5 REASONS TO DIRECTLY CONNECT YOUR

HYBRID CLOUD SOLUTION

CoreSite

HYBRID IT, THE HALLMARK OF THE "SECOND WAVE" OF **CLOUD COMPUTING AND DIGITAL BUSINESS, IS HERE.**

You only need to look at the increase in projected revenue for hyperscale cloud service providers, AWS and Microsoft, to get a sense for how enterprises are choosing to distribute workloads. AWS's annualized revenue run rate is $40 billion, and Azure's revenue grew 62% from 2018 to 2019.[1]

In the second half of 2019, the top 10 cloud providers spent over $7 billion on aggregate data centers.[2]

WHILE THE USE OF THIRD-PARTY CLOUD SERVICES IS BECOMING THE IT MODEL OF CHOICE...

...business units and IT organizations still rely heavily on on-premises or colocation-hosted clouds. The problem is that spreading core business services, application development and data across a hybrid cloud environment multiplies complexity – for security, infrastructure reliability and resiliency, vendor management, application visibility – and creates a new level of pressure and possibilities for digital business.

IT ALSO RAISES TWO FUNDAMENTAL QUESTIONS FOR ENTERPRISES COMMITTED TO HYBRID IT:

1. *What's the best way – when it comes to security, performance and reliability – to connect to our clouds?*
2. *How do we control costs for data transfer and networking?*

In this e-book, we'll introduce you to a solution many enterprises are adopting – direct interconnect to cloud providers within a colocation facility – and discuss the potential cost and performance advantages this option for streamlining hybrid IT connectivity can create.

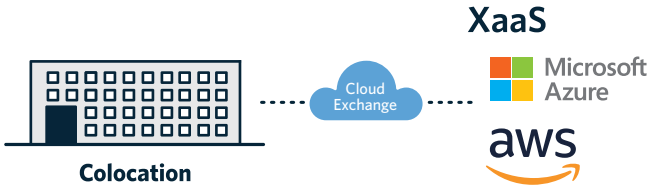
The $228 billion cloud service market is forecast to grow at a five-year compound annual growth rate of 16% through 2023.[3]

DIRECT CONNECTION SOLUTION - **WHAT IT IS**

Traditionally, enterprises have connected to clouds using a virtual private network over the public Internet. However, that method doesn't allow for efficient workload portability and introduces security, performance, cost and management complexity.

According to Gartner, by 2023, more than 50% of large organizations will connect to cloud providers using direct cloud connectivity from their WANs, up from 10% in 2019.[4]

To overcome those issues, CTOs are rethinking connectivity in concert with their evolving cloud strategy.



WHAT IS A DIRECT CONNECT SOLUTION?

Many leading cloud providers recognize the need for enterprises to connect their hybrid infrastructure, and have started to productize a direct, dedicated connection between private and public cloud environments. Rather than connecting to a cloud provider over the public Internet, direct cloud interconnect allows a company to establish private connectivity between a data center colocation environment and their cloud provider through a cross connect within the same environment.

CLOUD EXCHANGES

In addition to a standard one-to-one direct connection, select colocation providers are now offering cloud exchanges. Cloud exchanges allow an enterprise to establish a single connection to multiple clouds through an Ethernet switch. This brings further efficiencies to a multi-cloud hybrid environment.

5 ADVANTAGES TO
DIRECT CONNECT SOLUTIONS

The relationship between enterprises and the cloud is constantly changing. What does not change is the need to measure the value technology investments bring to the business. Cloud interconnect provides several advantages to connecting over the public internet. This is most easily broken down to five key indicators.

HYBRID IT EXPANDS THE FIELD OF BATTLE, **INHERENTLY CREATING THE POSSIBILITY FOR MORE SECURITY BREACHES.**

A larger infrastructure fabric and connection to the public internet is simply less defensible.

DIRECT CONNECT LIMITS THE POINTS OF NETWORK ACCESS.

