

# A BETTER WAY TO CLOUD

Cloud technologies have enabled enterprises to lower operational and capital expenditures, accelerate the development and release of new products and services, and dynamically adjust their IT infrastructure to meet changing market demand. But not all cloud service providers or platforms are created equally, nor are they always appropriate for certain business sectors or strategic objectives.

While some clouds have remained “general purpose,” newer “enterprise clouds” have emerged to address the needs of organizations that have greater fault tolerance, security, and hybrid interoperability requirements.

This white paper will examine how DataBank’s enterprise cloud solutions provide the foundation of a secure, managed, hybrid IT strategy that is ideal for those with complex compute, network, storage, and security requirements.

# INTRODUCTION

## The Promise of the Cloud

Cloud-based platforms offer the promise of agility, on-demand scalability, and lower operating costs, all of which are key factors for any organization looking to increase its margins and return on investment (ROI) on their IT spend. Cloud infrastructure can also play a critical role in supporting the digital transformation needed to ensure the high-availability of increasingly digital operations, process ever-growing volumes of Big Data, and shift IT expenditures from CapEx to OpEx.

Because of this, cloud technologies continue to gain traction in the enterprise landscape with a superior value proposition in terms of cost, flexibility, and speed-to-market versus on-premises infrastructure. In fact, according to IDC, by the end of 2020, 67 percent of enterprise infrastructure will be based in the cloud.

## The Challenge of the Cloud

While the promise and benefits of cloud adoption are widely known, there is also a growing recognition that cloud platforms are not the answer in every instance. Some organizations have re-patriated applications back to premise-based infrastructures after finding cloud platforms were more expensive to operate, or presented additional management and security challenges. In fact, according to IDC in its Q119 CloudPulse report, as many as 85% of customers had initiated some kind of cloud repatriation effort.

Among the challenges that IT leaders sometimes find with public and private cloud platforms are:

### **IMPLEMENTATION & MIGRATION**

One of the most common hurdles to cloud adoption is the planning and execution needed to eliminate any of the dependency failures that can come from changes to the underlying infrastructures that support an application, including server, OS, storage, network, etc. The shift from on-premise to cloud infrastructures raises a host of technical questions and business concerns as compute, network, and storage resources are virtualized. Does the data targeted for the public cloud include any proprietary information? Are there legal requirements for how this data is stored? What is the organization's tolerance for latency? Cloud providers do not always have ready-made answers to these questions and organizations are left to navigate these complicated issues on their own.

### **SECURITY & COMPLIANCE**

For highly regulated organizations, and those that market their services to the government sector, security and compliance continues to be chief concerns for many businesses migrating to the cloud. According to RightScale's most recent State of the Cloud report, 81 percent of enterprises cite security as a top challenge, and 79 percent are concerned about compliance when asked about their adoption of cloud infrastructure.

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### PERFORMANCE & MANAGEMENT

Moving applications to the cloud may reduce some of the labor associated with hardware, but IT organizations find they still need to manage many other elements of the infrastructure including application monitoring, software patching, data back-up and recovery, and more. And for applications that must meet strictly-defined end-user performance expectations, or require very high availability or redundancy, public cloud infrastructures may underperform private or hybrid cloud-colocation environments.

