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## Professional services cloud networking summary

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# Introduction

A discussion about how cloud networking plays a vital and growing part in the US professional services market.

Cloud networking plays a vital and increasingly important role in professional services organizations as a key enabler of communications and other core business processes, both within and between enterprises.

In today's IT infrastructure environment, where an enterprise's data, applications, and services

can operate on a public, private, or hybrid cloud infrastructure (whether sourced from a service provider or managed in-house), networks play a vital role. It's an increasingly open, multi-cloud world where businesses leverage a variety of Infrastructure-as-a-Service (IaaS), Software-as-a-Service (SaaS), and Platform-as-a-Service (PaaS) solutions. The underlying network that enables the whole cannot be taken for granted. As the saying goes, "The cloud is only as good as the network."



# The professional services environment

The professional services sector encompasses a wide range of business and professional market activities, including accounting, law, architecture, engineering, and a wide range of consulting services. Many are performed by specialists with professional training requiring certifications, subject to government regulation or oversight by industry bodies. Although the size of professional services organizations can vary, common aspects include the prevalence of knowledge work performed by individuals and teams. While it has traditionally been office-based, the industry is no longer heavily reliant on the dedicated physical workspace. It is a prime example of how virtual, remote, and mobile work practices are changing industries.

Professional services are also a significant contributor to the economy. According to SelectUSA/US Department of Commerce, professional firms in the US generated \$2 trillion in combined revenues in 2019 (up 5% year-on-year and [excluding offices of notaries]). In December 2020, the professional services industry included 9.5 million jobs across 1.3 million firms. Overall, North America accounts for 36% of the global professional services market.

## Political, economic, social, and technology (PEST) trends affecting the professional services market:

Given that some segments of the professional services sector are highly regulated, organizations are subject to political trends and regulatory requirements, and must keep a keen eye not just on direct legislation, but also associated lawmaking in areas such as data protection.

In terms of economic trends, the macro shift towards white collar work is demonstrated by the continued strong growth in the employee base of professional services firms, according to Department of Commerce data.

# Key cloud networking trends

## Distributed ecosystem

In the US (and globally), the majority of companies operate a hybrid environment, including both cloud hosted services and on-premises/private data center deployments on mission critical apps. Public cloud providers such as Amazon Web Services (AWS), Microsoft, and Google have become the default home for test and development environments, and are increasingly being used for critical corporate data and workloads. Similarly, more and more organizations are moving to public cloud versions of services such as Oracle and SAP, as well as cloud native services such as Salesforce. However, legacy apps don't necessarily move easily to the cloud and industry regulations and/or security best practices mean that most companies will need to operate a multi-cloud strategy for the foreseeable future.

Bringing together distributed ecosystems of hyperscalers, SaaS vendors, and colocation deployments (e.g., Equinix or Digital Realty) in one place is a key challenge. The first challenge is understanding the most efficient and secure way to access these services. Direct internet connections are always an option, but this approach comes with security risks and uncertain service performance. Older corporate connections are not designed to work in the world of hybrid working, multi-cloud, and distributed workloads, and can often be more expensive. Similarly, microservices environments where services are called in real-time from different hyperscaler locations can have a significant impact on latency. Real time updates in cloud services generate an increased need for bigger bandwidth and lower latency.

Working with a provider who can offer aggregated and interconnected access to a full range of cloud service providers offers a range of best fit solutions. Utilizing proven interconnects and peering agreements

from established network operators helps to guarantee consistent user experience, increases security, and can avoid hidden inbound and outbound data charges. The right provider will also offer a range of solutions for workers in different situations – whether working from home, on the move, or in corporate premises.

## Multi-cloud orchestration

Merely connecting to multiple cloud providers is not enough, however. Multi-cloud orchestration is a key element of customer solutions. Multi-cloud access should be accompanied by cloud orchestration services that provide organizations with 'a single pane of glass' overview of cloud services, offering visibility and control over assets, as well as a growing layer of automation tools. It is also critical to ensure synchronization of master data to ensure transaction consistency.

