

Arista Networks

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THE FORRESTER WAVE™

Hardware Platforms For Software-Defined Networking

Q1 2018

Факты

- Основана в 2004
- Первый продукт в 2008
- IPO в июне 2014
- Капитализация ~ 20+ Млрд \$
- Поставщик 5 из 6 глобальных «облачных» операторов
- В России и СНГ с конца 2011 (несколько ЦОД полностью построены на Arista)



*A gray marker indicates incomplete vendor participation.

«Что-то я не слышал» (с)



Mark Zuckerberg

Подписаться · 28 сентября 2016 г. · отредактировано ·

"Look at these racks, the network devices, the cabling. Everything is like reference model!"

- Max Zavyalov, Network Engineer in Edge & Network Services team
[Показать перевод](#)

Нравится · Комментарий · Поделиться

4,3 тыс.

Топ комментариев

269 публикаций

Комментарии: (152)



Alvish Sutton The caption for this picture was wrongly put in another picture by our community manager! We apologize for that! Should read as below:

"Look at these racks, the network devices, the cabling. Everything is like reference model!"
... Еще
[Показать перевод](#)

Нравится · Ответить · 12 · 28 сентября 2016 г. в 19:42

7 ответов



Mark Denny It looks impressive but I imagine could be quite boring to work on since it is just mass system replication with server 20,000 being basically the same as server 1, switch 1000 being the same as switch 1 as well. Sometime unique one off installation are just more of a challenge. I would love to show some of the networks and systems I have design but I think the government may just get a little bit upset

[Показать перевод](#)

Нравится · Ответить · 9 · 29 сентября 2016 г. в 21:01

3 ответа



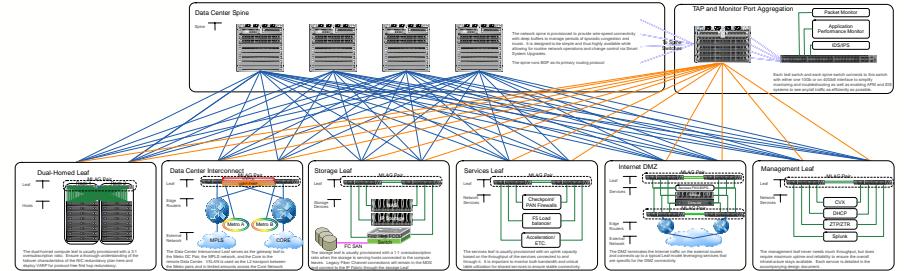
Lars Melander "Look at these racks, the network devices, the cabling. Everything is like reference model!"

And that's just the people working there, not talking about the servers.

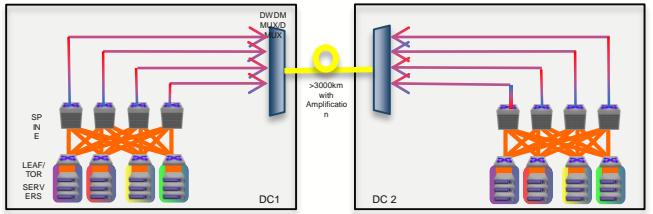
<https://www.facebook.com/photo.php?fbid=10103136676062821&set=a.6122879>

Области применения Arista

Сеть ЦОД

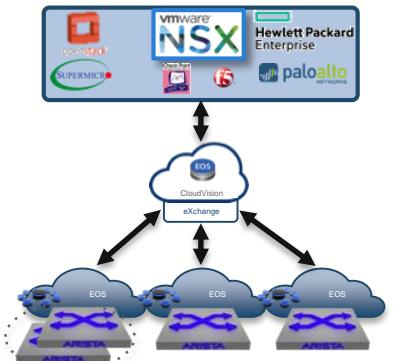


Data Center Interconnect

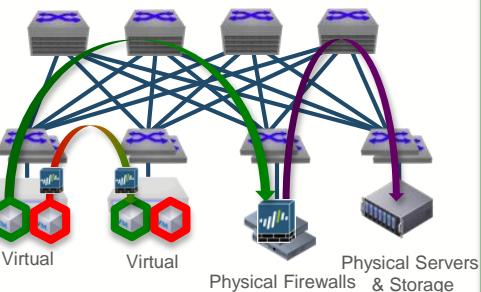


Коммутация в ЦОД

SDN

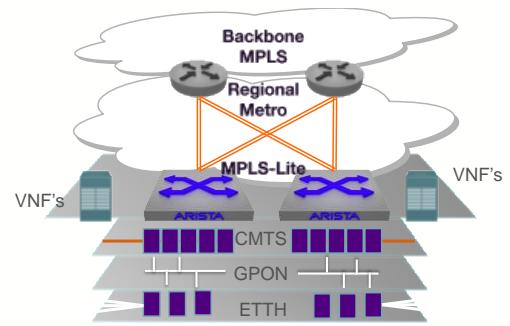


Макросегментация

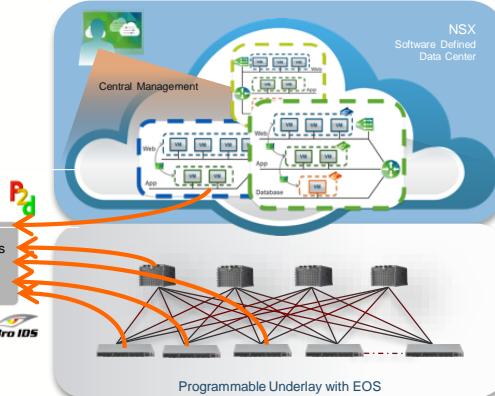


SDN

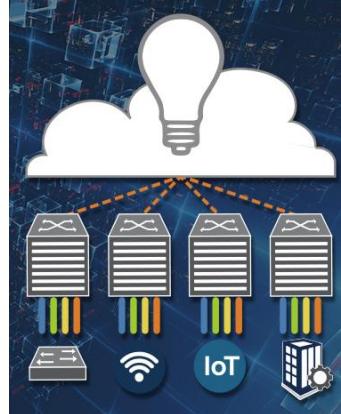
Edge Routing



Маршрутизация



ТАР агрегация



Кампус и wi fi!

