SPECIAL EDITION

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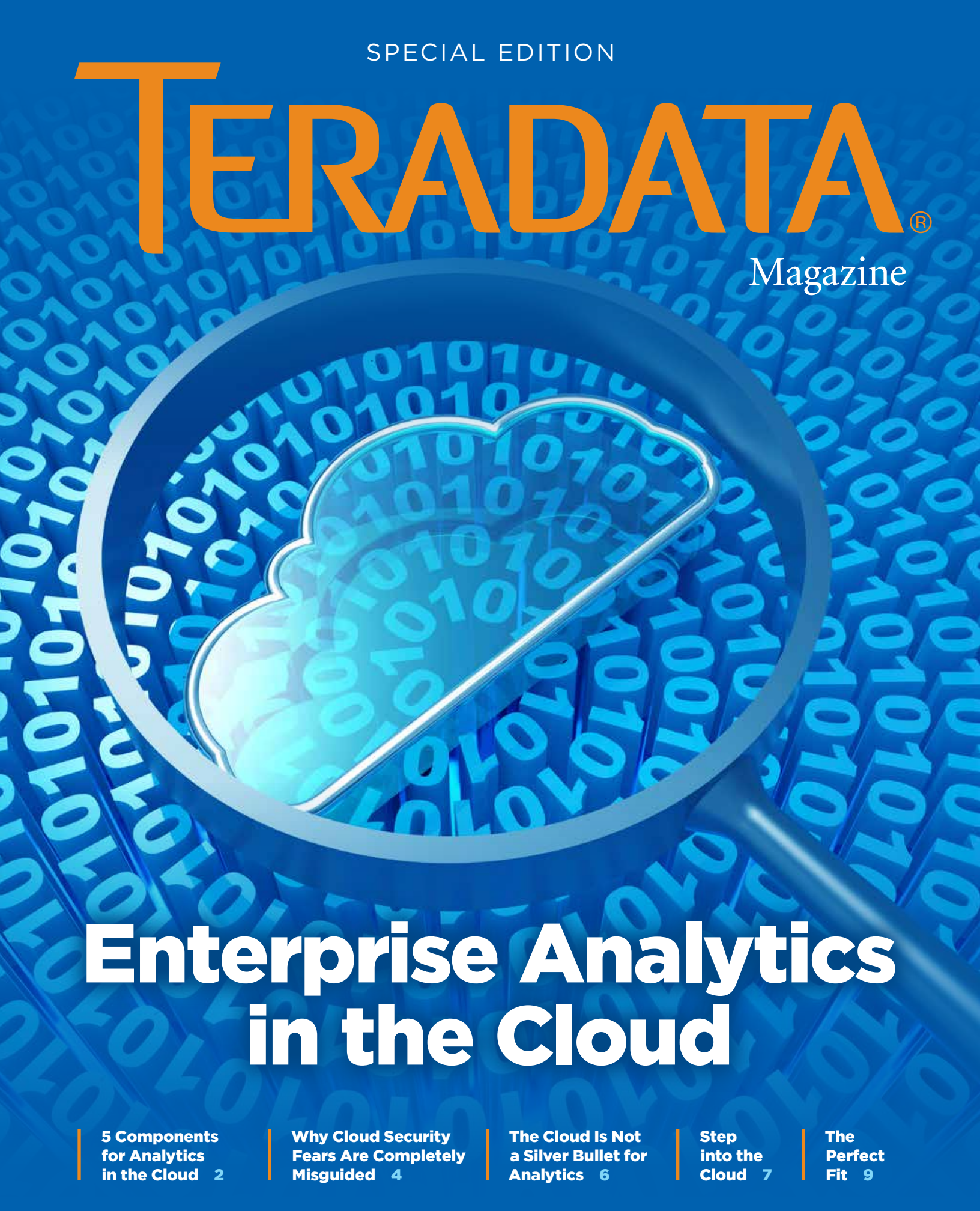
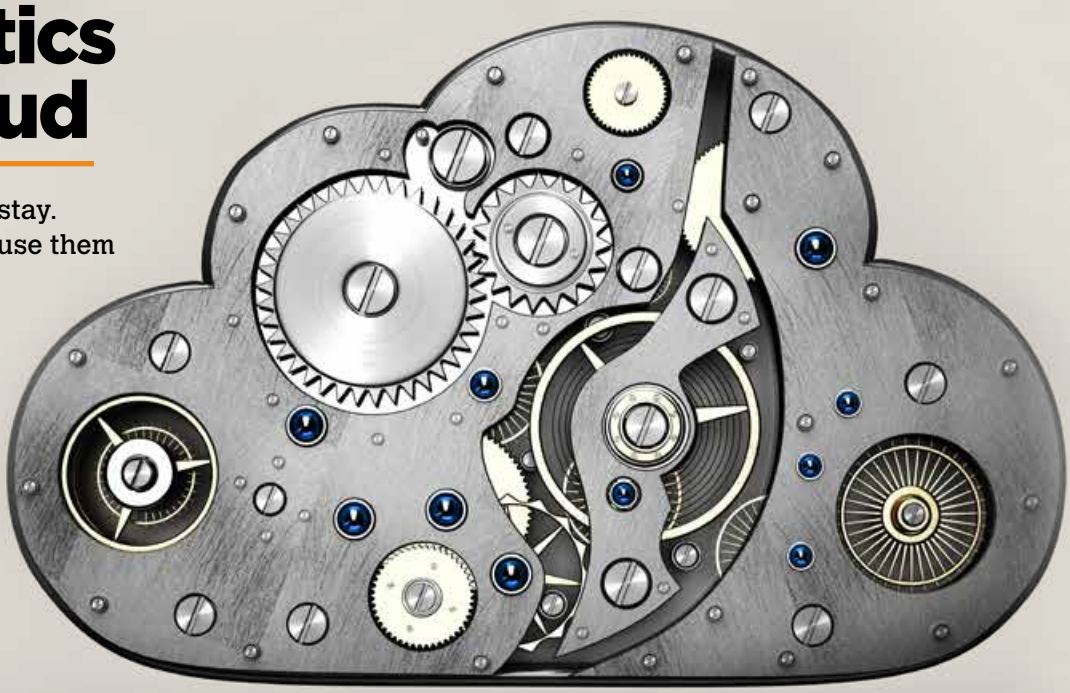


