



# ON-PREMISES VS. THE CLOUD

Comparing Costs and Making the Move



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# KNOW YOUR COSTS

**For all the discussions of increased productivity, optimized performance, enhanced flexibility, and the many other benefits associated with a cloud migration, cost still matters.**

That includes the cost for the cloud migration, the cost benefits that result from the migration, and the additional savings that comes from continued cloud resource optimization.

To determine what it will cost to move to the cloud and the potential savings it can yield, you first need to know what you're currently paying for your on-premise infrastructure. Then you'll estimate the costs for a cloud environment.

The pages that follow will help you do both.

You'll also find information on cloud migration cost considerations and post-migration ongoing cost optimization.

# INVENTORY YOUR IT ASSETS

**To get started, take stock of your IT assets. That includes:**

- + Hardware and virtualized hardware, including servers, storage and backup devices
- + Software
- + Network infrastructure
- + Data center facilities equipment for IT services (HVAC, generators, batteries)
- + Dedicated IT personnel

Gather relevant information such as asset specifications, purchase price, licensing fees, maintenance contracts, details for network connections, and utilities.



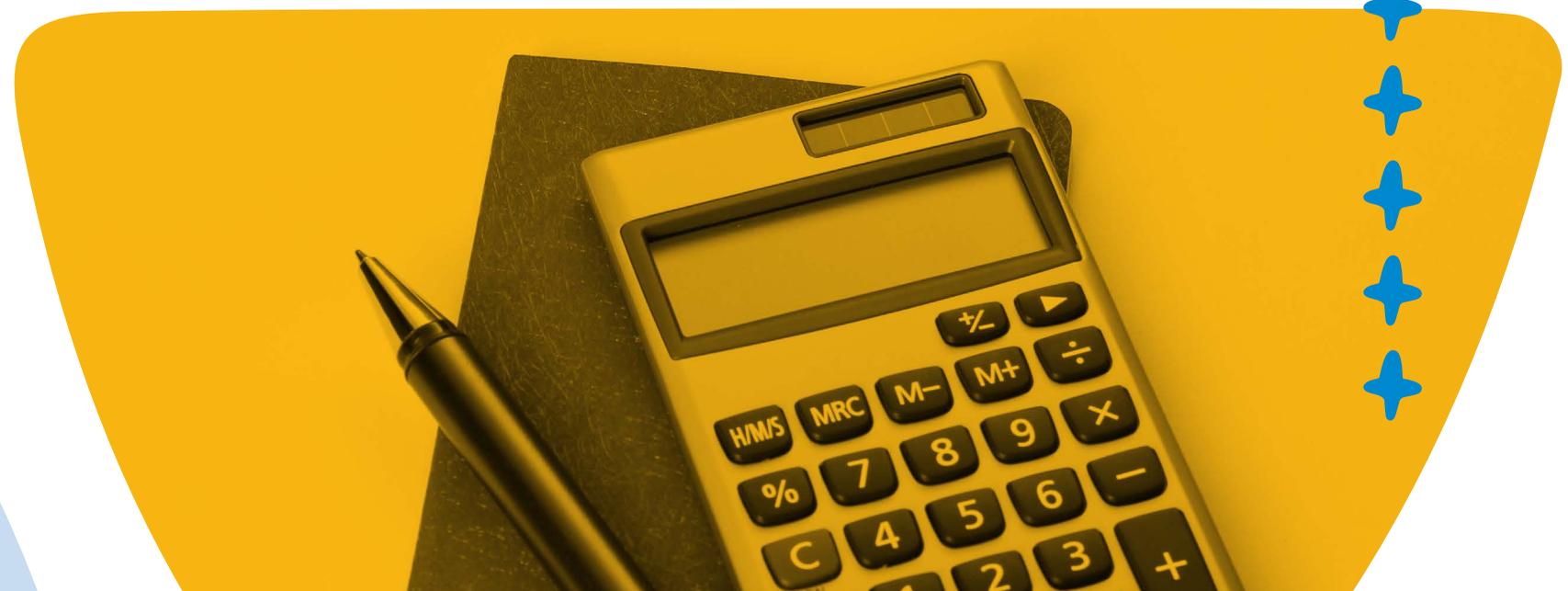
# CALCULATE YOUR CURRENT COSTS

**For purposes of this eBook, we'll keep things simple and focus only on these cost categories for your on-premise data center: compute, storage, networking, data protection, and IT labor.**

Keep in mind there are likely other expenses associated with an in-house data center, such as lease or mortgage payments and taxes, but we won't address them here.