The point-to-point connectivity is in itself a security advantage, but also keep in mind that the colocation provider can integrate solutions from cybersecurity service providers to strengthen defense.

SECURITY CAN'T GET IN THE WAY OF PRODUCTIVITY.

Connecting directly enables applying different levels of security based on the application. For example, nuanced security protects data without making it impossible for users to get to applications they need, even when they're mobile.

Of course, security dovetails with industry regulation compliance. With data in a dedicated server and by bypassing the public Internet, addressing HIPAA, ISO 27001, PCI DSS, NIST 800-53, and SOC 1 Type 2 and SOC 2 Type 2 compliance is streamlined.

A colocation provider should offer trained and dedicated personnel backed up by cameras, biometric scanners and physical restrictions that form a physical/technology security combination minimizing risk to data and equipment.

DEVELOPMENT ENVIRONMENTS **EACH HAVE SPECIFIC COMPUTING NEEDS.**

However, common KPIs are speed and variability.

44%
Average Latency Reduced

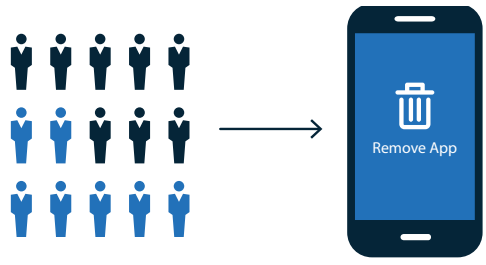
INTUITIVELY, YOU ASSUME THAT A DIRECT CONNECTION IS FASTER. BUT HOW MUCH?

In a head-to-head speed test between direct connection and the public internet, we found that the average latency was reduced by 44%, and that a private connection also reduced variability by more than 60%.

Latency once was a performance metric critical to just a few industries, such as financial and entertainment, but is now important to most enterprises.

It's no surprise that people stop using apps that don't deliver the experience they want, whether that's for e-commerce, UCC, telecommuting, data analytics or content delivery.

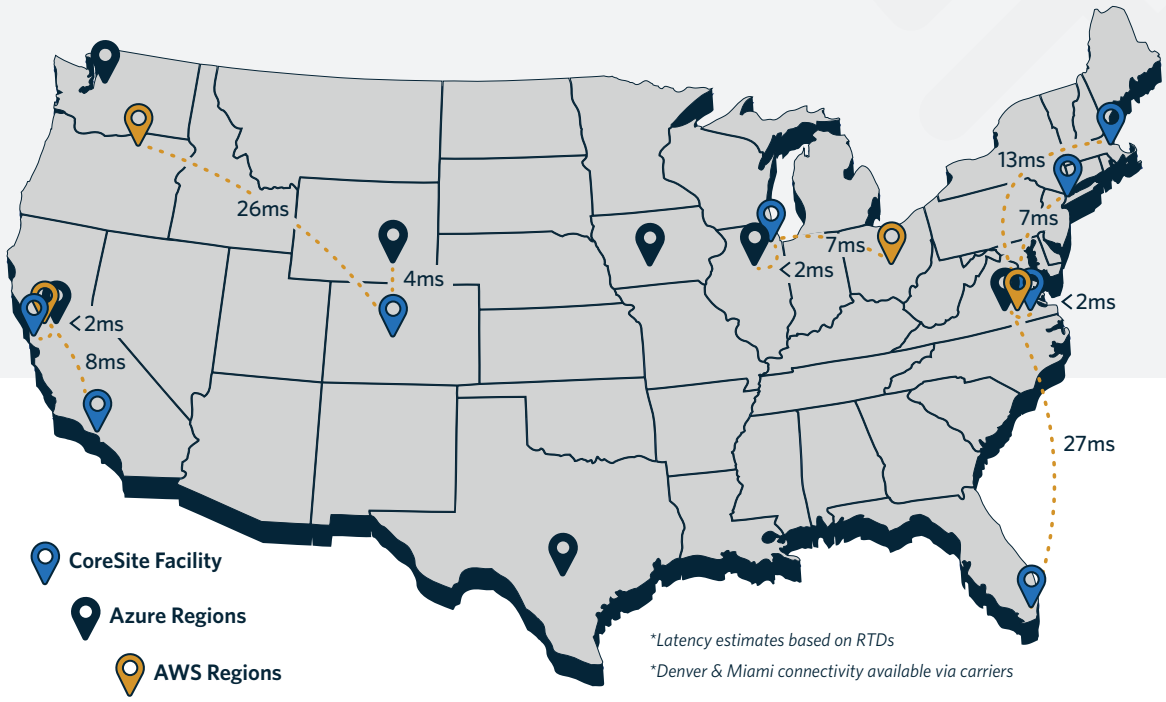
The lowered latency via connecting directly enables transferring large data sets for high-performance computing. Application performance is optimized and the fast and reliable virtual connections facilitate ondemand provisioning, simplify management and create an experience that keeps end users happy.



