



AIRHEADS

meetup

aruba
a Hewlett Packard
Enterprise company

#ArubaAirheads

ArubaOS-CX Virtual Switching Extension

Dik van Oeveren – Aruba Consulting System Engineer

November 14, 2018

Agenda

- Aruba Wired Campus Networking Portfolio
- ArubaOS-CX 10.1 new features
- VSX Demonstration
- Community tools
- Questions and Answers

Aruba campus edge switch portfolio



2530

- Layer 2
- 8, 24 or 48 ports with 10/100 or Gig
- sFlow, ACLs, IPv6
- Fanless & compact models
- Models with 10GbE uplinks
- PoE+ models



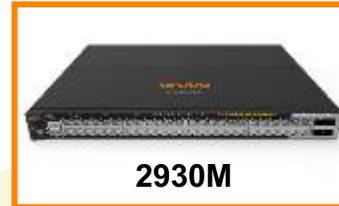
2540

- Layer 2 with static & RIP routing
- 24, 48 ports Gig
- PoE+ models
- Fixed 10GbE Uplinks
- Internal Power supply
- Central support



2930F

- Standard Layer 3 with static, RIP routing & Access OSPF
- 4 Unit VSF Stacking
- 8, 24, 48 ports Gig
- PoE+ models
- Fixed 1GbE and 10GbE Uplinks
- Internal Power supply
- OpenFlow
- Central support



2930M

- Standard Layer 3 with static, RIP routing & OSPF
- 10 Unit Backplane Stacking
- Redundant power
- Modular 10GbE and 40GbE uplinks
- OpenFlow
- Central support
- 1440W PoE/Redundant Power



3810M

- Advanced Layer 3
- 24 or 48 port Gig
- Smart Rate multi-gigabit Ethernet
- Wire speed 40GbE
- PoE+ models
- Modular uplinks
- Redundant power
- 10 unit stacking
- OpenFlow



5400R

- Advanced Layer 3
- 6 and 12- slot compact chassis
- Smart Rate multi-gigabit Ethernet
- Wire speed 40GbE
- Redundant mgmt. and power
- 96 10GbE ports, 288 1 GbE ports
- 288 ports full PoE+ capable
- OpenFlow

Campus, branch and SMB networks

Aruba campus core and aggregation switch portfolio



- Advanced Layer 3 and BGP
- 16 to 24 ports of 10G
- Flexible uplinks using 4 ports of 10G or 2 ports of 40G
- Redundant power
- 10 unit stacking
- OpenFlow



- Advanced Layer 3 and BGP
- 6 and 12- slot compact chassis
- Smart Rate multi-gigabit Ethernet
- Wire speed 40GbE
- Redundant mgmt. and power
- 96 10GbE ports, 288 1 GbE ports
- 288 ports full PoE+ capable
- OpenFlow



- Advanced Layer 3, including IPv4/IPv6 routing, BGP, and VRF
- 48 ports of 10G to support SFP/SFP+ and 6 ports of 40G to support QSFP+
- Up to 2.5Tbps of switching capacity and 1.9BPPS
- Flexible bundle that includes 2x power supplies, 5x fans, and the unit (JL479A)
- Supports SFP/SFP+ and QSFP+ Transceivers
- Wire speed 10G and 40G
- Redundant fan and power supplies



- Advanced Layer 3, including IPv4/IPv6 routing, BGP, and VRF
- 8-slot chassis with redundant mgmt. module, fan, fabric module, and power
- Up to 19.2Tbps of switching capacity and 7.14 BPPS
- Flexible bundles that includes 32 ports of 10G and 8 ports of 40G (JL376A)
- Line Modules: 32Px10G w/ MACsec, 8Px40G, and 6Px40G/100G
- Wire speed 10, 40, and 100G
- Up to 256 10G ports, 64 40G ports, and 48 ports of 100G ports

