



# COUCHBASE ON MICROSOFT AZURE

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Best Practices for Running Couchbase on Azure



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## Best Practices for Running Couchbase on Azure

### 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)

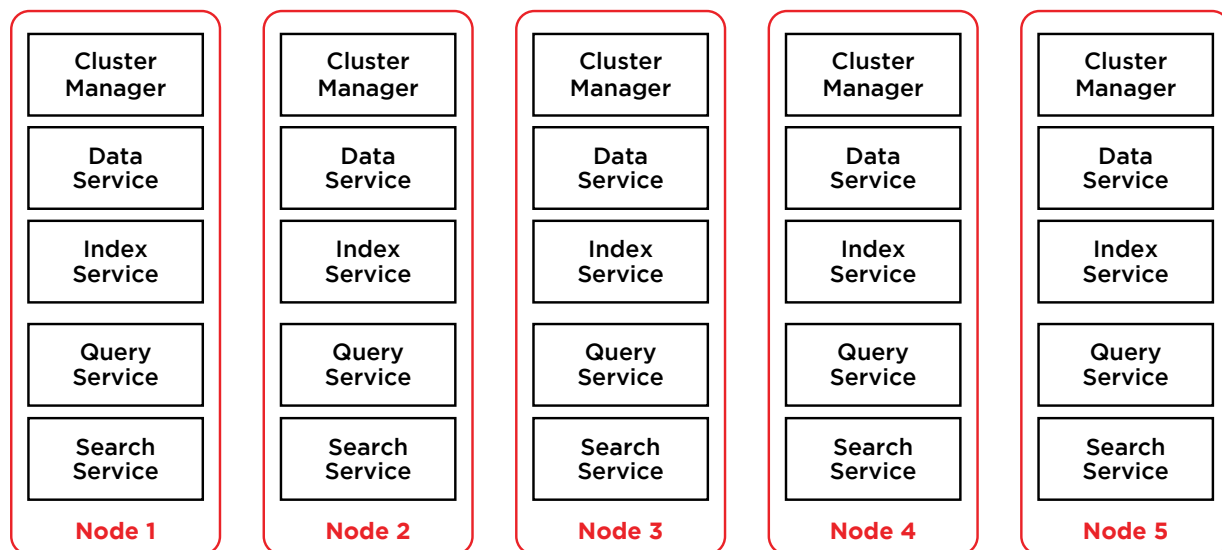
### Couchbase Cloud on Azure

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

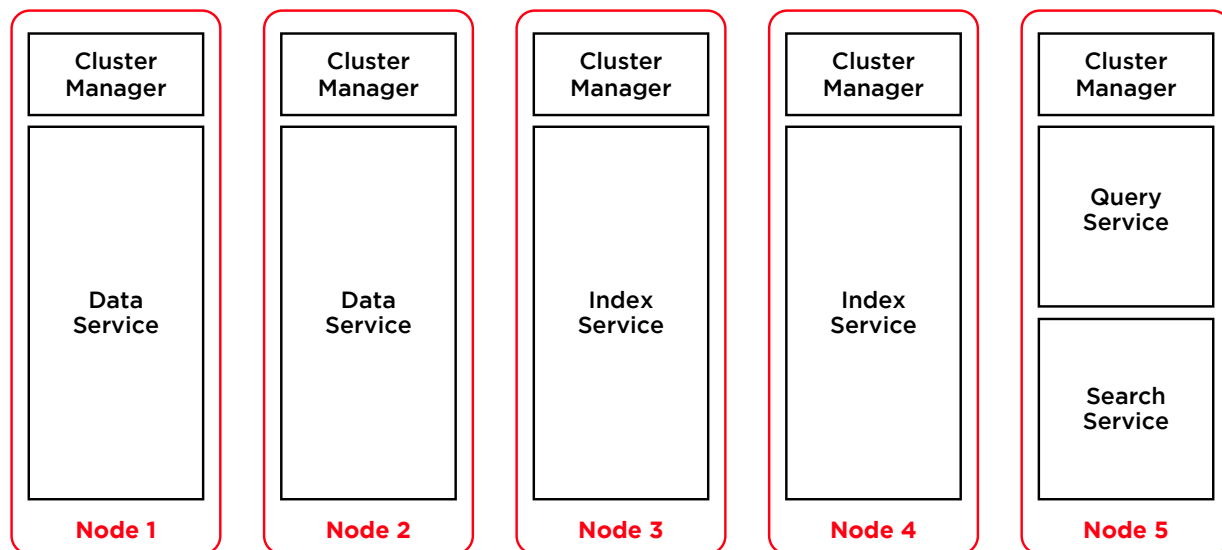
Couchbase combines a key-value store with a document database that scales horizontally and multi-dimensionally. The overall system comprises separate components, including the data service, query service, and index service. However, different workloads exercise subsystems unevenly. One workload might 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.