Enterprise Analytics in the Cloud

5 Components for Analytics in the Cloud

Cloud solutions are here to stay. This is how to successfully use them to create new value.

by Shawn Rogers



Innovative organizations are reviewing their data management strategies to identify where and how cloud solutions should play a role. An array of offerings and technology advancements are enabling companies to disrupt traditional data management paradigms in favor of new ways to create value.

A great example is cloud-based analytics. Research by Enterprise Management Associates (EMA) identified a growing trend toward a hybrid data management landscape focused on leveraging purpose-built platforms to align data, applications and workloads for performance and cost advantage. A recent survey by the company found that 60% of respondents are using two to three platforms to execute sophisticated workloads, and the cloud often plays a vital role in this mix.

Criteria for Success

Different vendors offer analytics that excel in various areas so make sure you investigate each competitor's competency in these five critical areas:

1 ANALYTIC PERFORMANCE

Determining how easily and quickly information can move from a source system to the cloud-based environment is essential in supporting analytic use cases. Slow or cumbersome data acquisition will impact how quickly decisions can be made, while laborious preparation and multi-step data loading hurdles can slow productivity and add ongoing operational costs. How much information can

be stored is also important since it dictates the amount of history associated with business questions. Systems unable to handle higher data scaling will restrict fast-growing projects.

Cloud-based platforms need to support not only a single user asking business questions, but allow multiple users to query the system at the same time. Insights must be processed and returned in a timely fashion no matter how many people are querying the system. Long queues and delayed insight will restrict adoption and reduce or eliminate ROI.

2 WORKLOAD FLEXIBILITY

Reporting, iterative OLAP, ad hoc and data mining or advanced analytics are common. It's the ability to support multiple workloads that is the hallmark of an agile and flexible platform.