Campus core and aggregation solutions

ArubaOS-CX

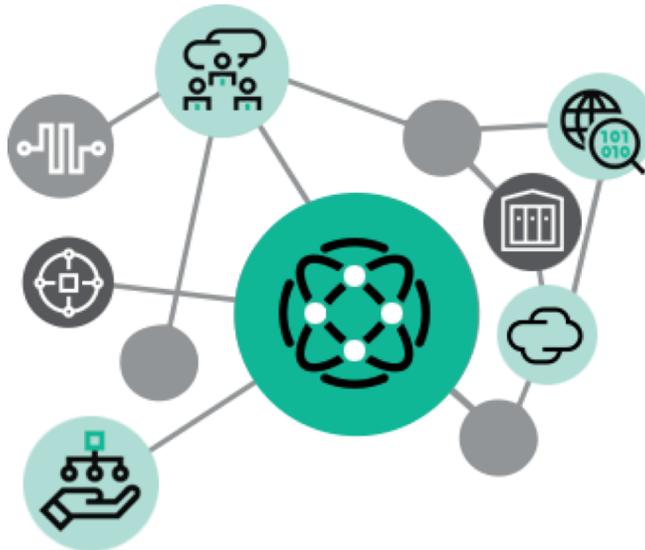


Aruba 8400

Optimized form factor & cost, carrier class availability, 10/25/40/100 GbE

Aruba 8320

High performance compact 1U form factor and carrier class availability, 10/40G



ArubaOS-CX

Programmable next-gen OS for switching, with massive Open Source leverage, and analytics to automate troubleshooting



Aruba Network Analytics Engine

Native analytics & visibility to automate troubleshooting and streamline operations

What Makes for a *Good* High Availability Solution?

Customer requirement

Redundancy

“What if X breaks and Y fails?”

Resiliency

“What if W sputters and Z hiccoughs?”

Performance

“How long is failover? In what scenarios?”

Simplicity

“How complex, with what chance for error?”

Solution capabilities

1. **HW redundancy** – management modules, fabric, power, fans
2. **SW redundancy** – dual vs single control planes
3. **Link virtualization** – virtualize multiple links to one logical link
4. **Process resiliency** – self-restart to last known good state
5. **Low-latency link failovers** – minimize duration of traffic outage
6. **Fast upgrade time** – minimize time-at-risk during upgrade
7. **Easy to configure** – # entities to configure, # CLI commands
8. **Low risk of error** – config sync & consistency checks

Where is ArubaOS-CX with MCLAG?

Customer requirement

Redundancy

“What if X breaks and Y fails?”

Resiliency

“What if W sputters and Z hiccoughs?”

Performance

“How long is failover? In what scenarios?”

Simplicity

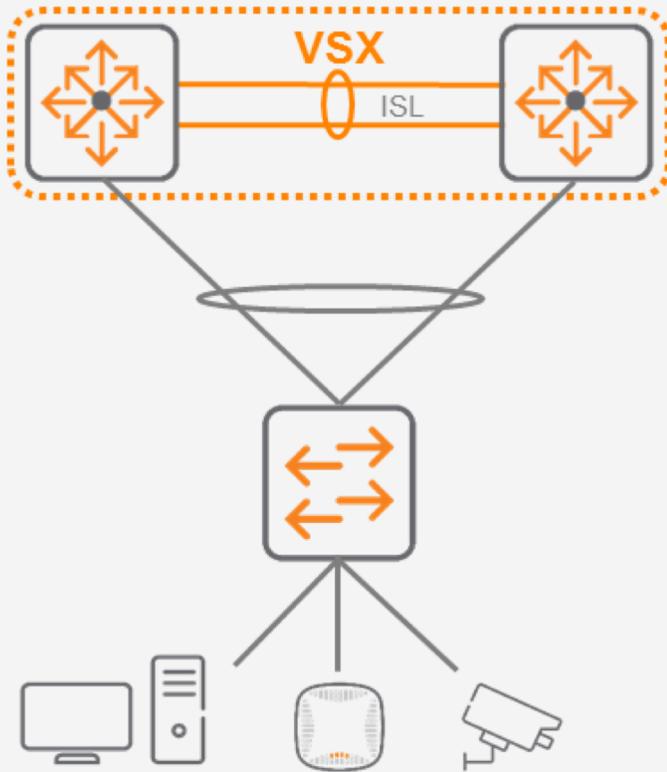
“How complex, with what chance for error?”