While you can document expenses on a monthly or annual basis, you ultimately want to generate a three-year total cost. This will make it easier to see the costs differences between an on-premise data center and a cloud environment.

Once you've filled out the appropriate information in the tables on the pages that follow, simply multiply them by 36 (if they are monthly costs) or 3 (if they are annual costs) to get your three-year total cost for each category.



# COMPUTE

- + Hardware such as servers, racks, and switching
- + Software such as licensing fees for virtualization software
- + Operating costs, which include power consumption, data center cooling, facility leases, and maintenance contracts

Here's an example of how to document the hardware component (physical servers). Keep in mind there may be other variables to consider that are specific to your organization. Include any that may help provide a more accurate calculation of your total compute costs.

Total # of Servers	
Purchase Price per Server	
Annual Maintenance Costs (service contracts, repair costs, etc.)	
Annual Insurance Costs	
Annual Utility Costs (facility power and cooling)	
OS Licensing	
Virtualization Licensing	
Other	
<b>Total Three-Year Cost<sup>1</sup></b>	

<sup>1</sup> Multiply the above costs by 36 (if they are monthly costs) or 3 (if they are annual costs) to get your three-year total cost for each category.

# STORAGE

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- + Servers and/or storage devices
- + Software
- + Operating costs, which include power consumption, data center cooling, facility leases, and maintenance contracts

To document storage costs, first determine that various types of storage in your IT environment. You can use the following chart as a starting point for gathering the necessary information.

Storage Type	Raw Storage Capacity	% Downloaded Monthly	Disk Type
SAN	GB	N/A	SSD
	TB		HDD
NAS	GB	N/A	
	TB		
Object	GB	0-100	
	TB		

Purchase Price per Server or Device	
Annual Maintenance Costs (service contracts, repair costs, etc.)	
Annual Insurance Costs	
Annual Utility Costs (facility power and cooling)	
Other	
<b>Total Three-Year Cost<sup>2</sup></b>	

Next, document the following costs for each type of storage. If there are additional expenses associated with your organization's current storage, add them in.

<sup>2</sup> Multiply the above costs by 36 (if they are monthly costs) or 3 (if they are annual costs) to get your three-year total cost for each category.

# NETWORKING

- + Network hardware
- + Network software
- + Operating costs, which includes bandwidth costs, network security, power consumption, data center cooling, insurance, facility leases, and maintenance contracts

Fill in costs for the items shown below. Add in any other networking expenses that your organization may have.

Network Core: Redundant Routing and Switching Plus Sparing	
Firewalls	
Internet Bandwidth	
Storage Fabric	
Operating Costs (annual)	
Other	
<b>Total Three-Year Cost<sup>3</sup></b>	

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NETWORK SERVICES**

<sup>3</sup>Multiply the above costs by 36 (if they are monthly costs) or 3 (if they are annual costs) to get your three-year total cost for each category.

# DATA PROTECTION

- + Backup hardware
- + Backup software
- + Operating costs, which include power consumption, data center cooling, facility leases, and maintenance contracts

If you are maintaining a secondary site with complete replication of compute, storage, and networking, you can simply input the total cost figures you generated in the previous three sections. There will also be operating costs and possibly expenses for backup devices and software to factor in, depending on how your organization handles data protection.

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Compute	
Storage	
Network	
Operating Costs	
Backup Devices	
Backup Software	
Other	
<b>Total Three-Year Cost<sup>4</sup></b>	

<sup>4</sup> Multiply the above costs by 36 (if they are monthly costs) or 3 (if they are annual costs) to get your three-year total cost for each category.

