Arista 7300X Configuration Guide for EoR Deployments

The document is targeted at Network architects planning to deploy the Arista 7300X series as a replacement for their existing Catalyst 6500 switches in an End of Row (EoR) or Middle of row (MoR) deployment within the data center.

Introduction

Today's data center is a changing landscape, with the widespread adoption of server virtualization driving 10GbE attachment speeds at the access layer and rapidly evolving application architectures powering an exponential growth in server-to-server communication. The increase in bandwidth demands and changes in traffic patterns has placed an overwhelming challenge on aging End of Row (EoR) or Middle of row (MoR) designs, where the legacy placement of the Cisco Catalyst 6500 switch has become a bottleneck for scale, bandwidth and performance.

The Arista 7300X series provides the next generation data center switch allowing for the design of a modern high performance and high-density EoR solution that addresses the key challenges virtualization brings to the data center today. Delivering the high performance, scale and virtualization feature sets for both new "green-field" and existing "brown-field" sites.

The Arista 7300X is unique in allowing the retention of the installed copper structured cabling for both legacy 1GbE services and new high-density 10GbE server attachment whilst also seamlessly introducing support for next generation DC technologies like VXLAN and open extensibility.

ARISTA

Arista 7300X Platform Overview

The Arista 7300X are fully redundant modular chassis platforms, delivered in a 4-slot (8RU high), 8-slot (13RU high), or 16 slot (21RU) from factor. For consistent operations and simplified sparing all three chassis share a set of common line cards, supervisor modules, fan modules and power supplies. The chassis are purpose designed for the data center and as a result are provided in both front-to-back and back-to-front airflow allowing for simple deployment in server rows.

Figure 1: Arista 7300X series and line cards

The platform supports a choice of line cards that deliver line-rate layer 2/3 forwarding with options for high-density 1GbE/10GbE and 10GbE/40GbE deployments within the data center. All line cards leverage a consistent hardware architecture, which ensures the same consistent layer2/3 and virtualization feature set across the portfolio. The following table shows the set of line-cards and the form factors available.

Linecard	Description	Deployment
7300X-32Q	A 32 port 40GbE QSFP+ module, providing wire-speed layer 2/3 and advanced VXLAN functionality. Each 40GbE QSFP+ port is capable of being software provisioned as four individual 10GbE ports, to provide support for 128 line-rate 10GbE ports in a single line-card.	Core and distribution layer for high density 10/40GbE inter-switch connectivity
7300X-64T	A 64 port 10GbE module, providing wire-speed layer 2/3 and advanced VXLAN functionality. The first 48 ports of the line-card are 10G/1G/100Mb copper ports, allowing 10GbE connectivity over Cat5e/6/6a cabling at distances up to 100m. In addition the line card also provides four 40GbE QSFP+ ports, which can be individually configured to support up to sixteen 10GbE ports for fiber or Twinax connectivity for a total of 64 10GbE ports.	End of Row (EoR) or Middle of Row (MoR) access layers, aggregation layer: 10GbE/1GbE SFP+ and 10G/1G/100Mb UTP copper connectivity. Integrated 40GbE/10GbE for distribution and core uplinks
7300X-64S	A 64 port 10G module, providing wire-speed layer 2/3 and advanced VXLAN functionality. The line card ports are presented as 48 SFP+ 10G/1G ports and 4 QSFP+ ports. As with the 7300X-32Q/64T line cards the QSFP+ ports can be individually software provisioned to provide a further sixteen 10GbE ports for additional connectivity.	

Table 1: 7300X Line cards and deployment

7300X QSFP+ Interfaces

The QSFP+ interfaces of the 7300X modules are multi-purpose and can each be configured as four 10GbE ports or a single 40GbE interface. The integration of the 40GbE interfaces within both the 7300X-64T and 7300-64S line cards allows all ports to be deployed for 10GbE host connectivity while still providing an option, when required, of 40GbE uplinks to the data center core. This flexibility removes the traditional requirement for dedicated higher speed uplink modules, which consume valuable slots within the chassis. The diagram and table below show examples of how the QSFP+ ports can be deployed flexibly for host and uplink connectivity.
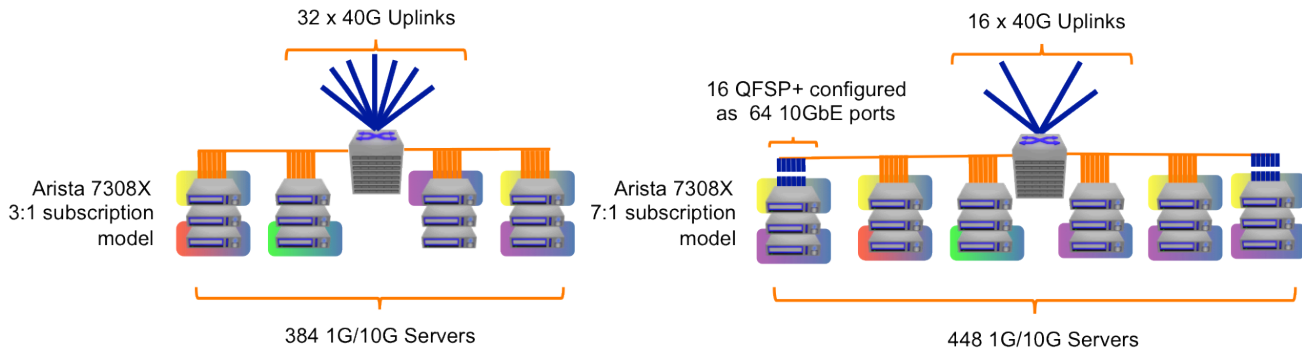

Figure 2: 7308X with QSFP+ used for host ports and uplink ports

	Example 1	Example 2
Chassis	7308X	7308X
Line cards	7308X-64S or 7308X-64T	7308X-64S or 7308X-64T
Number of line cards	8	8
10GbE/1GbE host ports	384	384
40GbE host ports	0	16 configured as 64 10G ports
Total 10GbE hosts ports	384	448
40GbE uplink ports	32	16
Oversubscription	3:1	7:1

