Real improvements, real-life gains: enterprises realize the benefits of adaptive networking

Ovum

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Contents

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Summary

OVUM VIEW

Organizations are undergoing fast, disruptive change in their IT operations. Enterprise IT is being driven by new initiatives including digital transformation. To succeed, the business needs a network that is flexible, scales easily, is secure, and delivers on performance. "Adaptive networking" is the collection of software-defined functions that together deliver high-performance, flexible, and secure connectivity.

For enterprises, building adaptive networking solutions is a value multiplier. Each enterprise assembles its own combination of adaptive networking techniques and implementations, drawing from a mix of established technologies and new elements. Ovum estimates that in 2019, enterprises worldwide will spend more than $25bn on services enabled with adaptive networking. Network spend will grow about 10% per annum over the next five years, even as total enterprise network services budgets remain stagnant.

Some of the individual technologies that feed into an enterprise's own adaptive networking solutions include software-defined WAN (SD-WAN); hybrid networks that merge internet VPN and private IP VPNs; flexible bandwidth, particularly bandwidth on demand; WAN/cloud connectivity with secure dynamic ports into data centers and clouds; and network functions virtualization (NFV).

Enterprises wrap these elements with intelligent management and security tools, building unified networks that are more secure, resilient, scalable, and flexible; easier to manage; more responsive; and better performing. Businesses need these improvements to shift their IT operations model from static to dynamic, from individual transactions to persistent streams, and from cycles of development and review to constant response and change. In the past, flexible and dynamically scalable networks were specialty services. Flexible, scalable, and secure networks are now mandatory to support the business.

IT executives are driving these shifts to adaptive networking. There is a common misapprehension that the corporate corner office drives its IT operations relentlessly to cut costs and be more efficient. Instead, the primary role for many IT executives is to help enable and secure the business. Operational efficiency and lower cost are beneficial side effects, not primary drivers for most IT departments.

Adaptive networking is a way for IT departments to free up budget for strategic investments. When IT realizes cost, time, and efficiency savings, it can reinvest these gains in further network improvements and strategic projects that benefit other parts of the business such as applications development, process automation, analytics and business intelligence, and data centers and cloud computing.
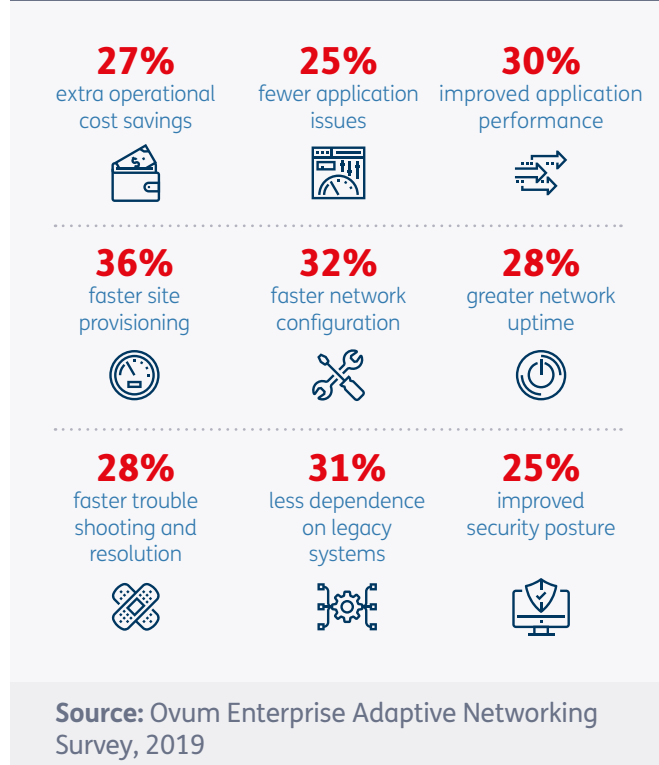
From its conversations with IT executives, Ovum sees that enterprises need to adopt best practices and avoid basic errors in their network evolution. Some IT executives obsess over IT systems and overlook opportunities to optimize the network. They may fail to update network requirements. They may get caught up in vendor relationships and "logo loyalty" instead of choosing the most suitable solutions for their needs. And they may add standalone pieces instead of adopting a unified adaptive networking solution, missing out on synergy benefits.

Ovum recommends that enterprises discuss their business priorities with providers and other advisors to understand the many aspects of adaptive networking and the resulting benefits. A strong partner will have a unified adaptive networking approach, offering a flexible, scalable network that is overseen by network intelligence and underpinned by network security.

Why enterprises adopt adaptive networking

FOUNDATION FOR TRANSFORMATION

Figure 1: Net improvements that enterprise IT departments realize through adaptive networking		

27% extra operational cost savings	**25%** fewer application issues	**30%** improved application performance
36% faster site provisioning	**32%** faster network configuration	**28%** greater network uptime
28% faster trouble shooting and resolution	**31%** less dependence on legacy systems	**25%** improved security posture

Source: Ovum Enterprise Adaptive Networking Survey, 2019

Organizations are undergoing fast, disruptive change. Whether in retail, manufacturing, healthcare, finance, technology services, or the public sector, organizations are transforming the way they work. That transformation affects their IT operations, their networks, and even the nature of doing business.

IT executives often think about their operating environment in application terms: applications shifted to a central data center or migrated to the cloud; applications optimized for performance; or applications locked down for security. All those compute resources need to be connected. Operations need a network that is flexible and secure, scales easily, and delivers on performance.

Enterprise IT executives that embrace adaptive networking techniques report major gains across many aspects of their business (see Figure 1). Adaptive networking draws on the following advanced platforms and services, coordinated by network intelligence and protected by security practices:

- **Software-defined WAN** (SD-WAN) has been hyped across industries for good reason. The technology concentrates and coordinates management control across enterprise networks. SD-WAN marries applications visibility and control with network infrastructure for intelligent, optimized service delivery.

- **Hybrid networking** removes the need for the standard enterprise practice of mirroring every network port for resilience. Instead of treating the private enterprise network and public internet separately, organizations mix their MPLS and internet services and exploit the best characteristics of each.

