



# MISSION CRITICAL CLOUD

The Enterprise Guide to  
Hybrid Cloud Strategy



# INTRODUCTION

The shift of enterprise IT spending to the cloud continues apace and there is no doubt that the model has gained a level of maturity that brings with it fresh complexities. While at one time seen chiefly as an environment for testing and development, public cloud has become the host for an increasing number of mission critical applications. But this brings with it mission critical demands on the network in terms of availability, bandwidth and security.

As lines of business come under increasing pressure to innovate, the cloud offers an efficient and cost-effective solution. Industry analyst Gartner describes the investment in cloud as 'relentless', and estimates that around 28 per cent of spending within key enterprise IT markets will shift to the cloud by 2022, up from 19 per cent in 2018<sup>1</sup>. But this shift is not necessarily at the expense of on-premise infrastructure and applications - the trend in general is cautious and will occur over the course of many years due to the slow moving nature of traditional enterprise IT.

<sup>1</sup> <https://www.gartner.com/en/newsroom/press-releases/2018-09-18-gartner-says-28-percent-of-spending-in-key-IT-segments-will-shift-to-the-cloud-by-2022>



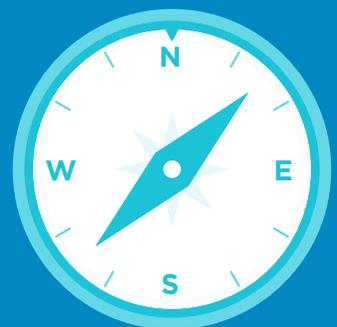
## 28% of spending within key enterprise IT markets will shift to the cloud by 2022

However, what this means in practice is that enterprises are operating not just a mix of public and private clouds but also multiple different public clouds. In terms of connectivity requirements this means the network mix has to shift in parallel, leaving IT and network managers with the challenge of accessing disparate assets across private data centres and multiple public cloud hosts.

<sup>1</sup> <https://www.gartner.com/en/newsroom/press-releases/2018-09-18-gartner-says-28-percent-of-spending-in-key-IT-segments-will-shift-to-the-cloud-by-2022>

1.

**FROM  
NORTH-SOUTH  
TO EAST-WEST**



# FROM NORTH-SOUTH TO EAST-WEST

The shift of workloads into the public cloud have highlighted the appeal of greater business flexibility and agility delivered as a benefit of on-demand capacity and pay-as-you-go pricing. Business leaders want to reduce TCO and increase the agility and scalability of on-premises storage and compute by extending their infrastructure to the public cloud. In the past, the focus has been on increasing capabilities within the data centre and from the data centre to the business. Yet the biggest drivers of increased bandwidth demands are coming in part from the adoption of business software applications being consumed in the public cloud as well as those in the private data centre. This means the data centres and public clouds now need to talk to each other, so businesses need to deploy data center interconnection that is as flexible and agile as the dynamic public cloud assets they interact with.

Adoption of service-over-the-internet is further fuelled by convenience. Due to the nature of many cloud-based services being accessible over the public internet, it has become almost too easy for organisations to adopt, and become reliant on, new applications. One of the key attractions of cloud apps is that they often allow employees to bypass 'official' procurement processes and IT oversight and begin using new services immediately.



Original research published by security vendor Skyhigh Networks (now McAfee) from a poll of 30 million customers, revealed that the average company uses more than 1,400 cloud services of various levels of criticality<sup>2</sup>. This is of course in addition to their legacy on premise applications and infrastructure. It's when a cloud-based application, either sourced through official channels or adopted rogue, becomes mission critical that the dynamic changes and that's because network connectivity, traditionally owned by corporate IT becomes a key part of the puzzle. Those in the role that at one time was known as IT management are now being told they need to have a cloud strategy. In fact the growing

importance of connectivity for mission critical business applications has driven so much organisational change that it has spawned an entirely new branch of network management, in the form of 'infrastructure IT' which is largely responsible for data centre and cloud connectivity.

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<sup>2</sup> <https://www.skyhighnetworks.com/cloud-security-blog/12-must-know-statistics-on-cloud-usage-in-the-enterprise/>

2.

## WHAT IS 'HYBRID CLOUD' ANYWAY?



# WHAT IS 'HYBRID CLOUD' ANYWAY?

As is often the case with technological trends, this phenomenon has spawned its own vocabulary and definitions have struggled to keep up, leading to confusion and miscommunication across all industries.

