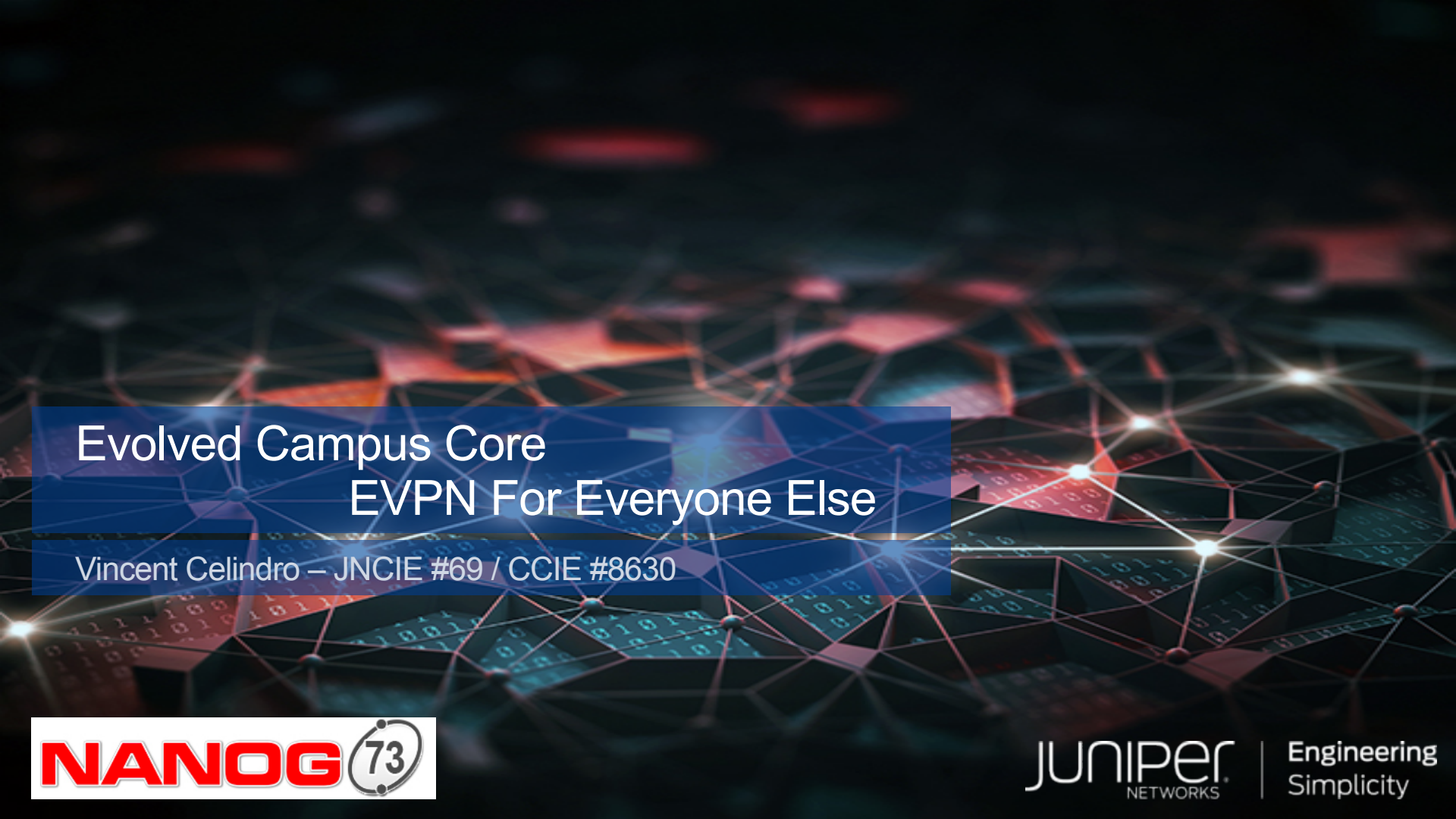
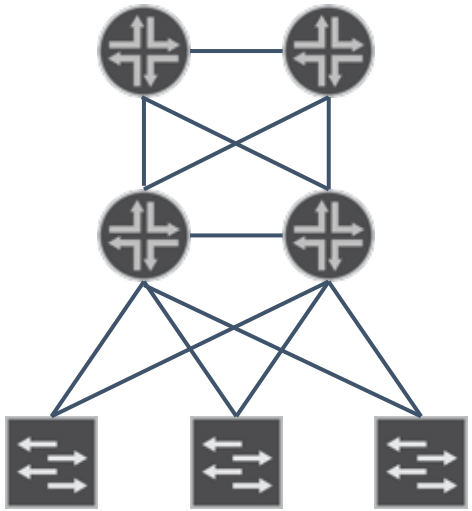

Evolved Campus Core
EVPN For Everyone Else
Vincent Celindro – JNCIE #69 / CCIE #8630
NANOG 73
JUNIPER NETWORKS
Engineering Simplicity

Legacy 3-Tier Architecture



Core

Distribution

Access

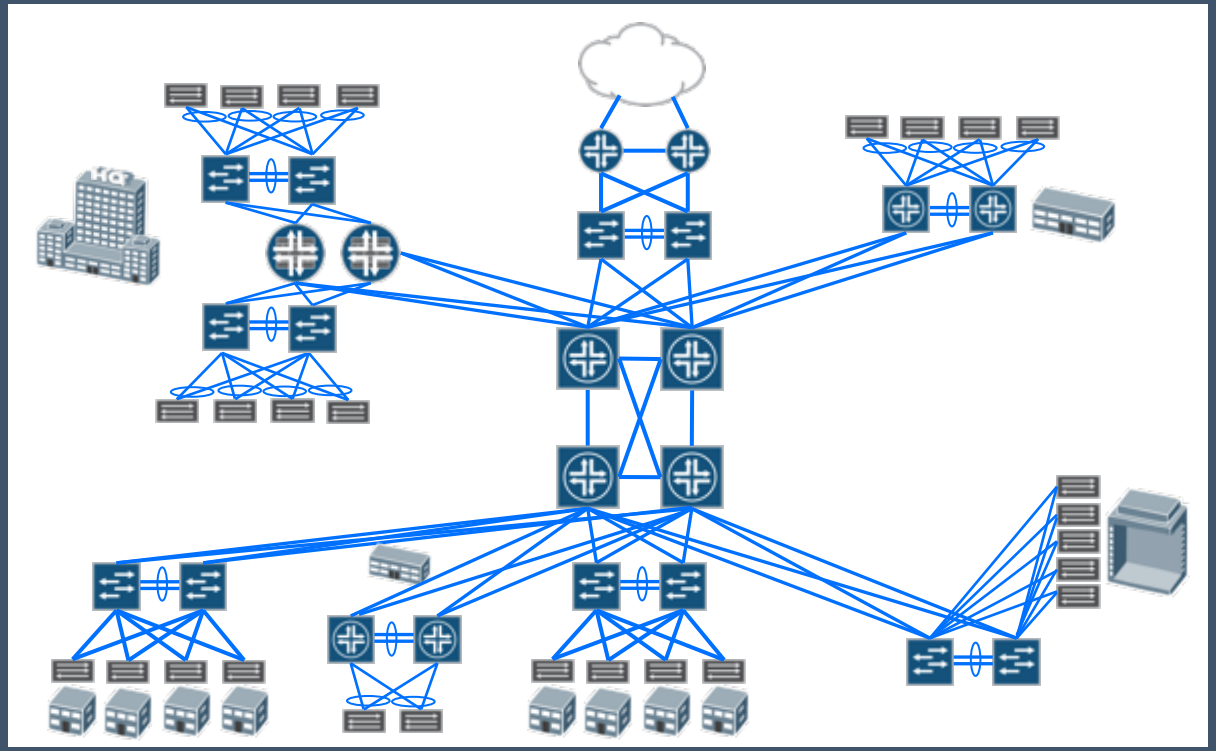
Circa – Late 90's - 2017 ???