- **Flexible bandwidth** enables organizations to control how much service they need in real time, paying only for the amount they use. Enterprises use dynamic capacity to adjust network usage and performance. They add network services when they need them without overpaying for bandwidth.

- **WAN/cloud ports** attach the organization's network to data centers and clouds, guaranteeing secure, high-performance routes. These services also often rely on dynamic connections and capacity, giving the enterprise flexible, scalable control over links to its data centers and clouds.

- **Network functions virtualization** (NFV) shifts some of the organization's physical network onto compute resources. This is a portable and efficient alternative when installing a dedicated appliance would be slow or difficult.

Figure 2 depicts how enterprises combine service elements of adaptive networking – hybrid WAN, SD-WAN, flexible bandwidth, and virtualized networking. Enterprises connect all these elements to their cloud resources, link them through network intelligence, and protect them with network security. These adaptive networking techniques improve enterprises' efficiency, make their operations more agile, and add expansive protection.

Adaptive networking is more than the sum of its parts. The services are flexible in how they interact, and individual platforms and services are all compatible with each other. The enterprise chooses and combines the elements that best suit its network needs.

Done right, adaptive networking is one unified platform that supports the company's digital ambitions. For one enterprise, adaptive networking can be a WAN that mixes private IP and public internet services, adds a SD-WAN overlay, and embeds virtual network software in a hosted data center, all protected with network security. Another organization might need a totally different adaptation. It may combine on-demand bandwidth to its own endpoints with dynamic capacity to its WAN and cloud destinations, with a comprehensive view and fine granular control over end-to-end capacity in its network.
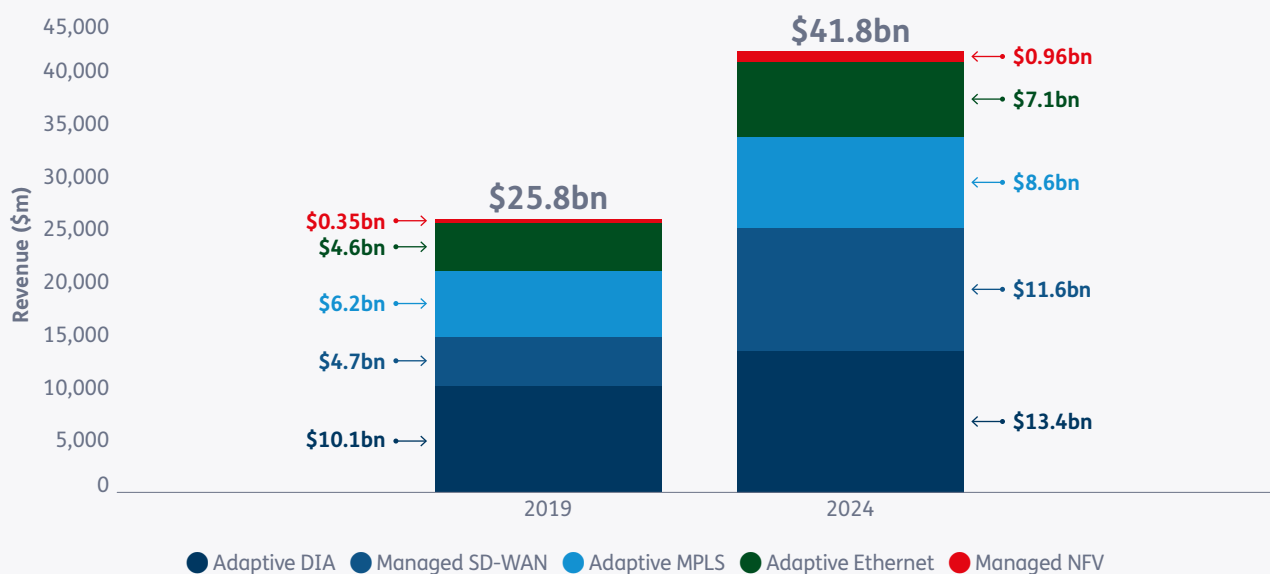
Figure 2: Key principles of adaptive networking
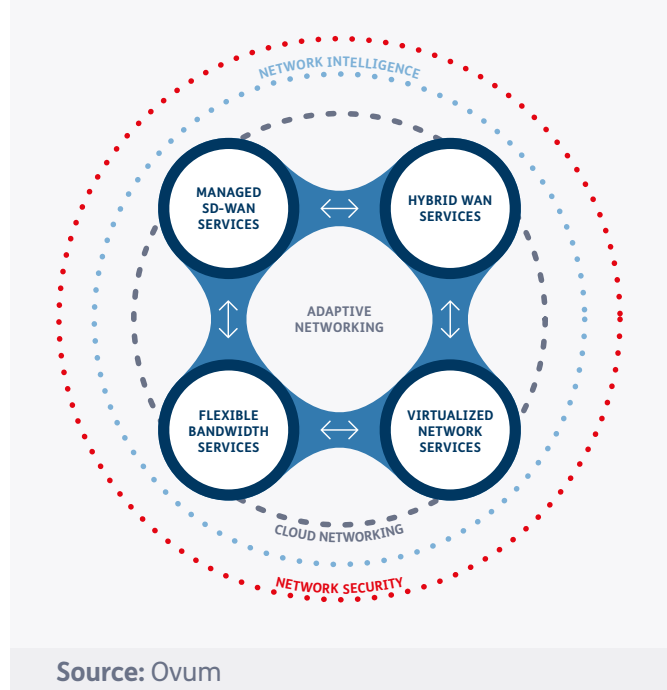
Source: Ovum

Done right, adaptive networking is one unified platform that supports the company's digital ambitions.

