Extreme Networks Software Defined Networking (SDN) Platform: Open, Standards-based and Comprehensive
The Extreme Networks SDN Platform

Extreme Networks SDN platform is evolutionary software defined networking (SDN) platform to promote community led innovation. We believe customers should be able to migrate their existing (brownfield) networks to SDN without expensive forklift upgrades. Seamless SDN migration requires both an open, standards-based and comprehensive approach with strong community mindshare and partner ecosystem support.

Extreme Networks’ SDN platform is based on a comprehensive, hardened OpenDaylight (ODL) controller that uniquely includes: network management, network access control, application analytics and wireless controller technology. Extreme Networks comprehensive approach preserves the integrity of the open API provided by ODL while extending data center orchestration, automation and provisioning to the entire network under a single pane of glass.

Extreme Networks’ simple, fast and smart SDN platform tightly integrates with existing and multi-vendor hardware and software network environments, preserving customer investments and avoiding vendor lock-in. Backward compatibility is maintained with multi-vendor network infrastructure that conforms to the OpenFlow standard and other open APIs. Extreme Networks’ OpenDaylight-based API, software development kit (SDK) and developer community will enable customers to evolve the network to keep pace with emerging security, wireless, and converged SDN infrastructure.

The result is a simpler development platform that avoids the feature and capability limitations of other open SDN models – many of which are really only truly applicable to new or ‘greenfield’ networking implementations. At the same time, this platform also avoids the proprietary nature of other SDN models that results in vendor lock-in.

The Extreme Networks SDN Platform

The goal of this platform is to provide three key benefits that will enable our customers to meet their challenges in implementing SDN.
Simple Delivery of End-to-end Network Automation

SDN networks are complex, but Extreme Networks makes them simpler and easier to manage. We do this by leveraging one unified operating and management system (EXOS) across all platforms as well as the SDN controller. This makes deployment across multiple platforms much simpler. We are also fully integrating our solution with OpenDaylight by developing plug-ins for our management tools (such as NetSight) and hardening the overall OpenDaylight offering for increased reliability. As well we are adding additional applications (NAC, Purview, wireless, session management, etc.) that extend the benefits of SDN beyond the basic functions offered by most providers.

This allows us to bring Unified Network Management as well as network access control, network optimization and advanced application analytics to the same SDN solution. This is all managed through a simple, single-pane-of-glass GUI front-end for the whole network including the wireless edge, campus and data center.

Fast Provisioning of Network Services and Applications

The second benefit provided is both speed and flexibility when deploying applications and solutions. An effective SDN solution must by definition be programmable and integrative with nearly every other solution and application on the market. We are leveraging both open and standards-based protocols, application programming interfaces (APIs) and NFV, such as OpenDaylight and OpenFlow. We are also combining them with proven, industry-leading Extreme Networks solutions including EXOS and OneFabric Connect SDN, as well as many predefined applications that are already available and deployed. The result is that Extreme Networks customers have choices. They can choose to develop their own applications or take advantage of the entire SDN development community. This not only puts power in the hands of the customer to easily create and deploy new services, it also makes these deployments faster. An Extreme Networks customer can choose the exact application or solution that best meets their needs, budget and timeline without worrying about interoperability.

Smart Orchestration That Supports Heterogeneous Networks and Protects Existing Investments

Trialing or deploying a new SDN application with an existing network is often a complex undertaking. Extreme Network's open and standards-based SDN solution allows our customers to easily trial and deploy new services regardless of who develops or provides them. Our broad SDN partner and developer ecosystem includes not only proven, tested and deployed integrations, but also opens the door to any new applications that are developed using the OpenDaylight standard. Few network operators have the luxury of a 'greenfield' network and even fewer appreciate being 'locked-in' to one vendor. Our integrative solutions work with your existing network in order to protect your investment. At the same time, our modular, standards-based architecture reduces uncertainty, variability, unpredictability and overall cost – thus enabling choice and letting our customers select a truly best-in-breed solution.
The result is a solution that is non-disruptive, leverages your existing infrastructure and allows you to innovate faster, with reduced risks, lower costs and less uncertainty. So whether you are a single vendor network or you already have a variety of mixed solutions in your network, the Extreme Networks SDN solution will work in your network.

