CCS Insight — making sense of the connected world

Global Study Findings:
Local Area Network
Adoption, Drivers,
Challenges and Maturity

Key Findings

Amid the Covid-19 pandemic in December 2020 and January 2021, CCS Insight conducted a global survey of over 400 enterprise organizations (greater than 5,000 employees) in multiple industries. The survey's principal findings were:

- Organizations are largely progressive when it comes to their local area networks (LANs), demonstrating wide adoption of technologies such as software-defined networking (SDN) and moving toward 5G.

- There is almost universal use of managed service partners to help deliver progressive capabilities.

- The Covid-19 pandemic is triggering increased adoption of managed service providers as customers need to respond quickly to a changing situation.

- There is an almost equal split between telecommunication providers and service integrators when choosing a partner, but trust, reputation, and speed of delivery are key criteria.

- The main challenges facing organizations are scalability and performance, with both critical to supporting innovative new scenarios required by digital transformation.

- The Covid-19 pandemic is forcing changes in how organizations view and work with their LAN in the short term and in the long term.

- Improving the LAN will be central to getting employees back into the office, both enticing them and supporting new safety capabilities.

- Organizations recognize the importance of security and more are managing this in-house than outsourcing their LAN, with the help of increasingly automated threat detection and remediation.

- Changes are frequently made to the LAN and this capability is largely automated.

- Cisco is the clear leader with respect to network hardware.

Recommendations

- Working with a partner to manage the LAN typically leads to faster delivery of more progressive capabilities such as SDN and 5G to support the innovative solutions increasingly required by digital transformation efforts.

- Performance will be critical to getting employees back into the office in the post-pandemic era. Employees will expect performance equal to that at home, and the business will need to support new safety capabilities such as CCTV.

- More automation will be vital to supporting rapidly changing business requirements and security threats.

- There are opportunities for cost saving and improved capabilities by merging the LAN and the wide area network (WAN), both technically and with respect to working with a partner.

Introduction

As we enter a second year of the Covid-19 pandemic, organizations are still grappling with the challenges it has posed while considering what is to come. Technology has played a major role over the past year in enabling a mass movement to home working. Systems and infrastructure have had to support previously unseen levels of remote access. This change comes on top of digital transformation that has for several years seen the modernization of IT infrastructure, systems and software. As a result, many organizations entered the pandemic with a foundation better suited to the changes thrust upon them.

Networks have been central to these changing conditions, and there has been a large focus on WANs that encompass telecommunication providers and others. However, the LAN has not been forgotten and this part of the IT infrastructure is now receiving greater attention. As organizations look to the post-pandemic era, they foresee a continuation of working from home, which means many LANs (in individuals' homes), as well as implications for the traditional office LAN.

IT and business leaders realize that they need to better equip employees at home with faster and more reliable connectivity while also improving the same in the office to entice employees back. Although the LAN may shrink as there will be fewer people in the office at any one time, it also needs to support better performance and new use cases, such as those that rely on technologies like 5G. At the same time, critical concerns such as security and governance must be addressed as threats to the business — often through the network — increase.

Although software has a key role to play in the future LAN, primarily through SDN, the LAN's foundation remains physical infrastructure. For many, the LAN is still "plumbing" — cables and boxes that must extend throughout the premises. Even when organizations replace cables with Wi-Fi, there is still physical infrastructure to acquire, support and manage, making hardware innovation synonymous with that of software.

That means hardware providers are important partners in addition to any service providers. With so much dependent on the LAN and multiple challenges — accelerated by the pandemic — it is not surprising to see many outsource their LAN. This has enabled those organizations to benefit from more progressive networks more quickly and so focus on delivering business value faster.

Global Study to Understand the Dynamics of Organizational LANs

Through a survey of 410 participants, CCS Insight sought to understand the major issues organizations face with their LAN. Survey respondents were all decision-makers and influencers in technical and non-technical (business) roles. Topics included current LAN challenges; current and future requirements; use of third parties such as service providers; and the choice of suppliers.

The study found that 96% of respondents use managed services in whole or part to provide their LAN. Organizations are largely progressive when it comes to their LAN capabilities: most are achieving software-defined WAN strategies with a high level of automation; and many already looking to deploy 5G and technologies for the Internet of things.

The study provides insights into several areas:

- Adapting the LAN to address the current pandemic and the post-pandemic era.

- Making the LAN a key part of getting people back to the office while also helping to deliver a safe working environment.

- How business objectives such as increased collaboration require more performance and scalable LANs.

- Cisco is the leading hardware supplier.