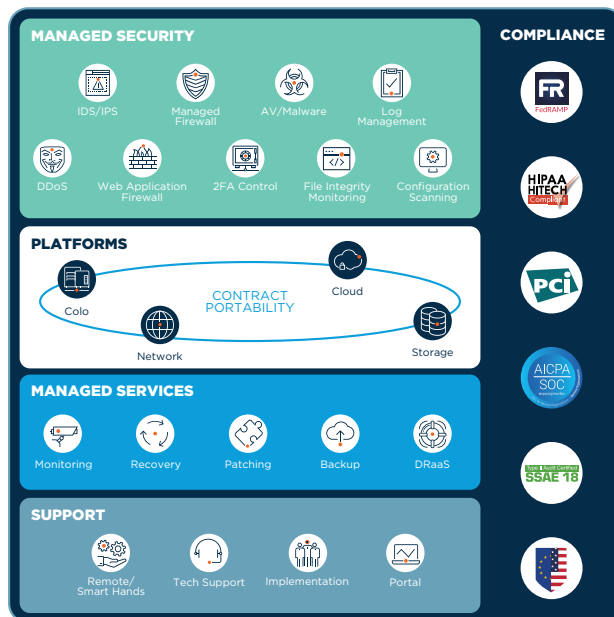
### COST

In some cases, cloud pricing is complex, multi-dimensional, and less transparent than initially believed, and results in shocking overage or usage costs for compute, storage or network.

## Enterprise Cloud: A Better Way to Cloud

For these reasons, and others, there is a growing realization that public and even private clouds, are not a “be all, end all” solution, and that what many organizations need is a more holistic approach. At DataBank, we believe the cloud is just one part of a model we call the **Data Center Evolved™**. It’s a vision that goes beyond commodity cloud compute, adding network, storage, and colocation platforms with revenue portability to avoid technology “lock-in.” It’s a vision that surrounds all your infrastructure with layers of managed services and managed security to support and extend your IT capabilities.

In this white paper, we will examine DataBank’s cloud platform in more detail, explain how it differs from traditional public/private cloud-only approaches, and explore how it can serve as one of the building blocks of a truly hybrid infrastructure approach.



# DATABANK'S ENTERPRISE CLOUD PLATFORM

## THE BASICS

DataBank's cloud platform is **VMware Cloud Verified**, a status achieved by less than one percent of all VMware partners. Built with best-of-breed technologies, the DataBank Enterprise Cloud delivers high-performance predictable computing and storage capabilities in a secure, flexible, and scalable fashion for a wide variety of application stacks.

### The Compute Layer

DataBank's Enterprise Cloud platform has been architected from the ground up with 2N redundancy in every element of the design and was built to deliver 99.999% uptime for secure business critical applications. Based on the latest high-density Cisco UCS Blade and Dell Technologies computing platforms, the services are provided as a Dedicated Tenant with the option of Dedicated Blades and Storage for those customers with specific computer, storage, and compliance needs. Every solution is optimized for your application workload – eliminating traditional vertical scaling constraints within public cloud. IaaS and PaaS workloads can be easily hyper-converged with Colocation and Public Cloud and are centrally managed via the DataBank Portal.

DataBank Cloud is powered by VMware and vCloud Director with support for multiple geographies and a blend of self-managed and DataBank managed options. DataBank places no practical limits on the number of virtual machines, or VMs, or storage on its shared cloud configurations and can provide bare-metal hypervisor access which is often unavailable from hyper-scale, public cloud providers.

### The Network Layer

Each DataBank cloud node is provisioned with advanced Cisco networking configurations offering 80Gb to each chassis and 20Gb to every blade. Cisco ASA firewalls are provisioned for each customer environment depending on the required throughput (50Mbps to 50 Gbps.) Direct cross-connects and multi-protocol label switching (MPLS) can also be established to maximize throughput and performance.

Customers can choose from standard Internet Access delivered through a blend of Tier 1 carriers with over 300 Gbps throughput per cloud. Customers can also enhance and protect their workloads by adding DataBank's fully managed DDoS Mitigation and Intrusion Detection and Prevention Service (IDS/IPS) -- with real-time visibility of attacks against their infrastructure. Also, customers can scale their workloads horizontally with DataBank's high-performance clusters of F5 BigIP load balancers, which enable custom health checks and complex application routing rules.

