To Cloud, or Not to Cloud

Keys for Managing Your Advanced Analytics in a Hybrid Ecosystem

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EXECUTIVE SUMMARY

The cloud evolved from application and infrastructure hosting models to multitenant "as a service" architectures. Organizations can implement enterprise-grade technology environments without the investment that a traditional data center requires.

In 1999, Salesforce.com targeted end-user stakeholders outside the core IT department in sales and marketing teams, establishing the credentials for externally-administered solutions. In 2006, Amazon launched its first services ready for primetime. With the continuous flow of follow-up services, Amazon (then Microsoft, Google, and others) changed the way IT departments view data management.

The cloud can now be relied upon for many analytic use cases. From prototyping data warehouses and marts, to exploratory sandbox environments, to mission-critical applications, cloud-based analytics infrastructure is now on par with on-premises solutions.

The cloud cannot provide the perfect environment for every enterprise's applications. When CIOs, CTOs, and their enterprise data architects decide "to cloud, or not to cloud," they should consider:

- The cloud is a mix of many resources managed by internal and external groups.
- Organizations can take advantage of one or more solutions as part of their diversification strategy.
- To decide which cloud resources to manage, firms need to reevaluate their business and staff priorities.
- The CFO now makes the best financial decisions based on more than subscription costs.
- Selecting cloud providers with sufficient flexibility avoids future time-consuming reversals.
- Moving advanced analytics to the cloud does not require a reduction in data-driven insight if the solution is chosen wisely.

The following infobrief provides executive guidance and debunks a few myths about the cloud.

IN THE KNOW

WHO: Executives, architects, and business stakeholders from data-driven organizations.

WHEN: Companies consider alternative analytics implementation options such as cloud resources providers.

WHAT: Evaluation criteria and considerations when adopting an official cloud strategy for analytics and the environments that support them.

CLOUD IMPLEMENTATION OPTIONS

With the technical maturation of the cloud and the upward trend of business stakeholder adoption, implementing environments in the cloud is a priority for organizations. A "public cloud only" approach is not the only option. In many circumstances, the best approach is using a hybrid mix—using on-premises facilities with cloud-based resources. Hybrid strategies provide flexibility and free CIOs, CTOs, and enterprise architects from a one-size-fits-all solution to supporting their business objectives.

All the Options

When considering hybrid deployment for enterprise analytics, it helps to understand the options available.

On-premises data centers: Purchasing and maintaining purpose-built bare metal servers and software.

Private cloud resources: Using commodity hardware and virtualization software to yield the elasticity and provisioning speed of public cloud.

Public cloud infrastructure: Leveraging commodity compute, storage, and networking resources on a subscription basis without the physical environment and maintenance overhead of on-premises infrastructure.

Managed cloud services: Having access to enterprise analytics resources without any overhead for administration or maintenance.

Being able to implement advanced analytics across this continuum of options is essential for organizations employing a hybrid strategy. As resources mature and need to be operationalized, it may make sense to promote those environments to a different set of resources. In these cases, the choice to transition is based on the needs of the organization instead of any inherent constraints of the technology.

TO CLOUD, or NOT TO CLOUD: MYTH #1

MISCONCEPTION: Cloud is less secure than on-premises.

TRUTH: Software and application security in the cloud is on the same level as security in the data center. The cloud offers a more secure environment because cloud providers do not have to worry about individual points of risk.

CLOUD IS THE THING, BUT NOT THE ONLY THING

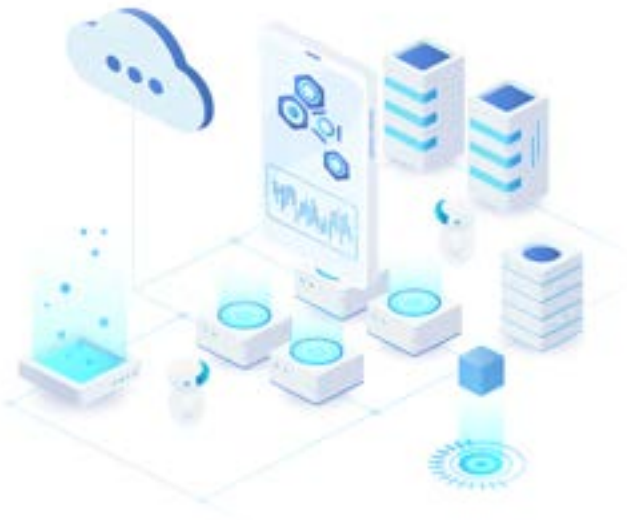
The use of cloud resources is becoming the first, second, and third option for project implementation, but to say that using the cloud is the best option for EVERY situation is a bit of a stretch.