У Arista теперь есть Wi Fi

Cognitive Platforms

Spline™ Platforms



7300X3
Modular System
Up to 256 100G ports



7050X3
Fixed System
Up to 32 100G ports

Cognitive WiFi Edge Platforms

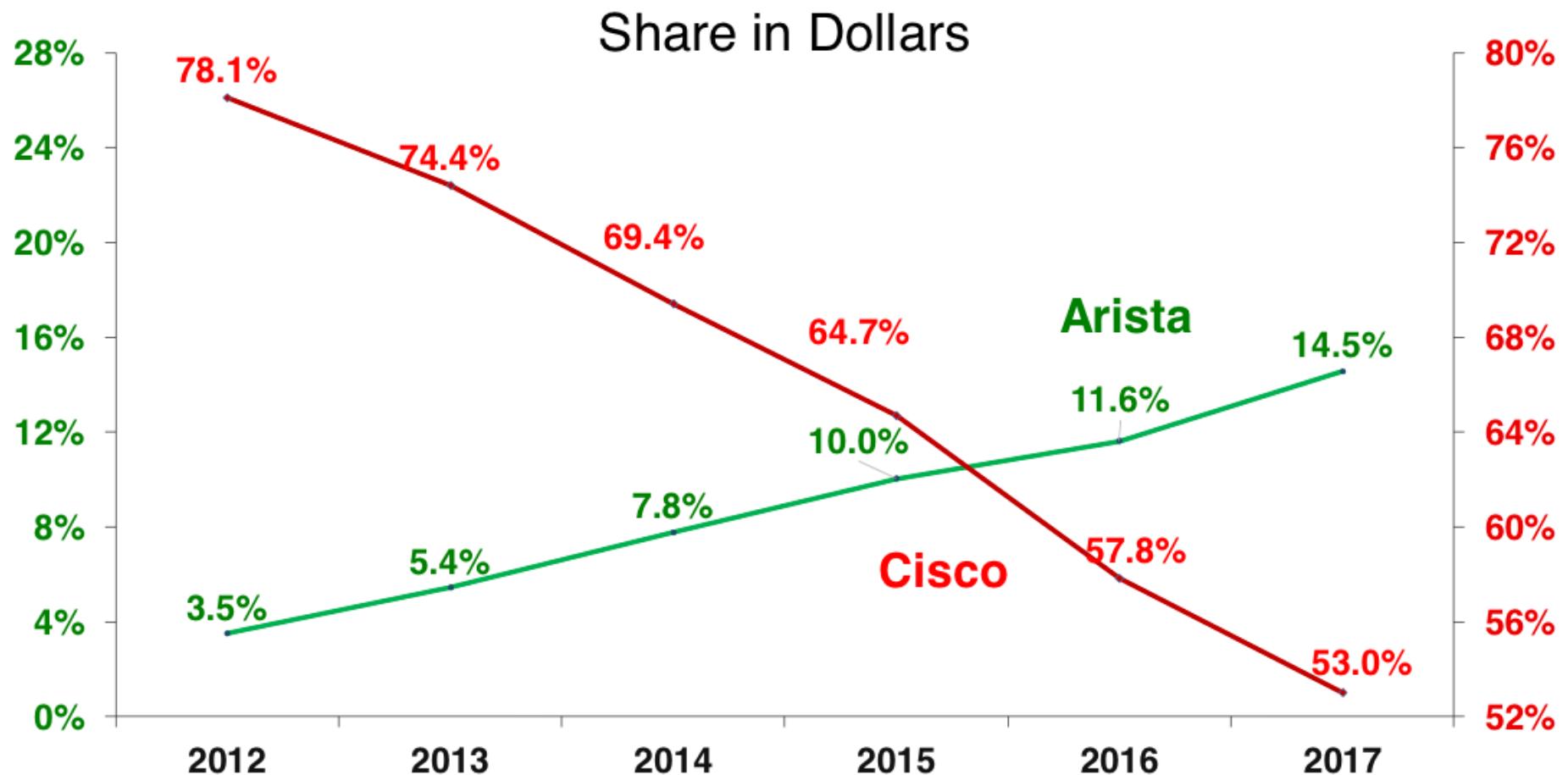


Simplify with collapsed Spline architecture

- 2 августа 2018 года Arista объявила о поглощении Mojo Networks
- Компания основана в 2002 и называлась AirTight Networks
- В 2016 году поменяла свое название на Mojo Networks
- Arista планирует развитие собственной линейки коммутаторов для кампусных сетей
- Наличие собственного решения Wi Fi позволит предлагать комплексное решение для крупных офисов

Arista Market Share vs Cisco

High Speed Data Center Switching Market



Source: Crehan Research Datacenter Switch Market Share Report Q4'2017

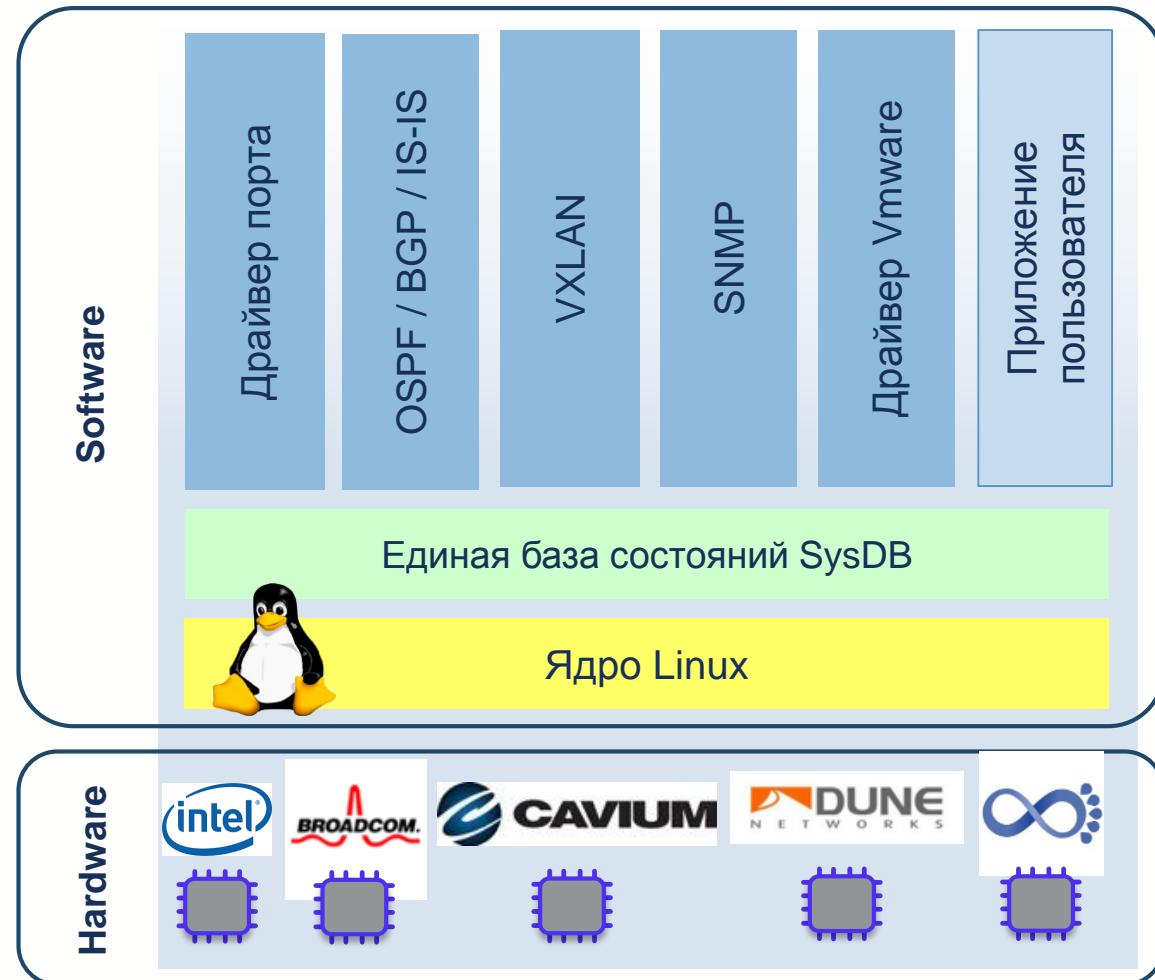
Note: Excludes blade switches

Портфолио Arista



- Модульные и фиксированные конфигурации
- Разные форм факторы (шасси 4-8-12-16 слотов, фиксированные 1U, 2U)
- Высокая плотность портов (низкая цена за порт)
- Прозрачное позиционирование
- Маршрутизаторы с поддержкой full view и MPLS
- Решения для COPM