# IT LABOR

- + Server administrator
- + Storage administrator
- + Backup administrator
- + Operations and Maintenance

To document IT labor costs, first list out the roles of your IT personnel, such as server administrators and backup administrators.

Note the number of hours per week they spend on their assigned responsibilities within their discipline. Multiply that number by an average hourly rate. From there you can calculate estimated IT labor costs.

IT Role	Hours per Week	Hourly Rate	Weekly Costs	Total Three-Year Cost <sup>5</sup>

<sup>5</sup> Multiply the costs by 36 (if they are monthly costs) or 3 (if they are annual costs) to get your three-year total cost for each category.

# YOUR ON-PREMISE DATA CENTER COSTS: THREE YEARS

Based on the information in the preceding examples, this is what the three-year TCO for your on-premise data center could look like.

Compute	
Storage	
Networking	
Data Protection	
IT Labor	
<b>Total</b>	

Note: As mentioned before, there may be other expenses associated with your TCO. This exercise is meant to give you a general idea of what your costs might be.





# YOUR CLOUD INFRASTRUCTURE COSTS

**Next up is determining the costs of a cloud environment to handle the same workloads as your on-premise environment.**

That can be difficult as you may not yet know exactly what you need or what the cloud offers.

One approach is to use one of the many cloud calculators available online. Just input information about your on-premise infrastructure and resource usage to generate a general cost comparison.

A more effective option is to work directly with a cloud services provider (CSP) that can help you match up components of your current environment to the cloud resources it offers.

# THE CAPEX VS OPEX FACTOR

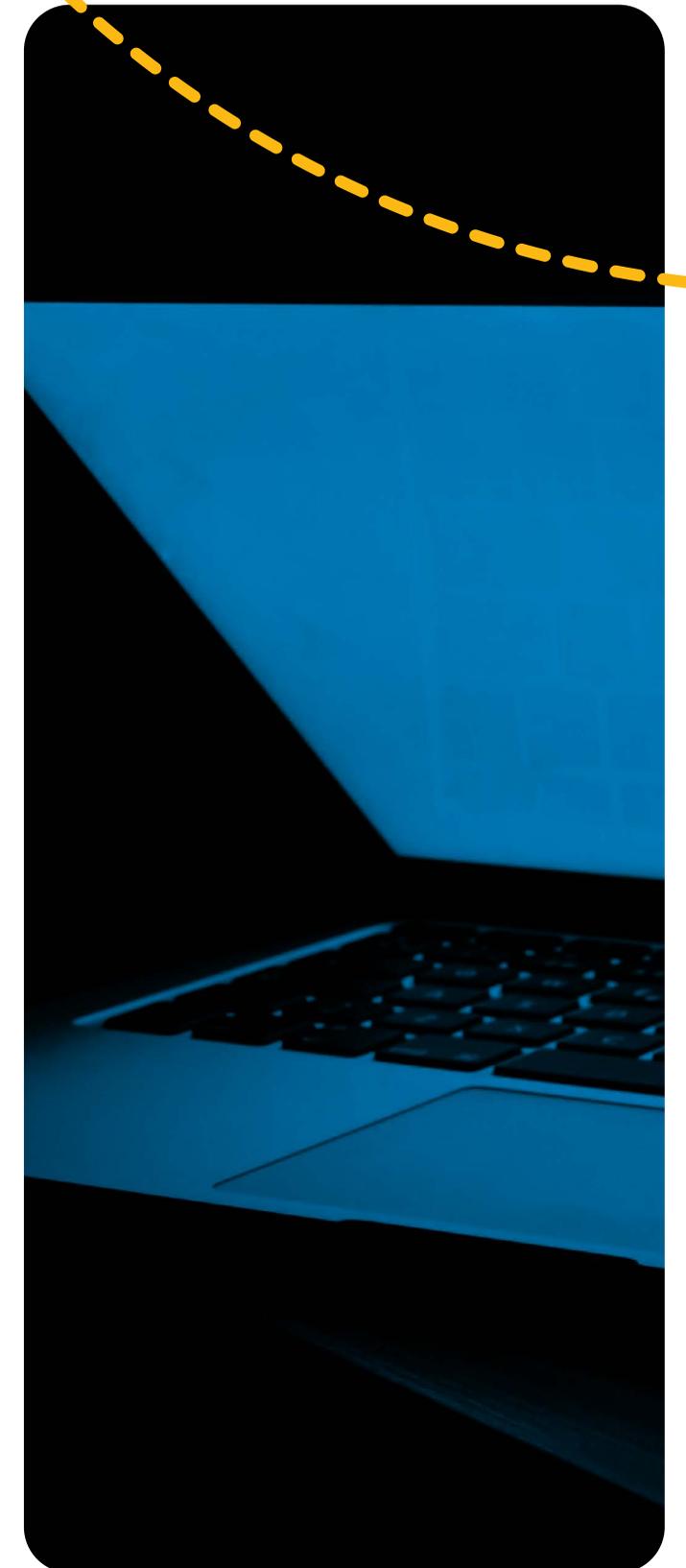
**Once you've generated a cost comparison between your on-premise data center and a comparable cloud environment, you'll likely see significant savings can be generated by a move to the cloud.**