Database orientation can enhance performance and flexibility, and serve workloads in different ways. Traditional row-based strategies offer an easy way to add inserts and updates to records, but can be a disadvantage to columnar layouts when queries scan entire tables. Some platforms have a mix of columnar and row-based technologies to meet the demands of analytical workloads. Meanwhile, big data strategies that require an Apache™ Hadoop® infrastructure and discovery analytics for a deeper capability to explore data are important to companies looking to optimize their existing capabilities with a cloud offering.

3 ADVANCED TECHNOLOGIES

Analytic projects often evolve beyond their initial scope. After a time, most platforms hold greater quantities of data than initially planned as more users adopt them and additional needs are placed on the system. That's why planning for the long term and pushing project requirements forward is important, even though it may not seem necessary initially.

As a data-driven project matures, so does the need for more advanced features and functions. This is especially true as users demand insights that go beyond traditional system functionality. The ability to extend and integrate a cloud environment with innovative functions such as discovery-based analytics creates an immediate need for a platform capable of executing this style of work. Complementing a data warehouse with a Hadoop solution presents opportunities for advanced insights, while having the option to expand into new areas of execution can help a project stay on track, grow and deliver unexpected value.

4 EXPERT SUPPORT

Provisioning a database infrastructure is a key aspect of implementing an analytic solution, but it is not the only part. To support business questions, information must be in the proper format. This allows a platform to effectively deliver accurate and relevant information to users.

Building and designing an architecture may require advanced database management skill sets and experience with data modeling, data integration and security. Organizations that move to the cloud are often challenged by IT skill issues and can't always get the new project support that matches the required speed of implementation. Working with the solution provider for professional services, training and execution can make the process easier.

5 ENTERPRISE ECOSYSTEM

Business insights have limited value when they're locked in a single solution. The cloud is more effective when analytic platforms work within a wide ecosystem.

Leveraging the capabilities of advanced analytic or discovery platforms can enable sophisticated workloads and projects. Most, if not all, solution providers offer partner networks to extend capabilities and function, which add value to a project.

Pick a Platform to Fit the Need

As workloads and more sophisticated applications evolve, it's becoming increasingly important to consider the use case when selecting a cloud platform. Organizations across all industries are investigating cloud analytics to drive innovation. Given the wide variety of technology offered by vendors, careful evaluation of all the relevant criteria is vital when choosing a solution to ensure it will deliver the performance—and value—that is expected. T

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This article originally appeared in the Q3 2014 issue of *Teradata Magazine*.

ONLINE This article is based on the white paper "Analytics in the Cloud: Five Components for Success." Download it on **Teradata.com**.

Why Cloud Security Fears Are Completely Misguided

Cloud providers employ rigorous standards and audits to achieve security compliance.

by Marc Clark

In a 2015 survey from the Cloud Security Alliance (CSA), 73% of respondents said their concerns about security of data are a top challenge to adopting the cloud. And with all the high profile data breaches in just the past 12 months, who could blame them?

And yet, is this cloud security fear truly grounded in reality? The answer, perhaps surprisingly to some, is a resounding no. The fact is that when one thinks about data breaches, not a single one that comes to mind was actually a cloud breach—they were all on-premises breaches or incursions resulting from stolen (or guessed) user login credentials. Might this mean that the cloud is actually a safer place for data than in an on-premises deployment? Maybe so.

Cloud Security Compliance

Consider this: most major cloud providers are putting themselves through rigorous audits to validate compliance with security standards such as FedRAMP, HIPAA, ISO 27001, PCI, SSAE 16, and others. To pass such audits a provider must prove that its security practices meet or exceed an exhaustive list of controls and policies. Now ask yourself this: do your on-premises datacenters and the systems deployed in those datacenters have the capabilities to pass the same types of audits listed above? Are you sure? How do you know?

If a cloud provider can meet more, and possibly stricter, security audits than your on-premises deployments, hasn't security ceased to be a legitimate excuse for not deploying in the cloud?

Cloud vs On-Premises Security

Many of the people holding out on moving anything to the cloud are actually confusing control with security. They seem to feel somehow that if systems are on-premises and under their visibility and "control" that they necessarily have better security.

