snowflake®

6 WAYS FEDERAL AGENCIES CAN BOOST MISSION EFFECTIVENESS WITH SNOWFLAKE

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EMPOWERING FEDERAL GOVERNMENT FOR A MODERN ERA

Federal government agencies must access, analyze, and share all their data in order to best serve the public, identify cost-saving opportunities, and make data-driven decisions. The need for government to act is significant and so is the imperative.

The vision of the **Federal Chief Data Officers Council**, launched in 2020, is "to lead transformational change that improves the nation's ability to leverage data as a strategic asset…By delivering data and analytics solutions to our leaders and field employees, we can have a major impact on how federal agencies more efficiently and effectively serve the public." Additionally, the **Federal Data Strategy** defines a long-term vision for modernizing the federal government. Its mission is "to fully leverage the value of federal data for mission, service, and the public good by guiding the Federal Government in practicing ethical governance, conscious design, and a learning culture."

But what's actually happening right now? A **recent survey** of federal agencies revealed only 26% of respondents have extensive access to data across their agency or department. 35% of respondents said their agency has poor data quality and hygiene for data analytics and insights.

Legacy IT systems generate hundreds or even thousands of departmental data silos, preventing agencies from developing 360-degree analytics and insights. A lack of strong data governance and modern, secure data sharing hamper endless opportunities to secure data and enable transformative collaboration within and across agencies.

To unlock value from data, federal agencies need a protected, scalable, and flexible modern data platform to centralize, integrate, govern, analyze, and securely share all types of mission-critical data. Federal agency leaders are moving more of their data to the cloud to gain these modern data capabilities. In doing so, they know and serve the public, better manage budgets and expenditures, and more easily mitigate risk. But that's just a start.

IT'S TIME FEDERAL AGENCIES BECAME TRULY DATA-DRIVEN

The Snowflake Data Cloud is a global network where government agencies securely mobilize data with near-unlimited scale, concurrency, and performance. Inside the Data Cloud, agencies can unite their siloed data, easily discover and securely share governed data, and execute diverse analytic workloads. Wherever data or users live, Snowflake delivers a single and seamless experience across multiple public clouds. Snowflake's platform powers the Data Cloud, creating a solution for data warehousing, data lakes, data engineering, data science, data application development, cybersecurity and data collaboration. Most importantly, Snowflake provides automated data governance, security, and privacy features required by many federal compliance standards and regulations.

Snowflake is also a fully managed platform, eliminating the management, performance tuning, and many other aspects that legacy cloud and on-premises platforms require agency IT and data teams to manage. Centralizing, analyzing, and collaborating around your first- and second-party data is just the beginning. With Snowflake Marketplace, agencies can securely access live, third-party data sources to further their mission. Data sets available on the marketplace include everything from workforce and employment indicators to industry-specific insights about natural gas and energy. Agencies can also share their data sets to collaborate with outside organizations and improve services.

This ebook explores six of the many ways federal agencies can unlock the value of data to improve mission delivery and operational efficiency with Snowflake.

#1 OPTIMIZE DATA PLATFORM MODERNIZATION

THE CHALLENGE

According to the Government Accountability Office (GAO), the U.S. was projected to spend about $100 billion on information technology in 2021, and most of that was used to operate and maintain existing systems, including legacy systems that "can be more costly to maintain and vulnerable to hackers." Conventional data warehouses, data lakes, and big data platforms, on-premises or in the cloud, have not delivered on their promises to make it easier to collect, analyze, and leverage data. Faced with tight budgets, federal agencies must optimize their digital transformation projects to deliver better online services. A modern cloud data platform delivers near-unlimited scalability, performance, and concurrency, and leverages a single copy of data for modern analytics and data-driven decision-making.

SNOWFLAKE'S SOLUTION

Snowflake's Data Cloud—a single, unified, cloud-built data platform—is the very definition of "modern." It empowers agencies to consolidate traditional on-premises and cloud data warehouses, data lakes, data marts, and other data silos into a single source of truth and underpinned by Snowflake's multi-cluster shared data architecture, which allows a near-infinite number of concurrent users to access the same data at any time and synchronizes changes for all users, without degrading performance.

