



THE KEY TO
Extracting
Full Value FROM
Multi-Cloud
Environments

Where proximity to the platforms
unlocks efficiency, growth and
innovation opportunities



N E X T D C

Digital acceleration

is driving fundamental change in technology architecture. The Multi-Cloud model has the potential to increase network costs and complexity, both of which can be readily addressed by getting closer to cloud infrastructure and deploying a suitable, flexible Network-as-a-Service solution.

To optimise performance, agility, efficiency and cost, progressive organisations are developing new architectures that better leverage the economic and performance benefits of cloud computing by bringing disparate clouds together into the one operating environment.

Did you know?

IT outages cost large enterprises an average of

US \$1.52 million

(AU\$2.32 MILLION) per hour in 2014¹

Global cloud market is forecasted to grow to

USD \$600 billion

(AU\$913 BILLION) in 2023²

75%

of organisations will adopt a digital transformation underpinned by cloud by 2026³

By 2025 **40%**

of large organisations in Asia-Pacific will adopt multi-cloud data logistic platforms to enable active data migration between hyperscalers⁴

IDC predict that the amount of data generated worldwide by 2025 will be

163 zettabytes

Australian public cloud spend to reach

\$22.4 billion

by 2026⁵

87%

of organisations are embracing a **multi-cloud strategy**⁶

¹ <https://www.spiceworks.com/tech/it-strategy/guest-article/avoiding-it-outages/>

^{2, 3} <https://www.gartner.com/en/newsroom/press-releases/2023-04-19-gartner-forecasts-worldwide-public-cloud-end-user-spending-to-reach-nearly-600-billion-in-2023>

⁴ <https://www.idc.com/getdoc.jsp?containerId=prAP50133823>

⁵ <https://news.microsoft.com/en-au/features/public-cloud-adoption-set-to-surge-in-anz-creating-multi-billion-dollar-opportunity-for-adopters-and-suppliers/>

⁶ <https://info.flexera.com/CM-REPORT-State-of-the-Cloud>

Disruption is the new normal

Disruption and evolving customer expectations are changing the digital transformation landscape.

Usual cycles of product and service development are being accelerated, and in some instances, organisations are having to fundamentally restructure their relationships with customers as they evolve from selling point products to establishing ongoing digitised service relationships. In the years since 2020, a global pandemic and the associated acceleration of digital trends and innovation has only underscored the need for re-architecting infrastructure and networks.

The value of cloud

Cloud services have become an integral part of our personal and working lives, delivering an affordable and readily accessible alternative to on-premise systems thereby taking much of the workload and capital expense off corporate IT resources.

However, few mid-market or enterprise organisations are likely to host all their applications in one single cloud service. Instead, many are embracing hybrid environments featuring multiple cloud providers interconnected with on-premise IT – creating a fragmented IT architecture, which creates a number of headaches:



Impact from latency and performance issues



Heightened security risk management concerns



Increased infrastructure complexity and management associated capital overheads



High costs of interconnecting dispersed infrastructure sharing ever-growing data volumes

Horses for courses

Commonly we see organisations running workloads spread across multiple clouds including services from AWS, Microsoft Azure, Google Cloud and Oracle Cloud, to leverage the strengths and relative cost efficiency of each cloud provider for specific applications.

For example, when a consumer is purchasing a product via an online shopping cart system, they might interact with an e-commerce engine hosted in AWS. This might be connected to a back-end inventory database running in Microsoft Azure or Google Cloud, and a customer database running in-house. To round out this hybrid Multi-Cloud integration, transactions are settled through a financial application hosted in Oracle's cloud.

What appears to be a single interaction to the customer involves four different systems, potentially hosted in four separate locations, which creates a new level of networking complexity and performance challenges.

Each stage of the transaction requires large volumes of data to travel from one system to another, slowing down the process and consuming bandwidth across the organisation's wide area connection. As transaction volumes increase, user experience suffers as network congestion grows.

When systems are comprised of a mix of on-premise and multiple clouds, the traffic and data generated is going back and forth across the wide area network (WAN).



