

Simplify your network.

Virtual Network Services



Your network needs are constantly evolving to meet the demands of your business; but deploying and managing traditional network services can be complex and costly. You frequently need many different devices from different vendors to address each individual function. This not only drives up costs and limits your ability to respond quickly to changing needs, it also leaves you with a mishmash of disparate devices, applications and configuration models.

Meet the new enterprise network.

Virtual Network Services from Verizon lets you leave behind the old labor-intensive, slow-to-deploy and complex mix of devices, technologies and configuration models. Instead, you can use an agile, resilient and fluid service delivery model to quickly and easily help you capitalize on new opportunities in automation, analytics and customer engagement. Our solution provides a scalable, orchestrated and fully managed platform that integrates with a portfolio of technologies from industry-leading providers.

Verizon is recognized by Gartner as a Leader in the 2018 Magic Quadrant for Network Services, Global and Magic Quadrant for Managed Security Services, Worldwide.¹

Virtual Network Services are available on our high-performance Hosted Network Services platform, via easy-to-deploy universal customer premises equipment (uCPE), or as a public cloud virtual deployment via Amazon Web Services. Verizon offers a wide selection of plug-and-play network services - such as routing, WAN optimization, security, and software defined WAN (SD WAN) - that all integrate and work seamlessly together.

An integrated management portal, end-to-end orchestration and Zero-touch-provisioning (ZTP)* make service configuration and policy changes possible

* Future availability planned for 2H 2018

in hours rather than weeks, managing costs and speeding time to market, helping:

- Improve application performance
- Better utilize network resources
- Eliminate potential errors related to Centralize policy management and reporting manual configuration

Plus, our world-class, end-to-end, full-service management means you can stay focused on your core business, not network administration.

Create a competitive edge with an application-driven network.

As part of our Software Defined Networking product suite, Virtual Network Services turns your physical network into an on-demand virtual network. That helps simplify management and control capital expense while increasing business agility, scalability and responsiveness. That means you can:

- Deploy services and updates in days, hours or even minutes
- React automatically to spikes in demand and quickly scale to meet evolving service deployments with rules-based management
- Easily budget and manage costs via an OpEx model, including our consolidated billing option, Virtual Network Services - One
- Maintain agility and innovation by eliminating vendor lock-in
- Decrease risk as you test, innovate and evolve new services
- Create a more intelligent network, with enhanced routing, easier management and greater flexibility

Transform your network with world-class services from our rich ecosystem of leading technology providers, with service chaining tested, certified and fully managed by tenured staff.

Get the flexibility your business needs.

Virtual Network Services is all about flexibility and scalability, with size options to fit your specific service requirements – whether it's a retail kiosk or a data center deployment:

Virtual Network Service Function	Capacity Unit	Extra Small	Small	Medium	Large	X-Large	XX-Large
Routing	Bandwidth (Mbps)	Up to 10	Up to 20	Up to 50	Up to 100	Up to 1000	Up to 2000
Security	Bandwidth (Mbps)	Up to 10	Up to 20	Up to 50	Up to 100	Up to 1000	Up to 2000
SBC	Max Simultaneous Sessions		Up to 250	Up to 1000			
WAN Optimization	Max Connections	150	650	2300	6000	14000	100000
SD WAN	Bandwidth (Mbps)	Up to 10	Up to 20	Up to 50	Up to 100	Up to 1000	
SD Secure Branch	Bandwidth (Mbps)	Up to 10	Up to 20	Up to 50	Up to 100	Up to 1000	

For even more flexibility, up to three Service Package options (Essential, Core, Complete) are available for each network function.

Essential.

- **Routing.**
Provides basic routing features
- **Security.**
Includes standard firewall protection and Virtual Private Network.
- **SBCaaS.**
Comprehensive Session Border Controller features with common industry service functionality covering standard session border control use cases.
- **SD WAN.**
Delivers secure overlay across any transport using IPSec, basic QoS (Quality of Service) and Split Tunnel. Offers static IP routing, automatic secure tunnel setup at scale.
- **Software Defined Secure Branch.** Encompasses the features available in the “Advanced SD WAN” license.

Core.

Essential services, plus:

- **Routing.**
Includes standard features provided by router vendor, plus full service management and transport services.
- **Security.**
Provides a selected set of popular additional features, such as intrusion detection and intrusion prevention services.
- **SBCaaS.**
SIP Header Manipulation, Encryption (signaling and media), DTMF detection and insertion and media transcoding support.
- **SDWAN.**
Supports a greater number of VPNs and allows advanced policy setting and management.
- **Software Defined Secure Branch.**
Includes Advanced SD WAN + Next Generation Firewall add-on license.

• **WAN Optimization.**

Covers a predefined set of essential services required for any network environment, including TCP acceleration/transport streamlining, deep packet inspection (DPI), QoS and DPI-and host table-authenticated application path selection.

Complete.

Essential and Core services, plus all available features from your selected virtual network function technology providers.

Access the services you want and control costs.

A move from traditional to virtual networks allows you to control spending. Since the solution is technology provider neutral, you have the freedom to shop from a rich ecosystem of Verizon approved industry-leading technology providers, mixing and matching the services that best suit your organization. Pricing models include cost-efficient flat monthly billing and optional Virtual Network Services - One single line invoicing, wrapping software licensing, hardware and management.

