



FIVE REASONS TO MIGRATE FROM TERADATA TO SNOWFLAKE

The path to becoming a cloud-based, data-driven enterprise



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SHOULD YOUR BUSINESS RELY ON TECHNOLOGY FROM 1979?

Undoubtedly, there is a Teradata data warehouse appliance in your data center. Maybe even two. But other than approving its purchase, you may not know much about these \$10 million solutions, or exactly why your company has one or more of them. This white paper explains why, and how, \$100 of cloud data warehouse resources can get you started with the functional equivalent of a \$10 million Teradata data warehouse appliance.

TERADATA: BUILT FOR 1979

In 1979, Teradata's founders "design[ed] a revolutionary database management system for parallel processing with multiple microprocessors, specifically for decision support. The microprocessors, like horses, were harnessed to pull a large load rather than relying on one horse to do all the work."¹Today, the company's data warehouse solutions are largely built on the same template from 1979: a computing box equipped with multiple microprocessors and lots of disk storage, with a layer of data warehouse software on top.

Using this formula, the company has preached for decades an attractive message to IT organizations and executives: A Teradata solution is the only option for safely containing enormous amounts of enterprise data such that this data serves as a "single source of truth"² for many thousands of users to concurrently access.

For 40 years, Teradata's message was accepted as exactly that: the only way to maintain consistent, accurate and secure enterprise-wide data.

SNOWFLAKE: ARCHITECTED FOR THE FUTURE

Founded in 2012, Snowflake Computing is changing the very essence of how people use data. We designed the only data warehouse built for the cloud, not on an expensive solution in your data center.

¹ "The History of Teradata." http://www.teradata.com/about-us/history

² A concept that an organization can apply as part of its information architecture to ensure that everyone in the organization uses the same data when making business decisions. http://whatis.techtarget.com/definition/single-source-of-truth-SSOT

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Because our cloud data warehouse was architected using modern technologies, Snowflake customers benefit in ways unimaginable to Teradata users:

- No limits on the amount of varying data types stored in the warehouse, or the number of users who can access it concurrently without impacting performance.
- Data security measures that far exceed the standards implemented in enterprise data centers.
- Variable operating expenses. No need for a \$10 million capital expense to purchase Teradata, or the millions to upgrade and maintain an existing Teradata solution.

A SUPERIOR, COST-EFFECTIVE SOLUTION

The cumulative effect is a striking differential: \$100 worth of Snowflake cloud data warehouse resources can deliver the same data processing resources as a \$10 million Teradata data warehouse solution. That's a 100,000% cost reduction.

Here's how it works: In order to get the benefit of running 1,000 concurrent queries on Teradata, your up-front investment was, or will be, around \$10 million. If you already have Teradata, you've experienced the millions of dollars to maintain your Teradata configuration annually. And worse, you've spent, or will spend, millions more upgrading your system every few years or so. With Snowflake, you can instantly provision the same amount of cloud computing resources for the same 1,000 concurrent queries and pay \$100 for the hour to do the work. Or, you can instantly provision even more horsepower to complete the work in less time and pay the same \$100 with Snowflake's persecond, pay-as-you-go business model.

Snowflake is on a mission to safely and efficiently store, transform and analyze business data, so any business user can easily and quickly gain data-driven insight.

Our customers, which include CapitalOne, Nike, Nielsen, Adobe, Sony and Electronic Arts, recognize the game-changing value proposition we deliver.

Read on to learn how Snowflake can give your organization what it needs right now:

- 1. A single source of truth
- 2. Dramatically lower IT costs
- 3. Data security superior to on-premises protection
- 4. Instant and disruption-free scalability
- 5. A platform for advanced analytics: Artificial intelligence (AI) and Machine learning (ML) are just the beginning.

Snowflake customers benefit in ways unimaginable to Teradata users.

REASON #1: SNOWFLAKE GIVES YOU A SINGLE SOURCE OF TRUTH

A single source of truth is a simple concept. It's the definitive, reliable data repository that contains every iota of data necessary to answer crucial questions about serving your customers, streamlining your operations and leading your industry. But 40 years after Teradata's birth, achieving a single source of truth still eludes most enterprises.

In the past, a Teradata data warehouse gave companies a reasonable means of storing the entirety of their enterprise data and delivering acceptable performance. However, in just a few years, the quantity and types of data that companies generate has skyrocketed, as has the number of users who want to analyze it.