How can Multi-Cloud help?

Multi-Cloud strategy allows you to re-architect IT networks so you can embrace the flexibility and agility of cloud services and virtual Network-as-a-Service provision, but also reduce costs while improving security and performance.

In its simplest iteration, an organisation can extract full value from Multi-Cloud by relocating some or all of its IT infrastructure into a hyperscale data centre to sit alongside its various preferred cloud services. They can then connect natively into the various clouds via a direct, private connection, rather than the Internet.

Traffic between its own infrastructure and those of its cloud providers are carried on the data centre's local area network (LAN), eliminating the need for server-to-server WAN traffic.

When the cloud service provider is not a resident within the organisation's preferred hyperscale data centre, it can access high-speed gateways between the data centre operator and the cloud service. This ensures that inter-cloud traffic is still removed from the WAN by taking advantage of high-speed dedicated links.

Moving to a Multi-Cloud strategy



Corporate IT:
Reporting



What are the benefits of Multi-Cloud architecture?



Better for the balance sheet

On-premise data centres are often sitting on valuable real estate, which is a heavy liability on the organisational balance sheet. By shifting to colocation, the organisation ceases to be tied to that specific piece of real estate. This enables it to think more flexibly in terms of the ideal workspace for its employees. Colocation eliminates these and many other costs, including the need to invest in supporting infrastructure such as fire suppression, cooling systems and backup power generation. Depending on the industry, there will also be ongoing costs associated with security compliance, sustainability and data protection.



Performance and scalability

Shifting to a hyperscale data centre is a natural trigger point for re-architecting corporate IT from legacy arrangements into a private cloud environment. Although not necessary for enabling many of the benefits of a multi-cloud environment, converting existing assets into a private cloud configuration can provide additional benefits in terms of performance and easy scalability as requirements grow..



The great power headache

The move to colocation frees the organisation from the headache of ensuring the data centre always has resilient access to sufficient power – a growing concern as systems availability becomes mission critical and the power density per rack increases. The equation becomes even more complex as carbon accountability becomes a factor and the price of power continues to skyrocket driving energy efficiency imperatives. Many organisations have been forced to relocate their infrastructure due to local power grid deficiencies.



Solve employee challenges

If you're running a private data centre, technical support staff and security is going to cause its own set of challenges given the current skills shortage across the data centre industry's technical professions. By moving to colocation, you'll reap the benefits of dedicated 24x7 support and security resources of the data centre provider.



WAN performance

Many legacy cloud architectures are unplanned and have evolved over time as the organisation adds more point solutions to its application and data strategy. But when these services need to communicate with each other, and with the organisation's remaining on-premise infrastructure, it can generate significant loads on the WAN. By relocating corporate infrastructure alongside public cloud infrastructure, this server-to-server traffic across the WAN is largely eliminated.



Application performance

Complex applications that might have once been transacted across multiple cloud providers in multiple locations can now be conducted within the same building. This means that data is transferred between clouds or corporate infrastructure on direct network connections, rather than across a wide area link. This dramatically reduces latency and jitter which translates to better user/customer experience.



Security

A multi-cloud strategy serves to mitigate many of the security concerns that accompany an on-premise environment – including the need to manage physical security.

Organisations that adopt a multi-cloud strategy can leverage all the security compliance and operational excellence that is inherent in hyperscale deployments and premium colocation facilities.



Direct cloud connections

Selecting a hyperscale data centre that can provide high-speed, low latency and highly secure connections to preferred cloud services further accelerates application performance. Preferred data centre service providers will include a rich ecosystem of direct connections such as Microsoft ExpressRoute, AWS DirectConnect, Google Interconnect, IBM DirectLink and Oracle FastConnect. These enable users to bypass the Internet and connect directly to clouds. These connections become a 'must have' when running mission critical workloads in the cloud.

When choosing a hyperscale data centre provider it is vital to understand which cloud connectivity services are located within that data centre platform.



