COUCHBASE ON MICROSOFT AZURE

Best Practices for Running Couchbase on Azure

Couchbase
NoEQUAL

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Why Choose Couchbase on Azure

Some of the highlights of Couchbase on Azure are:

- Memory-first architecture
- High availability, fault tolerance, and load balancing
- Multi-master and multi-region support for optimal performance
- Flexible data model with full SQL on JSON
- Deployments can take less than five minutes.
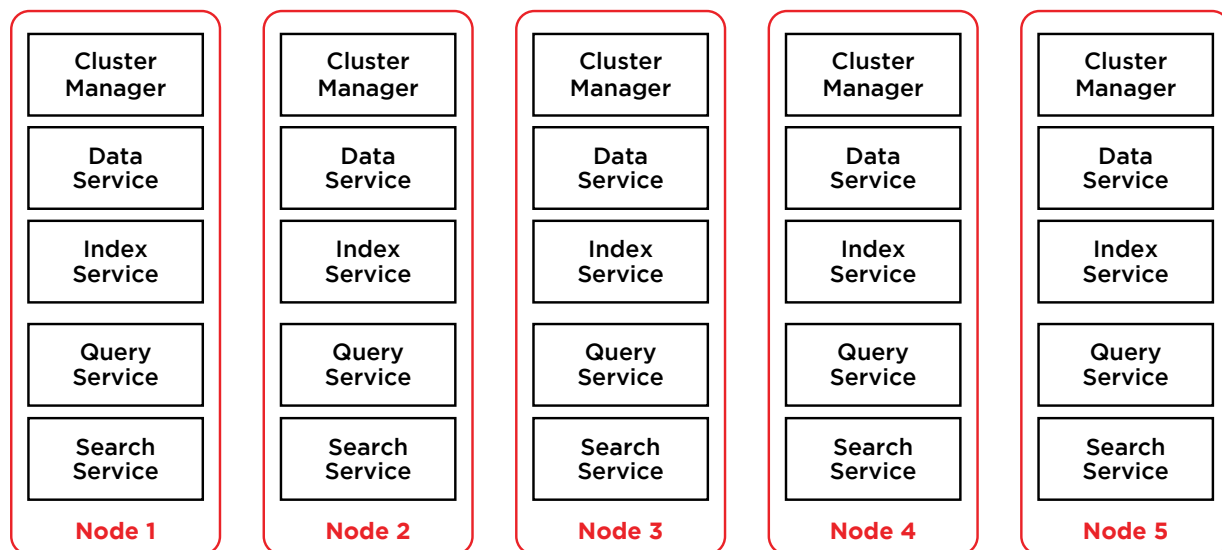- Native support for Azure Kubernetes Service (AKS)

Couchbase Cloud on Azure

Couchbase Cloud is an expertly managed as-a-service database that runs on your own Azure Virtual Network (VNet). Couchbase Cloud allows administration teams to apply their security policies and use any discounts they may have negotiated. Couchbase Cloud is built on Azure Kubernetes Service and allows a high degree of customizability to control both performance and cost.
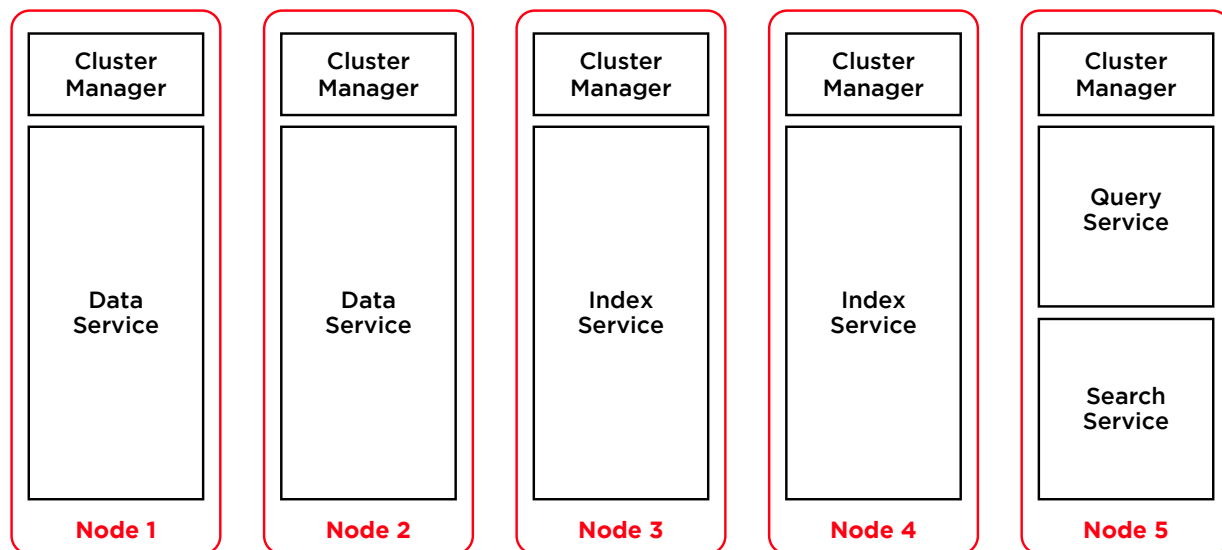
Couchbase Architecture

