



making sense
of the connected world

Global Study Findings: SD-WAN Adoption Drivers, Challenges and Maturity in the Age of Covid-19

Key Findings

At a time of dramatic change as a result of the Covid-19 outbreak, CCS Insight conducted a global study of more than 800 respondents from enterprise organizations. Our aim was to understand the adoption of SD-WAN, a critical technology in supporting the ambition of digital transformation but also the rapid move to digital workplace and enabling remote workforces. This paper explores the following findings:

- There are already high levels of adoption of SD-WAN across industries and geographies, with the IT organization and the business sharing a similar understanding of the technology's benefits and challenges. This will only accelerate thanks to the changes resulting from the pandemic.
- The key decision-makers are the IT manager or director, and in the C-suite, the CIO, CTO, CEO or chief digital officer. Although leadership may recognize the importance of SD-WAN, they often do not understand where the value comes from.
- Digital transformation is driving many new technologies, but they all rely on the underlying network. However, as we see with IoT, there can be complacency toward the existing capabilities, reliability and security that can lead to projects failing.
- In the move to cloud and remote working, networks are changing to include private and public infrastructure. Public Internet will greatly increase as people shift to work from home, but it will be critical that this does not compromise reliability and security.
- Organizations want to embrace SD-WAN technology and they are accelerating that transformation, but they need to know it is reliable and, most importantly, secure and cannot compromise on the capability that addresses these needs.
- Organizations know they will need partners. With so many suppliers to choose from, they look to others to piece together the technology and provide relevant skills and identify use cases. They want partners they can trust, that are global, and can accelerate their journey to SD-WAN.

Recommendations

- Look to small pilots, perhaps tied to cloud services, that allow early lessons in identifying benefits and ideal uses of SD-WAN, and recognizing gaps in skills and capabilities.
- A partner may be able to help identify capability gaps, provide new skills and appropriate training environments that allow experimentation, and address compatibility problems between different vendors' products. Partners will accelerate the roll-out of SD-WAN and the path to value.
- Co-managing or 100% outsourcing is common and allows experts in SD-WAN to free up internal resources to work on what differentiates the business.
- Major priorities should be security and reliability. Partners can help to address these areas through technical expertise, advice and tools. This is especially the case as the workforce shifts to remote working and public Internet becomes a significant and critical part of the network.

Introduction

The journey to digital transformation puts pressure on organizations and their IT functions in many areas. There are many new technologies competing to help businesses modernize and go faster, such as cloud, DevOps, mobile, machine learning, and the Internet of things. However, all these are dependent on the network. This may seem obvious, but overwhelmed organizations can often forget.

In the past few months, the Covid-19 global pandemic has compounded the pressure to change. It has accelerated many changes related to digital transformation. Employees on the move or working from home, as well as key business systems hosted in the cloud, have gone beyond local area networks in favour of hybrid wide area networks. The network has never been under more pressure and has never been more critical to the ability for businesses to do business.

Now more than ever, the network's resilience, reach and capability need to be top of mind for senior leaders driving through an agenda of change to meet both immediate and future operational goals.

The need to support rapid change means networks need to be far more flexible, faster to deploy, and global. In addition, they must be highly secure as organizations face cyberthreats that are ever-increasing in number and sophistication.

Businesses still want the ability to set governance policies and attain the security that they are used to, but at greater scale and speed. This is where software-defined wide area networks (SD-WANs) can deliver value. Employees working from home owing to lockdown measures add to these challenges. For example, we have seen policies that limit remote access to business systems for security reasons, now preventing business operations as users moved to 100% remote access.

Covid-19 provides a unique backdrop by which to examine how organizations are changing their networks, now and over the coming months. This was therefore an important time to conduct our study into adoption of SD-WAN.

SD-WAN technology adds a virtualization layer on top of the physical network infrastructure. This allows IT teams to create and change the network without the cost, time and complexity involved in changing hardware. By becoming software-defined, the virtual network can extend across both private and public infrastructure. For example, the company data centre could be connected with a public cloud while retaining the security and policy controls that previously existed within the company's private network.