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**2N**  
REDUNDANCY

**99.999%**  
UPTIME

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**80Gb**  
TO EACH CHASSIS

**20Gb**  
TO EACH BLADE

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## The Storage Layer

DataBank Enterprise Cloud customers can choose from Multi-tenant or Dedicated Storage in three tiers of service:

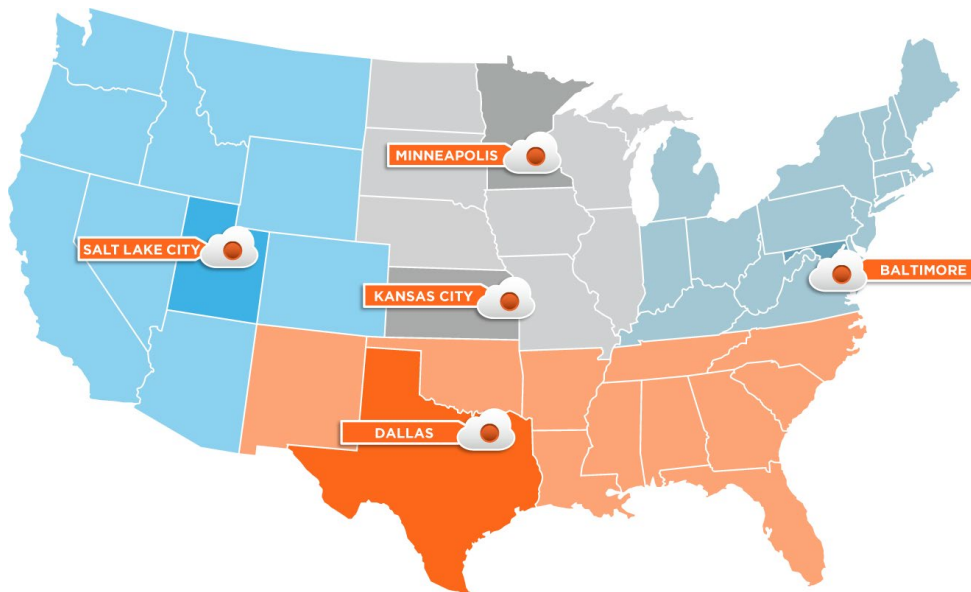
- Tier 0: NVMe accelerated All-Flash (SSD) storage - high performance and high throughput applications like SQL and AI
- Tier 1: Tiered storage - high performance for frequently used files and blocks with a tiering system that manages cost by migrating infrequently used data to lower-tier storage.
- Tier 2: Efficiently priced storage used for files services, data repositories, data lakes, and archival.

Encryption via FIPS 140-2 Level 2 compliant SANs is available on all tiers of storage with self-encrypting drives, AES 256 encryption, and external key managers to maximize security meeting or exceeding all current compliance standards.

DataBank delivers Storage as a Service (SaaS) via a consumption model and is responsible for all updates, upgrades, snapshots, capacity planning, and management.

## Geographic Diversity

DataBank has strategically located its cloud platforms in both the East and West Regions and in three different metros in the central US. This configuration brings the cloud nodes closer to the customer and maximizes options for availability, redundancy, failover, backups, and disaster recovery.



It is especially worth noting that the location of these cloud nodes are spread across four of the major North American power grid interconnections, providing additional levels of redundancy in the event of major blackouts.

While this technical foundation of compute, network, storage, and geographic diversity enables DataBank's Cloud platform to deliver high degrees performance and reliability, what truly separates it from competitors is the surrounding envelope of managed services, security, and compliance.

# MANAGED SERVICES

As noted above, implementation, migration, and management are challenges that confront every IT organization looking to embrace the cloud as part of its infrastructure mix. DataBank has long believed that the **Data Center Evolved™** approach depended on delivering hands-on managed services capabilities and not just infrastructure. That philosophy applies to the DataBank Enterprise Cloud platform as well.

## Implementation, Onboarding & Migration Teams

At the earliest stages of the engagement process, DataBank assigns technical account managers and engineers to a dedicated onboarding and implementation team. That team selects the appropriate cloud platform and architecture, depending on the performance, security and compliance requirements for a workload. Also, the team will implement design patterns honed over twenty years and thousands of complex implementations, and leverage a 5-step Plan>Design>Build>Test>Go-Live process to develop solutions with maximum resiliency, scalability, and performance. As a true managed services partner, DataBank can go beyond simple “lift and shift” approaches to help engineer “progressive path” migrations where even a multi-stage approach involving a series of smaller migrations may be necessary.