These tools also assist in key areas of administration such as security and policy enforcement, helping to obviate the threat of 'shadow IT' where individual company units set up their own cloud activities outside the realm of the company's IT provisioning policy – and potentially posing a security threat. For this to work effectively, it is important for service providers to offer the minimal number of 'hops' (network links) between the customer and the cloud – underlining the importance of the network to any reliable cloud service provision.

## Network evolution

The growing importance and usage of cloud services has combined with a number of

other factors to change the way networks are configured. It is no longer sufficient for businesses deploy traditional hub and spoke architecture between corporate headquarters and data centers and branch sites.

Cloud services such as SaaS applications and collaboration platforms have increased the volume of traffic utilizing public internet connectivity. When home working/hybrid working is factored in, the volume of internet traffic increases further. GlobalData's research highlights that 67% of customers will upgrade the speeds of their private line internet connections within the next two years. The advent of multi-gigabit fiber broadband services mean that businesses can affordably respond to this change and consider how internet can play a bigger role in their network architectures.

## Secure networking

The growth in employees working outside the office increases potential points of vulnerability within an IT estate. This is particularly important in the emergence of increasingly sophisticated cyberattack techniques being deployed by criminals to attack business of all sizes. SD-WAN technology can help businesses to optimize cloud services and increase security through the use of encryption. However, businesses should be thinking beyond SD-WAN to solutions such as Secure Access Service Edge (SASE) and Zero Trust Network Access (ZTNA).

SASE delivers closer integration between SD-WAN technology and next generation firewalls. The right solution provider can offer integration between multiple leading SD-WAN and next-gen firewall vendors. Meanwhile, a ZTNA methodology treats all unknown devices attempting to access corporate networks as a potential threat and validates their ability to access corporate systems and data. This means that critical customer files cannot be accessed by unauthorized devices. The technology can be used to increase security for workers outside the corporate environment. Businesses can even set geographic limits on where data and systems can be accessed from, which is vital in maintaining both security and regulatory compliance.

## Edge computing

Another key trend is the emergence of 'edge' computing and networking. Definitions of the edge can vary, but essentially the edge delivery model is characterized by smaller facilities located closer (near-site or on-site) to the end users and devices that generate and consume data.