Table 2: 7308X flexible subscription ratios with QSFP+

The speed setting of the 40GbE interfaces is a dynamic software configuration, and doesn't require any changes to the interface optics. The interface speed can be enabled on demand. By default the QSFP+ ports operate in 4x10G mode, as shown below:

```
7300X(config)#show int eth 3/1-3/4 status
Port      Name   Status      Vlan  Duplex  Speed Type
Et3/1            notconnect  1     full    10G 40GBASE-SR4
Et3/2            notconnect  1     full    10G 40GBASE-SR4
Et3/3            notconnect  1     full    10G 40GBASE-SR4
Et3/4            notconnect  1     full    10G 40GBASE-SR4
```

Migrating the link to a single 40GbE interface is achieved by configuring the port speed on lane 1 of the interface to "40gfull". Once software configured the QSFP+ optic functions as a single 40GbE interface.

```
7300X(config)#interface ethernet 3/1
7300X(config-if-Et3/1)#speed forced 40gfull
7300X(config-if-Et3/1)#show int eth 3/1-3/4 status
Port            Name   Status      Vlan  Duplex  Speed Type
Et3/1                  connected   1     full    40G 40GBASE-SR4
Et3/2                  errdisabled 1     full    10G 40GBASE-SR4
Et3/3                  errdisabled 1     full    10G 40GBASE-SR4
Et3/4                  errdisabled 1     full    10G 40GBASE-SR4
```

Note: the remaining 3 lanes of the QFSP+ are placed in "errdisabled" mode when the interface is configured for 40GbE speed.

Arista offers a wide range of parallel and duplex cables and transceivers that support flexible 10GbE and 40GbE connection options. The parallel 40GbE QSFP+ interfaces utilize standard MTP cables, with a 12 fiber MTP core 8 of the fibers would be used for 40GbE. The 4 pairs (8 fibers) can carry either 4 individual 10GbE lanes or a single 40GbE lane. For connecting to 10GbE hosts or switches, the MTP cable can be split into four separate LC connections. This can be achieved in a similar way with Twinax cables, where a single QFSP+ connection can be split into four separate SFP+ connections to provide four 10GbE ports.
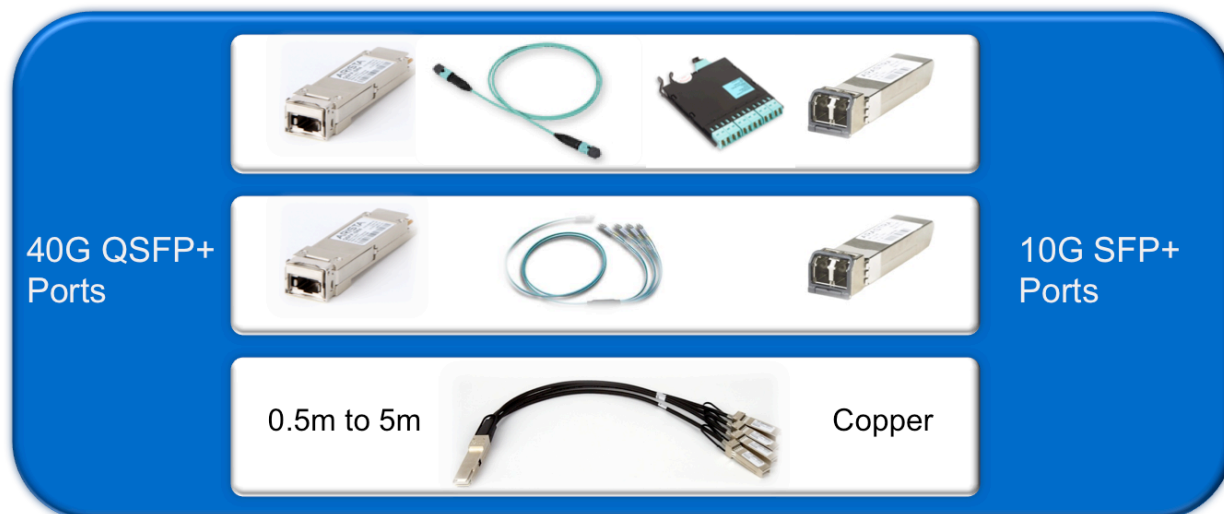

Figure 3: Cabling options for 40GbE and 10GbE connectivity

7300X 10GbE RJ45 Copper Interfaces

The 7300X-64T line card provides 48 10GBASE-T ports using RJ45 connectors. These ports can run at 10GbE speeds over a large proportion of existing 1G structured cabling allowing for on-demand support for 10GbE server attachments without the need to replace cabling, saving both time and money. Each individual port can also operate at the lower 1Gbps and 100Mbps speeds either through auto-detection, or configured to negotiate the lower speeds. This flexibility allows support for existing servers to operate at 100Mb/1Gbps and higher 10Gbps speeds within the same linecard. This provides a simple way to integrate new servers as they are introduced without disruption to existing servers while maintaining the overall port density.

Cable Type	Max cable length at 10G
Category 5e UTP Category 6 UTP	55m
Category 6 STP Category 6A UTP	100m
Category 7	100m

Table 3: Supported 10GBASE-T cable types and distance

The increased 10GBASE-T port density of the 7300X-64T line card is due to the efficient design of the module combined with state of the art ASICs and doesn't come at the cost of power. With a 10GBASE-T port consuming less than 5W in typical operations this is equivalent to the power consumption of a similar 1GbE port on a Catalyst 6500 linecard.

7300X Spline Designs

One of the key roles of the Arista 7300X platform is to provide the density and form factor to allow for the seamless migration of existing legacy 1GbE EoR designs to next-generation 10G/40G virtualized data center solutions. The increased density and throughput is delivered while providing low latency and non-blocking performance to facilitate any-to-any server communication. This next generation architectural approach for

EoR deployments, Arista terms as a collapsed Spine/Leaf or Spline ™.

