WHITE PAPER

Executive Primer: Path to Cloud for Analytics

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Executive Summary

Data is the foundation of modern business, but data is simply the raw ingredient. Analytics is what takes you from data to actionable answers.

When looking at analytic platforms, customers should consider not only traditional, on-premises solutions but cloud-based environments. Before committing blindly to a cloud offer, however, every customer should review all facets of a cloud-based environment. In particular, the common expectation that cloud is automatically cheaper is not always true.

This white paper will highlight the promoted benefits of cloud, what you should consider before rushing to cloud, and the multiple options for leveraging Teradata Vantage in the cloud.

Analytics Is Today's Advantage

This is an exciting time to be involved with data and analytics.

In today's data-driven world, analytics is rapidly becoming the key advantage for knowing not only what is happening in your organization but, more importantly, why things are happening. Analytics converts information about what happened yesterday into not just what will happen tomorrow, but into answers about what you should be doing right now to position your organization for success.

Analytics is a $230 billion industry powered by the speed, scale, and competition of the digital economy. The right analytics platform can deliver real-time intelligent answers that leverage 100% of your company's data. A platform in the cloud can scale to meet your quickly changing needs.

If you are like many executives, it's possible that you are investigating cloud for new systems or that you have even been mandated to "look at the cloud" as a strategic initiative. With so many tools to analyze data and such a wide range of choices for how and where to deploy them, your options are seemingly unlimited.

However, not all tools—or deployment methods—are created equal. You have to make choices. In addition, you simply cannot write off your investment in your current environment.

So how can you be sure that you're making the right decisions? This executive primer will help you get grounded in the basics of cloud and what to consider when looking for an analytics platform in the cloud.

What is Data Analytics?

Data analytics is the process of gathering, cleansing, transforming, and modeling data with the goal of discovering answers to support decision-making and solve the most complex business challenges.

What Is the Cloud?

Perhaps you are new to cloud.

If so, it's worthwhile to take a moment and review the concept of what is a cloud. At its core, the cloud is a fusion of someone else's data centers, IT infrastructure, and managed services. This definition doesn't do justice to the immense complexity of a modern, global cloud service provider (CSP), but it's a start.

We've long been accustomed to third-party data centers that allowed us to offload the capital investment in raised floors, redundant power, and environmental controls while still owning the computing equipment that went inside. A CSP takes this to the next level by owning both the data center and the servers, and then renting access to the servers rather than you buying and bringing in your own equipment. Your selection of servers is limited but you can access them whenever needed.

CSPs then took the next step and provided managed, value-added services, such as programming environments, storage, and databases. Instead of you hiring people with specialized skills to install and configure complex software, the CSPs automated these capabilities and now provide them with a friendly interface. Some capabilities, such as storage, leverage economies of scale to achieve previously unheard of low rates as the costs can be spread over thousands of customers.

Global CSPs provide these data centers in multiple locations around the world to better serve local regions. Because a CSP's data centers are nearly identical, you can request the same servers, storage, and services all around the earth on a moment's notice.

The real power of CSPs, though, is their pricing model. While it varies, almost any capability and service can be purchased for small units of time—seconds, minutes, or hours are typical—with no long-term contract. This would be impossible for most companies to do on their own, but because CSPs are essentially renting their capacity, this is viable and creates an entire new economy.

All you need to get started is a credit card. That's a far cry from yesterday's process of capital authorization, purchase order, delivery, installation, and configuration, which can extend over weeks or months.

The Benefits of Cloud

We've hinted in the previous section about the benefits of cloud. Frankly, there are a myriad of reasons to move your analytics to the cloud. Empirically we know this must be true because the global cloud market is forecasted as surpassing $260 billion in 2020[1] and will add almost another $100 billion by 2022. Cloud providers are doing something right.