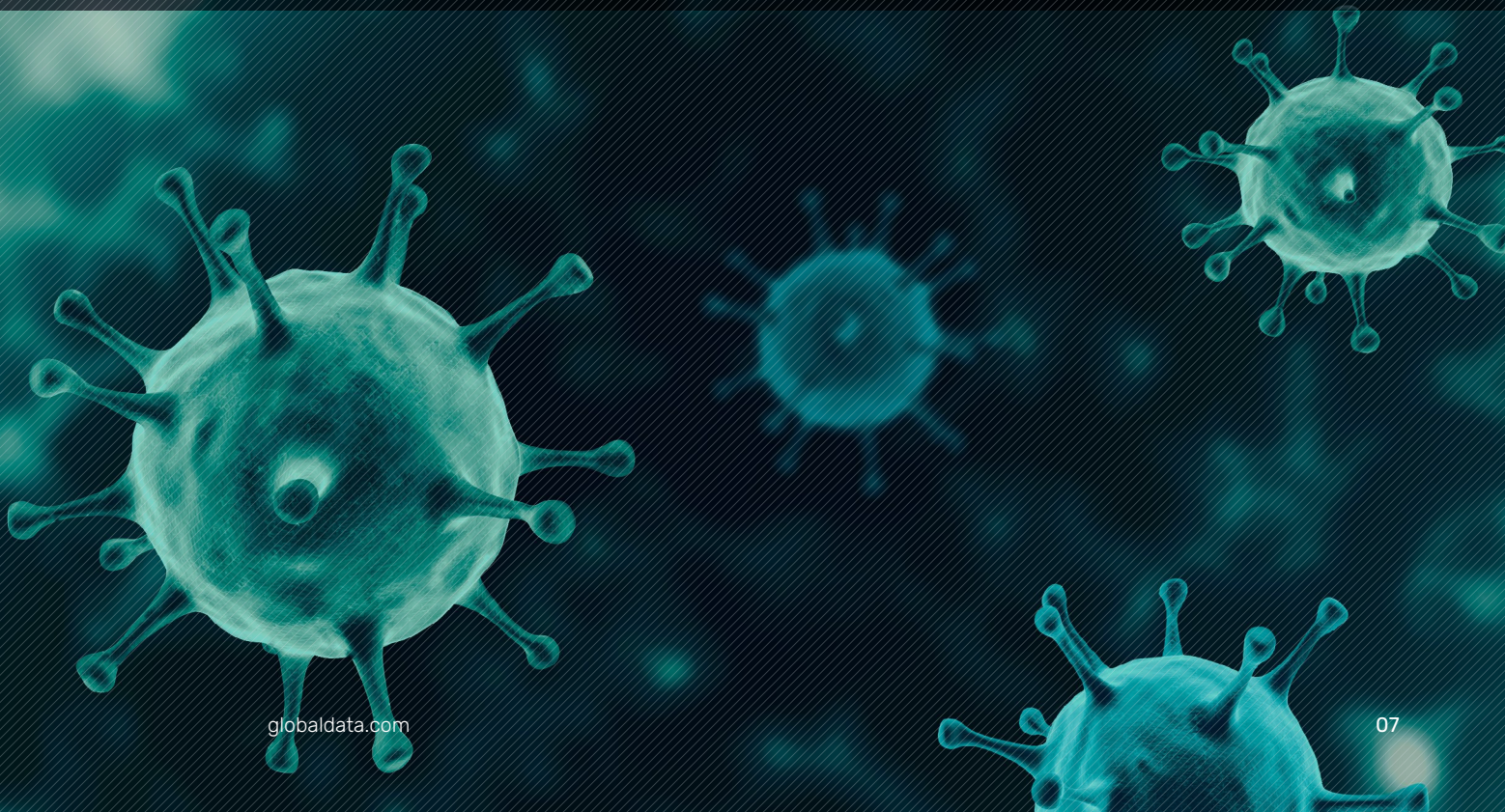
Multi-access edge computing (MEC) solutions bring cloud access closer to the customer site. Shortening the distance between data processing and the client application reduces network latency, thus improving performance and the user experience. This can be particularly critical when moving legacy applications (e.g., billing or secure file storage/paperwork processing systems) to the cloud.

Edge computing solutions can also bring security services such as DDoS mitigation and internet scrubbing closer to the customer, further reducing any impact on the user experience of delivering a secure networking environment. Furthermore, edge technology can support work from home/hybrid working as the network provider's MEC infrastructure can act as a proxy if an employee is located at a geographically distant location to the nearest corporate office.

# 03 Covid effect

As with all organizations, the COVID-19 pandemic has impacted the professional services sector, with many companies having to implement remote working at scale virtually overnight, and adjusting rapidly to changing operational and market conditions, both with clients and partners. Home and working life changed, but business had to continue – and has adapted remarkably well. Post-pandemic, there is also strong evidence that the ‘Great Resignation’ (aka the Big Quit) has seen a substantial base of employees choosing to leave their current employment in a search for a better work-life balance. This is particularly significant in the professional services market, where employers need to be increasingly flexible in order to recruit and retain talent, both domestically and on a global basis.

The COVID-19 pandemic accelerated already evolving work models, many of which are driven by cloud networking. These range from the ubiquitous Zoom, Teams, and Webex meetings to storing and sharing files, presentations, and other documents – all enabled by cloud networking. The pandemic not only changed the way professional services firms worked – it also provided market opportunities in terms of advisory work across the board, from legal challenges to human resource optimization.



## 04

# Cloud networking at the heart of business

Professional services are driven by communication. Digital transformation processes are driven by the need to optimize human interaction, with unified communications and collaboration services becoming a facilitator of ongoing business, mirroring and complementing traditional meetings.

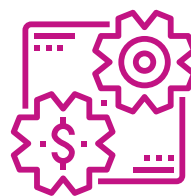
Recent times have shown us that without the right network and connectivity solutions, these vital interactions can be critically undermined. It is key that communications are reliable, secure, and conformant to regulations.