A LARGE AND FAST-GROWING MARKET

Figure 3: Global enterprise spend on adaptive networking services, 2019-2024

Revenue ($m)

2019: $25.8bn
- $10.1bn (Adaptive DIA)
- $4.7bn (Managed SD-WAN)
- $6.2bn (Adaptive MPLS)
- $4.6bn (Adaptive Ethernet)
- $0.35bn (Managed NFV)

2024: $41.8bn
- $13.4bn (Adaptive DIA)
- $11.6bn (Managed SD-WAN)
- $8.6bn (Adaptive MPLS)
- $7.1bn (Adaptive Ethernet)
- $0.96bn (Managed NFV)

● Adaptive DIA ● Managed SD-WAN ● Adaptive MPLS ● Adaptive Ethernet ● Managed NFV

Source: Ovum

Most large enterprises already use elements of adaptive networking. Basic flexible-bandwidth billing plans have been around for decades; dynamic WAN/cloud ports and hybrid networking are not new. These services are becoming more important for two reasons:

- **Demand for public cloud.** Enterprises are desperate to adopt dynamic cloud services, embrace agile development, and monetize big data flows from digital transformation to counter disruptive digital-native competition. Companies adopt flexible network services because they cannot wait for slow-moving static networks to catch up to changes in their cloud use.

- **Network management improvements.** Network management has become more intelligent. What once were standalone tools are now coordinated and automated. Organizations can manage flexible bandwidth, cloud connectivity, and new platforms such as SD-WAN and NFV together as a unified dynamic resource.

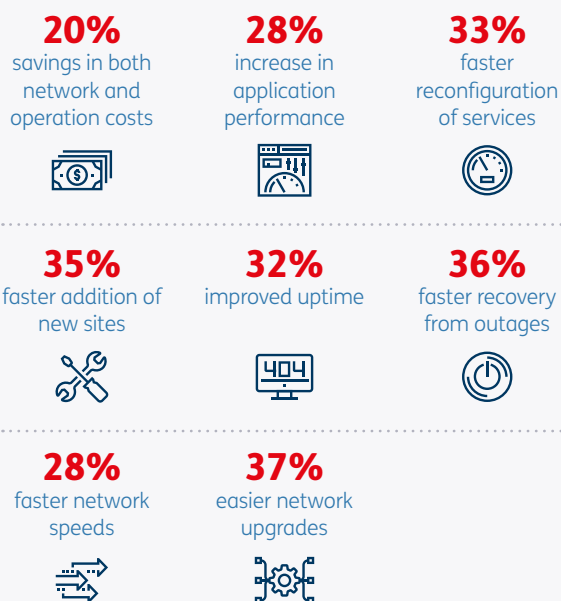*In the US alone, spend related to adaptive networking will pass $10bn in 2019.*

Ovum estimates that in 2019, enterprises spent nearly $26bn on adaptive networking services. That spend is growing by about 10% year over year to an estimated $41.8bn in 2024 (Figure 3). In the US alone, spend related to adaptive networking will pass $10bn in 2019. Services that use adaptive networking are carving out global double-digit revenue growth from an enterprise network services market where projected top-line net revenues remain stagnant.

Adaptive networking spend is growing because it brings value to the organization. Organizations realize benefits such as cost savings and operational efficiency. They can reinvest these gains back into the business, stimulating further cycles of gain and reinvestment.

Enterprise elements of adaptive networks

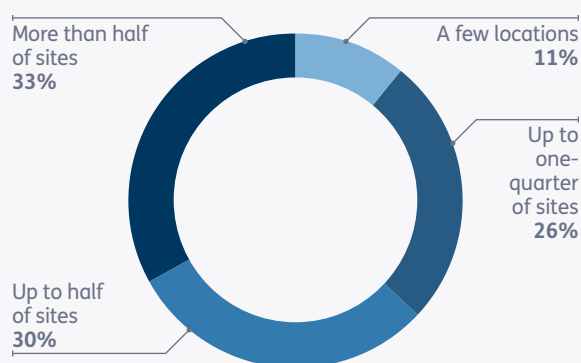## HYBRID NETWORKING MERGES INTERNET AND PRIVATE NETWORKS, TUNED FOR PERFORMANCE AND SECURITY

Figure 4: Hybrid networking's contribution to adaptive networking

20%
savings in both network and operation costs

28%
increase in application performance

33%
faster reconfiguration of services

35%
faster addition of new sites

32%
improved uptime

36%
faster recovery from outages

28%
faster network speeds

37%
easier network upgrades

Source: Ovum Enterprise Adaptive Networking Survey, 2019

Figure 5: Level of adoption among enterprises that have deployed hybrid networking

More than half of sites **33%**

A few locations **11%**

Up to one-quarter of sites **26%**

Up to half of sites **30%**

Source: Ovum Enterprise Adaptive Networking Survey, 2019

Hybrid networking has been widely adopted and deployed by enterprises (Figure 5). Public internet and private IP networks are a powerful complementary combination, and enterprises that mix the two realize an array of benefits (Figure 4). The public internet taps a world of networks at very attractive costs, but there is no guaranteed performance or inherent security. Private IP networks, such as MPLS VPNs, bring performance and security but also cost more. Most organizations need both types of services.
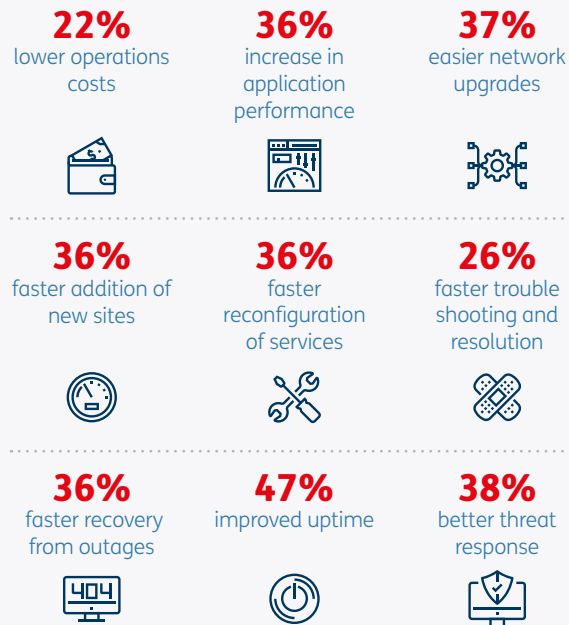
Traditionally, organizations doubled up their infrastructure for resilience. MPLS still has a key role, but many enterprises no longer need two of everything.

Companies that merge their public internet and private IP networks save costs when they retire redundant services. But there are benefits beyond reduced cost. Broadband connects new sites faster than MPLS. Dedicated internet is also faster to reconfigure than MPLS. As organizations split their applications workload between different network types, they make the most of the performance of each.