1 https://www.gartner.com/en/newsroom/press-releases/2019-11-13-gartner-forecasts-worldwide-public-cloud-revenue-to-grow-17-percent-in-2020

Cost Savings

Financial benefits are the most-often mentioned reason for moving to the cloud. Besides paying for services on shorter timeframes, you can shift costs from a capital expense (CapEx) to an operational expense (OpEx). This allows you to realize immediate recognition of a cost rather than depreciating it over many years, perhaps even longer than the asset is viable.

You also realize cost savings in time because you are no longer waiting for computing equipment to be procured, delivered, and configured. You might still pay the same for the amount of resources you need, but if you can have them in minutes rather than months, you speed up your projects and prevent other resources from being idle.

As we'll discuss in an upcoming section, cost savings are not guaranteed in the cloud but are attainable depending on utilization rates and your payment plan.

Flexibility

One of the best reasons to do analytics in the cloud is the ability to experiment—to try new tools and techniques and see what value and insight they might bring. Even if you are not looking to move production from on-premises to the cloud, there is an advantage in performing exploration in an environment where resources can be dynamically allocated, used, and then released with no long-term commitment. In short, there is no penalty for experimentation.

This flexibility compares favorably to on-premises where equipment must be budgeted, ordered, delivered, installed, and configured—a process that can take weeks or months. In the cloud, this process can be accomplished within minutes or hours.

Elasticity

Continuing the theme of flexibility, elasticity is the ability to surge in resources for an amount of time in response to an event and then revert after the event is over. Some events are planned, such as a promotional sale or a theatrical release, while others are unanticipated, such as a dank meme going viral. In both cases, the need is immediate and certainly much faster than any on-premises system could be ready unless the capacity was already on the floor, albeit sitting idle.

In contrast, the cloud allows almost immediate increasing of available capacity to meet a surge in demand. In essence, the cloud service provider maintains spare capacity that is available to all. You are able to tap into this reserve as needed and then release it, paying only for the period of usage during the surge.

Reasons to Move to Cloud

Cloud Mandate

Vacate existing data centers

Shift from CapEx to OpEx

Any savings will depend on workload profile

Agility/Flexibility

Spin up resources quickly and scale when needed

Exploratory Use Cases

Pay only for what is used

Agility

Agility is the combination of cost savings, flexibility, and elasticity. Your workload will change over time. Sizing of on-premises systems is typically a guessing game given that budgets must be forecast three-to-five years in advance. The result is often a system that is too large, initially, maybe about right in years two and three, under-performing the rest of the time, and potentially obsolete near the end of its depreciation.

Agility allows you to procure the right size now, increase it as needed to meet demand, and potentially pivot to a different system configuration when your use case significantly changes. This is a capability which is just not feasible with on-premises systems that must be depreciated before they can be replaced.

Redundancy

Perhaps not often considered is the redundancy of the cloud service providers, both within a single CSP and between multiple CSPs. A CSP provides services in multiple locations, ensuring that operations can continue even if part of their system is disrupted. For the paranoid, you can leverage services among multiple CSPs in case a global failure hits one provider (it has happened).

Typically, redundancy has been achieved on-premises through the use of disaster planning, which can range from keeping backups off-site to running expensive, duplicate systems. Everyone agrees that some degree of preparedness is needed but the cost tends to be prohibitive (and we often just hope for the best). With cloud, duplicate systems can be initiated in remote locations within minutes or hours when disaster strikes. During normal times, these duplicate systems can either be turned off or running at minimal levels to reduce cost. With cloud, we now have resiliency across most or all our data center applications instead of just a few, critical systems.

Who and Where Is the Cloud?

Before we delve into the considerations of moving to cloud, it's useful to review the primary cloud service providers and some common terminology.

You've probably already heard of the most popular cloud providers:

- Amazon Web Services (AWS)
- Microsoft Azure (Azure)
- Google Cloud Platform (GCP)

AWS is far and away the leader with 40% or more of the market, depending on who is measuring and what they are measuring. AWS has the most mature offerings and continues to add services at a rapid rate.