Global Study to Understand the Adoption of SD-WAN

Through a survey of over 800 participants from global enterprises, CCS Insight sought to understand the issues surrounding adoption of SD-WAN technology.

Our cross-industry study drew on respondents from North America, Europe and Asia. We spoke with technical and non-technical roles, with the majority being senior leadership and decision-makers, as well as some executives that had an influence on decisions.

The study results shed insight into how organizations approach SD-WAN; the drivers, benefits and challenges; the level of maturity within the market; and the involvement of third parties such as suppliers and partners.

The findings highlighted how customers clearly recognized the value of SD-WAN as a pivotal asset for extending the capacity of their networks to better serve the business demands they face. Only 3% said they have no plans to implement the technology. The majority of respondents have or are in the process of deploying SD-WAN to some degree. The study examined the following major areas:

- Adoption patterns of SD-WAN technology within organizations
- Which drivers have prompted organizations to adopt SD-WAN
- How the challenges go beyond the technology itself
- The critical importance of network reliability and security
- How organizations want help and who they are looking to get it from

SD-WAN Is a Sign of Maturity in Network Transformation

Organizations will often start their journey in software-defined networking at a small scale, such as a software-defined local area network (SD-LAN), before graduating to SD-WAN. This allows them to experiment and learn before expanding out.

The media and entertainment industry provided a good example of this journey. Our survey found that adoption of software-defined networking in this sector was 70%, with SD-LAN adoption at 60% and SD-WAN adoption at 48%.

There is also a relationship in many cases with the adoption of cloud services. It is obvious that increased usage of cloud-hosted software naturally raises questions about how the network expands to these solutions. However, the inclusion of cloud services (through hybrid and multicloud strategies) in an organization's IT estate has provided many with an introduction to software-defined networking — it is native to many cloud environments. Such technologies provide the flexibility and agility that such workloads need to operate with. The cloud experience can act as a small-scale experiment from which broader SD-WAN adoption can flow.

CCS Insight has seen this situation evolving over several years. For example, when speaking with public cloud customers, we hear them talk of how cloud services introduced them to software-defined networking. They learned the skills there and experienced the value that allowed them to begin a larger

implementation, helping to sell its benefits to the business and identify its primary technical usage scenarios.

Organizations Need to Move Faster and Transform Workplaces

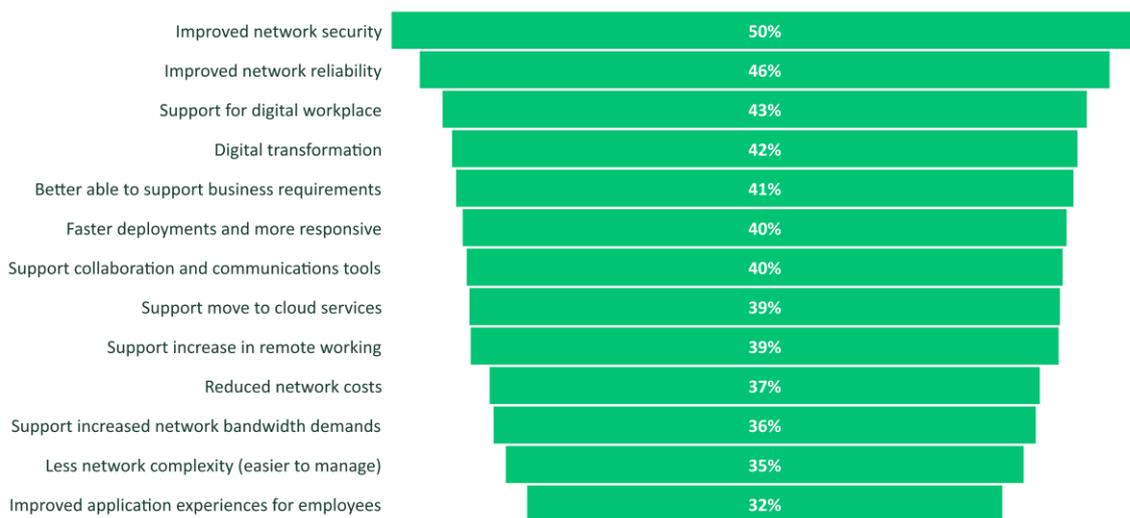
Survey respondents were asked to indicate which drivers of SD-WAN adoption they regarded as "essential", "important" or "not important". As expected, the number-one driver considered "essential" or "important" was digital transformation.

