



Highlights

- Leverage best-in-class services from multiple cloud providers while maintaining control over data, reducing costs, and maximizing business agility
 - Deploy dedicated private connectivity to multiple clouds using colocation providers
 - Deliver efficient, high-performance IBM Storage and software-defined infrastructure offerings, including all-flash storage with support for enterprise applications and next-generation workloads
 - Utilize the IBM Cloud Private platform to automate, deploy, scale and manage microservices for containerized and legacy applications across private or public clouds
 - Meet security and regulatory requirements while enjoying the flexibility and economic benefits of IBM offerings paired with multicloud environments
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Flexible and secure cloud edge architecture

Deliver full control of data assets and cloud flexibility, with the ability to leverage multiple cloud providers

Many organizations have begun to recognize the benefits of building multicloud environments to maximize flexibility and business agility, make the most of resources, and ensure data security. However, making the move to a multicloud environment can create major challenges for these businesses, in the form of ingress and egress fees for data transfer.

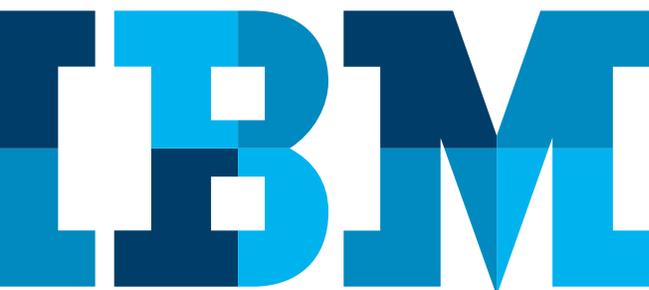
Cloud storage models typically have a fee associated with data transfer out for retrieval from the cloud, and some may also have a data transfer fee on the way in. Since the fees can be both highly variable and lacking in transparency, it's easy for an enterprise to rack up huge fees without even realizing it. When they start working with multiple cloud vendors — each with their own unique fee structures — keeping track of and budgeting for cloud storage costs grows even more difficult.

Before they can truly capitalize on the benefits of a multicloud environment, businesses need a solution that makes it easy for them to choose the right cloud vendor for each situation. In addition, they must be able to access and transfer their data right when they need it, without having to worry about how much it might cost them to do so. A cloud edge architecture solution from IBM can meet all these requirements.

An IBM cloud edge architecture helps make multicloud simple

With an IBM cloud edge architecture, organizations can place their data in the cloud, while still maintaining sovereignty over it. Using a colocated near-premises data center, organizations can access their data for burst processing without needing to pay egress fees. This puts them in a position to take full advantage of everything cloud has to offer, while also maintaining control over their expenses.

The IBM cloud edge architecture solution can use IBM Cloud Private and IBM Storage and software-defined infrastructure offerings that help businesses create data-driven multicloud environments that are highly flexible, agile, secure, and cost-efficient. It's also ideal for enterprises that need to support a range of platforms and devices — across web, mobile, and Internet of Things — in a cloud deployment model.



The solution is built using containers or virtual machines, customer storage, and a layer 3 network to connect the public cloud with the customer storage. All these components are deployed in a colocation facility in close proximity to the public cloud, and are connected and configured in accordance with public cloud provider best practices. This creates a scalable architecture capable of supporting a variety of application workloads.

Maximize cloud flexibility and avoid vendor lock-in

One of the primary benefits of using an IBM cloud edge architecture is that it allows organizations to avoid getting locked in with a single vendor, so they can select best-in-class cloud service providers for each specific use case. Additionally, this deployment model enables businesses to move only the working set of data to the public cloud, run the job or query, egress only the results, and then delete the working set from the cloud. This creates cost savings by removing the need to pay data egress charges.

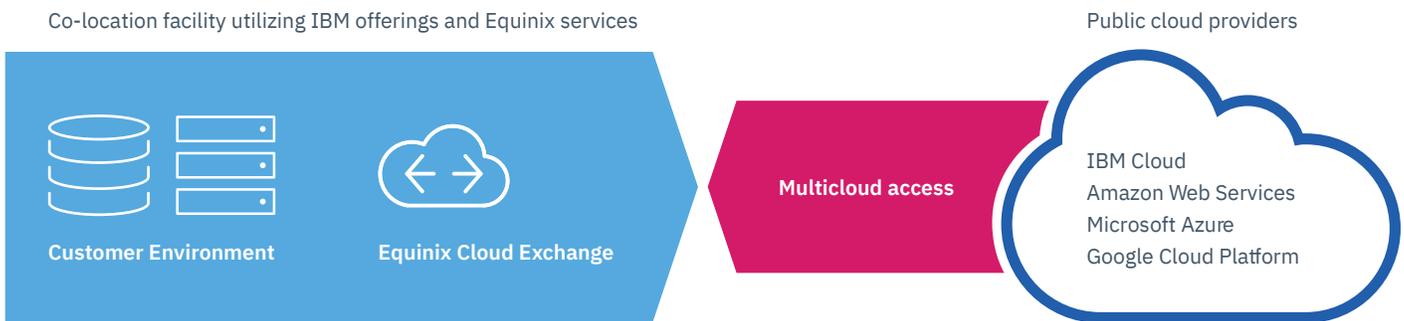
With the help of colocation partners such as Equinix, IBM helps users create dedicated private connectivity to multiple clouds almost instantly. There’s no need for network provisioning, data migration, or creating unique data copies for each individual cloud.