Cisco SRND

Cat 6500
Brocade MLX/XMR
Juniper 8200

How many networks are still running architectures like this?

Typical Campus Network



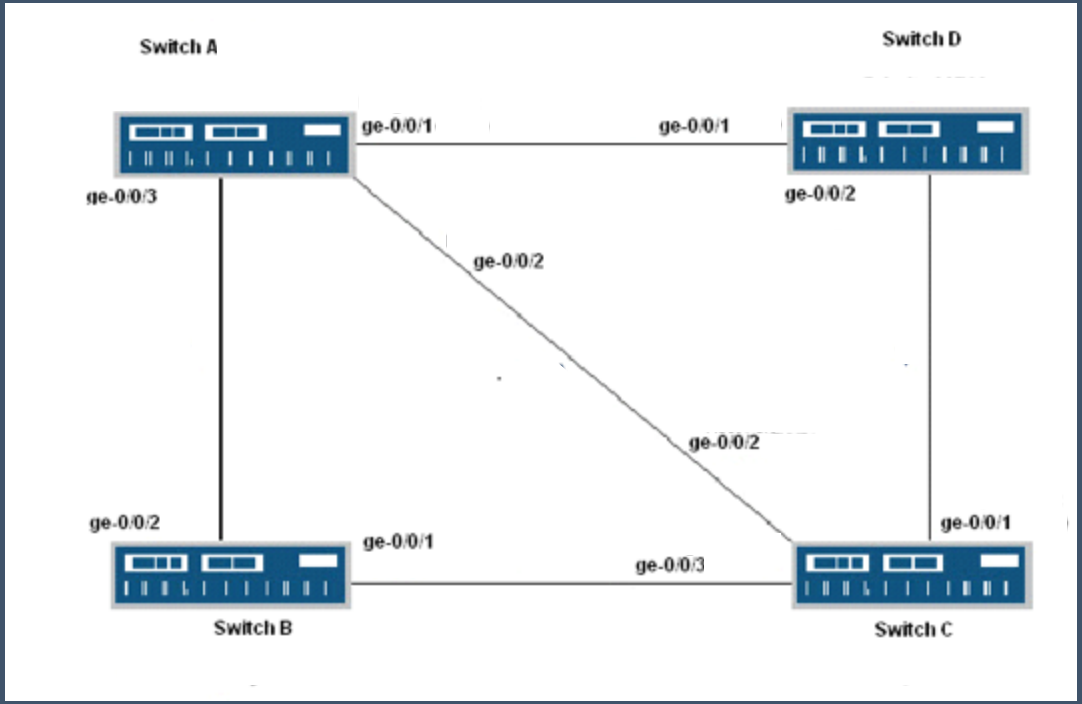
Redundancy

- Spanning Tree
- Flood and Learn

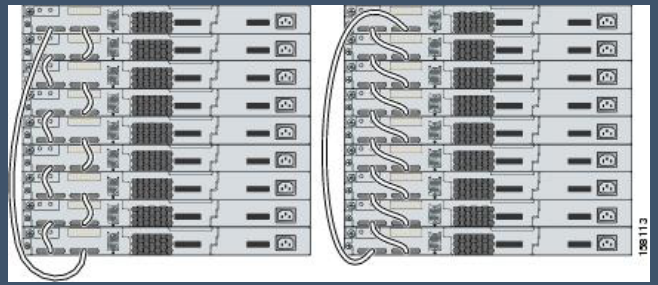
Users

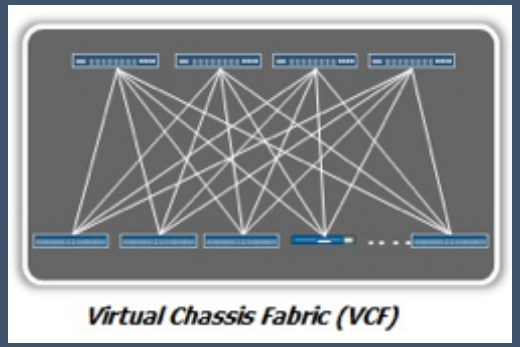
- Layer 2 Adjacency
- Segmentation