In the Spline architecture the Arista 7300X chassis seamlessly replaces the traditional Catalyst 6500 as the EoR switch and due to the high density of the 7300X system this can be achieved while still, in the majority of cases, reducing the required rack space. The copper port density and triple speed support (100Mb/1G/10G) of the 7300X-64T module allows the redeployment of the existing structured Cat5e/6/6a cabling, providing seamless on-demand support for 10G server attachment.
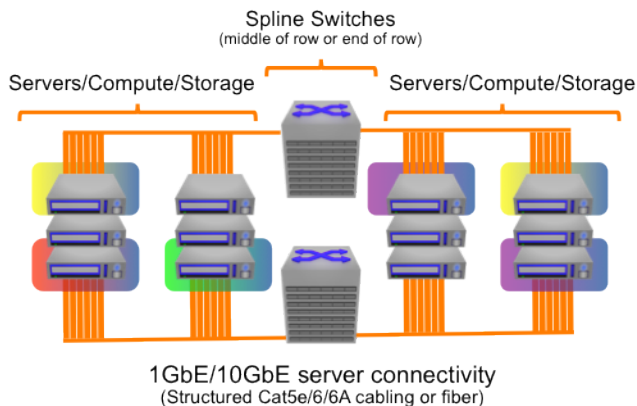

Figure 4: Arista Spline architecture for EoR deployments

The following sections of the document, discuss the design and migration strategies for introducing the Spline architecture into legacy 1GbE Catalyst 6500 EoR deployments.

Catalyst 6500 EoR Design Models
The traditional Catalyst End of Row (EoR) design utilises two 6500 chassis deployed at either end of a data center server row to provide access layer connectivity to the compute nodes within the row. The chassis are commonly deployed in pairs, to provide resiliency for devices within the row. This EoR design was built to provide 1GbE and also 100Mb server attachment and would typically utilise twisted pair copper cabling (Category 5e or 6/6A), which would be routed from each rack through overhead cable trays or underneath a raised floor to the EoR Catalyst 6500 switch. Allowance within the design may also be required for Blade enclosures, which would require fibre rather than copper connectivity to the EoR switch.
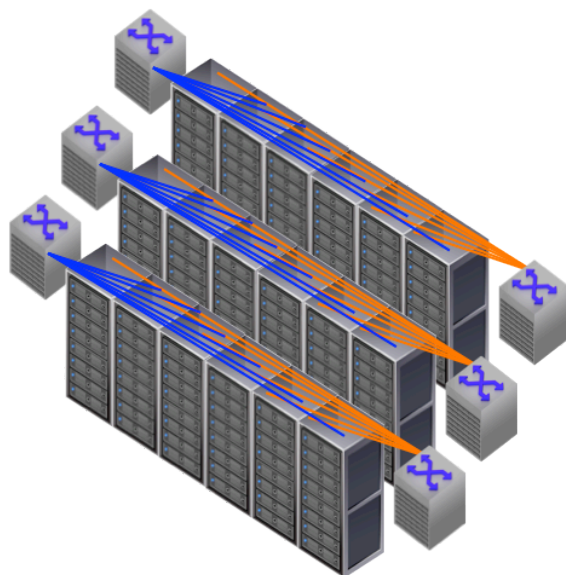

Figure 5: Traditional Catalyst 6500 EoR design with structured overhead cabling

The migration of this design to deliver high density 10GbE connectivity within the row and allow the adoption of new virtualization protocols like VXLAN needs to be an evolutionary process, which optimizes the installed cabling infrastructure while maintaining connectivity for the existing 1GbE connections. The migration strategy of the network architect therefore needs to not only account for the projected 10G and virtualization growth plans of the data center, but optimizes the installed cabling plant with minimal effect on the existing 1G/100Mb server estate.

The limited availability of dense 10GbE within the Catalyst 6500 has slowed the adoption of 10GbE servers in many environments. A fine balancing act has occurred where servers have to be removed prior to the introduction of new 10GbE servers due to the limited 10GbE port density of the chassis. To re-use the installed copper cabling, the Catalyst 6500 switch provides a 10G/1G copper line card, but at only a third of the port density (16-ports) of the 1GbE line card (48-ports) it is replacing and it is 4:1 oversubscribed reducing the effectiveness of high performance servers. This reduction in port density, drastically limits the potential for a non-disruptive on-demand 10GbE migration.

While the projected 10G adoption rate is often the immediate concern for any final design, any agreed upon migration strategy also needs to take into account; management, space, airflow and any additional power requirements. The table below outlines the commonly deployed Catalyst 6500 chassis and line cards in an EoR solution and illustrates how the migration to a 7300X deployment can be achieved without disruption to the installed 1G infrastructure while providing increased port density, performance and cost savings in terms of both cooling and rack space

	Catalyst 6509	Arista 7308X	Catalyst 6513	Arista 7316X
Linecard Slots	7	8	11	16
Height	14RU	13RU	19 RU	21RU
Airflow	Side-to-Side	Front-to-Back or Back-to Front	Side-to-Side	Front-to-Back or Back-to Front
Power	6kW	6kW	12kW	9kW
1G ports per linecard	48	48	48	48
1G Copper linecard	6348-GE-TX 6548-GE-TX 6748-GE-TX	7300X-64T	6348-GE-TX 6548-GE-TX 6748-GE-TX	7300X-64T
1G Fiber linecards	6348-GBIC 6416-GBIC 6516-GBIC 6816-GBIC 6748-SFP 6724-SFP	7300X-64S	6348-GBIC 6416-GBIC 6516-GBIC 6816-GBIC 6748-SFP 6724-SFP	7300X-64S
Max 1G ports per chassis	384	384	576	768
10G ports per linecard	16	64	16	64
10G linecard	6704-10GE 6708-10G 6716-10G 6816-10T-2T	7300X-64S	6704-10GE 6708-10G 6716-10G 6816-10T-2T	7300X-64S
Max 10G ports per chassis	130	1024	192	2048
Bandwidth/slot (Sup720/2T)	40/80Gbps	2.5Tbps	40/80Gbps	2.5Tbps