Enterprise IT executives that have adopted hybrid networking realize on average a net added value of 35% from the technology. These executives expect on average an additional 31% improvement in net added value within the next two years.

SD-WAN MAKES COMPLEX ENTERPRISE NETWORK FABRICS MANAGEABLE

Figure 6: SD-WAN's contribution to adaptive networking

22%
lower operations costs

36%
increase in application performance

37%
easier network upgrades

36%
faster addition of new sites

36%
faster reconfiguration of services

26%
faster trouble shooting and resolution

36%
faster recovery from outages

47%
improved uptime

38%
better threat response

Source: Ovum Enterprise Adaptive Networking Survey, 2019

Figure 7: Level of adoption among enterprises that have deployed SD-WAN

More than half of sites
13%

A few locations
36%

Up to half of sites
21%
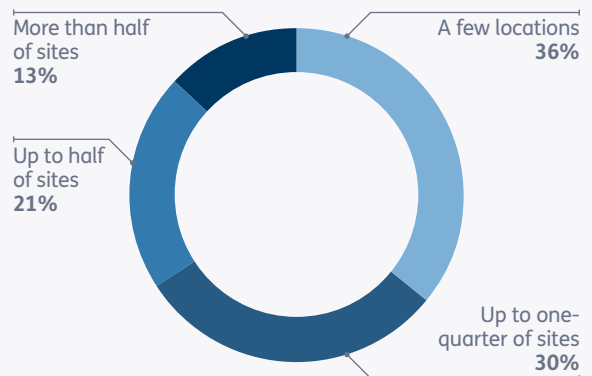
Up to one-quarter of sites
30%

Source: Ovum Enterprise Adaptive Networking Survey, 2019

Industry opinions still vary on what SD-WAN is and is not, but enterprises broadly agree about the benefits they get from the collection of management tools and value-added features (see Figure 6). SD-WAN supports nearly any combination of network types: private and public networks, different port speeds, and different performance levels. Its centralized intelligence monitors and decides, moment by moment, which packets are best sent across what route. That allows administrators to manage the network at a higher level, setting policies for security and instructions on how each application needs to perform. SD-WAN interprets those policies to make smart traffic prioritization and routing decisions.

SD-WAN pulls together other adaptive networking concepts elegantly. It makes complex hybrid networks simpler to manage. It helps optimize delivery to the cloud. SD-WAN can even be tied to
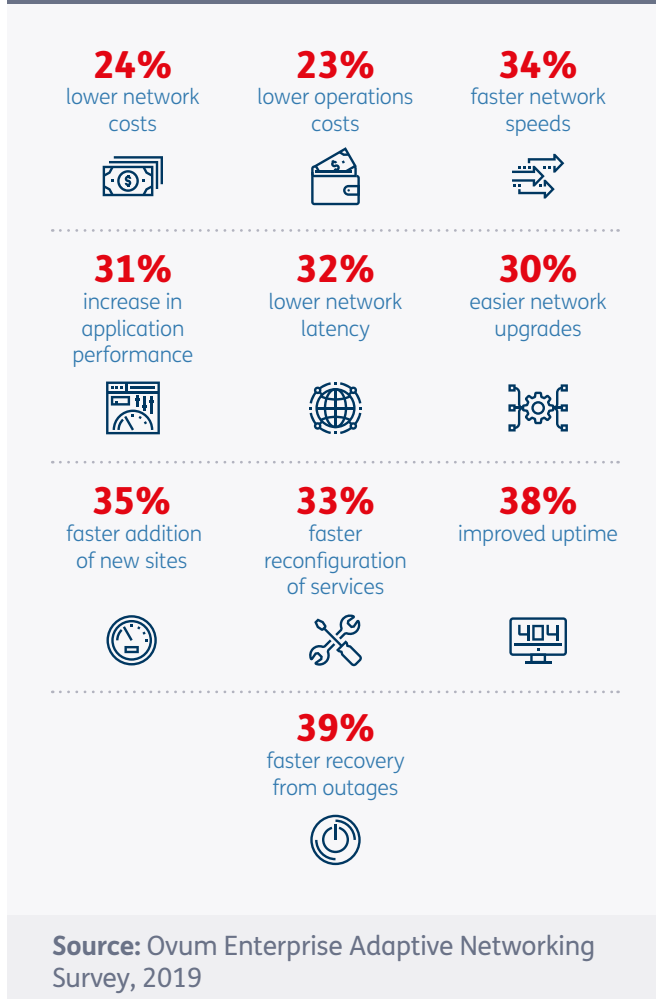
triggers for bandwidth on demand and for WAN/cloud ports, to order more network resources when they are needed.

While many enterprises are still exploring how to make SD-WAN best fit their needs, they have already begun realizing the benefits (Figure 7). Companies using SD-WAN become more efficient and lower their costs just by making their network management simpler. Enterprise administrators have a view into how their applications behave, so they can identify and address problems faster. SD-WAN's internal intelligence automatically responds to service issues. SD-WAN even plays a security role: its management interface can highlight unusual applications traffic usage, and SD-WAN policies can keep applications traffic off unauthorized routes.

On the whole, enterprise IT executives that adopt SD-WAN realize an average net added value of 31% from the technology. These executives expect their SD-WAN deployment to improve on average by another 65% in net added value over the next two years.