The market itself has made various attempts at shaping the definition of 'hybrid cloud'. In an attempt to create clarity, some have adopted the term 'multi-cloud' instead of 'hybrid', because the implication is that as a strategy it involves more than one cloud – public-public or public-private. Another way of defining hybrid cloud is to include any combination of public and private cloud with consistent platforms and/or services. Essentially however, analysts and vendors are settling on a definition that encompasses the need to move workloads seamlessly between public and private cloud platforms, while creating a consistent architecture across both environments.

Paul Gampe, PCCW Global CTO, and formerly CTO of Console Connect, says that it's very challenging to shift everything to the cloud. "You can move new things to the cloud and move maybe a few old elements into cloud but not everything." This is the key reason why a hybrid cloud strategy is important and why interconnection is a critical part of that.



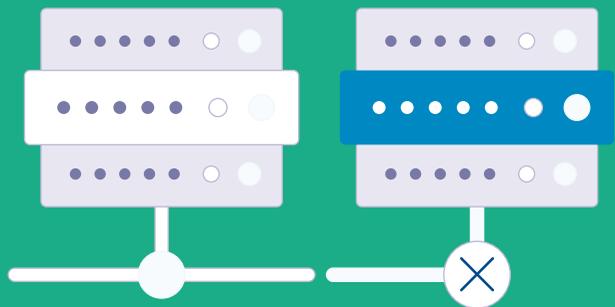
Interconnection is a lynchpin of any businesses strategy for digital business success, especially for those in finance, telecoms and IT services. Enterprises adopting a cloud-first or even a cloud-only model are leveraging hybrid IT capabilities to manage their resources in the cloud, alongside their on-premises and colocation assets, resulting in a diverse set of parties they must interact with.

“If you consider that only around 20 per cent of enterprise workloads have gone to the cloud, there’s still up to another 80 per cent to go. But what we are now seeing is mission critical apps going to cloud deployment where it was previously only used for development or test,” says Gampe.

“And once you see mission critical apps going to the cloud, it creates a demand on connectivity that we have not seen previously. Most enterprises get access to cloud over public internet, but when it comes to mission critical apps, either due to the bandwidth or the security requirements you need to be directly connected. This means breaking out from traditional internet and establishing a private direct connection between your premise or multiple premises and a public cloud provider, either at layer 2 or layer 3” he adds.

3.

# DIFFERENT SITES HAVE DIFFERENT CONNECTIVITY REQUIREMENTS



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Traditionally, enterprise networking has been about voice, internet access, and IP VPN interconnect to business sites or campuses, but increasingly core sites have different requirements. A rural branch office may be able to get away with public internet only, or a retail site may need only low bandwidth connectivity. But when it comes to the enterprise data centre or corporate headquarters, there is often a need for higher quality bandwidth in terms of connectivity.

Increasingly however, sites have multiple different connectivity requirements to support different applications and use cases. Consider a typical branch office that generates traffic from a wide variety of applications. Some traffic will be non-critical and non-sensitive and so can travel over the public internet, but mission critical connectivity to cloud-based applications or the data centre will need to travel over the more resilient private network or other dedicated connection. When it comes to policy-based forwarding of traffic, the network needs to be designed so that that it can make forwarding decisions based on application type and the security classification of the data in motion.



Research from Enterprise Management Associates (EMA), found that among enterprises adding new public internet connectivity, 74 per cent are using those internet connections to replace MPLS<sup>3</sup>. But this does not suggest the demise of MPLS. EMA found that the average enterprise is replacing MPLS with the internet at only 45 per cent of its remote sites due to the shifting requirements in terms of criticality of that connectivity.

So, most enterprises will operate networks that use both public and private connections, and application traffic will drive these connectivity choices. For instance, it might be that businesses prefer to forward traffic from secure enterprise web applications (HTTPS) over the internet, but they prefer to support big data applications,

<sup>3</sup> <https://www.ca.com/content/dam/ca/us/files/industry-analyst-report/ema-software-defined-wan-with-ca-pm-and-vna.pdf>

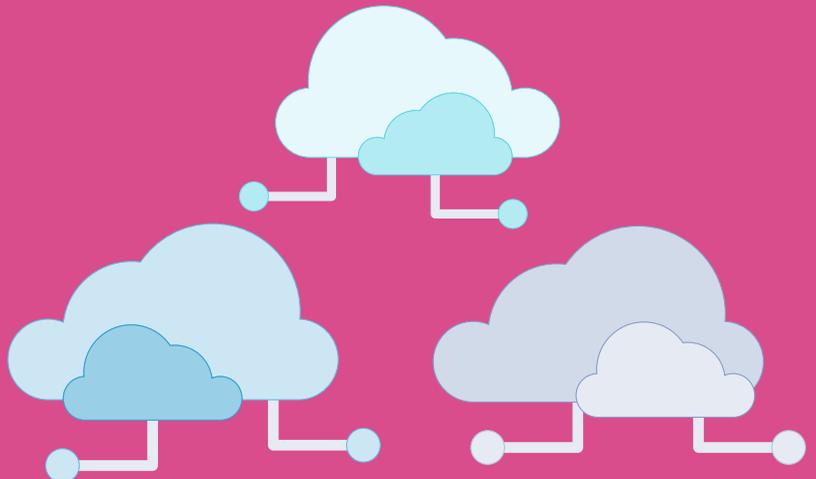


storage and replication traffic, and enterprise resource planning (ERP) applications hosted in a public or private cloud with MPLS private connectivity.