The market widely accepts that digital transformation is the main ambition as organizations seek to improve competitiveness, drive down cost, reduce waste and minimize risk while moving faster to address internal and external demands. However, there are many elements to digital transformation.

High on that list is the move toward a digital workplace. As organizations deal with the massive shifts resulting from the Covid-19 pandemic, this requirement has clearly moved up the priorities. Workforces around the world have moved to home working — overnight in most cases — and this has had a profound impact on corporate IT and, inevitably in today's connected world, the underlying networks.

It came as little surprise that in respondents' ranking of drivers considered "essential" for adopting SD-WAN technology, support for a digital workplace came in the top three (see Figure 1).

Figure 1. Drivers for implementing SD-WAN considered "essential"



Source: CCS Insight

These uncertain times mean that organizations need to adapt quickly. This adds impetus to an existing trend among businesses wanting to move faster and be more responsive. In Figure 1, being better able to support business requirements and being faster and more responsive in the deployment of the network both ranked in the top five.

With businesses now operating critical systems remotely, access and performance — including concerns such as network latency — of those systems are having a profound impact on not only competitiveness but their very survival.

Network Technology Is Only Part of the Solution

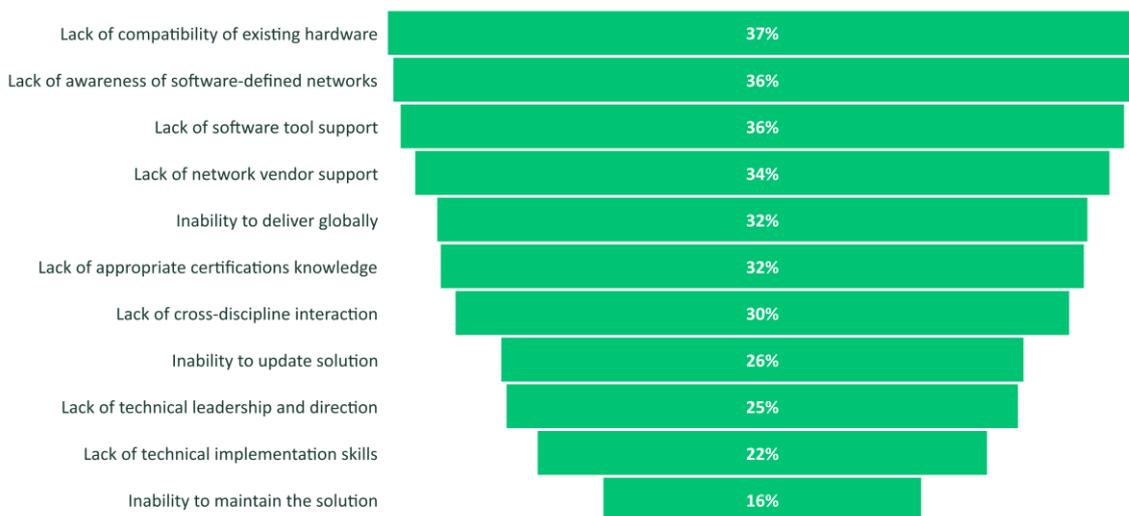
In addition to the business value that SD-WAN provides, organizations see challenges.

Primary among those listed in the study is the technology required to deliver SD-WAN. There is a lack of compatibility with existing IT network infrastructure. IT organizations have long grappled with the heterogeneous nature of hardware, and networks are no exception.

The survey revealed that respondents use a mix of infrastructure from many suppliers, such as Cisco, Huawei, Avaya, Ericsson, Nokia, Juniper Networks and many other providers. There is no clear winner — even industry giant Cisco is present in only half of respondents' organizations. While many of these suppliers provide SD-WAN capabilities they are not always compatible between suppliers or even within a single vendor's portfolio.