Couchbase combines a key-value store with a document database that scales horizontally and multi-dimensionally. The overall system comprises separate components, including the data service, query service, and index service. However, different workloads exercise subsystems unevenly. One workload might be query-intensive, while another might do a lot of full-text searches. While development teams might use a cluster with every service deployed on every node in production, this is unlikely.

Cluster Manager	Cluster Manager	Cluster Manager	Cluster Manager	Cluster Manager
Data Service	Data Service	Data Service	Data Service	Data Service
Index Service	Index Service	Index Service	Index Service	Index Service
Query Service	Query Service	Query Service	Query Service	Query Service
Search Service	Search Service	Search Service	Search Service	Search Service
Node 1	**Node 2**	**Node 3**	**Node 4**	**Node 5**

Example: Couchbase Server-Cluster for Development

For a production system where quick value reads and writes are frequent but queries are rare, one may configure data and index services on more nodes and the query and search service on fewer nodes. Deploying the index and query service more widely makes better use of resources for general query-intensive applications.

Cluster Manager	Cluster Manager	Cluster Manager	Cluster Manager	Cluster Manager
Data Service	Data Service	Index Service	Index Service	Query Service
				Search Service
Node 1	**Node 2**	**Node 3**	**Node 4**	**Node 5**

Example: Couchbase Server-Cluster for Production

For Couchbase Cloud on Azure, there is a basic one or three-node "quickstart" template optimized for evaluation and designed to fit within the free trial credit allowance. Additionally, there are these templates available: Key Value Optimized for 3, 6, 9, or 12 nodes, Query Optimized for 7, 10 or 12 nodes, Analytics for 5 nodes, Full Text Search for 5 nodes, and Eventing for 5 nodes.
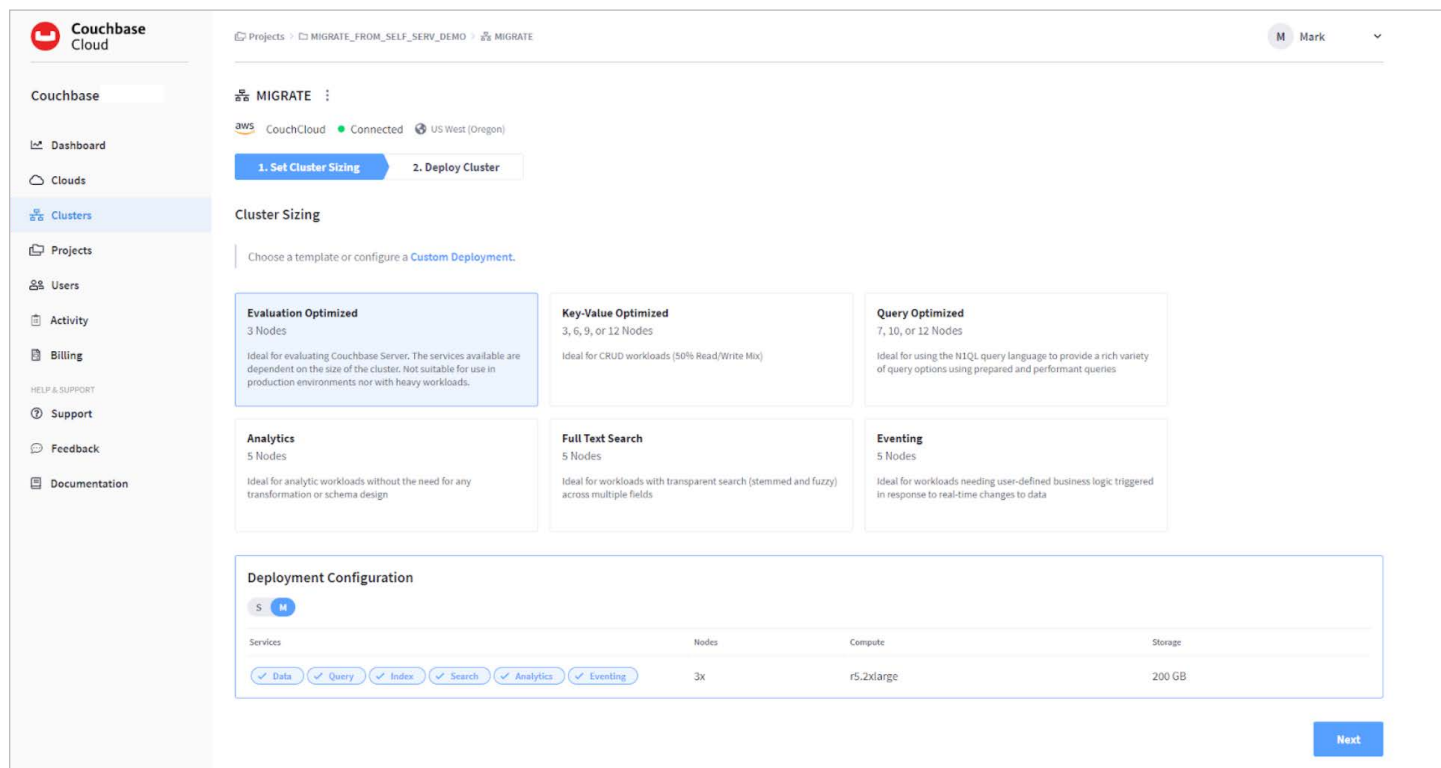
Development teams can advise which template is most appropriate for their application depending on whether it uses more key-value operations or SQL queries. These installation templates are a starting point, but teams will likely optimize or reconfigure their clusters over time based on actual application usage and performance.

The default node size on a small Couchbase Cloud for Azure is Standard_E4s_v3 or Standard_E8s_v3 for a medium setup. It is possible to configure different node sizes to optimize for cost or performance. For key-value workloads, using more small nodes may outperform fewer larger nodes. For query-heavy applications, fewer larger nodes may perform better.

