



# WHY A MULTI-CLOUD, CROSS-CLOUD STRATEGY MAKES SENSE FOR GOVERNMENT ORGANIZATIONS

Increase transparency, reduce costs, strengthen security, optimize performance,  
and ensure compliance within and across government organizations and agencies





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# FROM CLOUD FIRST TO CLOUD SMART

In the Report to the President on Federal IT Modernization, released publicly in 2017 in accordance with Executive Order 13800, the Office of Management and Budget (OMB) pledged to update the Government's legacy Federal Cloud Computing Strategy ("Cloud First"). Fulfilling this promise, the Administration has developed a new strategy to accelerate agency adoption of cloud-based solutions: Cloud Smart.<sup>1</sup>

Developed nearly a decade after its predecessor, Cloud Smart equips agencies with actionable information and recommendations gleaned from some of the country's most impactful public and private sector use cases. Beyond Cloud First,<sup>2</sup> which granted agencies broad authority to adopt cloud-based solutions, Cloud Smart offers practical implementation guidance for Government missions to fully actualize the promise and potential of cloud-based technologies while ensuring thoughtful execution that incorporates practical realities.

The new strategy is founded on three key pillars of successful cloud adoption: security, procurement, and workforce. Collectively, these elements embody the interdisciplinary approach to IT modernization that the Federal enterprise needs in order to provide improved return on its investments, enhanced security, and higher quality services to the American people. Cloud Smart directs agencies to assess their requirements and seek the environments and solutions, cloud or otherwise, that best enable them to achieve their mission goals while being good stewards of taxpayer resources.

Since 2010, when the U.S. federal government instituted a government-wide Cloud First policy, many agencies have focused on migrating their applications to FedRAMP-accredited public

clouds and developing their own private clouds. This initiative has resulted in what some refer to as "cloud sprawl," with data, users, and applications spread across multiple clouds, without the means to view, secure, or manage these environments centrally. Cloud sprawl makes it even more challenging for IT in terms of monitoring, securing, and reporting cloud usage across the organization or agency.

<sup>1</sup> <https://cloud.cio.gov/strategy/>

<sup>2</sup> <https://cloud.cio.gov/strategy/#fn:2>

# THE MISSING PIECE OF THE DATA PUZZLE

The global public cloud services market is booming. As organizations increasingly move their data to public clouds, the market is projected to hit \$214.3 billion in 2019 and reach \$331.2 billion by 2021—a 54.5 percent increase in just two years.<sup>3</sup> Almost half of all government organizations are actively using cloud services, and government spending on public cloud services is forecast to grow on average 17.1% per year through 2021.<sup>4</sup>

This rapid growth is attributed primarily to the shift from on-premise and private clouds to public clouds, but a noteworthy trend is the widespread adoption of a multi-cloud strategy. Organizations are increasingly shifting from working with one cloud provider to diversifying with several. In fact, 84% of organizations have a multi-cloud strategy, and 56% spend over \$1.2 million a year on public clouds.<sup>5</sup>

The decision to adopt multiple public clouds is smart for both technology and operational reasons. Cloud options such as Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP) each offer differing capabilities that address different customer concerns (i.e.e.g., level of security, ability to

migrate applications, and the level of available analytics, ability to power machine learning and AI projects, and application development services). By shopping around, organizations avoid vendor lock-in while harnessing best-of-breed technology for their applications, services, and solutions.

Government organizations in particular can benefit from a multi-cloud strategy. These organizations are under pressure from legislative bodies to increase public access to certain collections of government data in order to increase transparency and improve citizen experiences, while strengthening security, optimizing performance and reliability,

consolidating data across agencies, reducing costs, and increasing operational efficiencies of IT resources across agencies and programs. The right multi-cloud strategy can help to meet all of these requirements.

While multi-cloud strategies are moving organizations in the right direction, the intrinsic value of adopting multiple clouds has yet to be realized. Multi-cloud falls short due to present-day limitations with data portability and the unintended creation of data silos within geographies and cloud providers. Secure data sharing across regions and clouds won't happen until cross-cloud exists, enabling the free and secure movement of data on a global scale.