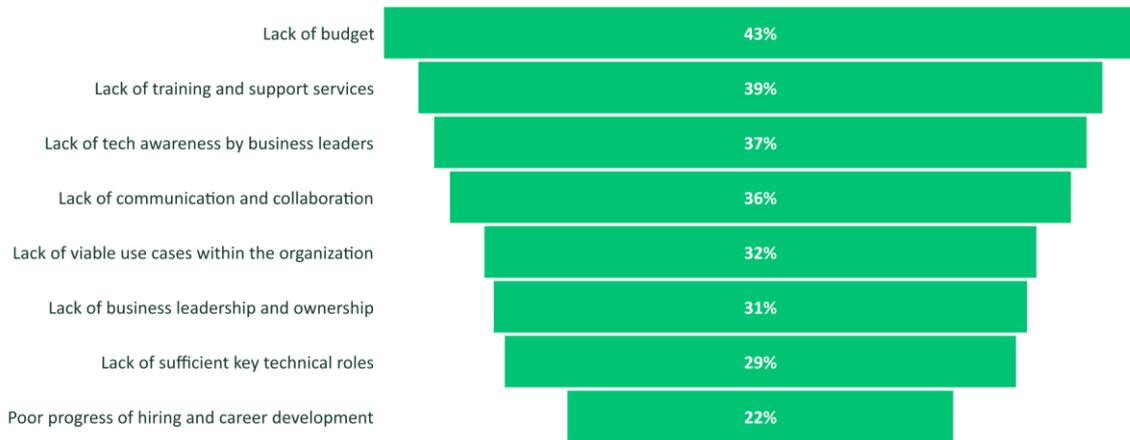
The study found there were several challenges beyond technology itself. Lack of support from suppliers was ranked fourth in the list of technical challenges (see Figure 2). A shortage of training and support was the second highest non-technical challenge, cited by 39% of participants, only behind a lack of budget (see Figure 3). It is important to note that in other questions where budget was a possible concern it was not cited very highly. Similarly, cost savings were not a major driver for adoption of SD-WAN technology.

Figure 2. Technical implementation challenges in adopting SD-WAN



Source: CCS Insight

Figure 3. Non-technical implementation challenges in adopting SD-WAN



Source: CCS Insight

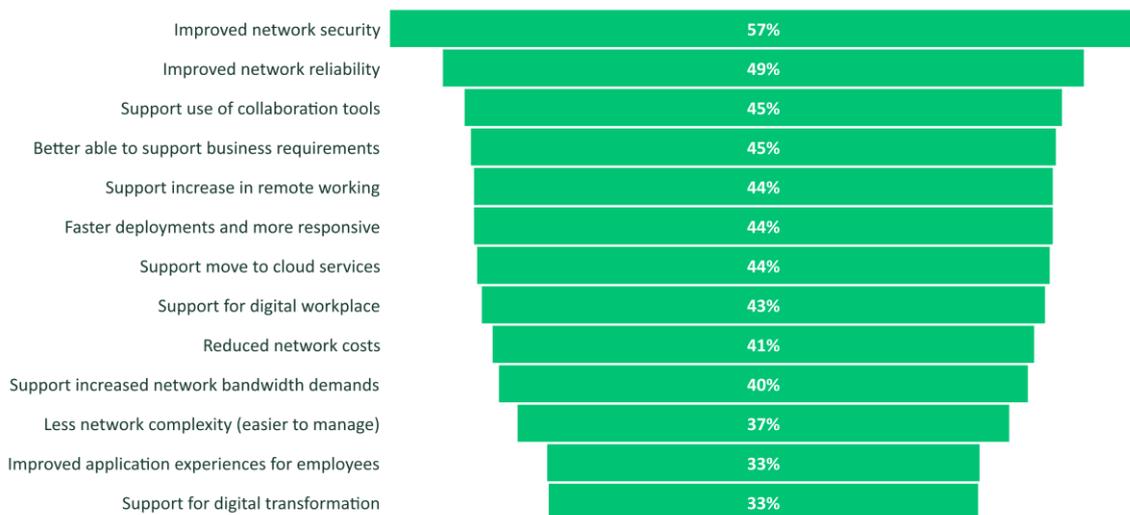
In this study and others recently conducted by CCS Insight, we see that IT budgets are increasing. Organizations are prepared to invest today in the technologies that enable digital transformation to reap the benefits of change tomorrow.

