OPEN NETWORKING
FOUNDATION

OpenFlow™
Conformance Testing
Program

OpenFlow

The Open Networking Foundation (ONF) OpenFlow™ Conformance Testing Program gives networking vendors an opportunity to demonstrate compliance with the OpenFlow specification. Compliance is certified by independent, ONF-approved testing labs that follow test procedures developed within ONF.

Independent testing helps the ecosystem of products that conform to the OpenFlow specification grow more effectively. Customers recognize that third-party conformance validation is valid and impartial, encouraging trust in new products. Vendors benefit from the added customer trust, as well as program features such as:

- A straightforward, globally-available testing and conformance process
- Certificates for hardware and software
- Recognition of compliance on the ONF website
- Authorized use of the ONF OpenFlow Conformance logo

THE POWER OF CONFORMANCE

Software-Defined Networking (SDN) is a new approach to networking in which network control is decoupled from the data forwarding function and is directly programmable. The result is an extremely dynamic, manageable, cost-effective, and adaptable architecture that gives administrators unprecedented programmability, automation, and control.

Implementing SDN via the OpenFlow specification enables extraordinary agility while reducing service development and operational costs, and frees network administrators to integrate best-of-breed technology as it is developed. As the OpenFlow specification evolves to include more comprehensive functionality, networking professionals worldwide need to ensure that the products they purchase conform to this game-changing protocol.

ONF is a user-driven organization dedicated to the promotion and adoption of SDN through open standards development. Supporting vendors that offer products which conform to the OpenFlow specification advance the ONF mission of promoting SDN.

One way ONF supports these vendors is through the ONF OpenFlow Conformance Program, which validates that a networking product conforms to a specific version of the OpenFlow specification. Vendors can earn an ONF Certificate of Conformance for network hardware such as switches and routers, as well as network software. Displaying an ONF OpenFlow Conformance logo helps customers make informed purchasing decisions that future-proof investments in networking equipment and software, and encourages software-defined network deployment.

Why Get Certified?

- **Enhanced customer confidence**
- **Use of ONF OpenFlow Certified logo**
- **Included in list of Conformant products and vendors on the ONF website**

CERTIFICATE ADVANTAGES

An ONF Certificate of Conformance gives customers confidence that a networking product will meet expectations of functionality in a software-defined network that uses the OpenFlow specification. Customers also benefit from the knowledge that they are working with a vendor who is an ONF member.

ONF member vendors are in the vanguard of innovation in software-defined network development. They believe in the future of SDN, and collaborate with companies around the world to bring networking solutions that conform to the OpenFlow specification to market. Many of them are consistent participants at ONF PlugFest events, which regularly bring scores of companies together to improve the performance and functionality of OpenFlow products.

Along with enhanced customer confidence, vendors gain other significant benefits from earning an ONF OpenFlow Certificate of Conformance. An ONF OpenFlow Certificate of Conformance includes the right to use an ONF OpenFlow Conformance Program logo on compliant products, documentation, and the company website. Complying products and vendors are also listed on the ONF website, providing a significant competitive advantage by facilitating marketing and outreach efforts.

STRAIGHTFORWARD PROCESS

Obtaining an ONF OpenFlow Certificate of Conformance is a straightforward process for vendors (Figure 1). Vendors simply contact an ONF-approved test lab, complete an application form, and work with the lab to define a mutually agreeable schedule for product delivery. All ONF-approved testing facilities are independent agencies that perform testing services according to ONF-approved testing protocols. Vendors contract directly with the lab to secure these services; ONF is not a party to these transactions.

When the lab certifies that the product specified in the application meets the ONF OpenFlow Conformance Test Specification requirements, ONF will approve the awarding of an ONF OpenFlow Certificate of Conformance. ONF will then list the product and vendor in the appropriate website directories and provide the appropriate logos for authorized use by the vendor.