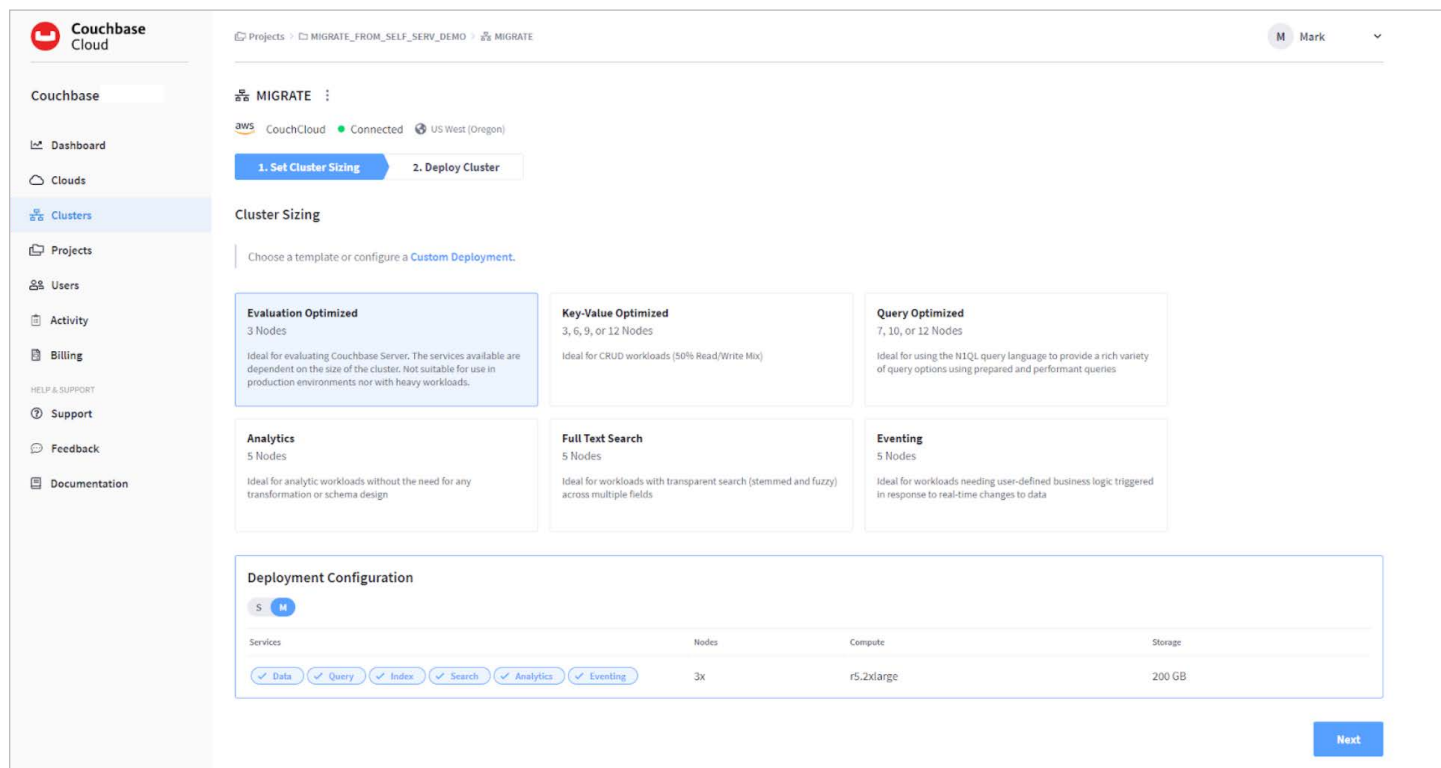
Example: Couchbase Server-Cluster for Development

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.



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.