With a colocation partner such as Equinix, organizations can place their storage in a colocated data center adjacent to one cloud, while still maintaining the ability to switch clouds or add new clouds at any time without facing the obstacles and costs involved with traditional data migration processes. When used in conjunction with colocated storage, the IBM solution can support enterprise application workloads in a variety of virtualized environments, such as VMware, Microsoft, SAP and more. In addition, users have the option to deploy cloud-based microservices.

The solution can be applied across industry settings, but is particularly beneficial in areas that have stringent regulatory requirements around data security and privacy, such as financial services or healthcare. Unlike a traditional public cloud arrangement, the customer doesn’t have to rely on the cloud vendor to apply the appropriate security measures. Since users maintain complete control over their own master data sets, they can ensure for themselves that they are in compliance with all applicable regulatory requirements.

Figure 1 provides an example of what an IBM cloud edge architecture, built using Equinix Cloud Exchange, might look like.

IBM cloud edge architecture utilizing Equinix Cloud Exchange



- Provides secure, co-located data center footprint with connectivity into public clouds
- Delivers an agile, elastic consumption model at the edge
- Enables full control of data assets to reduce costs and meet compliance requirements
- Leverages IBM Cloud Private, IBM Storage, IBM servers and more in a virtualized or containerized deployment



Figure 1: Example IBM cloud edge architecture with Equinix Cloud Exchange.

Leverage storage and software-defined offerings from IBM

While the IBM cloud edge architecture can be used in conjunction with any storage infrastructure that meets the needs of the business, it's particularly effective when paired with IBM Storage and software-defined infrastructure solutions. Software-defined storage (SDS) manages data growth and enables multicloud flexibility by providing an agile, scalable, and operations-friendly infrastructure. IBM offers a complete framework of products that solve storage challenges in a consistent manner. These products may be consumed as software, as a cloud service, or as an integrated IBM solution.

With IBM Storage and software-defined infrastructure, organizations can support their multicloud environments with innovative offerings including high-performance all-flash storage, helping them draw real-time insights from their data in the cloud. The high-performance all-flash storage delivers a cost-effective multicloud environment through innovative capabilities like advanced data compression, which allow the organization to gain the same insights while paying less for data storage. Also, all-flash systems that are NVMe-accelerated, AI-empowered and multicloud-enabled deliver blazing fast performance while helping unlock the value of data, accelerate business execution and increase agility.

Optimize flexibility and agility with IBM Cloud Private

IBM Cloud Private drives enterprise transformation across three types of use cases:

1. **Modernize and optimize existing applications:** For years, businesses have invested heavily in middleware, which is the foundation on which many of their critical applications are built. With new containerized versions of middleware available through IBM Cloud Private, these same businesses can now optimize these existing investments and modernize their applications, allowing them to accelerate new business innovation.
2. **Open up enterprise data centers to work with cloud services:** There are security and regulatory constraints preventing organizations from leveraging innovative capabilities that are delivered across the public cloud. With API consistency across both public and private clouds, IBM enables these businesses to securely integrate capabilities from a public cloud with applications developed on-premises, opening up potential new revenue and profit streams.
3. **Create new cloud-native applications:** IBM Cloud Private

drives enterprise transformation by providing developers with choice of languages, frameworks, runtimes and services to build cloud-native applications and microservices, so that they can create their own cloud services. In addition, it drives innovation based on new and existing services such as blockchain, machine learning, data and cognitive capabilities, which developers can infuse into new or existing applications.

Overcoming multicloud challenges and driving better business outcomes

Our partnership with Equinix provides one example of how the IBM cloud edge architecture solution is helping customers overcome multicloud challenges and drive better business outcomes, all while maintaining data sovereignty and controlling costs. When combined with IBM Storage offerings and IBM Cloud Private, the cloud edge architecture solution can help businesses become more flexible, modern and agile.

Flexible

With the ability to move data between clouds quickly—including both private and public clouds—organizations can select the right cloud provider for each specific use case. For instance, they can choose the cloud provider that best meets their needs around security and compliance for certain use cases, or the one that drives the best return on investment for other use cases.

Modern

The cloud edge architecture solution is service-level driven, software defined, and flash optimized. As a result, it empowers organizations to maximize performance, scalability and reliability in their multicloud environments. The solution also provides a more modern approach to backup and replication, ensuring that data will be available when and where it's needed.

Agile

Finally, the cloud edge architecture solution helps increase business agility through API automation and native DevOps capabilities. In addition, self-service IT capabilities make it quick and easy for business to allocate and repurpose data center resources, without disrupting ongoing business operations.

For more information

To learn more about the IBM cloud edge architecture solution, contact your IBM representative, or visit ibm.com/storage



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