48% of users uninstall or stop using an app if it regularly runs slowly.[5]

REDUCE YOUR **LATENCY.**

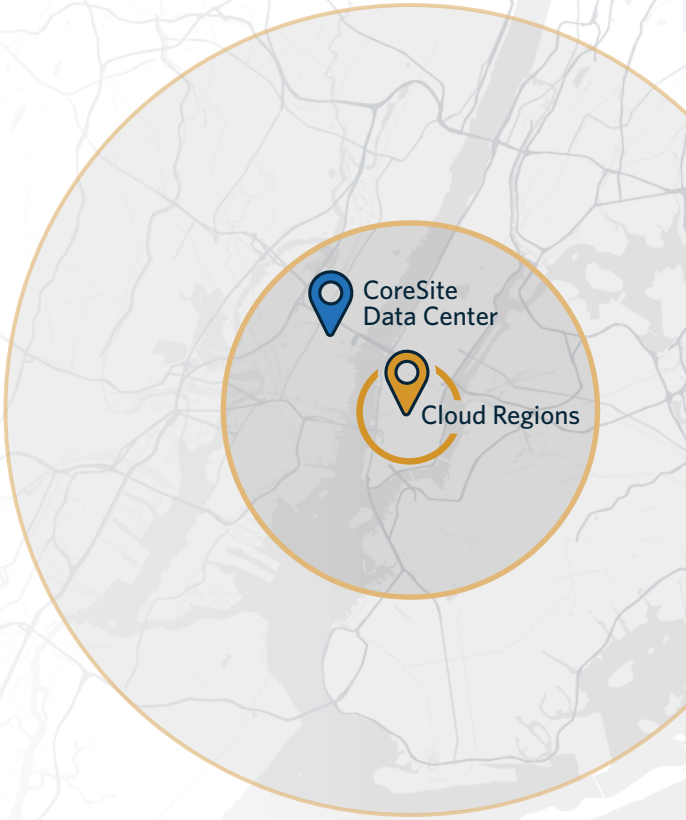
Direct connect nodes are generally placed close to the cloud regions of premier providers. That geographic proximity results in fewer network hops, and no packet loss.



USERS AT THE CENTER OF THE "BULL'S EYE" OF CONNECTIVITY SEE THE FASTEST PERFORMANCE.