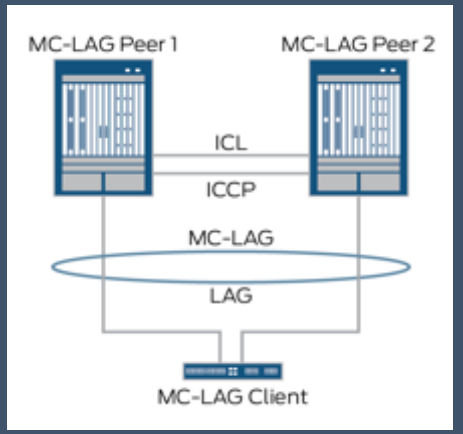
Redundancy – Spanning Tree

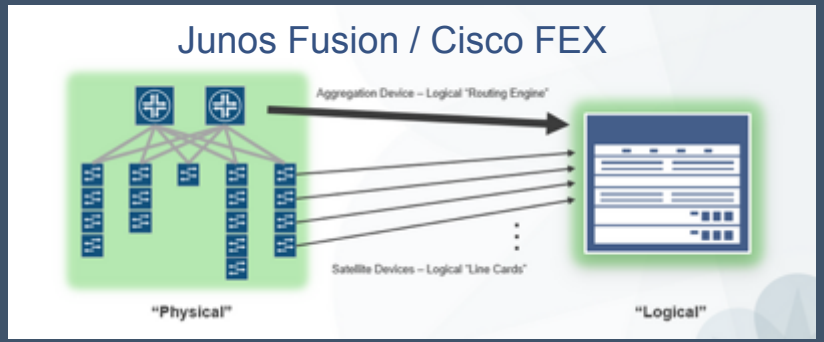


Spanning Layer 2 – Still Flood and Learn - Loops

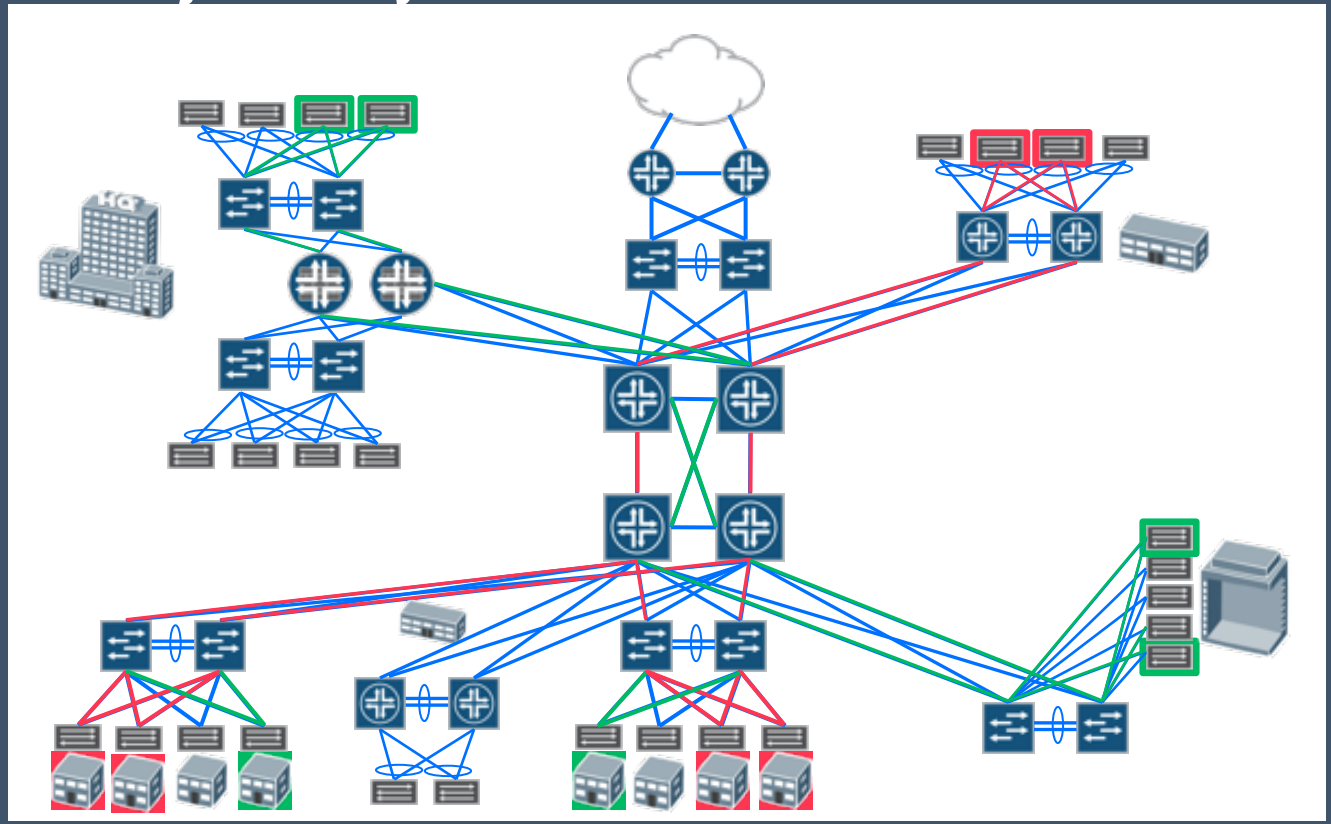




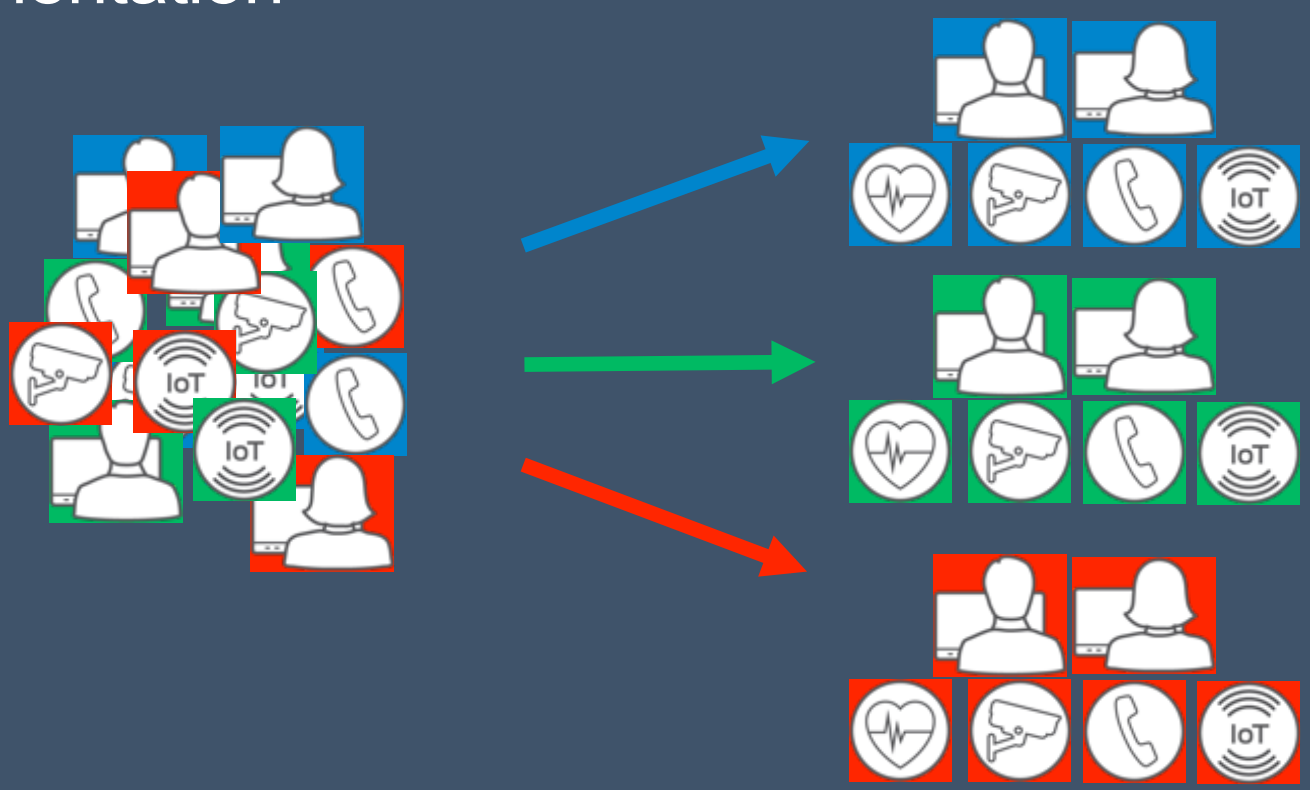




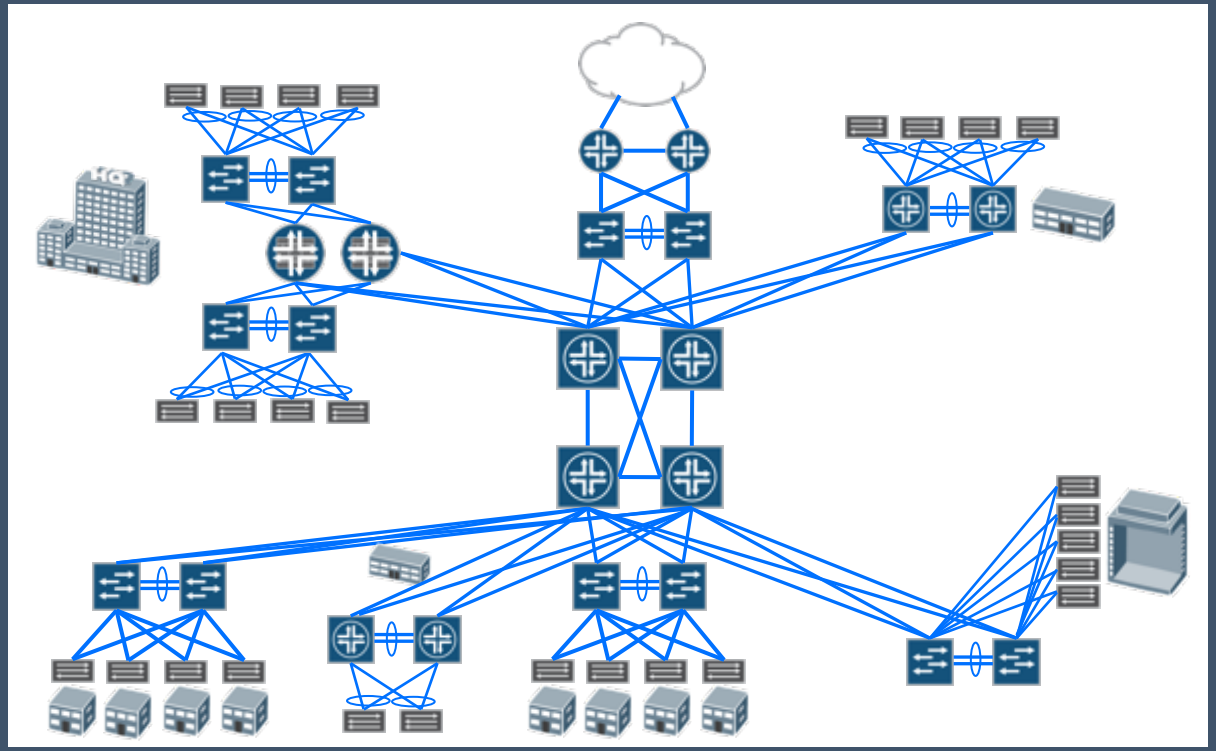
Layer 2 Adjacency



Segmentation



Typical Campus Network



Redundancy