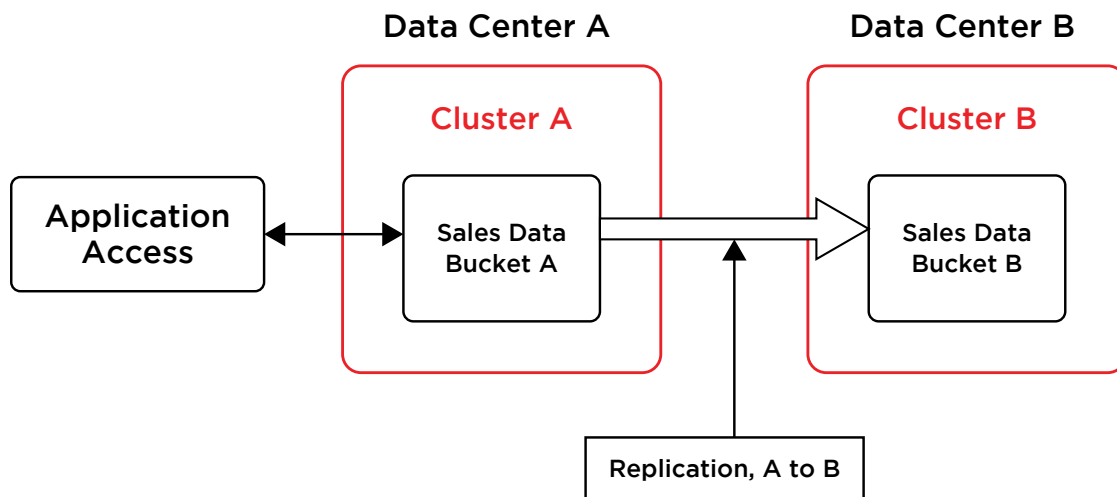


Development teams can advise which template is most appropriate for their application depending on whether it uses more [key-value operations](#) or [SQL queries](#). These installation templates are a starting point, but teams will likely optimize or reconfigure their clusters over time based on actual application usage and performance.

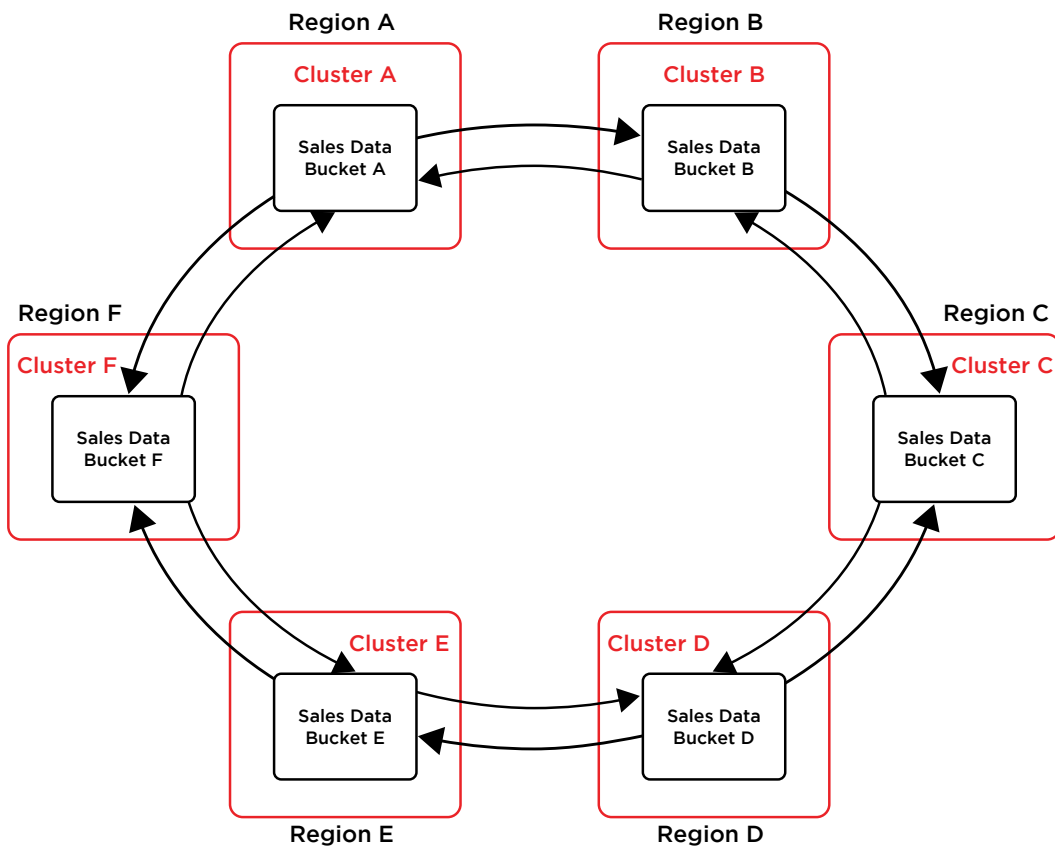
The default node size on a small Couchbase Cloud for Azure is Standard\_E4s\_v3 or Standard\_E8s\_v3 for a medium setup. It is possible to configure different node sizes to optimize for cost or performance. For key-value workloads, using more small nodes may outperform fewer larger nodes. For query-heavy 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.