Microsoft entered the market a few years after AWS, but they have made up for time and are the number two CSP. Azure certainly encompasses the "traditional" services, such as virtual machines, but their business model also includes the productivity suite, Office. They are especially popular with enterprises who have built up their infrastructure on Windows Server, Active Directory authentication, and Exchange email.

As-a-Service or Do-it-Yourself Cloud Solutions

Cloud-based, as-a-service solutions are becoming increasingly popular. That's because they offer agility, allowing companies to be more responsive to changing business needs. They also enable organizations to add capabilities, like new software releases, as they're needed.

As-a-service options allow a vendor to provision and manage the cloud environment for you. This includes handling all software, infrastructure, patches, updates, security, and daily backups. Alternatively, companies have the option of running the environment themselves via do-it-yourself deployment of software using public cloud infrastructure.

Google has been known for large data centers and big data for years, but it wasn't until recently that they pivoted to offer more traditional cloud services. Like Azure, GCP includes their productivity applications, G Suite, with their cloud offerings. While Google is a search engine giant, they are having to run fast to catch up to the dominant players, AWS and Azure.

There are other CSPs, but these are niche, regional, or service-specific; they include, but are not limited to, Alibaba, Oracle, IBM, Dell / VMware, and Salesforce.

The big three—AWS, Azure, GCP—are all global. Generally, they have settled on similar terms to describe their geographic availability. They operate data centers that occupy massive buildings or campuses. Each data center is known as an availability zone[2]. An availability zone is self-contained; it can operate independently. Multiple data centers in an area, perhaps separated by anywhere from a few miles to 100 miles (250 km),

2 This is not entirely accurate for all CSPs but it is close enough to be useful.

are aggregated into a region. While each availability zone is independent, the availability zones provide overlapping coverage for each other within a region. For example, a storage system might replicate information across multiple availability zones. This allows a region to function as a single unit for some services, even if one or two availability zones are disrupted.

Each region is assigned to a geopolitical area. For the U.S., this can be parts of the country. For the E.U., this can be areas within the union. For Asia, this can be a collection of countries. Typically, these regions overlap major population centers. This allows these regions to serve a large population with minimal latency.

The Dark Side of the Cloud

So far, we have covered the positive benefits of cloud. These benefits are real. However, no comparison would be complete without looking at the costs (literally) and cautions.

Costs Can Soar Quickly

We have talked briefly that a prime benefit of CSPs is the on-demand (pay-as-you-go) model with no long-term contract. This makes many services look very cheap when used for short periods of time. For example, a small, virtual server can cost a dollar an hour—truly, a bargain—especially when compared to the cost of $10K or so to buy a similar server, not including installation and operation.

But watch out: like any utility, even a low hourly rate can add up to a significant expense when multiplied over time. To continue our example, let's take that small, virtual server that costs a dollar an hour: that's about $720 per month. Still, a bargain. When run for an entire year, that's almost $9K, which is nearly the cost of purchasing it outright. You will likely need this server as long as you are in business, so you are now paying the equivalent of buying a new server every year and then throwing it away.

Fortunately, you can turn off servers and other cloud services when they are not in use. For example, if you only run a server during the typical workday (that's nine hours, from 8:00 a.m. to 5:00 p.m., for five days a week), then you can cut the cost down by nearly 75%. However, you must be very stringent about turning off servers at the end of the workday to realize these savings. This is difficult in practice, much like remembering to turn out the lights when leaving the office.

Similarly, the major CSPs offer storage at a low rate; Amazon S3 is $0.10/GB/month. Again, it seems like a bargain but let's imagine that you store 1 TB of backups every day. That's only $3 per day for that single backup, but if you just keep piling on the backups you could spend $1.5K in that first month, $5.5K in the second month, and so on. Any CFO will be quite surprised at how expensive the cloud really is if you're not diligent about turning services down or off when not being used.