FLEXIBLE BANDWIDTH AND CLOUD NETWORKING LET BUSINESSES SCALE IN REAL TIME TO SUPPORT TRAFFIC LOADS
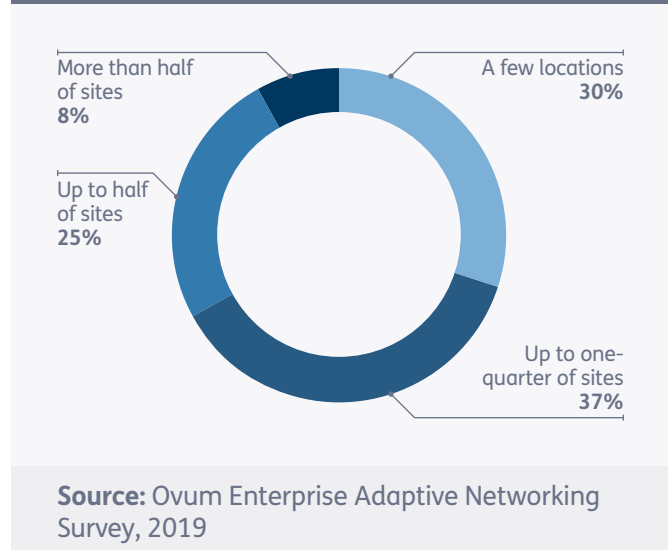
Figure 8: Flexible bandwidth contributions to adaptive networking

24% lower network costs	**23%** lower operations costs	**34%** faster network speeds
31% increase in application performance	**32%** lower network latency	**30%** easier network upgrades
35% faster addition of new sites	**33%** faster reconfiguration of services	**38%** improved uptime
	39% faster recovery from outages	

Source: Ovum Enterprise Adaptive Networking Survey, 2019

Figure 9: Level of adoption among enterprises that have deployed flexible bandwidth

More than half of sites **8%**

A few locations **30%**

Up to half of sites **25%**

Up to one-quarter of sites **37%**

Source: Ovum Enterprise Adaptive Networking Survey, 2019

Enterprise IT executives have a complicated history with variable bandwidth plans such as burst or tiered billing. Variable billing helps IT executives support the business during times of big bandwidth fluctuations. But organizations also need controls to set bandwidth and performance, so they can assign traffic loads and manage their budgets. In either case, these services deliver a wide range of benefits (see Figure 8).

Cloud consumption models push IT executives to shift the way they think about all their infrastructure; it is no longer a flat-cost asset but a consumable based 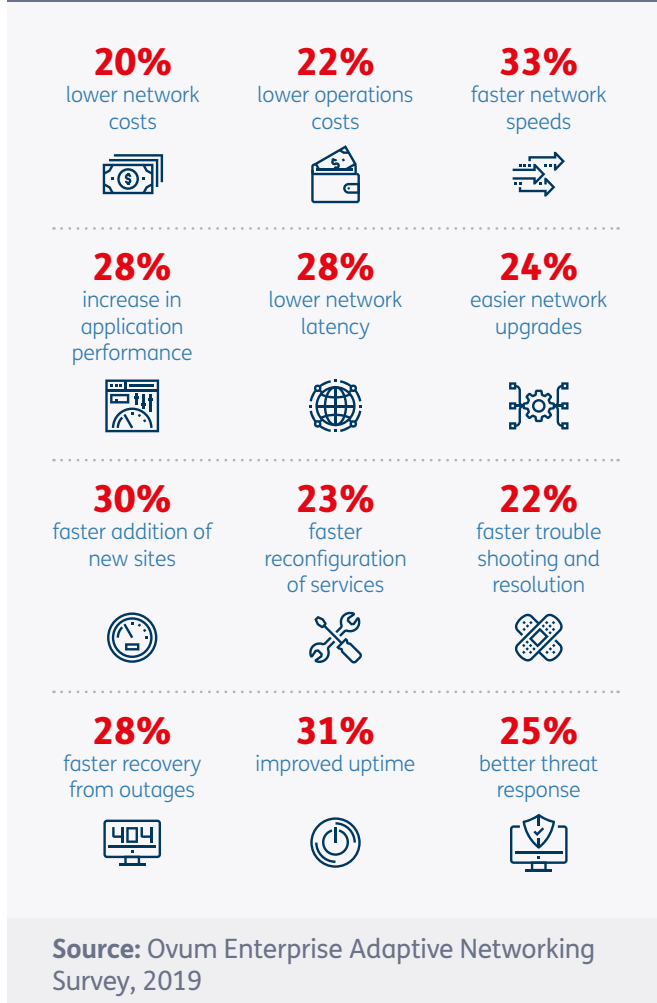on usage. Enterprises can use dynamic bandwidth to scale their traffic to their cloud and data centers, between their cloud and enterprise endpoints, and directly between their endpoints. Bandwidth on demand makes sure the enterprise gets the end-to-end performance it needs, with control over spending.

Enterprises use flexible bandwidth widely (Figure 9). Flexible bandwidth to the cloud and endpoints avoids over-buying network capacity. They can set the performance profile for speedier delivery and better applications performance when they need it. Combined with other adaptive networking practices such as hybrid networking and SD-WAN, flexible bandwidth lets enterprises decide how much resource their data centers, clouds, and endpoints need as their network traffic patterns change. They can also react fast to mitigate unplanned changes such as network congestion, an outage, or a traffic surge from application usage.

On the whole, enterprise IT executives that adopt flexible bandwidth realize average net added value of 36% from the technology today. These executives expect flexible bandwidth to improve their business by another 39% in net added value over the next two years.

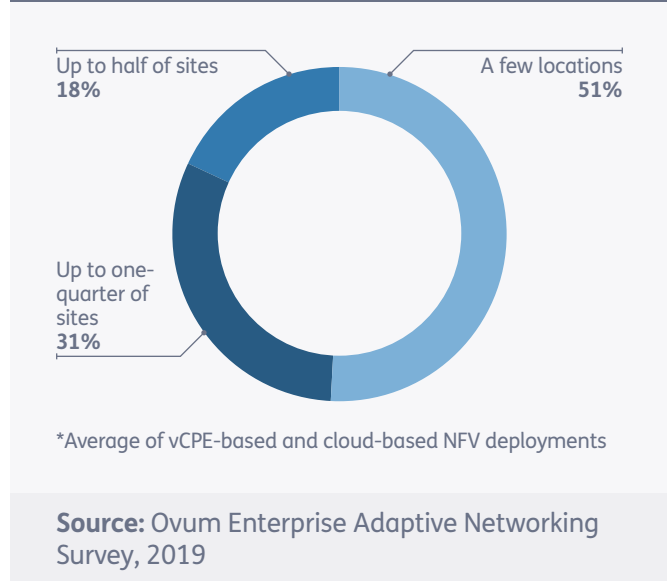# VIRTUALIZATION MAKES NETWORK RESOURCES MORE VERSATILE