Within a Geographic Zone, Administrators can configure Couchbase Cloud for multiple Availability Zones with synchronous replication. When replicating between multiple Availability Zones, use Couchbase's Cross Data Center Replication (XDCR). It provides an asynchronous replication process appropriate for long-distance replication.
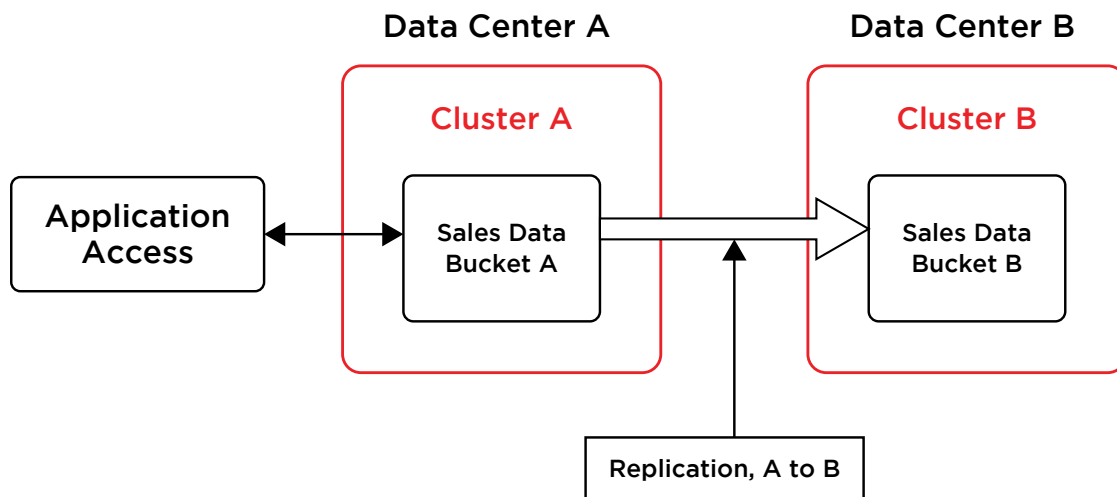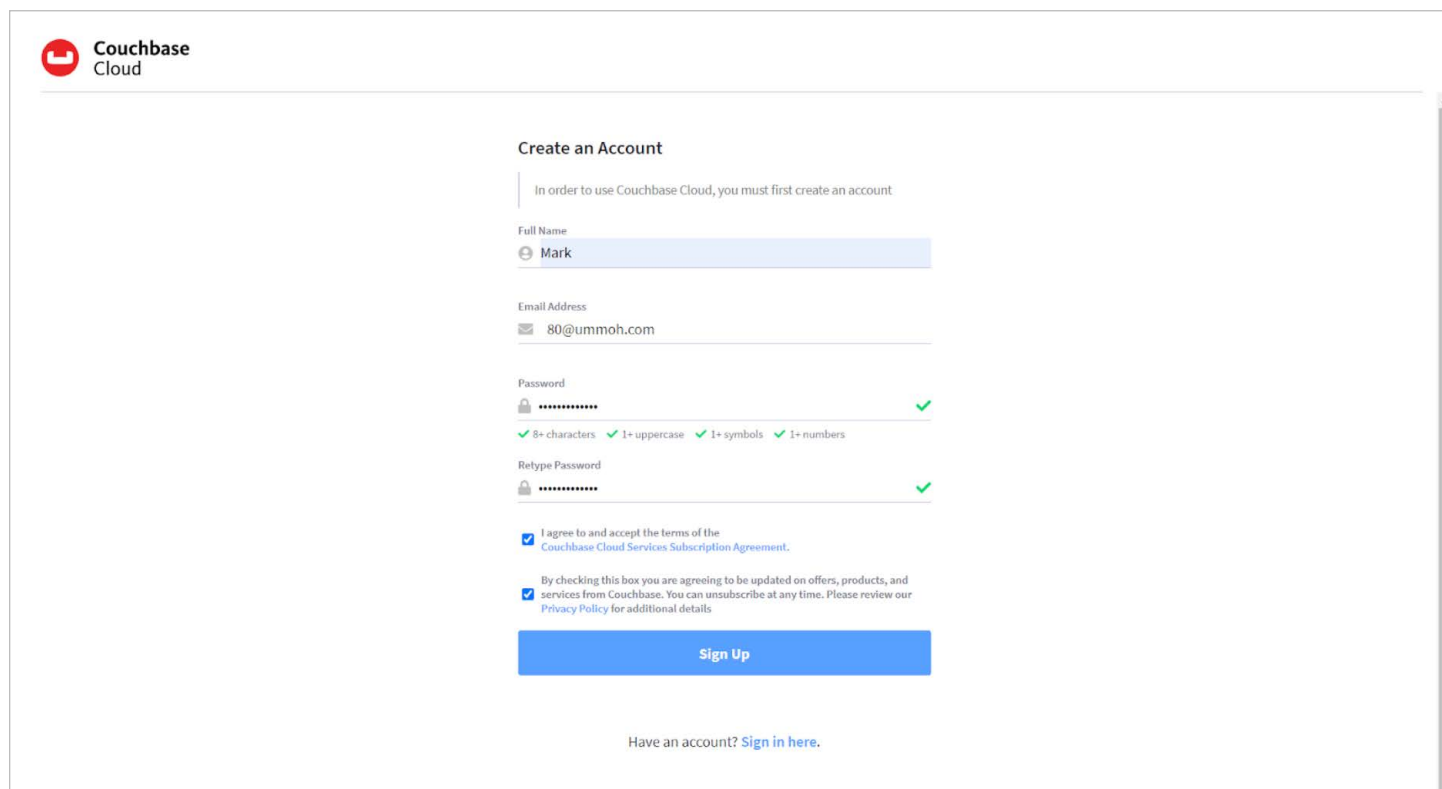