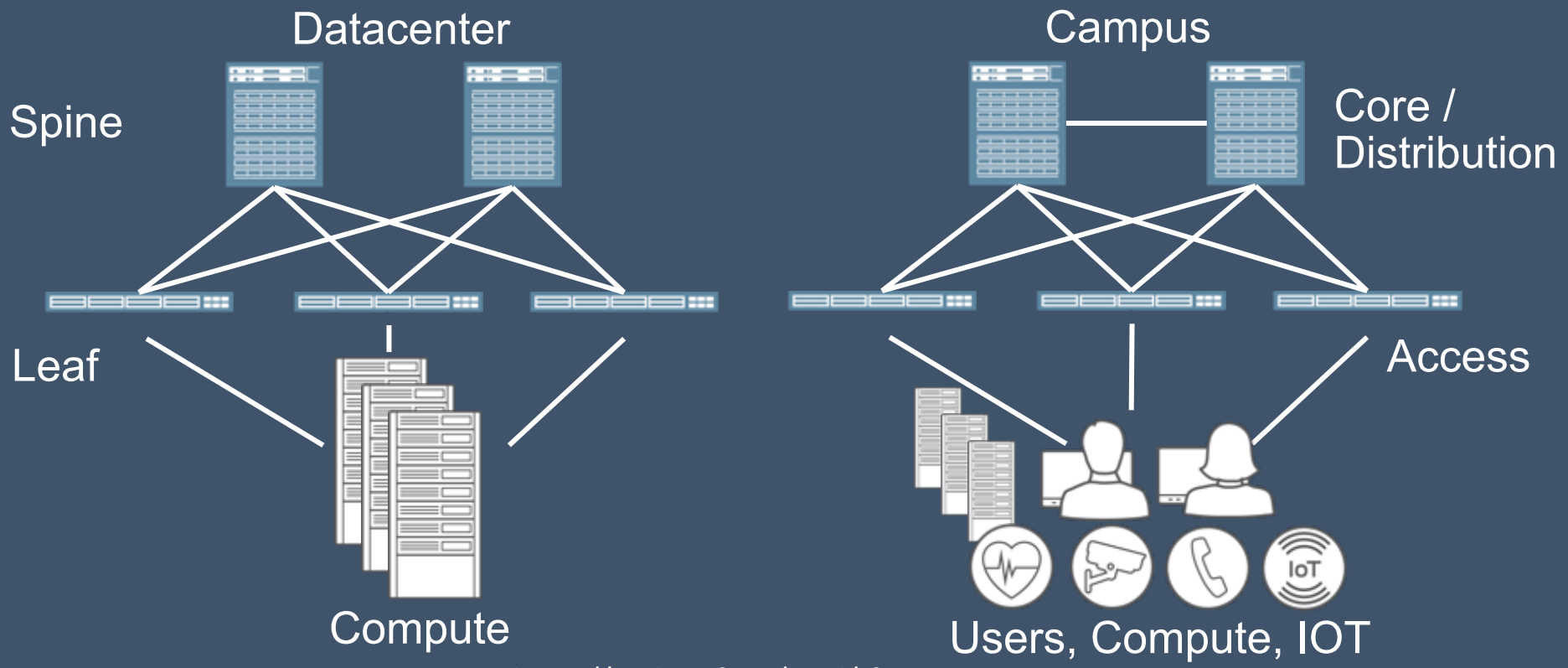
- Spanning Tree
- Flood and Learn

Users

- Layer 2 Adjacency
- Segmentation

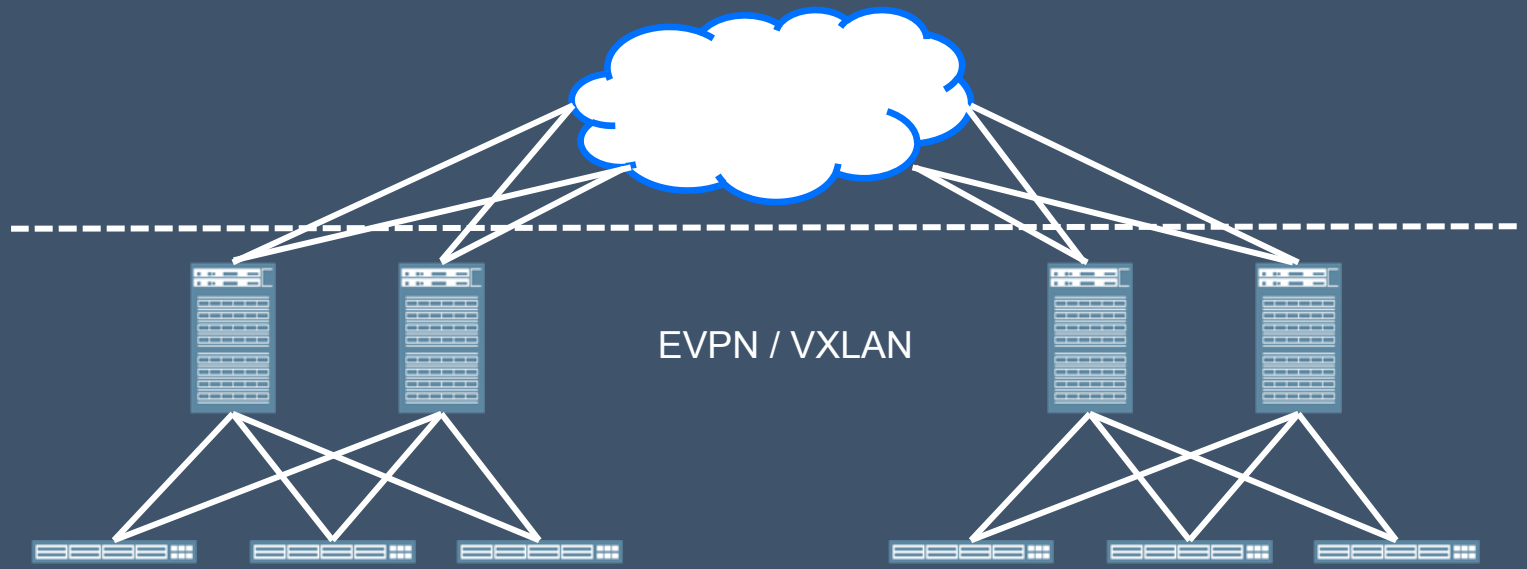
DataCenters, Campuses & Fabrics

EVPN

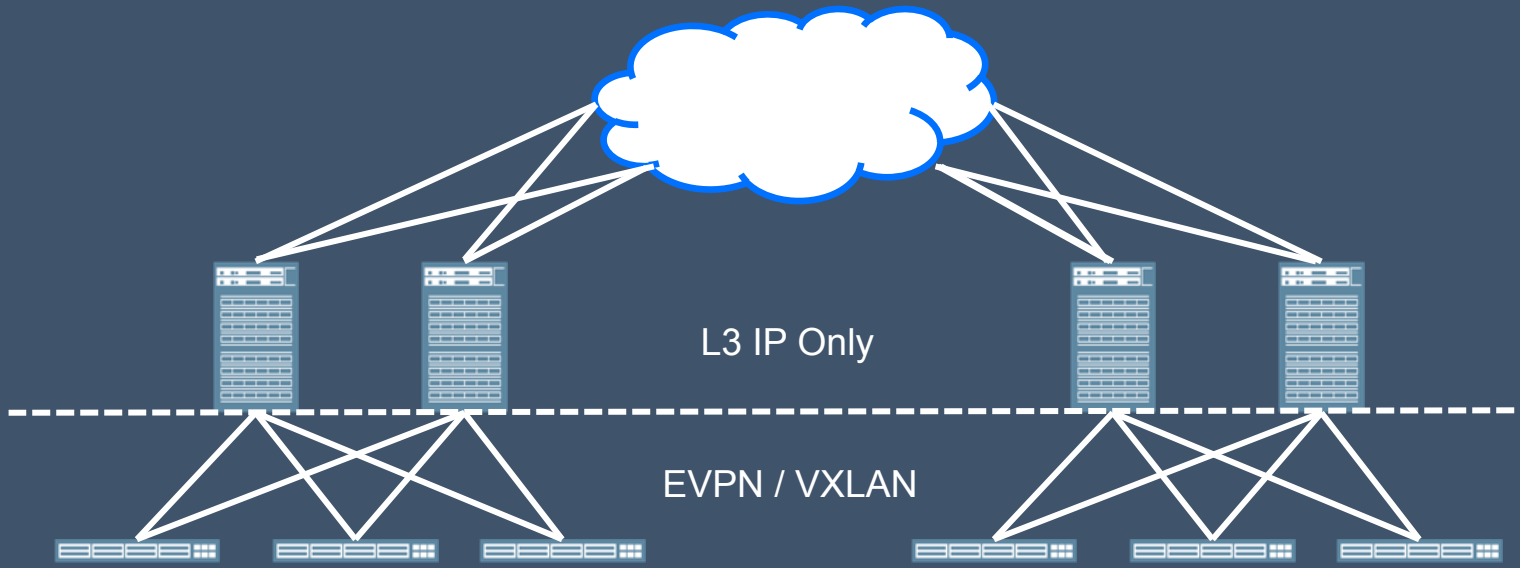


https://tools.ietf.org/html/rfc7432

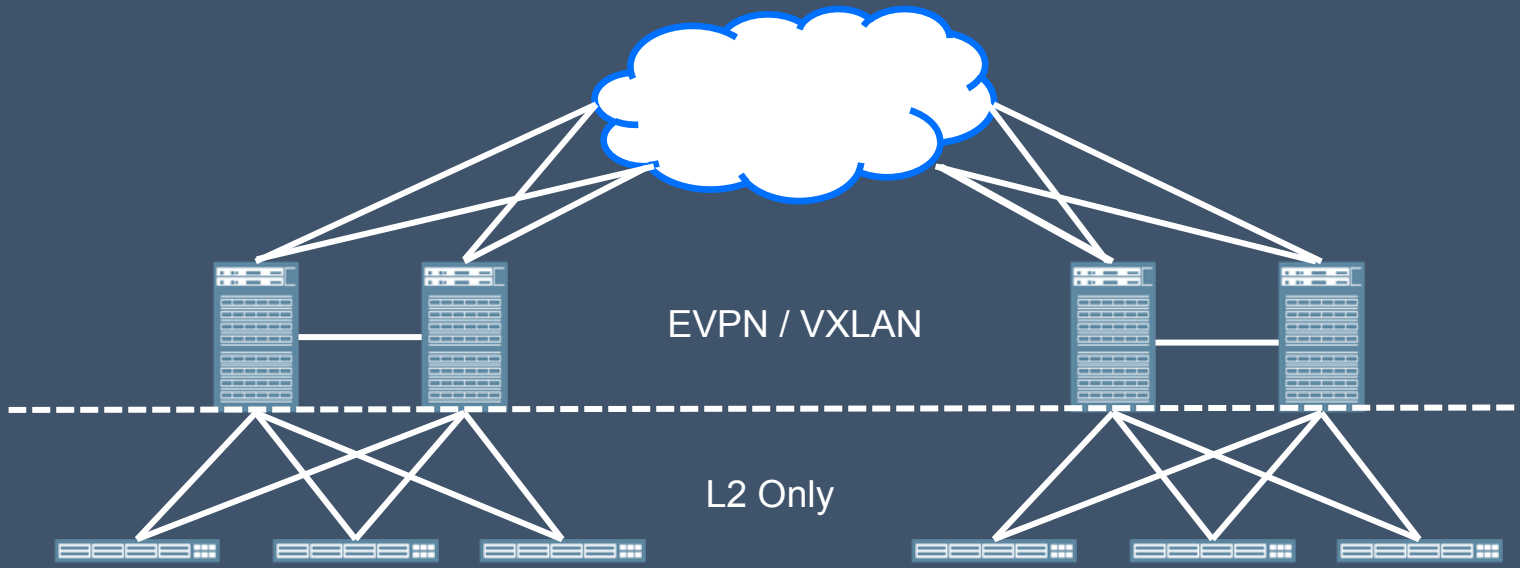
Full Fabric



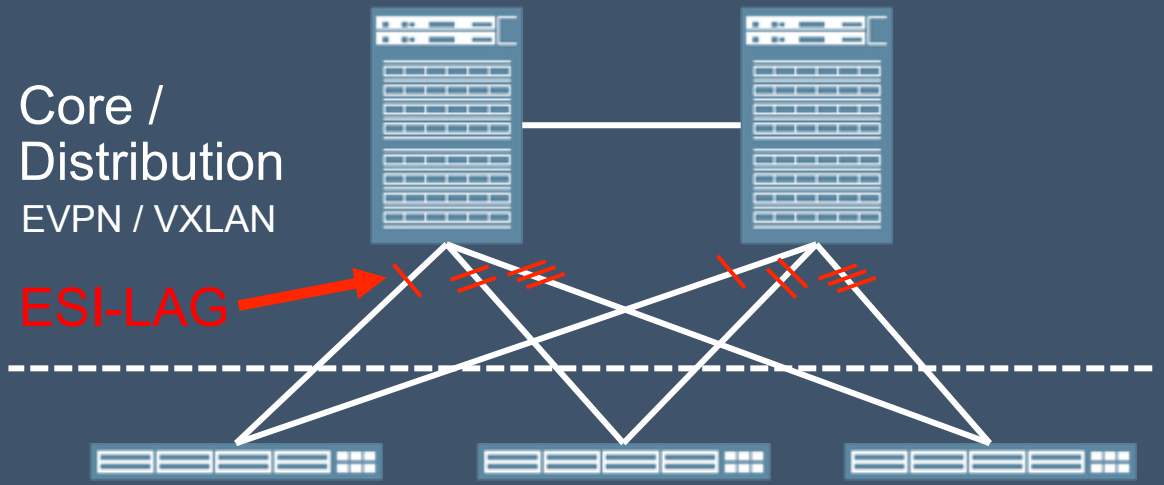
Lean Spine



Spine Only



EVPN/VXLAN in the Campus



Standards Based
Large Industry Adoption
Minimized Fault Domain
Easy to Scale

EVPN - Control/Forwarding
Brown Field
Operational Advantages

ECC – Evolved Campus Core

ECC (Evolved Campus Core) – Five Key Concepts

1) Underlay
2) Overlay - EVPN/VXLAN
3) VRF Segmentation
4) ESI-LAG
5) Anycast Gateway

