# ARISTA

# CLOUD NETWORKING PORTFOLIO

Arista Networks is the leader in building software defined, open networks for today's data center, Web 2.0, and cloud computing environments. Arista delivers the most efficient, reliable and high performance universal cloud network architectures based on 10GbE, 40GbE. and 100GbE platforms. Arista EOS® is built on an open, programmable, and resilient architecture that delivers maximum system uptime, reduces CAPEX and OPEX by simplifying IT operations, and enables business agility. Arista EOS offers programmability at all layers, including eAPI, EOS SDK, Linux APIs, DevOps integration (Puppet/Chef/ Ansible) and broad scripting support. Furthermore, Arista EOS CloudVision® extends the FOS state-based architecture to a network-wide scope as a platform for workflow automation, workload orchestration, and advanced telemetry. CloudVision's open framework leverages modern APIs and state streaming to capture granular network state and to integrate with a variety of network overlay, network orchestration, telemetry, and security ecosystem partners.

## EOS: THE PLATFORM FOR SOFTWARE DRIVEN CLOUD NETWORKING

- Open framework for custom or third party integration
- Programmable interfaces allow rapid integration
- Proven solutions with deployed examples
- Allows best-of-breed integration
- Available as standalone on GitHub or as turnkey solution from Arista

# SDN Controllers and Security

VMware NSX, OVSDB Controllers, Checkpoint, F5, Fortinet, Palo Alto Networks DevOps / Network Services

Puppet, Chef, Ansible, Docker Orchestration Tools

**ECOSYSTEM FOR EOS APPLICATIONS** 

OpenStack, HPE VMware vCenter Big Data Analytics

Splunk Enterprise, VMware Log Insight

# Hybrid Cloud

VMTurbo, Cirba

#### RESILIENCY AND SCALABILITY

#### **Scalable Architecture**

- Simplified, repeatable design leveraging open, standards-based protocols. No vendor-specific lock-in to the design
- Scale to your needs, from 100 to 300,000+ compute and storage nodes using MLAG in a Layer 2 active-active mode
- ECMP provides an all active multi-path for Layer 3 with exceptional scale and consistent performance for 2 tier network designs
- Standards-based network virtualization with VXLAN extends layer 2 to support up to 16M virtual networks without requiring multicast
- EOS NetDB enables route scale with best-in-class convergence
- EOS CloudVision offers single point of integration and controller agnostic support for virtual and physical workload orchestration using open APIs such as OVSDB, JSON and OpenStack plugin

#### **Resilient Software**

- Reduced maintenance window with Arista Smart System Upgrade (SSU) through graceful removal, upgrade, and reinsertion of network elements
- Live patching and upgrade of individual processes within EOS during normal switch operation
- Self-healing resiliency through fault containment within a single module and stateful process restart
- Turnkey solution for network-wide upgrades and rollback with EOS CloudVision

#### **VISIBILITY AND TELEMETRY**

#### **Network Visibility**

- EOS NetDB provides real-time state streaming for network telemetry and analytics, a modern approach to replace legacy polling per device
- EOS CloudVision provides the analytics and telemetry apps to provide an unprecedented level of granularity for real-time monitoring and historic network state for forensic troubleshooting
- VM Tracer offers visibility into which VMware hosts and VMs are on a given physical network port
- Container Tracer provides current Docker node and exposed port information to network administrators
- MapReduce Tracer tracks and interacts with Hadoop workloads ensuring faster recovery in case of a node failure or congested link
- Health Tracer facilitates infrastructure resiliency at the hardware and software layer to increase overall service availability
- Path Tracer monitors and detects issues with all paths in an active-active Layer 2 or Layer 3 ECMP network
- LANZ offers proactive congestion management and notification by providing visibility into real-time queue depth analysis and streaming

#### DANZ TAP Aggregation/Advanced Mirroring/LANZ

- Provides advanced traffic monitoring, including sFlow
- Facilitates precision filtering and flow analysis with timestamps
- Captures all 10/40/100GbE network traffic for recording and analysis
   Filtered mirroring to CPU enables local traffic analysis using TCPdump or

#### AUTOMATION

#### Zero Touch Provisioning (ZTP/ ZTR)

- Automates provisioning of infrastructure using standard protocols and offers advanced customized scripting capabilities
- Reduces cost of deployment and speeds time to production for new services by reducing human errors

