

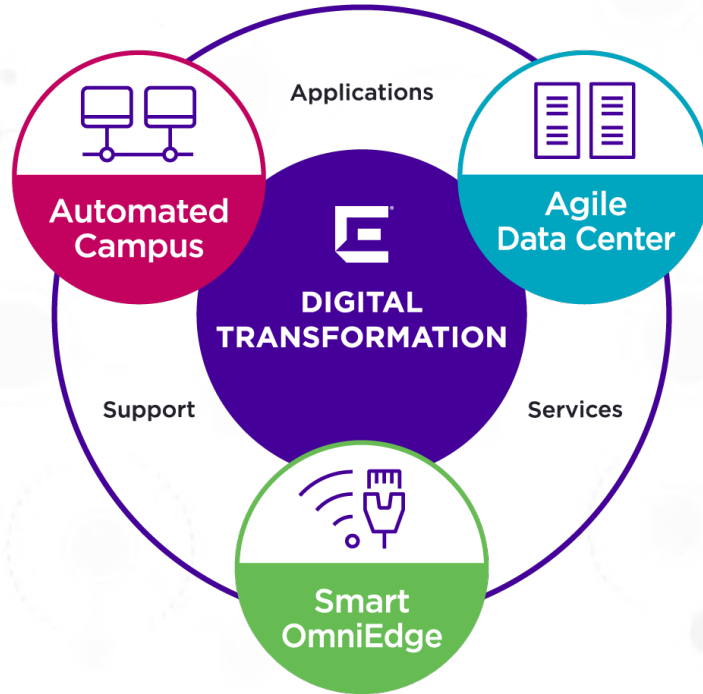


Extreme™

Customer-Driven Networking

Мирошніченко Станіслав
Presale Architect
smiroshnichenko@extremenetworks.com

Extreme Networks: Цифровая трансформация



An aerial view of a city skyline, likely New York City, with a network of glowing white lines and nodes overlaid on the image, representing data center and routing solutions. The lines connect various points across the city, symbolizing network connectivity.

Service Provider *Data Center & Routing Solutions*

SLX Switching/Routing Portfolio

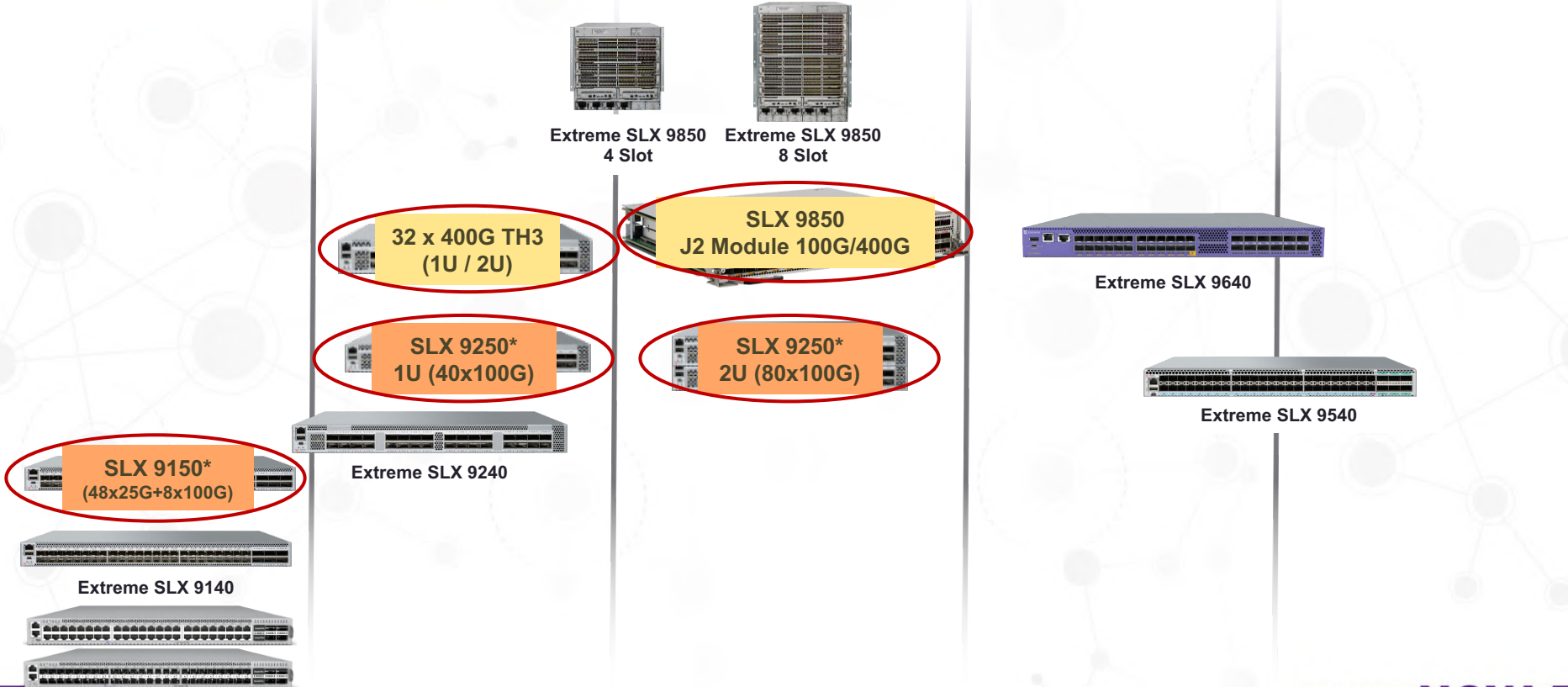
Leaf

Spine

Super Spine

Border Router

Border Leaf



Extreme SLX 9850 4 Slot Extreme SLX 9850 8 Slot

32 x 400G TH3 (1U / 2U)

SLX 9850 J2 Module 100G/400G

SLX 9250* 1U (40x100G)

SLX 9250* 2U (80x100G)

SLX 9150* (48x25G+8x100G)

Extreme SLX 9240

Extreme SLX 9640

Extreme SLX 9140

Extreme SLX 9540

Extreme SLX 9030

SLX Border Routing Options



- 48 x 1/10G SFP+ and 6 x 100/40G QSFP28
- Full Internet Route table support
- OptiScale Routing
- Up to 1.5M IPv4 routes and 140k IPv6 routes