It is possible to configure bi-directional XDCR. This capability allows data to be written or read from any region and replicated to every other region. XDCR is capable of conflict resolution in the event conflicting data is written simultaneously to multiple zones. XDCR is highly configurable, and teams should determine what data needs to replicate between zones and which does not.
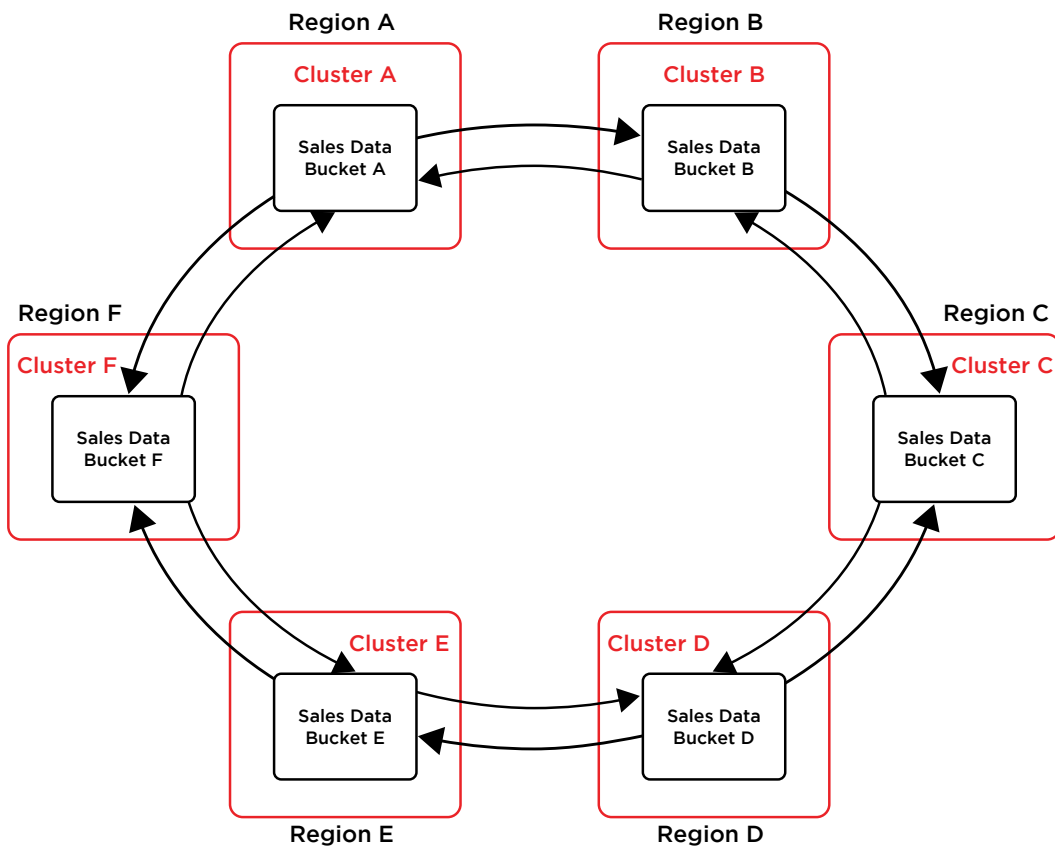
Getting Started