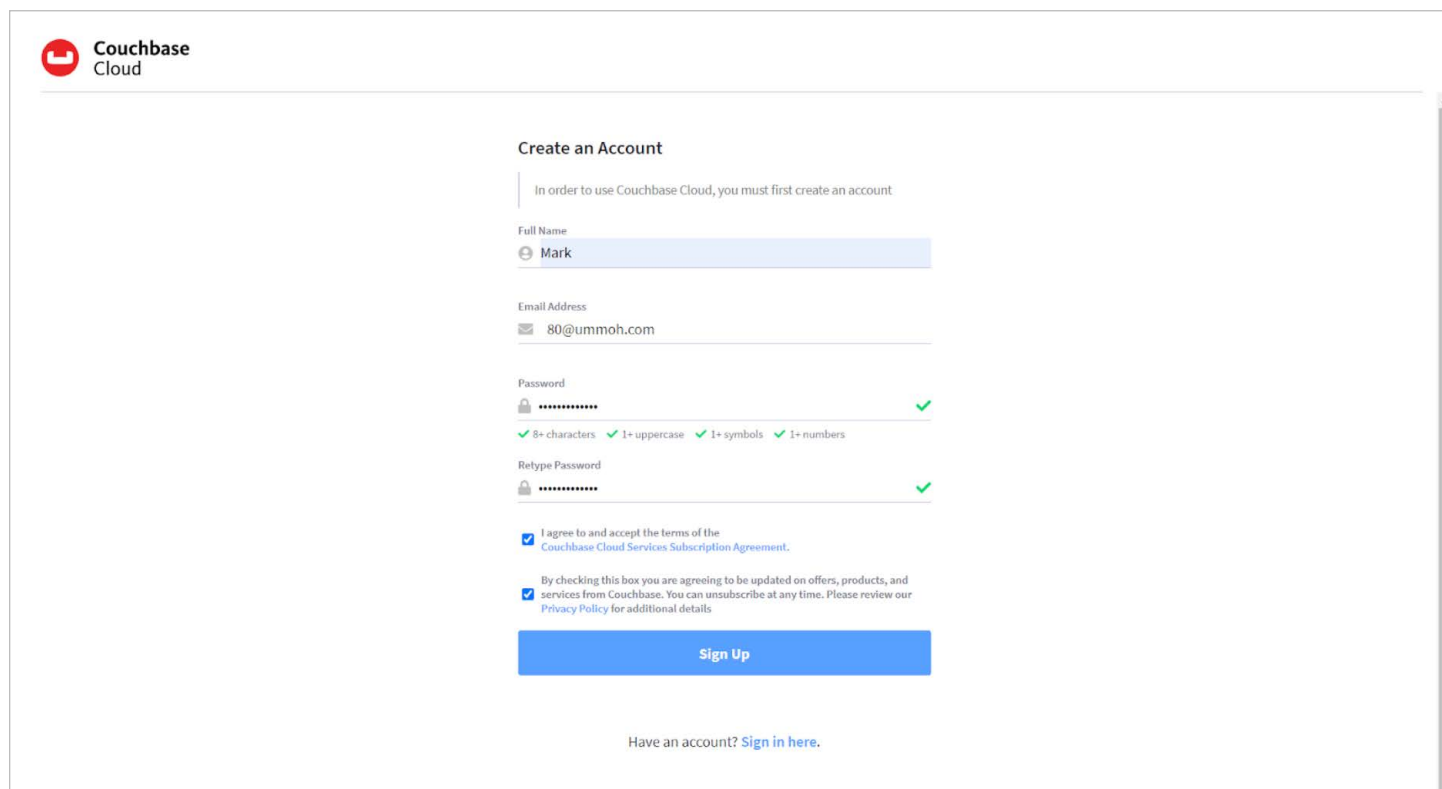
It is possible to configure bi-directional XDCR. This capability allows data to be written or read from any region and replicated to every other region. XDCR is capable of [conflict resolution](#) in the event conflicting data is written simultaneously to multiple zones. XDCR is highly configurable, 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](https://couchbase.com/sign-up) and register with your name and corporate email account.