## Ongoing Management

Once a cloud infrastructure instance is launched, DataBank provides a wide array of management capabilities to extend the reach and performance of a customer’s IT organization. DataBank’s engineers are available 7x24 to assist with:

- **MONITORING.** In-depth health monitoring and trending of servers, applications, performance counters, application dependencies, hardware, performance, and security for alerting and capacity planning, proactively preventing or quickly remediating issues before they escalate.
- **RECOVERY.** “First Responders” ownership of alarms and escalation.
- **TECH SUPPORT.** SMEs on staff for most major technologies and no per incident charges.
- **PATCHING.** Server and software patches with perimeter IDS/IPS with zero-day protection for graceful patch rollout.
- **BACKUPS.** Managed VMs include basic backups with longer retention, off-site replication and DRaaS available.

In addition to these hands-on management capabilities, the DataBank Enterprise Cloud platform is supported by its customer portal – a purpose-built interface that provides visibility into power consumption, bandwidth flow, security events, and gives IT organizations the ability to control elements of their infrastructure such as setting user roles, downloading compliance reports, requesting remote hands support, and opening and monitoring tickets.

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**7X24**  
**AVAILABILITY**

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# MANAGED SECURITY AND COMPLIANCE

DataBank's management capabilities extend deep into security and compliance as well, providing a level of support that goes beyond anything found among hyper-scale public cloud providers.

## Managed Security

DataBank can surround any cloud implementation with a comprehensive set of managed security services including IDS/IPS, DDoS mitigation, firewalls, file integrity monitoring, log management/ offloading, configuration scanning, and two-factor authentication.

Beginning with a comprehensive, customized audit that includes an evaluation of all data security policies, user privileges, and compliance regulations, DataBank provides continuous monitoring and proactive management of system, compliance, and security concerns. Any problems can be neutralized or mitigated before they can cause financial or reputational harm. Also, DataBank's security and compliance framework applies the most stringent controls for physical, network/perimeter, system/host, and access to the data center facilities themselves.

## Compliance

Regardless of industry or company size, navigating the complexity and ever-changing requirements of compliance can present challenges for any organization. Against that backdrop, deploying cloud services brings an entirely new set of compliance-related obstacles and potentially costly vulnerabilities. DataBank's compliance platform enables companies to gain all the benefits and operational efficiencies of a cloud strategy while maintaining cloud-based compliance for its customer's applications and workloads.

In maintaining its industry-leading compliance standards, DataBank is a certified provider of FedRAMP compliant data center, cloud, and colocation solutions, and holds an authorization from the Federal Energy Regulatory Commission (FERC). The company also conducts annual recertifications to maintain all its compliance designations, including FedRAMP, FISMA, SSAE18, HIPAA, PCI-DSS, and Privacy Shield/GDPR.

A best practices-based compliance framework is built to address the most stringent controls for physical, network/perimeter, continuous monitoring, system host and physical access to facilities. And our in-house CISO, dedicated security engineering teams, and proven compliance expertise allow DataBank to take ownership of up to 80% of compliance controls, where other providers may only provide as little as 10%.