As a result, most organizations' attempts to achieve a single source of truth have resulted in a fragmented data landscape characterized by a multitude of data repositories, including data marts, representing dozens or hundreds of data silos. This problem exists for Teradata in at least two ways:

• The system is a compilation of data silos inside the Teradata solution.

OR:

• Your organization has exceeded the capacity of your Teradata solution, forcing departments to create their own data silos, in the form of data marts, to execute their departmentbased analytics.

Why should a single source of truth matter? Case in point: Your product data is in one silo and customer data in another. When one team in your organization compiles sales figures from one of the sources, and another team uses the other source, it's highly likely they'll get different results. It could be a small percentage, but that difference could represent billions of dollars. Executives rely on this data to make informed decisions, reduce risk and advance the company. How can they make well informed decisions if they don't know which figures to trust?

SNOWFLAKE DELIVERS A FOUNDATION OF DATA TRUTH

With Snowflake, enterprises can store all of their data, of any size, in one place, in a data warehouse built for the cloud. Once it is there, any number of users can query the data at the same time, without performance degradation. Snowflake offers numerous choices to increase or decrease computing power and data storage, independent from one another, instantly or on demand, and all in the cloud.

Finally, your organization will have a single data source at which to point all business processes. Finally, everyone can know, and agree on, the same results.

A single source of truth is the foundation upon which all other Snowflake benefits are built.

REASON #2: SNOWFLAKE CAN SLASH YOUR DATA WAREHOUSE COSTS

Your Teradata solution costs far more than its \$10 million price tag. After you buy and install the solution, it requires:

- Data center space and network connectivity
- Software licenses, maintenance and support
- Data security
- Hardware maintenance and upgrades
- People to administer and maintain the data warehouse and the hardware

All of these factors significantly increase the total cost of ownership (TCO) of any on-premises or "cloud-washed" data warehouse.

What's more, when sizing a Teradata data warehouse for purchase, your IT organization needs to provision a box with enough processing power and storage to handle the busiest day of the year. On less-busy days, which are most days, the underutilized system will sit idle, silently incurring costs. Eventually, you will exceed the power of your Teradata solution that you once underutilized and will be forced to queue workloads and create data marts in order to preserve performance.

PAY ONLY FOR THE RESOURCES YOU USE

Snowflake gives you a new way to think about buying data warehouse resources. Instead of laying out \$10 million up front and recurring, annual costs, you'll pay only for our cloud computing resources on a per-second consumption basis. Specifically, your organization can capitalize on Snowflake's instant elasticity — accessing any level of computing horsepower and paying only for what you need.

A Snowflake cloud data warehouse can support an unlimited number of users accessing your company's single source of truth, all at the same time. Unlimited cloud resources adjust dynamically or on-demand, without lag time. In this way, you'll avoid buying more data warehouse power than you need for the other 364 days of the year.

REASON #3: SNOWFLAKE'S SECURITY MEASURES ARE STRONGER THAN YOURS

Data breaches are today's number-one threat to your business. Companies lose money, customers lose trust and executives lose their jobs.

In terms of both frequency and severity, the threat posed by data breaches is climbing. The first half of 2018 saw more than 3.35 billion records³ either lost, stolen or compromised due to data breaches. This represents a 72% increase in data breaches over the same period in 2017.

What's the key point here? All but an infinitesimal number of data breaches involve the theft of data stored onpremises, shattering the myth that it's safer for enterprises to protect their own data rather than migrating to the cloud. If there is data stored anywhere within the four walls of your enterprise, globally, your company could be at risk.

SECURITY IS A CORE COMPETENCY

Snowflake's primary business is cloud-built data warehousing. Securing that data is core to Snowflake and was baked into the product since day one. We employ a constellation of world-class practices and technologies backed by industry security certifications to keep our customers' data safe. Our security measures include:

- Safe data transmission: All data that flows into or out of a Snowflake data warehouse is encrypted intransit, using best-in-class strong encryption.⁴
- Access control and authentication: All data at rest or moving within a Snowflake cloud data warehouse is fully encrypted. Users can access the data only through a combination of validation techniques called multi-factor authentication.
- Data integrity measures: Snowflake provides time travel, which restores a cloud data warehouse to a previous state, on demand, in response to accidental or intentional data deletions.

More often than not, if data warehouse vendors offer security features, they do so as options for customers to configure. Or even worse, they're provided as a set of building blocks that the customer has to assemble and manage. Instead, they should be built into the data warehouse and be completely automatic. They should also be regularly tested for correct functionality and their ability to resist attacks. A data warehouse built for the cloud has no choice: complete data security has to be built in. And the best cloud data warehouse will make data security automatic, not requiring any customer configuration or ongoing management.