The Data Cloud enables advanced analytics, data science, and other critical data workloads to deliver insights to government leaders in a timely, easy-to-use fashion. At the same time, Snowflake's fully managed platform practically eliminates system configuration, ongoing maintenance, and continual tweaking for performance improvements. The Data Cloud easily loads, integrates, and analyzes structured, semi-structured, and unstructured data inside a unified repository that seamlessly operates within and across agencies, and across public cloud providers and their regions.

THE PLATFORM THAT POWERS THE SNOWFLAKE DATA CLOUD

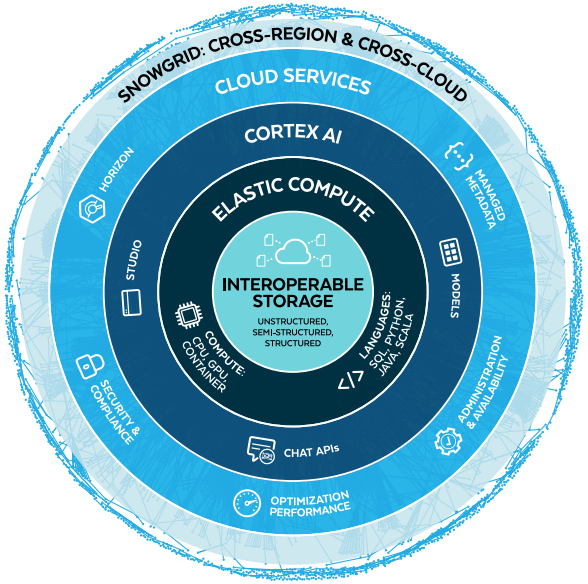


Figure 1: *Snowflake's multi-cluster shared-data architecture delivers the power, scale, and flexibility for government's most critical data workloads.*

#2 ENABLE MODERN DATA SHARING AND COLLABORATION

THE CHALLENGE

Intra- and inter-agency data sharing is integral to transforming government programs and operations. In the commercial sector, companies use it as a key competitive strategy to best serve customers and to create new market opportunities that traditional analytics can't reveal. This is all made possible by sharing and integrating previously disparate data sets to generate illuminating insights that were once out of reach. At the very least, agencies should use data sharing and collaboration to derive the absolute maximum value from their available resources, easily identify and prevent fraud, and deploy a modern security data lake to tackle cybersecurity. Agencies also need to share and access shared data to generate the deepest citizen insights, and share data with the public to provide the most effective government services.

- But a number of challenges to data sharing among federal agencies were identified in a 2022 report by the Federal Chief Data Officers Council's Data Sharing Working Group (DSWG). These include the limitation of data sharing due to personal identifiable Information (PII), a lack of data cataloging and classification, and the lack of data trustworthiness due to multiple copies of the same data. Traditional methods of data sharing require copying and moving stale data, which weakens an agency's ability to maintain the highest level of data governance.