- The innovation that is core to digital transformation will need more-complex LAN environments.

Challenges for the LAN Driven by Business Modernization

When asked about problems with their LAN, survey respondents indicated scalability, cost, flexibility and performance among the top issues (see Figure 1). These are unsurprising given that the physical nature of a LAN inherently means scalability and flexibility can be difficult. Although SDN helps, it still does not resolve the problem of needing to physically extend equipment to another floor in the building, for example.

Figure 1. What is the main problem you face with your LAN?
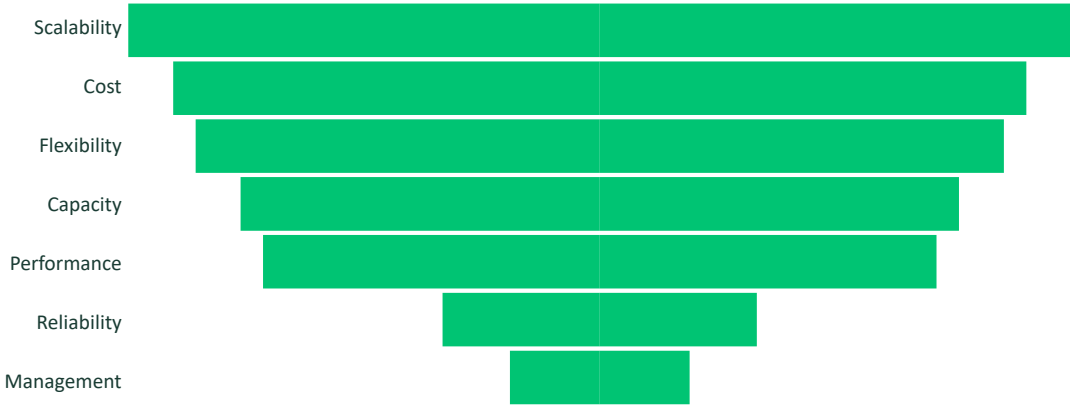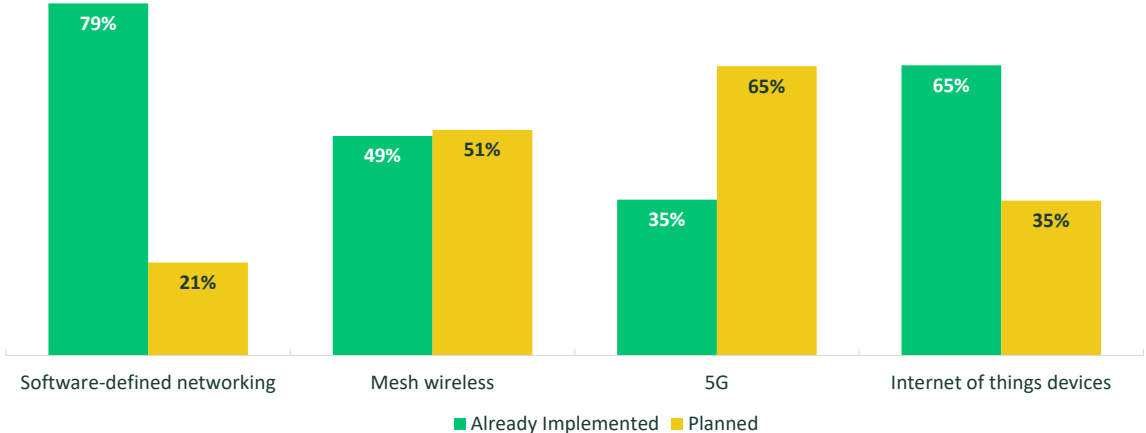

Source: CCS Insight

Performance is increasingly a problem as more requirements are put on the network. For example, there is typically more video being streamed over the LAN today than at any time before. In addition, there are new applications such as the Internet of things that increase data. The Internet of things is an example of the type of innovation that organizations strive for through digital transformation. Whether it is the network or the data centre, they see performance as an important foundation for innovation.

The pandemic adds to this challenge as people compare the performance of their home network with that of an office LAN and may find the latter a worse experience. The solution is often modernization of the LAN, and partners with greater skills and experience are a way to achieve this.