The important realisation is that not everything is going to be either site-to-site or public cloud. Often, organisations will want to get connected to specific SaaS applications or x-as-a-service, whether that be infrastructure, platform, or software-as-a-service. Take video conferencing providers for example - they're very sensitive to latency, jitter and congestion and enterprises want to have as good an experience with these technologies as possible. So when they realise that they can orchestrate connectivity from site-to-site and site-to-cloud, they then want to orchestrate connectivity directly to these SaaS providers.

4.

**NOT ALL CLOUDS  
ARE THE SAME**



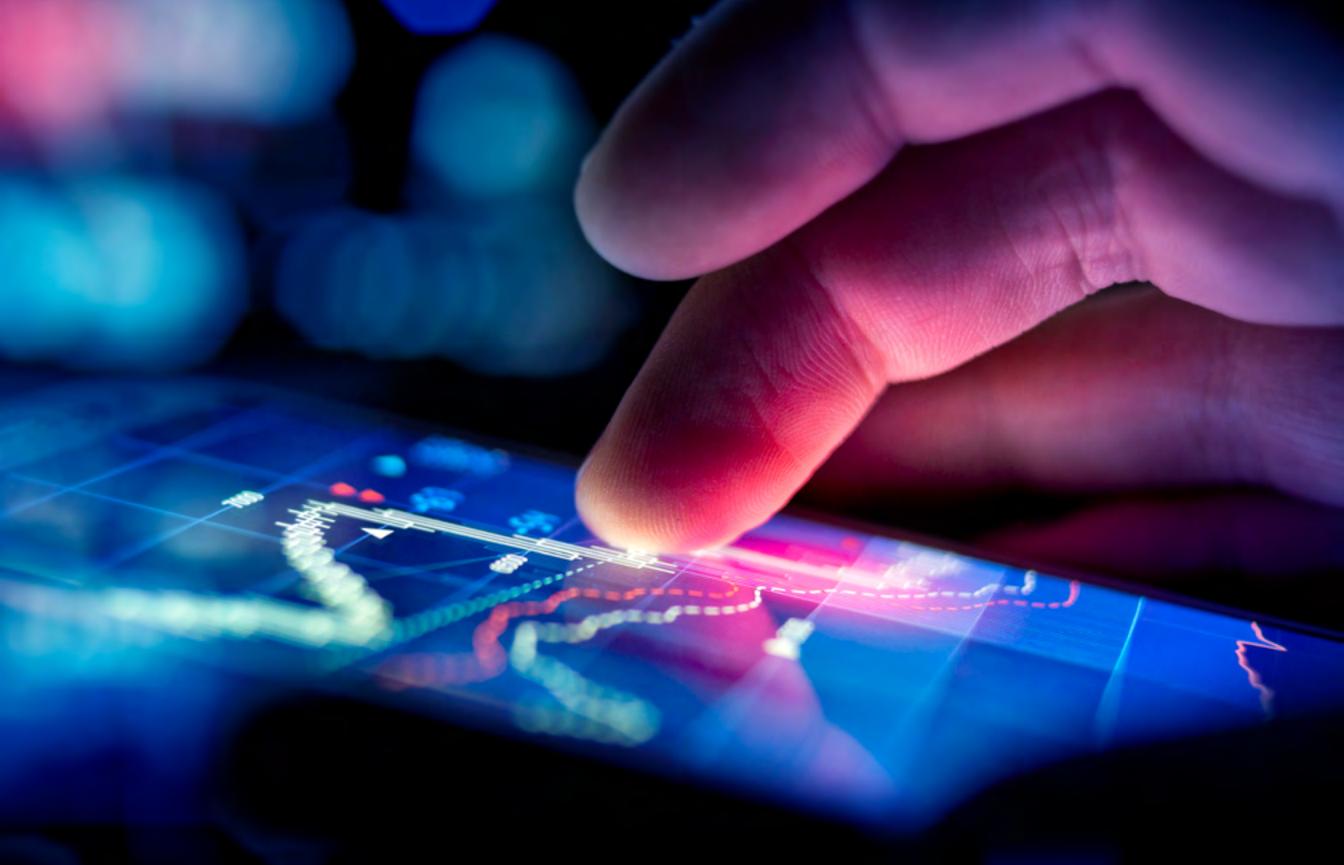
# NOT ALL CLOUDS ARE THE SAME

Many conversations in the industry focus on the fact that the enterprise today is very nervous about dependencies on a single cloud. Despite Amazon AWS's strong leadership, the growth rates of Microsoft Azure and, more recently, Google Cloud and Alibaba Cloud make it clear that all public cloud providers are going to have a pretty strong competitive differentiation depending on the workload. According to RightScale's 2018 State of the Cloud report, companies on average are using almost five public and private clouds in their arsenal and 81 per cent of survey respondents with over 1,000 employees have a multi-cloud strategy in place. Within this demographic, 51 per cent have what they describe as

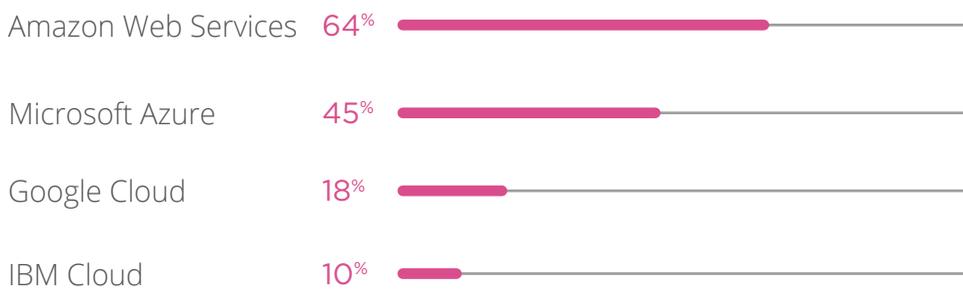
a hybrid cloud strategy, that is to say a mix of public and private clouds, while 21 per cent will use multiple public clouds and 10 per cent will use multiple private clouds<sup>4</sup>.

Companies on average are using almost five public and private clouds in their arsenal

<sup>4</sup> <https://www.rightscale.com/lp/state-of-the-cloud>



## Apps run in public cloud providers 2018 (RightScale)<sup>5</sup>



<sup>5</sup> <https://www.rightscale.com/press-releases/rightscale-2018-state-of-the-cloud-report>



According to Paul Gampe, Artificial Intelligence (AI) support is a strong point for Google Cloud, whereas handling generalised workloads on a global basis is a strong point for AWS. Azure on the other hand has a lot of support from enterprises that have traditionally been a very strong Microsoft camp. “So you can see a multi-cloud strategy is more important than ever given the ability of the public cloud providers to differentiate,” Gampe says.

