



# Driving transformation with hybrid cloud computing

A guide for United States Government agencies



Hybrid cloud computing is the coordinated use of cloud services across on-premises (traditional and private cloud) and cloud provider boundaries, or between internal and external cloud services. The potential and promise of hybrid cloud revolves around interoperability. Being able to develop and deploy applications in like environments creates tremendous efficiency and flexibility for developers and IT operations.

**72%** of respondents said hybrid cloud will eventually be the primary cloud usage model for their organization.

Source: Gartner (August 2017)

According to a recent survey by Gartner, over 72 percent of organizations will be pursuing a hybrid cloud strategy in 2018.<sup>1</sup> This is no different for the US Government, which is facing the same

challenges and pressures to modernize that many commercial organizations are.

A hybrid approach, where on-premises and cloud resources function together, will enable US Government agencies to make the most of existing assets while benefitting from cloud innovation, meeting unique security, compliance, and operational requirements. Once an integrated hybrid cloud model is adopted, vast efficiencies and rapid modernization can occur.

A consistent hybrid cloud experience simplifies the journey to the cloud and enhances existing resources. Developers and IT professionals are no longer constrained by the limitations imposed by disconnected systems when they use uniform technologies across identity management, application development, data, management, and security.

But basic connectivity isn't enough. To support the unique needs of a modern government, IT functions and federal programs need a complete, integrated, and consistent environment that supports both productivity and usability.

## To reap the benefits of the hybrid cloud environment, IT decision makers should carefully evaluate their requirements in relation to four key areas:



**Common identity for on-premises and cloud applications.** Improves productivity by giving users single sign-on (SSO) to all applications.



**A consistent data platform for your datacenter and the cloud.** Delivers data portability combined with seamless access to on-premises and cloud data services for deeper insight into your data.



**Integrated management and security across your hybrid cloud.** Provides a cohesive way to monitor, manage, and help secure your environment—giving you increased visibility and control.



**Unified development and DevOps across the cloud and your on-premises datacenters.** Enables developers to move applications between the two environments as needed and improves productivity by providing the same development environment virtually everywhere.

The visibility and consistency achieved through an integrated platform is critical to hybrid cloud success. A fragmented approach to the hybrid cloud elevates risk because there are more moving parts to manage. Organizations that rely on multiple hybrid cloud vendors can face significant complications due to differences in identity and access management systems, IT management and security systems, and data models and developer experiences. Rather than realizing the benefits of the hybrid cloud, these organizations end up dealing with an unmanageable level of complexity.

Creating a truly consistent hybrid cloud, with the advantages it brings, is a better approach. Microsoft stands alone in offering these advantages.

<sup>1</sup> Gartner. "What Microsoft's Azure Stack Could Do for — or to — Your Cloud Business in 2017."

Mike Dorosh, Craig Lowery. ID: G00333273. 16 August 2017. <https://www.gartner.com/doc/reprints?id=1-4J25QC3&ct=171023&st=sb>

## Leverage your data assets in powerful new ways

Analytics is becoming increasingly more important. Data from cloud sources must be able to coexist with on-premises data, and both must be readily available and usable.

With a consistent hybrid model, users can work with data on-premises and in the cloud, accessing the same services for data warehousing, analysis, and visualization. While this can be useful for operational efficiencies, a hybrid data platform also provides powerful services that complement on-premises databases for a more robust user experience and deeper data-driven insights.

The Microsoft hybrid cloud was designed with analytics in mind. As Azure SQL Database, a platform as a service (PaaS) data offering, is based on SQL Server (in fact, the two share the same core database engine), applications can access data in the same way with both technologies. A consistent hybrid cloud also makes analytical data more powerful, as you can share data between systems for increased visibility and analysis.

## Protect your agency and users with common identity

Across government agencies, most users would agree that multiple devices, logins, and passwords can lead to security fatigue. Ideally, users should have an identical and consistent sign-in experience that doesn't require separate credentials, regardless of whether applications are accessed on-premises or in the cloud.

Advanced authentication measures help prevent unauthorized access, including widescale network compromise by impersonating privileged administrators. This ensures that a single penetration of identity (for example, a password hack) can't compromise the entire system. In addition, a cloud-based, centralized analysis of how users are authenticating can help to identify anomalous behavior.

Microsoft Azure offers several solutions for such protection, including Multi-Factor Authentication. With this option, users need more than a simple password to log on. They must validate their identity with a second factor, such as a code sent to their mobile phone or biometrics. Azure also supports conditional access policies, which let administrators control access to specific applications based not just on user identity, but also on device being used, location, team, and more. The overall result of these solutions is two-fold: better identity protection and lower risk.

## Ensure visibility and control

A major benefit of a consistent hybrid cloud environment is end-to-end visibility and control. On-premises tools are not built for cloud scale and agility. Plus, they're simply not aligned with new usage models enabled by the cloud.

These models enable next-generation management capabilities, including comprehensive monitoring of combined on-premises infrastructure and cloud resources; advanced automation, such as

responses to issues and alerts; the ability to secure the larger surface area that a hybrid cloud offers; and data backup and disaster recovery for the cloud.

Azure provides built-in management and security capabilities, including an integrated set of tools for monitoring, configuring, and protecting your hybrid cloud. This end-to-end approach to management specifically addresses the needs of an agency undertaking digital transformation.

## Build a common environment for app development

Typically, application development in the cloud and on-premises implies two distinct environments, and two ways of doing things. What works in one environment is not guaranteed to work in the other.

The benefits of being able to deploy anywhere are significant. The ability to use existing skill sets means that you don't need to rehire or retain government or contract staff or incur additional costs that are typically associated with developing and translating between platforms. Rather than trying to stretch or modify existing on-premises technologies to function in the cloud, a hybrid model enables developers to build and deploy modern applications in both environments in a familiar way.

Moving applications between on-premises and the cloud is also straightforward. You can choose where to deploy an app based on your needs. Azure has always been hybrid by design. Azure Stack, for example, allows you to use hybrid technology to provide a subset of the cloud services offered by Azure on your own premises. Rather than trying to stretch existing on-premises technologies to provide cloud services, Azure Stack brings Azure services into your datacenter.

## Embrace the hybrid cloud with Azure Government today

Get started with access to eight dedicated Azure Government cloud instances (including two secret regions coming soon), and over 20 unique compliance offerings unique to US Government agencies.