However, don't we all know intuitively that location of data does not equate to security? Access and the controls around data are immensely more important than location. And although champions of on-premises systems have the best of intentions, often they are not afforded the budget or resources that major cloud providers have to secure and monitor their environments.

For example, if a retailer has a data breach, maybe some people don't shop there for a few weeks or months. Or maybe customers start paying in cash more than by debit/credit card. So although security is important to these types of companies, the fact is that until they have a breach that costs them WAY more than they would have ever paid for better security, they typically aren't putting the money and resources needed to really stay ahead in the security game. The insurance is considered more expensive than the risk.

For cloud providers whose products are not hammers or hobby crafts or paper towels, however, a security breach means that trust is lost in their core offering, full stop. And it is very hard to recover that trust. Therefore, securing their product—the cloud—should and, in most cases does, get the money and resources it needs.

Critical Requirements

Still, you should not blindly assume that every cloud provider is doing what is needed for data security. It is vital when engaging with any cloud provider that you review their security policies and that you ensure they have all the regulatory audits that pertain to your industry.

Also understand that not all certifications are done at the same level. For example, a PCI audit against IaaS (Infrastructure as a Service), computing and storage in the cloud, is different than one done against PaaS (Platform as a Service), platform resources in the cloud, or SaaS (Software as a Service), applications delivered via the cloud. Just make sure you recognize the differences and clearly delineate where your cloud provider's security responsibilities end and yours begin. Mind the gap!

Calm Your Fears

Whether or not to enter the cloud is a matter of security, not one of control. Ultimately you have to feel as though your cloud provider will take care of your data as well as, or better than, you will.

The first step is to take a deep breath and set aside any thoughts that the cloud is not a safe place. Then talk to a few select vendors' trusted advisors who can put your mind at ease as you work toward finding your best options. And then, finally, step into the cloud! T

Marc Clark is director of cloud strategy and deployment at Teradata.

The Cloud Is Not a Silver Bullet for Analytics

Great analytic tools and expert support are requirements in the new era of cloud.

by Marc Clark

The cloud is not a silver bullet. But isn't the silver bullet just a myth anyway?

In its first era, the cloud offered applications like Salesforce.com or Infrastructure as a Service (IaaS) such as Amazon Web Services. If you wanted to run a CRM application via a web browser or didn't want to manage a data center, then cloud was a good fit.

But now we are entering a new era of the cloud.

A Different Cloud

The key to understanding the value of the cloud is to know what you want and then determine whether available solutions are a good fit. If you need to provide your company with a state-of-the-art environment for data analytics, you will likely require:

- A data warehouse to capture transactions and enable analysis and reporting
- A way to manage workloads that helps meet performance expectations for hundreds of users
- A platform that enables rapid prototyping, experimentation, and discovery
- Systems for profiling, transforming, cleansing, refining, and managing data

Teradata® understands that a different cloud is needed for data analytics. That's why its cloud offering provides a fully functional environment for data analytics that's ready to help you find real value in your data. It includes the best-in-class Teradata Database for data warehousing and operational analytics, Teradata Aster Discovery Platform for data discovery and exploration, and a portfolio for open source Apache™ Hadoop® for data refining and management.

Experts On Hand

Once you decide to move analytic workloads to the cloud, you still need the right people to manage security, integration, data modeling, analytics for specific industry problems, and so on. A cloud analytics stack, with expert and certified people for support, will ensure you're not left sitting with a complicated virtual toolbox that doesn't really work for your business.

Some of the areas where you might need a hand to deploy a complete cloud analytics solution include:

- Protection of sensitive corporate data in the cloud—for risk and compliance purposes
- Development and validation of your solution concept on top of a cloud architecture
- Data integration and business intelligence application connections
- Data movement between on-premises systems and the cloud
- Workload management assistance for running analytics at cloud scale
- Database administration to offload the burden for IT staff
- Application development to meet the needs of key stakeholders

Unlike most cloud environments, Teradata includes in its cloud offering an incredible innovation: skilled professionals well prepared to talk with you about how to set up your environment and how to tailor it for your industry.