Underlay

Overlay – EVPN/VXLAN

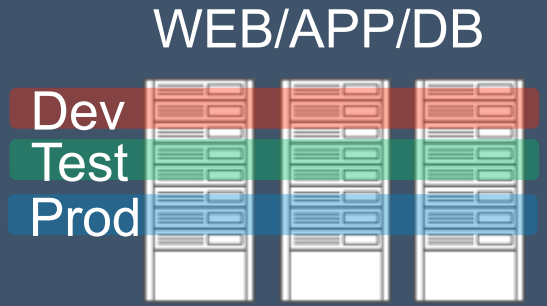
WEB
APP
DB

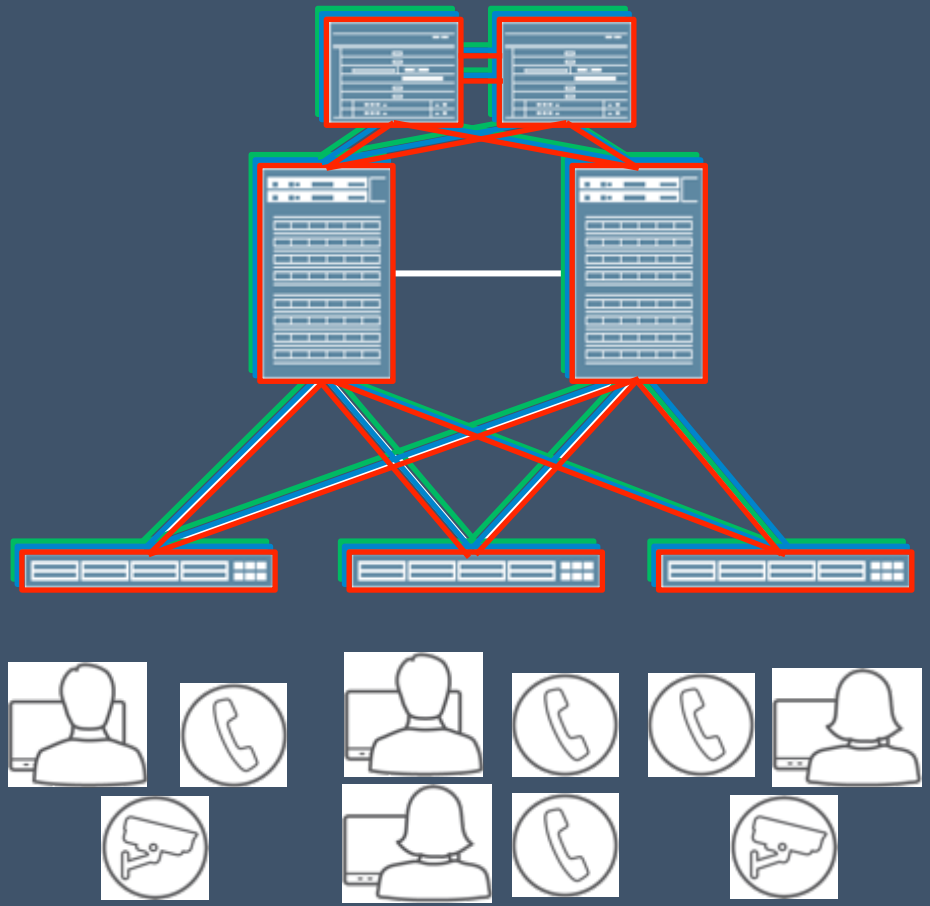
Engineering
Legal
Finance

Engineering
Legal
Finance

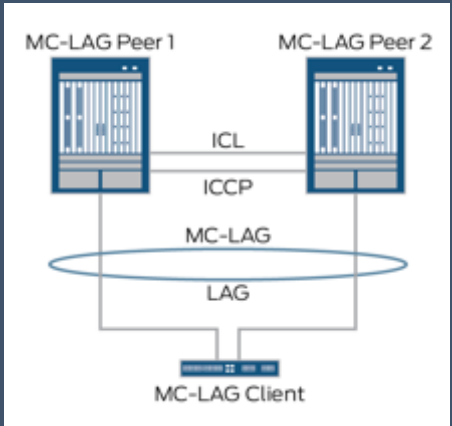
Engineering
Legal
Finance