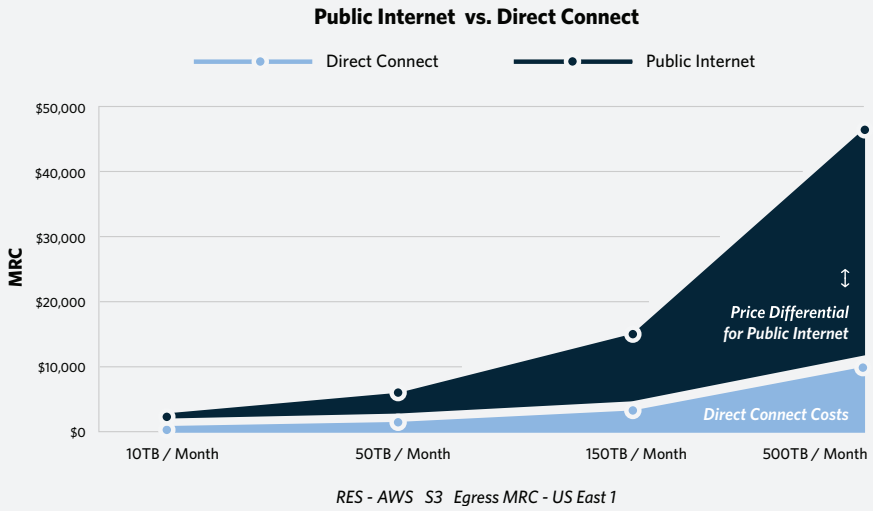
For a colocation provider that is located within a cloud provider's regions, that can mean as fast as under 1 millisecond of latency – and throughput is guaranteed.

When it comes to applications and data, direct connect allows for frictionless migration of virtual machines between dev/test environments. That gives developers the flexibility and agility they are looking for, and they can consume resources without degrading the performance of operations applications.



IN THE FIRST WAVE OF CLOUD COMPUTING, **A KEY ARGUMENT FOR MAKING THE TRANSITION WAS REDUCED CAPEX.**

The business case shapes up much the same for hybrid IT. Moving some of the infrastructure off-site cuts costs associated with aging equipment, limited scalability, the high risk of outages, and the expenses for power and cooling.



RES - AWS S3 Egress MRC - US East 1

FOR COMPANIES IN INDUSTRIES THAT REQUIRE PRIVATE CONNECTIONS, THE COSTS OF WAN CONNECTIONS AND THE PUBLIC INTERNET CAN BE SIGNIFICANT.

Connecting directly reduces WAN networking requirements. The bottom line is that a cross connect fee is far lower than the cost for redundant WAN connections or scaling your ISP to support your cloud connectivity requirements.

Connecting directly not only reduces networking costs, it can reduce egress rates as well. Cloud providers often incentivize cloud interconnect. AWS, for instance, offers 60% - 70% reduced data egress rates for those leveraging AWS Direct Connect. And the consistent MRC is much easier to manage to.

Egress Volume	Public Internet	Direct Connect
Up to 10TB / Month	$900	$200
Up to 50TB / Month	$4,500	$1,000
Up to 150TB / Month	$13,500	$3,000
Up to 500TB / Month	$45,000	$10,000

BIG DATA, **BIG EXPENSE?**

Everyone understands that it costs money to move data. However, the egress rates vary according to your location and cloud provider service plans.

For example, an AWS user in an Eastern availability zone would pay $900/month for 10 TB/month of data transfer, versus $200 for direct connect. If the usage rose to 500TB/month, the costs will reach approximately $45,000, as opposed to $10,000 for direct connect.

In another comparison, one of our customers dropped their data transfer cost from $1,462 to $816, which included our cross connect and direct connect transfer rates, and port charges.

Sample AWS Invoice

Actual AWS invoice of a CoreSite customer.

Total for this Invoice	**$9,224.46**
Amazon Simple Storage Service Charges Estimated US sales tax to be	**$716.05** $716.05 $0.00
AWS Data Transfer Charges Estimated US sales tax to be	**$1,462.79** $1,462.79 $0.00
Amazon RDS Service Charges Estimated US sales tax to be	**$49.62** $49.62 $0.00
Amazon Simple Email Service Charges Estimated US sales tax to be	**$0.22** $0.22 $0.00
AWS Support (Business) Charges Estimated US sales tax to be	**$837.72** $837.72 $0.00
Amazon Elastic Compute Cloud Charges Estimated US sales tax to be	**$6,112.48** $6,112.48 $0.00