Главный слайд

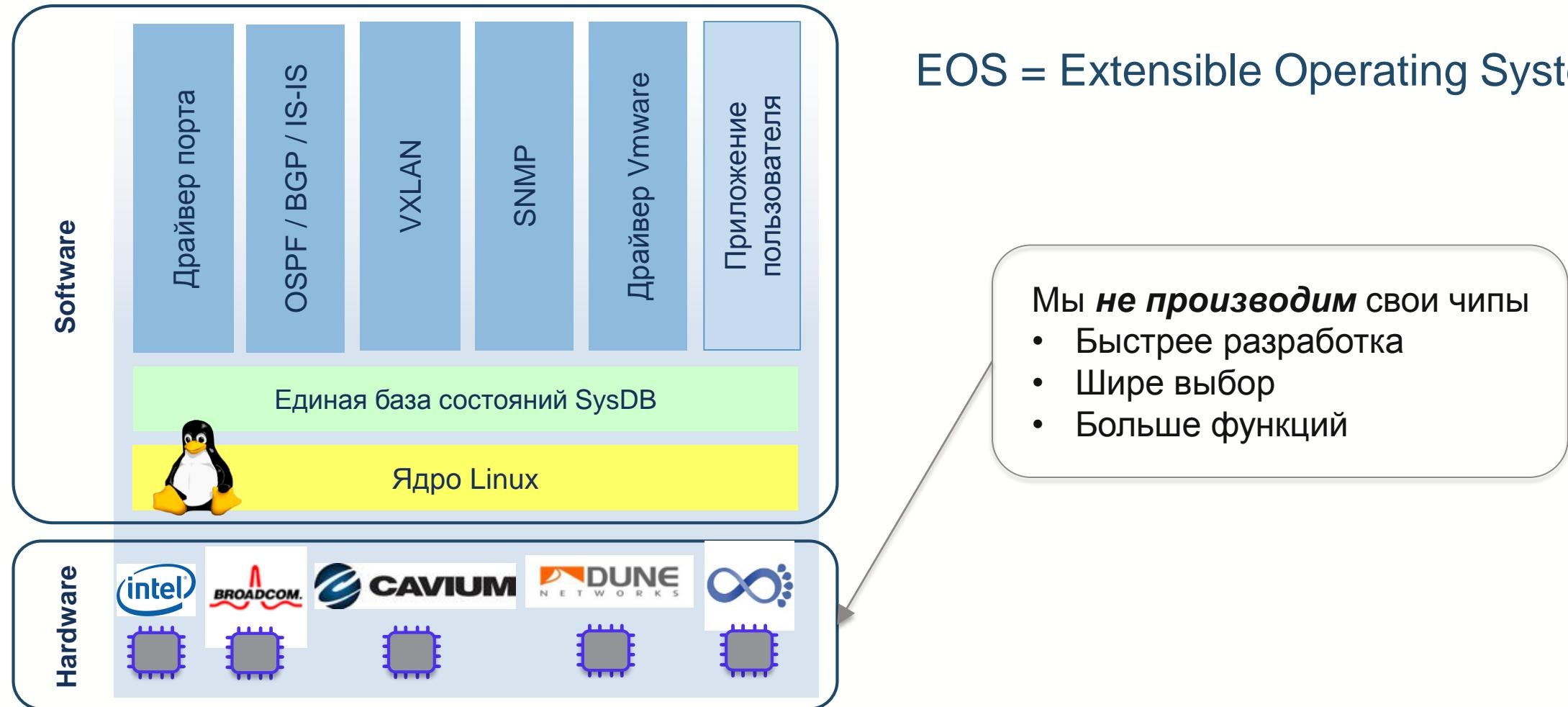


EOS = Extensible Operating System

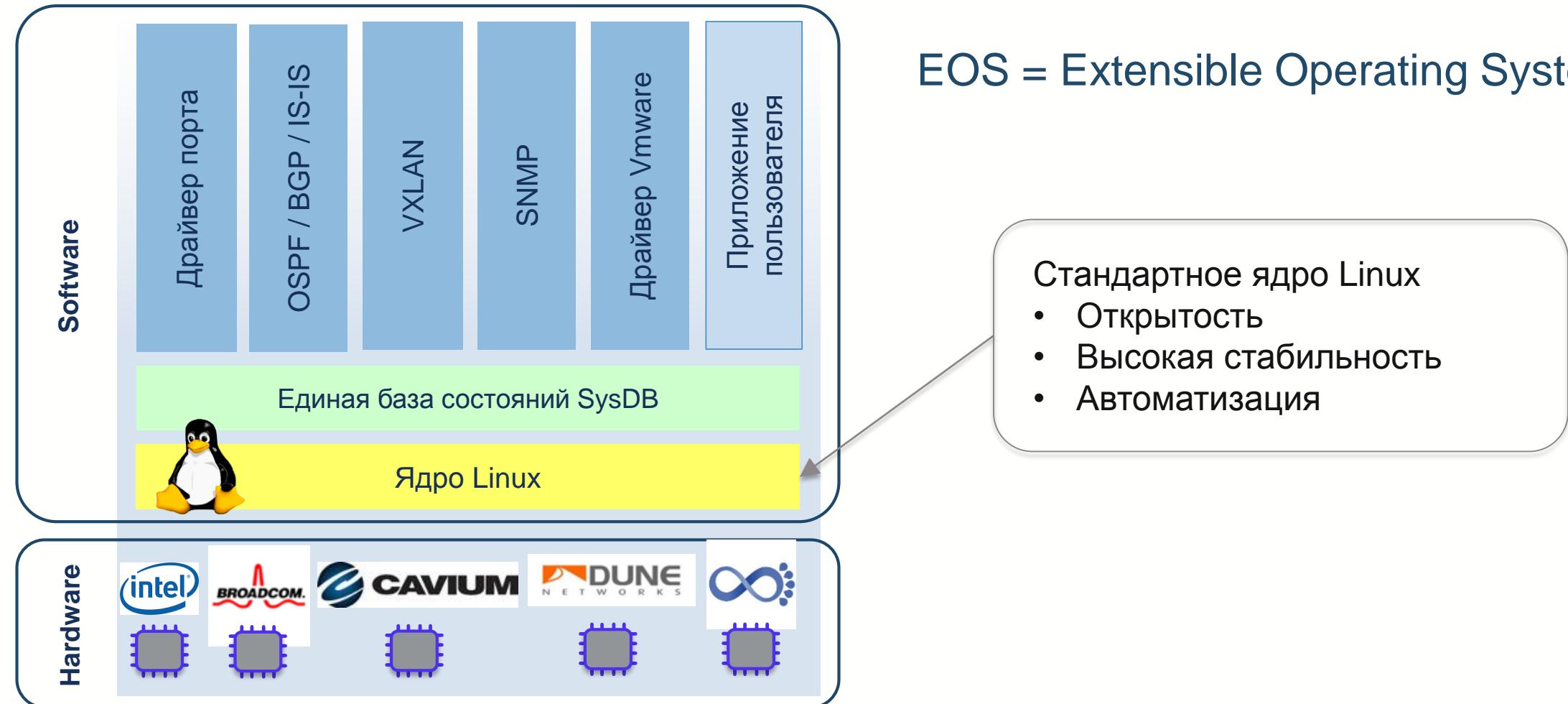
Единая ОС на все устройства

- от 1GbE до 100GbE
- для коммутатора и маршрутизатора
- для аппаратного устройства, в виртуальной среде и в контейнере