VRF Segmentation



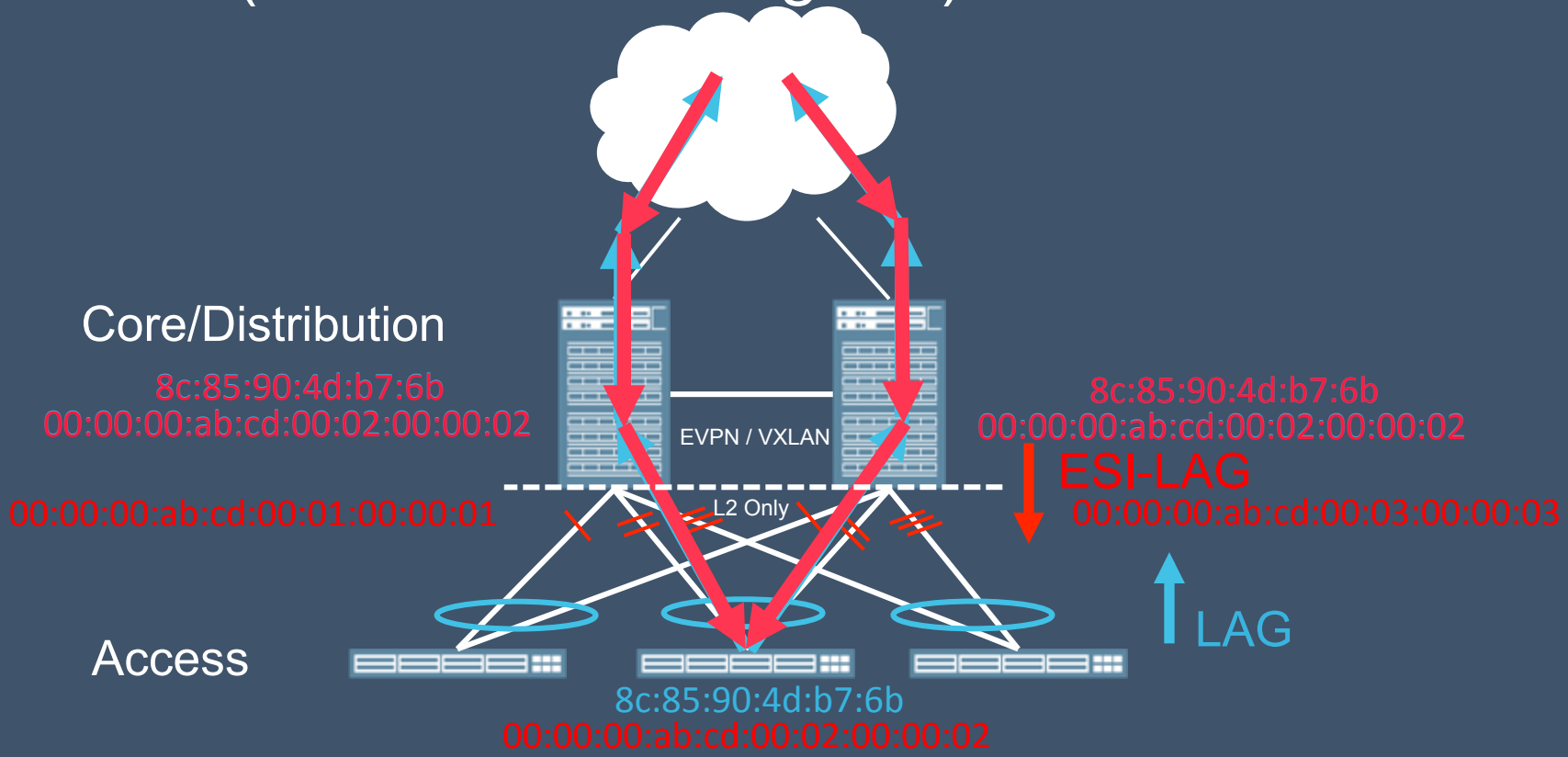


ESI-LAG (EVPN Multihoming A/A)

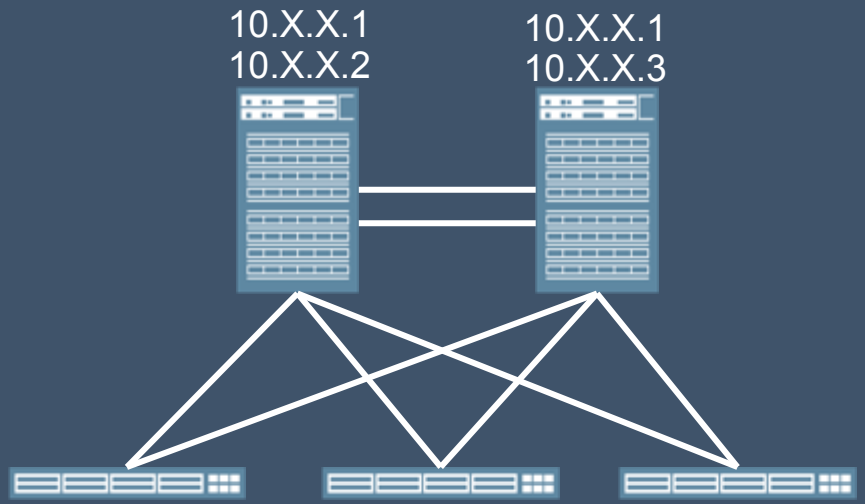


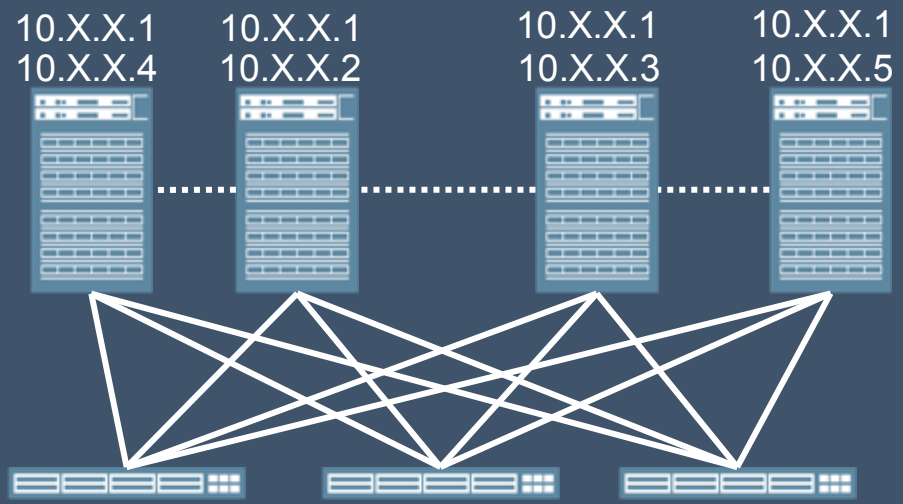
https://tools.ietf.org/html/rfc7432#section-14.1.2

ESI-LAG (EVPN Multihoming A/A)



