

Lumen takes a major modernization step with Network-as-a-Service

Analysts - Craig Matsumoto

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Introduction

Service provider Lumen Technologies Inc. is modernizing its portfolio and migrating its customer experience to be more cloud-like. That means self-service portals, API support, quick service delivery and as-you-go pricing — in contrast to the long-term contracts and weeks-long deployment times associated with telco providers. It is a long-promised evolution that now has a tangible timeline. The first product converted into a Lumen Network-as-a-Service offering is Lumen Internet On-Demand, with the rest of Lumen's network services portfolio to follow by the end of 2025.

The Take

When it comes to self-service, on-demand networking, other companies have beaten telcos to the punch. In many scenarios, such as connecting a datacenter to the cloud, an enterprise can already expect to procure and consume networking through a cloud-like experience (i.e., a self-service portal delivering immediate results). Telcos have long been aware of these possibilities, but being complex organizations that are often wrangling stacks of acquisitions, they have been slow to execute. In that sense, Lumen's NaaS announcement is a necessary catching-up step — and one that telcos should be racing to take. Many NaaS competitors exist as overlays on top of networks like Lumen's, so owning the physical network is arguably an advantage. Lumen already connects clouds, datacenters and buildings worldwide, and manages core internet traffic. Major telcos can claim a similar network advantage, but not all are pursuing cloud-like customer experiences with the same fervor as Lumen.

Context

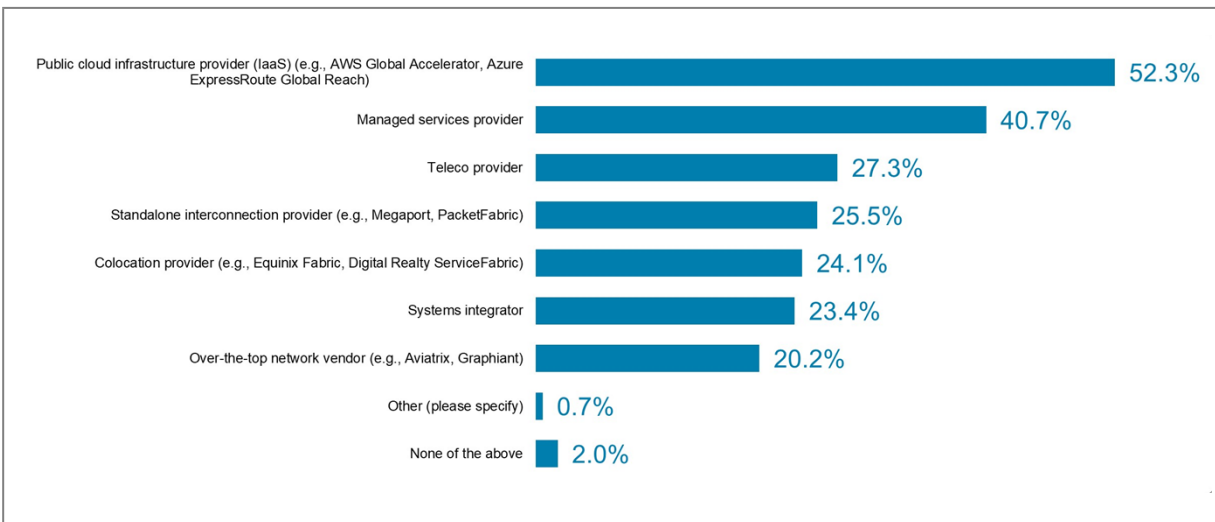
Lumen is a rebranding of US incumbent telco CenturyLink, and has long been interested in network automation. During the 2010s, it was among the carriers championing the concepts behind software-defined networking, envisioning a programmable network where changes could be made easily in software. That vision has come true, but telcos have mostly applied it to their own internal operations.

Externally, customers still engage with telco salespeople to negotiate long-term contracts, which must be renegotiated any time the customer wants to change their network. Lumen's own Dynamic Connections is an example. The service offers real-time provisioning for cloud and datacenter connectivity, but still requires a contract. However, Lumen plans to bring digitally enabled contracting to Dynamic Connections, and is expanding beyond cloud connectivity for its services.

Meanwhile, public clouds have upped enterprises' expectations. Enterprises enjoy self-service, on-demand operations for computing and storage — why not networking too? A mini-industry of contenders has stepped up to supply the fluid, agile consumption model that telcos have so far resisted. Some of these options, including interconnection providers and over-the-top network-as-a-service providers, have gained some ground.