Same
scale as
SLX 9540



-M modules

- 72x1/10G SFP+
- 36/100G 60x40G QSFP28

SLX 9540

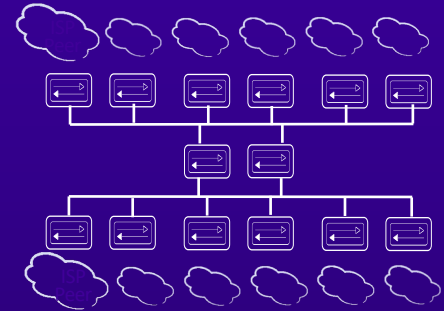
SLX 9640

SLX 9850



- 24 x 1/10G SFP+ and 12 x 100/40G QSFP28
- Multiple Internet Route table support
- Multi-VRF and uRPF support
- Up to 4M IPv4 routes and 1M IPv6 routes without OptiScale Routing

Internet Exchange / Cloud Exchange



Internet Exchange / Cloud Exchange

Key Capabilities

- Layer2
- Dual Stack IPv4/v6
- MPLS VPLS, VLL, LDP, RSVP
- LSP load balancing, IP ECMP
- Egress RL

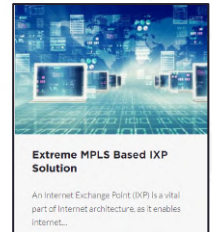
Most major features are already supported and deployed on SLX

Currently there are 200+ IX and 1,000+ CX/Colo data centers in 122 countries



PIN	PRODUCT	Availability
Edge	SLX 9540	Now
	SLX 9640	Now
Edge and Core	SLX 9850	Now
	SLX 9740	Q2/Q3 2020

Extreme Validated Design

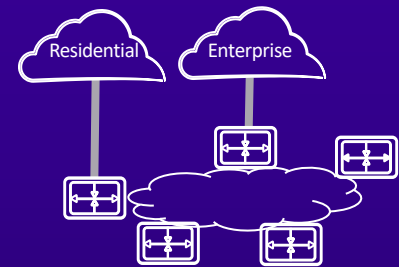


Extreme MPLS Based IXP Solution

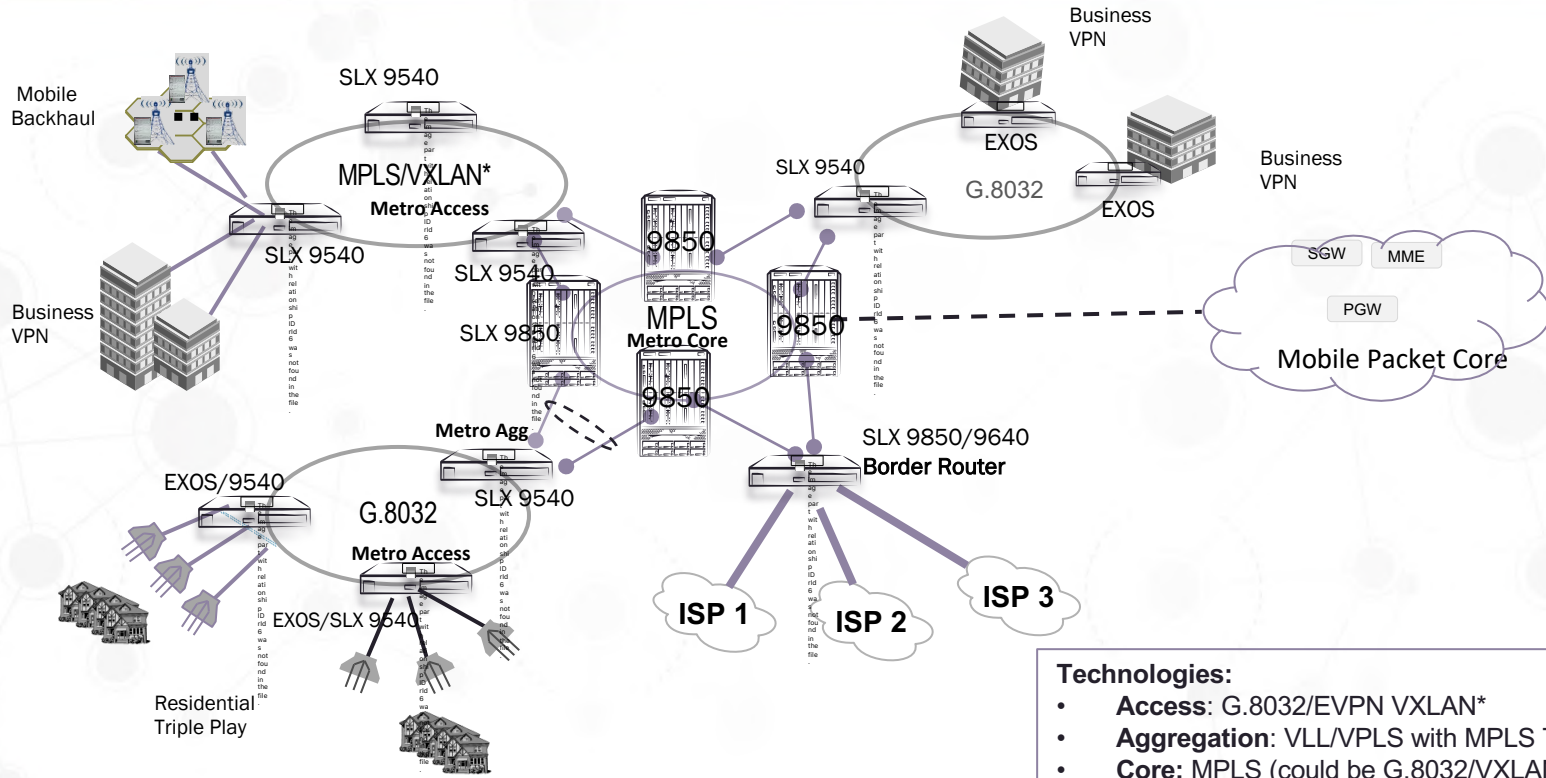
An Internet Exchange Point (IXP) is a vital part of Internet architecture, as it enables Internet...

https://www.extremenetworks.com/resources/?types%5B%5D=extreme_validated_design

Regional Service Provider



Access, Aggregation, Core, Border Router



- Technologies:**
- **Access:** G.8032/EVPN VXLAN*
 - **Aggregation:** VLL/VPLS with MPLS TE & FRR, VXLAN*
 - **Core:** MPLS (could be G.8032/VXLAN in some cases)
 - **Border Router:** SLX 9540/9640