That savings is not the only factor to consider, however. There's also the switch from capital expenses (CapEx), associated with a data center, to operating expenses (OpEx), which are how cloud services are handled.

CapEx is defined as business expenses incurred in order to create long-term benefits in the future, such as purchasing fixed assets like your data center equipment. OpEx refers to the expenses to run day-to-day business, such as cloud services.

With CapEx, you run the risk of making a sizable upfront investment and then being locked into what can quickly become outdated equipment and ongoing maintenance costs. The OpEx approach offers agility and flexibility. In terms of cloud services, you only pay for what you need when you need it. You don't get stuck with a huge bill for outdated infrastructure and are better able to stay relevant in ever-changing markets and meet customer needs more quickly.

Check with your accounting department for a full rundown of how CapEx and OpEx compare.





# WHAT ABOUT THE MIGRATION

The cost savings of moving to the cloud are well documented, so we don't need to repeat them here. However, migrating to the cloud isn't free. **There are several factors that come into play that can affect your total expenditures, including:**

- + Getting your apps cloud-ready
- + Architecting the optimal cloud environment
- + Selecting and executing the appropriate migration method
- + Potential post-migration costs for continued integration and app testing, training, labor, security and compliance, administration, and other expenses

You'll learn more about these potential expenses in the next few pages.

Moving to the cloud can offset many of those costs by continuing to deliver benefits — in terms efficiencies, increased productivity, and innovation enablement. However, it's important to understand that there's more to moving to the cloud than flipping a switch.

