Creating a robust NFV ecosystem

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Enterprise

Get to market faster with a flexible, open NFV ecosystem

Today's Communications Service Providers (CSPs) are looking to Network Functions Virtualization (NFV) to give them the ability to rapidly offer a variety of new services to their customers.

To gain the agility that NFV promises, CSPs need an NFV platform that will allow them the freedom to choose the applications they need to introduce the services their customers want—without vendor lock-in. And in order to get these services to market quickly, CSPs want to know that the applications they choose will work in their production environment, provide necessary features, interoperate with existing legacy systems and services, and have the requisite operations support system (OSS) integrations to be rapidly integrated into their OSS/business support system (BSS).

CSPs want to choose their applications from anywhere and everywhere, regardless of vendor. They need speed and agility, which means their network environment must be open, flexible, and unconstrained. They also need to be able to collaborate on technology with third parties. To support this degree of flexibility and openness, adhering to standards is critical. An NFV platform with a standards-based open architecture enables a robust ecosystem of vendors whose products work well together, but to ensure their interoperability, they should be tested in a multivendor environment before CSPs bring them into production.

A commitment to open source and standards

The move to NFV enables the disaggregation of the network and allows CSPs to choose different parts of the system from different vendors to best meet their needs. In theory, this enables CSPs to optimize the system—for flexibility, time to market, or cost—and they can innovate and scale each component independently with separate development timelines for each piece. However, the reality is that once the system is disaggregated into separate pieces, there are so many interdependencies that making any changes becomes challenging—both time-consuming and expensive.

The only way to make such a structure work is with an open, standards-based architecture. Components must have open interfaces with a well-understood architecture and clear boundaries. Everyone across the ecosystem has to agree on how the components will talk to each other and work together.

But it's not just about standards. Some telecom standards organizations try to iron out every detail before releasing anything, which can take a very long time. In fact, there have been cases where the market opportunity has passed before the standard was complete. To avoid this, open source is becoming a new approach to standards. With open source, a framework is established for the standard without defining all of the detailed specifications. Then, as development progresses, a **de facto** standard emerges. With open source development around the defined interfaces, there's an agreed-upon implementation standard. OpenStack® and other such technologies have evolved in the data center and the cloud based on open source. The same approach is underway for carriers in NFV.

Testing across the ecosystem

With the approach of encouraging open source development, it's critical to test and share information about different realizations and vendor implementations. In the NFV space, proof of concept (PoC) projects are beginning to appear. Typically focused on demonstrating that certain key capabilities can be implemented, these PoCs are often customer-specific and built in whatever facilities are available for testing.

To truly enable a robust NFV ecosystem, the industry needs dedicated labs where multiple vendors can come together to test end-to-end solutions. These labs provide a facsimile of a slice of the network, which allows carriers to try things out before implementing them in production. The labs are a service development environment where carriers can test that the integration between vendors' products works as promised. Carriers can see what is being developed and can get involved to set direction—without investing as much of their own resources. And ultimately, the labs will give them the assurance that the vendors' products work together and provide a solution that can be deployed in the carrier's network.

Why Hewlett Packard Enterprise

The HPE OpenNFV Program includes an open, standards-based architecture, a partner program, labs for testing solutions, and services to help CSPs make it all work together. The OpenNFV architecture leverages our strengths in infrastructure, orchestration, virtual network functions, and the ability to get to the cloud using OpenStack. With the HPE OpenNFV Partner Program, the end-to-end NFV solution includes not only HPE products, but also many products in the industry. This ecosystem is based on open standards and open source so that CSPs can utilize HPE technology and technologies from across the industry in an interoperable manner for a robust NFV solution that is open and provides choices.

Hewlett Packard Enterprise is actively involved in many standards organizations—as a board member, as a committee chair, or making significant contributions to Alliance for Telecommunications Industry Solutions (ATIS), CloudEthernet Forum, European Telecommunications Standards Institute (ETSI), Open Networking Foundation (ONF), Open Network Function Virtualization (OP-NFV), TM Forum, and open source initiatives like OpenStack and OpenDaylight.

In addition, we've built the HPE OpenNFV Labs to help operationalize the end-to-end solution. The labs provide a multivendor environment to test that all the pieces will work together properly in the CSP's production environment.

Addressing all of this holistically helps CSPs customize services for their markets' needs and bring new services to market faster—with lower risk and greater confidence.

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