SNOWFLAKE'S SOLUTION

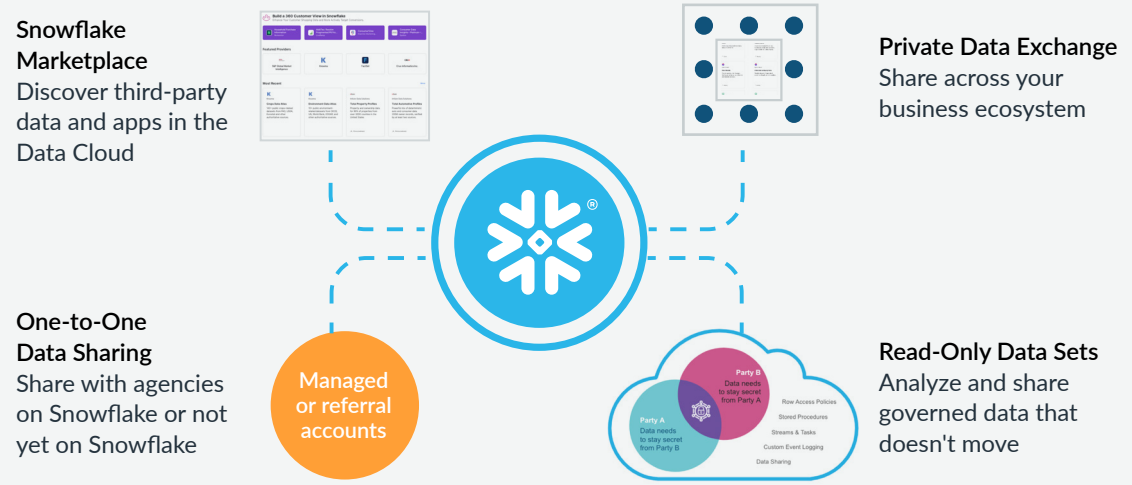
Snowflake offers a number of options for sharing data safely and seamlessly between two or more entities and across multiple public clouds and their regions:

- Snowflake Secure Data Sharing enables direct sharing between two or more entities.
- A **private data exchange**, enabled by data sharing, allows multiple agencies to make data available to each other within a single and secure environment.
- **Snowflake Marketplace** is where agencies can post or access data sets available for public consumption by any organization with access to the marketplace.

With Snowflake Secure Data Sharing, in all of these use cases, shared data doesn't move. Instead, a "data provider" enables access to live, read-only copies of data to "data consumers", eliminating the cost, headache, and delays associated with legacy data sharing methods that deliver only slices of stale data. When the data provider updates the shared data set, data consumers receive those updates almost immediately.

***Figure 2:** Live, ready-to-query, data, services and apps available in the Data Cloud without ETL*

DATA SHARING AND COLLABORATION IN SNOWFLAKE



#3 SUPPORT DATA GOVERNANCE THROUGH AUTOMATION

THE CHALLENGE

Data governance can be the most significant issue for federal agencies that deal with sensitive data. Agencies need to know where data is stored, who is using it, who is responsible for it, and how exactly they are using that data. The **Federal Data Strategy** lists prioritizing data governance as one of the main practices in its framework. It ensures there are roles, organizational structures, policies, and resources in place to transparently support the management of strategic data assets. But tracking data lineage and quality as data passes through different systems and platforms can be a massive and challenging effort. In addition, governing data with traditional methods is limited, risky, and a manual and resource-intensive process. Modern data governance enables appropriate access to confidential data, secures that data from internal and external threats, meets a host of data regulations, and helps safeguard privacy and maintain public trust.

SNOWFLAKE'S SOLUTION

Snowflake provides built-in features that ensure the highest levels of governance for public sector agencies and their users, as well as a host of security features to protect all data stored and accessed in Snowflake. Governments can easily collaborate within and across agencies by sharing data and analytics protected by Snowflake's highest levels of data access, security, and governance. Features include column- and row-level security, object tagging, tag-based masking policies, data classification, access history, and object dependencies.

Snowflake also enables automated governance and enhanced data availability and consistency with partners such as **Immuta**, **ALTR**, and **Atlan**. With native governance capabilities from Snowflake, Immuta fully automates native access controls and tagging to scale adoption without impacting data consumer workflows. ALTR delivers data classification and tagging, automated policy enforcement with dynamic data masking, patented rate limits and alerting, and tokenization. Atlan can automate consistent data access policies across your entire data ecosystem.