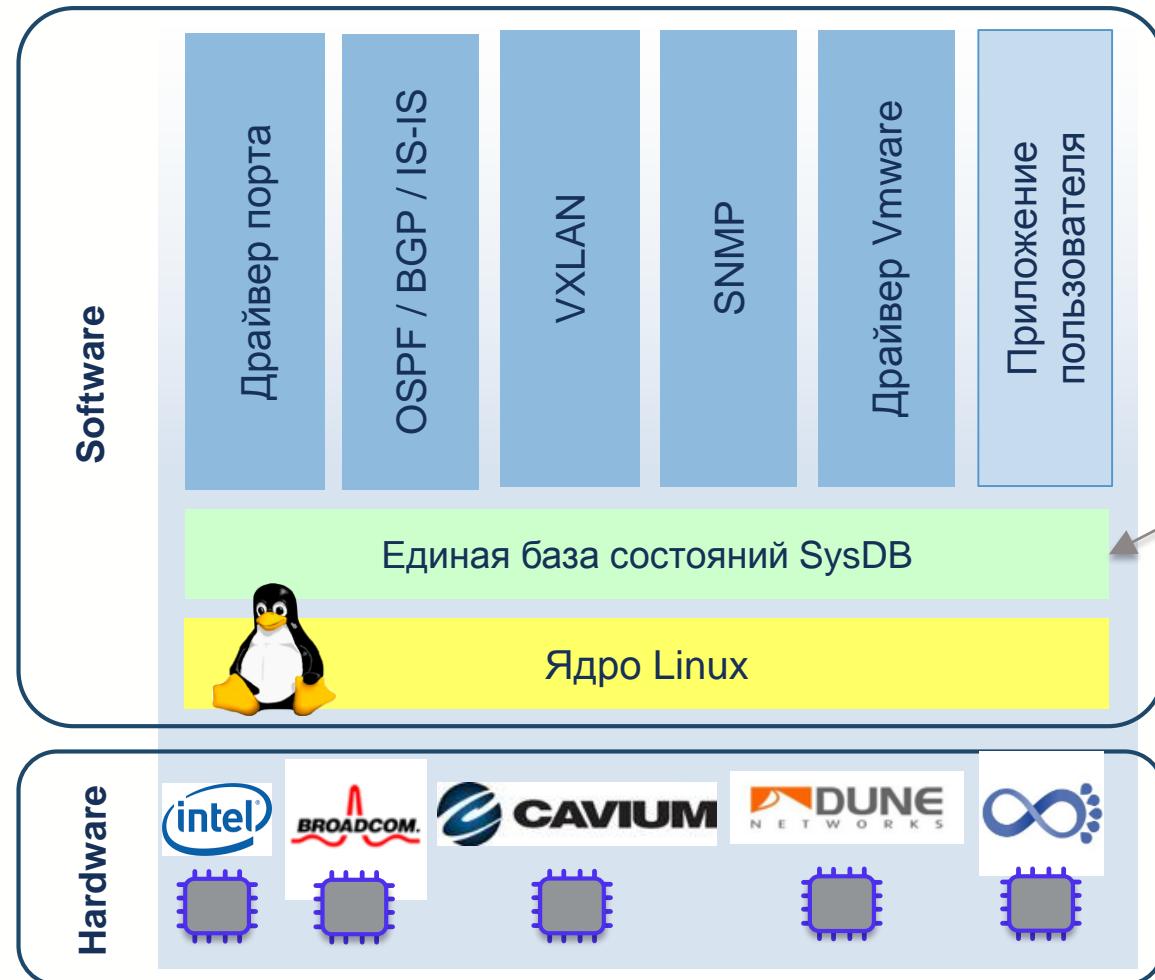
Главный слайд



Главный слайд



Главный слайд



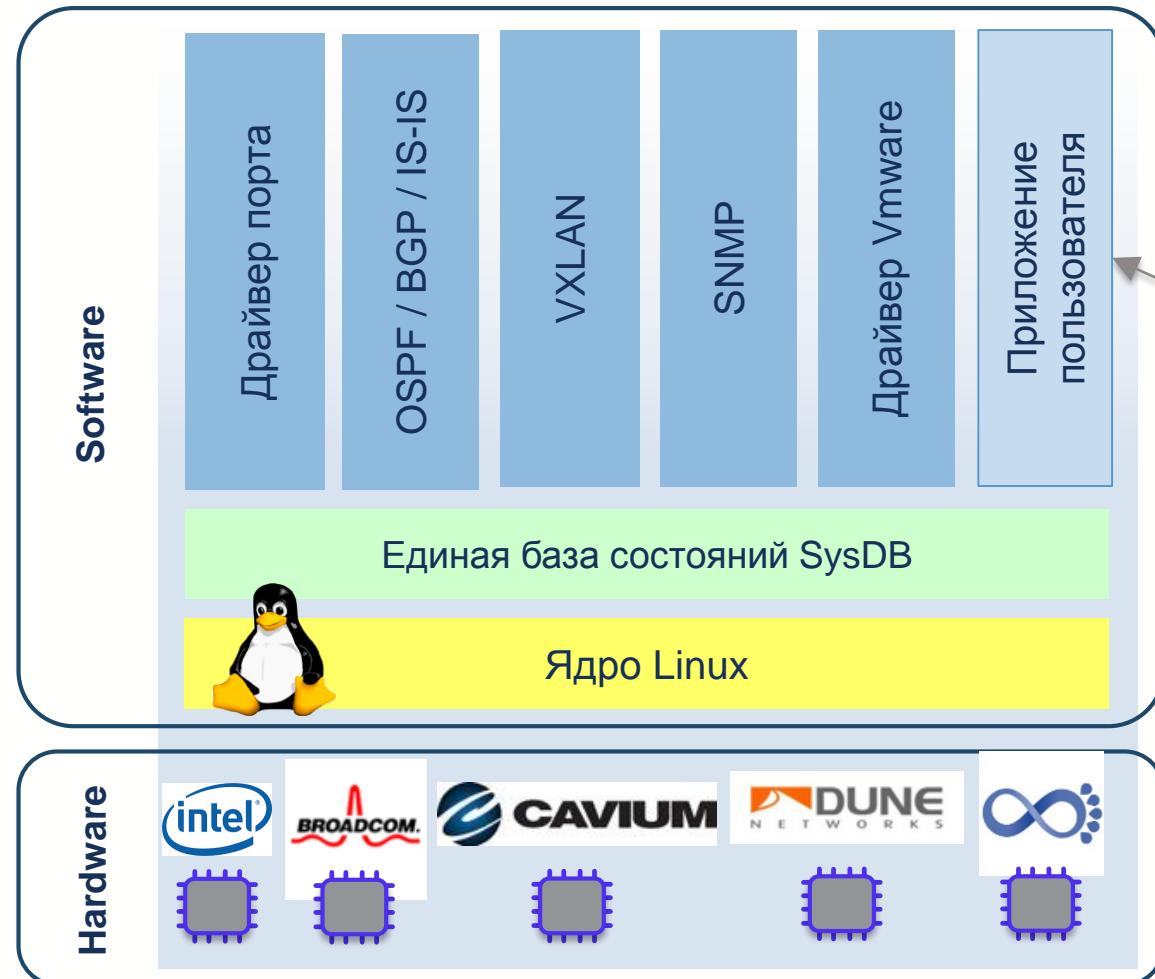
EOS = Extensible Operating System

Единая БД состояний устройства

- Простота = стабильность
- Открытый API
- Простая интеграция



Главный слайд

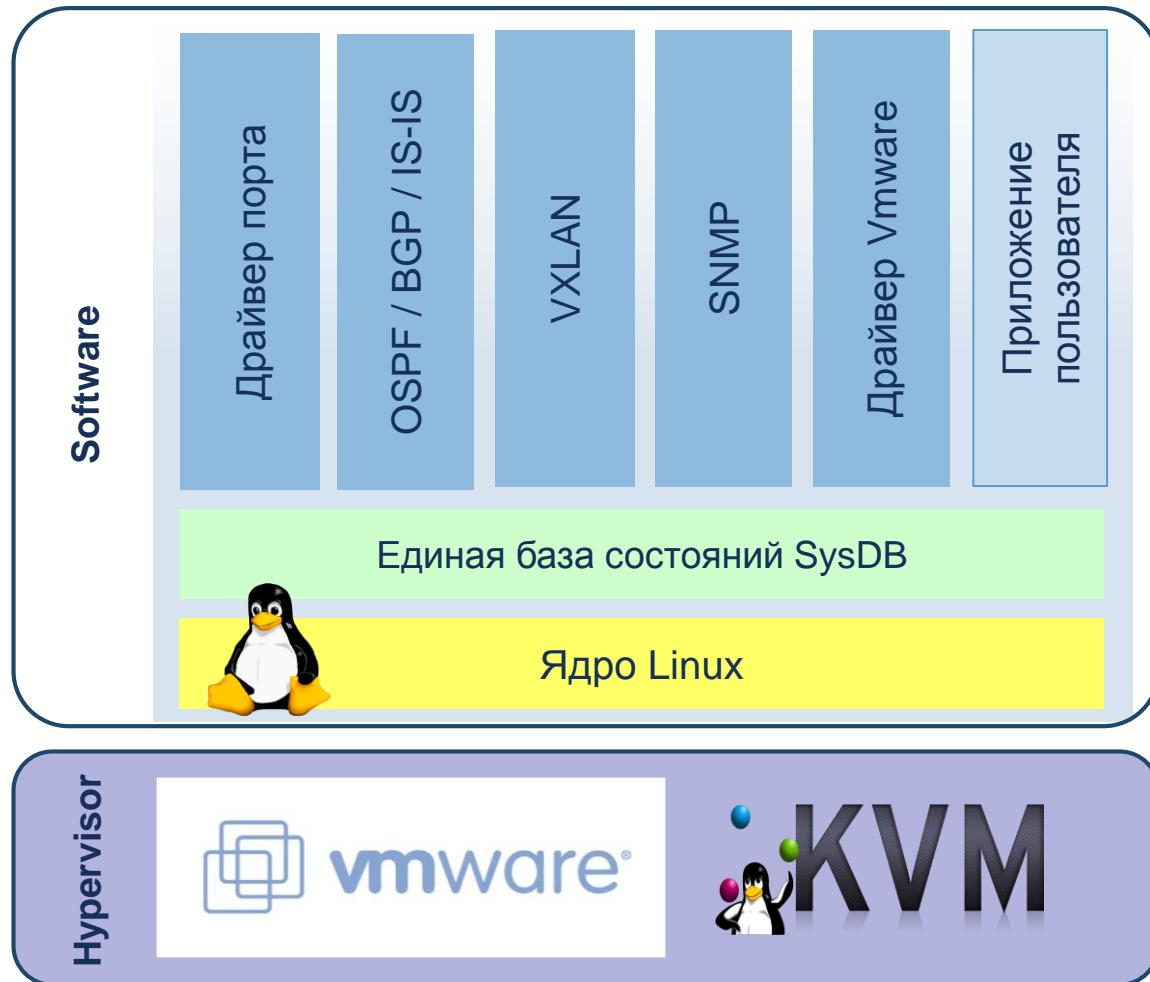


EOS = Extensible Operating System

Модульная ОС

- Hot patches
- Обновление без перезагрузки
- Запуск собственных процессов

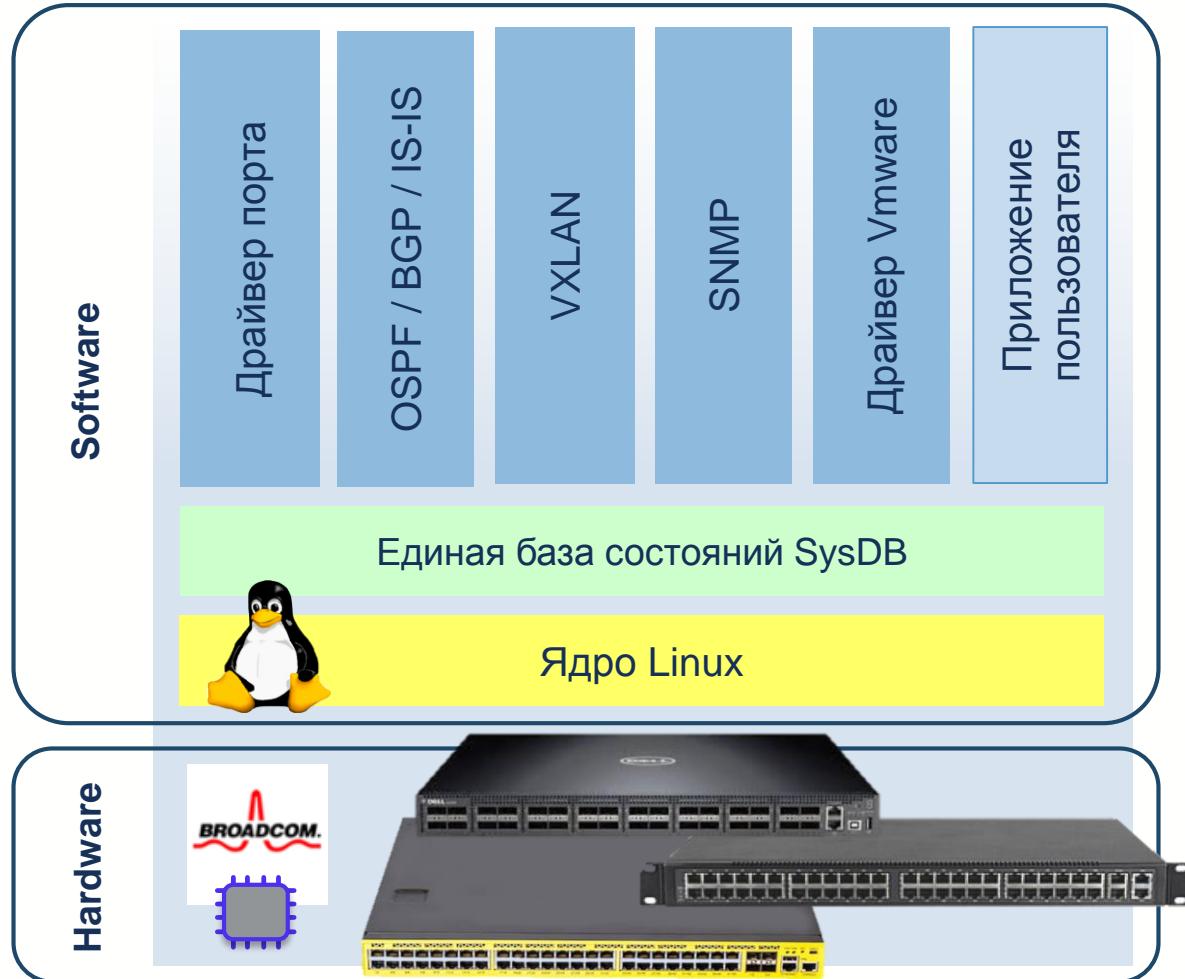
Главный слайд



EOS = Extensible Operating System

1. Тестовый образ
 - Предварительное тестирование
 - Не эмуляция (тот же код!)
2. vEOS Router
 - IPsec
 - NAT
 - Stateful Inspection

Главный слайд



EOS = Extensible Operating System

1. Сторонние производители «железа»
 - Celestica
 - Quanta
2. Импортозамещение

Портфолио Arista

	GbE		Ultra-Low Latency			Programmable Leaf			Multi Function Programmable		10/25/40/100 GbE				10/25/40/100 GbE Spline™				10/40/100GbE Dynamic Deep Buffers				10/40GbE Spline™		10/25/40/50/100GbE Universal Spine					
Product Line Overview																														
Chassis	7010T	7020TR	7150S			7160			7170			7050X / 7250X				7060CX / 7260X				7280R				7300		7500R				
Model Number	48	48	24	52	64	48T	48Y	32C	32C	64C	7050TX	7050SX	7050QX	7050CX3	32S	QX-64	CX-64	CX3-64	SR	TR	QR	CR	4-Slot	8-Slot	4-Slot	8-Slot	12-Slot	16-Slot		
Height	1RU	1RU	1RU			1RU			1RU	2RU	1RU / 2RU				1RU	1RU	2RU	2RU	1RU	1RU	1RU/2RU	2RU	8RU	13RU	7U	13U	18U	29U		
Line Card Slots	-	-	-			-			-	-	-				-	-				-	-	-	4	8	4	8	12	16		
Backplane Capacity	-	-	-			-			-	-	-				-	-				25Tbps	50Tbps	38.4Tbps	76.8Tbps	115Tbps	150Tbps					