#### **DevOps Integration**

- Natively supports Puppet, Chef, and Ansible and extends Puppet/Chef command line tools into EOS CLI
- Automates network configuration in same manner as servers
- Enables deployment of Docker containers on EOS with choice of thousands of applications from Docker Hub
- Onsite or remote EOS-focused development with a team of seasoned network software programmers

#### Automation with EOS CloudVision

- Turnkey automation for zero touch provisioning and on-going configuration and image management
- Change Management framework for network-wide upgrades and rollback, including snapshot views of the change control
- Bug Visibility with automated bug alerts for identifying live caveats and security vulnerabilities.
- Compliance dashboard for security, audit, and patch management
- Macro Segmentation Service (MSS) capability allows automatic insertion of service appliances like firewalls in the physical network by defining inter-segment service policies

#### **OPEN AND PROGRAMMABLE FOUNDATION**

# EOS SW Architecture – Strong Fundamentals

 NetDB architecture built on SysDB state for resiliency, programmability, extensibility, automation, and scale



### Open and Programmable

- Standards-based protocols and designs with open APIs
- Extensive Tools: Native Linux kernel, Python, eAPI, EOS SDK, DirectFlow/ OpenFlow, AEM, Docker, Go

other monitoring tools

 vEOS for flexible lab, development, and certification use cases

#### **EOS CloudVision – A Platform for Automation and Visibility**

 Extends EOS to offer network-wide approach to automation, orchestration, visibility, analytics



- Network control point for integration with third party controllers, orchestration systems, and network services (Macro-Segmentation Services, MSS)
- Turnkey automation for provisioning and ongoing change management
- Visibility across physical and virtual network infrastructure