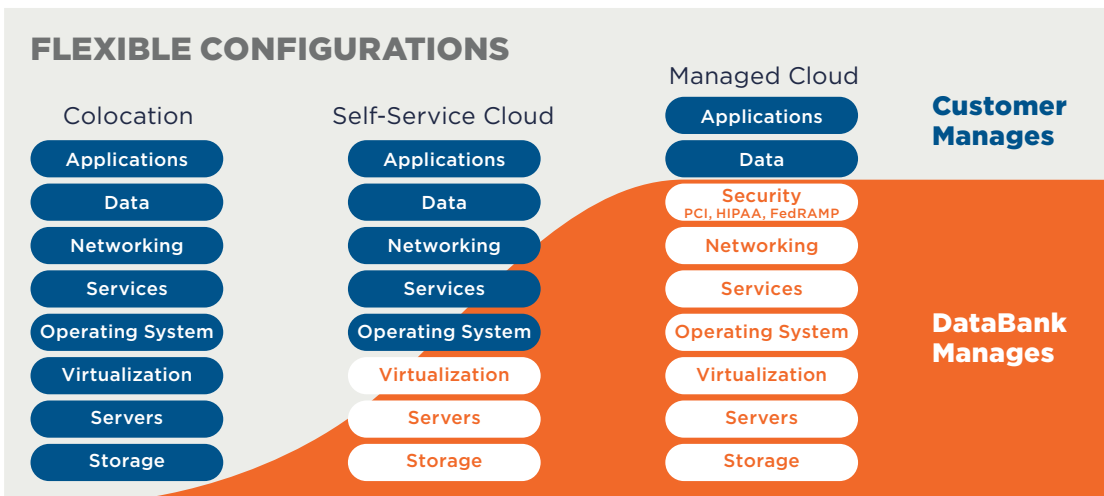


# ENABLING A TRULY HYBRID APPROACH

By combining its cloud compute, storage and network platforms with comprehensive managed services and deep security and compliance expertise and support, DataBank transforms a commodity cloud offering into a platform for building truly hybrid infrastructures.

## Self-Service Cloud vs. Managed Cloud Deployments

Depending on the degree of outsourced management desired, an IT organization can leverage DataBank’s cloud platform in one of two ways, both available in shared or private configurations:



### SELF-SERVICE CLOUD

In this model, DataBank manages the storage, blade servers, and virtualization layers and a customer is responsible for everything else, including the OS, network, data, and application.

### MANAGED CLOUD

This model layers onto the cloud platform a full suite of Managed Services, Security and Compliance capabilities, enabling DataBank to manage everything except the data and applications.

Having this mix of cloud options allows DataBank to flexibly meet the needs of any application or workload. Self-Service Cloud is ideal for website hosting and supporting web apps, data storage, development platforms, and backup/recovery systems, while Managed Cloud is better suited for high-performance computing (HPC), supercomputing grids/clusters, or Big Data analytics platforms.