Total cost of 16 TB via public Internet
$1,462.79

VS

Total for this Invoice	**$8,408.40**
Amazon Simple Storage Service Charges Estimated US sales tax to be	**$716.05** $716.05 $0.00
AWS Data Transfer Charges Estimated US sales tax to be	**$816.06** $816.06 $0.00
Amazon RDS Service Charges Estimated US sales tax to be	**$49.62** $49.62 $0.00
Amazon Simple Email Service Charges Estimated US sales tax to be	**$0.22** $0.22 $0.00
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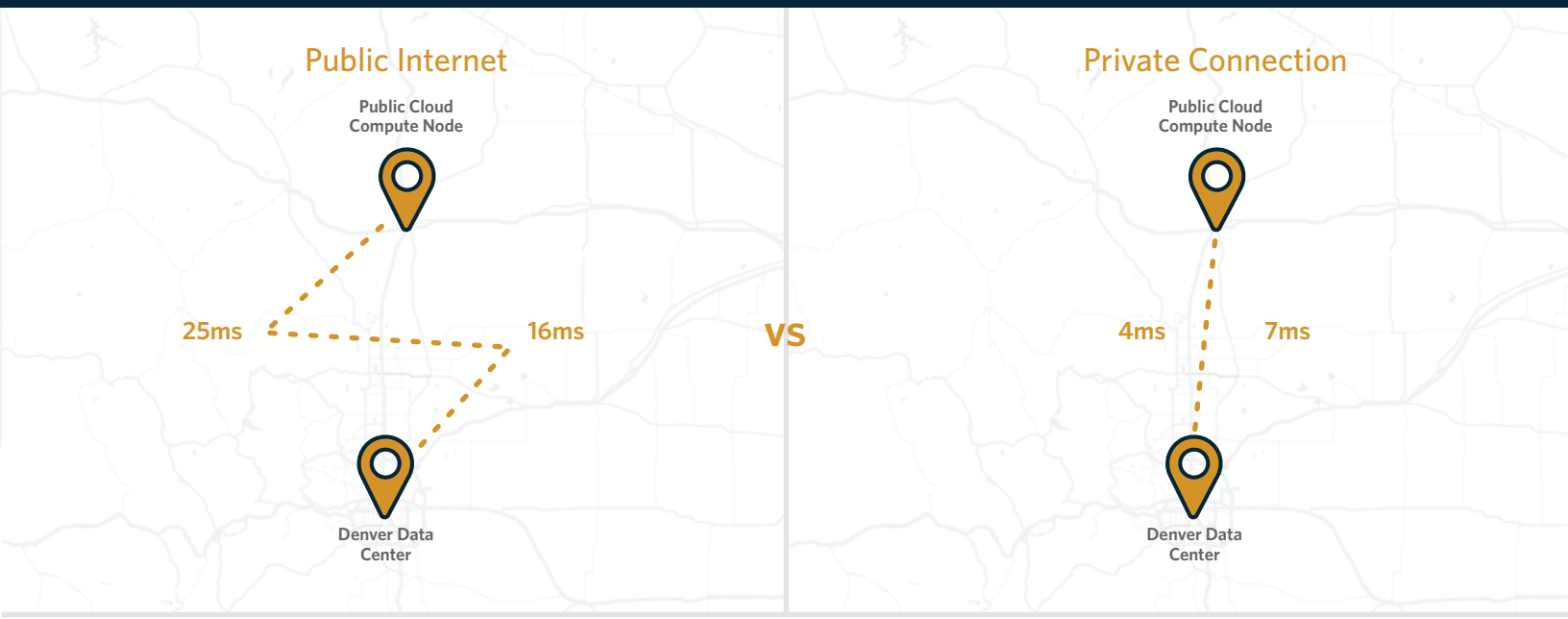
Amazon Elastic Compute Cloud Charges Estimated US sales tax to be	**$6,112.48** $6,112.48 $0.00

Total cost of 16 TB via 1G AWS Direct Connect
$816.06

AWS Direct Connect Savings
$646.73

DIRECT CONNECTIONS PROVIDE **THE HIGH RELIABILITY OF A PRIVATE NETWORK,**

and should guarantee the 100% uptime that is so important in healthcare, government, e-commerce and many other industries.