This eBook examines the benefits and current limitations of multi-cloud today and introduces cross-cloud as the missing piece in the global data puzzle. By adopting a cross-cloud platform that unifies data sharing, organizations can execute fully on multi-cloud strategies and deliver on the promise of global data.

<sup>3</sup> <https://www.gartner.com/en/newsroom/press-releases/2019-04-02-gartner-forecasts-worldwide-public-cloud-revenue-to-g>

<sup>4</sup> <https://www.gartner.com/smarterwithgartner/understanding-cloud-adoption-in-government/>

<sup>5</sup> 2019 State of the Cloud Report, Flexera



# MULTI-CLOUD IS A SMART LONG-TERM STRATEGY

The decision to adopt multiple public clouds from different providers is advantageous for organizations eager to establish a cloud presence within and across regions while avoiding vendor lock-in.

From a business perspective, multi-cloud enables cost management through choice and flexibility. Rather than work with a single cloud provider where prices can increase without check, multi-cloud allows organizations to negotiate rates and take control of their long-term costs. Anyone burned by vendor lock-in in the past embraces multi-cloud as a way to maintain the upper hand in negotiations.

From a technology perspective, four major benefits arise from adopting a multi-cloud strategy.

- 1. Enable best-of-breed.** Agencies within an organization often have different cloud requirements, and some providers may be a better match than others. Rather than demand that all teams use the same cloud, multi-cloud opens up the opportunity for agencies to run in clouds that best match their needs and promote productivity. It also prevents vendor lock-in while providing the freedom to move applications, data, and parts of an application stack as cloud services evolve.
- 2. Capitalize on regional footprints.** Each public cloud provider has a different map of regional data centers. Regional data centers are used to minimize network latency, maximize the throughput of networking between users and data, and adhere to geo-residency requirements and sovereignty issues. With multi-cloud, organizations can leverage the best cloud provider in each region, based on which is strongest in presence, capacity, and services for their local teams.
- 3. Enhance reliability and availability.** When a single cloud provider experiences an outage, organizations may discover that cross-region disaster recovery is insufficient. To protect against a cloud provider outage that spans multiple regions, multi-cloud strategies help ensure uptime and adherence to SLAs.
- 4. Improve data governance.** Regional data centers play an important role in enabling organizations to maintain compliance in different locations and jurisdictions where regulations regarding data security and privacy differ; for example, in the European Union (EU), some countries prohibit regional data from being shared outside the country and GDPR mandates that personal data must be approved by citizen data owners.

# OPERATIONALIZING MULTI-CLOUD PRESENTS CHALLENGES

While multi-cloud strategies represent an improvement over single public cloud usage, significant challenges exist for organizations that want to share and move data between their cloud instances. The dreaded silos of on-premise are quickly rediscovered in the cloud, and data portability rears its ugly head.

## CLOUD SILOS

The major cloud platform providers (AWS, GCP, Azure) have unique cloud platforms with proprietary APIs for managing data. This incompatibility between public clouds creates three challenges for organizations:

1. Data gets spread across cloud platforms that operate independently. Since there's no easy way for organizations to copy or share data from cloud to cloud, silos of cloud data develop.
2. DevOps teams need to hire or develop internal experts who can work in each cloud they adopt. Since it's challenging to find developers who have the skillset to work in multiple clouds, organizations usually end up with separate cloud teams, which creates team and personnel silos within the organization.
3. Cloud silos are especially undesirable in government organizations in which different agencies need to develop and share a single source of truth. For example, in the U.S., the Department of Homeland Security (DHS), U.S. Citizenship and Immigration Services (USCIS), U.S. Customs and Border Protection (CBP), Immigration and Customs Enforcement (ICE), and other related agencies must be able to share data seamlessly.

## GEOGRAPHY

For organizations that operate in multiple locations (regions, countries, and even continents), services work best when users are in close proximity. This reality forces organizations to create individual accounts by region, and these accounts become the physical place where data is stored and queried by local users.

While localized decision-making enables organizations to select the best services for that region, the downside is that data can't easily be shared across the organization. Data becomes siloed by location.

