



Simplifying hybrid cloud migrations with AWS Local Zones

Easily migrate applications with low latency and data residency requirements.

Organizations in every industry recognize the benefits of modernizing applications and migrating to the cloud. In the cloud you can trade large up-front expense for pay-as-you-go pricing, benefit from massive economies of scale, eliminate guesswork on infrastructure needs, increase agility and speed to innovation, and eliminate the need to manage data centers. By taking advantage of the global infrastructure of public cloud providers, you can also deploy applications globally with just a few clicks.

In migrating to the cloud, organizations assess their applications and workloads to determine the right migration strategy.



1. Lift and shift:

In this scenario, an application and its data are moved to the cloud with zero or minimal re-architecting.



2. Refactor, retool, and re-platform:

In this scenario, an application is re-architected to better suit the new cloud platform.



3. Retain on premises:

Lastly, some applications that are deemed unsuitable for migration will be retained on premises without migrating to the cloud.

Organizations may retain certain applications on premises for several reasons:

- **Complex legacy applications** are often difficult to lift and shift, or to refactor and re-platform, without disrupting business-critical operations. Examples include complex database transactional workloads.
- **Applications with single-digit latency or local data processing requirements:** must run close to the data sources and back-end systems to which they are tightly coupled. Examples include digital services that promise a real-time-responsive end-user experience.
- **Applications with data residency requirements** must run inside a specific geopolitical boundary, but regional cloud infrastructure is not always available within that boundary. Examples include workloads that process financial or end-user data bound by local tax, data protection or privacy laws.

In the past, organizations had no choice but to keep these applications on premises, or in the data center, and miss out on the benefits of cloud.

AWS hybrid cloud solves this problem by extending AWS infrastructure and services to wherever applications need to run: from the cloud, to on premises, and at the edge in locations such as large metropolitan areas. You can select from the broadest set of compute, networking, storage, security, and other services to build hybrid architectures that meet your specific requirements.

AWS Local Zones are a type of AWS infrastructure that deliver hybrid cloud services close to large population and industry centers. Organizations can now migrate applications that require low latency, or need to remain in a particular geo-political boundary for regulatory reasons, to a nearby AWS Local Zone and achieve single-digit millisecond latency between the Local Zone and on-premises locations.

In this solution brief, learn more about AWS Local Zones and how you can use them to bring cloud computing benefits to applications that need to be deployed in locations closer to end-users of local systems.

Hybrid cloud migration

Hybrid cloud architectures provide a mix of on-premises and cloud infrastructure and services. However, organizations can run into a common set of obstacles when migrating applications to cloud.

Migration challenges

- **Modernizing complex, legacy applications**

Some complex workloads, such as monolithic applications running on legacy systems, cannot be migrated to the cloud with a lift and shift approach and instead need to be modernized or re-architected first. For example, an ageing electronic health record (EHR) application may be too large and complex to migrate in one project.

- **Maintaining low latency for business applications**

Applications that are tightly coupled to on-premises back-end systems, data sources, or other legacy applications need to remain close to those dependencies to maintain low latency and optimal performance. For example, front end web applications require single digit-millisecond latency when connecting to back-end systems in order to provide a responsive experience.

- **Meeting data residency requirements**

Some applications must process or store data locally to meet data residency regulations. For example, some countries' tax laws require organizations to store their financial data locally and to use local infrastructure, as proof of their right to be taxed there. In the US, state level regulatory laws may require organizations to process and store customers' data differently in each state.

How Local Zones can support your hybrid cloud migration strategy

AWS Local Zones are a type of infrastructure deployment that places compute, storage, database, and other select AWS services close to large population and industry centers. By bringing the cloud closer to end users and business centers, AWS Local Zones enable application architectures that require single-digit-millisecond latency. Applications are migrated to a nearby Local Zone, close to your on-premises, data center or end-users. The Local Zone can serve as a cloud staging environment where refactoring, low latency, and data residency needs are met.

With Local Zones you can:

- **More easily migrate complex applications:** Complex applications can continue interacting with on premises workloads as normal while you incrementally refactor and re-platform them.
- **Meet low latency requirements:** Applications running on Local Zones can provide single-digit millisecond latency during interactions with end-users and on-premises applications.
- **Meet data residency requirements:** Local Zones provide additional choices for workloads in regulated industries that are required to be within a geo-political boundary.

Applications deployed on Local Zones can seamlessly connect to the full range of services in the AWS Region, by extending your Amazon VPC to to the Local Zone.

Industry use cases

Organizations from a range of industries can use Local Zones to meet specialized use cases when migrating to hybrid cloud.