Flexibility and agility

Shifting infrastructure into a hyperscale data centre unlocks flexibility and agility in the IT strategy like never before. It also enables an organisation the ability to right-size its infrastructure requirements, and only pay for the capacity it needs at any given time. In other words, scaling up or down data centre space or connectivity and power requirements over time becomes easy in a hyperscale data centre. Furthermore, it becomes significantly easier to burst workloads out to cloud providers during peak periods.

Re-architecting for the future

Critical to the success of a multi-cloud strategy is the need to re-architect corporate IT to take full advantage of performance gains. The goal is to ensure that application traffic never touches the public Internet, to boost performance, security and resilience.

The hyperscale data centre becomes the network hub, hosting as much corporate owned IT assets as possible while also serving as the gateway to the organisation's cloud, carrier (and other digital) service providers.

Delivering network as a service

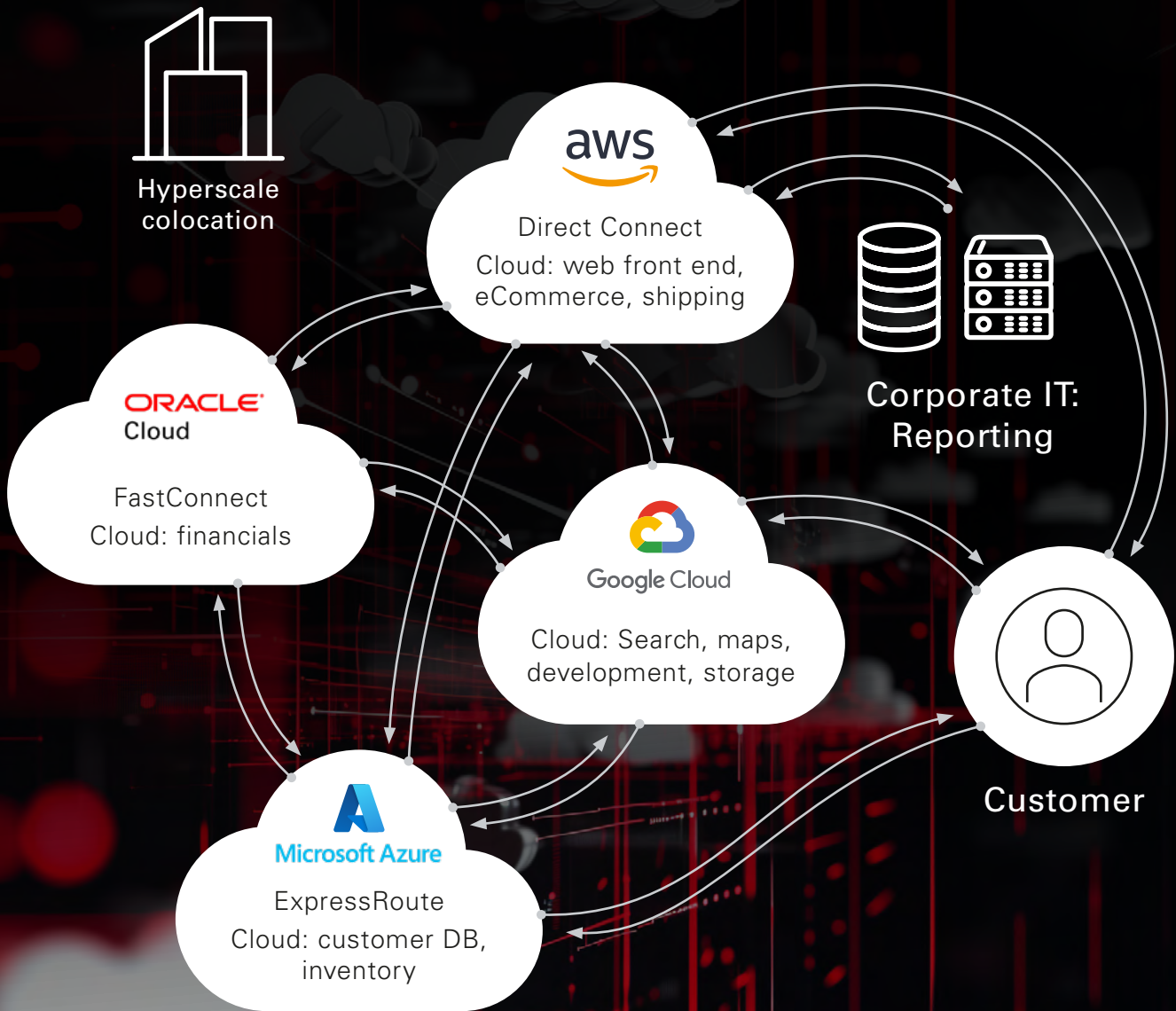
Yet another aspect of re-architecture is the ability to embrace Network-as-a-Service (NaaS) from within the hyperscale data centre. NaaS is emerging as a strong alternative to designing, deploying and maintaining your own network infrastructure. NaaS brings cloud consumption principles to corporate network delivery, meaning:

