

OneController™

OpenDaylight-based SDN Controller

HIGHLIGHTS

BUSINESS ALIGNMENT

- Leverage the intelligence of a SDN-based virtualized environment to support the dynamic needs of your business.
- Maintain and enhance your security posture for the network, devices, and data, both in-flight and at rest.
- Utilize a rich ecosystem of over 65 Technology and Solution Partners offering out-of-the box SDN integrations enabling faster deployments and increased competitive differentiation.

OPERATIONAL EFFICIENCY

- Achieve faster workload provisioning with network automation and orchestration.
- Improve application performance with fine-grained, pervasive, and actionable visibility.
- Deliver integrated management of wired & wireless, traditional and SDN-based networks.
- Maximize resource utilization with an evolutionary approach to SDN that supports your existing multi-vendor network infrastructure.

SUPPORT AND SERVICES

- Enjoy industry-leading customer satisfaction and 94% first call resolution rates.
- Experience personalized services, including site surveys, network design, installation, and training.

An Evolutionary Approach to Innovation

Software Defined Networking (SDN) is a new architectural approach that provides network abstractions to enable automation, orchestration and virtualization of the network.

A primary roadblock to SDN adoption has been the requirement to either rip-and-replace or be locked into closed and proprietary vendor solutions. Proprietary solutions, delivered from a vendor, limit customer flexibility. No single vendor can keep pace with the innovation velocity that comes from a diverse, open community of developers from universities, open and standard-based vendors, and users.

OneController leverages the OpenDaylight framework to provide an open and standards-based SDN Controller providing simple, fast, and smart automation and orchestration for your network. It forms the basis of Extreme Networks' evolutionary SDN Platform for innovation, which allows you to choose best-of-breed products and solutions.

OneController tightly integrates with existing and multi-vendor hardware and software network infrastructure, preserving customer investments and avoiding vendor lock-in. OneController ensures investment protection through backward compatibility in multi-vendor networks with support for both, the OpenFlow standard and open APIs. OneController's OpenDaylight APIs, software development kit (SDK) and developer community enables customers to evolve the network to keep pace with emerging security, wireless, and converged SDN infrastructure.

Extreme Networks has a proven track record of delivering Software Defined Networking (SDN) solutions with many years of experience, over 12 million SDN-ready ports shipped, and hundreds of existing customers deploying real time orchestration across both wired and wireless networks. Our solutions leverage field-proven integrations with over 65 Technology Solution Partnership (TSP) program members.

Extreme Networks pioneered SDN architectures with flow-based architectures performing SDN-like functions since 1996. Extreme was first to market with SecureFast, a policy-driven and flow-based network architecture to help simplify the management and provisioning of networks. Extreme also is the only networking vendor in the market with a significant installed base of OpenFlow-enabled enterprise class fixed and modular switches. We offer a range of switching solutions supporting up to 96 million concurrent flows based on our CoreFlow2 ASIC, all provisioned by a network-wide policy-based paradigm.

Our open philosophy, heritage, and expertise uniquely positions Extreme Networks to become your trusted source for high-performance, scale, and deployable SDN products and solutions.