Network Teams Are Not Laggards When It Comes to New Capabilities

Although organizations may face several challenges with their LANs, they are by no means standing still. Many organizations demonstrate a progressive approach, having already widely adopted technologies such as SDN (see Figure 2). They are already moving on to 5G strategies and support for new concepts such as the Internet of things and edge networking.
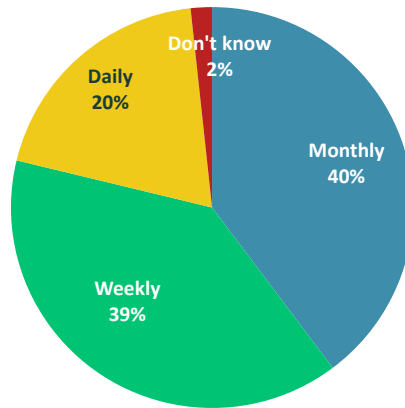
Figure 2. Do you have a strategy?

Source: CCS Insight

In addition, they are making frequent changes to the LAN (see Figure 3), and 83% can deliver these through automated processes.

**Figure 3. How often are simple changes made to your LAN?**

Source: CCS Insight

All of this demonstrates that organizations recognize the importance of the LAN as a foundation for many of the new capabilities that will be critical to successful digital transformation and are putting in place the necessary support. It is important to lay this foundation early so that teams charged with delivering solutions on top of it can do their work.

Partners Are the Key to Success and Innovation

A significant factor is the widespread use of managed services (see Figure 4). Outsourcing the LAN to partners whose skills and experience can deliver such progressive capabilities has enabled faster roll-out of capabilities such as SDN and 5G. This approach is also seen in other areas of IT — if a capability is a competitive differentiator, organizations are taking it in-house; other capabilities are better delivered through third parties. The survey findings support this scenario very clearly in the case of the LAN.

Figure 4. Do you manage your own LAN estate or take a managed service?
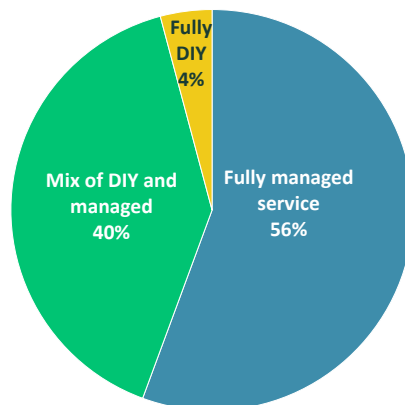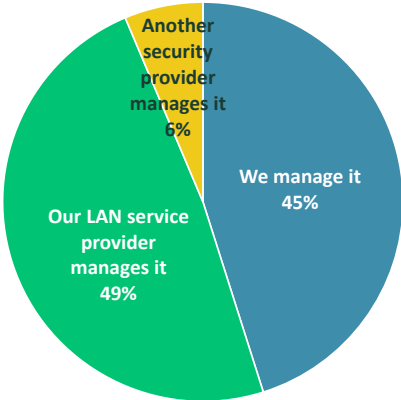

Source: CCS Insight

The pandemic has triggered an increase in the use of managed services, with 50% of respondents considering outsourcing all or some LAN functions. This is unsurprising, given that organizations have had to adapt incredibly rapidly to new ways of working. They frequently lack skills and experience; when pushed to move quickly, they have turned to partners.

Security is one area where there is still a desire to take control in-house (see Figure 5). Most organizations recognize the importance of security, whether because of regulation or the potential bad PR of a data breach. As a result, they feel the need to have closer control and oversight. Automation has an import role to play here: 95% of respondents can automatically detect suspicious activity on their LAN, and 88% can quarantine threats and anomalies. Given the growing scale of the security challenge, automation of detection and remediation will be critical to keeping organizations safe.

Figure 5. How is the security of your LAN managed?

Source: CCS Insight

Whatever the Type of Partner, Trust and Reputation Are Critical

For organizations using managed services, there are important criteria for the choice of partner (see Figure 6). The preference according to our respondents is for hardware suppliers. The physical nature of the LAN means it is not surprising that companies that provide the boxes and cables are the first choice. Given the complexity of many LANs, it makes sense to use service providers that understand the equipment best.

Figure 6. What do you think is most attractive in a service provider?

Rank 1		Rank 2		Rank 3	
24 x 7 support	17%	Speed to deploy	12%	Trust and reputation	15%
Trust and reputation	16%	Global reach	12%	24 x 7 support	13%
Speed to deploy	10%	Trust and reputation	11%	Speed to deploy	11%
Flexible commercial model	9%	24 x 7 support	11%	Existing relationship	10%
Local presence	9%	Support for multiple suppliers	9%	Support for multiple suppliers	9%
Global reach	8%	Innovation and road map	9%	Flexible commercial model	9%
Support for multiple suppliers	8%	Experience in similar industries	8%	Global reach	8%
Existing relationship	6%	Flexible commercial model	8%	Innovation and road map	7%
Accreditation and skills	6%	Accreditation and skills	7%	Accreditation and skills	7%
Innovation and road map	5%	Existing relationship	7%	Experience in similar industries	6%
Experience in similar industries	5%	Local presence	6%	Local presence	4%

Source: CCS Insight

However, there is still almost equal preference for other providers, with a clear and almost equal split between telecommunication companies and system integrators (see Figure 7). The partner selection criteria do not favour one particular group; instead, the most important elements for customers are trust and reputation, 24 x 7 support, speed of deployment and global reach.