Regional Service Provider: L2, L3 MPLS

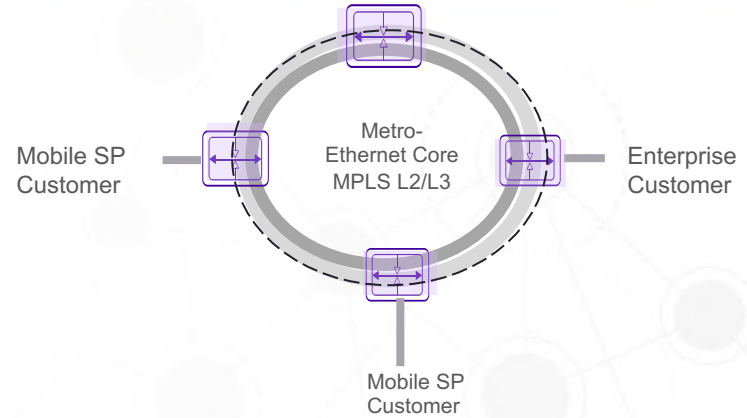
Target customers:

- Carrier ethernet/whole-sale SPs
- Need traffic-engineering (bandwidth/patch optimization)
- Low operational complexity (single protocol)
- MEF/CE compliant services
- Robust OAM
- Fast convergence
- L2, L3 VPN

Key Capabilities:

- OSPF, ISIS with TE extension
- MPLS Traffic-engineering with RSVP-TE
- Fast Convergence: RSVP FRR global/local node/link
- L2 services/virtualization: VPWS (p2p), VPLS (mp2mp)
- L3 service/virtualization: L3VPN
- MCT support for VPWS, VPLS
- Service OAM for L2 services: CFM, Y.1731
- IP Multicast support today; With MCT (Q2 CY 2020)
- CE capable; CE Certs (Planned starting 2H CY 20)

Sample Topology



PIN	Product	Availability
Access	SLX 9540	Now
Aggregation	SLX 9540	Now
	SLX 9640	Now
	SLX 9850	Now
Core	SLX 9640	Now
	SLX 9850	Now

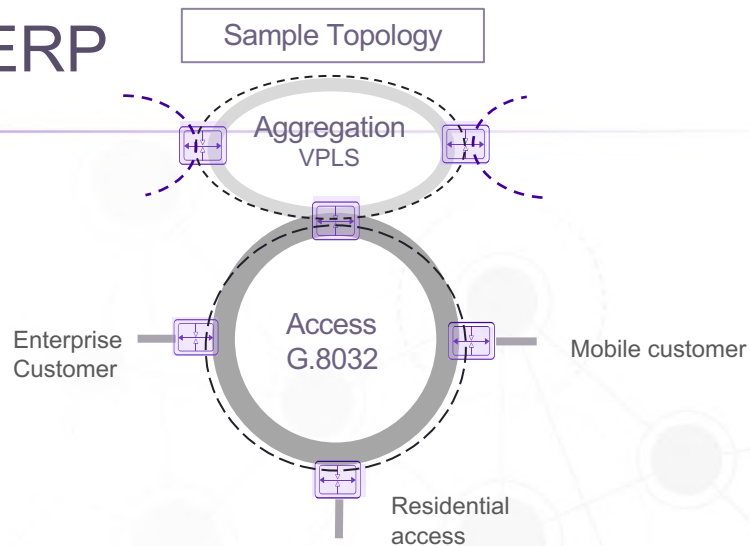
Regional Service Provider: G.8032/ERP

Target customers:

- Rings networks with fiber in the ground.
- Standard based ring technology with fast-convergence
- Layer 2 access meets requirements
- No requirement for TE (bandwidth/path optimization)
- Low operational complexity (single protocol)

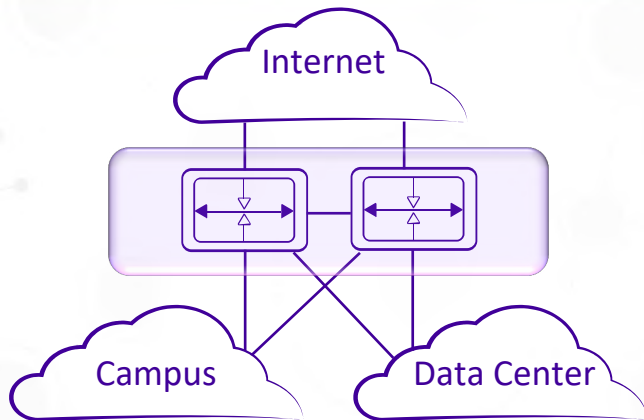
Key Capabilities:

- G8032v1,v2 support
- Fast Convergence: MAC-flush-optimization
- OAM: CFM 802.1ag
- Inter-connected rings (G.8032 / IP MPLS)
- Topology group
- VPLS interworking (aggregation)



PIN	Product	Availability
Access	SLX 9540	Now
Aggregation	SLX 9540	Now
	SLX 9640	Planned for Jan 2020
	SLX 9740	Platform GA (Q2/Q3 2020)
Core	SLX 9740	Platform GA (Q2/Q3 2020)