Corporate networks need to have the flexibility to adjust to rapidly changing circumstances. The growth in cloud services and the emergence of large-scale hybrid working mean that traditional network architectures are no longer suitable. Networks need to be able to cope with increased internet traffic, hybrid cloud environments, and more distributed and mobile workforces. Managed networks and cloud connectivity solutions can save costs as well as improve productivity for professional services firms, enabling remote and flexible working while delivering faster, secure access to key data and insights.

The growing availability of fast broadband (both fixed and mobile) is a key facilitator for people employees working outside the corporate office. However, connectivity alone is not enough and ensuring that workers have secure and appropriate access to the right tools and data requires more than connectivity. Traditional VPN solutions can work, but they are inflexible and can create bottlenecks in corporate networks. Zero trust clients are a lighter touch and can more intelligently determine if the person and device that is trying to access corporate systems has the right and the need to do so.

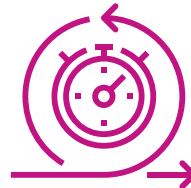
Managed network services such as SD-WAN and cloud connectivity solutions also play a

key role in meeting evolving and increasingly important environment, social, and governance (ESG) goals:



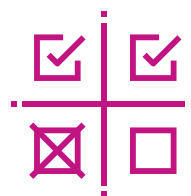
## COST SAVINGS

Because many cloud-based services are offered on a pay-as-you-use basis, customers should only pay for what they need rather than for unused computing or networking capacity.



## EFFICIENCY

Access to cloud-enabled applications and data stored in the cloud means that professional services firms and their partners can become more agile when addressing projects, plans, and tasks.

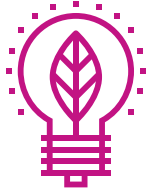


## PRODUCTIVITY

Many studies have found that the switch to remote working has not only benefitted employee health and wellbeing, but also productivity. GlobalData's research found that



44% of business experienced and increase in productivity as a result of adopting hybrid working practices. In addition, research by McKinsey has identified professional services as the sector with the highest potential for remote work.



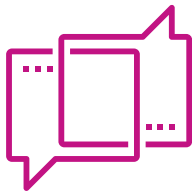
### ENVIRONMENT

By using cloud networking, businesses can cut their environmental impact. This is not just because of less travel-related climate damage, but also because service providers along the value chain (such as data center companies) are themselves increasingly committed to carbon-neutrality.



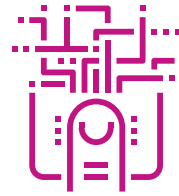
### SOCIAL

With demand for professional services staff at a peak, the opportunity to broaden the scope of the employee proposition to attract and retain the best people is facilitated by more flexible working, as enabled by cloud networking.



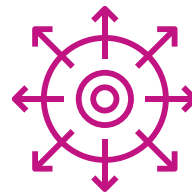
### GOVERNANCE

Regulation is core to most professional services activities, so cloud networking can help address challenges such as audit trails, and location-dependent access to data. It is also widely expected that ESG requirements will become as important as financial reporting over time and cloud networking can play a key part in delivering proof of compliance.



### EVOLVING TECHNOLOGY

Increasingly, professional services firms will exploit key emerging technologies such as artificial intelligence (AI) and big data to analyze, automate and improve their use of the information they hold. This is an area which is clearly enabled by the cloud and associated networking and security services.



### FLEXIBILITY

The COVID-19 pandemic has underlined the need for organizations to be able to respond to unexpected externalities. Flexibility is also critical in responding to the increasing pace of change in the market whether that is adopting new technologies, complying with new regulations, implementing mergers and acquisitions, or moving with the ebb and flow of the economic environment.

# 05 Preparing for cloud networking

Inevitably, cloud networking carries challenges which must be addressed in order for professional services companies to be able to entrust their lifeblood – data, communications, and insight – to service providers.

Chief amongst these concerns is security, with a wide range of growing attack vectors from DDoS attacks to ransomware, phishing, spoofing, malware, and many more. These are particularly important in the professional services sector as data security, reliable connectivity, and client confidence are key. Any security breaches could expose firms not just to theft or vandalism, but also to litigation and associated brand/reputational damage – both key elements of differentiation in professional services markets.