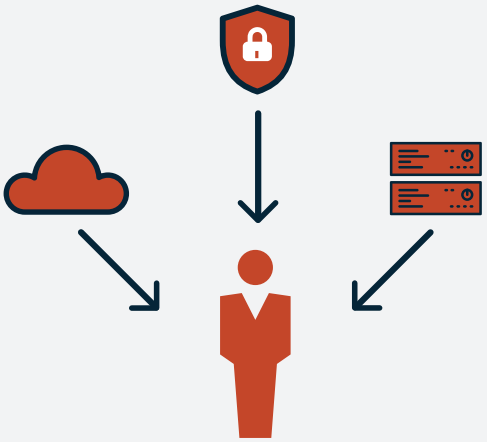
THE PROOF, IN MILLISECONDS

Consistent network experience is a performance metric that we keep coming back to. Since the public Internet is a network of networks, spikes in demand and variations in network capabilities add up to performance inconsistency.

In the speed test we discussed above, we measured the latency and variability by pinging a public cloud compute center in Cheyenne, Wyoming from our Denver datacenter. The maximum latency on the public internet was 28ms and minimum latency was 8ms. For a private connection, the maximum latency was 7ms and the minimum latency was 4ms. We believe it's safe to conclude that a 4X reduction in maximum latency and 2X reduction in minimum latency will positively impact application performance and end user experience.

HYBRID IT CAN CAUSE A **LOVE/HATE RELATIONSHIP.**

You love the advantages, but you might hate the complexity it adds to managing vendors, abstraction that makes it hard to know where applications live, and the opportunity for shadow IT "projects" that fly under the radar until they become a security or performance problem.



DIRECT CLOUD INTERCONNECT MAKES DAY-TO-DAY BUSINESS EASIER FOR YOUR IT TEAMS,

since you no longer need to manage private WAN connections for each cloud provider and you've reduced the number of vendors you work with. You also have access to a more diverse supplier ecosystem, and centralize utilities to support rapid access to the public cloud.

You'll have better visibility into operations, applications, and application development teams can respond to requests from business units for applications that make their processes slick and easy.

Connecting directly can even help improve unified communication and collaboration services, which will become increasingly critical to productivity for remote workers and millennials, as their preferences continue to influence how work gets done.

Summary

THE DRIVE FOR DIGITAL BUSINESS **GAVE BIRTH TO HYBRID IT.**

Companies today understand the advantages that come with utilizing a mix of clouds to deliver applications and services.

UNFORTUNATELY, IT'S JUST NOT EASY TO ORCHESTRATE!

Direct connection technology is emerging as an answer to hybrid IT complexity that also sets new standards for agility, performance and reliability.

As you look to better align your technology investments to your business strategy, think about how a dedicated connection between your company and your clouds could help you take the next step in your digital transformation.

ABOUT CORESITE

CoreSite Realty Corporation (NYSE:COR) delivers secure, reliable, high-performance data center and interconnection solutions to a growing customer ecosystem across eight key North American markets.

More than 1,350 of the world's leading enterprises, network operators, cloud providers, and supporting service providers choose CoreSite to connect, protect and optimize their performancesensitive data, applications and computing workloads. Our scalable, flexible solutions and 450+ dedicated employees consistently deliver unmatched data center options — all of which leads to a best-in-class customer experience and lasting relationships.

Visit **www.coresite.com** or contact us at **866.777.CORE** to learn more about how outsourcing your data center operations can help improve business agility, efficiency, and profitability.

RECOMMENDED READING

AWS - About AWS
aws.amazon.com/about-aws

Microsoft - What is Azure?
azure.microsoft.com/en-us/overview/what-is-azure

Google Cloud Platform - Why Google Cloud Platform
cloud.google.com

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