Perhaps one of the least known costs of using a CSP is the network traffic. Cloud providers are incentivized to make it easy for customers to move data into the cloud, no matter how much. You can move terabytes of data into a cloud at no cost to you. But, any data movement out of a cloud comes at a cost. (This is called an egress fee.) Again, the price is relatively cheap, but it can add up. Consider if you store your large data backups using cloud storage; in a disaster where you might need to restore that data back to an on-premises environment, it can easily cost thousands of dollars in network egress fees.

Use Only What You Need

Cloud service providers have moved well beyond basic, virtual machines to fully managed services and everything in-between. For example, CSPs can provide you the individual services to build a unique application or you can leverage pre-formed capabilities that only need configuration. An analogy is of a home improvement superstore versus manufactured housing: you get to decide how much effort you want to invest and customize.

For some customers, this choice and freedom become a solution chasing the problem. Do you really need all of these capabilities? Each feature that you use is another potential cost, especially over long periods of time.

However, also look at these features as an opportunity to right-size your on-premises environment. Perhaps you have multiple servers that can be consolidated into smaller, virtual servers, or even turned off entirely in favor of capabilities offered natively in the cloud. A good example is Active Directory authentication, which almost every enterprise uses. An enterprise might just use two virtual machines to run the master Active Directory (in separate regions, of course), and then use the CSP's authentication capability to extend Active Directory globally. This combination provides cost savings, reliability, and elasticity that is significantly better than a purely on-premises solution.

What to Consider When Moving to Cloud

At this point, we've highlighted the positive benefits of cloud but balanced it with caution. Cloud is not a silver bullet, but it is a remarkable tool that provides significant advantages when used properly.

Before you jump in, you should have realistic expectations of what the cloud will deliver for you. By no means is this list exhaustive, but it will give you an appreciation for the major details.

Security

Perhaps the most prominent concern of using the cloud is security. Conventional wisdom has been that data within a company's own data center was the most secure while data outside the data center was inherently insecure.

With the rise of malware, email attacks, and social manipulation, the supposed security of a company's data center has been significantly debunked. In fact, most companies do not have a dedicated security team, instead tasking a person or a group with making the company "secure." Unfortunately, security is a rapidly progressing field in which only dedicated teams can realistically hope to remain relevant.

In fact, cloud service providers tend to be more secure because they do have entire organizations entrusted with security, from the physical to the online. Cloud providers can spread the significant investment in these teams over the whole of their customer base, providing capabilities that would simply be out of reach for all but the largest company (or government).

In addition, many of the managed services provided in the cloud are purposefully built with risk mitigation in mind and are hardened against typical attacks.

This allows your team to focus more on security design within your analytical environment and connecting applications, rather than the low-level infrastructure.

Now, that's not to say that using a cloud inherently makes an environment entirely secure. The highly regarded Verizon Data Breach Investigations Report points out that many security failures are due to weak passwords (81%), opening malicious email attachments (66%), and social engineering (43%), among other vectors. These risks are still applicable when using a cloud provider but there are significantly more tools and capabilities available to you as a cloud customer to mitigate them.

Performance

You have long been accustomed to selecting your computing equipment, right down to the CPU. You also knew that the equipment would be dedicated to whatever purpose you assigned. Was it a mission critical database? No problem—no other application would be installed on the same server and allowed to compete with it for valuable processing time.

Cloud, however, is a shared environment by design. The benefits of cost savings, flexibility, elasticity, and agility arise because customers are sharing resources. This is very effective for making the best use of a CSP's infrastructure, but it also means that you are essentially competing with everyone else for those capabilities. The analogy of rush hour in downtown is highly applicable. Everyone benefits from a concentrated downtown where resources are close together, but congestion inevitably surfaces, especially at rush hour. Similarly, each virtual machine is competing for the attention of a physical CPU. If one of your "neighbor" virtual machines is very active, the CPU will be particularly busy and not as attentive to your virtual machine. Unfortunately, you have very little control over your neighbors. (Again, also very similar to downtown.)