Solution capabilities

-  1. **HW redundancy** – management modules, fabric, power, fans
-  2. **SW redundancy** – dual vs single control planes
-  3. **Link virtualization** – virtualize multiple links to one logical link
-  4. **Process resiliency** – self-restart to last known good state
-  5. **Low-latency link failovers** – minimize duration of traffic outage
-  6. **Fast upgrade time** – minimize time-at-risk during upgrade
-  7. **Easy to configure** – # entities to configure, # CLI commands
-  8. **Low risk of error** – config sync & consistency checks

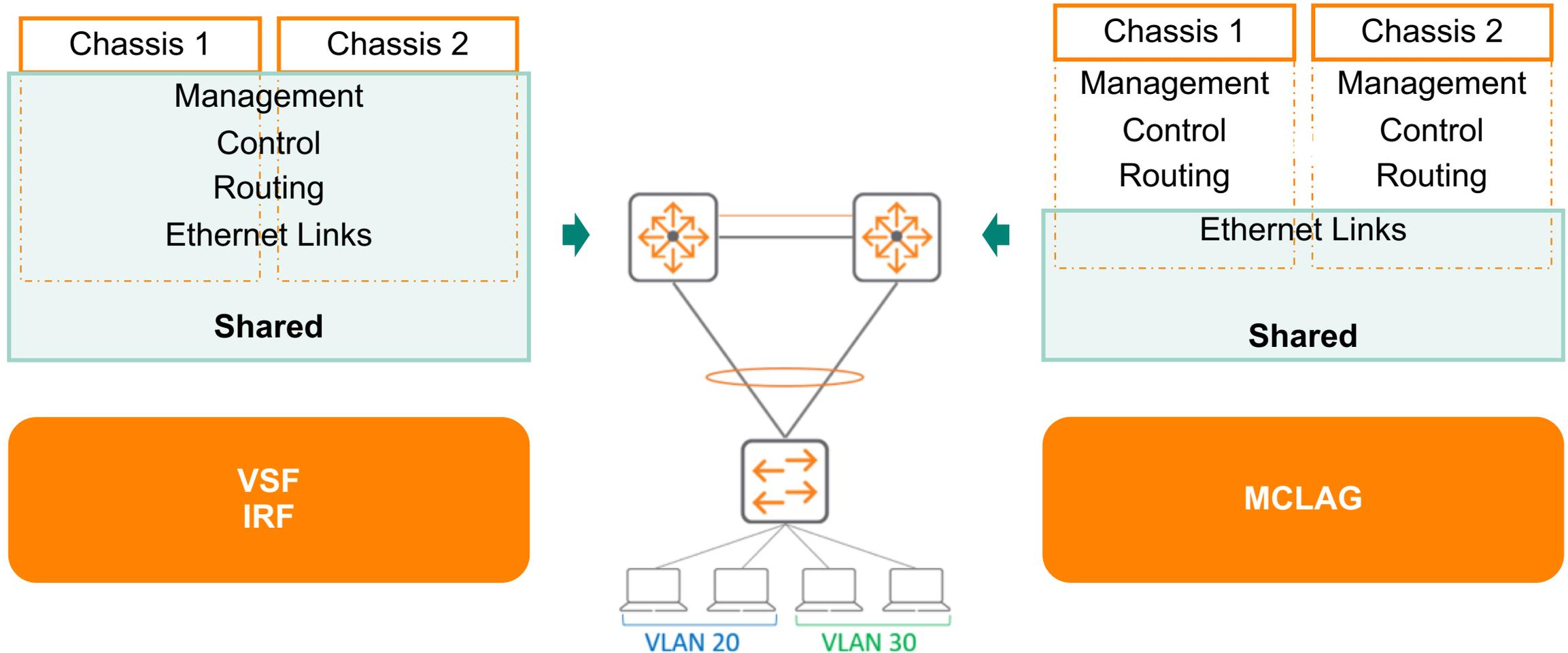
High Availability for Aruba Core and Aggregation