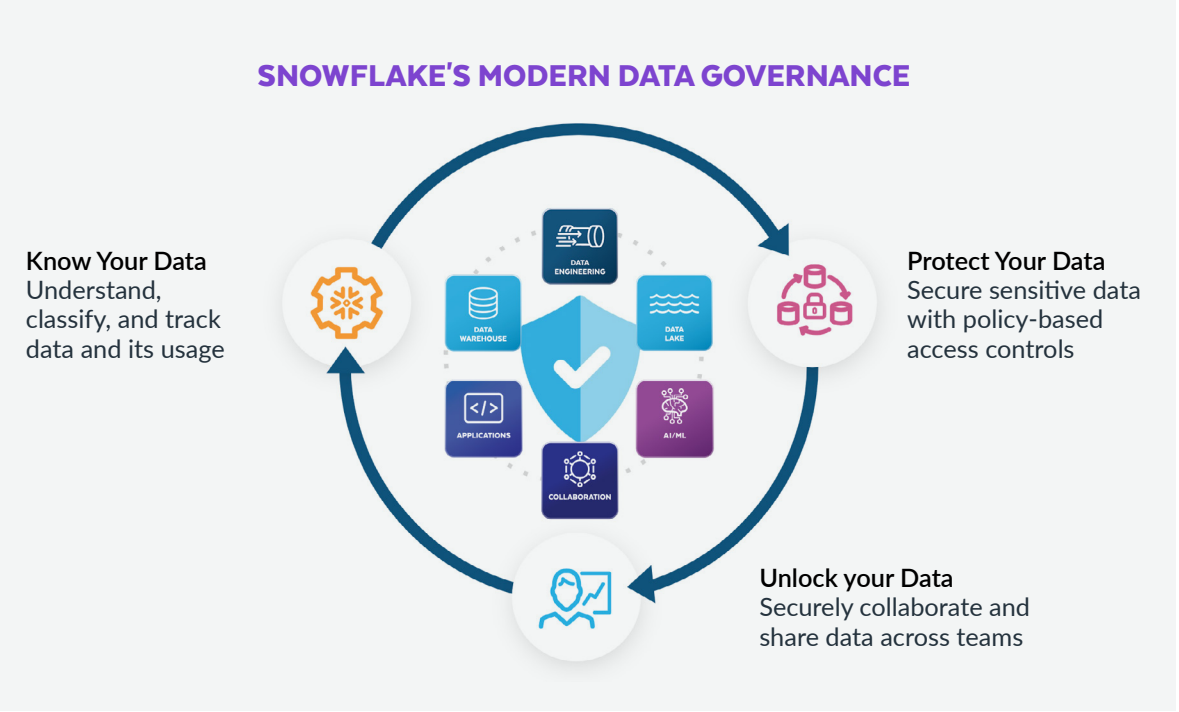


Figure 3: *Snowflake balances its data sharing and collaboration technologies with a comprehensive and ever-expanding number of governance, security, and privacy features.*

#4 DRIVE OPERATIONAL EFFICIENCY

THE CHALLENGE

Aging populations and increasing healthcare and pension costs are just some of the budgetary pressures agencies grapple with every day. Meanwhile, citizens hold governments more accountable for how they use taxpayers' money, and elected officials grapple with the recurring need to increase the federal debt limit. But coordinating and collaborating on that information can be challenging for federal agencies as they often operate in silos. Aging systems cause data fragmentation and duplication, and impede cross-departmental communication. A 2021 Government Accountability Office report on government efficiency and effectiveness, for example, found a number of federal programs with fragmented, overlapping or duplicative goals or actions, and suggested ways to reduce costs or boost revenue. Among their recommendations were to address data management challenges and identify duplication and overlap.

SNOWFLAKE'S SOLUTION

Snowflake's Data Cloud offers many solutions and opportunities to federal agencies, including a platform for modern data management. It enables agencies to easily create a single copy of its data, in a single location, for all of its stakeholders to access concurrently thanks to near-unlimited cloud storage and compute resources. With one location for structured, semi-structured, and unstructured data, Snowflake eliminates hundreds or even thousands on-premises and cloud data silos created by the multitude of legacy solutions agencies maintain and increase each year.

Placing a cloud data platform at the center of your agency can address many of the critical data issues flagged in the DISA Data Strategy Plan: "Unravel DISA's current state of data architecture and rebuild it into a cohesive system that enables transparency, data sharing and encourages data collaboration."