Table 4: Comparative line cards of the 7300X and power / space efficiency

Providing the required space, power and port density to achieve current and future growth plans is just the first step for the network architect in choosing the correct switching platform for any migration strategy. To provide a seamless transition, any replacement platform will be required to deliver the relevant layer 2 and layer 3 services to ensure the migration offers zero disruption to both the upstream data center Core switches and the downstream attached compute nodes. The typical services and their functionality within an EoR design, can be summarized as follows:
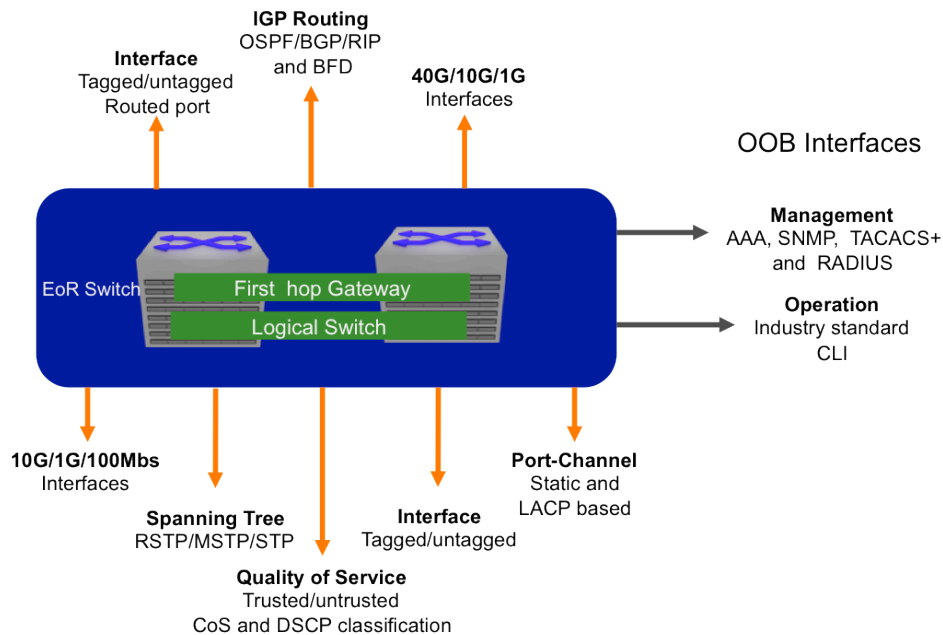
Figure 6: Core and Servers layer 2/3 services required by the EoR platform

Routing Protocol: Within the EoR deployment the Catalyst 6500 can commonly act as the first hop gateway to the subnets deployed within the row. In this scenario, to achieve connectivity to the upstream data center core, layer 3 point-to-point links would be deployed with an IGP routing protocol (OSPF, IS-IS or even RIP), multiple PtP links often being deployed to ensure redundant connectivity to the core.

Multicast Routing: To support multicast traffic for both sources and receivers within the row, the switch would provide both IGMP snooping within the local subnets and within a routed solution to receive streams from the upstream core, multicast routing would be required (e.g. PIM-SM, MSDP, Anycast RP).

Redundant First Hop Gateway: To provide a redundant first hop gateway for the subnets within the row, either VRRP would be deployed for an active/standby solution or an active/active solution within a VSS configuration.

Virtual Switching System: To achieve resiliency and active-active loop free connectivity the Catalyst 6500 EoR switches can be deployed in VSS configuration. The VSS configuration allows the two physical Catalyst 6500 switches to act as a single logical switch to the dual-homed (via a split port-channel) downstream compute nodes.

The 7300X platforms support similar VSS technology called Multi-chassis Link Aggregation (MLAG), which allows two 7300X chassis to appear as a single logical switch to the downstream compute nodes. The functionality does not require any additional hardware or specific line cards and is therefore supported on all 7300X modules. http://www.aristanetworks.com/products/eos/mlag

Port-Channel: With or without a VSS configuration, for resiliency and bandwidth, compute notes may be required to be connected via a port-channel due to the age of the compute nodes there will be a requirement for both active and static port-channels and even LACP failback support for PXE boot deployments.

Spanning Tree: Outside of whether VSS is deployed, spanning tree is often configured to ensure a deterministic loop free layer 2 topology. Given the evolution of the spanning-tree protocol, this could be STP, RSTP, PVST+ or an MSTP configuration. And to enforce the spanning tree design, there will be a requirement to provide; BPDU Guard, BPDU filtering, Root guard, Loop guard and Bridge Assurance.

Quality of Service: As the entry point to the data center network, a QoS policy is often applied on the access ports of the EoR switch to ensure traffic is correctly handled as it traverses subsequent hops in the network. This requires the switch to provide the ability to mark or re-mark (CoS or DSCP values) based on an agreed QoS policy.

Layer 2 Separation: To provide layer 2 connectivity to the compute nodes will require support for tagged, untagged and native vlan support

Management and Authentication: For management and authentication purposes the switch will be required to integrated into existing management tools using SNMP/SSH, and Authentication, Authorization and Accounting (AAA) via TACAS or Radius. For logical separation the management network could either be out-of-band (OOB) requiring support for a dedicated management port on the switch or in-band with a dedicated VRF for management.

	Arista 7300X
Routing Protocols	OSPF, BGP, IS-IS, RIP, BFD
Redundant First Hop Gateway	VRRP, VARP
Multicast Routing	PIM-SM, MSDP, Anycast RP, IGMPv2/3, BFD
Logical Chassis	MLAG
Spanning Tree	MSTP, PVSTP, STP, RSTP
Spanning Tree Features	BPDU guard, BPDU filtering, Root Guard,
Port-Channel	Static, Passive, active and Fallback mode
Layer 2 logical switch	Tagged, untagged and native VLAN
Quality of Service	CoS and DSCP marking & classification
Management	SNMP, SSH, AAA, RADIUS & TACACS+, MGMT VRF and a dedicated OOB management interface.