- Network hardware, software, services, management and licensing components are all packaged in a flexible consumption model. You only pay for what you use like a utility service.
- The transaction is 'virtual' – you buy interconnectivity as a service, not the underlying components. You can also opt-in, opt-out and configure your network remotely.
- Network expenses migrate from the CAPEX to the OPEX balance sheet, freeing up precious investment dollars for IT transformation and innovation projects.

The NaaS trend is quickly gathering steam in the tech world – the market is expected to reach AU\$176 billion by 2032.¹

¹ <https://www.globenewswire.com/en/news-release/2023/05/08/2663321/0/en/Network-as-a-Service-Market-to-Hit-USD-115-5-Billion-by-2032-Market-us-Report.html>

Network re-architecture is key to multi-cloud



Application renovation

The benefits of re-architecting infrastructure and networks go far beyond just improving the performance of existing applications. Applications with high I/O requirements which might previously have been deemed unsuitable for deployment in the cloud due to high bandwidth and/or data egress costs now become economically viable.

Relocating corporate infrastructure into a hyperscale data centre allows you to reconfigure these applications for either a public or private cloud environment, as the traffic they generate when communicating with other systems is now carried across a LAN connection. And where location to location traffic is required, virtual services can be provisioned at the bandwidth and duration required, so you only pay for what you use.

When corporate IT and cloud infrastructure are colocated within the same data centre, organisations start to think very differently about application architecture. Furthermore, applications can be easily right-sized to meet the requirements of common workloads, with knowledge that capacity can scale quickly during peak periods to prevent performance degradation.

Applications that might have been considered non-viable due to data transfer volumes and performance hurdles suddenly become more attractive, and the limits on the number of services that can be tied together start to evaporate. Cloud-based databases can now communicate at local area network speeds with applications, accelerating innovation cycles.

Future thinking

As data volumes continue to compound, driven by organisations leveraging technology megatrends such as Artificial Intelligence, 5G, the Internet of Things, satellite communications, robotics and automation, the Multi-Cloud model may become the only viable option for organisations looking to accelerate digital business models.

Success will depend on two factors:

1. The network's ability to carry data effectively
2. The ability to turn data into real-time insights.

These tools can only respond as quickly as the speed at which they are fed data. Any latency caused by transmitting data across WANs will reduce their effectiveness.

Customer experience is at the heart of this issue: transactions and interactions are going to involve unprecedented volumes of transactional data, and at the end of each transaction is a customer who is expecting a fast and reliable service.

In the midst of increasing disruption and changing customer expectations, and with the rise of new applications of data-driven technologies, previous models of network architecture are no longer fit-for-purpose. These challenges are only likely to grow as workloads and data volumes increase. The answer is to centralise infrastructure within close proximity to the clouds, carriers and digital service providers underpinning digital transformation.

Organisations can bring their Multi-Cloud strategy to life by partnering with a colocation provider that will provide you with digital infrastructure that is flexible and responsive, as well as embed you in a sovereign ecosystem to best support your digital transformation strategy.

We are helping Australia's leading organisations to unlock the value of a Multi-Cloud strategy, and we can help you too. Contact us to find out more.



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