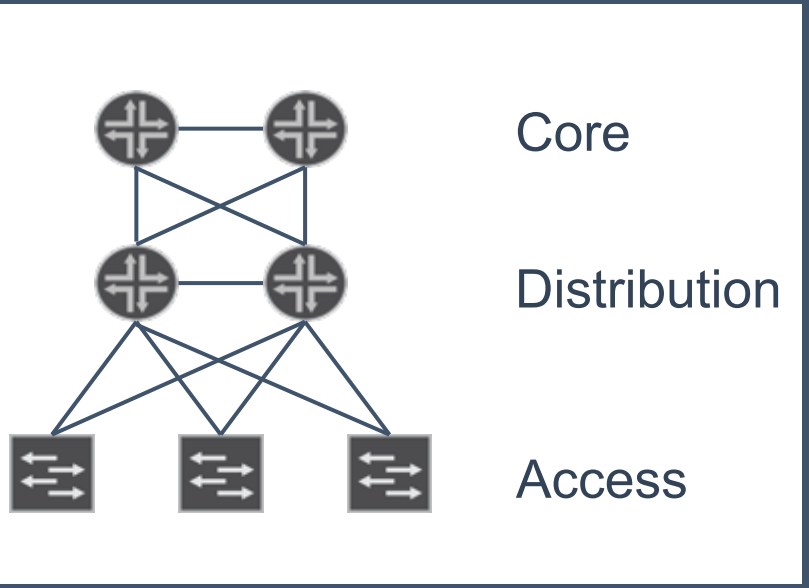
Anycast Gateway





NXT Steps - How Do I move to an ECC Architecture

Physical



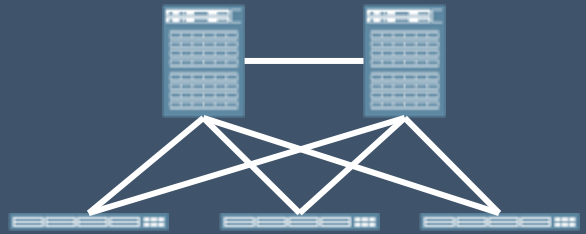
Hardware & Software

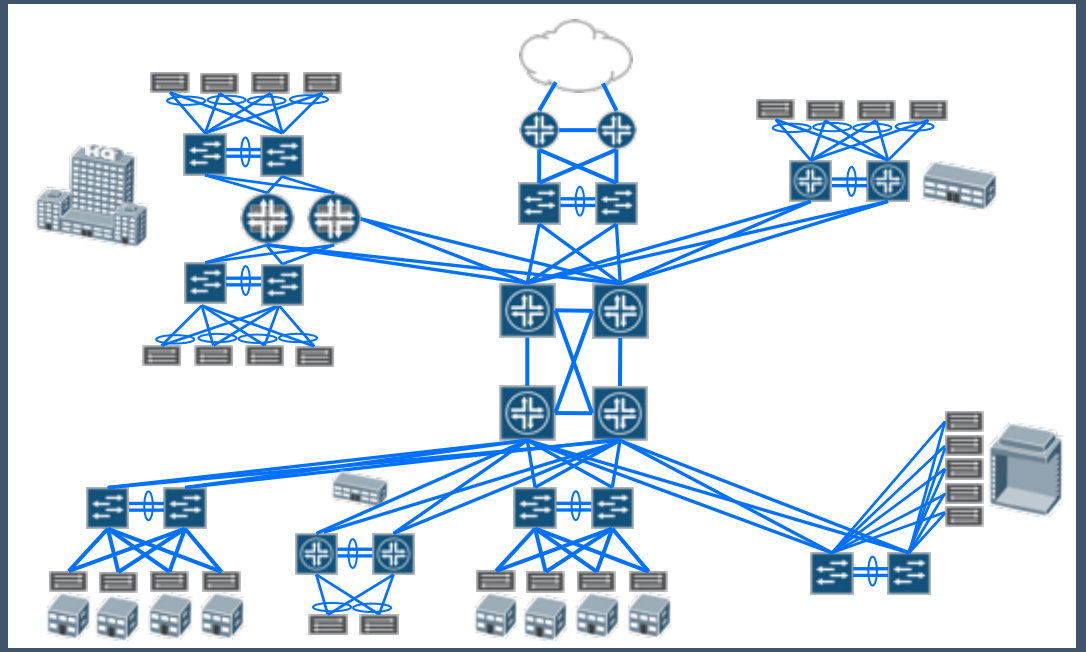
EVPN + L2/L3 VXLAN Gateway

Any Vendor – LAG/LACP/VLANS

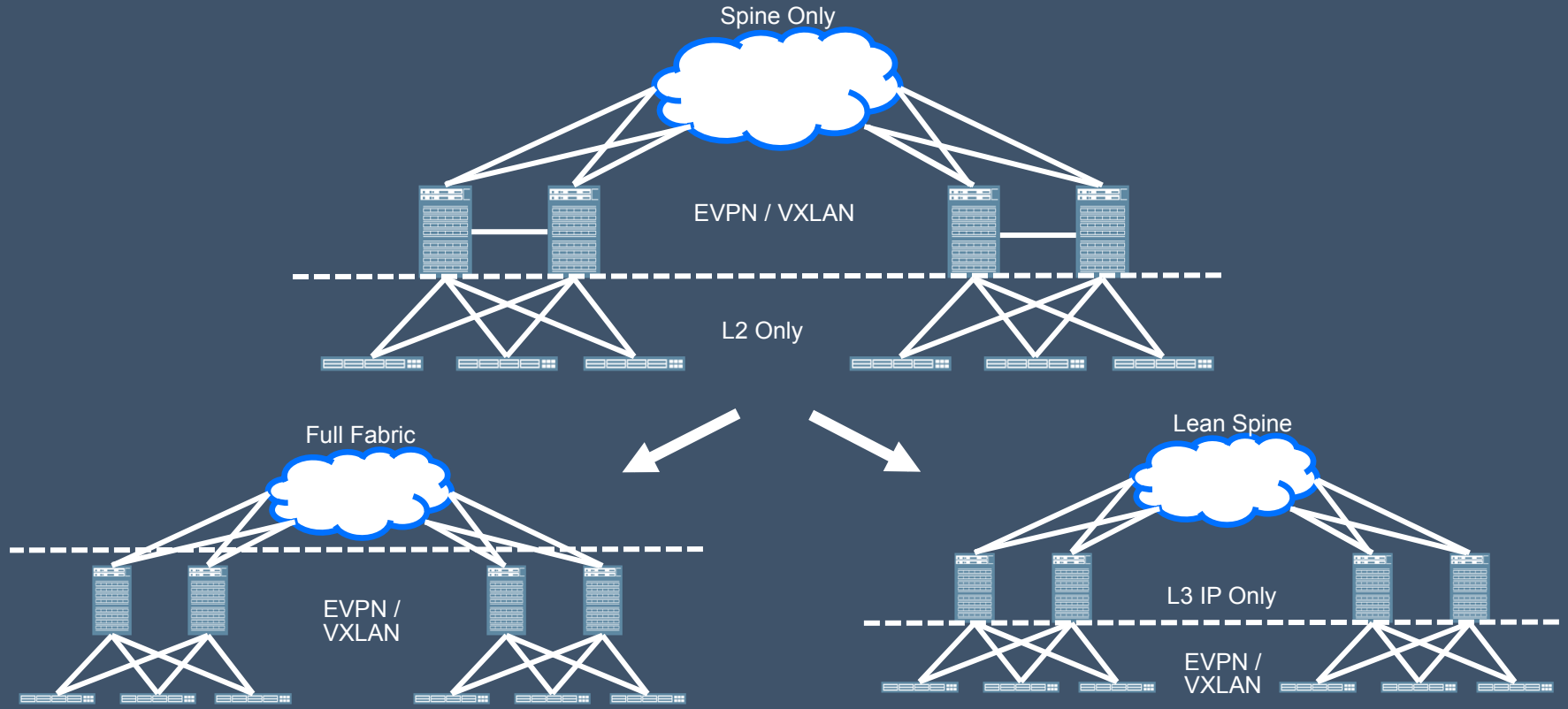
ECC Configuration

1) Underlay
2) Overlay - EVPN/VXLAN
3) VRF Segmentation
4) ESI-LAG
5) Anycast Gateway





Day 0 Considerations - Day N Options



ECC (Evolved Campus Core) - Takeaways

- Why ECC
  - Redundancy – eliminate spanning tree
  - Users – L2 adjacency / segmentation
- ECC Concepts
  - Underlay
  - Overlay - EVPN/VXLAN
  - VRF Segmentation
  - ESI-LAG
  - Anycast Gateway
- Migration
  - Physical
  - EVPN/VXLAN Core HW/SW
  - Enable ECC


Q&A

Thank you

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Network /R/evolutionist
https://youtu.be/2HgS9e5qkAw

@VincentCelindro