Table 5: The standard Layer 2/3 functionality provided by the 7300X platform

Virtualization Services: VXLAN Functionality

In the traditional EoR architecture the layer 2 boundary for any server communication (physical or virtual) would be defined by the EoR switch, which would act as the layer 3 gateway. In a virtualized environment this can severely restrict the placement of virtual machines and their IPC communication, which is often constricted to a single layer 2 domain/subnet. To overcome this restriction and provide optimal use of resources within the data center, the 7300X platform provides wire-speed hardware support for emerging encapsulation technologies such as VXLAN.

VXLAN is a new standard co-authored by Arista in partnership with VMware, which encapsulates Ethernet frames within an outer IP header to allow the extension of layer 2 domains across a standard layer 3 routed network. The VXLAN hardware gateway functionality of the 7300X, allows the VXLAN encapsulation to be performed on the EoR switch and routed transparently across an existing data center core. The frame being forwarded to a remote device (EoR switch or hypervisor) which would de-encapsulate the frame, before forwarding to the relevant end node.

By overcoming the need to build a flat, layer 2 networks, the 7300X platform can be placed within an existing EoR design and transparently provide layer 2 connectivity across rows of the data center. This connectivity being achieved without any uplift or change (physical or logical) to the existing layer 3 routed data center core. Thus Virtualization administrators can make optimal use of all compute resources within the data center, while maintaining the existing data center core.
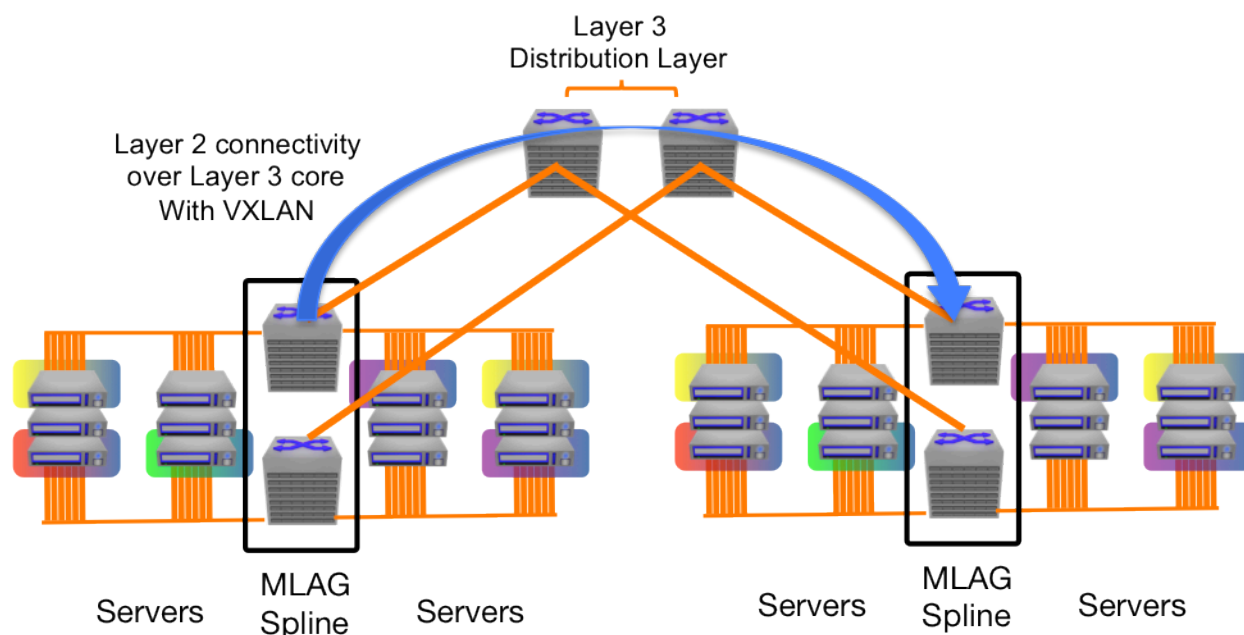
Figure 7: VXLAN providing Layer 2 connectivity transparently over the data center core

VMTracer

As virtualized data centers have grown in size, the physical and virtual networks that support them have also grown in size and complexity. Virtual machines connect through virtual switches and then to the physical infrastructure, adding a layer of abstraction and complexity. Server side tools have emerged to help VMware administrators manage virtual machines and networks, however equivalent tools to help the network administrator resolve conflicts between physical and virtual networks have not surfaced.

Arista VM Tracer provides this bridge by automatically discovering which physical servers are virtualized (by talking to VMware vCenter APIs), what VLANs they are meant to be in (based on policies in vCenter) and then automatically applying physical switch port configurations in real time with vMotion events. This functionality allows the EoR 7300X switch to automatically track the creation and deletion of virtual servers within the row and dynamically provision (add/remove) the VLAN membership of the server trunk link without any human intervention. VM Tracer also provides the network engineer with detailed visibility into the VM and physical server on each individual physical switch port while enabling flexibility and automation between server and network teams

EOS Operating System
The Arista 7300X platforms run the same Arista EOS software as all Arista products, simplifying network administration. Arista EOS is a modular switch operating system with a unique state sharing architecture that cleanly separates switch state from protocol processing and application logic. Built on top of a standard Linux kernel, all EOS processes run in their own protected memory space and exchange state through an in-memory database. This multi-process state sharing architecture provides the foundation for in-service-software updates and self-healing resiliency. With Arista EOS, advanced monitoring and automation capabilities such as Zero Touch Provisioning, VMTracer and Linux based tools can be run natively on the switch with the powerful dual-core x86 CPU subsystem

Migration Process

The migration of an EoR Catalyst 6500 design and the parallel introduction of new 10GbE compute nodes onto the 7300X platform can be achieved in a simple two-step process. With the consistency of feature set and configuration between the two platforms, simplifying the process and the overall deployment time.