A Better Way

Teradata offers a completely different approach to analytics in the cloud. Not only do you get great tools, but also expert guidance in making cloud analytics work for you and your business. Using the cloud is not in and of itself a silver bullet, but using great analytic tools in the cloud—and getting sound advice when you need it—just might be. T

Marc Clark is director of cloud strategy and deployment at Teradata.

Step into the Cloud

Gain the power of data warehousing and analytics with the simplicity of cloud computing.

by Paul Barsch

Cloud computing is consistently a top priority for CIOs, and analysts predict that in the next three years, more resources in dollars, time and talent will be allocated to cloud-based solutions. However, before the rush to shift IT responsibilities to a contracted service provider, companies should carefully consider whether they're getting the right analytics infrastructure, software and support to successfully transition to the cloud.

While there are many definitions of cloud computing, one of the most common is the delivery of IT resources—as a service—in a scalable and elastic manner. In any case, resources should be available via a budget-friendly subscription model.

Advanced Capabilities

Cloud computing adoption is increasing for myriad reasons. With cloud implementations, there's no longer a need to worry about procuring, maintaining and continually investing in IT resources. Instead, organizations that previously could not afford world-class infrastructure and talent can access these capabilities on a subscription basis. When capital constraints are an issue, cloud computing is attractive because solution ownership transfers to a cloud service provider. If applicable, companies can shift their cloud investment to operating expenses rather than capital expenses.

However, organizations stepping into the cloud—especially for analytic capability—should be cautious of workload demands. Analytic workloads are often compute- or I/O-intensive, or both, and therefore may not be ideally suited for traditional cloud services. Moreover, when transferring workloads to cloud infrastructures, special attention to security may be warranted to comply with data privacy and security regulations. >>

Teradata understands the importance of acquiring the right analytics infrastructure that is protected, secured and managed by industry professionals.

Teradata understands the importance of acquiring the right analytics infrastructure that is protected, secured and managed by industry professionals. For companies that want to acquire data warehousing, big data analytics or data management, Teradata now delivers these advanced capabilities with the simplicity of cloud computing.

Pick Your Cloud Type

Teradata Cloud services are based on Teradata's workload-specific platform family, including balanced and configured solutions designed for a company's analytic needs today and tomorrow. These engineered platforms are combined with either the Teradata® Database, Teradata Aster Database or Apache™ Hadoop® Distributed File System (HDFS) and include hardware and software support, hosting services and options for varying levels of Managed Services.

Providing Teradata Cloud services on a subscription-based model aims to eliminate upfront capital investments. These service offers include monitoring, security, maintenance and support for entire analytics environments. In addition, data integration, business intelligence (BI), master data management and visualization applications are available.

Because organizations often have diverse requirements, and some don't necessarily want to manage and/or maintain an analytics infrastructure, Teradata Cloud services are available in two formats:

- **Private cloud service** is for a core database infrastructure in which no equipment, software, or networking is shared with any other customer. Teradata provides remote access to the Teradata Database, Teradata Aster Database or HDFS with maintenance, operating system (OS) management and database availability services. In this model, a customer accepts responsibility for data integration and applications that use the database. Additional service options include DBA assistance for immediate user needs, or next-day business ticket response.
- **Hybrid cloud service** offers a fully administered analytic environment. Teradata provides the entire data warehouse or discovery environment, data integration, BI and/or Teradata applications. Teradata also provides all operational support services for the environment, including activities such as database and system administration, data backup, application operations, authentication, access controls, security, and performance and capacity management.

For both formats, Teradata provides secure connectivity between a customer's network and Teradata's cloud environment. In addition, security services consultants review a customer's specific requirements, architect and implement mutually agreed upon controls as well as perform activity monitoring and patching. Teradata also offers increasing levels of security tiers in which customers can choose to add optional in-database column-level encryption or detailed logging, log data retention and a tamper-proof audit trail of all activity.

Advanced Analytics for All

Unlike other analytics companies arriving to market with cloud offers, Teradata can provide a full range of services for analytics design and development, including data loading into the cloud environment, data modeling, BI reporting, advanced analytics and more. Not all cloud computing services are created equal—especially since some are not expressly designed for analytics. Teradata Cloud services run leading Teradata Database and discovery solutions on an infrastructure that is scalable, highly available and reliable.