The Extreme Border Routing Advantage



High Scale
Routing

OptiScale routing for full table or up to 4M routes on SP-class router

Ultra Deep
Buffers

Ensure optimal performance without compromise

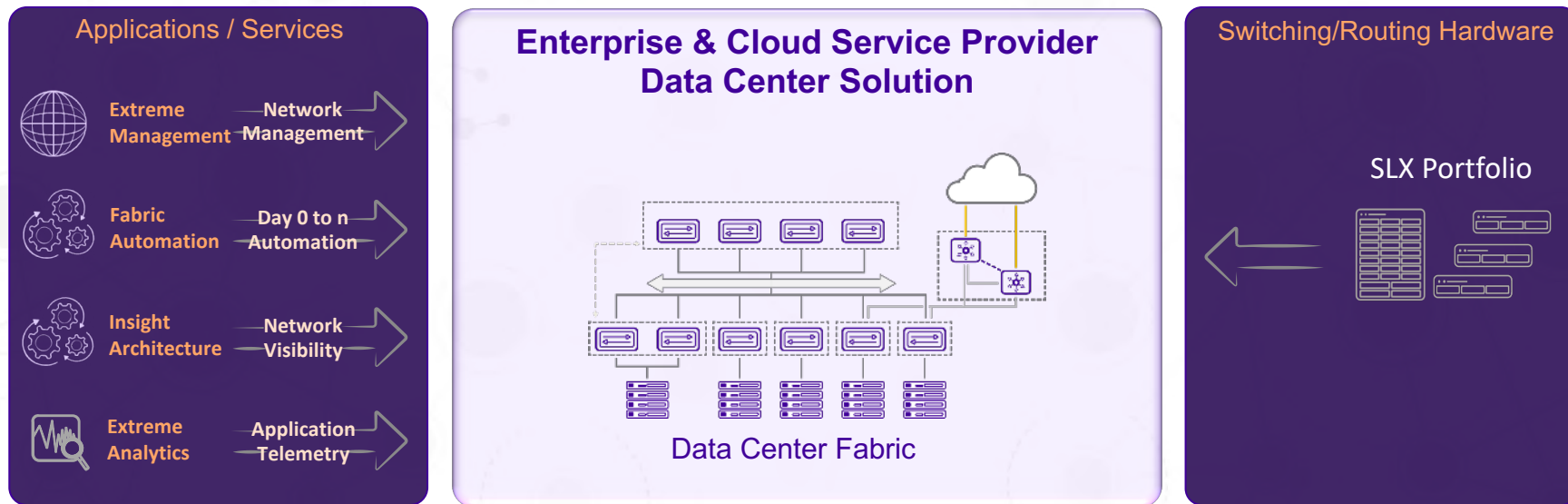
Ports on
Demand

Pay as you grow with flexible port licensing combinations

Visibility &
Analytics

Insight Architecture and Extreme Analytics offer real-time analysis

Extreme's Agile Data Center



Business Outcome → Enabling Digital Transformation

Полный спектр решений для инфраструктуры ЦОД

Коммутаторы и маршрутизаторы

Фиксированные платформы



SLX 9030



SLX 9140



SLX 9240



SLX 9540



SLX 9640



Модульные платформы



SLX 9850



VDX 8770



MLXe Routers



Программное обеспечение

Автоматизация



Workflow Composer
Automation Suites

- Network Essentials
- Data Center Fabrics
- IXP



Аналитика



Virtual Packet
Broker



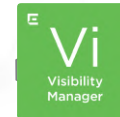
Session Director



Physical Packet
Broker



Virtual TAP



Visibility Manager



Extreme
Analytics



Extreme Applications

Plug & Play Fabrics



Extreme
Fabric
Automation

Network Visibility



Extreme
Insight
Architecture

Cross Domain Automation



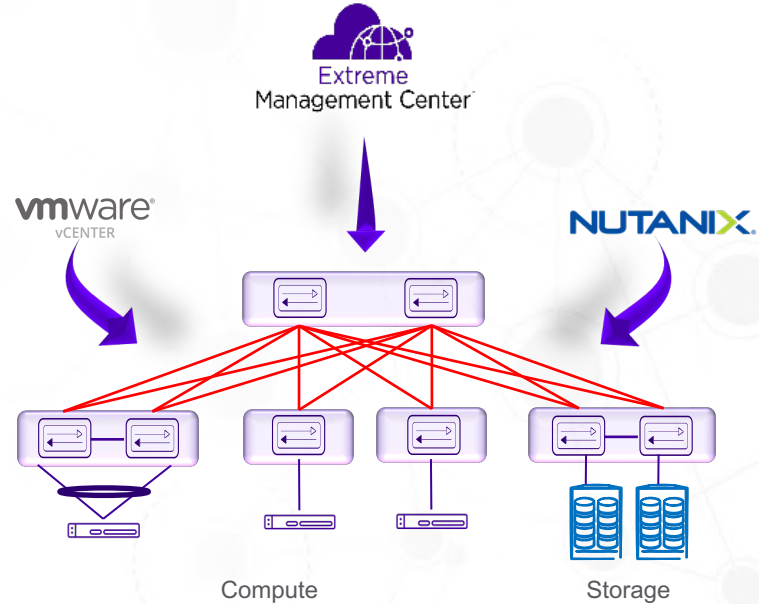
Extreme
Workflow
Composer

Powered By  StackStorm

Application Telemetry



Extreme
Analytics



Plug & Play Fabrics

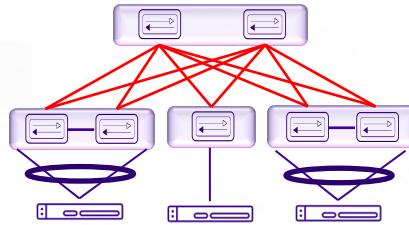


New Device Activation *Fabric Infrastructure*



Day 0 Provisioning

- Plug in Cables
- Initiate Automation on a Switch
- No Protocols to Configure



Enable New Services *Device Connections*

Day 1 Provisioning

- Fabric-wide Services
- Tenants / Users
- Single Point of Configuration

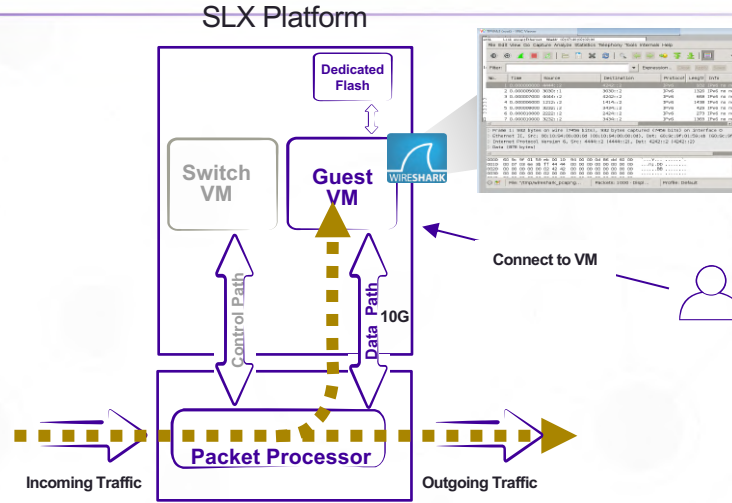
- ✓ **Provision Fabric in Seconds**
- ✓ **Automation at No Additional Cost**
- ✓ **On-Going Fabric and Service Provisioning**

Network Visibility



Extreme Insight Architecture

- Guest VM in KVM environment
- Dedicated 10G data path
- Flexible in-band and out-of-band streaming options
- Dedicated storage