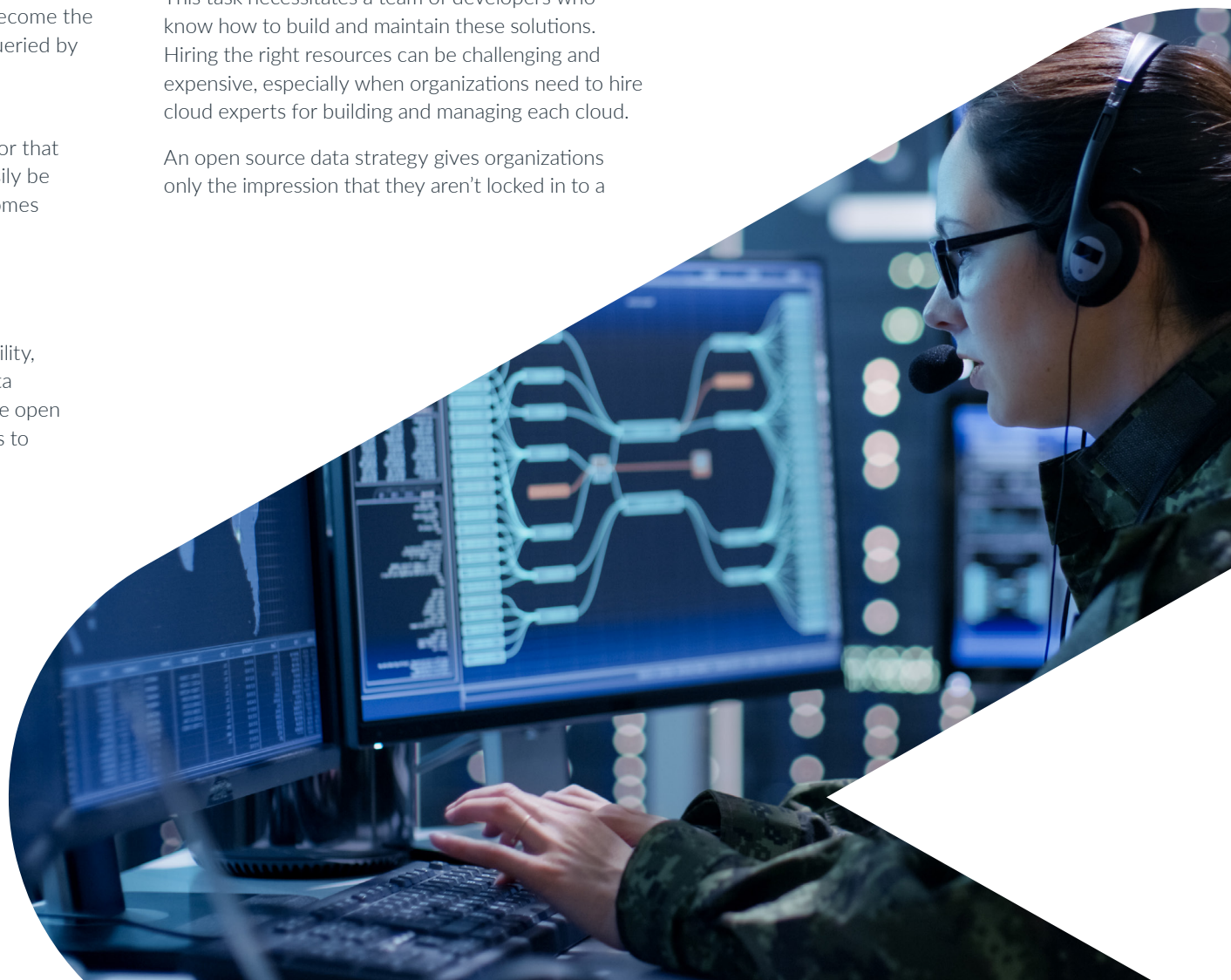
## DATA PORTABILITY

To avoid vendor lock-in and maintain flexibility, organizations often strive for maximum data portability. One common approach is to use open source technologies and open data formats to avoid proprietary formats.

Unfortunately, organizations pay a high price for this version of data portability. Because open source technologies are usually not offered as managed services, organizations are required to set up and maintain their own open source data infrastructure. This task necessitates a team of developers who know how to build and maintain these solutions. Hiring the right resources can be challenging and expensive, especially when organizations need to hire cloud experts for building and managing each cloud.