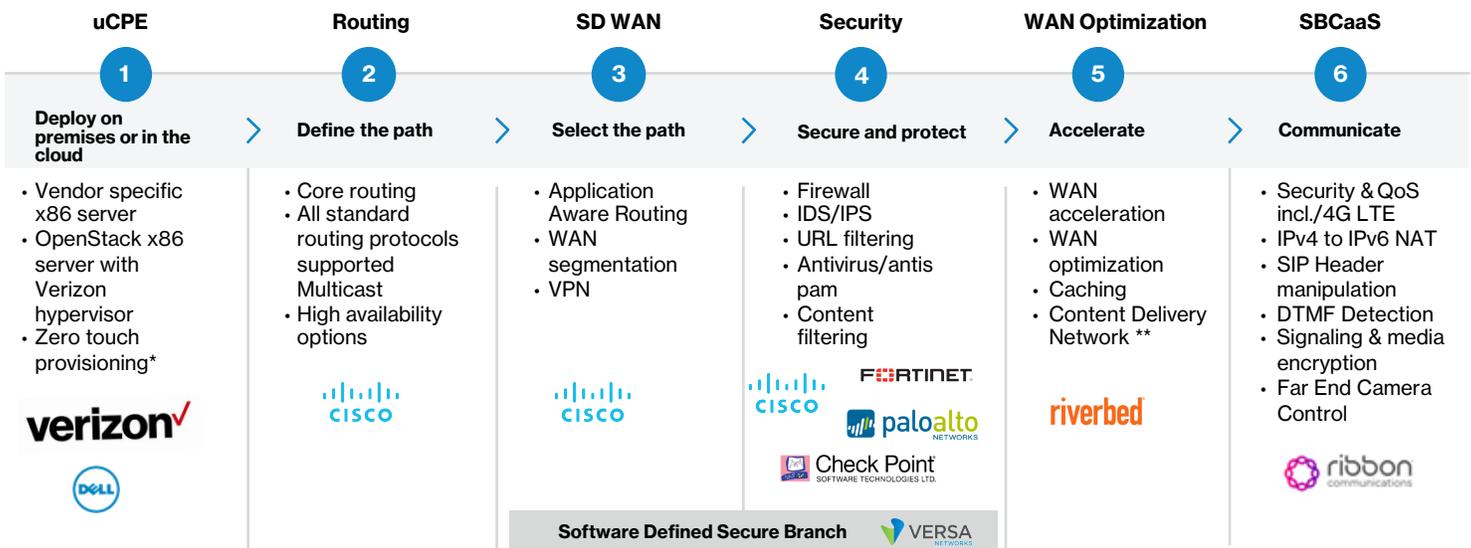
Reduce deployment snags with VNF Service Chaining.

We understand that successful network transformation is more complex than merely applying software defined technology. You need to know that all network functions will work in concert to drive improved application performance, as well as meet security and resilience objectives.

Working closely with our rich ecosystem of leading technology providers, we have broken down the barriers of network function virtualization, simplifying and expediting transformation through VNF service chains, known as Solution Bundles.

We've performed extensive testing to verify full functionality and performance of these service chains, helping reduce costly software investments, and performance testing labor and delays, whether they are deployed on premises based universal CPE (uCPE), our Hosted Network Services platform, or in a public cloud environment.

Virtualized Network Functions - Network as a Service.



*ZTP Availability planned for 2H 2018

** CDN Future release.

Focus your resources where they can do the most good.

Verizon's Virtual Network Services are all about reducing the complexity of managing your network resources. We make it even easier for you to benefit by offering management options at the network function level for even the most complex service chains, regardless of your network architecture, including premises based, public or private cloud, or any hybrid combination, around the globe.

With Full management, we apply our world-class, end-to-end services from initial design and deployment right through to your on-going life-cycle management needs. With our Monitor management level, available with select VNS functions, we'll work hand-in-hand with you to maintain efficient network operation and up-time, while you retain management control of your policies for security and privacy.

We've included three minute device polling, auto-generated alarms and device/service outage notifications to help provide reliable network function performance while enabling you to focus your in-house resources where you need them the most.

WAN Analysis Reporting.

An optional WAN Analysis Reporting* tool enables you to view and analyze data collected on your Verizon transport and managed services. WAN Analysis Reporting is offered as Software-as-a-Service, with the data and software securely hosted within the Verizon network, using data collected directly from your existing premises based network equipment. Using SevOne technology, WAN Analysis Reporting enables a consolidated view of your Verizon-provided network infrastructure within a single portal. Changes to physical infrastructure or devices are either sent to or discovered by WAN Analysis automatically, reducing time spent managing "data", enabling more time to manage your network.

* Future availability planned for Q3 2018

1. Gartner, "Magic Quadrant for Network Services, Global" Danellie Young, Katja Ruud, et al., 27 February 2018. Gartner, "Magic Quadrant for Managed Security Services, Worldwide" Toby Bussa, Kelly M. Kavanagh, et al., 27 February 2018.

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The Verizon advantage.

As your one-stop shop for managed Virtual Network Services, we make it easy to get the agility, flexibility and performance you need from your network. Verizon is recognized as a leader in providing networking, security and cloud solutions and we deliver game-changing virtualization for the modern, hyper-connected world. With our experience managing more than 500,000 security, network and hosting devices, and over 4,000 customer networks in 150+ countries, you can be confident in our ability to deliver the end- to-end managed services you need.

Learn more.

Find out how you can deploy and manage a more efficient, intelligent network with Virtual Network Services. Visit [verizonenterprise.com/products/networking/sdn-nfv](https://www.verizonenterprise.com/products/networking/sdn-nfv) or contact your account representative today.