Figure 10: Network virtualization's contributions to adaptive networking

20% lower network costs	**22%** lower operations costs	**33%** faster network speeds
28% increase in application performance	**28%** lower network latency	**24%** easier network upgrades
30% faster addition of new sites	**23%** faster reconfiguration of services	**22%** faster trouble shooting and resolution
28% faster recovery from outages	**31%** improved uptime	**25%** better threat response

Source: Ovum Enterprise Adaptive Networking Survey, 2019

Figure 11: Level of adoption among enterprises that have deployed NFV*

Up to half of sites **18%**

A few locations **51%**

Up to one-quarter of sites **31%**

*Average of vCPE-based and cloud-based NFV deployments

Source: Ovum Enterprise Adaptive Networking Survey, 2019

Network function virtualization (NFV) is a versatile tool to unlock value from other aspects of adaptive networking. Organizations can deploy NFV to bring new sites online quickly, add functions, and scale them on demand. NFV can add network endpoints in places where a physical box cannot go. This produces a range of practical benefits (Figure 10).

NFV is still in the early stages of adoption. Many enterprise IT executives are still exploring what the technology can do for them (Figure 11).

For example, if an organization uses flexible bandwidth to scale up its cloud ports, a virtual router or virtual SD-WAN instance can scale up in tandem. If an organization increases flexible bandwidth to its endpoints, a virtual firewall can also scale to fit those changes. Ultimately, NFV will coordinate aspects such as routing, security, monitoring, and management on the premises, at the network edge, adjacent to data centers and clouds, and even inside the organization's cloud.

NFV has clear value when it comes to turning on and swapping out services and sites faster. In some cases NFV is the only option, for example, to add a software-based router or firewall inside the cloud. NFV makes software upgrades faster and easier, and there are other benefits as well. NFV is administered centrally, which helps organizations improve their performance, reduces downtime, and makes dealing with service problems and security issues faster and easier.

Enterprise IT executives that adopt NFV realize an average net added value of 20% from the technology today and expect the value to increase by an additional 75% within the next two years.

Sum value of adaptive networking to the enterprise

DIGITAL BUSINESS DEMANDS FLEXIBILITY

Tools that make networks more secure, resilient, scalable, flexible, intelligent and better performing are nothing new to IT executives. There is now a shift in perspective. Business operations are changing from static to dynamic, from individual transactions to persistent streams, and from cycles of development and review to constant response and change. A flexible and scalable network was once "nice to have." A flexible, scalable, and secure network is now mandatory for the digital business.

Ovum's survey of IT executives finds that adaptive networking is more than the sum of its parts. An enterprise that only adopts flexible bandwidth or only extends its WAN to its data center or cloud will see limited benefits. When IT executives combine SD-WAN with hybrid network principles, embed virtual firewalls and routers with cloud connectivity, or add bandwidth on demand to other tools, the combined services generate more value than each service alone.

For example, enterprises that adopt SD-WAN and hybrid networking together find that the benefits compound for lower costs, faster provisioning, and better applications performance than either platform delivers by itself.

IMPORTANCE OF BANDWIDTH ON DEMAND

Bandwidth on demand was once a sleeper topic for the enterprise. Enterprises once limited their adoption to more specialized uses such as school districts or retailers with major seasonal variations.

At year-end 2017, Ovum saw a strong enterprise interest in bandwidth on demand. These services have now become widely available and accepted for a wide range of uses. Bandwidth on demand has edged into enterprises as a stronger alternative to older generations of best-effort and unpredictable burst traffic plans.

One unique aspect of bandwidth on demand is that enterprise buyers always combine the service with other adaptive networking practices. Bandwidth on demand pairs well with other services and tools: WAN/cloud ports, hybrid networking, SD-WAN, and network virtualization.

Another important aspect is the use of bandwidth on demand by organizations for business continuity. If one of a redundant pair of active network ports has an outage, the remaining link automatically doubles its capacity. This ensures not only that uptime is preserved but that network performance is never compromised.

WHERE DO THE SAVINGS GO?

There is a stereotype that corporate executives push IT departments constantly to do more with less. But IT executives report a different picture. Their priority is first to enable and secure the business. For most IT departments, ef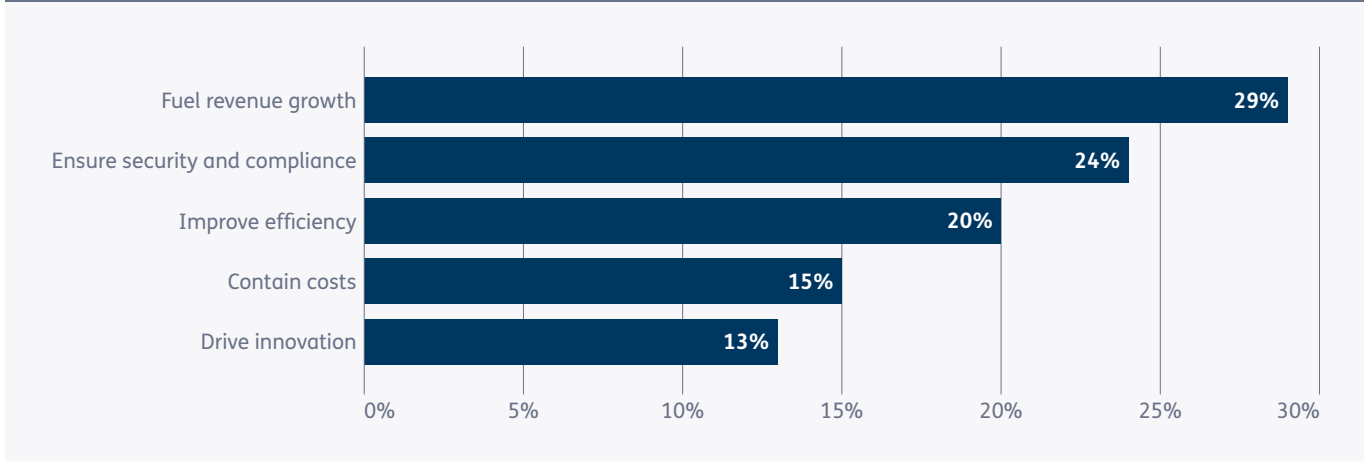ficiency gains and lower costs are beneficial side effects instead of primary directives for their operations. (Figure 12).