An open source data strategy gives organizations only the impression that they aren't locked in to a

single cloud provider. The reality is, there's no easy way to move multiple petabytes of data from one cloud vendor to another, open source or otherwise. Data portability is a widespread challenge for all organizations that have large amounts of data.





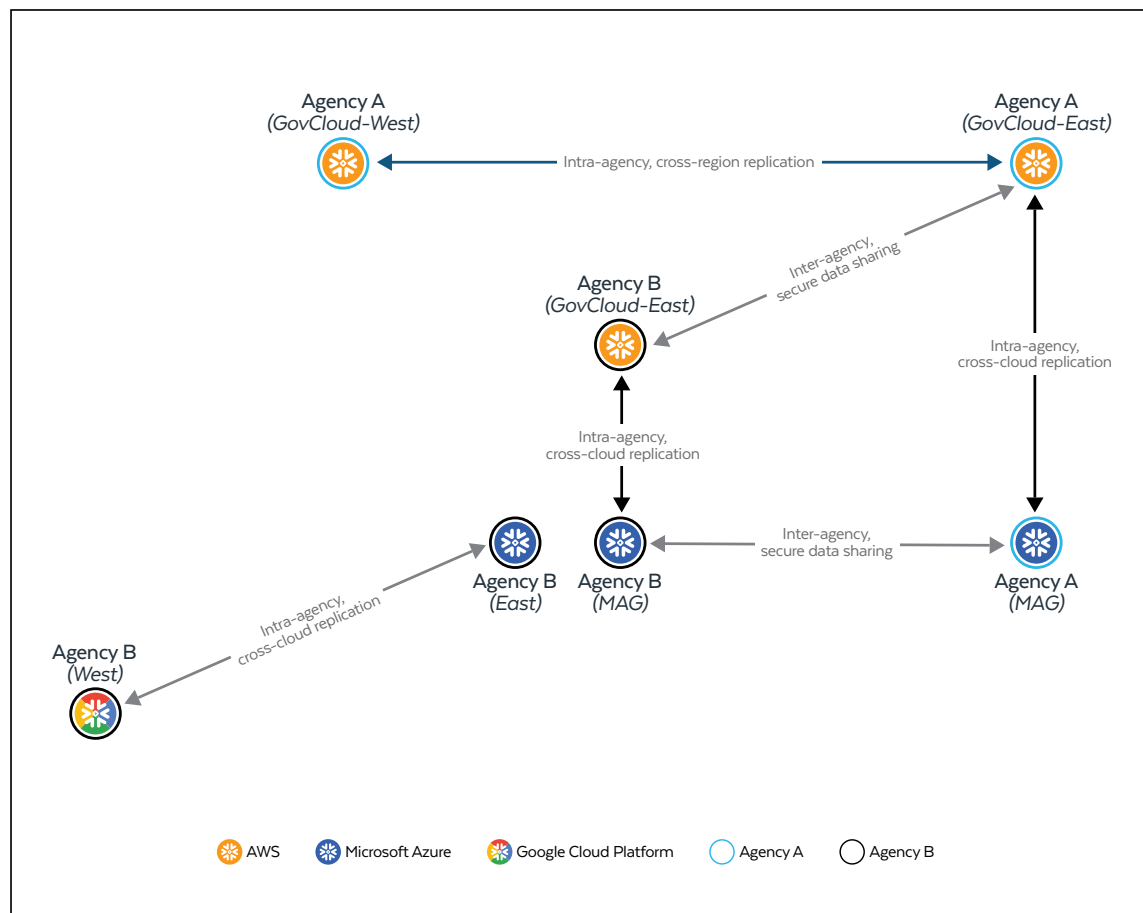
# HOW CROSS-CLOUD DATA SHARING BRIDGES THE MULTI-CLOUD DIVIDE

To make data-driven decisions, data consumers must have access to all organizational data when and where they need it. Given the limitations of data portability and the silo effect of cloud providers and geography, organizations will not experience the true benefits of multi-cloud until they have a method for sharing and replicating data across clouds and regions.