Of course, you can choose to use larger virtual machines that will be allocated more resources to ensure you maintain sufficient performance, but then you are paying a "tax" for the benefit of leveraging shared infrastructure. Or, you could provision a virtual machine in a lesser-used region without so much competition, but now you might experience a lag in communications because the region is farther away.

Network

The network is the hidden component of the on-premises data center—it has always been very fast and had good connectivity to your large offices. Inside the data center, the network has likely been significantly advanced by offering 10 Gbps or even 100 Gbps speeds. Moving gigabytes or terabytes between servers essentially had no cost and was very quick.

These assumptions must be re-validated in the cloud.

Network speed between cloud servers, while increasing, can vary depending upon the server configuration and size. Some CPSs will top out at 40 Gbps of shared bandwidth, which can be quite a drop if you are used to 100 Gbps dedicated connections. If you are moving data into or out of the cloud, you must now look at the speed and quality of the links between the CSP and your site. Maybe you need to move 1 TB of data daily from your data center to a cloud provider. If you are leveraging only a general purpose "internet" link, you might find that you could overwhelm the connection and the data is never able to finish transferring before the next load is scheduled to start. Perhaps you will need to add additional network capacity, which is both expensive and time consuming (on the order of months for dedicated circuits).

You should also look at the location of the CSP's region and your company's offices. Due to network latency, applications that did fine when the data center was just a few miles away may become non-responsive or unusable if they are now based in a region that is hundreds of miles away. Imagine how slow a conversation becomes when talking with a colleague around the world—the same effect applies to computer networks.

Migration

One of the more overlooked aspects of moving to the cloud is just that—moving. If an on-premises system will be essentially duplicated in the cloud, then the cost might just be the time it takes to transfer the

data. However, the reality is that systems are moved in phases and this means that you will be running in a hybrid situation for a while. It is essential to have a competent and knowledgeable project manager overseeing the migration.

Skills

Finally, it is worth mentioning that as you consider moving to the cloud, you will need to shift many of your personnel from managing on-premises, physical infrastructure to managing cloud services instead. Some skills will no longer be necessary, such as ordering equipment, managing power, and installing storage. Many skills will remain the same with just the implementation changing; this includes networking, DNS, and firewalls. Quite a few skills will be entirely new as they will revolve around the services provided, such as containers and security monitoring.

Your people will have to manage both for a period of time as well as train up on these new capabilities. You will also need to budget for usage of cloud resources as your employees learn in "sandbox" environments before migrating production systems. While you're at it, you might as well budget for trial runs of your migration. Maybe an architectural design in the cloud doesn't work as well as anticipated and needs to be re-done.

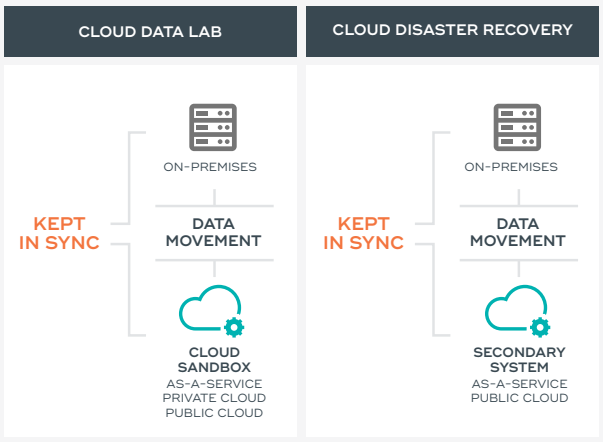

Figure 1. The combination of on-premises deployment with cloud resources opens the door to hybrid-specific use cases.

It is also a reality that with the popularity of cloud providers, trained and credentialed personnel are in demand. You will need to implement a retention strategy to ensure that your newly trained workforce remains.

Once you have migrated, the likelihood is that you will continue to operate in a hybrid manner—frankly, this is expected for most enterprises. You will probably keep about the same quantity of staff employed but a significant number of roles will shift from on-premises infrastructure management to overseeing cloud services. While cost savings can apply to the run rate of servers and services, you should not expect a cost reduction when it comes to personnel.