Switching Capacity	176Gbps	216Gbps	480Gbps	1.04Tbps	1.28Tbps	2.16Tbps	3.6Tbps	6.4Tbps	6.4Tbps	12.8Tbps	1.44-2.56Tbps		2.56-5.12Tbps		6.4Tbps	5.12Tbps	12.8Tbps		2.16Tbps	2.16Tbps	4.32-6.4Tbps	6-12Tbps	25Tbps	50Tbps	38Tbps	75Tbps	115Tbps	150Tbps		
Per Slot Capacity	-	-	-			-			-	-	-				-	-				3.2Tbps In / 3.2Tbps Out		9.6Tbps								
Forwarding Capacity	132Mpps	162Mpps	480Mpps	720Mpps	960Mpps	1.28pps			2.58pps	5.08pps	720-1.44Bpps	960-1.44Bpps	1.44-3.84Bpps	2Bpps	3.38pps	3.38pps	9.52Bpps	4.2Bpps	720Mpps	720Mpps	1.44-2.88Bpps	2.5-5.7Bpps	198pps	388pps	698pps					
Ports																														
100/1000 BASE-T	48	48	-			-			-		-				-				-				-		-					
100Mb/1Gb/10Gb BASE-T	-	-	-			48	-		-		32-96	-				-				-	48	-		192	384	192	384	576	768	
1/10GbE (SFP+)	4	6	24	52	48	-	48	-	2	2	-	48-96	4	2	-	2	2	2	48	-	-	-	192	384	192	384	576	768		
10/40GbE	-	-	-	-	16/4	72/6	72/6	128/32	-	-	4-8	32-64	-	-	128/32	-/64	256/64	128/64	24/6	24/6	144-160/36-72	120-140/30-60	512/128	1,024/256	576/144	1152/288	1728/432	2304/576		
25/100GbE	-	-	-			24/6	72/6	128/32	128/32	256/64	-	128/32	128/32	-	256/64	128/64	24/6	6-16	120-140/30-60	512/128	1,024/256	576/144	1152/288	1728/432	2304/576					
Port-Port Latency	3usec	3usec	350ns	380ns	380ns	From 3usec	From 2usec		Sub usec		3usec	550ns	550-1800ns	800ns	450ns	550ns	550-1800ns	450ns	From 3.8usec		550-1,800ns		under 4usec							
Forwarding Technology	Store and Forward	Store and Forward	Cut-Through			Store and Forward			Cut-Through		Cut-Through				Cut-Through		Store and Forward	Cut-Through	Store and Forward		Store and Forward		Store and Forward							
Buffer Size	4MB	3GB	9.5MB - Dynamic Allocation			24MB			22MB		12MB	12MB	12MB - 48MB	32MB	16MB	16MB	64MB	42MB	4GB	4GB	8-16GB	12-24GB	96MB	192MB	96GB	192GB	288GB	384GB		
Environmental																														
