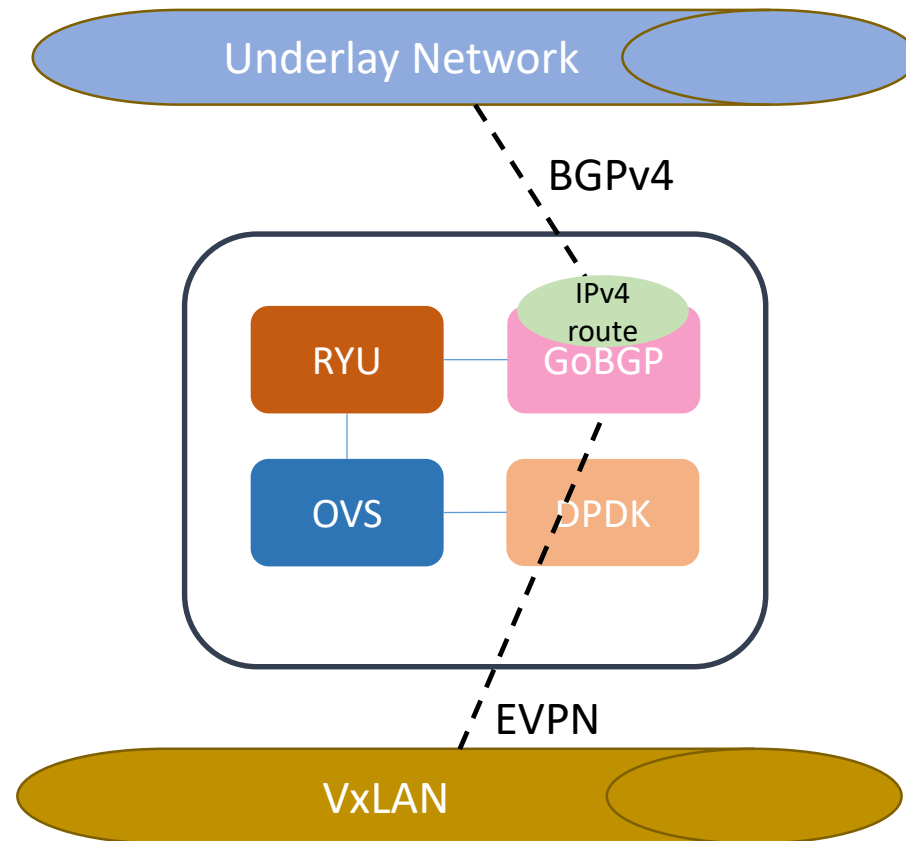


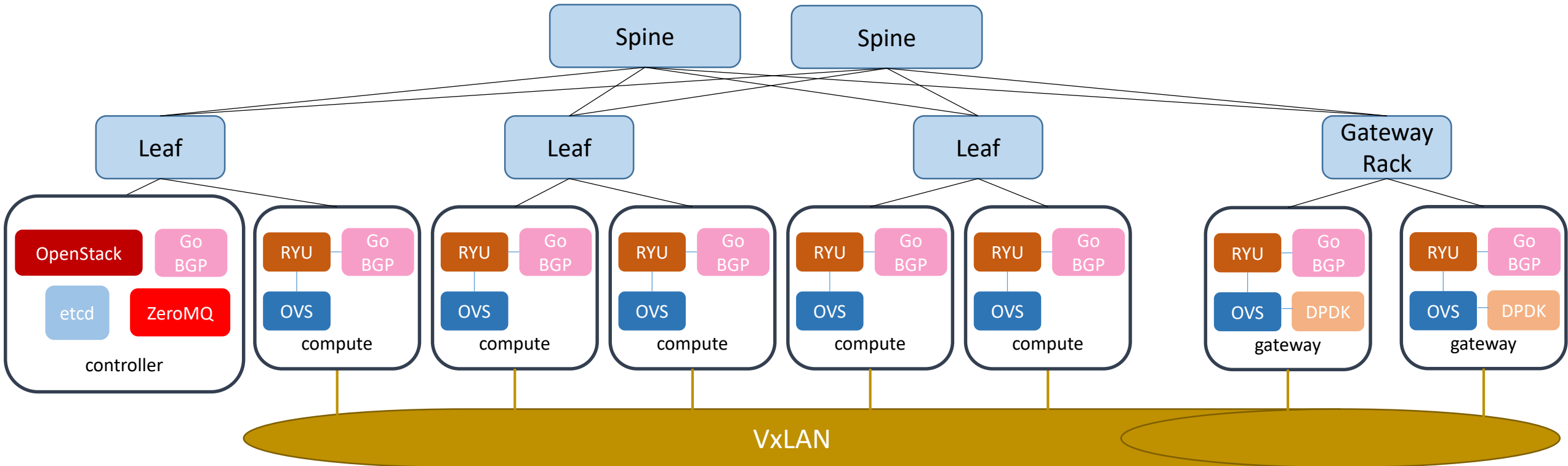
What we have so far?

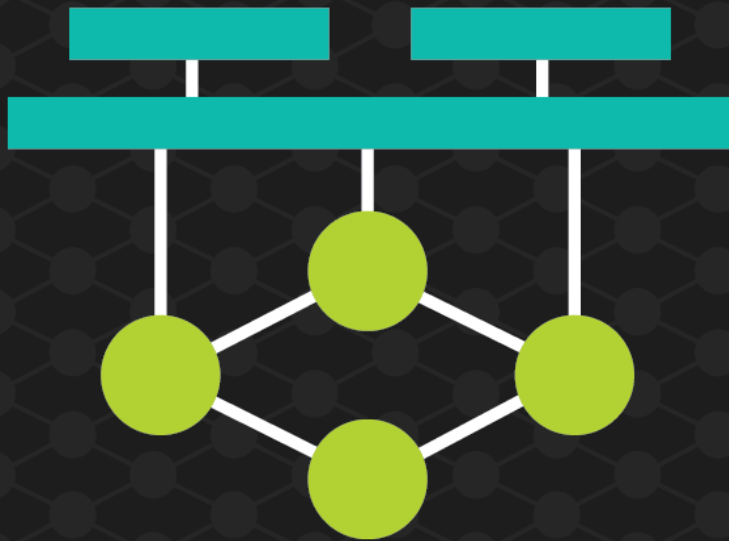




Gateway







ons

NORTH AMERICA

OPEN NETWORKING //
Enabling Collaborative
Development & Innovation

Hosted By

 THE **LINUX** FOUNDATION |  **LF** NETWORKING