Taking Your First Steps to Cloud

We've covered the motivations and considerations of moving to the cloud.

Cloud is not an "either-or" decision. As previously mentioned, most enterprises will maintain on-premises systems even when shifting significant amounts of their infrastructure to the cloud. No matter your goal, it is advisable to move slowly and learn along the way.

Let's look at how you can initially leverage the cloud for analytics in your organization. These are two initial projects you can use to help validate your assumptions and architecture in order to minimize risk to you and your organization.

Cloud Data Lab

A cloud data lab is a temporary, sandbox environment that can be provisioned to allow for user self-service and data exploration. Your analysts and data scientists can pursue new ideas by combining fresh and existing data without impacting your operational systems. When their work is complete, users can terminate the cloud system and avoid additional cost. This leverages the flexibility of the cloud.

Cloud Disaster Recovery

As previously mentioned, disaster recovery (DR) systems are a good idea that are typically reserved for

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only the most critical systems. However, with the ability to rapidly provision new resources, the cloud can make for the ideal DR system by keeping a backup copy of the data and only running systems when a disaster occurs. Of course, there are several details relating to configuring DR systems so that users can seamlessly access them, but the capability is available. This leverages the agility and elasticity of the cloud.

How to Move to the Cloud

While we have been focused on public cloud providers, there are additional paths to deploying your analytic infrastructure. To borrow a phrase, cloud should be viewed as a journey and not just a destination.

As-a-Service

As-a-service offerings are those in which cloud professionals at a service provider take full responsibility for your analytic infrastructure but do not touch your actual data. This option is an excellent match for organizations that want to focus on the analytics. This leaves the managing of the technical aspects of their environment, such as provisioning, monitoring, security, encryption, backups, upgrades, and maintenance, to the service provider.

Advanced analytic vendors provide both capacity and pay-as-you-go pricing for as-a-service cloud environments, allowing you to better match your workloads and utilization rates to the more effective pricing model.

Do-it-Yourself

Do-It-Yourself (DIY) offerings are targeted toward organizations that want to use infrastructure from public cloud providers in a "hands-on" mode. These customers typically have significant technical competency and want to control all aspects of managing their analytic ecosystem themselves. If your company falls in this category, you may already store some of your data in and have experience with the public cloud.

With DIY offerings, typically you can either pay on-demand rates per-instance or get a discount by committing to annual or longer durations.

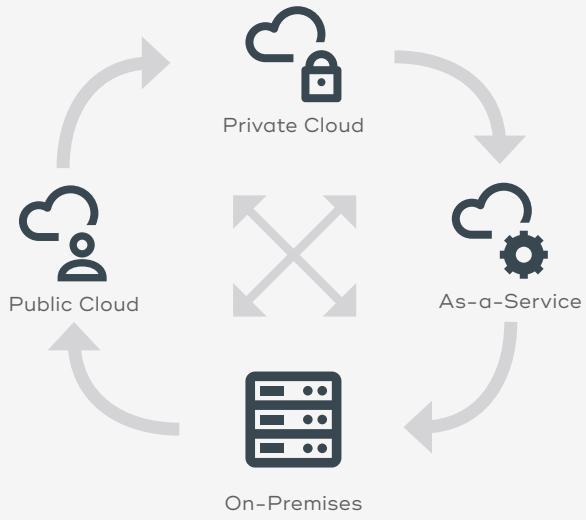

Figure 2. A hybrid cloud is an analytic environment consisting of a mix of on-premises resources with some sort of cloud deployment—public cloud, private cloud, or as-a-service—orchestrated to work together.

On-Premises

On-premises deployment of analytic infrastructure has been the default for decades and continues to be the pinnacle of performance, availability, elasticity, and concurrency for enterprise workloads due to tight integration between data, application software, and engineered systems. These platforms are purchased, installed, and maintained in customers' data centers with administration and upkeep remaining the responsibility of the customer—whether performed by the customer's team or by resources secured through a professional services engagement.