Signup

To sign up for Couchbase Cloud on Azure, you will first need a [Microsoft Azure account](). Then, to create an account on Couchbase Cloud, go to cloud [couchbase.com/sign-up]() and register with your name and corporate email account.

You will receive a confirmation email. Once you confirm your email address, you can create a cluster. Select Azure as your cloud service provider and select your preferred geographic region. Give your cloud a name for identification. You will also name your project and cluster.

At the next step, you chose to deploy Couchbase cloud to your Azure VNet.

After a few minutes, Couchbase Cloud will deploy the service.

Get Started   ✕

Step 1 ✔

Set up a Cloud environment - a virtual private cloud you can use for one or more clusters.
Learn more.

MyCloud

△ Azure

Region
West US 2

CIDR Block
10.21.0.0/16

Connection Status
● Connected

Connection Status Details

1. Checking your environment   ● Complete

2. Connecting to your environment   ● Complete

3. Configuring your environment   ● Complete

During the deployment process, users choose a cluster configuration. First-time users just "kicking the tires" can select the default one or three-node 50GB "30-day trial" cluster size. Couchbase customers who have already decided to deploy on Couchbase Cloud should choose an appropriate cluster template, or click "Custom Deployment" to manually set cluster configurations.

Endpoint Configuration

To connect to Couchbase Cloud, clients will need the endpoint URL and the Root Certificate (for SSL). The endpoint is configured to allow specific ranges of IPs, such as the client application cluster's IP range.