DISA is also looking to "implement advanced analytics processes as an effective and impactful way to exploit data, as the agency looks to eliminate information silos and connect decision makers in an agile and scalable manner."

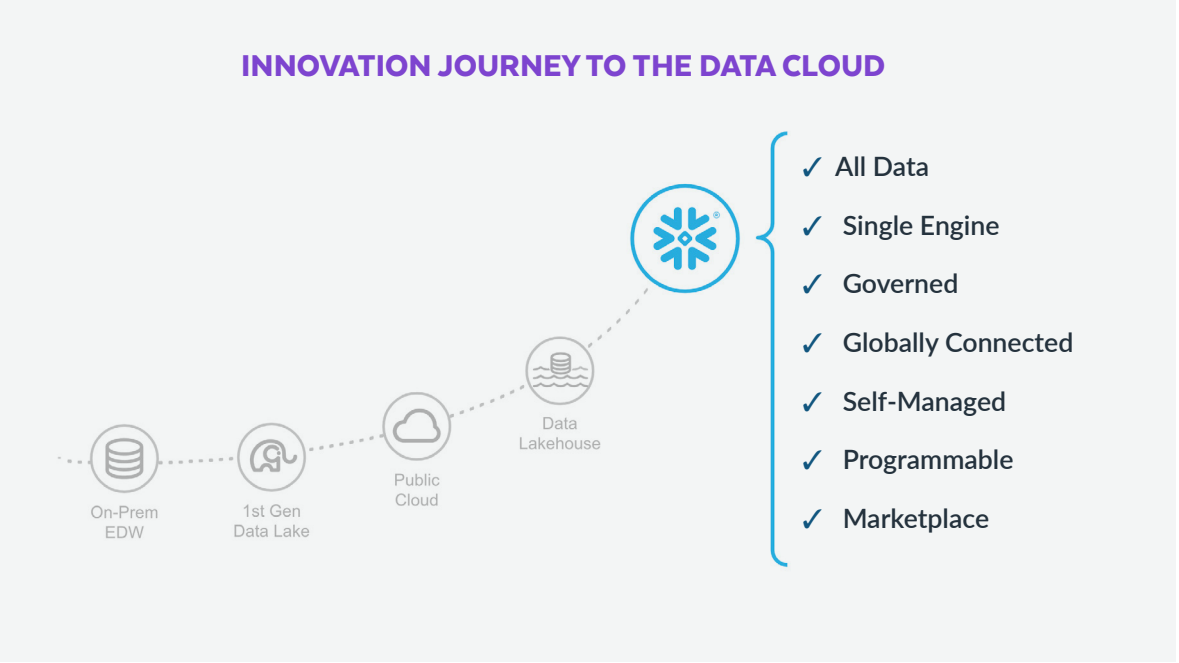


Figure 4: *Snowflake represents the best of all preceding technologies and much more.*

#5 LEVERAGE DATA SCIENCE AND MACHINE LEARNING

THE CHALLENGE

Federal agencies analyze past data using business intelligence, which helps them with goals such as improving services and reducing inefficiencies. With data science and machine learning, they can look forward to using predictive and prescriptive analytics—capabilities that are now the norm for the private sector, but not yet for government. This is largely because many agencies still view data as a liability that could cause irreparable damage if lost or stolen. But by treating data as an asset instead, agencies can enable previously unobtainable insights and make optimal policy decisions. For example, agencies can shift from detecting tax and claims fraud to preventing it. Artificial intelligence (AI) can predict patterns and potentially determine the outcome of future events, so agencies can increase the speed and accuracy of their decision-making process. Without data science, agencies lack the ability to discover new ways to serve citizens and dramatically improve mission outcomes.

SNOWFLAKE'S SOLUTION

A modern data platform is essential for data science and machine learning. Snowflake centralizes real-time access to multiple data sources and a variety of **data science tools**. This enables data scientists to capture, clean, and visualize data and then use statistical analysis and machine learning (ML) capabilities to easily produce ML models.