While on-premises infrastructure is not a cloud deployment per se, it remains an important hybrid cloud option due to customer requirements around data gravity and infrastructure customization. It's also the case that on-premises configurations themselves are starting to exhibit more cloud-like features such as subscription pricing and ability to scale compute and storage independently.

Private Cloud

Private Cloud deployments are dedicated to only one customer, typically in the customer's own data center.

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Technically, they are not so much a cloud as they are a shared environment within a customer's domain that can be leveraged across internal departments. This architecture allows IT to spread the costs of the infrastructure across multiple use cases, in the same way that a public cloud provider spreads costs across its customer base.

Many private clouds are built with the market-leading virtualization software, VMware.

Hybrid Cloud

A hybrid analytics environment consists of a mix of on-premises resources with cloud, all orchestrated to work together. The idea is that analytics are "borderless" because data, workloads, queries, and users can be spread across an ecosystem consisting of different cloud and physical resources yet consistent software. Everything works together as a unified, cohesive whole.

Only advanced analytics vendors offer hybrid cloud solutions, which provide important capabilities and can address many enterprise needs:

- Flexibility in deployment, thereby increasing performance and responsiveness for users
- Optimization of workloads across deployment modes, thus using "the right tool for the job"
- Easier management in a more consistent and uniform fashion, thereby providing greater control
- Lowered investment risk through the re-use of existing tools, capabilities, and training, which boosts overall return on investment

Success Stories

Here are examples of enterprises that employed data analytics in the cloud for maximum advantage. The first company moved to the cloud as part of a digital transformation. The second supplemented its on-premises infrastructure with as-a-service, while the third chose an all-in migration from its own data center into an as-a-service environment.

Larry H. Miller

Larry H. Miller Sports & Entertainment is the owner of the Utah Jazz, a professional basketball team. It's part of the Larry H. Miller Group of Companies, which is a privately-owned family conglomerate with more than 10,000 employees and more than 80 businesses.

Business Challenge

The company wanted to innovate and create a single ecosystem across its many lines of business to gain visibility into the entire organization. This could help identify opportunities between business groups and produce new high-value outcomes.

Choosing Cloud

The company moved to the cloud to gain data consistency across the various entities. The cloud solution enabled all data—including customer loyalty data, daily sales data, and customer traffic data—to be integrated onto a single platform that offers elasticity.

Business Outcome

Larry H. Miller gained new insights and answers about its customers and its business. For example, if a customer is a moviegoer but only buys tickets if they're discounted, the company knows the customer is likely to respond to a discount for concessions that's pushed through an app once the customer enters the theater.

Analytics in the cloud enables Larry H. Miller to offer the right products to the right customers for more personalized, integrated experiences. This can help transform customer experiences while also increasing revenue. The analytics also help the Utah Jazz make data-driven player decisions, such as the optimal lineups for games. Coaches can get analytics in 30 seconds—instead of the 12 hours it used to take—allowing them to make in-game decisions.

Meredith Corporation

Meredith is a media and marketing powerhouse based in the United States with popular publications targeting discrete audience segments. The company has over $2B in annual revenue with nearly 8,000 employees.

Business Challenge

As Meredith's core publishing business shifted from print to digital, the company needed to scale up analytics quickly without adding more hardware. It also realized that disaster recovery was a key priority that could be easily addressed by the cloud.

Choosing Cloud

Meredith had been using an on-premises analytics system for 15 years when it began looking for a cloud solution for test/development and disaster recovery. Its goals were twofold: diversify its analytic infrastructure presence and use the cloud for disaster recovery. In addition to fulfilling these objectives, the company was interested in other cloud benefits, including lower CapEx, an easy-to-use test/dev environment, and the ability to expand quickly based on need.

As is common, Meredith trusted the security of its on-premises system but was skeptical of the transition to cloud and assumed that it came with increased security risks. To address this obstacle, Meredith engaged with the provider's cloud security group to walk through potential issues and understand the safety features employed. Through these conversations, Meredith's concerns were addressed and it decided to move forward.