Introducing Aruba Virtual Switching Extension (VSX)

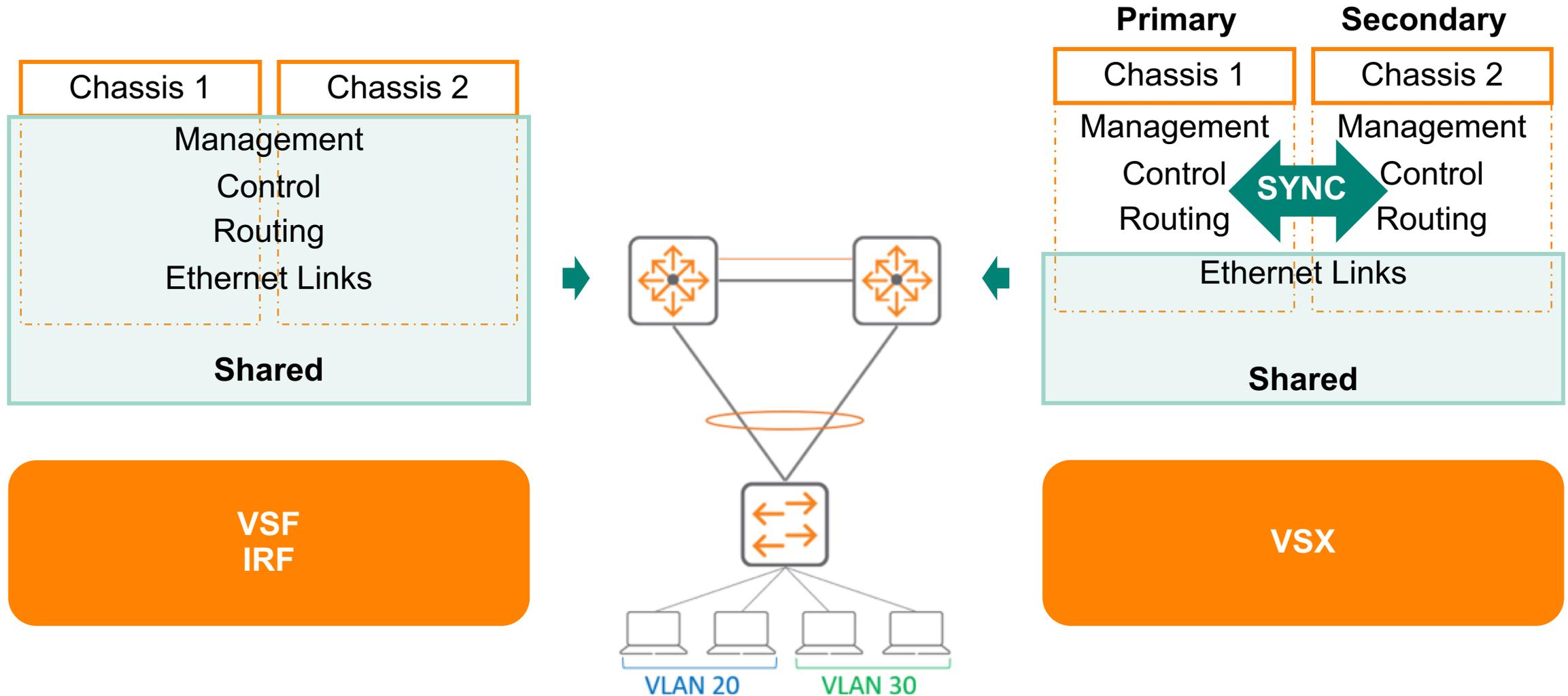


- **Built for Aggregation & Core:** availability, availability, availability
- **Redundancy in both** hardware and software
- **High Availability** by design during upgrades
- **Flexibility for network designs:** Support for active-active L2, L3 unicast and multicast
- **Operational simplicity** and usability for configuration
- Leverages existing and on-going investments on **MCLAG**
- Provides virtually all the benefits of VSF except with **BETTER HA**