The screenshot shows the Couchbase Cloud 'Create an Account' page. At the top left is the Couchbase Cloud logo. The main heading is 'Create an Account'. Below it, a message states: 'In order to use Couchbase Cloud, you must first create an account.' The form fields are as follows: 'Full Name' with a user icon and the text 'Mark'; 'Email Address' with an envelope icon and the text '80@ummoh.com'; 'Password' with a lock icon, masked text, and a green checkmark, with validation text below: '8+ characters', '1+ uppercase', '1+ symbols', and '1+ numbers'; 'Retype Password' with a lock icon, masked text, and a green checkmark. Below the password fields are two checkboxes: the first is checked and labeled 'I agree to and accept the terms of the Couchbase Cloud Services Subscription Agreement.'; the second is checked and labeled 'By checking this box you are agreeing to be updated on offers, products, and services from Couchbase. You can unsubscribe at any time. Please review our Privacy Policy for additional details.' At the bottom of the form is a blue 'Sign Up' button. Below the button, it says 'Have an account? [Sign in here.](#)'

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.



Couchbase Cloud

Couchbase Produ...

Dashboard

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Clouds

3 Clouds

Name	Status
AZCLOUD	Connected
CouchCloud	Connected
Couchspring	Connected

Connect Cloud

A Cloud environment refers to a virtual private cloud environment that represents a convenient, on-demand network access to a shared pool of configurable computing resources. Learn more in our [Documentation](#).

Service Provider

Cloud Name

Azure

MyAzureCloud

Cloud names can include letters, numbers and dashes

Available Regions

CIDR Block

Central US

10.21.0.0

/16

Is it your first time connecting to this Azure tenant?

To connect with your Azure cloud successfully, you will need to register our Enterprise Application with it. Please follow the instructions in our [Documentation](#) to do so.

Cancel

Connect Cloud

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

Custom deployment

Deploy from a custom template

Basics

Review + create

Template

Customized template 3 resources

Edit template

Deployment scope

Deploying templates at subscription scope enables scenarios like applying policies and assigning roles at the subscription level. Subscription scope deployments are also used for creating resource groups and deploying resources in it. You can change the deployment scope by updating the schema in the template.

Subscription \*

310 - Product & Mktg Solutions

Parameters

Region \*

East US

Review + create

< Previous

Next : Review + create >

Custom deployment

Deploy from a custom template

Validation Passed

Basics

Review + create

Summary

Customized template 3 resources

Terms

[Azure Marketplace Terms](#) | [Azure Marketplace](#)

By clicking "Create," I (a) agree to the applicable legal terms associated with the offering; (b) authorize Microsoft to charge or bill my current payment method for the fees associated the offering(s), including applicable taxes, with the same billing frequency as my Azure subscription, until I discontinue use of the offering(s); and (c) agree that, if the deployment involves 3rd party offerings, Microsoft may share my contact information and other details of such deployment with the publisher of that offering.

Microsoft assumes no responsibility for any actions performed by third-party templates and does not provide rights for third-party products or services. See the [Azure Marketplace Terms](#) for additional terms.

Deploying this template will create one or more Azure resources or Marketplace offerings. You acknowledge that you are responsible for reviewing the applicable pricing and legal terms associated with all resources and offerings deployed as part of this template. Prices and associated legal terms for any Marketplace offerings can be found in the [Azure Marketplace](#); both are subject to change at any time prior to deployment.

Neither subscription credits nor monetary commitment funds may be used to purchase non-Microsoft offerings. These purchases are billed separately.

If any Microsoft products are included in a Marketplace offering (e.g. Windows Server or SQL Server), such products are licensed by Microsoft and not by any third party.

Create

< Previous

Next

Download a template for automation

7

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



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.

Dashboard

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Projects > MIGRATE\_FROM\_SELF\_SERV\_DEMO > MIGRATE

M Mark

MIGRATE

CouchCloud Connected US West (Oregon)

1. Set Cluster Sizing2. Deploy Cluster

Cluster Sizing

Choose a template or configure a Custom Deployment.

Evaluation Optimized

3 Nodes

Ideal for evaluating Couchbase Server. The services available are dependent on the size of the cluster. Not suitable for use in production environments nor with heavy workloads.