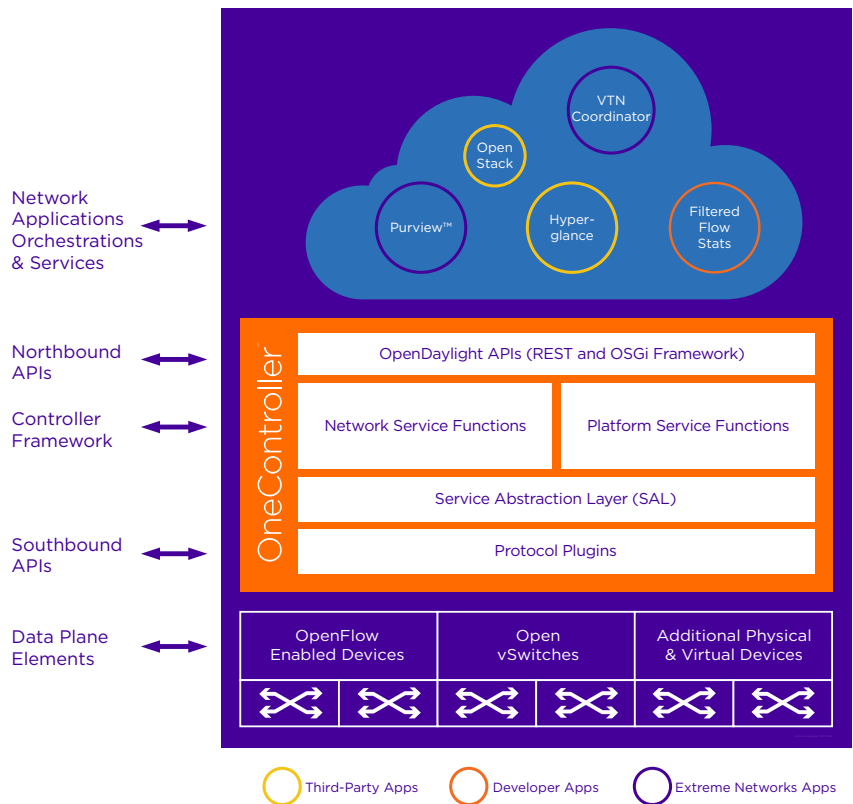
HIGHLIGHTS CONT.

- OneController 1.0 is based on OpenDaylight “Helium” Release.
- OneController’s open & standards-based REST (web based) APIs provides users the ability to create applications using the language of their choice to program and control their network.
- OneController’s southbound interface is capable of supporting multiple open/vendor-led protocols to manage & control a multi-vendor network infrastructure ensuring investment protection.



Key Features/Benefits

OneController 1.0 is based on OpenDaylight “Helium” Release and is optimized for performance and scale. The platform enables a seamless migration from existing infrastructure to a SDN-based virtualized environment.



NORTHBOUND AND SOUTHBOUND APIS

One Controller’s web-based REST APIs provide users with the ability to create applications using programming language of their choice to program and control their network. These applications use OneController to gather network intelligence, run algorithms to perform analytics, and then use OneController to orchestrate the new rules, if any, throughout the network.

Additionally, OneController is based on the modular OpenDaylight architecture that allows multiple Java modules to run concurrently within the OSGi framework and lets the modules access Java APIs exposed by other modules using the OpenDaylight Service Layer Abstraction framework. This allows for easy extensibility of OneController for enhanced SDN functionality.

The southbound interface is capable of supporting multiple protocols (as separate plugins), e.g. OpenFlow, OVSDB, and Netconf. Additionally, plugins to support vendor-specific southbound protocols can also be supported. This flexibility for support of multiple APIs enables investment protection by being able to continue to work with existing network infrastructure.

HIGHLIGHTS CONT.

- OneController allows you to maximize your resource utilization by deliberately avoiding artificial capacity limits such as the number of switches, ports, or Virtual Machines (VM).
- The OneController physical appliance (OneC-A-600) is powered by 2 Xeon CPUs, 32 GB of RAM, four 1Gbps interfaces and two optional 10Gbps interfaces making it a highly tuned appliance that has the power and versatility to meet current and future SDN requirement.
- Learn more about how Extreme Networks is fueling Innovation with SDN: www.extremenetworks.com/developers/SDN-Innovation-Challenge.

VIRTUALIZATION FRIENDLY

The OneController virtual appliance (OneC-V) is deployed in increments of 8 cores making it friendly towards the growing trend of virtualization of network functions and workloads. OneController also deliberately avoids artificial capacity limits such as the number of switches, ports, or Virtual Machines (VM).

These attributes allow you to maximize your resource utilization and leverage a simplified pay-as-you-grow model in line with how you manage the rest of your virtualized environments.

DESIGNED FOR PERFORMANCE AND SCALE

The OneController physical and virtual appliances are optimized for high-performance and hyper-scale. It scales linearly with multi-core processors, resulting in the capability of the platform to achieve a forwarding rate of up to 1M pps per core and in line encryption/decryption of IPSEC traffic to achieve a forwarding rate of up to 15Gbps. The OneController physical appliance (OneC-A-600) is powered by 2 Xeon CPUs, 32 GB of RAM, four 1Gbps interfaces and two optional 10Gbps interfaces making it a highly tuned appliance that has the power and versatility to meet current as well as future SDN requirement.