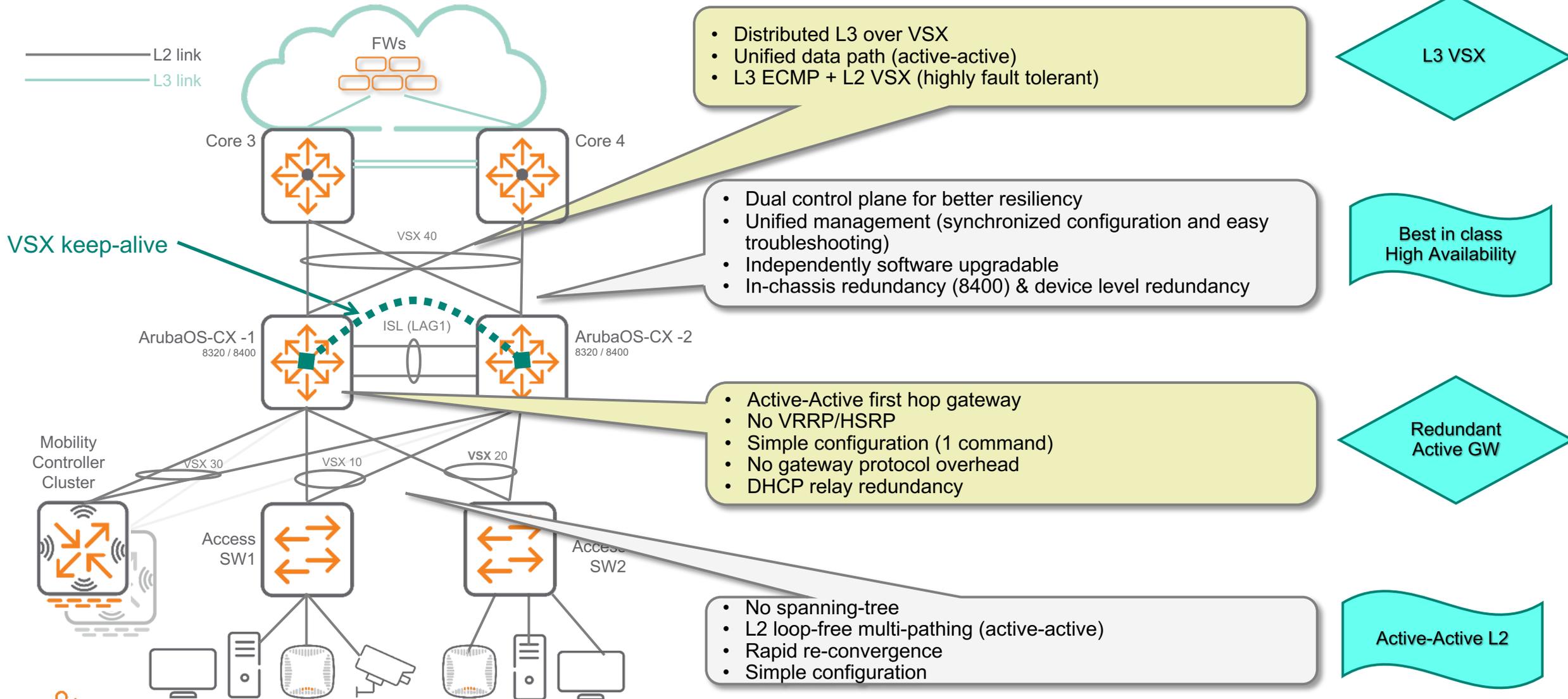
Virtualization Solutions Compared



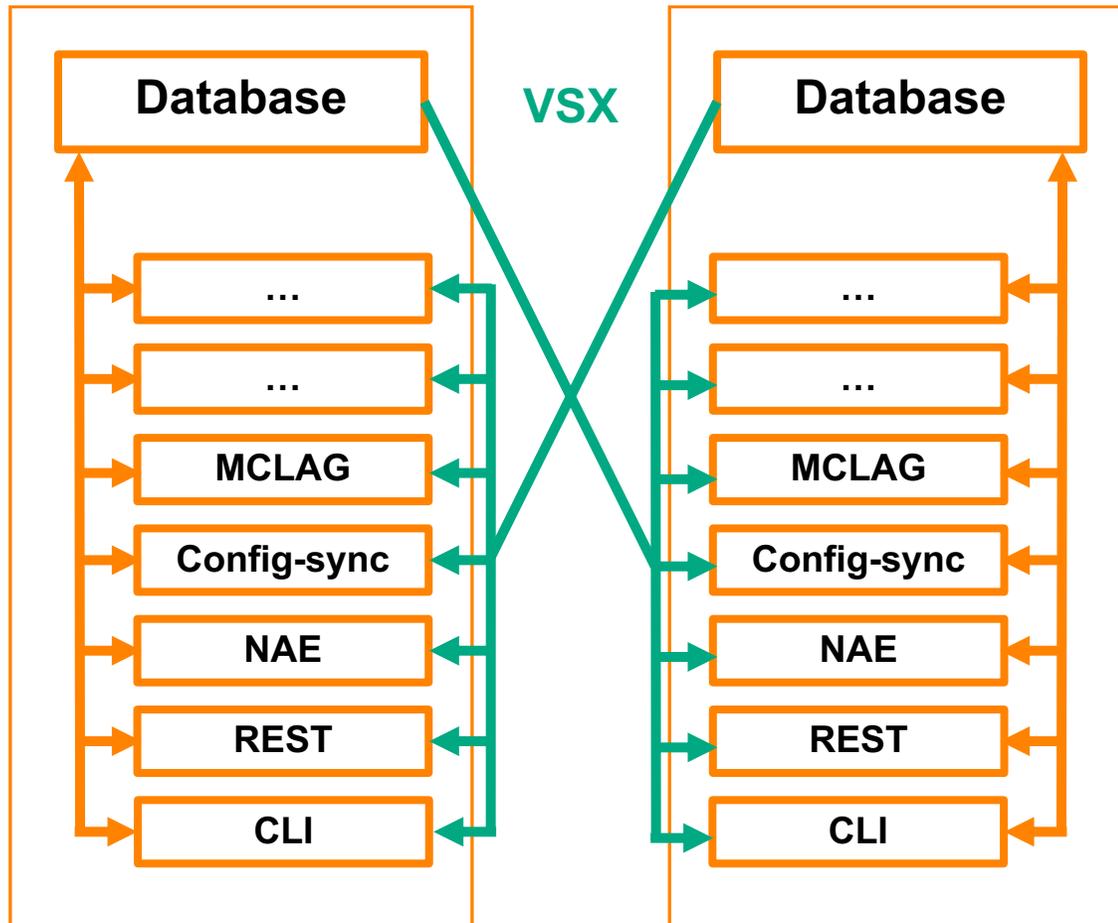
Virtualization Solutions Compared



VSX Design: Addressing All Design Needs of Customers



Aruba OS-CX Difference: Making VSX Powerful and Easy



Database driven architecture

- Allows active-active components to know the state of the peer
- Enables CLI/REST/WebUI to easily expose both control planes in a single place
- Allows analytics across the redundant pair

Configuration and troubleshooting simplicity

- Continuous synchronization of the common configuration
- Show commands that aggregate/contrast information from both switches for ease of troubleshooting
- Almost all show commands will support “| vsx-peer” to show information from the peer
- Provide joint view of the VSX system

