Frequently Asked Questions

What is NFV?

Network Functions Virtualization (NFV) is an initiative borne out of service providers’ desires to virtualize their infrastructure and reap the benefits of that virtualization: lower opex, capital efficiency, agility, faster time-to-market. The classic NFV architecture was defined by the NFV Industry Specification Group (ISG) of the European Telecommunications Standards Institute (ETSI), an independent, not-for-profit, standardization organization in the telecommunications industry.

What is Lean NFV?

Lean NFV is an open architecture approach that gives VNF vendors, orchestration developers, and network operators a simpler way to approach and deploy NFV. It is designed to be minimally invasive and can integrate with existing NFV infrastructure platforms as well as ongoing orchestration initiatives.

At the same time, Lean NFV does not dictate a canonical implementation. It provides an overall framework consisting of a number of components and also defines the interaction points between these components. At the component-level, implementers are free to innovate.
Lean NFV is also a working group of like-minded individuals and organizations who seek to simplify NFV deployments and who are applying the principles behind Lean NFV to their own NFV implementations -- whether products or telecommunication services.

**Why Lean NFV?**

It has been over six years since the publication of the foundational NFV white paper. However, the promise of NFV has still been unfulfilled. Much of this stems from the rigid and complex framework we put in place early on. Based on our collective experience over the last six years, we better understand how we can streamline deployments. It’s time to look at alternative approaches and take a simpler approach to help accelerate NFV adoption.

**Who invented Lean NFV?**

Lean NFV wasn’t “invented” but is the result of discussions and collaboration between some industry veterans in the virtualization and networking space. It comes from real-world experience in deploying NFV.

**Who makes up Lean NFV?**

Lean NFV is comprised of industry veterans who have been intimately involved with virtualization efforts in telco and cloud data centers. We are a collection of community members who have come together to help improve the success of NFV. To see a list of founding signatories, check out the Lean NFV white paper at LeanNFV.org.

**Is Lean NFV open-source?**

Lean NFV is an open architecture, and implementers of Lean NFV are free to use open-source projects in their implementation, or not. In our discussions with customers, their preferences for how solutions are built are mixed, with some preferring open-source, some opting for commercial and others open to a hybrid approach. We believe that customers will decide what works best for them in time and that the community should be free to support any combination of open-source and commercial offerings. In addition, we expect that network functions hosted on Lean NFV platforms will run the gamut from open-source to commercial as well.

**Can I get a copy of Lean NFV?**

Lean NFV is an open architecture, not an open-source project. We will be working as a community to provide example implementations of Lean NFV using open-source components. So until those implementations become available, there’s no Lean NFV distribution that can be downloaded.

**Does Lean NFV replace ONAP and OSM?**

No, Lean NFV is not intended to replace existing orchestration systems. We intend to have Lean NFV integrate with existing orchestration platforms like ONAP. In particular, we would anticipate that ONAP will generally be used as a multi-domain or higher-level orchestrator, and a Lean NFV system could be orchestrated by ONAP.
Does Lean NFV replace OpenStack?

The Lean NFV framework can operate in environments that have or prefer OpenStack as a VIM (virtualized infrastructure manager). At the same time, the Lean NFV architecture does not dictate the use of a VIM. A bare metal platform with a resource orchestration solution also conforms to the Lean NFV architecture.

Will Lean NFV work in a Linux container environment?

Yes, it absolutely would. The Lean NFV architecture is probably most easily implemented as a collection of collaborating micro-services.

What's the role of Kubernetes in a container-based implementation of Lean NFV?

As NFV environments move towards container platforms, we will see Lean NFV deployed on top of Kubernetes-managed container platforms. Lean NFV treats Kubernetes as the underlying infrastructure manager which provides resource allocation and management services. The Lean NFV implementation would take on tasks that Kubernetes cannot or should not perform, including service chaining, service- and load-aware auto-scaling, as well as coordinating higher-level NFV services.

How will the use of service meshes impact Lean NFV?

Service meshes are orthogonal to Lean NFV architecture. They aren't meant to address the problem that Lean NFV addresses. Service meshes are useful in handling common application infrastructure needs such as service-discovery, load-balancing and scaling, visibility and secure communications. Service meshes could be used for connecting components in a Lean NFV control or management plane, but it’s not clear that the service mesh is suited for data plane traffic requiring high-throughput and low-latency.

Is there a role for the Network Service Mesh project within Lean NFV?

That's possible, but it's too early to tell. The NSM project is in its early phases and evolving rapidly. As the Lean NFV community grows and we see different implementations of our open architecture, it’s entirely possible that one of these implementations incorporates NSM.

What role does the SDN controller play in the Lean NFV architecture?

The SDN controller can play two roles within a Lean NFV architecture. The first is to set up data flows into and out of each Lean NFV cluster (i.e. ingress and egress path). The second role involves using the SDN controller to set up service chains. However, Lean NFV does not mandate the presence of a controller. For instance, an implementation could set up service chains directly within a Lean NFV cluster without the use of an SDN controller.

Is Lean NFV one or two words?

It's two words, though our logo combines the two to help with aesthetics.

How do I learn more about Lean NFV? And how do I get started?

Visit [https://LeanNFV.org/](https://LeanNFV.org/) and check out the latest updates. Please sign up on the site if you have interest in helping out.