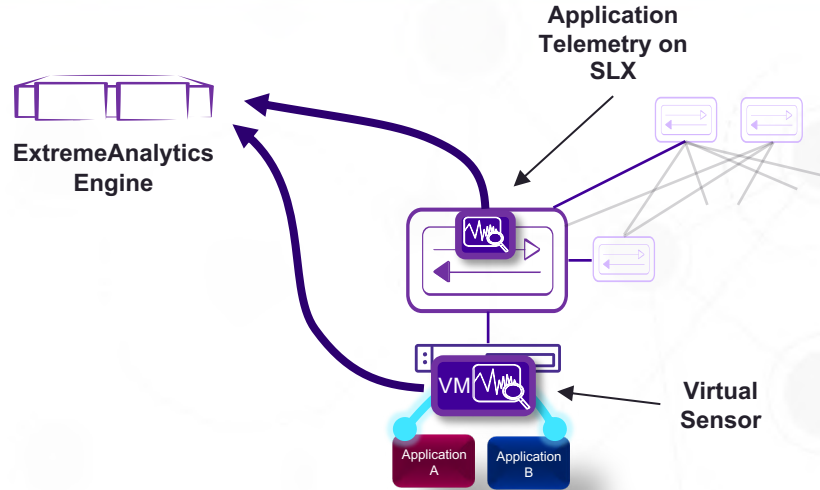
- ✓ **Faster Mean Time to Innocence**
- ✓ **Move Analysis Closer to the Problem**
- ✓ **Distributed Analyzer Tools Where You Need Them**

Application Telemetry



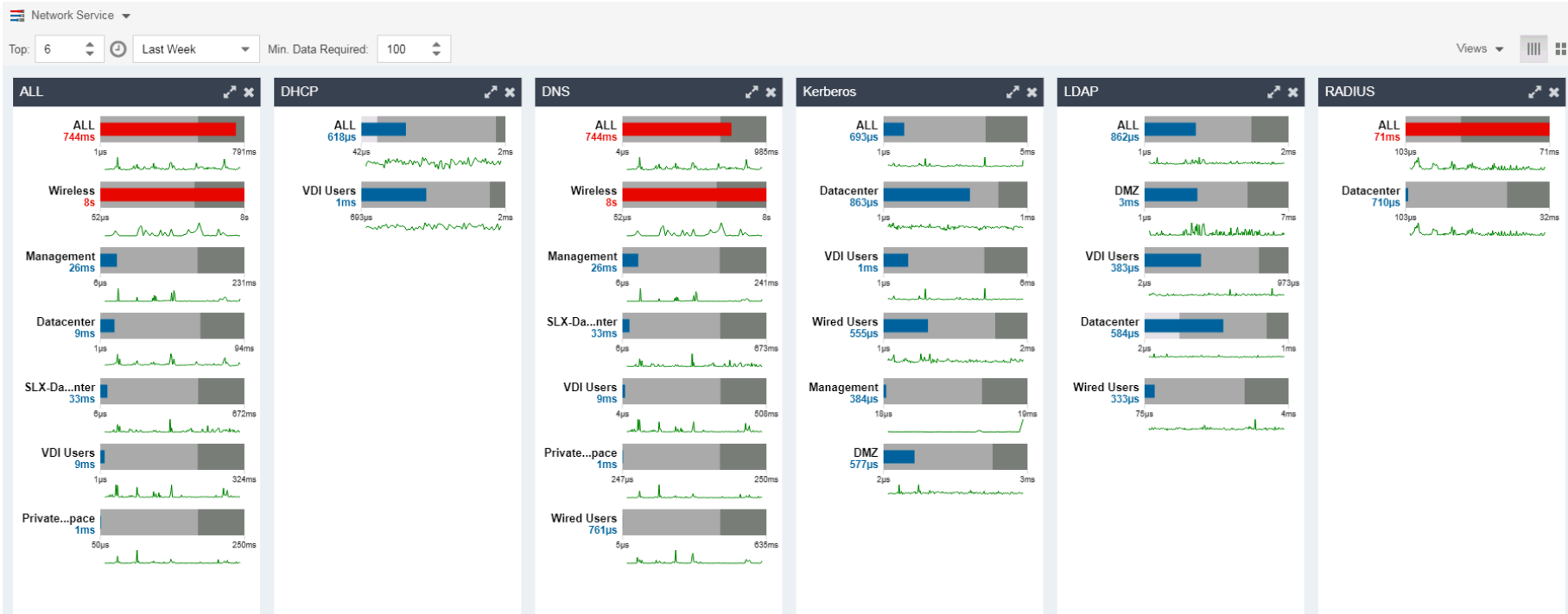
Extreme Analytics

- Application Visibility
- Over 10,000 fingerprints
- Performance Management
- Real-time and Historical Reporting
- Requires Extreme Management Suite



- ✓ **Information for Business Decisions**
- ✓ **End to End View Across the Network**
- ✓ **Security Analytics for Anomaly Detection ***

Время ответа сети и приложения



Extreme Management Center



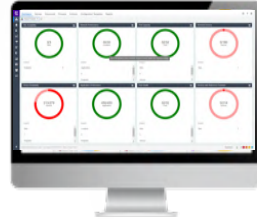
Management

- Real-time Visibility
- Configuration Control
- Image/Version Control

Automation

- Integrated Workflows
- Zero Touch Provisioning
- Workflow Composer Integration

Extreme
Management Center



Connect/Control

- 3rd Party Integrations
- Consistent Policy Implementations
- Secure On-boarding