To connect to buckets and work with data, clients will need a Database User for authentication. [Create a Database User](#) in the Couchbase Cloud Control Plane.

Loading Data

Clients can import JSON or CSV data via the Couchbase Cloud Control Plane. For teams looking to evaluate Couchbase Cloud for the first time, it includes three sample databases you can easily import.

Querying

Administrators can create and test queries from the Couchbase Cloud Control Plane using the Query Workbench. Aside from evaluating results and testing SQL (N1QL) statements, the plan tab gives helpful information for query and index tuning.

Monitoring

Couchbase Cloud offers extensive monitoring capabilities. Administrators can monitor operations per second, connections, memory utilization, replication, and other system health indicators.
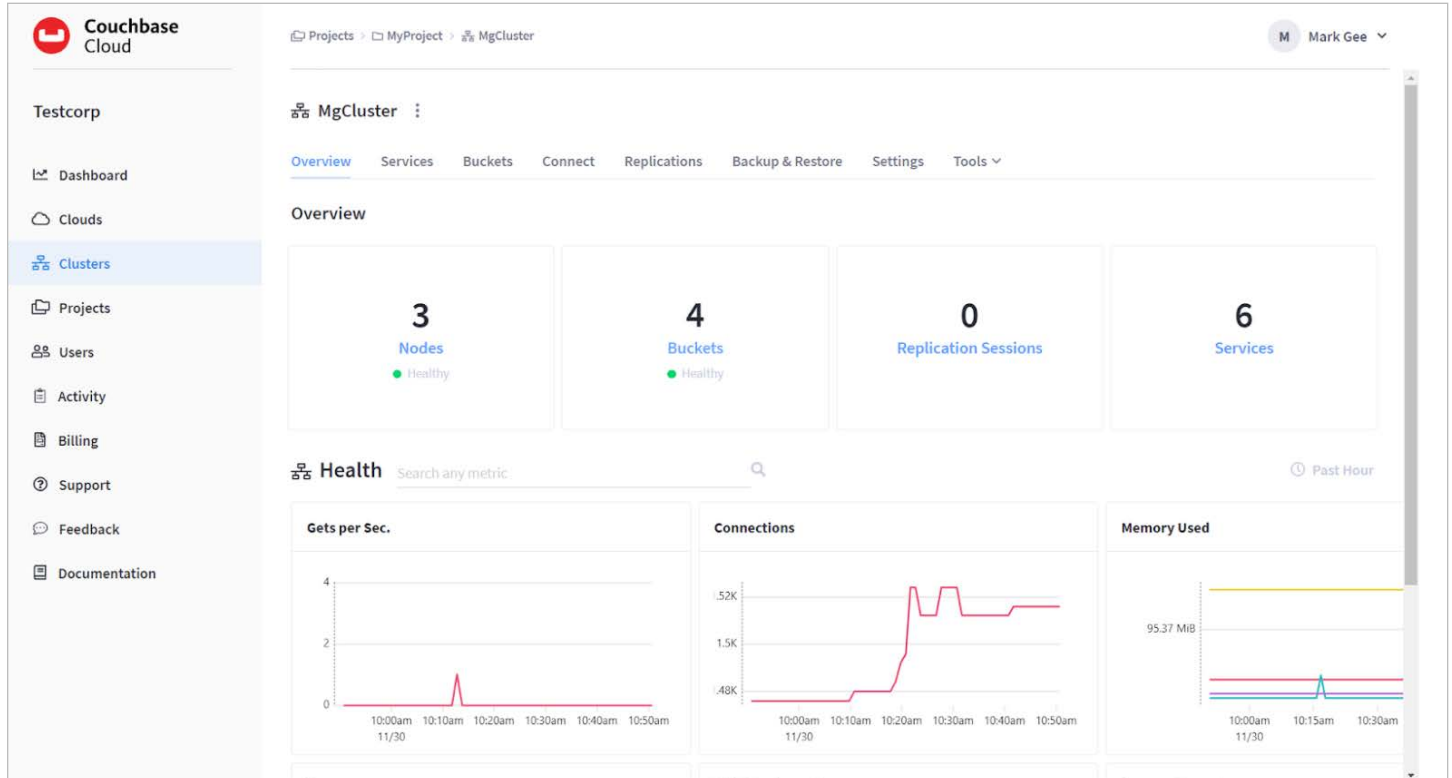
Backup and Restore