	GbE	GbE Ultra-Low Latency				10GBASE-T					10/40GbE								10/40GbE Spline™					10/40/100 Deep But		10/40/100GbE Dynamic Deep Buffers					40Gbl	E Spli	ne™	10/25/40/50/100GbE Universal Spine			CC	
Product Line Overview																																						
Chassis			7150S		7050TX					7050SX				7050QX			7250QX	7250QX 7060CX		7260X		7280SE		7280R				7300 Series				7500R			Em			
Model Number				64 48	64		72Q	96			64		72Q		96				32S		328	G QX	-64	CX-64	64 68	72 S	R-48C6	TR-480	C6 QR-C	36 CR-4	8 4-Slo	8-8	Slot	16-Slot	4 Slot	8 Slot	12 Slot	ww
Height	1RU		1RU			1RU			2	RU		1	RU			2RU		1RU		2RU	1RU	J 2F	U	2RU	1RU		1RU	1RU	1RU	2RU	8RU	13	RU	21RU	7U	13U	18U	1
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Forwarding Capacity	132Mpps	-	- 96	60Mpps 720Mpps	960Mpps	1.08Bpp	ps 1.08Bp	ps 1.44E	3pps 1.44	4Bpps 9	60Mpps 1	.08Bpps	1.08Bp	ps 1.44	Bpps 1.4	44Bpps		1.44Bpp	\$	3.84Bpps	3.3Bp	ps 3.3B	pps	9.52Bpps	900Mpps	7	20Mpps	720Mpp	s 1.44Bp	ps 5.76Bp	ps 19Bpp	38E	3pps	30Bpps		51Bpps		us-
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100GbE	-		-				-						-					-		-	32	-		64	- /2 /2		6	6	12	48	128	2	56	-	144	288	432	em
Port-Port Latency	3usec	350ns	380ns 3	380ns		3	3usec						550ns	s				550ns		550-1,800ns	450r	ns 550	ins 5	550-1,800ns	under 4use	С		3.8	Busec			550-1	,800ns			under 4usec		]
Forwarding Technology	Store and Forward	c	Cut-Through Cut-Through							Cut-Through						Cut-Through			Store and Forward Cut-Through Store are Forward			Store and Forward	Store and For	ward	d Store and Forward				Store and Forward				Store and Forward					
Buffer Size	4MB	9.5MB -	Dynamic Allo	ocation	121	MB - Dyr	namic Alloc	cation				12MB -	Dynamic	c Alloca	ition			MB - Dyna Allocatio		48MB	16M	B 16	ив	64MB	9GB - Dynar Allocation	nic	4GB	4GB	8GB	32GE	96MB	192	2MB	384MB	96GB	192GB	288GB	apa
Environmental																																						la.
AC + AC Power Redundancy	Yes		Yes				Yes						Yes					Yes				Yes			Yes			2 (1+1	redundant)			Y	'es			Yes		Jap
DC Power	Yes		Yes		Yes					Yes					Yes			Yes					Yes				Yes				Yes			Yes ja				
N+1 Hot Swappable Fans	Yes		Yes		Yes					Yes					Yes			Yes				Yes		4 (N+1 redundant)					Yes			Yes			_			
Average/Max Power Draw (W)	52/65	191/334	191/450 22	24/455 305/367	315/387	349/440	0 340/43	30 355/	455 507	7/740	140/220	44/267	144/26	158	/240 2	35/415	162/3	332 15	0/302	622/1,229	220/4	10 315/	800	1672/2090	Various	- 2	263/381	290/40	324/49	99 1363/1	710 1560/22	2986	6/4360	6006/9324	3650/4978	6439/8586	9618/128240	1
Front-to-Rear/Rear-to-Front Air	Yes / Yes		Yes / Yes			Ye	es / Yes						Yes / Ye	es				Yes / Yes	;		,	Yes / Yes			Yes / Yes	Y	es / Yes	Yes / Ye	s Yes / Y	es Yes / f	lo	Yes	/ Yes			Yes / No		
Features																																						Cop
EOS Single Binary Image	Yes		Yes				Yes						Yes					Yes				Yes			Yes				Yes				'es			Yes		Rigl
Latency Analyzer (LANZ)	No		Yes		Yes					Yes						Yes			Yes					Yes		Yes			Yes				163			and		
VM Tracer	Yes		Yes		Yes					Yes					Yes			Yes					Yes Yes				Yes				ies			Net				
Zero Touch Provisioning (ZTP)			Yes		Yes					Yes					Yes			Yes				Yes					Yes				Yes			the				
Max VLANs	4,096		4,096		4,096					4,096						4,096				4,096				4,096		4,096					4,096			4,096			trac	
Max MAC Entries	84K		64K		288K				-	288K					288K				288K				256K	.	768K					288K				768K				
Multi Chassis LAG	Yes - 32 Link		/es - 32 Link		Yes - 64 Link				-	Yes - 64 Link					Yes - 64 Link				Yes - 64 Link 9,216 Bytes				Yes - 128 L	_	Yes - 128 Link 9,216 Bytes					Yes - 64 Link				Yes - 128 Link C				
Jumbo Frames  Max ARP Entries	9,216 Bytes 84K	9	9,216 Bytes 64K		9,216 Bytes					9,216 Bytes					9,216 Bytes			9,216 Bytes 32K (208K UFT *)					9,216 Byte	s	9,216 Bytes 768K					9,216 Bytes				9,216 Bytes 768K				
					32K (208K UFT *)					32K (208K UFT *)					32K (208K UFT *)				32K (208K UFT *) 16K/8K (144K/77K UFT *)						over 1M+ entries in hardware					32K (208K UFT *) 16K/8K (144K/77K UFT *)				IN IN				
Max Routes (IPv4 / IPv6)	16K/8K	-	84K/21K		16K/8K (144K/77K UFT *)				$\rightarrow$	16K/8K (144K/77K UFT *)						16K/8K (144K/77K UFT *)									. +					16					over 1M+ entries in hardware it  Wirespeed d			
BGP/OSPF	Wirespeed		Wirespeed	i i i i i i i i i i i i i i i i i i i					Wirespeed PIM-SM						Wirespeed				Wirespeed PIM-SM				Wirespee	+	Wirespeed PIM-SM					Wirespeed PIM-SM				Wirespeed (				
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wutticast Groups	8K		23K				oK						ВK					ВK				8K			64K			1	∠oK			8	or.			128K		

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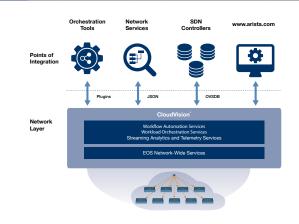
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#### UNIVERSAL CLOUD NETWORK

- Scalable, standards-based universal cloud network designs with MLAG, ECMP, and VXLAN
- Network wide automation, provisioning, and telemetry services with EOS CloudVision
- Single point of integration for both orchestration services and third party controllers



# EOS CloudVision® for Arista Universal Cloud Network Architecture Spline™ Layer 2 / MLAG L2 over Layer 3 VXLAN Servers Middle Servers Servers Servers Servers Servers Servers Servers Servers Servers Servers