At a more fundamental level, there is a lack of understanding of SD-WAN technology and how it can be best applied in the IT organization and in the business. Companies still need to better understand the use cases that will deliver value from SD-WAN. Increased understanding will unlock further value in the investment and potentially new business capabilities and models that will create new value streams and improve business outcomes.

Security and Reliability Are Critical Success Factors

Considering "important" drivers of SD-WAN adoption, respondents ranked security and network reliability as the top two factors (see Figure 4).

Figure 4. Benefits of implementing SD-WAN considered "important"



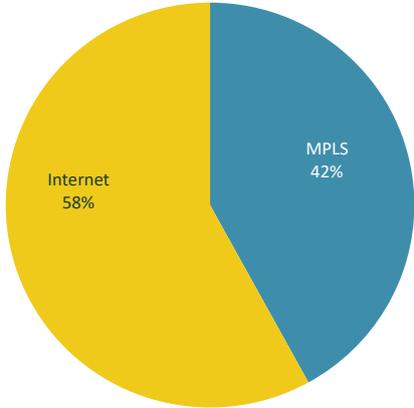
Source: CCS Insight

The clearest message throughout the study was the importance of security. Security was both the most essential driver and benefit of SD-WAN. However, organizations are not blind to the potential security

challenges of SD-WAN. Providing malevolent actors with a larger attack surface was the biggest concern, but multiple concerns were cited, from worries about the security of products from specific suppliers to the use of the public Internet. The diversity of answers indicates that customers are keen for help in this area.

The public Internet will play an important role in network transformation as organizations move to split their networks between traditional Multiprotocol Label Switching (MPLS) technology and a combination of consumer and business Internet services. This offers an opportunity for providers that support both (see Figure 5).

Figure 5. Respondents' usage of Multiprotocol Label Switching and Internet services

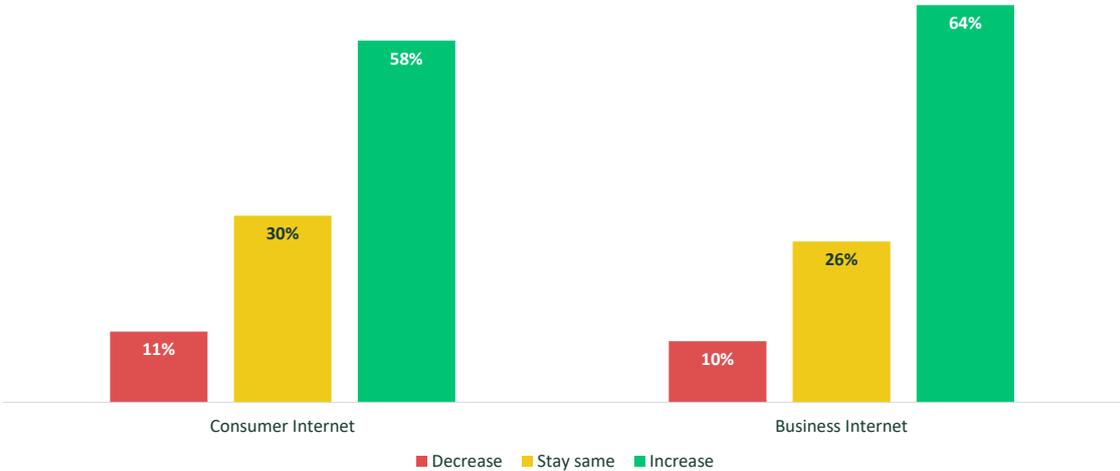


Source: CCS Insight

The move to public Internet has only been accelerated in recent months by work-from-home requirements that appear increasingly likely to remain in place. Organizations have no choice but to embrace greater public Internet within their networks.