While administrators can configure Couchbase Cloud to prevent data loss even in multi-node failures, application errors and other issues can delete or write incorrect data. Use a proper backup strategy to prevent data loss even after catastrophic errors. Backups can be managed from the Couchbase Cloud Control Plane. Administrators should determine the proper window for disaster backup restores, for instance, 2, 12, or 24 hours in catastrophic situations.
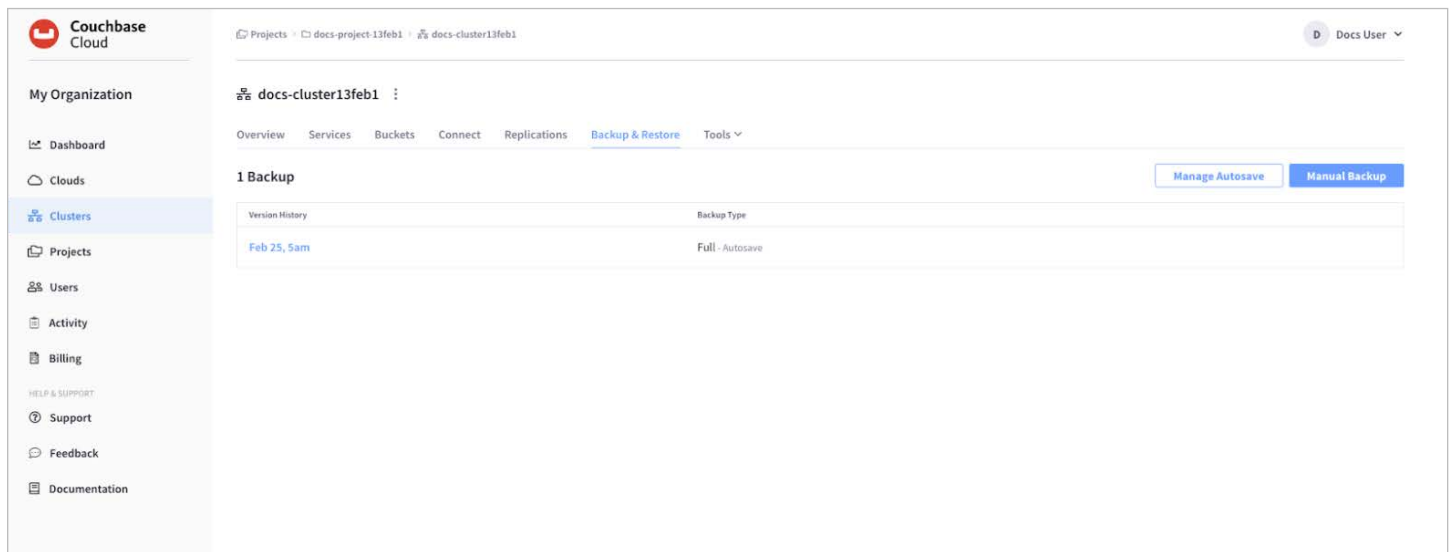
Getting Help

Couchbase Cloud is a secure, cost-effective, easy to develop, easy to scale, and easy to manage database system. However, as with any distributed database, schema design, tuning, and reliable scale-out require know-how. Couchbase is here for you with:

- [Training](#)
- [Tutorials](#)
- [Documentation](#)
- [Developer Resources](#)
- [24/7 Support](#)
- [Expertise when you need it](#)

Couchbase has helped some of the world's largest companies create reliable, fast, globally distributed database systems. We can provide just the help you need for a successful cloud deployment on Azure.

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About Couchbase

Unlike other NoSQL databases, Couchbase provides an enterprise-class, multicloud to edge database that offers the robust capabilities required for business-critical applications on a highly scalable and available platform. As a distributed cloud-native database, Couchbase runs in modern dynamic environments and on any cloud, either customer-managed or fully managed as-a-service. Couchbase is built on open standards, combining the best of NoSQL with the power and familiarity of SQL, to simplify the transition from mainframe and relational databases.

Couchbase has become pervasive in our everyday lives; our customers include industry leaders Amadeus, American Express, Carrefour, Cisco, Comcast/Sky, Disney, eBay, LinkedIn, Marriott, Tesco, Tommy Hilfiger, United, Verizon, as well as hundreds of other household names. For more information, visit www.couchbase.com.