Analytics

- End to End Telemetry
- Anomaly Detection
- Public Cloud Visibility

✓ **Single Pane of Glass Management**

✓ **Multi-Vendor Support**

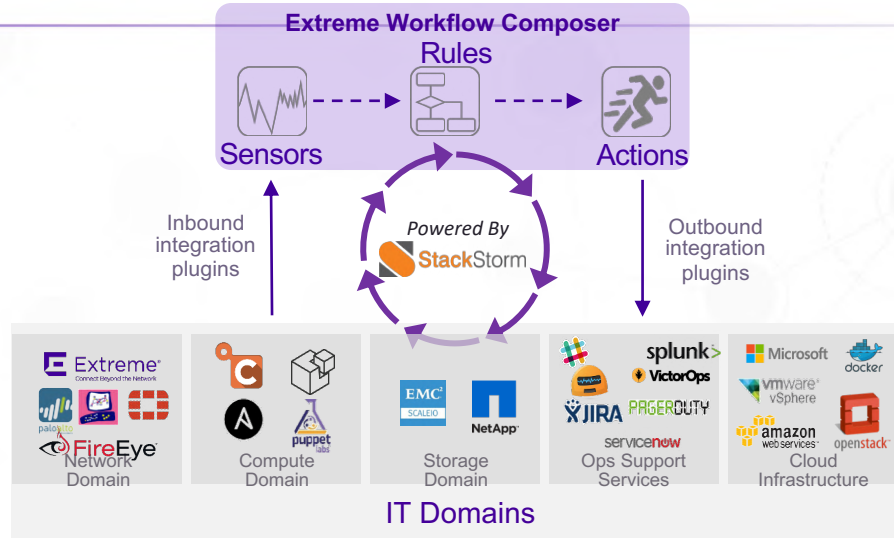
✓ **Consistent User Experience**

Cross Domain Automation

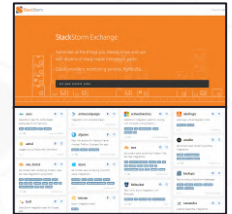


Extreme Workflow Composer

- Automate Entire Data Center Lifecycle
- Bring Agility to the Data Center
- Leverage Open Source Community
- Dev/Ops Inspired Technology

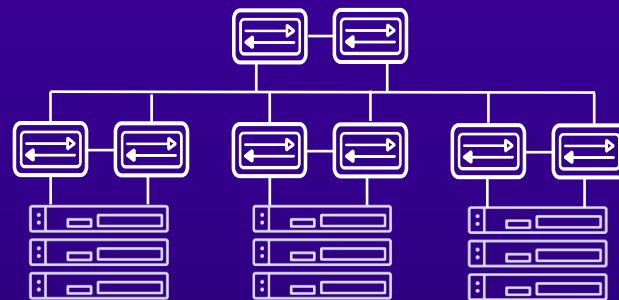


Over 2000 Integrations



- ✓ **Process Automation**
- ✓ **Multi-Vendor Data Center**
- ✓ **Software-driven Lifecycle Management**

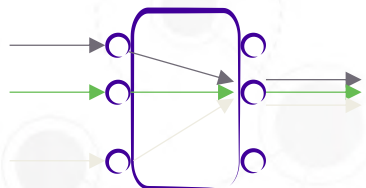
Network Packet Broker



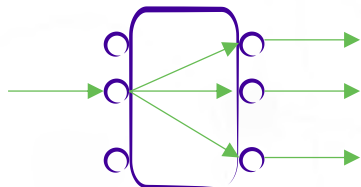
Packet Brokers Are Essential To Visibility

Uncompromised access to network traffic

Aggregation



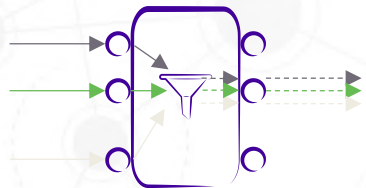
- Enables pervasive visibility
- Collect network traffic from all relevant network interfaces



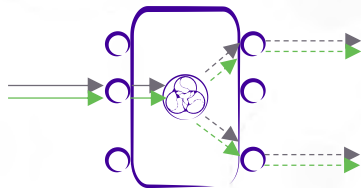
Replication

- Deploy multiple visibility applications
- Copy network traffic to each analytics solution

Filtering



- Deliver only relevant traffic to each analytics solution
- Select which packets to deliver to which tools



Load balancing

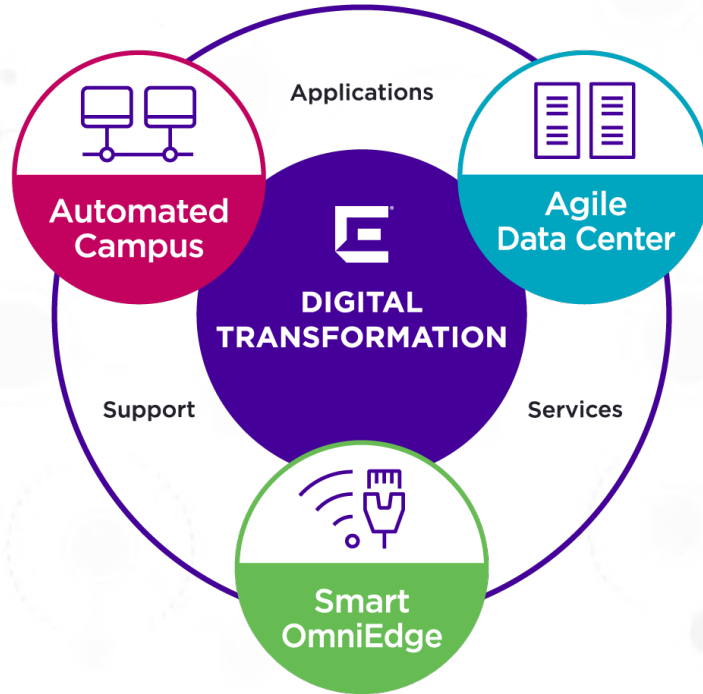
- Enables network to tool interface speed matching
- Share aggregated traffic load among analytics probes

Monitoring traffic optimization

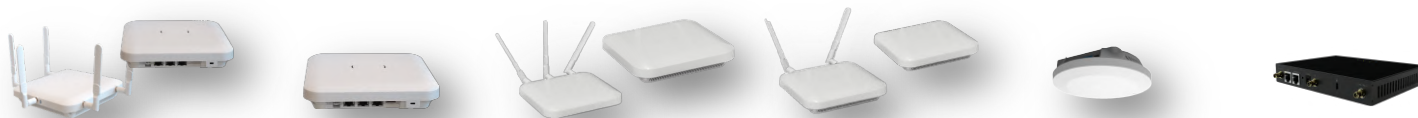
- Boosts monitoring tool performance and eliminates blind spots
- Time-stamping, protocol stripping, etc.