AC + AC Power Redundancy	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes				Yes		Yes					
DC Power	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes				Yes		Yes					
N+1 Hot Swappable Fans	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes				Yes		Yes					
Average/Max Power Draw (W)	52/65	105/115	191/334	191/450	224/455	40B/482	16B/382	310/465	221/490	271/571	305-507/367-704	140-235/220-415	150-622/302-1229	206/265	220/410	315/800	1672/2090	340/660	263/381	290/405	9/15 per port	34-42 per port	1560/2262	2986/4360	3650/4978	6439/8586	9618/12824	12824/17098		
Front-to-Rear/Rear-to-Front Air	Yes / Yes	Yes / Yes	Yes / Yes			Yes / Yes			Yes		Yes/Yes				Yes/Yes				Yes / Yes		Yes / No		Yes / Yes		Yes / No					
Features																														
EOS Single Binary Image	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes				Yes		Yes					
Latency Analyzer (LANZ)	No	No	Yes			Yes			Yes		Yes				Yes				Yes				Yes		Yes					
VM Tracer	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes				Yes		Yes					
Zero Touch Provisioning (ZTP)	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes				Yes		Yes					
Max VLANs	4,096	4,096	4,096			4,096			4,096		4,096				4,096				4,096				4,096		4,096					
Max MAC Entries	84K	256K	64K			128K			64K		288K				136K				264K				768K		288K					
Multi Chassis LAG	Yes - 32 Link	Yes - 32 Link	Yes - 32 Link			Yes - 64 Link			Yes - 64 Link		Yes - 64 Link				Yes - 64 Link				Yes - 128 Link				Yes - 64 Link		Yes - 128 Link					
Jumbo Frames	9,216 Bytes	9,216 Bytes	9,216 Bytes			9,216 Bytes			9,216 Bytes		9,216 Bytes				9,216 Bytes				9,216 Bytes				9,216 Bytes		9,216 Bytes					
Max ARP Entries	84K	80K	64K			80K			128K		32K (208K UFT *)																			