Companies can be confident that Teradata certified professionals will ensure infrastructure availability alongside day-to-day analytics support. Best of all, these capabilities are delivered in a budget-friendly monthly subscription, making powerful analytics available to organizations of all sizes with the benefits of a cloud. T

Paul Barsch is a services marketing director for Teradata and a regular contributor to Teradata Magazine. *He has more than 15 years of IT experience.*

This article originally appeared in the Q3 2013 issue of *Teradata Magazine*.

The Perfect Fit

Teradata Cloud offers fast, easy access to a powerful analytics platform in an affordable and flexible pricing model.

by Paul Barsch and Ed White

Today's agile businesses are seeking to expand analytics fast, gain flexible analytic deployment options and smooth cash flows. Teradata understands these needs and has engineered a cloud solution that meets organizations' analytic needs.

Teradata® Cloud provides enterprises with flexible "as a service" options for data warehousing, discovery platform solutions and open-source Apache™ Hadoop.® These capabilities are available in a simple subscription-based pricing model that helps reduce capital expenditures. Cloud starter kits are also available that allow companies to leverage Teradata's vast industry expertise to load data quickly, create BI reports and gain business value in a rapid fashion.

Organizations can now choose between an on-premises installation or flexible cloud options that are secure and highly available. With Teradata Cloud, it has never been easier to gain instant access to Teradata technologies to meet today's competitive forces head on and capitalize on future opportunities. >>

Key Considerations

Industry analysts enjoy debating the substance of cloud computing. However, squabbles on definitions are mostly counterproductive because the real value of cloud isn't in how it is defined; it's the business value it delivers. In a *Financial Times* publication titled, "The Business Landscape of Cloud Computing," analyst Darryl Plummer writes: "Cloud computing means someone else runs your computers and software while you use what they deliver and focus on delivering value." This simple definition shows the real value of cloud is the ability to focus on customer needs while "someone else" takes care of analytic infrastructure and operations.

In terms of performance, it's important to recognize that not all cloud infrastructures are created equal. That's because analytic workloads are typically CPU- and I/O-intensive. Therefore, it does not make sense to run analytic workloads on cloud services that are provisioned for general purpose computing one day and for data warehousing the next. Business users expect top tier performance, which is why a cloud environment dedicated and engineered specifically for analytic workloads is imperative.

Lastly, when weighing analytic cloud options, considerations such as performance and functionality should override the siren song of "lowest cost per terabyte." Few people would buy a house based on the lowest price per square foot. Likewise, a low price for limited features and lethargic performance might work for a modest dataset and a small number of concurrent queries, but these cloud offerings will usually not meet the needs of demanding business users.

Fast, Flexible and Powerful

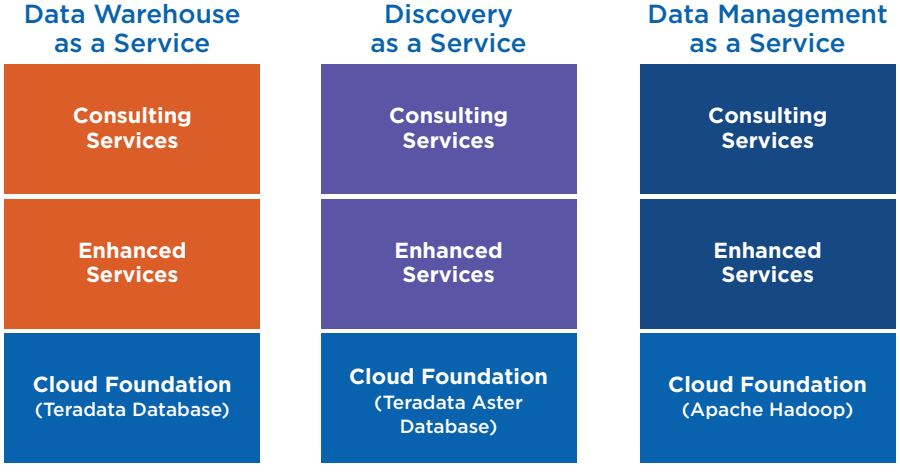
Because performance, service level agreements (SLAs) and availability are important to business users, Teradata is now offering a complete cloud solution that delivers a cloud foundation, enhanced operational services and consulting services to help advise, architect and manage analytics. Teradata Cloud eliminates the need for organizations to procure, maintain and capitalize an analytic infrastructure. Instead, analytic resources can be quickly added to scale up for expanding business needs.