As a result of this change, survey respondents expect to increase investments in both public and business Internet usage over the next 12 months (see Figure 6). We believe this may prove to be an underestimate as many respondents in our study were only just beginning to grapple with the implications of the mass move to work from home.

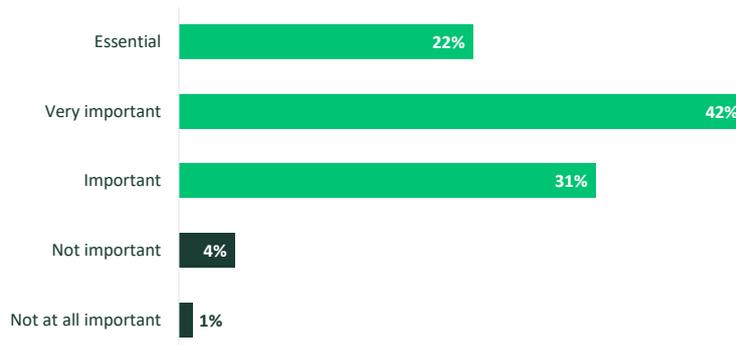
Figure 6. Expected changes in Internet network spending over next 12 months



Source: CCS Insight

Ideally, respondents want security built into SD-WAN solutions rather than as an add-on, with a total of 96% showing a preference for the former (see Figure 7). Where a provider can supply a solution that has integrated security, they will be welcome.

Figure 7. Importance of built-in security in SD-WAN solution

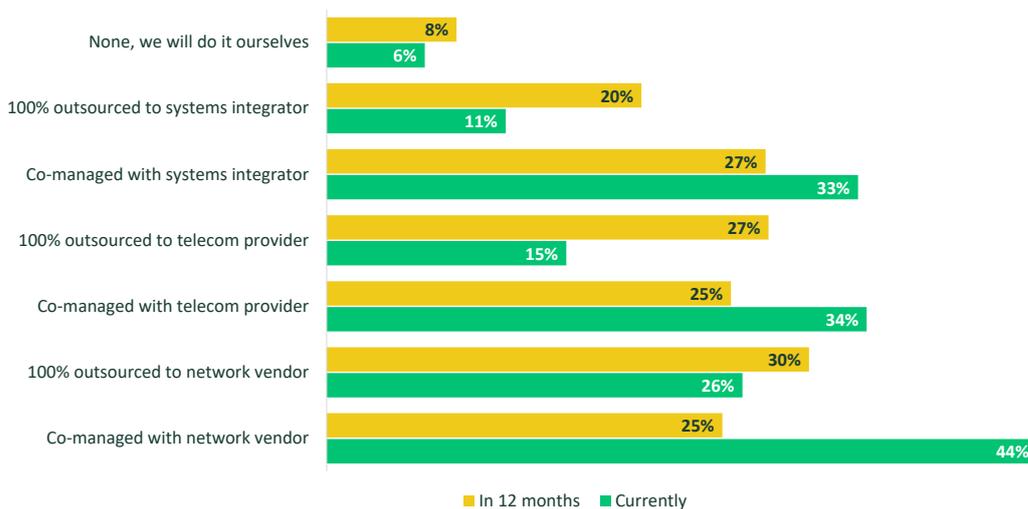


Source: CCS Insight

Organizations Do Not Want to Go It Alone

Given the challenges that organizations face, it was not surprising to find that they look to third parties for help. Only 6% of respondents manage their own networks, with the majority in a co-management relationship. The use of co-managed networks will increase sharply over the coming 12 months (see Figure 8).