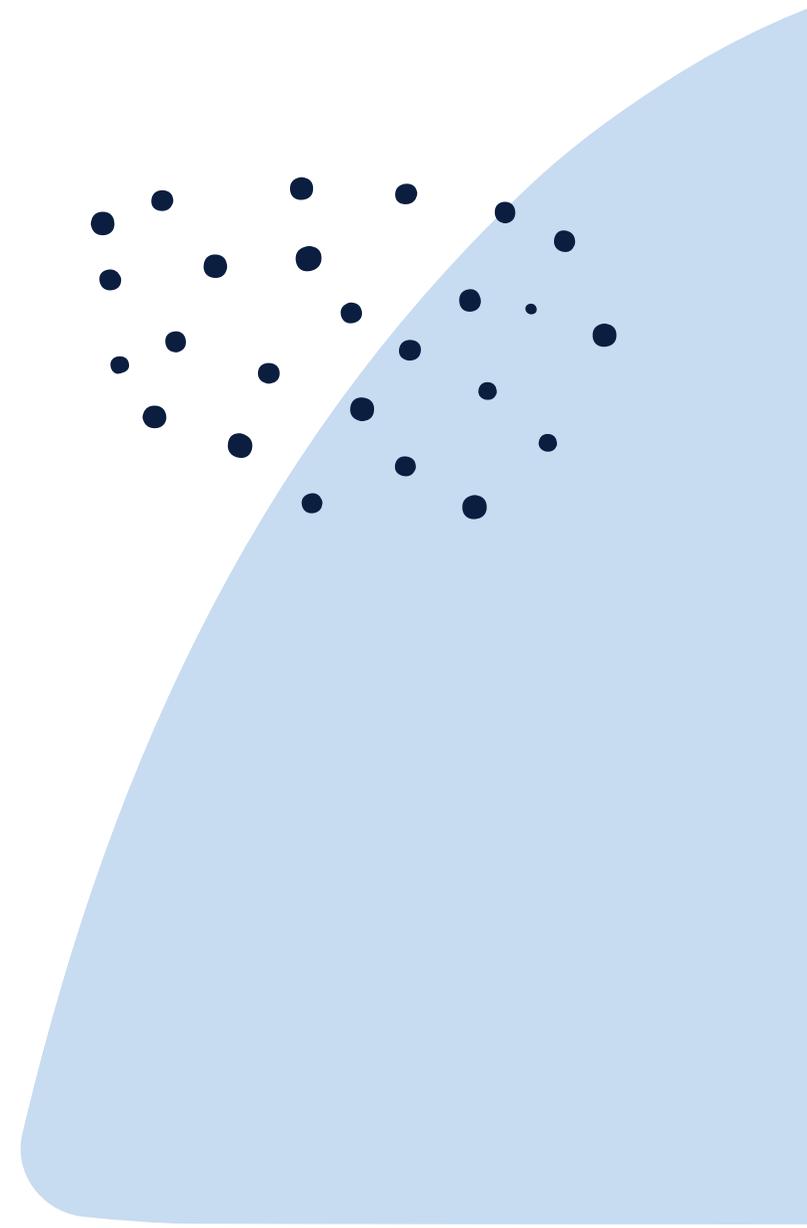
# GETTING APPS CLOUD-READY

Cloud adoption can be as easy as inputting a credit card number and pressing “GO.” For many companies, however, it entails much more — and there are costs associated.

**For example, most organizations have a wide variety of applications and workloads. Some are cloud-ready. Many aren’t.**

Conduct a cloud-readiness assessment to determine which apps can easily move to the cloud, which require redesign, and which may be best suited for other IT environments. Consider potential costs for maintaining legacy systems that can’t migrate.

Assign time estimates for any in-house labor. If your staff doesn’t have the expertise or time to handle app redesign, you may need to outsource some or all of the tasks. Get estimates so you can incorporate these charges into your migration project estimate.



# ARCHITECTING THE OPTIMAL CLOUD ENVIRONMENT

**Off-the-shelf public cloud environments work fine for many companies, but yours may require something customized.**

Your use cases and business requirements will affect the design patterns and architectural options employed. They'll also dictate how to handle elements such as scalability, disposable resources, and automation.

There could be complexities and other challenges associated with your cloud environment needs that require expertise your in-house staff lacks. A cloud services provider (CSP) that offers customized cloud services can help.

That's particularly true if you have specific compliance requirements (go with a CSP that offers HIPAA-compliance cloud environments) or low latency needs (go with a CSP that powers its cloud environments in edge data centers).



# THE MIGRATION METHOD MATTERS



**Cloud migration methods vary in terms of how they work and what they cost.** The CSP providing the cloud environment can help you determine the best approach and estimate costs and timetables.

Build contingencies into your cost estimates to cover unexpected issues that may arise. Create and execute a test plan that addresses data privacy, security issues, and other potential issues during the move.

When assessing cloud migration costs, include what it will take to mitigate downtime and ensure the data in your on-premise systems stays in sync with what's in the cloud.