Organizations see their IT department as strategic. When IT finds cost, time, and efficiency savings, it frees

up resources to commit to other strategic projects. Adaptive networking can help the IT department free up those resources, and the IT department reinvests those efficiency gains in strategic initiatives such as application development and automation, adding analytics and business intelligence, and cloud services (Figure 13).
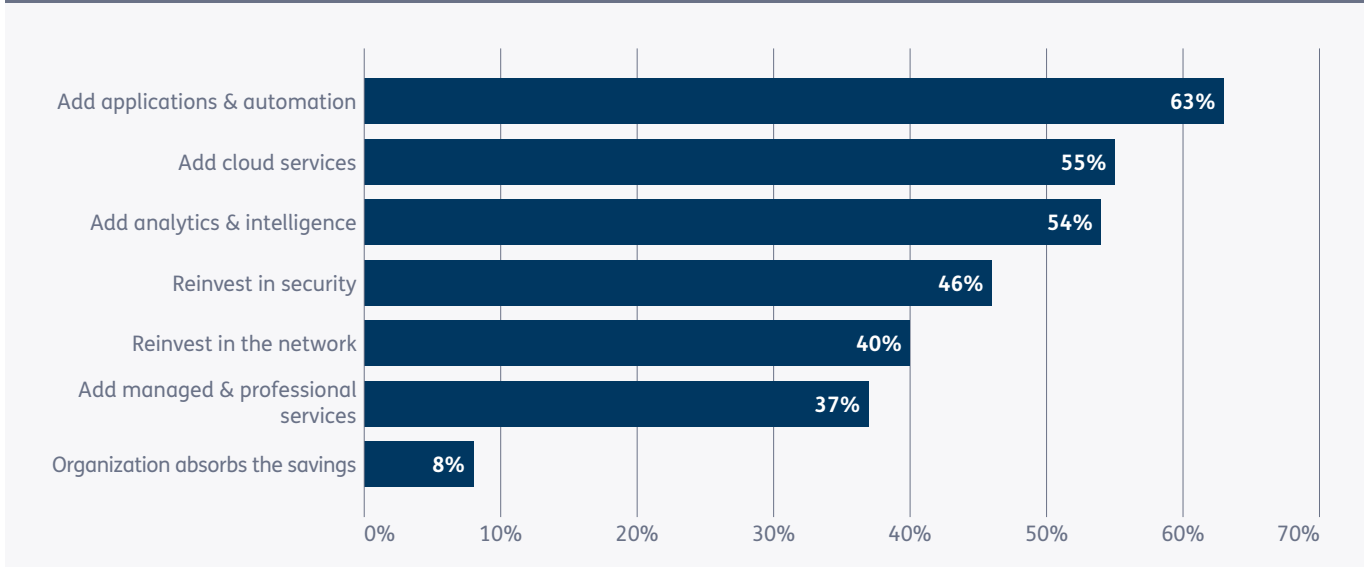
As an organization migrates to adaptive networking practices it might, for example, swap managed router services for more comprehensive managed SD-WAN. When an organization adds hybrid networking, it might invest to bolster network security. Or it might double internet port sizes, adding broadband and wireless failover as part of a hybrid networking migration that phases out some redundant MPLS ports.

Figure 12: What is the primary corporate mission of IT executives?

Response	Percentage
Fuel revenue growth	29%
Ensure security and compliance	24%
Improve efficiency	20%
Contain costs	15%
Drive innovation	13%

Source: Ovum Enterprise Adaptive Networking Survey, 2019

Figure 13: How do enterprises reinvest their adaptive networking gains?

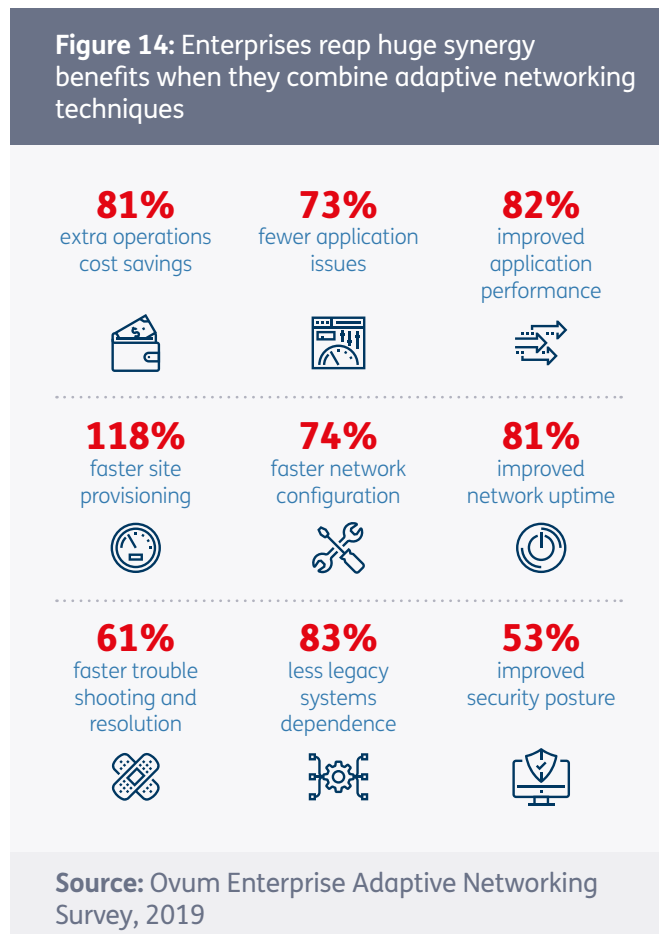| Response	Percentage
Add applications & automation	63%
Add cloud services	55%
Add analytics & intelligence	54%
Reinvest in security	46%
Reinvest in the network	40%
Add managed & professional services	37%
Organization absorbs the savings	8%

Source: Ovum Enterprise Adaptive Networking Survey, 2019

Organizations embrace adaptive networking

INDUSTRY BEST PRACTICES

Figure 14: Enterprises reap huge synergy benefits when they combine adaptive networking techniques

81%
extra operations cost savings

73%
fewer application issues

82%
improved application performance

118%
faster site provisioning

74%
faster network configuration

81%
improved network uptime

61%
faster trouble shooting and resolution

83%
less legacy systems dependence

53%
improved security posture

Source: Ovum Enterprise Adaptive Networking Survey, 2019

From its conversations with enterprise IT executives, Ovum concludes that the single best practice for IT executives is to reevaluate their operations regularly in order to respond to industry changes and take advantage of new technology. IT executives can tap cost savings and productivity improvements by adopting these additional best practices:

- **Include the network in the services stack.** Successful IT executives think about their network. Others become distracted by applications, cloud, and data center and do not consider their whole environment. Organizations obsess over agile development and rolling out digital applications quickly. That can grind to a halt if a 20-year-old static network design means a major network change can take a month.