Портфолио Arista

1GbE

10GbE

10GbE/40GbE или 25GbE/100GbE

	GbE		Ultra-Low Latency		Programmable Leaf		Multi Function Programmable		10/25/40/100 GbE				10/25/40/100 GbE Spline™				10/40/100GbE Dynamic Deep Buffers				10/40GbE Spline™		10/25/40/50/100GbE Universal Spine							
Product Line Overview																														
Chassis	7010T	7020TR	7150S		7160		7170		7050X / 7250X				7060CX / 7260X				7280R				7300		7500R							
Model Number	48	48	4	52	64	48T	48Y	32C	32C	64C	7050TX	7050SX	7050QX	7050CX3	32S	QX-64	CX-64	CX3-64	SR	TR	QR	CR	4-Slot	8-Slot	4-Slot	8-Slot	12-Slot	16-Slot		
Height	1RU	1RU	1RU		1RU		1RU	2RU	1RU / 2RU				1RU	1RU	2RU	2RU	1RU	1RU	1RU/2RU	2RU	8RU	13RU	7U	13U	18U	29U				
Line Card Slots	—	—	—		—		—	—	—				—				—				4	8	4	8	12	16				
Backplane Capacity	—	—	—		—		—	—	—				—				—				25Tbps	50Tbps	38.4Tbps	76.8Tbps	115Tbps	150Tbps				
Switching Capacity	176Gbps	216Gbps	8Gbps	1.04Tbps	1.28Tbps	2.6Tbps	3.6Tbps	6.4Tbps	6.4Tbps	12.8Tbps	1.44-2.56Tbps	2.56-5.12Tbps	6.4Tbps	6.4Tbps	5.12Tbps	12.8Tbps	2.16Tbps	2.16Tbps	4.32-6.4Tbps	6-12Tbps	25Tbps	50Tbps	38Tbps	75Tbps	115Tbps	150Tbps				
Per Slot Capacity	—	—	—		—		—	—	—				—				—				3.2Tbps In / 3.2Tbps Out				9.6Tbps					
Forwarding Capacity	132Mpps	162Mpps	3Mpps	720Mpps	960Mpps	1.28pps		2.58pps	5.08pps	720-1.44Bpps	960-1.44Bpps	1.44-3.84Bpps	2Bpps	3.38pps	3.38pps	9.52Bpps	4.2Bpps	720Mpps	720Mpps	1.44-2.88Bpps	2.5-5.7Bpps	198pps	388pps	698pps						
Ports																														
100/1000 BASE-T	48	48	—		—		—		—				—				—				—		—		—					
100Mb/1Gb/10Gb BASE-T	—	—	—		48		—		32-96				—				—				48	—	—	—	192	384	192	384	576	768
1/10GbE (SFP+)	4	6	4	52	48	—	48	—	2	2	—	48-96	4	2	—	2	2	2	2	48	—	—	—	192	384	192	384	576	768	
10/40GbE	—	—	—	—	16/4	72/6	72/6	128/32	—	—	4-8	32-64	—	—	128/32	—/64	256/64	128/64	24/6	24/6	144-160/36-72	120-140/30-60	512/128	1,024/256	576/144	1152/288	1728/432	2304/576		
25/100GbE	—	—	—	—	—	24/6	72/6	128/32	128/32	256/64	—	—	128/32	128/32	—	256/64	128/64	24/6	6-16	120-140/30-60	512/128	1,024/256	576/144	1152/288	1728/432	2304/576				
Port-Port Latency	3usec	3usec	30ns	380ns	380ns	From 3usec	From 2usec	Sub usec	3usec	550ns	550-1800ns	800ns	450ns	550ns	550-1800ns	450ns	From 3.8usec				550-1,800ns				under 4usec					
Forwarding Technology	Store and Forward	Store and Forward	Cut-Through		Store and Forward		Cut-Through		Cut-Through				Cut-Through				Store and Forward	Cut-Through	Store and Forward				Store and Forward		Store and Forward		Store and Forward			
Buffer Size	4MB	3GB	9.5MB - Dynamic Allocation		24MB		22MB		12MB	12MB	12MB - 48MB	32MB	16MB	16MB	64MB	42MB	4GB	4GB	8-16GB	12-24GB	96MB	192MB	96GB	192GB	288GB	384GB				
Environmental																														
AC + AC Power Redundancy	Yes	Yes	Yes		Yes		Yes		Yes				Yes				Yes				Yes		Yes		Yes					
DC Power	Yes	Yes	Yes		Yes		Yes		Yes				Yes				Yes				Yes		Yes		Yes					
N+1 Hot Swappable Fans	Yes	Yes	Yes		Yes		Yes		Yes				Yes				Yes				Yes		Yes		Yes					
Average/Max Power Draw (W)	52/65	105/115	5/334	191/450	224/455	4/482	168/382	310/465	221/490	271/571	305-507/367-704	140-235/220-415	150-622/302-1229	206/265	220/410	315/800	1672/2090	340/660	263/381	290/405	9/15 per port	34-42 per port	1560/2262	2986/4360	3650/4978	6439/8586	9618/12824	12824/17091		
Front-to-Rear/Rear-to-Front Airflow	Yes / Yes	Yes / Yes	Yes / Yes		Yes / Yes		Yes		Yes/Yes				Yes/Yes				Yes / Yes				Yes / No	Yes / Yes		Yes / No		Yes / No				
Features																														
EOS Single Binary Image	Yes	Yes	Yes		Yes		Yes		Yes				Yes				Yes				Yes		Yes		Yes					
Latency Analyzer (LANZ)	No	No	Yes		Yes		Yes		Yes				Yes				Yes				Yes		Yes		Yes					
VM Tracer	Yes	Yes	Yes		Yes		Yes		Yes				Yes				Yes				Yes		Yes		Yes					
Zero Touch Provisioning (ZTP)	Yes	Yes	Yes		Yes		Yes		Yes				Yes				Yes				Yes		Yes		Yes					
Max VLANs	4,096	4,096	4,096		4,096		4,096		4,096				4,096				4,096				4,096		4,096		4,096					
Max MAC Entries	84K	256K	64K		128K		64K		288K				136K				264K				768K		288K		768K					
Multi-Chassis LAG	Yes - 32 Link	Yes - 32 Link	Yes - 64 Link		Yes - 64 Link		Yes - 64 Link		Yes - 64 Link				Yes - 64 Link				Yes - 128 Link				Yes - 64 Link		Yes - 128 Link		Yes - 128 Link					
Jumbo Frames	9,216 Bytes	9,216 Bytes	9,216 Bytes		9,216 Bytes		9,216 Bytes		9,216 Bytes				9,216 Bytes				9,216 Bytes				9,216 Bytes		9,216 Bytes		9,216 Bytes					
Max ARP Entries	84K	80K	64K																											