Extreme Networks: Цифровая трансформация



Точки доступа для установки в помещениях



	AP-8533	AP-8432	AP-7532	AP-7522	AP-7632i	AP-7632e
Тип точки доступа	802.11ac Wave2	802.11ac Wave2	802.11ac Wave1	802.11ac Wave1	802.11ac Wave2	802.11ac Wave2
Антенная формула	4x4:4	4x4:4	3x3:3	2x2:2	2x2:2	2x2:2
Поддержка 2,4Ггц/5Ггц	Да/Да	Да/Да	Да/Да	Да/Да	Да/Да	Да/Да
Количество радио интерфейсов	3	2	2	2	2	2
Встроенные/внешние антенны	Да/Да	Да/Нет	Да/Да	Да/Да	Да/Нет	Нет/Да
Выделенный интерфейс для работы сенсора	2,4Ггц и 5Ггц	2,4Ггц или 5Ггц	Нет	Нет	Нет	Нет
Поддержка Bluetooth интерфейса	Да	Да	Нет	Нет	Да	Да
Количество сетевых интерфейсов	2xGE	2xGE	1xGE	1xGE	1xGE	1xGE
Поддержка режима PoE-out	Нет	Да	Нет	Нет	Нет	Нет

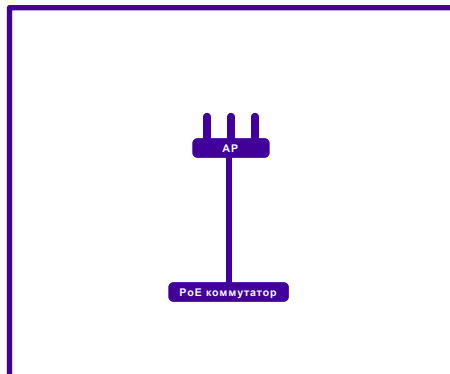


Точки доступа для установки на улице



	AP-7562e	AP-7662i	AP-7662e
Тип точки доступа	802.11ac Wave1	802.11ac Wave2	802.11ac Wave2
Количество радио интерфейсов	2	2	2
Антенная формула	3x3:3	2x2:2	2x2:2
Подключение внешних антенн	6 разъемов типа N	Встроенная антенна	5 разъемов типа N
Количество сетевых интерфейсов	2xGE	2xGE	2xGE
Поддержка Bluetooth интерфейса	N	Y	Y
Вес	2.54 кг	1.1 кг	1.3 кг
Класс защиты	IP67	IP67	IP67
Температурный диапазон	-40°C to 60°C	-40°C to 70°C	-40°C to 70°C

Простое решение для одного узла



Одна точка доступа

Компоненты решения

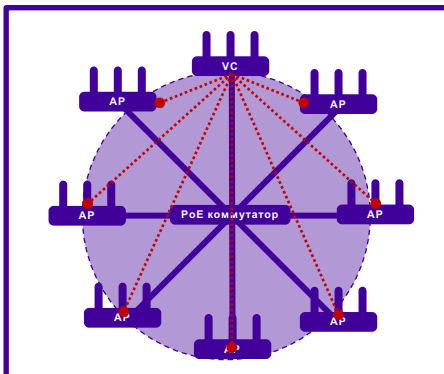
- Независимая точка доступа
- Локальное управление на точке

Встроенные сервисы

- AAA / DHCP / Captive Portal
- Enhanced WIPS
- L2/L3 SPI Firewall
- DPI

Дополнительные сервисы

- ADSP



От 2 до 64 точек

Компоненты решения

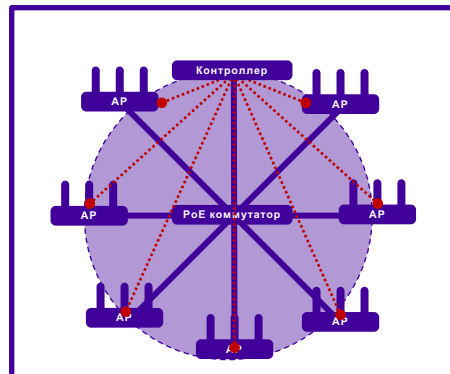
- Виртуальный контроллер
- Единая точка управления

Встроенные сервисы

- AAA / DHCP / Captive Portal
- Enhanced WIPS
- L2/L3 SPI Firewall
- DPI

Дополнительные сервисы

- ADSP
- NSight



От 2 до 2048 точек

Компоненты решения

- Контроллер и точки доступа
- Единая точка управления

Встроенные сервисы

- AAA / DHCP / Captive Portal
- Basic/ Advanced WIPS
- L2/L3 SPI Firewall/ RBWF
- DPI