Step 1) Introduction and connection of the 7300X platform to the network Core
Step 2) Migrate existing 1GbE compute nodes to the new 7300X platform

The configuration steps outlined in the following section assume one of the two standard EoR Catalyst 6500 designs.

- The 6500 EoR switch is connected to the upstream DC core switches at layer 2 and the new 7300X platform needs to share the same L2 domain with existing compute nodes.
- The 6500 EoR switch is connected to the upstream DC core switches at layer 3 and the new 7300X platform is being deployed to host new subnets
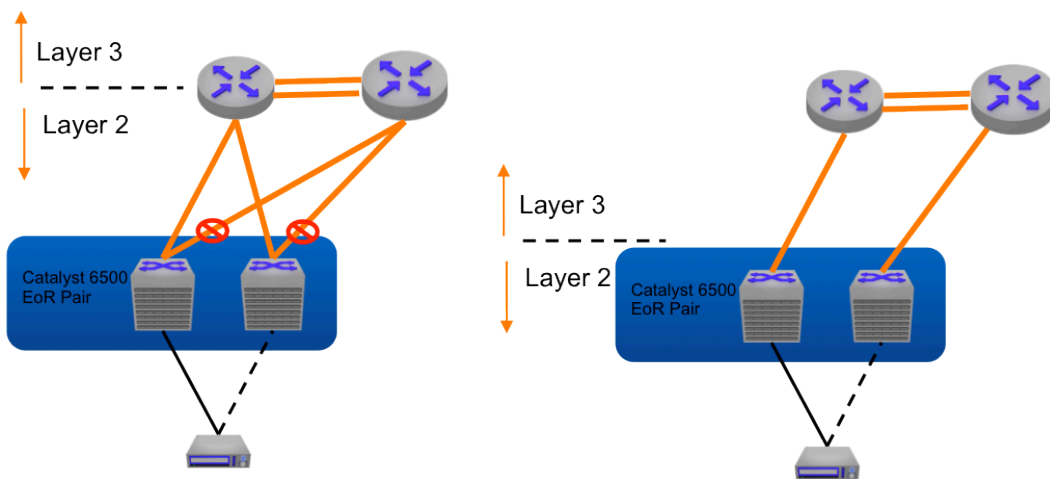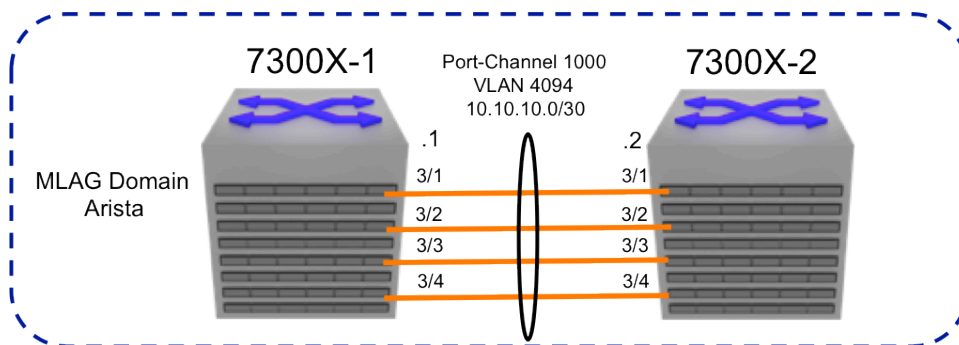

Figure 8: Standard Catalyst EoR deployment models

Introduction and connection of the 7300X platform

To provide a resilient active-active connectivity to the downstream compute nodes, the 7300X switches are deployed as a pair within an MLAG configuration

1. Create the port-channel for the peer link between the two switches

7300X-1(config)#interface eth 3/1 – 3/4 7300X-1(config-if-Et3/1-3/4)#channel-group 1000 mode active 7300X-1(config-if-Et3/1-3/4)#interface port-channel 1000 7300X-1(config-if-Po1000)#switchport mode trunk	7300X-2(config)#interface eth 3/1 – 3/4 7300X-2(config-if-Et3/1-3/4)#channel-group 1000 mode active 7300X-2(config-if-Et3/1-3/4)#interface port-channel 1000 7300X-2(config-if-Po1000)#switchport mode trunk

2. Create the Peer VLAN (vlan-id 4094) and the IP interface (10.10.10.1/2) for the MLAG control traffic across the peer link

|	
7300X-1(config)#vlan 4094 7300X-1(config)#int vlan 4094 7300X-1(config-if-Vl4094)#ip address 10.10.10.1/30 7300X-1(config-if-Et3-4)#int port-channel 1000 7300X-1(config-if-Po1000)#switchport mode trunk 7300X-1(config)#no spanning-tree vlan 4094	7300X-2(config)#vlan 4094 7300X-2(config)#int vlan 4094 7300X-2(config-if-Vl4094)#ip address 10.10.10.2/30 7300X-2(config-if-Et3-4)#int port-channel 1000 7300X-2(config-if-Po1000)#switchport mode trunk 7300X-2(config)#no spanning-tree vlan 4094

3. Configure the MLAG domain to allow both 7300X switches to peer across the link and form a single logical layer 2 switch

7300X-1(config)#mlag configuration 7300X-1(config-mlag)#Domain-id Arista 7300X-1(config-mlag)#peer-link port-Channel 1000 7300X-1(config-mlag)#local-interface vlan 4094 7300X-1(config-mlag)#peer-address 10.10.10.2	7300X-2(config)#mlag configuration 7300X-2(config-mlag)#Domain-id Arista 7300X-2(config-mlag)#peer-link port-Channel 1000 7300X-2(config-mlag)#local-interface vlan 4094 7300X-2(config-mlag)#peer-address 10.10.10.1

4. At this point the two 7300X platforms have formed an MLAG domain and are acting as a single logical switch. This is highlighted by the shared system-ID of both switches.