Портфолио Arista

Фиксированные

	GbE		Ultra-Low Latency			Programmable Leaf			Multi Function Programmable		10/25/40/100 GbE				10/25/40/100 GbE Spline™				10/40/100GbE Dynamic Deep Buffers									
Product Line Overview																												
Chassis	7010T	7020TR	7150S			7160			7170		7050X / 7250X				7060CX / 7260X				7280R									
Model Number	48	48	24	52	64	48T	48Y	32C	32C	64C	7050TX	7050SX	7050QX	7050CX3	32S	QX-64	CX-64	CX3-64	SR	TR	QR	CR						
Height	1RU	1RU	1RU			1RU			1RU	2RU	1RU / 2RU				1RU	2RU	2RU	2RU	1RU	1RU	1RU/2RU	2RU						
Line Card Slots	–	–	–			–			–	–	–				–				–									
Backplane Capacity	–	–	–			–			–	–	–				–				–									
Switching Capacity	176Gbps	216Gbps	480Gbps	1.04Tbps	1.28Tbps	2.16Tbps	3.6Tbps	6.4Tbps	6.4Tbps	12.8Tbps	1.44-2.56Tbps		2.56-5.12Tbps		6.4Tbps	5.12Tbps	12.8Tbps		2.16Tbps	2.16Tbps	4.32-6.4Tbps	6-12Tbps						
Per Slot Capacity	–	–	–			–			–	–	–				–				–									
Forwarding Capacity	132Mpps	162Mpps	480Mpps	720Mpps	960Mpps	1.28pps		2.58pps	5.08pps	720-1.44Bpps	960-1.44Bpps	1.44-3.84Bpps	2Bpps	3.38pps	3.38pps	9.52Bpps	4.2Bpps	720Mpps	720Mpps	1.44-2.88Bpps	2.5-5.7Bpps							
Ports																												
100/1000 BASE-T	48	48	–			–			–		–				–				–									
100Mb/1Gb/10Gb BASE-T	–	–	–			48	–		–		32-96	–			–				–	48	–	–						
1/10GbE (SFP+)	4	6	24	52	48	–	48	–	2	2	–	48-96	4	2	–	2	2	2	48	–	–	–						
10/40GbE	–	–	–	–	16/4	72/6	72/6	128/32	–	–	4-8	32-64	–	–	128/32	–/64	256/64	128/64	24/6	24/6	144-160/36-72	120-140/30						
25/100GbE	–	–	–			24/6	72/6	128/32	128/32	256/64	–				128/32	128/32	–	256/64	128/64	24/6	6-16	120-140/30						
Port-Port Latency	3usec	3usec	350ns	380ns	380ns	From 3usec	From 2usec		Sub usec		3usec	550ns	550-1800ns	800ns	450ns	550ns	550-1800ns	450ns	From 3.8usec									
Forwarding Technology	Store and Forward	Store and Forward	Cut-Through			Store and Forward			Cut-Through		Cut-Through				Store and Forward	Cut-Through	Cut-Through				Store and Forward							
Buffer Size	4MB	3GB	9.5MB - Dynamic Allocation			24MB			22MB		12MB	12MB	12MB - 48MB	32MB	16MB	16MB	64MB	42MB	4GB	4GB	8-16GB	12-24GB						
Environmental																												
AC + AC Power Redundancy	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes									
DC Power	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes									
N+1 Hot Swappable Fans	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes									
Average/Max Power Draw (W)	52/65	105/115	191/334	191/450	224/455	40B/482	16B/382	310/465	221/490	271/571	305-507/367-704	140-235/220-415	150-622/302-1229	206/265	220/410	315/800	1672/2090	340/660	263/381	290/405	9/15 per port	34-42 per port	1560/2262	2986/4360	3650/4978	6439/8586	9618/12824	12824/17098
Front-to-Rear/Rear-to-Front Airflow	Yes / Yes	Yes / Yes	Yes / Yes			Yes / Yes			Yes		Yes/Yes				Yes/Yes				Yes / Yes				Yes / Yes	Yes / No				
Features																												
EOS Single Binary Image	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes				Yes					
Latency Analyzer (LANZ)	No	No	Yes			Yes			Yes		Yes				Yes				Yes				Yes					
VM Tracer	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes				Yes					
Zero Touch Provisioning (ZTP)	Yes	Yes	Yes			Yes			Yes		Yes				Yes				Yes				Yes					
Max VLANs	4,096	4,096	4,096			4,096			4,096		4,096				4,096				4,096				4,096					
Max MAC Entries	84K	256K	64K			128K			64K		288K				136K				264K				768K					
Multi-Chassis LAG	Yes - 32 Link	Yes - 32 Link	Yes - 32 Link			Yes - 64 Link			Yes - 64 Link		Yes - 64 Link				Yes - 64 Link				Yes - 128 Link				Yes - 64 Link					
Jumbo Frames	9,216 Bytes	9,216 Bytes	9,216 Bytes			9,216 Bytes			9,216 Bytes		9,216 Bytes				9,216 Bytes				9,216 Bytes				9,216 Bytes					
Max ARP Entries	84K	80K	64K			80K			128K		32K (208K UFT *)				64K				32K (208K UFT *)				64K					
Max Routes (IPv4 / IPv6)	6K/8K	200K/100K	84K/21K			128K/64K			160K/16K		16K/8K (144K/77K UFT *)				384K/192K (UFT *)				16K/8K (144K/77K UFT *)				384K/92K (UFT *)					
BGP/OSPF	Wirespeed	Wirespeed	Wirespeed			Wirespeed			Wirespeed		Wirespeed				Wirespeed				Wirespeed				Wirespeed					
Multicast Routing	PIM-SM	PIM-SM	PIM-SM			PIM-SM			PIM-SM		PIM-SM				PIM-SM				PIM-SM				PIM-SM					
Multicast Groups	8K	24K	23K			128K			16K		8K				16K				8K				1					

Уникальные конфигурации



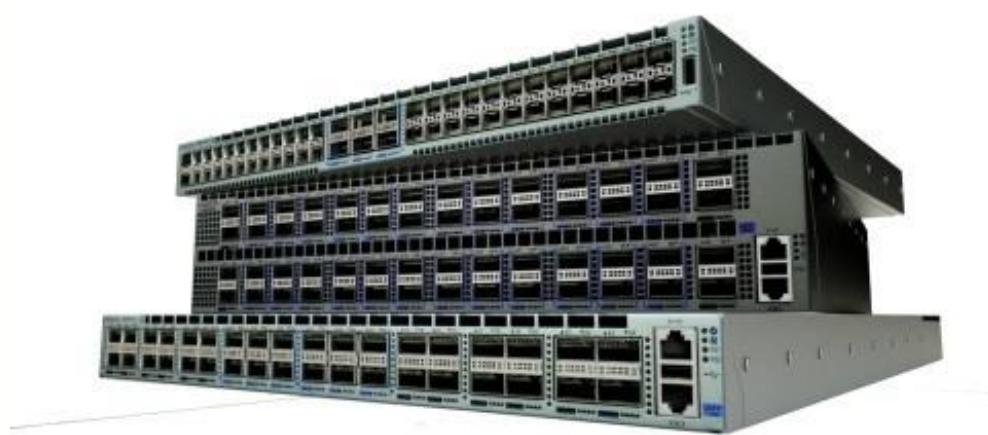
7020TR-48



7050SX2-128



7050SX3-48YC12



7280R



7500R

Вопросы