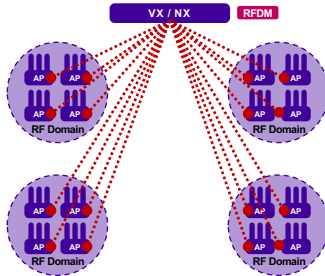
Дополнительные сервисы

- ADSP
- NSight



Построение иерархической архитектуры

До 10240 точек



Компоненты решения

- Контроллер и точки доступа
- Единая точка управления

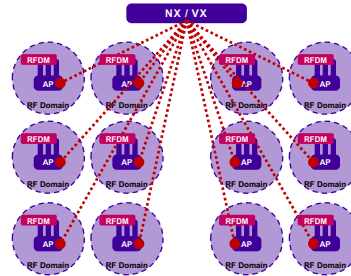
Встроенные сервисы

- AAA / DHCP / Captive Portal
- WIPS
- L2/L3 SPI Firewall/ RBWF/DPI

Дополнительные сервисы

- ADSP
- Nsight
- Proximity/Zoning/Positioning

До 10240 точек



Компоненты решения

- Контроллер и независимые точки
- Единая точка управления

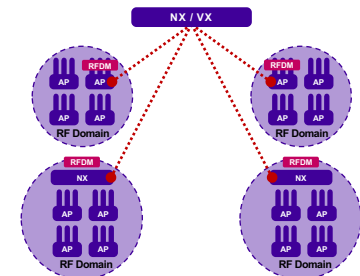
Встроенные сервисы

- AAA / DHCP / Captive Portal
- WIPS
- L2/L3 SPI Firewall/ RBWF/DPI

Дополнительные сервисы

- ADSP
- Nsight
- Proximity/Zoning

До 10240 точек



Компоненты решения

- Контроллер и независимые точки
- Единая точка управления

Встроенные сервисы

- AAA/DHCP/Captive Portal
- WIPS
- L2/L3 SPI Firewall/RBWF/DPI

Дополнительные сервисы

- ADSP
- Nsight
- Proximity/Zoning/Positioning



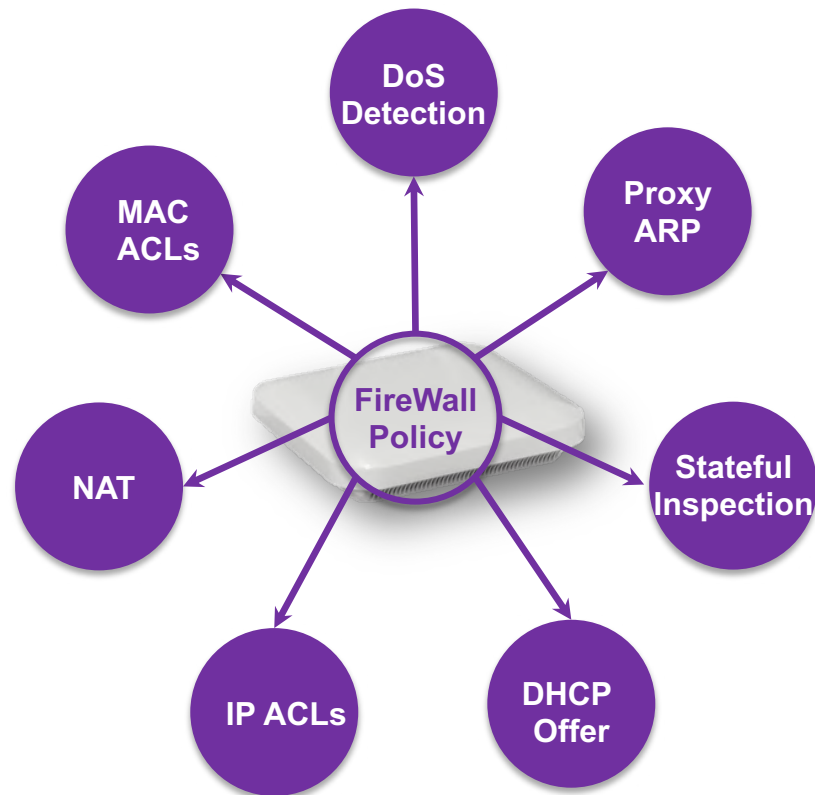
Встроенный межсетевой экран

Встроенный межсетевой экран в ПО на:

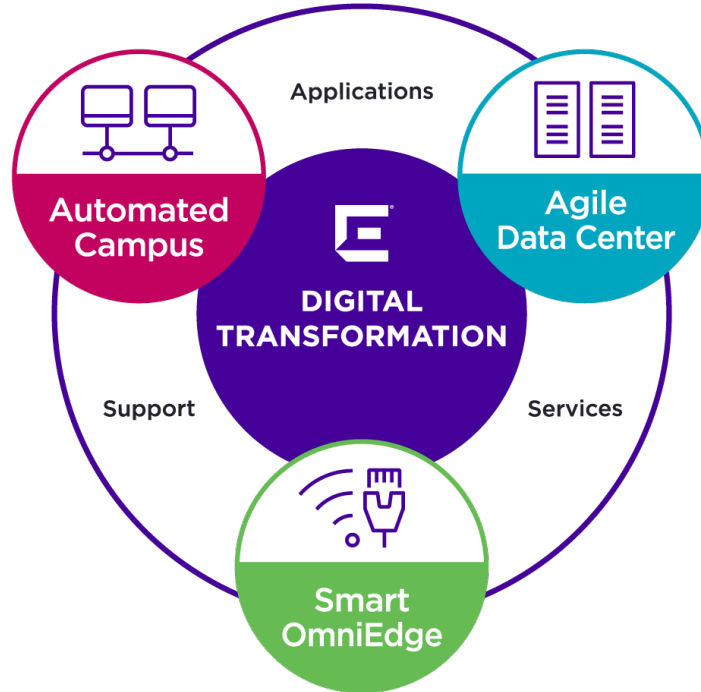
- Контроллерах
- Точках доступа

Межсетевой экран обеспечивает:

- Инспекцию пакетов на L2 и L3
- Отслеживание состояние TCP/UDP/ICMP потока
- Списки доступа на основе IP (IP ACL)
- Списки доступа на основе MAC (MAC ACL)
- Трансляцию адресов (NAT)
- Автоматическое отключение клиента при превышении порога заблокированных пакетов
- Сокращение количества ARP-запросов в беспроводном сегменте (Proxy ARP)



Extreme Networks: Цифровая трансформация



1. Extreme Campus Switching



1-10
1-10-40
10-40-100

VSP Switches

EXOS Switches



VSP8600



VSP8400



VSP8200



VSP7200



VSP4450



VSP4850



X870



X690



X590



X670-G2



X620



X460-G2



X450-G2



X440-G2

ERS Switches

EOS Switches

VPEX Switches



ERS5900



ERS4900



ERS3600



X220



X210



V400



Smart OmniEdge: Новые решения



300 Series

\$



X435 Series



400 Series

\$\$



X445 Series



500 Series

\$\$\$



X455 Series



700 Series

\$\$\$\$



465 Series

Basic

- Multi-Rate 1 / 2.5 / 5 Gb
- 60 PoE++

Value

- 32 x 100G в 1 RU
- MACSec

Mid-Tier

- 512K TCAM таблицы
- MACSec

Services



Результаты - 2018 Data Center Magic Quadrant



**“Organizations should shortlist
Extreme for data center
networking opportunities in the
Americas and Europe”**

Источник:
Magic Quadrant for Data Center Networking Published 11 July 2018



Results - 2018 LAN/WLAN Magic Quadrant

“Clients should assess Extreme Networks globally for all wired/WLAN access layer opportunities.”

Figure 1. Magic Quadrant for the Wired and Wireless LAN Access Infrastructure



Источник:
Magic Quadrant for the Wired and Wireless LAN Access Infrastructure
Published 11 July 2018



Industry Verified

#1 Ranked Service/Support – Gartner

As of September 30, 2018

Extreme Networks has an

Overall Rating

of **4.8** out of 5



in the _____

Data Center
Networking




market _____

based on 128 ratings

89% of reviewers would recommend
Extreme Networks

82% would recommend Cisco

80% would recommend HPE

	 Extreme®	 CISCO™	 Hewlett Packard Enterprise
Ease of Deployment	4.4	4.0	4.3
Timeliness of Vendor Response	4.6	4.4	4.4

Extreme is one of the **highest rated** and most reviewed of the 22 vendors listed

See the reviews at: <https://www.gartner.com/reviews/market/data-center-networking>



Customer Validation

Data Center



Wired & Wireless LAN



Overall Peer Rating

Willingness to recommend



4.8 ★★★★★

97% Yes



4.7 ★★★★★

92% Yes



4.5 ★★★★★☆

81% Yes



4.5 ★★★★★☆

85% Yes



4.6 ★★★★★☆

93% Yes



4.4 ★★★★★☆

83% Yes

“Solid alternative to Cisco – advanced features at a value price”

CIO in Healthcare Industry





WWW.EXTREMENETWORKS.COM