- **In the absence of an end goal, focus on steady progress.** Most IT executives do not have a long-term adaptive networking plan. But they realize the possibilities of adaptive networking practices. They adopt and fit together pieces that benefit their business most.

- **Buy service wrap and key features, not logos.** Successful IT executives consider suppliers as an ecosystem and work with an assembled pool of partners to deliver needed features, service levels, intelligence, and support. Too often, organizations start by deciding on an equipment vendor and then track backward to try and shoehorn their operational needs into their vendor choice.

- **Optimizing the network? Ask a network provider.** Successful IT executives speak to a range of partners. If an organization only listens to a cloud specialist or integrator, it may over-invest in IT projects and starve the network of money. Instead of just cutting costs, a network provider can focus on value for money with a network design that is more efficient, increases performance, and improves reliability and responsiveness.

- **Synergy matters.** Adaptive networking becomes stronger when organizations combine elements into a solution (Figure 14). When an enterprise adopts just one element, such as hybrid networking without SD-WAN (or SD-WAN without hybrid networking), it does not capture the full benefits of adaptive networking.

NEXT STEP: BUILDING YOUR OWN ADAPTIVE NETWORK STRATEGY

In its survey research, Ovum finds most enterprises do not have a formal adaptive networking roadmap. Instead, IT executives treat adaptive networking as an ongoing, iterative, and interactive process. They investigate the solutions and services available, what the business can gain from each approach, and how, together, they deliver increased benefits to the business. IT executives set the organization on the right path to adaptive networking, reevaluate their options regularly, and make necessary adjustments.

Ovum's survey research finds organizations benefit most if they combine adaptive networking elements to build a solution. But enterprises do not have to revamp their operations completely to start seeing results. Organizations report benefits even from small changes. For example, the enterprise might add network virtualization in just a few places to add missing functionality. Or the organization might add bandwidth on demand to relieve a few key points in the network that need rapid scaling to deal with unpredictable traffic changes.

An adaptive networking solution is not built in a vacuum. The enterprise needs to have a dialog with service providers to understand what adaptive networking aspects they support and how they fit together elegantly. A complete solution to support enterprise applications meshes together provider services and vendor platforms into a unified solution. A strong partner will support a broad portfolio of adaptive networking services that fit together for this unified approach: a flexible, scalable network that is overseen by network intelligence and underpinned by network security. With a strong partner, the organization can add more adaptive networking practices where and when it needs them and benefit from platform synergy as it regularly reassesses progress, adds more pieces, and deepens its use of these practices over time.

WHY CHOOSE LUMEN AS YOUR ADAPTIVE NETWORKING PARTNER?

Ovum sees Lumen as a major US and international provider of advanced networking services. The company is an innovator across the adaptive networking services spectrum. Lumen was a pioneer in national US bandwidth on demand down to the access port in 2012, including network intelligence tools and user controls over class of service. The company has extended its network intelligence tools to end locations and PoPs across its global network, covering North America, Europe, South America, and Asia. The company's global Cloud Connect service boasts one of the world's most far-reaching footprints connecting global data centers and cloud services.

Lumen debuted NFV-based commercial services in 2015 and launched its SD-WAN service in 2016. For both, the provider took a different approach from its peers. Its first virtualized network service comprised centralized firewalls designed to serve as flexible gateways between enterprises' own networks, their data centers and cloud services, and the public internet. With SD-WAN, Lumen took an open approach. The company engaged the industry with well-defined packages and price plans at a time when most service providers kept their SD-WAN offers tightly under wraps.

Lumen understands both network and enterprise IT challenges. The company is a provider of managed services for cloud, big data, and hosted business applications. Enterprises use Lumen tools to enhance their DevOps and applications lifecycle management. The company adds a portfolio of managed security services to protect and support its network and IT services.

Lumen offers a Dynamic Connections feature that lets organizations rapidly set up private port connections from their data centers to private clouds and hyperscaler platforms including AWS, Google Cloud, and Microsoft Azure. Since its initial launch of NFV services, the provider has extended its NFV portfolio to enterprise sites. Lumen delivers the overall platform, orchestrates and manages individual network functions.

Appendix

RESEARCH METHODOLOGY

For this white paper, Ovum conducted an enterprise survey on adaptive networking sponsored by Lumen. Ovum conducted 320 telephone and voice interviews of US-based enterprises across seven vertical industries, divided into financial services (17%), retail (14%), manufacturing (16%), healthcare (13%), pharmaceuticals (15%), software and technology (12%), and the public sector (13%). Ovum questioned qualified enterprise IT executives about their experiences, in terms of realized benefits and improvements, from their adoption of individual adaptive networking technologies.

Wherever IT executives identified a particular aspect of adaptive networking that was important to their business, Ovum asked for estimated business improvements. In addition to standard metrics, Ovum also asked enterprises to volunteer their own key performance indicators for their adaptive networking solutions. Finally, all participating enterprise IT executives were questioned about their adaptive networking experiences as a whole, in terms of realized benefits and improvements across a range of metrics. The enterprise improvement claims presented in this white paper are based on the averaged results of respondents who were qualified to provide meaningful answers for each category of improvements.

OVUM CONSULTING

We hope that this analysis will help you make informed and imaginative business decisions. If you have further requirements, Ovum's consulting team may be able to help you. For more information about Ovum's consulting capabilities, please contact us directly at consulting@ovum.com

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