Figure 7. Who is your primary LAN provider?
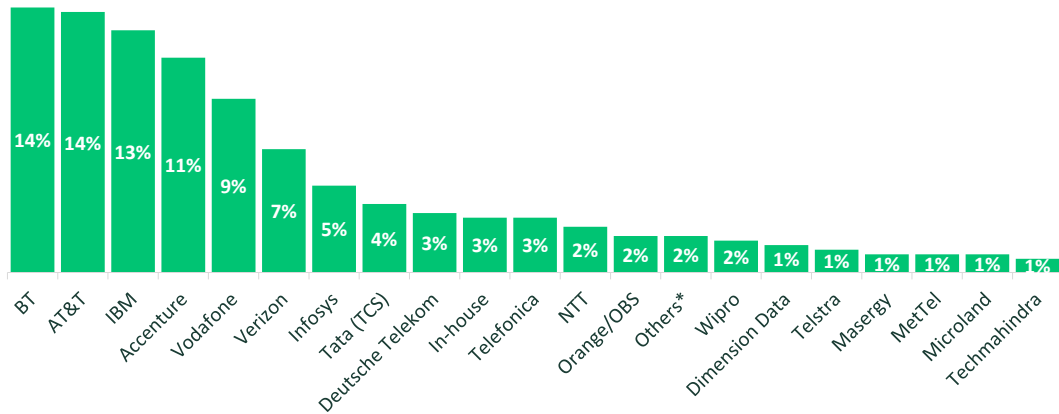
*Others: Etisalat (1); Rogers (1); Sasktel (1);Singtel (1); SFR (1); STC (2);Telkom (1)
Source: CCS Insight

When asked about hardware brands, Cisco came a very clear top (see Figure 8). Although there is a mix of suppliers, Cisco's lead is significant, with almost 60% of respondents using mainly Cisco products. This is especially true among organizations that manage their own LAN. By region, Cisco's total percentage does not drop below 55%. The company is the leading choice of customers and service providers.

Figure 8. What type of LAN equipment do you mainly use?
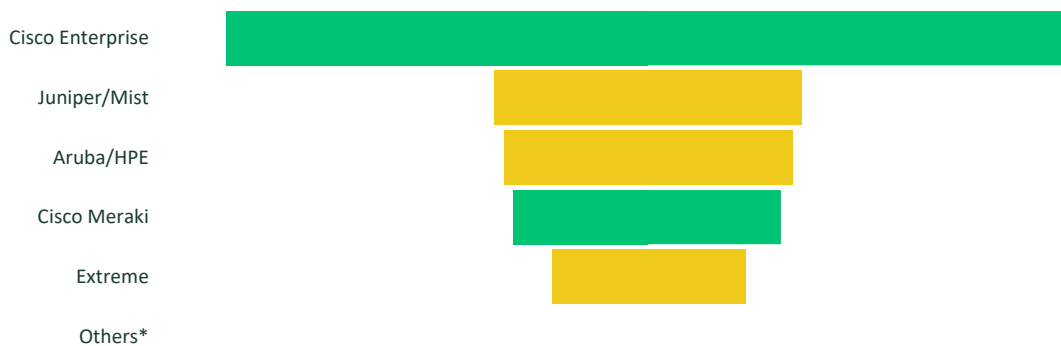
*Others: Fortinet (1); Huawei (1)
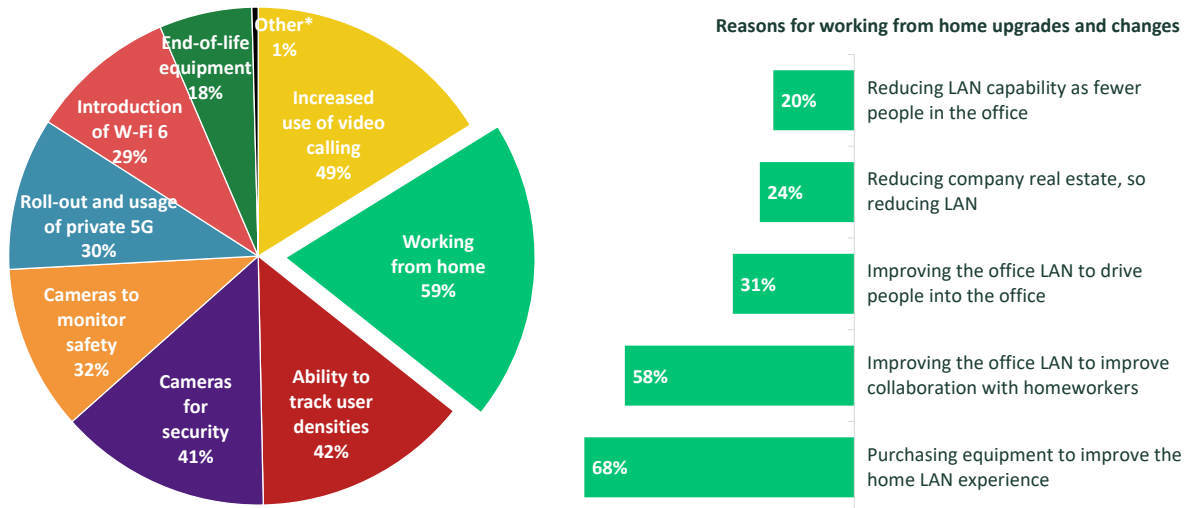Source: CCS Insight