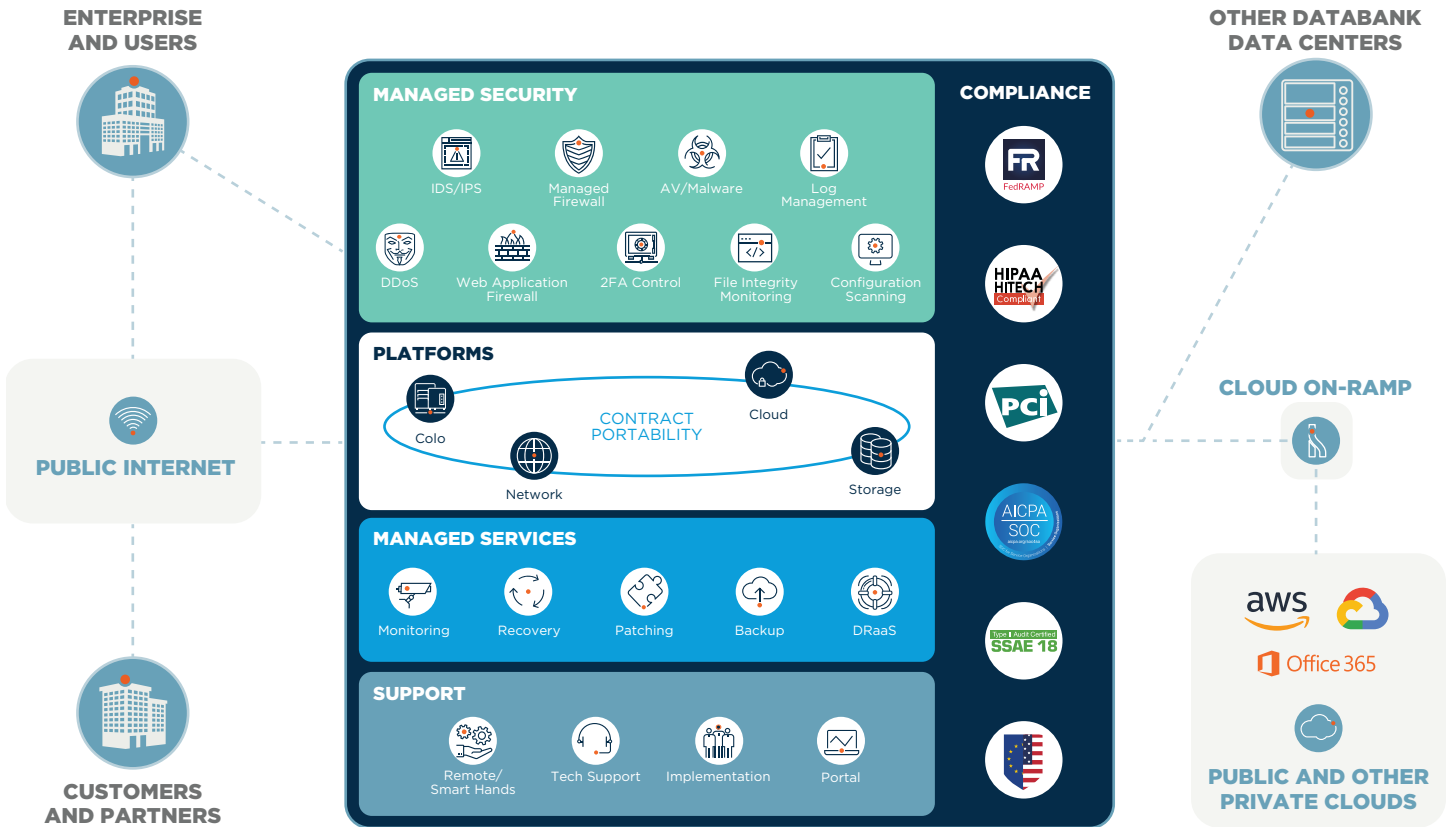
Managed Cloud also frees IT organizations to focus more on their applications and IT strategy because DataBank takes over comprehensive 7x24x365 monitoring of servers, applications, performance counters, application dependencies, hardware, performance, alarm response, and escalation to third parties, and capacity planning.



## A Secure, Flexible Filter For Any Workload

Ultimately, the greatest differentiating value of DataBank's cloud platform comes not from anything inherent in the platform itself, but rather, from the entire Data Center Evolved™ ecosystem. Just like DataBank's colocation, network, and storage platforms - the cloud platform is surrounded by this constellation of managed services, security, and compliance.