Data scientists can put nearly all types of data into their models without complex pipelines and with native support for structured, semi-structured (JSON, Avro, ORC, Parquet, or XML), and unstructured data. They can transform that data into machine-learning-powered insights, using their language of choice with **Snowpark**—Snowflake's native developer framework for SQL, Python, Java, and Scala—but without the need to maintain separate infrastructure. They can also augment model performance with shared data sets from other agencies and third-party data from the **Snowflake Marketplace**.

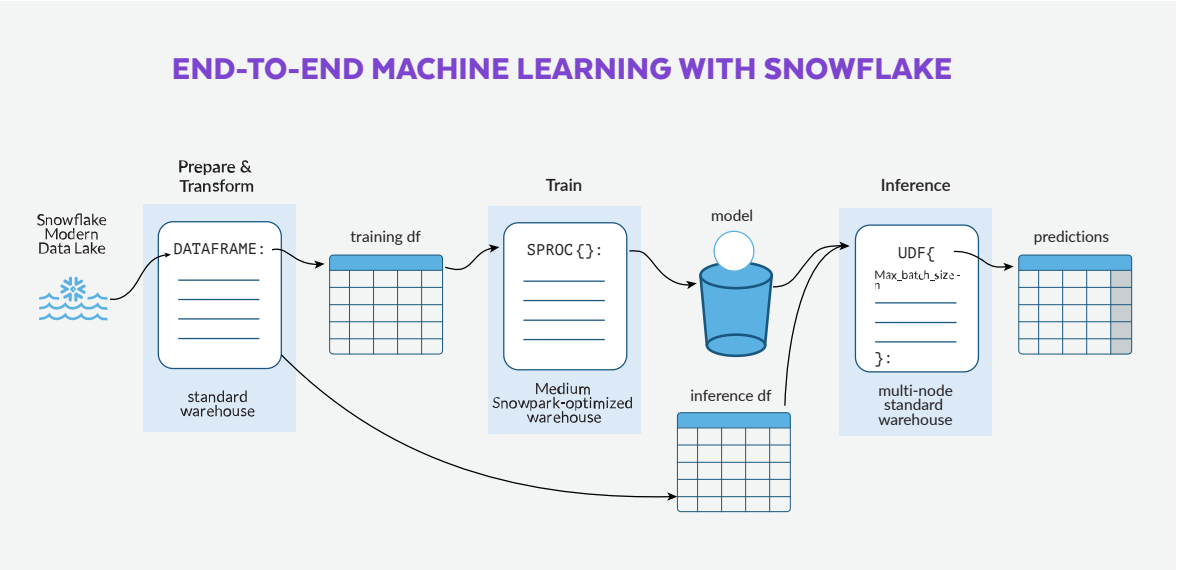


***Figure 5:** Snowflake powers modern data science and machine learning with effortless, scalable and secure processing for all types and stages of data.*

#6 STRENGTHEN CYBERSECURITY AND COMPLIANCE

THE CHALLENGE

For federal agencies, maintaining data security and regulatory compliance is a top priority. But external and internal agents are continually trying to breach their cyber defenses to gain access to private and highly confidential information. The White House recently released the first National Cybersecurity Strategy, which outlines cybersecurity issues to prioritize, with the goal of enabling a safe and secure digital ecosystem for all Americans. In addition, OMB 21-31 establishes federal agency requirements to increase the government's visibility before, during, and after a cybersecurity incident. To comply with these security requirements, agencies must be able to collect and share data from cybersecurity incidents to build resilience against future attacks and threats, and improve their ability to predict and respond to cybersecurity alerts.

SNOWFLAKE'S SOLUTION

Complete data security has always been a **crucial and core component** of Snowflake, and continues to evolve with new features issued on a regular cadence. These include authentication features such as federated authentication SSO and multi-factor authentication; networking features such as network policies and private connectivity; and administrative controls such as access control and end-to-end encryption.