With Teradata Cloud, organizations have the capability to be up and running in days instead of waiting weeks or even months for IT equipment to be shipped, installed and powered on. And cloud capabilities from Teradata can be acquired in a subscription pricing model to help smooth cash flows for asset-light businesses.

Adding to Teradata's success in cloud computing are flexible options to deploy:

- **Teradata Database**, the world's most robust database engine with sophisticated workload management and unparalleled features such as support for geospatial, temporal and columnar-based analytics.
- **Teradata Aster's** pre-built library of more than 100 SQL-MapReduce®

FIGURE **Teradata Cloud Foundation and "As a Service" Options**



Teradata® Cloud offers a full range of analytic services, including data warehousing, discovery capabilities and data management.

6 FACTORS DRIVING CLOUD ANALYTICS

In addition to improved business agility, organizations are increasingly turning to cloud-based analytics for six reasons:

- **"Cloud first" mandates.** Some enterprises institute a "cloud first" policy because C-level leadership no longer wants to support data centers, license software and capitalize IT assets.
- **Departmental use.** Business users will acquire application-specific data marts in the cloud.
- **Analytic pilots.** Data warehousing or discovery pilot projects can take advantage of cloud services for a short duration to show business value quickly.
- **Platform for applications.** Cloud options are often attractive for enterprises that wish to build solutions on top of an existing analytic platform.
- **Development.** Workloads for development are shifting to the cloud to avoid affecting production data warehouse service level agreements.
- **Disaster recovery.** Cloud services provide a convenient, affordable option for IT disaster recovery.

functions that allow business users to perform statistical analytics, text analytics, graph, path analysis and more in a single solution.

- **Teradata Portfolio for Hadoop** for capturing, storing and refining multi-structured data.

Teradata's "as a service" options can include everything for end-to-end analytics, such as production DBA support, improved security for compliance purposes, enhanced backup, and management for data integration and business intelligence (BI) servers. Additional consulting services are also available for advising on analytic best practices, migrating from existing databases, implementing new applications and providing analytic access.

To succeed in analytics, customers require more than just a platform and database. Teradata is leveraging its unique vertical industry expertise to provide optional industry starter kits to help enterprises jump-start their analytics projects. These accelerated packages include high-level logical and physical data models, and industry report templates.

Remote Access to Powerful Analytics

Some enterprises have invested heavily in acquiring, training and developing talent in database administration, application development and sustainment, data modeling and other analytic skill sets. For these situations, the Teradata Cloud Foundation is a perfect fit since it offers remote access to the Teradata Database, Teradata Aster's analytic services and Portfolio for Hadoop with maintenance, daily backup and base security all included in one low monthly subscription price. (See figure, previous page.)

With this solution, Teradata handles basic cloud infrastructure functions such as hardware/software monitoring and maintenance, security administration and resource provisioning. Teradata Cloud Foundation includes assistance with:

- Customer onboarding
- Base security and networking
- Data center management
- Backup and recovery
- System availability
- Provisioning
- Daily operational management

Best Solution Possible

With Teradata Cloud, organizations can select flexible cloud options that deliver data warehousing, discovery analytics and data management solutions. All data types, including structured and multi-structured, can be conveniently stored and analyzed in a cost-effective and cash-flow friendly manner. To meet current and future business needs, there's no better option than Teradata Cloud—a powerful analytic solution that's scalable, reliable, secure, and supported by trained and certified associates. T

Paul Barsch is a services marketing director for Teradata and a regular contributor to Teradata Magazine. *He has more than 15 years of IT experience.*

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This article originally appeared in the Q4 2013 issue of *Teradata Magazine*.

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