# DATABANK DATA CENTER ECOSYSTEM

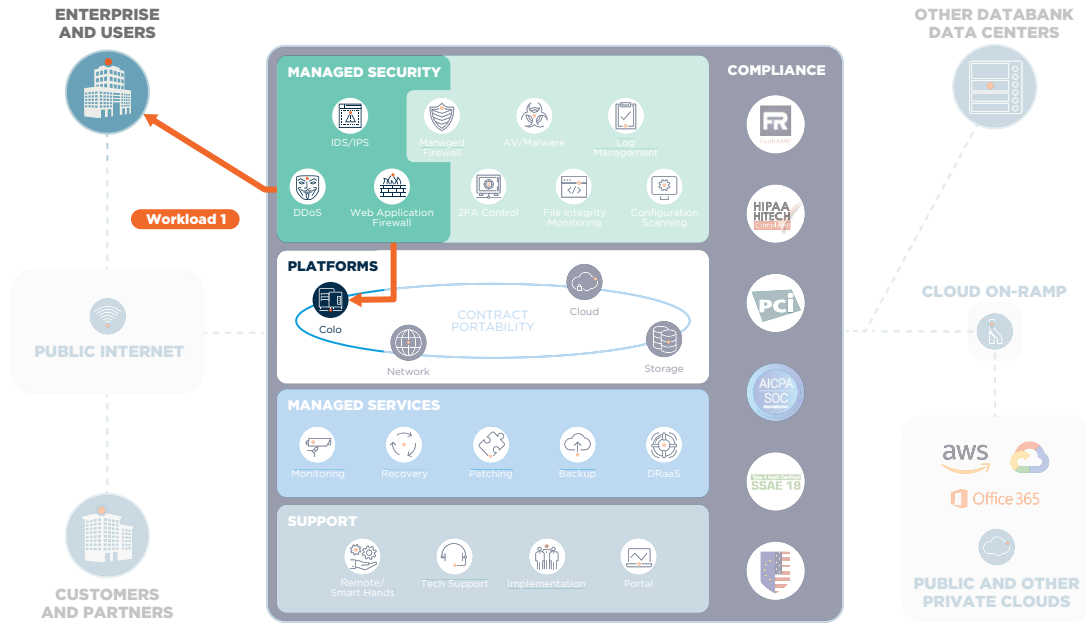


The beauty of this ecosystem is how all the elements work together to allow you to execute a truly hybrid IT approach, mixing and matching your infrastructure to workloads as needed all while providing consistent performance and security.

The following pages feature examples of how this might apply to three different workloads.

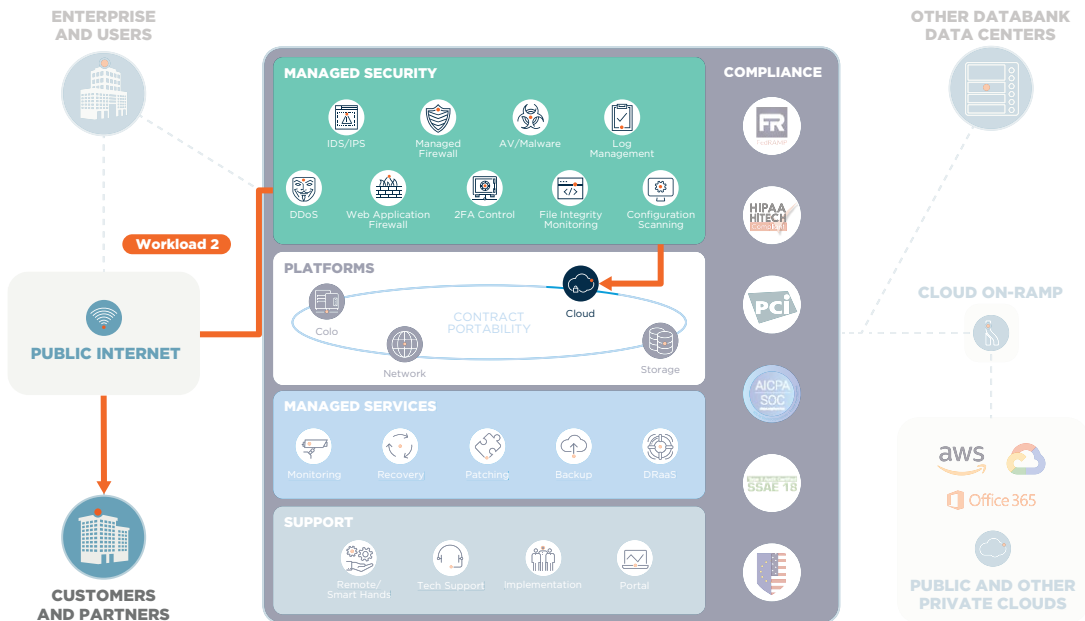
**WORKLOAD #1**

This could be a security- and latency-sensitive application that your customers access and which needs to be collocated in our data center on your equipment. That application's data, and the users accessing it, would benefit from passing through DataBank's managed DDoS, IDS/IPS and web application firewalls.