7300X-1(config)#show mlag detail MLAG Configuration: domain-id : Arista local-interface : Vlan4094 peer-address : 10.10.10.2 peer-link : Port-Channel1000 MLAG Status: state : Active peer-link status : Up local-int status : Up **system-id : 02:0c:29:30:78:f6**	7300X-2(config)#show mlag detail MLAG Configuration: domain-id : Arista local-interface : Vlan4094 peer-address : 10.10.10.1 peer-link : Port-Channel1000 MLAG Status: state : Active peer-link status : Up local-int status : Up **system-id : 02:0c:29:30:78:f6**

5. With the MLAG domain configured the switches can be connected to the network core. Depending on the required configuration this connection could be either layer 2 with 802.1Q trunk links to the core or layer 3 with PtP IGP links to the Core. Steps 5a and 5b outline both these potential configurations.
    a. Create two layer 2 802.1Q port-channels (1 and 2) and configure the VLANs 10-100 on the port-channels with Rapid-PVSTP enabled and a spanning tree priority of 61440 for the instances
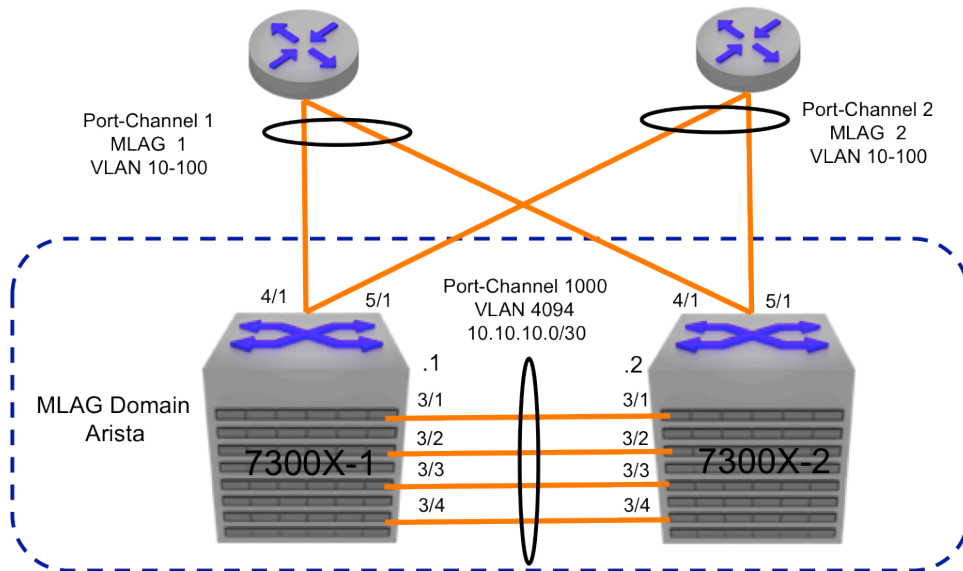
7300X-1(config)#vlan 10 -100 7300X-1(config-vlan-10-100)#spanning-tree mode rapid-pvst 7300X-1(config)# spanning-tree vlan 10-100 priority 61440	7300X-2(config)#vlan 10 -100 7300X-2(config-vlan-10-100)#spanning-tree mode rapid-pvst 7300X-2(config)# spanning-tree vlan 10-100 priority 61440

7300X-1(config)#interface eth 4/1 7300X-1(config-if-Et4/1)#channel-group 1 mode active 7300X-1(config-if-Et4/1)#interface port-channel 1 7300X-1(config-if-Po1)#switchport mode trunk 7300X-1(config-if-Po1)#mlag 1 7300X-1(config)#interface eth 5/1 7300X-1(config-if-Et5/1)#channel-group 2 mode active 7300X-1(config-if-Et5/1)#interface port-channel 2 7300X-1(config-if-Po2)#switchport mode trunk 7300X-1(config-if-Po2)#mlag 2	7300X-2(config)#interface eth 4/1 7300X-2(config-if-Et4/1)#channel-group 1 mode active 7300X-2(config-if-Et4/1)#interface port-channel 1 7300X-2(config-if-Po1)#switchport mode trunk 7300X-2(config-if-Po1)#mlag 1 7300X-2(config)#interface eth 5/1 7300X-2(config-if-Et5/1)#channel-group 2 mode active 7300X-2(config-if-Et5/1)#interface port-channel 2 7300X-2(config-if-Po2)#switchport mode trunk 7300X-2(config-if-Po2)#mlag 2