Lots of Small Steps to a Migration

Legacy, or custom coded, applications without a direct fit within a cloud-based infrastructure can inhibit the transition to a cloud-only strategy. Organizations need to evaluate the savings of moving to cloud against the costs associated with loss of access to the legacy and customized applications. For mission-critical applications, the transition is more difficult and may prevent organizations from making a move.

Location! Location! Location!

Moving to the cloud provides an opportunity to diversify data management resources, but often the analytical applications that rely on those data sources stay within the data center. In some instances, this can be an effective strategy: it reduces overhead and improves provisioning speed.



Moving Up, but Not Out

Some companies are moving away from supporting traditional data centers. Private cloud implementations make the leap out of the data center. Some of the administrative overhead associated with bare metal data center implementations is minimized with this approach.

TO CLOUD, or NOT TO CLOUD: MYTH #2

MISCONCEPTION: Cloud environments can be tuned just like on-premises environments.

TRUTH: To accomplish lower maintenance, cloud providers encapsulate administrative and performance tuning abilities from their end users. Many times, the only option for improving performance is to upgrade the underlying cloud resource.

NOT ALL BUSINESSES WANT TO MANAGE THEIR OWN ENVIRONMENT

A next-generation infrastructure can often supersede the need to deploy an entire set of capabilities.

Choices, Choices, Choices

The choice to implement in the cloud is sometimes based on strategic direction. The CIO or CTO (often at the direction of the CEO) may make a strategic decision to move from an on-premises implementation strategy to a cloud-first or cloud-only approach.

Reduced Care and Feeding

Many organizations with constrained IT departments want to lower or eliminate the amount of "care and feeding" associated with the technical infrastructure. This can come in the form of hardware maintenance, operating system update patching, and performance tuning, none of which is essential to the strategic use of the applications that run on that architecture. Organizations moving to the cloud reduce and oftentimes eliminate the lower-level support functions of their administration teams.

Circumstances

Roles such as database and application administrators are highly specialized and require specific investment in skillsets, staffing, and retention. Cloud implementations allow organizations to have enterprise-quality applications and performance without having to invest in those roles within their IT teams.

The cloud providers in both the instances of infrastructure and platforms encapsulate the complexity and expertise as part of their services.

TO CLOUD, or NOT TO CLOUD: MYTH #3

MISCONCEPTION: Cloud-based implementations have the same response time as on-premises data centers.

TRUTH: The connectivity between the user and cloud resources can be a bottleneck, especially for analytical applications with large data transfers or significant distance between data sources and supporting applications.

TO CLOUD, or NOT TO CLOUD: MYTH #4

MISCONCEPTION: Cloud implementations are always less expensive than on-premises.

TRUTH: The costs of cloud implementations can be less expensive than traditional. However, as implementations grow, many cloud environments begin to have similar or greater costs than implementing those same capabilities within the data center.

THE CFO GETS A VOTE!

Many organizations decide "to cloud, or not to cloud" based on the CIO's or CTO's technology assessment, or by an evaluation from enterprise architects within the IT department.

No Such Thing as a Free Lunch

For short durations of usage, the operational expense for renting cloud-based resources is always less than the capital expense for owning those capabilities in an on-premises data center.

In contrast, mission-critical applications implemented on-premises are typically "always on," and thus constantly consume electrical power, data center cooling, and network bandwidth. They also require support staff to keep them running at all hours.

The Bill Comes Due

As applications gain traction with end users, organizations with large amounts of data transiting to or from the cloud can incur increased costs. If these costs are not properly allocated, they can become prohibitive, in which case on-premises options become more financially appealing.

Even for enterprises dedicated to cloud-based implementation, CFOs are exerting their influence to get advantageous financial terms from cloud providers. Furthermore, some cloud infrastructure providers adjusted their licensing and hosting offers to meet the demands of CFOs who want cloud resources but prefer large, upfront payments.

TO CLOUD, or NOT TO CLOUD: MYTH #5

MISCONCEPTION: The volume of data associated with my environment does not impact cloud strategy.

TRUTH: Because some cloud providers base their fees on data transfer, the "conceptual weight" of data (known as data gravity) is real. Moving large amounts of data at the start of a cloud implementation takes time, and transferring large volumes of data out of the cloud can be very expensive.

THINKING AHEAD

By looking planning with the end in mind, enterprise architects supporting implementations can make the right choice(s) for their deployment strategy. Such decisions should be driven by business requirements, application lifecycles, and financial conditions of the enterprise.

Not All Cloud is Created Equal

Organizations need to understand which "as a service" offerings will meet their needs. The choices can range from hosting or commodity infrastructure, to development platforms, to software and complete managed services. It's critical to understand what companies will and will not get from the underlying cloud infrastructure, and most importantly, from the analytic software running on it.