Fortunately, good news is here: **Cross-cloud** represents a path forward, as it supports the multi-cloud strategy by bridging cloud silos and resolving portability issues.

What does it mean to be cross-cloud? There are two basic requirements:

1. A cloud-agnostic layer must provide a **unified data management** platform on top of each cloud region and all cloud infrastructure providers. This platform provides identical functionality across all cloud providers to enable a cost-effective and seamless method to securely share data.
2. Data must be able to easily move anywhere in the world. To interconnect regions and clouds, a high-throughput communication “mesh” is required to enable **complete data portability**.



Snowflake enables agencies to securely share data across clouds and regions.

While data sharing typically works within a region on the same cloud provider, cross-cloud expands the scope. A unified data management platform allows organizations to share securely across regions, cloud accounts, and agencies, while adhering to the same rules of data sharing (data exists locally in a single source where it's accessed rather than moved).

In addition, the platform makes cross-region data replication possible without impacting performance of primary data. All replication is asynchronous and consistent for the initial replication, and incremental data syncing is accelerated/sped up by replicating only updated data.

In short, cross-cloud removes all barriers to data so it can easily be shared, replicated, and remain accessible at all times, no matter where it's stored. With cross-cloud, organizations will be able to accomplish:

- **Analysis of all data.** For any organization with a national, multinational, or global presence, locally created and stored data is easily shared and centralized. Data consumers are empowered to make data-driven decisions using all relevant information, anywhere and everywhere in the world.

- **Enhanced availability and reliability.** Cross-cloud replication enables quick and easy disaster recovery by replicating a database to an account in a different region or different cloud provider. Whenever an outage occurs, it's easy to failover databases and keep the business up and running.
- **Simplified account migration.** Cross-cloud provides organizations the flexibility to move to a different cloud provider at any time without worrying about data portability. All types of data and all sizes become easier to move.
- **Centralized security management and governance.** Organizations that have a multi-cloud strategy struggle to secure data assets and also meet compliance requirements in different environments. With cross-cloud, environment-agnostic security strategies and tools shift the focus from securing the environment to securing the data, enabling a single, centralized approach to data security and privacy.



# MODERNIZE IT WITH A MULTI-CLOUD, CROSS-CLOUD STRATEGY

More and more government organizations are modernizing their technology infrastructure and improving cybersecurity by migrating their IT systems and data to the cloud. This trend is no surprise, when you look at the many benefits of a multi-cloud, cross-cloud solution:

- Faster, more efficient approach to IT modernization, with less risk
- Data consolidation and secure data sharing across organizations and agencies—a single source of truth
- Cost savings associated with an on-demand, pay-per-usage model
- Enhanced security, mostly outsourced to cloud vendors using state-of-the-art security technologies and techniques
- Increased transparency and ease of meeting compliance requirements

- The ability to leverage market-based innovation
- An improved experience for onsite and mobile users and citizens
- Streamlined adoption of future network modernization initiatives
- Meeting the objectives of the President's Mandate and the Office of Management and Budget's (OMB) Cloud Smart strategy

Cross-cloud delivers the unified platform needed to enable secure data sharing. Organizations can now execute multi-cloud strategies without sacrificing access to data, while providing a single source of truth and complying with all government mandates.

Learn more about Snowflake for a multi-cloud, cross-cloud solution: <https://www.snowflake.com/contact/>



## ABOUT SNOWFLAKE

Snowflake shatters barriers that prevent organizations from unleashing the true value from their data. Thousands of customers around the world mobilize their data in ways previously unimaginable with Snowflake's cloud data platform—a solution for data warehousing, data lakes, data engineering, data science, data application development, and data exchange. Snowflake provides the near-unlimited scale, concurrency, and performance our customers in a variety of industries want, while delivering a single data experience that spans multiple clouds and geographies. Our cloud data platform is also the engine that drives the Data Cloud—the global ecosystem where thousands of organizations have seamless and governed access to explore, share, and unlock the potential of data. Learn how you can mobilize your data at [snowflake.com/federal](https://snowflake.com/federal).

Snowflake is FedRAMP Authorized