Public sector

Government, education, and nonprofit organizations engaged in cloud computing projects designed to deliver improved citizen services. With Local Zones they can store user data in accordance with data residency regulations.



Gaming

Game makers are transforming game workloads, including cloud game development, game servers, live operations, game analytics, game security, and AI, with purpose-built cloud services and solutions. With Local Zones they can deliver these services close to millions of players.



Real money gaming

Providers can offer services in multiple countries and regions where Local Zones are approved to meet local data residency regulations, while delivering a highly responsive player experience.



Health and life sciences

Many healthcare, biopharma, and genomics organizations are moving workloads from on-premises data centers to cloud, in order to speed innovation and deliver improved patient outcomes. With Local Zones they can continue to meet low-latency requirements and more easily comply with industry regulations.



Financial services

Institutions across banking, payments, capital markets, and insurance want to use cloud computing to provide innovative customer services, optimize critical operations, and make compliance and auditing processes more efficient. Local Zones enable them to meet data residency needs and low latency requirements.

MindBody

Mindbody is a leading technology platform for the fitness, wellness, and beauty industries. The business wanted to migrate its portfolio of complex, interdependent applications from on-premises data centers to the public cloud. However, migrating the full portfolio while maintaining a seamless experience for end users was a daunting task.

MindBody used AWS Local Zones to migrate its applications incrementally. The outcome is a drastically simplified migration process with reduced business risk.

“AWS Local Zones have solved a significant problem for us here. We are using Local Zones to migrate our complex, legacy on-premises applications to AWS without an expensive revamp of our architecture. With a Direct Connect to Local Zones, we are able to establish a hybrid environment that provides ultra-low latency communication between applications running in the Local Zone and our on-premises installations.”

John Strong, Senior Director of Production Engineering, MindBody

AWS Local Zones features

AWS Local Zones provide the features you need to support a hybrid migration and meet your specific requirements.



AWS services

You can run AWS services inside Local Zones, including Amazon Elastic Compute Cloud (EC2), Amazon Virtual Private Cloud (VPC), Amazon Elastic Block Store (EBS), Amazon FSx, Amazon Elastic Kubernetes Service (EKS), and more.

You can also seamlessly connect to the full range of services in the AWS Region over AWS's high-bandwidth network backbone.

Global locations

You can run applications in a growing, global array of metropolitan areas. Local Zones are available in 16 US metropolitan areas. Starting in 2022 we are expanding Local Zones to 33 more cities in 27 countries including:

Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Colombia, Czech Republic, Denmark, Finland, Germany, Greece, India, Kenya, Mexico, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, Portugal, South Africa, Taiwan, Thailand and Vietnam



Comprehensive compliance controls

Migrating workloads that process data that is subject to legal or industrial regulations to the cloud is a challenge, because you have to ensure data stays local and cloud infrastructure supports this requirement.

By using Local Zones, you inherit comprehensive compliance controls that allow you to confidently deploy specialized workloads from a wide range of industries. Standards and certifications supported by AWS include PCI-DSS, HIPAA/HITECH, FedRAMP, GDPR, FIPS 140-2, and NIST 800-171.

With Local Zones you gain compliance benefits such as:



Third-party validation for 1,000s of global requirements within finance, retail, healthcare, government, and beyond.



Access to time and cost-saving security controls that AWS uses on its own infrastructure.



Automated compliance reporting with AWS Artifact, available in the AWS Management Console.



Direct Connect

Direct Connect support in all Local Zones enables you to transfer data privately and directly from your data center, office, or colocation environment into and out of AWS.



Compute and storage choices

Meet your applications' specific requirements with a selection of general purpose, compute-optimized, memory-optimized, accelerated computing, and storage-optimized EC2 instances. EBS storage volumes include general purpose SSD and throughput-optimized SSD.



Containers

You can run Kubernetes pods in the Local Zones as part of your Amazon Elastic Kubernetes Service clusters. You can also run Amazon Elastic Container Service tasks in the Local Zones.



Seamless networking

Extend Amazon Virtual Private Cloud (VPC) to seamlessly span your Availability Zones and AWS Local Zones. You can also create a subnet for a Local Zone and extend VPC features including Security Groups, Network ACLs, and Route Tables to it.



A seamless AWS experience

The infrastructure, services, APIs, and tools you use to build and operate your applications remain consistent and familiar throughout your migration to Local Zones and the AWS Region.

LEARN MORE AND GET STARTED

If your hybrid cloud migration strategy is being disrupted by applications that are latency sensitive, too complex to lift and shift, or have local data processing requirements, you can start using AWS Local Zones today to simplify migration and meet these specialized requirements.

<https://aws.amazon.com/about-aws/global-infrastructure/localzones> ›