A modern security data lake, easily and natively deployed in the Snowflake Data Cloud, can deliver comprehensive visibility and powerful automation. It consolidates all security data and contextual business data in one place, enabled by near-limitless storage, fast queries and robust reporting, as well as business intelligence and data science initiatives. Agencies can easily run multiple cybersecurity use cases including threat detection and response, compliance, and more. Cybersecurity teams can also benefit from third-party security data sets and integrated security applications, offered through Snowflake Marketplace.

To ensure its level of security, Snowflake obtains **security and compliance certifications** to provide assurances that the platform meets regulatory requirements across many industries and countries. Snowflake is a **FedRAMP-High authorized solution**, ensuring it has implemented a robust cybersecurity and data protection program that is rigorously and independently evaluated for its ability to protect government data. Snowflake supports CJIS Security Policy requirements and works with its customers to address and implement agency or state-specific requirements and documentation applicable to CJI data. Snowflake is **DOD Impact Level 5 (IL5) authorized**. In addition, Snowflake is StateRAMP High authorized; meets SOC 1 Type II, SOC 2 Type II, ISO 27001, FISMA Moderate, FIPS 140-2, ARS 3.1; and PCI DSS requirements; and supports HIPAA compliance.

HOW SNOWFLAKE FOR CYBERSECURITY PROTECTS GOVERNMENT

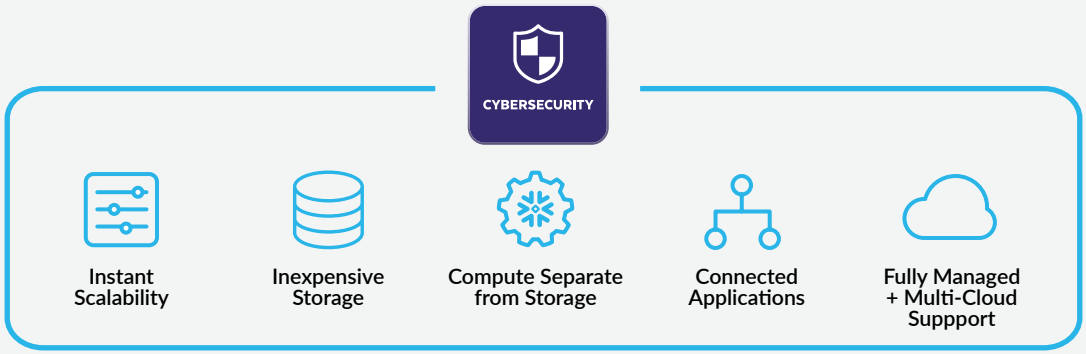


Figure 6: Snowflake's platform enables government to access and analyze near-infinite amounts of data to detect, predict, and thwart attacks from outside and within.

UNLOCK THE POWER OF DATA FOR FEDERAL GOVERNMENT

Federal agencies' increasing reliance on digital technologies for day-to-day business can generate huge amounts of data. That data amust be easily accessible for every possible scenario agencies face and/or want to reveal. Otherwise, they can miss out on enabling streamlined operations, delivering the best insights and services to their stakeholders, and protecting the nation and its citizens by protecting the data they manage. As the volume of data grows, so too does the government's need for technologies and policies that can generate valuable insights from that data. Snowflake helps federal agencies unlock the power of data with the capabilities of a modern data platform that can turn data into a strategic asset, improve citizen services, and increase efficiency and mission effectiveness. To learn how your federal agency can unlock the power of data with Snowflake's Data Cloud, visit **Snowflake for Public Sector.**

ABOUT SNOWFLAKE

Snowflake makes enterprise AI easy, efficient and trusted. Thousands of companies around the globe, including hundreds of the world's largest, use Snowflake's AI Data Cloud to share data, build applications, and power their business with AI. The era of enterprise AI is here.

Learn more at **snowflake.com** (NYSE: SNOW)

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