Avoid Technology Dead Ends

Many cloud-based solutions have attractive features and capabilities, but some of these options have the drawback of what might be described as technology or vendor lock-in, or worse: weak analytic capabilities. In these situations, once configurations and data are established in the cloud, it is very difficult (and expensive) to migrate them out.

Flexibility to Move Between Stages

It is essential for an organization's cloud strategy to allow for easy movement between the various deployment choices to best support where each application exists in its lifecycle.

A thoughtful cloud strategy needs to support an application's ability to move from one environment to another without the major rework that often accompanies vendor lock-in. Architects should look for solutions, software, and providers that allow and encourage movement between environments, and let the lifecycle stage of the application drive the most appropriate implementation choices.

TO CLOUD, or NOT TO CLOUD: MYTH #6

MISCONCEPTION: Data and applications in the cloud can be removed at any time.

TRUTH: Applications and data in the cloud can be "turned off" at any time, but migrating them out of the cloud can be difficult and expensive.

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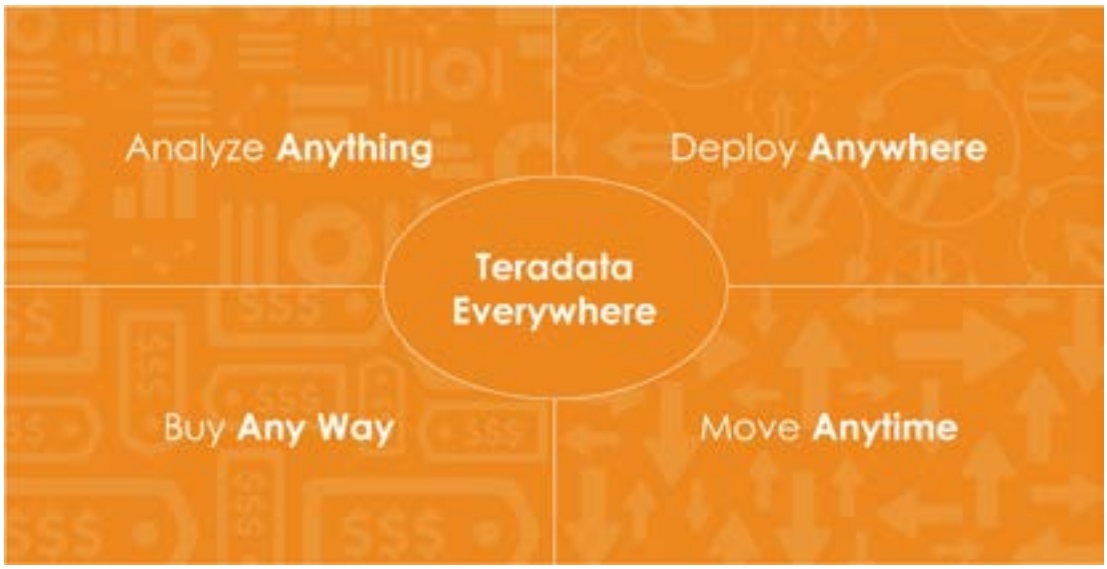
Teradata delivers improved business outcomes through technology-enabled solutions, from operational excellence and asset optimization, to customer experience and product innovation, to finance transformation and risk mitigation. Teradata works with leading businesses in over 75 countries worldwide, and many of its customers are regarded as the top performers and best-known brands in telecom, transportation, consumer packaged goods, financial services, and manufacturing.

More than half of the Teradata team are consultants, such as data strategists and data scientists, technologists, and experts in all types of analytics who engage directly with business and IT leaders to solve real-world problems.

Teradata Everywhere™

Teradata Everywhere™ enables companies to use the powerful, massively parallel processing (MPP) analytic database across a wide range of environments, including multiple public clouds (Amazon Web Services and Microsoft Azure), Teradata data centers, and on-premises (both purpose-built and commodity hardware).



As companies move toward hybrid architectures by augmenting existing infrastructure with cloud resources for their analytics environments, Teradata offers customers the freedom to move between environments with database consistency across all deployment modes. Teradata Everywhere delivers the flexibility to implement a hybrid architecture through a completely portable database that makes it easy to shift workloads between environments as business needs evolve, thereby ensuring support for the company's future business requirements.

To deliver optimal performance and flexibility across these deployment options, Teradata is enhancing core features of its award-winning database. The Teradata database MAPS architecture provides elasticity. It allows organizations to expand or shrink their analytic environment as needs change. MAPS also provides higher concurrency and more consistent tactical query performance than other cloud-based analytical databases. Furthermore, the Teradata's Adaptive Optimizer automatically adjusts to its host environment to efficiently query plans and system utilization; yielding the fastest query execution regardless of underlying platforms. For more information about Teradata Everywhere or the company's hybrid cloud deployment options, visit www.teradata.com/cloud.

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