“If you look at the underlying technology of Google’s cloud and in-house designed chip architecture, it’s a deployment that really lends itself to AI. So, I think you’re going to find that enterprises will continue to adopt a hybrid cloud strategy based on the ability for the clouds to provide different types of services and different price points as they seek to differentiate themselves amid mass demand for public cloud services,” he adds.

There are of course a number of other contenders taking market share in the public cloud space, and as a Hong Kong headquartered company PCCW Global is closer to some of those emerging from Asia, such as Alibaba Cloud and Tencent. The growth of these



newcomers is almost assured as political implications and global regulations around data sovereignty rumble on. Not all companies will be comfortable with using a US-born public cloud provider and of course the same is true for those offering a viable alternative out of China.

Regardless of the traction of the individual cloud providers, the evolution of networking means that most organisations will be looking for the ability to orchestrate connectivity in a hybrid cloud environment. Advancements in Software Defined Networking (SDN) have made great improvements to network orchestration inside the data center, where the organisation is in a single domain and in control of the machines and their network. The challenge now is extending that capability to orchestrate connectivity into Amazon AWS, Microsoft Azure, Google Cloud, Ali Cloud or Tencent at the network layer.

As workloads move out of the data centre, connectivity must follow suit, only then will organisations be able to claim the competitive advantage afforded by operating a truly dynamic, global network.



# CONNECTING NETWORKS, CLOUDS AND BUSINESSES

Console Connect is a Software-Defined Interconnection® platform that makes connecting to cloud-based, business-critical applications simple, predictable and secure. Backed by PCCW Global, one of the world's leading telecommunications groups with a tier 1 global IP network spanning 150 countries, Console Connect helps creating direct and private connections in just a few clicks. The intuitive platform includes all the tools needed to dial bandwidth up or down on-demand and view utilization and connection performance; no more lengthy contracts and long set up times.

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