ONF has developed a detailed and confidential process to allow companies to receive conformance for their products prior to announcements, and has crafted detailed requirements for confidentiality, appeal of testing results, and other governance matters for each of its ONF-approved testing labs.
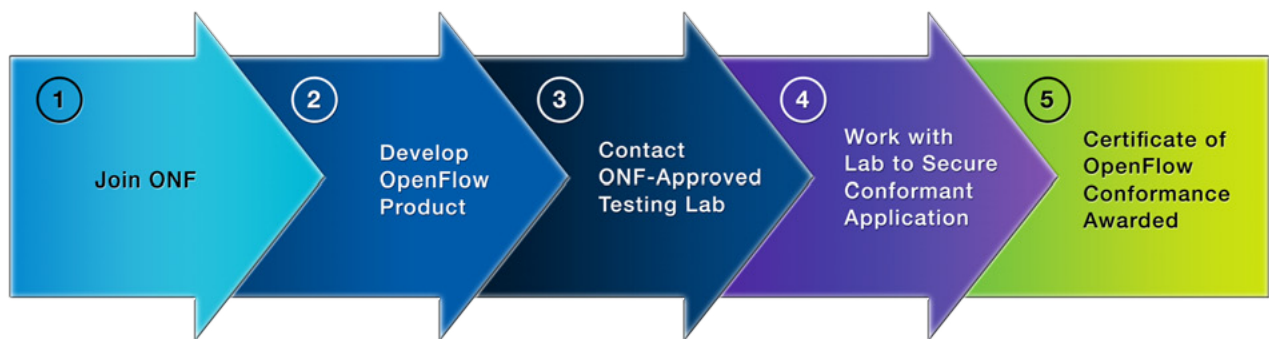

1. Become an ONF member and join the ONF Testing & Interoperability Working Group.

2. Develop your product and participate in annual plugfests to rapidly advance your development efforts.

3. Contract with an ONF-Approved Testing Lab. Visit the ONF website to find approved labs. All contracts for testing are arranged privately between your company and the lab.

4. Work with Your Lab. Your testing lab will design a custom schedule around your needs and conduct a certified conformance test when your product is ready.

5. Congratulations! Once your product has passed, use the conformance logo on your products. Your products will also be posted on the ONF website. Let your customers know that your products have that extra level of trust.

Figure 1. ONF OpenFlow Conformance Process

CERTIFICATE OPTIONS

ONF currently offers OpenFlow Switch Specification 1.0.1 certificates for Full Conformance, Layer 3 Conformance, and Layer 2 Conformance. Vendors have three certificate options because support of some applications does not require the use of all 12-match fields described in the OpenFlow Switch Specification 1.0.0 (Errata 1.0.1). To allow support of "specialized" devices designed to support only a specific subset of functions, three profiles were defined to specify required match fields to support the most common applications.
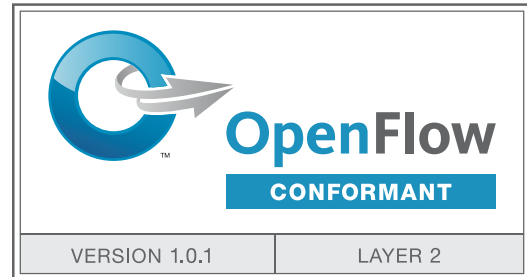
- **Full Conformance**: The device must be able to match all 12 fields listed in the OpenFlow Switch Specification 1.0.0 (Errata 1.0.1).

- **Layer 3 Conformance**: The implementation must be able to match the following fields in the OpenFlow Switch Specification 1.0.0 (Errata 1.0.1): Ingress Port, Ethernet Type, IP Source Address, and IP Destination address.

- **Layer 2 Conformance**: The implementation must be able to match the following fields in the OpenFlow Switch Specification 1.0.0 (Errata 1.0.1): Ingress Port, Ethernet Source Address, Ethernet Destination Address, Ethernet Type, and VLAN id.

Detailed information on the OpenFlow Standard and the Test Specifications for ONF Certificates of Conformance is available at www.opennetworking.org.

FOR MORE INFORMATION

For additional information about the ONF Certificate of Conformance program, please contact ONF at: info@opennetworking.org.

ABOUT ONF

ONF is a user-driven organization dedicated to the promotion and adoption of Software-Defined Networking (SDN) through open standards development. Our signature accomplishment to date is introducing the OpenFlow Standard, which is a vital element of an open software-defined network. Today our working groups continue to analyze SDN requirements, evolve the OpenFlow protocol to address the needs of commercial deployments, and research new standards to expand SDN benefits.