OneController Use Cases

OneController is ideally suited for today's rapidly evolving, dynamic environments. Listed below are some use cases it can enable.

TRAFFIC ENGINEERING

SDN-based traffic engineering is characterized by being able to identify and alter the behavior or pattern of specific types of traffic on-demand. This requires the ability to, in real time, distinguish certain types of traffic then dynamically classify it based on host, OS, application, or end-user. Two common methods for engineering traffic are QoS modifications and traffic steering.

A few real-world examples where this can be applicable are WAN Optimization, Elephant Flow Handling, and Unified Communications.

SERVICE FUNCTION CHAINING

Service Function Chaining provides the ability to "stitch" together an ordered list of network services (e.g. firewalls or load balancers) in the network to create a service chain. This requires the ability to register the services and chain provisioning.

A few real-world examples where this can be applicable are firewall upgrades, and consolidation of workloads into a single cloud from a traditional non-virtualized data centers.

NETWORK VIRTUALIZATION

Network virtualization creates logical segments in an existing physical network by logically dividing the network at the flow level akin to an overlay or a tunnel. There are a plethora of choices available each with its own strengths and weaknesses. OpenFlow-based network virtualization allows for the most flexibility as it can work in conjunction with existing mature network virtualization techniques like VLANs, IP, and MPLS. The other notable network virtualization technology is VXLAN.

A few real-world examples where this can be applicable are multi-tenant data centers, DDoS mitigation, and VM migration.

OneController Software Specifications

OneController 1.0 is based on OpenDaylight “Helium” Release. For more information about this release please visit:

https://wiki.opendaylight.org/view/Simultaneous_Release:Helium_Release_Plan

NAME	DESCRIPTION
AAA	Authentication, Authorization, and Accounting
AuthN	Authentication
BGP	Border Gateway Protocol
COPS	Common Open Policy Service
DLUX	OpenDaylight User Experience
FRM	Forwarding Rules Manager
GBP	Group Based Policy
LISP	Locator/Identifier Separation Protocol
OVSDB	OpenvSwitch DataBase Protocol
PCEP	Path Computation Element Communication Protocol
Plugin2OC	Plugin To OpenContrail
SDNI	SDN Interface (Cross-Controller Federation)
SFC	Service Function Chaining
SNBI	Secure Network Bootstrapping Infrastructure
SNMP	Simple Network Management Protocol
TTP	Table Type Patterns
VTN	Virtual Tenant Network

OneC-A-600 Technical Specifications

TECHNICAL SPECIFICATIONS	ONEC-A-600
Length	70.9cm (27.95in)
Width	43cm (16.93in)
Height	4.45cm (1.75in) – 1U
Weight	14.4 kg (31.8lbs.)
Operating Temperature	10° C to 35° C (50° F to 95° F)
Storage Temperature	-40° C to 70° C (-40° F to 158° F)
Humidity	5% to 90%, non-condensing
19" Rack Mountable	1U configuration to fit standard 19" rack (mounting kit included)
Front and Rear Mount	I/O cabling and power cabling at back of unit; power switch at the front
Power	<ul style="list-style-type: none"> Voltage: 110/240 VAC Frequency: 47-63 Hz Power (max): 750 W
Data Ports	<ul style="list-style-type: none"> 3 x 10/100/1000 Base-T Future: Optional 2 x SFP+
Management Ports	<ul style="list-style-type: none"> 1 x 10/100/1000 Base-T 5x USB Ports available. Use one. Console Port RJ45

