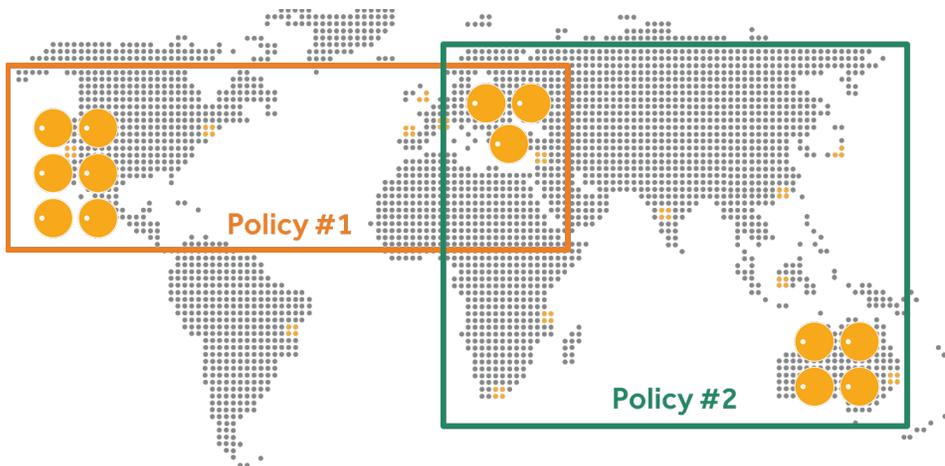


# Multi-Region Clusters

## Delivering a Single Global Namespace

Nodes of a SwiftStack cluster can exist in multiple geographic regions. For each application, you choose how you want the data to be handled and where it should go, placing the data where applications and users most need it. It's centrally managed and driven by policies you define.



Unique data sets can be placed via policy in different datacenters, eliminating storage silos by maintaining a single global namespace

If one region becomes unavailable or an application has to be moved, data is automatically accessed from nodes in another region without needing to know the difference. SwiftStack also keeps track of client performance, so data is always accessed from the fastest node.

Unlike traditional storage, replicating data across multiple regions, or physical sites, is built into SwiftStack. There's no need for third-party replication software or the requirement to manage independent storage in each region to further protect or location-optimize your data. Also, geo-replicated containers/buckets exist in single namespace, so applications and users do not have to be aware of where the data physically lives.

One capability of a storage policy is to designate what regions participate in storing the data. This gives you the ability to not only ensure your data is protected from a regional outage, but optimizes the location of that data for fastest access by other applications and users in your workflow.

### HIGHLIGHTS

- Deterministically places data where applications and users need it most
- Provides high data durability across multiple regions at a lower cost
- Driven by operator-defined policies which determines protection type and location for a specific data set

### USES

- Increase data availability and automatically protect against site failures
- Achieve high-performance local access to data in multi-site workflows
- Automatically distribute data to remote sites

### Deterministic Placement of Data

SwiftStack can place data where applications and users need it most. Unique to each set of data, policies can determine exactly where data lives. For example one set of data can exist in Los Angeles and New York, while another set of data just lives in London.

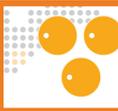
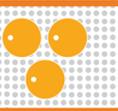
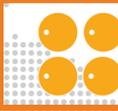
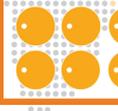
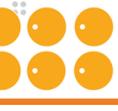
Here is how it works. First, you deploy SwiftStack nodes across any number of data centers in different geographic regions. You then create policies that determine how the data should be protected and located. One of these policies is assigned to a container/bucket of data. When data is written to that container/bucket, it is automatically handled in accordance with the policy.

### Erasure Coding and Replicas

Storage policies define how a container/bucket of data will be stored and protected across the cluster, allowing unique data sets to be handled differently. SwiftStack uses both erasure coding and replicas to protect data.

SwiftStack takes a unique approach to multi-region erasure coding to deliver optimal performance and a single global namespace, while placing minimal demand on the WAN. This allows you to have a single storage namespace across multiple datacenters without having to overhaul your network infrastructure and acquire significantly more bandwidth between two or more regions.

Instead of spreading the data and parity bits across all available regions, SwiftStack uses the nodes in each region to protect the data, keeping the data whole in each data center.

Protection	Use Case	Minimum Nodes per Region	Durability	Region 1	Region 2
4:2 Erasure Coding	Low # of nodes	3 nodes	Ten 9s		 3x Overhead
8:3 Erasure Coding	Primary	4 nodes	Fourteen 9s		 2.75x Overhead
15:3 Erasure Coding	Archive	6 nodes	Twelve 9s		 2.4x Overhead

To try SwiftStack for free, go to <https://www.swiftstack.com/try-it-now/>.

For additional assistance or to learn more, always feel free to contact us. We're here to help.

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