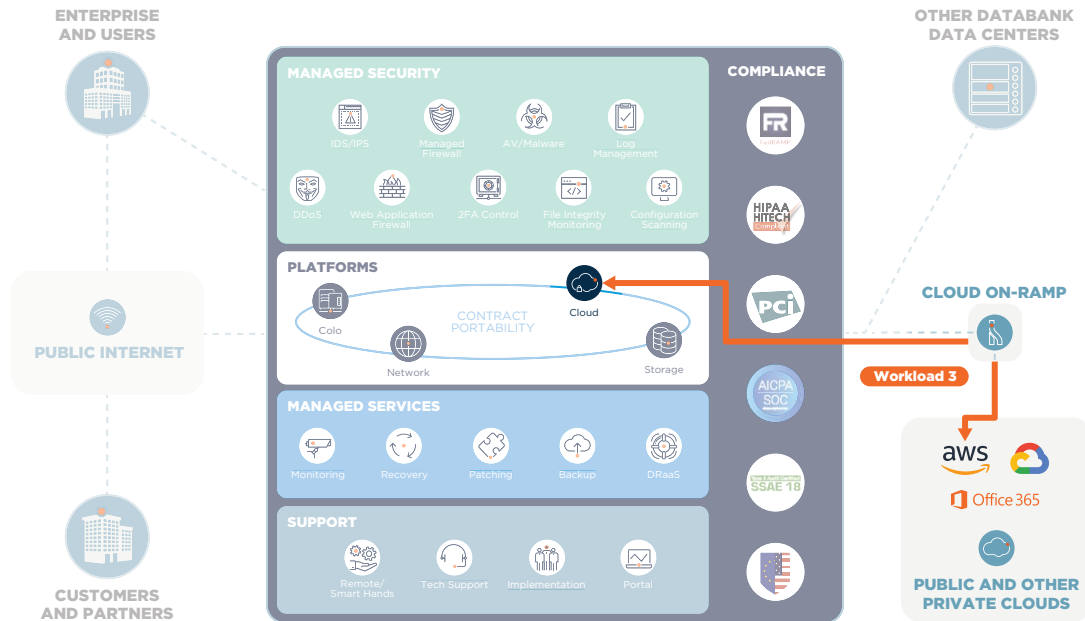
**WORKLOAD #2**

This could be a separate workload or application that needs the scalability of cloud with the privacy of colocation and so you'd host that on our private Managed Cloud platform where the application's data, and its users, would be protected by the full range of DataBank's managed security.



**WORKLOAD #3**

Your application hosted on our Managed Cloud platform may need to periodically burst into the public cloud in which case it could leverage our Cloud Direct Connect on-ramp for access to many other public clouds as needed.



In each case, you can see how DataBank provides the seamless infrastructure needed to support your workloads and applications today and as they will evolve over time.

This is how the **Data Center Evolved™** ecosystem enables a more inherently flexible platform for scaling and adapting infrastructure, a more compliant container for your data, and a more secure filter through which to connect users and applications.

# CONCLUSION: A BETTER WAY TO CLOUD

DataBank's cloud platform offers enterprise clients a greater degree of flexibility and a wider range of options than one-size-fits-all public cloud services. Offering a true hybrid solution, customers can integrate their DataBank Cloud infrastructure with other colocated assets and workloads. They can also interconnect with infrastructure in other DataBank data centers or public cloud platforms. Portability of revenue and contracts between platforms and DataBank data centers also minimizes the risk of technology "lock-in".

This enables a "mistake-free" strategy for building and deploying hybrid IT infrastructures and enables IT organizations to mix and match workloads and infrastructures. Applications that have a high degree of elasticity — as well as requirements for variable scalability and global reach — can be deployed across a range of shared public cloud services accessible from DataBank's facilities. Resource intensive workloads with stringent security, data protection, and performance requirements can be strategically-located in DataBank colocation facilities. And workloads that require a mix of security, scalability and compliance can be deployed in DataBank's cloud. All with the peace of mind of knowing DataBank is there to secure it and manage it.

That's a better way to cloud. That's **Data Center Evolved™**.

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**To learn more about how DataBank's cloud solutions can provide the foundation for your organization's hybrid IT strategy, contact us.**

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