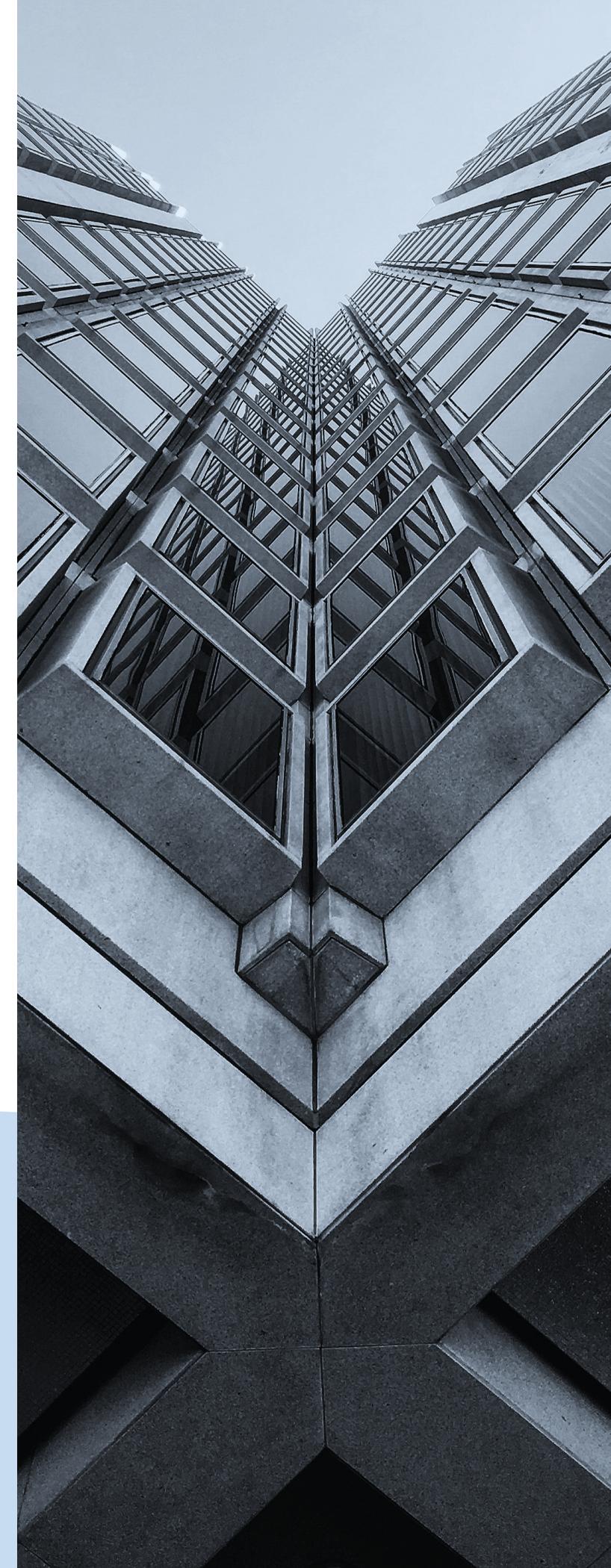
The time required for a cloud migration affects costs as well. Working with a partner that has an extensive, proven track record of managing cloud migrations can expedite the process.

# FACTOR IN POST-MIGRATION NEEDS AND BENEFITS

Once the cloud migration is completed, there may be costs for continued integration and app testing. Training, labor, security and compliance, administration, and other expenses related to the cloud could emerge. Account for them in doing your cost analysis for a cloud migration.

**One of the benefits of moving to the cloud is the cost savings, and there's potential to increase that savings with ongoing optimization after the cloud migration.**

For example, you'll be able to take advantage of load-based auto scaling to deliver the right amount of resources as needed and then scale down when not needed to save money.





# THE US SIGNAL ADVANTAGE

There are numerous considerations for migrating to the cloud. To better understand and appreciate the associated costs and opportunities, choose a CSP with a proven track record of helping customers make the move.

Put US Signal at the top of your list of options.

US Signal has successfully guided numerous customers in their journey to the cloud. Services range from TCO assessments and IT environment architecture to migration planning to post-migration optimization.

US Signal also offers secure, reliable, and flexible cloud and colocation environments built on IT infrastructure that meets the requirements of HIPAA, PCI, and more. They can easily be customized with data protection, managed security, and other components to meet your organization's specific IT needs.

If you're interested in moving to the cloud - or integrating cloud services into a hybrid IT strategy, talk to a US Signal solution architect today.

**Call 866.2.SIGNAL, email [info@ussignal.com](mailto:info@ussignal.com), or visit [ussignal.com](http://ussignal.com)**