It is worth noting that following the SolarWinds and Colonial hacks, US senators focused on national security, including Mark Warner, Marco Rubio, and Susan Collins, have introduced bipartisan legislation to improve and accelerate reporting of cybersecurity breaches. This is currently a requirement only for federal agencies, contractors, and operators of critical infrastructure, but it is likely to extend into the professional services sector over time.

Professional services companies also have to be fully cognizant with a whole range of regulations, ranging from compliance within their particular market (e.g., GAAP for accounting and HIPAA in healthcare), or regional regulations such as General Data Protection Regulation (GDPR) if, for example, they also serve clients in the European Union.

## Simplified Architecture

### Operational Systems (examples)

**Law:** eDiscovery, Collaboration, Documentation Mgmt  
**Accounting:** Documentation Mgmt

**Architects/Engineers:** AutoCAD, Content Mgmt  
**Advertising:** Content Mgmt, Demand Side Platforms



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# Choosing the right network partner

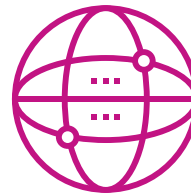
Responding to these challenges and opportunities means finding a service provider that meets the required levels of security and regulatory compliance is the danger of 'lock-in.' Because of the increasing complexity of cloud networking solutions and their strategic importance to customer operations, firms need to bear in mind that they find themselves overly reliant on their service provider to carry out their daily operations, so they need to ensure they have 'force majeure' terms in their contracts to address unexpected events which could range from bankruptcy to acquisition to major security breaches.

Preferably, choosing a service provider that is unlikely to trigger such terms is the optimum strategy, but to avoid supplier complacency, they should also conduct regular benchmarking of their contracts to ensure they are getting the best levels of service and value available. Professional services firms, particularly those that require a high level of performance, resiliency, and security, should also consider a dual-supplier strategy. Opting for a dual-supplier strategy can provide physical redundancy for critical connections and allow firms to select 'best fit' connectivity options.

Given ongoing consolidation and restructuring across the professional services sector, another key consideration for the provision of cloud networking services is to find a provider that has experience in helping customers to integrate and migrate cloud and networking services as required by the usual merger and acquisition goals. There is no tolerance for jitter, or video buffering, in a virtual court deposition, for example, and it is not exactly ideal during an initial client consultation either. This means finding a service provider that not only offers secure and reliable connectivity, but also has the depth of resources to address more strategic issues and the nuts and bolts of technology migrations.

One further area for professional services firms to monitor is the issue of potential anti-trust challenges in the broader cloud market. On the face of it, this is not an immediate threat to service provision, but should the issue continue to gain traction there could be associated complications in supplier and contractual conditions.

## Key takeaways



### NETWORK UNDERLAY

Overlay services can help to resolve traditional network challenges. But high performance, low latency services are dependent on extensive underlay networks that are SDN-enhanced and AI-powered. Connectivity can only be delivered by underlay network assets.



### EVERYTHING ON DEMAND - SECURELY

Prioritize service providers that can offer a fully on-demand model to flex with changing needs. You should be able to turn cloud and network services up and down, and on and off as you wish.

**References:**  
SelectUSA/US Department of Commerce.  
The future of remote work: An analysis of 2,000 tasks, 800 jobs, and 9 countries | McKinsey  
Following SolarWinds & Colonial Hacks, Leading National Security Senators Introduce Bipartisan Cyber Reporting Bill - Press Releases - Mark R. Warner (senate.gov)



### MANAGED/CO-MANAGED

Businesses should always seek service providers that can also offer both consultative and ongoing managed services. Enterprises should also consider either managed or co-managed services so they can focus on their core clients rather than technology.



### CLOUD PARTNERSHIPS

Target a provider with proven peering agreements with public cloud hyperscalers, SaaS vendors, and colocation specialists.



### BREADTH OF CHOICE

Professional services companies should seek partners that can offer a wide range of network solutions to accommodate for diverse requirements in different locations and for different IT functions.

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