In our [Datacenter & Cloud Network Services 2022](#) survey, 20%-25% of respondents indicated they are using these services. Note also that the public clouds' own backbone services have gained a following; they were being used by more than half of the survey participants.

Telcos face broad, cloud-native competition



Source: 451 Research's *Voice of the Enterprise: Datacenters, Datacenter & Cloud Network Services 2022*.
 Q. What type of providers does your organization currently purchase wide-area network services from? Please select all that apply.
 Base: Respondents who are involved or knowledgeable about networking services decision-making at their organization (n=440).
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Product and roadmap

"Network as a service" is a generic industry term, but Lumen has also adopted it as a blanket name for services that are delivered in minutes via a self-service portal or an API. Customers do not have to speak to salespeople, negotiate long-term contracts or wait months for the service to be activated. Perhaps more notably, any change orders can be made via the portal, whereas a normal telco process would require a newly negotiated contract. Of course, none of this is special in the cloud era. It is exactly how enterprises consume cloud services, and the model used by many nontelco network providers. Lumen NaaS is intended to be the carrier's step-function leap into that world.

To use NaaS, the customer purchases one port or uses a Lumen hosted port. Think of this as an enrollment step, after which all services can be delivered through that single port. Lumen plans to migrate substantially all of its connectivity portfolio, plus associated security services, to the NaaS model by the end of 2025. Internet On-Demand is the first instantiation of Lumen NaaS, providing internet access for customer locations including colocation sites. Security functions are a logical next step, considering how virtualized security has become in general. More challenging and esoteric services, particularly optical networking, will migrate later.

Lumen NaaS is billed by the hour as a consumption model. The company will gauge market reception and tweak the model accordingly if customers express a preference for less granular billing periods, or more granular, although Lumen suspects this will not be the case. Customers do, in fact, alter their cloud and datacenter networking profiles frequently. In our Datacenter & Cloud Network Services 2022 survey, 37% of respondents claimed to change their wide-area or middle-mile networks at least daily.

Competition

Superficially, we could cite US giants AT&T Inc. and Verizon Communications Inc. as Lumen's most direct competitors, but telcos are not the primary competition for Lumen NaaS. Several companies now provide on-demand, pay-as-you-go networking. These players mostly target the middle mile, often working from points of presence in leased datacenters. They use a variety of different business and operating models.

Some are more focused on cloud networking and even control network constructs within public clouds, while others are strongest at "connecting the dots" between datacenter locations. Some are even beginning to add last-mile services, often through partners. Examples include Alkira, Aryaka, Apcela, Aviatrix, Cato Networks, Cloudflare Inc., Console Connect, Epsilon, F5 Inc., Graphiant, Megaport Ltd., NetFoundry, Nile, PacketFabric and Teridion.

While some of these contenders operate their own backbone networks, others rely on carriers to provide the underlay — that is, the physical fiber, copper and equipment underneath the network service. This has been a challenging economic model for them, as Lumen points out. Moreover, a telco such as Lumen can arguably offer more efficient transport, translating to lower latency. It can perform switching and routing essentially "inside" the core of the internet, rather than having to feed traffic through points of presence.

Lumen's Internet On-Demand can apply to endpoints that sit inside leased datacenters. In that context, it resembles services from Console Connect, Epsilon, Megaport and PacketFabric, all of which are frequently associated with datacenter interconnection and offer Layer 3 services or even direct internet access. Certain leased datacenter operators offer their own variations of NaaS to connect between their datacenters and into public clouds. Examples include Cologix, CoreSite, DC BLOX, Digital Realty Trust Inc., Equinix Inc., Flexential and QTS Realty Trust. Lumen anticipates partnering with third-party datacenter operators, and Digital Realty has been announced as the first of these NaaS partners.

SWOT Analysis

Strengths	Weaknesses
Lumen grasps the necessity of providing a cloud-like experience and has long been among the telcos championing software-defined networking. The company's global core network is an asset that could provide an advantage against over-the-top players.	For all its clarity of thinking, Lumen remains an incumbent telco and is as prone to the same slowness of progress as any of its peers. Lumen is also working from behind, and nimbler competitors already occupy the NaaS space.

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Opportunities	Threats
Lumen aims to provide an on-demand customer experience for most, if not all, of its connectivity services by 2025 — a relatively aggressive timeline for a telco. Pulling it off would be an advantage over its peers.	It is now possible for an enterprise to assemble an agile global network without engaging telcos directly; specifically, without enduring telco sales and contract processes. If Lumen moves too slowly, more enterprises could catch on to the simpler, more powerful customer experience that is available elsewhere.

Source: 451 Research.