Business Outcome

Meredith's internal business users noticed no significant difference in performance between on-premises and the cloud solution and they cannot tell which environment they are using. The company is confident that a switchover from on-premises to cloud would be seamless should a disaster occur.

Ticketmaster

Ticketmaster is an American ticket sales and distribution company with operations in many countries around the world with over 6,500 employees; it is part of Live Nation Entertainment, the world's leading live entertainment company.

Business Challenge

Ticketmaster's on-premises data analytics production system was overutilized, causing significant delays in load jobs and queries. The company was unable to quickly recover from slowdowns and there was no way to expand without significant cost.

Choosing Cloud

Ticketmaster was frustrated by many limitations with its on-premises systems including overutilization and unreliable performance. Expanding on-premises infrastructure was not feasible due to the significant CapEx expense and, in fact, Ticketmaster was looking to lower or eliminate its data center costs altogether.

An as-a-service solution was the ideal way to address the dilemma. By moving to the cloud and subscribing to analytic capabilities as-a-service, Ticketmaster could remove its servers and eliminate data center costs. The cloud solution also offered elasticity, which would allow the company to address its utilization issues quickly and easily. In addition, it realized other benefits including improved workload management, managed security, and nightly backups.

Still, Ticketmaster expressed a major concern around the cost of cloud. It was used to paying up front for its data analytics whereas a typical cloud subscription is spread across three years. While the cloud wasn't necessarily more expensive, it was a new payment model with which Ticketmaster was initially uncomfortable.

Business Outcome

The cloud provider's services team worked with Ticketmaster to streamline its cloud migration by utilizing optimized tools and processes during a "winter break," when fewer business users needed access to the systems. The entire migration was complete within two months. Results have been positive: key daily reports now meet 100 percent of SLAs and ETL (extract, transform, load) runtime has improved for more than 90 percent of jobs.

Step into the Cloud with Teradata

At Teradata, we understand cloud.

We've taken Teradata Vantage—our flagship analytics software—and moved it to the cloud with the same features, capabilities, and reliability that our customers have come to expect. Your applications will run the same in the cloud as on-premises, which significantly reduces risk. We've also taken advantage of the flexibility, elasticity, agility, and redundancy of the cloud to offer unparalleled freedom to meet your needs. You can watch a **short video demonstrating Vantage on Cloud**.

You're in good company in the cloud.

More than 100 Teradata customers have taken advantage of Vantage in the cloud using the options we previously mentioned. Many still run Vantage on-premises in a hybrid model to leverage the benefits of both environments. You can see some of their stories at **Teradata.com/Customers**.

Our customers are experiencing many of the benefits of Vantage in the cloud:

- Increased cost savings, flexibility, elasticity, agility, and redundancy
- Minimized risk and lowered capital expenditure
- Preservation of existing analytics investment
- Audited compliance with industry standard certifications for security, data privacy, and regulatory compliance

You have high expectations. So do we.

To facilitate your organization's journey into the cloud, Teradata experts can help you get on the right path and make confident decisions with a Cloud Workshop.

The objective is to find the best, most relevant solutions for your organization based on:

- Business requirements and priorities
- Usage patterns and user expectations
- Technical constraints, security concerns, and ecosystem partners

To get started with a Cloud Workshop, please notify your Teradata Account Executive or contact us at **Teradata.com/Contact-Us**.

About Teradata

With all the investments made in analytics, it's time to stop buying into partial solutions that overpromise and underdeliver. It's time to invest in answers. Only Teradata leverages all of the data, all of the time, so you can analyze anything, deploy anywhere, and deliver analytics that matter most to your business. And we do it on-premises, in the cloud, or anywhere in between. We call this pervasive data intelligence. It's the answer to the complexity, cost and inadequacy of today's analytics. And how we transform how businesses work and people live through the power of data. Get the answer at **Teradata.com.**

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