b. Create two Point to Point links to the Network core from each 7300X switch. Each PtP link is configured with an /30 IP address and OSPF is enabled on the interface.
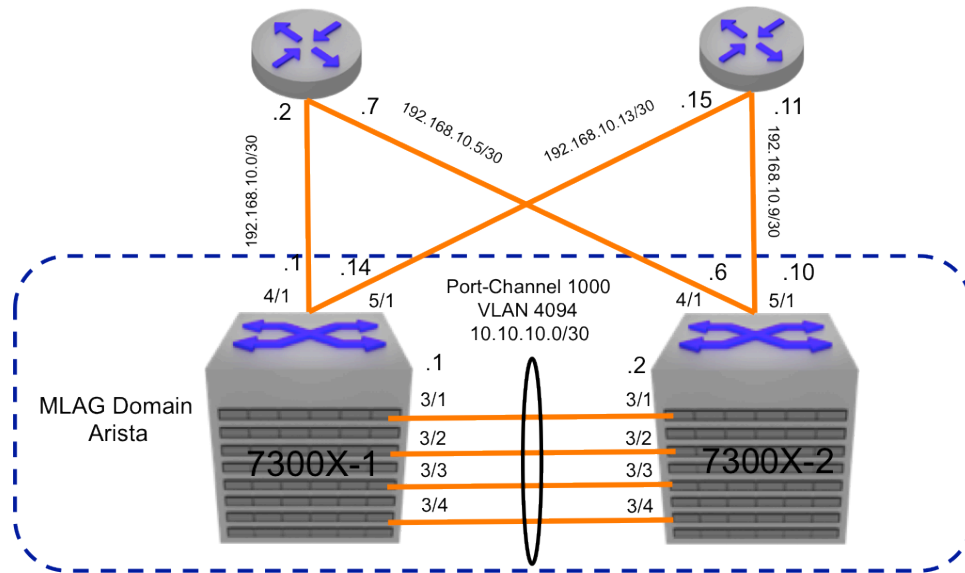
|	
7300X-1(config)#interface loopback 1 7300X-1(config-if-Lo1)# ip address 1.1.1.5/32 7300X-1(config)#interface eth 4/1 7300X-1(config-if-Et4/1)# ip address 192.168.10.1/30 7300X-1(config)#interface eth 5/1 7300X-1(config-if-E5/1)#ip address 192.168.10.14/30 7300X-1(config)#ip routing 7300X-1(config)#router ospf 1 7300X-1 (config-router-ospf)# router-id 1.1.1.5 7300X-1 (config-router-ospf)# network 192.168.10.0/30 area 0 7300X-1 (config-router-ospf)# network 192.168.10.13/30 ar 0 7300X-1 (config-router-ospf)# network 1.1.1.5/32 area 0	7300X-2(config)#interface loopback 1 7300X-2(config-if-Lo1)# ip address 1.1.1.6/32 7300X-1(config)#interface eth 4/1 7300X-1(config-if-Et4/1)# ip address 192.168.10.6/30 7300X-1(config)#interface eth 5/1 7300X-1(config-if-E5/1)#ip address 192.168.10.10/30 7300X-1(config)#ip routing 7300X-1(config)#router ospf 1 7300X-1 (config-router-ospf)# router-id 1.1.1.6 7300X-1 (config-router-ospf)# network 192.168.10.5/30 a 0 7300X-1 (config-router-ospf)# network 192.168.10.9/30 a 0 7300X-1 (config-router-ospf)# network 1.1.1.5/32 area 0

6. With the MLAG domain configured and connected to the network core the compute nodes can be migrated to the MLAG domain as required. The connection of the compute node could be a single 802.1Q trunk link or make use of the MLAG technology to allow connectivity via a port-channel which would be split across the two 7300X switches for redundancy.
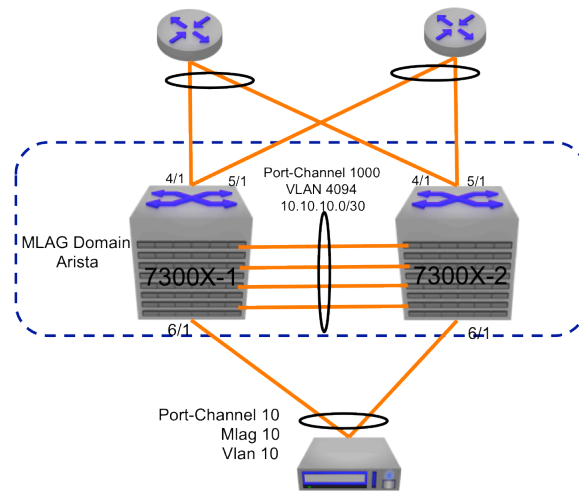
7300X-1(config)#interface eth 6/1 7300X-1(config-if-Et6/1)#channel-group 10 mode active 7300X-1(config-if-Po10)#int port-Channel 10 7300X-1(config-if-Po10)#switchport mode trunk 7300X-1(config-if-Po10)#switchport trunk allowed vlan 10 7300X-1 (config-if-Po10)#mlag 10	7300X-2(config)#interface eth 6/1 7300X-2(config-if-Et6/1)#channel-group 10 mode active 7300X-2 (config-if-Po10)#int port-Channel 10 7300X-2 (config-if-Po10)#switchport mode trunk 7300X-2(config-if-Po10)#switchport trunk allowed vlan 10 7300X-2 (config-if-Po10)#mlag 10

7. If the MLAG domain is to act as the first-hop default gateway for the VLAN/subnet, VARP can be enabled on the VLAN interface to allow active-active routing of the traffic into and out of the VLAN by both 7300X switches.

7300X-1#ip virtual-router mac-address 00aa.aaaa.aaaa 7300X-1(config)#int vlan 10 7300X-1 (config-if-Vl10)#ip address 192.168.10.1/24 7300X-1 (config-if-Vl10)#ip virtual-router ad 192.168.10.254	7300X-2#ip virtual-router mac-address 00aa.aaaa.aaaa 7300X-2(config)#int vlan 10 7300X-2 (config-if-Vl10)#ip address 192.168.10.2/24 7300X-2 (config-if-Vl10)#ip virtual-router ad 192.168.10.254

Summary

The Arista 7300X platform provides the ability to deliver seamless non-disruptive migrate from legacy 1GbE Catalyst EoR designs to high-density 10GbE EoR solutions. The migration process can be achieved, while maintaining the installed Cat5e/6/6a cabling infrastructure, and without disruption to existing 1GbE/100mbs infrastructure. While providing the required performance and port-density, the platform introduces next-generation data center technologies to simplify and automate server virtualization, with the introduction of VXLAN into the deployment, VMTracer for VM visibility and dynamic VLAN creation, and the Arista's EOS operating for network automation.

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ABOUT ARISTA NETWORKS

Arista Networks was founded to deliver software-driven cloud networking solutions for large data center and computing environments. The award-winning Arista 10 Gigabit Ethernet switches redefine scalability, robustness, and price-performance. More than two million cloud networking ports are deployed worldwide. The core of the Arista platform is the Extensible Operating System (EOS®), the world's most advanced network operating system. Arista Networks products are available worldwide through distribution partners, systems integrators, and resellers.

Additional information and resources can be found at www.aristanetworks.com.