Figure 8. Respondents' use of IT network partners and future intentions



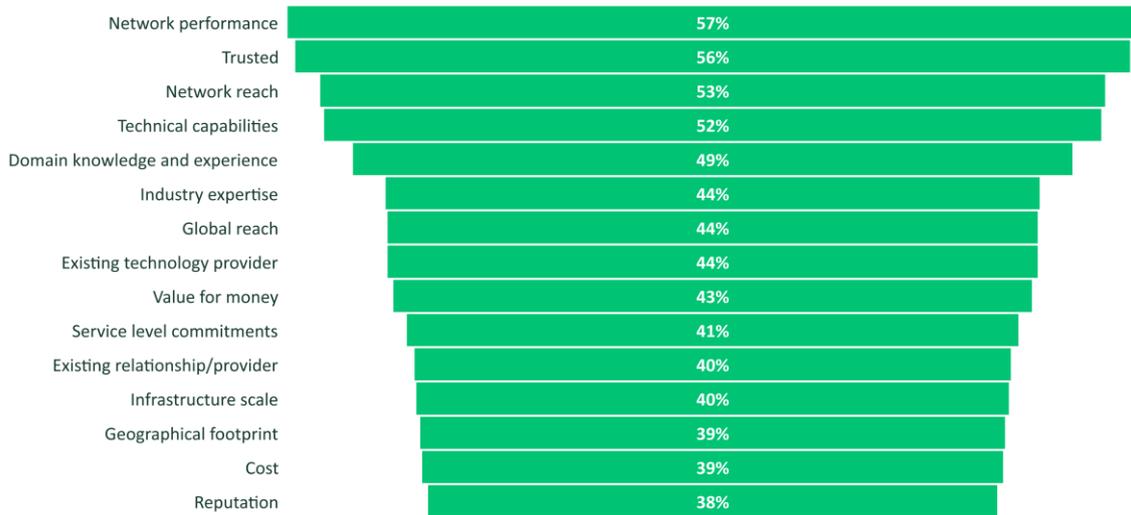
Source: CCS Insight

As the adoption of SD-WAN accelerates thanks to the impact of the pandemic, it will prove sensible for many organizations to outsource in part or whole. With speed being vital and challenges such as a lack of existing skills and hardware compatibility, finding a partner that can quickly move the organization forward will quicken the path to value.

When it comes to choosing a partner, respondents' most important criteria are network performance, trust and technical capabilities. Their choices demonstrate the importance of not just technology. Suppliers can provide that technology, but organizations need training and support as well as domain

knowledge and experience, ideally from someone they have an existing relationship with (see Figure 9).

Figure 9. Attributes of a partner considered "essential"



Source: CCS Insight

Business and IT Are Aligned, with Differences by Industry and Geography

When comparing the answers given in the study between business and technical roles, and between decision-makers and influencers, we see a high level of alignment. This degree of synchronization, especially between technical and business roles, is unusual compared with many past studies, but it shows a direction of travel. Digital transformation is bringing the business and IT closer together, and the alignment seen in this study is a good representation of that.

Key decision-makers included those in C-suite positions. Although it is not surprising to see CIOs and CTOs on the list, the influence of the CEO demonstrates the recognized value of SD-WAN at the highest levels. However, this represents the importance of technology pertaining to digital transformation more than it reflects a deep understanding at the CEO level of the technology itself. One should not assume that there is understanding where there is not — as shown in our study, where a lack of technology awareness by business leaders was cited as the third non-technical challenge to SD-WAN adoption.

Even at the CIO and CTO level there is a lot of competition for their attention, and areas such as cloud, mobile, and increasingly the Internet of things (IoT), will frequently take priority over the network. For example, in the case of IoT we see a lot of focus on devices, software and platforms, with the network often overlooked. In some ways, the message of ubiquitous connectivity has made people complacent when it comes to the underlying communication layer that is critical to successful IoT.

An example of this is in healthcare, which is particularly relevant at this time, where leadership has implemented new IoT technology into hospitals only for it to fail owing to problems with connectivity. Assumptions were made about the security and reliability of networks that proved to be false.

If there are areas where respondents diverge, it is more by industry and geography. Respondents in Northern America and Asia-Pacific appear similar in their answers; respondents in both regions are ahead of their counterparts in Europe, the Middle East and Africa (EMEA) in SD-WAN adoption.

Responses in EMEA show greater differences. For example, hardware compatibility is less of an issue for respondents in the region and there is greater trust in the public Internet. However, budgets are under more pressure in EMEA.