TECHNICAL SPECIFICATIONS	ONEC-A-600
Regulatory/Safety	<ul style="list-style-type: none"> • UL60950 - CSA 60950 (USA/Canada) • EN60950 (Europe) • IEC60950 (International) • CB Certificate & Report, IEC60950 GS Certification (Germany) • GOST R 50377-92 - Certification (Russia) • Ukraine Certification (Ukraine) • CE - Low Voltage Directive • 2006/95/EC (Europe) • IRAM Certification (Argentina)
Emissions/Immunity	<ul style="list-style-type: none"> • FCC/ICES-003 - Emissions (USA/ Canada) • CISPR 22 - Emissions (International) • EN55022 - Emissions (Europe) • EN55024 - Immunity (Europe) • EN61000-3-2 - Harmonics (Europe) • EN61000-3-3 - Voltage Flicker (Europe) • CE - EMC Directive 2004/108 EC (Europe) • VCCI Emissions (Japan) • AS/NZS 3548 Emissions (Australia/New Zealand) • BSMI CNS13438 Emissions (Taiwan) • GOST R 29216-91 Emissions (Russia) • GOST R 50628-95 Immunity (Russia) • Ukraine Certification (Ukraine) • KC Certification (Korea)

Virtual Appliance Requirements

NAME	DESCRIPTION
Virtual Platform	VMware ESXi 5.5
Virtual Machine CPUs	8 cores
Virtual Machine Memory	4G or higher
Virtual Machine Storage	100G
Virtual Network Interfaces	Two data ports and one management

Ordering Information

OneController is available in two models:

OneC-A-600 — A physical appliance where the software is bundled with perpetual right to use and usage of all cores. Key Specs: (2) XEON CPUs (24 cores), dual 1TB hard drives with RAID controller, 32GB RAM, dual power supplies, 4x1G ports, and optional 2x10G module.

OneC-V — A virtual appliance that is available as a subscription. Subscriptions are provided in a virtualization-friendly model that allows you to grow in increments of 8 cores. A subscription includes 24x7x365 TAC, software updates, and upgrades.

PART NUMBER	DESCRIPTION
HARDWARE	
85001	OneController Appliance includes (2) CPUs, dual hard drives with RAID controller, 4x1G ports, and dual power supplies.
SOFTWARE	
85107	OneController Virtual Appliance Base Software. Requires Service Contract to enable right to use the software for specified duration and capacity.
SUPPORT	
97033-85107	EW SaaS -85107 OneC Sub, 1-8 Cores
95633-85107	PWP SaaS -85107 OneC Sub, 1-8 Cores
97004-85001	EW NBD AHR - 85001
97007-85001	EW 4HR AHR-85001
97011-85001	EW NBD ONSITE-85001
97008-85001	EW 4HR ONSITE-85001
95507-85001	PW 4HR AHR-85001

PART NUMBER	DESCRIPTION
SUPPORT (CONT.)	
95508-85001	PW 4HR ONSITE-85001
95504-85001	PW NBD AHR-85001
95511-85001	PW NBD ONSITE-85001
95604-85001	PWP NBD AHR-85001
PROFESSIONAL SERVICES	
PS-SDN-BASE	Base SDN Integration
TRAINING	
PS-ESU-1	Configuring and Managing OneController
TR-EDU-1	Configuring and Managing OneController
TR-EDU-APAC-1	Configuring and Managing OneController
TR-EDU-LATAM-1	Configuring and Managing OneController
TR-EDU-BRAZIL-1	Configuring and Managing OneController

Warranty

As a customer-centric company, Extreme Networks is committed to providing quality products and solutions. In the event that one of our products fails due to a defect, we have developed a comprehensive warranty that protects you and provides a simple way to get your products repaired or media replaced as soon as possible.

For full warranty terms and conditions please go to:

<http://www.extremenetworks.com/support/enterasys-support/how-to/warranty/>

Service & Support

Extreme Networks provides comprehensive service offerings that range from Professional Services to design, deploy and optimize customer networks, customized technical training, to service and support tailored to individual customer needs. Please contact your Extreme Networks account executive for more information about Extreme Networks Service and Support or visit:

<http://www.extremenetworks.com/support/>

Questions? Need help? Feel free to call us at +1-888-257-3000 or email us at

sdn@extremenetworks.com.



<http://www.ExtremeNetworks.com/contact> / Phone +1-408-579-2800

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