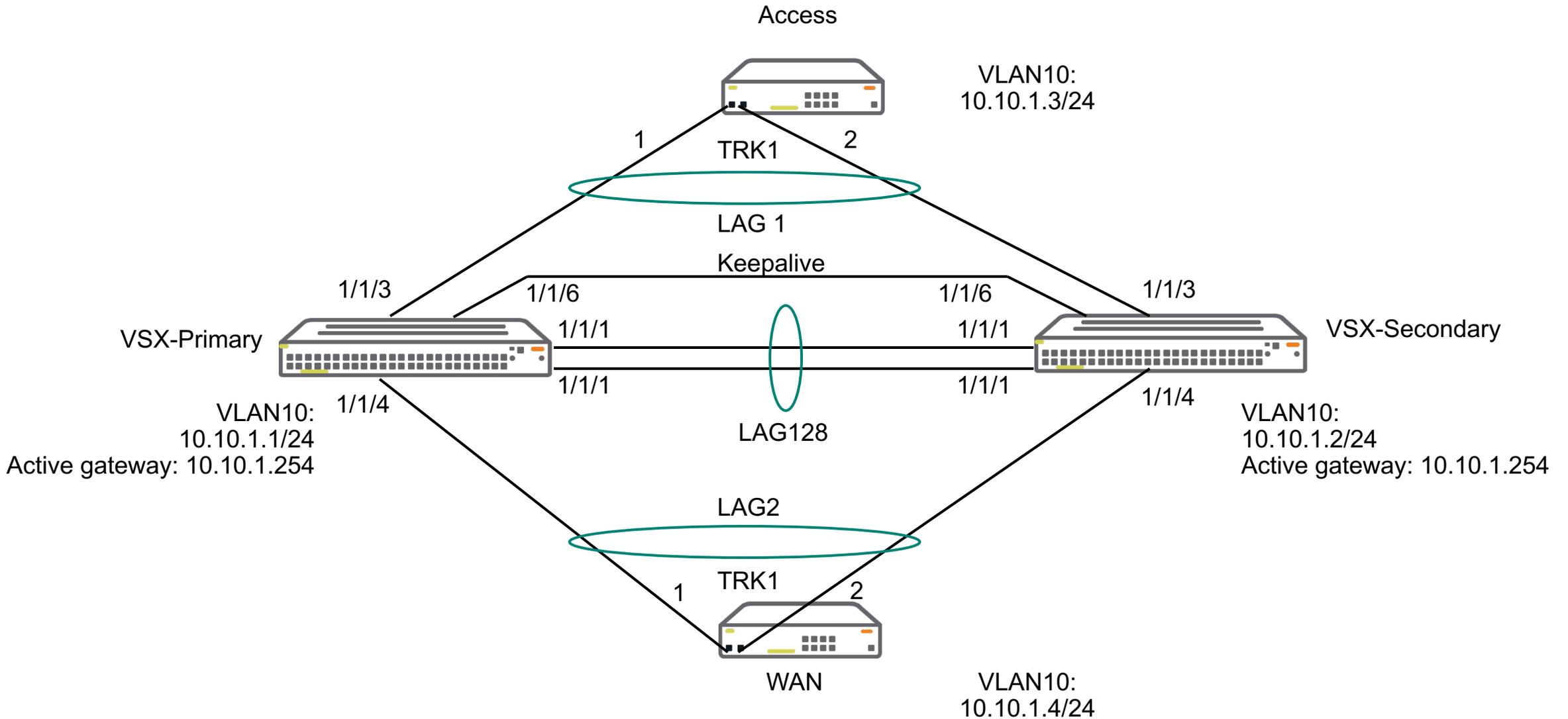
Hitless upgrade orchestration

- Will allow proactive draining of the traffic from the switch that undergoes upgrade

Active-Active Analytics

- NAE agents will cross monitor each others database
- Will detect discrepancies that remain for too long
- Will validate that the overall solution is healthy

VSX Demonstration



Where are the 8000 series switches with VSX?

Customer requirement

Redundancy

"What if X breaks and Y fails?"

Resiliency

"What if W sputters and Z hiccoughs?"

Performance

"How long is failover? In what scenarios?"

Simplicity

"How complex, with what chance for error?"

Solution capabilities

1. **HW redundancy** – management modules, fabric, power, fans
2. **SW redundancy** – dual vs single control planes
3. **Link virtualization** – virtualize multiple links to one logical link
4. **Process resiliency** – self-restart to last known good state
5. **Low-latency link failovers** – minimize duration of traffic outage
6. **Fast upgrade time** – minimize time-at-risk during upgrade
7. **Easy to configure** – # entities to configure, # CLI commands
8. **Low risk of error** – config sync & consistency checks



AIRHEADS

meetup

Thank You