Pandemic Provoking Rapid Change

The Covid-19 pandemic has resulted in many changes within organizations, some temporary and some more permanent. It is unlikely that remote working will continue at the current level in the post-pandemic era, but the days of everyone being in the office all the time are certainly behind us. Instead, the future will feature a hybrid of office-based and remote working.

This has implications for corporate LANs. Among survey respondents, 59% cited home working as a reason to upgrade their LAN. Within that group, there are several reasons why working from home has triggered change (see Figure 9). For many organizations there will now be many LANs, with each remote worker's home becoming a mini LAN. We have seen throughout the pandemic that a challenge for home workers is their home network. To support remote working in the longer term, organizations will need to support employees' home networks to improve performance and reliability.

Figure 9. What are the top three things driving you to upgrade or change your LAN?

Reasons for working from home upgrades and changes

Reason	Percentage
Reducing LAN capability as fewer people in the office	20%
Reducing company real estate, so reducing LAN	24%
Improving the office LAN to drive people into the office	31%
Improving the office LAN to improve collaboration with homeworkers	58%
Purchasing equipment to improve the home LAN experience	68%

*Other: capacity (1); cybersecurity (1); data privacy risk (1); performance (1); router bandwidth capability (1)
Source: CCS Insight

At the same time, many may be getting a better experience at home than they did in the office. For this reason, the traditional LAN will need improvements if employers are to entice people back to the office. Why come into the office if you are going to be less productive than at home?

The survey found differences between industry sectors when it came to working from home and returning to the office. For financial service companies, the hybrid approach will work well, with both home and office networking well supported. Respondents in manufacturing, resourcing and logistics companies, which are traditionally office-based, were concerned about the quality of home networks. Respondents in technology, life sciences and business service companies stressed the need to improve the office LAN to facilitate collaboration between employees working at home and those in the office.

Finally, the LAN may physically change owing to this hybrid approach to working. With potentially fewer people in the office at any one time, companies may cut office space and scale back the LAN. This change will switch the focus from scale and toward performance and reliability.

The pandemic also places additional requirements on organizations, such as the ability to manage the number of people in a property at one time. CCTV is one solution, and that puts more devices, streaming more data, onto the LAN. Given that performance is seen as a challenge, such new capabilities need to be delivered in a way that does not degrade performance.

Overall, the pandemic has altered how IT organizations view their LAN and their requirements — both now and in the future. In these changed circumstances, the solution is to look to partners with the right experience to deliver the right solutions quickly.

Opportunities in Merging LAN and WAN

Merging LAN and WAN operations offers potential for both cost savings and improved capability. Most survey respondents still separate these technically and in terms of suppliers, even where the same partner may manage both (see Figure 10).

Figure 10. Do you favour a single equipment supplier approach for your LAN and WAN?

Yes 78%	No 22%

Source: CCS Insight

Given the changes caused by the pandemic, WAN operations have become ever more important. Employees are now accessing either centralized systems remotely or using cloud-based applications. The WAN is critical to both and therefore essential for business functions and the employee experience.

Taking a more holistic approach to LAN and WAN operations could benefit both, and address elements such as performance, scalability, reliability and security. In addition, there could be cost savings to be gained by engaging a single partner.