³ "Data Breach Discoveries From The Breach Level Index: Data Privacy and New Regulations Take Center Stage, 2018 First Half Review," Gemalto, February 18, 2019. https://breachlevelindex.com

⁴ AES-256 (Advanced Encryption Standard) uses strong 256-bit encryption and is endorsed by the National Institute of Standards and Technology (NIST).

REASON #4: INSTANT AND DISRUPTION-FREE SCALABILITY

Traditional data warehouse providers talk about performance. They may even have a story about performance "at scale". However, scaling traditional solutions is laborious, costly and almost always disruptive. When these solutions approach their compute capacity, they slow to a crawl, place workloads and users in a long queue, or even bump workloads and data to ease the pressure on the data warehouse. It is very expensive to upgrade the capacity of a traditional, on-premise data warehouse. And these headaches don't go away when vendors migrate these solutions from on-premise to the cloud. Traditional data warehouses were never designed for the cloud and thus many of the same limitations experienced on-premise also happen in the cloud.

Snowflake is built for the cloud, with performance and disruption-free scalability. Here's why:

• Independent but logically integrated storage and compute: Snowflake physically separates but logically integrates storage and compute. This means you can easily increase one without having to increase the other. And since all storage objects are first-class in Snowflake, you experience the highest performance profile for all data as you take advantage of the near-infinite storage and compute resources available in the cloud.

- Near-unlimited concurrency: To meet your SLAs, you can choose any "T-shirt" size compute cluster available in Snowflake for each workload. You can dedicate these clusters to each workload, which means you can scale to as many concurrent workloads as you require. Need to support a few workloads for a few dozen users, or even a few hundred workloads for a few thousand users? It's no problem with Snowflake. In addition, all workloads access the same, single copy of your data, which saves you time and money by avoiding data copying effort and costs.
- Disruption-free, instant scalability: As mentioned earlier, your Teradata solution is either underutilized or buckling under the strain of increasing workloads. On the flip side, Snowflake instantly scales up and down without disruption, automatically or on the fly. From a command line, a graphical user interface, or programmatically, you can easily set how you want Snowflake to operate. Also, you only pay for what you use and you pay by the second.

By taking full advantage of cloud-built computing, you're no longer tied to the limitations of decades-old architecture and technology not built for the cloud. As a Snowflake founder has said: Legacy solutions were built for the scarcity of resources. Cloud solutions are built for unlimited resources.



REASON #5: ADVANCED ANALYTICS — AI AND ML ARE JUST THE BEGINNING

Easy access to enormous amounts of data by a broad set of users is stirring up more than ideas to improve the status quo. It's fueling creativity that produces entirely new processes and revenue streams. This is what transformation is all about: every business will become data-driven.

Artificial intelligence (AI) and machine learning (ML) require unlimited access to massive amounts of data at scale. Workloads such as these would melt a Teradata solution. For Snowflake, you instantly provision the amount of compute power you need, and you begin. And whatever resources you do provision, you will not impact the performance of your other, concurrent workloads.

AI EXPLORATION WITHOUT BOUNDARIES

As vastly as they may differ across industries, Al projects share a single trait: they all involve analyzing massive amounts of data. By providing limitless resources for storing and processing all manner of data (from within the enterprise and from external sources), a Snowflake cloud-built data warehouse affords a reliable base from which to explore how artificial intelligence can benefit your company, without jeopardizing current workloads.

CONCLUSION: IT'S NOT HYPE, IT'S REAL

Enterprises are transforming into true, datadriven businesses with a Snowflake data warehouse, replacing their \$10 million Teradata appliances with pay-asyougo, limitless cloud resources. They are reaping the benefits of Snowflake's four truths of cloud data warehousing and giving their organizations what's needed, right now:



5. A foundation on which to operationalize AI and ML

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Believe the hype. Take the first step toward replacing that \$10 million Teradata data warehouse in your data center with a Snowflake data warehouse built for the cloud.

To understand what's required to migrate from Teradata to Snowflake, click here.



ABOUT SNOWFLAKE

Snowflake is the only data warehouse built for the cloud, enabling the data-driven enterprise with instant elasticity, secure data sharing, and per-second pricing across multiple clouds. Snowflake combines the power of data warehousing, the flexibility of big data platforms, and the elasticity of the cloud at a fraction of the cost of traditional solutions. Snowflake: Your data, no limits. Find out more at **snowflake.com**.



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