The Extreme Networks SDN Platform

The Extreme Networks’ SDN architecture accelerates application innovation and reduces risks for the entire network, including wireless, campus and data center. We do this through a modular, open and standards-based development environment (as well as turn-key solutions) that integrates with existing infrastructure and avoids architecture lock-in. This architecture is based on a single platform that took the best of OpenDaylight and Extreme's SDN heritage that includes several years of SDN-like technologies that have been integrated into the platform to harden OpenDaylight and make it more comprehensive.

Value-Added Network Services

for Performance, Security, Single Pane of Glass Management, Visibility, and Mobility

Extreme Networks’ SDN heritage started in the mid 1990’s and includes:

1. Programmability and heterogeneity: XOS, a Linux-based Operating system that is common across the whole product line for consistent provisioning, programmability and heterogeneity across platforms
2. Visibility: Flow-aware switching that provides fine-grained, pervasive, and actionable visibility
3. Performance – dynamic policy that provides Improved application performance, faster workload provisioning that optimizes the network
4. Security – policy and network access control for network, devices, data integrity – in flight, and at rest for 24x7 peace of mind
5. Single Pane of Glass – Simplified & consistent user experience – better experience & reduced Opex
6. Advanced application analytics for Layer 7 visibility and control
7. Wireless controller for WiFi access
8. OpenFlow embedded in XOS for Southbound API
9. OneFabric Connect – part of Extreme’s SDN 1.0 solution that provides Northbound API and over 40 partner solutions and a partner ecosystem
The Extreme Networks Advantage

As mentioned above, there’s a lot of hype in the SDN market today and network operators are wise to weigh their options carefully when considering an SDN solution. However, there are a number of things that make Extreme Networks stand out from the crowd. We offer:

- **An Open, Standards-based and Comprehensive Platform** that won’t require vendor lock-in or additional investment to realize the full potential of SDN
- **A Simple Development Platform** for innovation that makes it easy for any organization to deploy SDN solutions regardless of size or skill level
- **Investment Protection** as our SDN solutions not only integrate with other Extreme Networks solutions but also support multi-vendor environments
- **Value-Added Network Services**
  a. **Performance** – Improved application performance, faster workload provisioning and an optimized network
  b. **Security** – Network, devices, and data are fully visible and secure (in flight and at rest)– providing peace of mind
  c. **Single Pane of Glass Management** – A simplified and consistent user experience providing a better user experience with lower operational costs
  d. **Visibility** – Fine-grained, pervasive and actionable information on network status and usage that enables operators to make fast and intelligent business decisions
  e. **Mobility** – Device onboarding and WiFi and BYOD access
- **A Comprehensive Solution** for the whole network including wireless, campus, core and data center
- **Unique Core-Flow Technology** that provides the industry’s most scalable flow-aware data plane so your SDN deployments scale to meet your growth
- **A Deployment Choice** of existing integrated applications, applications that are custom developed and/or applications that leverage the thriving SDN application development community
- **Compatibility** – ‘Brownfield’, multi-vendor support for seamless migration from on-premises networking to the cloud, resulting in a faster and higher return on investment
- **A Broad SDN Partner and Developer Ecosystem** that includes over 40 established technology partners as well as the entire OpenDaylight development community
- **The Industry’s Leading Insourced Customer Support** so you can take advantage of our expertise and experience with SDN – you don’t have to do it alone!

Moving Forward with Extreme Networks SDN

SDN has tremendous potential to revolutionize the network and dramatically improve network efficiencies. Extreme Networks will be happy to help you determine what SDN can do for you. Please visit our SDN Product page at [http://www.extremenetworks.com/product/sdn/](http://www.extremenetworks.com/product/sdn/).


Questions? Need help? Feel free to call us at 888- 257-3000 or email us at sdn@extremenetworks.com.