Key-Value Optimized

3, 6, 9, or 12 Nodes

Ideal for CRUD workloads (50% Read/Write Mix)

Query Optimized

7, 10, or 12 Nodes

Ideal for using the N1QL query language to provide a rich variety of query options using prepared and performant queries.

Analytics

5 Nodes

Ideal for analytic workloads without the need for any transformation or schema design.

Full Text Search

5 Nodes

Ideal for workloads with transparent search (stemmed and fuzzy) across multiple fields.

Eventing

5 Nodes

Ideal for workloads needing user-defined business logic triggered in response to real-time changes to data.

Deployment Configuration

S M

Services	Nodes	Compute	Storage
<input checked="" type="checkbox"/> Data <input checked="" type="checkbox"/> Query <input checked="" type="checkbox"/> Index <input checked="" type="checkbox"/> Search <input checked="" type="checkbox"/> Analytics <input checked="" type="checkbox"/> Eventing	3x	rs.xlarge	200 GB

Next

## 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.

Testcorp

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Projects > MyProject > MgCluster

M Mark

MgCluster

OverviewServicesBucketsConnectReplicationsBackup & RestoreSettingsTools

Connection

Endpoint

The endpoint to use when connecting to Couchbase Server from any allowed IP.

9c1c0a00-0000-0000-0000-000000000000@us-west-2.amazonaws.com

Copy

SDK Examples

Allowed IPs

Security Certificate


Root Certificate

Use the self-signed certificate to securely connect to this cluster. Required for both public and private connections.

Copy

Download

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.

 Couchbase Cloud

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Users

1 User

Search...

Only show pending users

Add Database User

Add Couchbase Cloud User

User	Status	Type
<div>M</div> Mark Gee brevi6680@umemoh.com	Verified	Couchbase Cloud



## 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.

☰ MyCluster ⋮

[Overview](#) [Services](#) [Buckets](#) [Connect](#) [Replications](#) [Backup & Restore](#) [Settings](#) [Tools](#) ▾

### Import

Load Your Data

**JSON**

Supports JSON files that have a JSON document on each line, files that contain a JSON list where each element is a document, and a ZIP file containing multiple documents that meet the Couchbase Samples format.

[Import JSON](#)

**CSV**

Supports a single file using comma-separated values or tab-separated values.

[Import CSV](#)

Sample Data

**Travel Sample**

The data model for the travel sample uses several distinct document types: airline, route, airport, and hotel. Sample application tutorials are available for .NET, Go, Java, Node.js, PHP, and Python.

[Import](#)

**Beer Sample**

The beer sample demonstrates a combination of the document structures used to describe different items, including references between objects.

[Import](#)

**Game Sim Sample**

The game simulation data showcases a typical gaming application that combines records showing individual gamers, game objects.

[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.

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Projects > MyProject > MyCluster

MyCluster

Overview Services Buckets Connect Replications Backup & Restore Settings Tools

Query Editor Settings

History Monitor Explain Execute

1 SELECT \* FROM `travel-sample` WHERE type="airport" LIMIT 10;

LAST RUN RTT ELAPSED EXECUTION DOCS SIZE

JUST NOW 653 MS 16 MS 16 MS 10 4.21 KB

1- [

2- {

3- "travel-sample": {

4- "airportname": "Calais Dunkerque",

5- "city": "Calais",

6- "country": "France",

7- "faa": "CQF",

8- "geo": {

9- "alt": 12,

10- "lat": 50.962097,

11- "lon": 1.954764

12- },

13- "icao": "LFAF",

14- "id": 1254,

15- "type": "airport",

16- "tz": "Europe/Paris"

17- },

18- },

19- {

20- "travel-sample": {

21- "airportname": "Peronne St Quentin",

22- "city": "Peronne",

23- "country": "France",

Table JSON Plan Text Plan

Bucket Insights

Queryable Buckets

gamesim-sample sampled 586 of 586

> `jsonType` = "item" 69.1%

> `jsonType` = "monster" 17.1%

> `jsonType` = "player" 13.8%

> Indexes

travel-sample sampled 1000 of 31591

> `type` = "route" 79.1%

> `type` = "landmark" 12.6%

> `type` = "hotel" 2%

> `type` = "airline" 0.3%

> `type` = "airport" 6%

> Indexes

Queryable on Indexed Fields

Non-Indexed Buckets

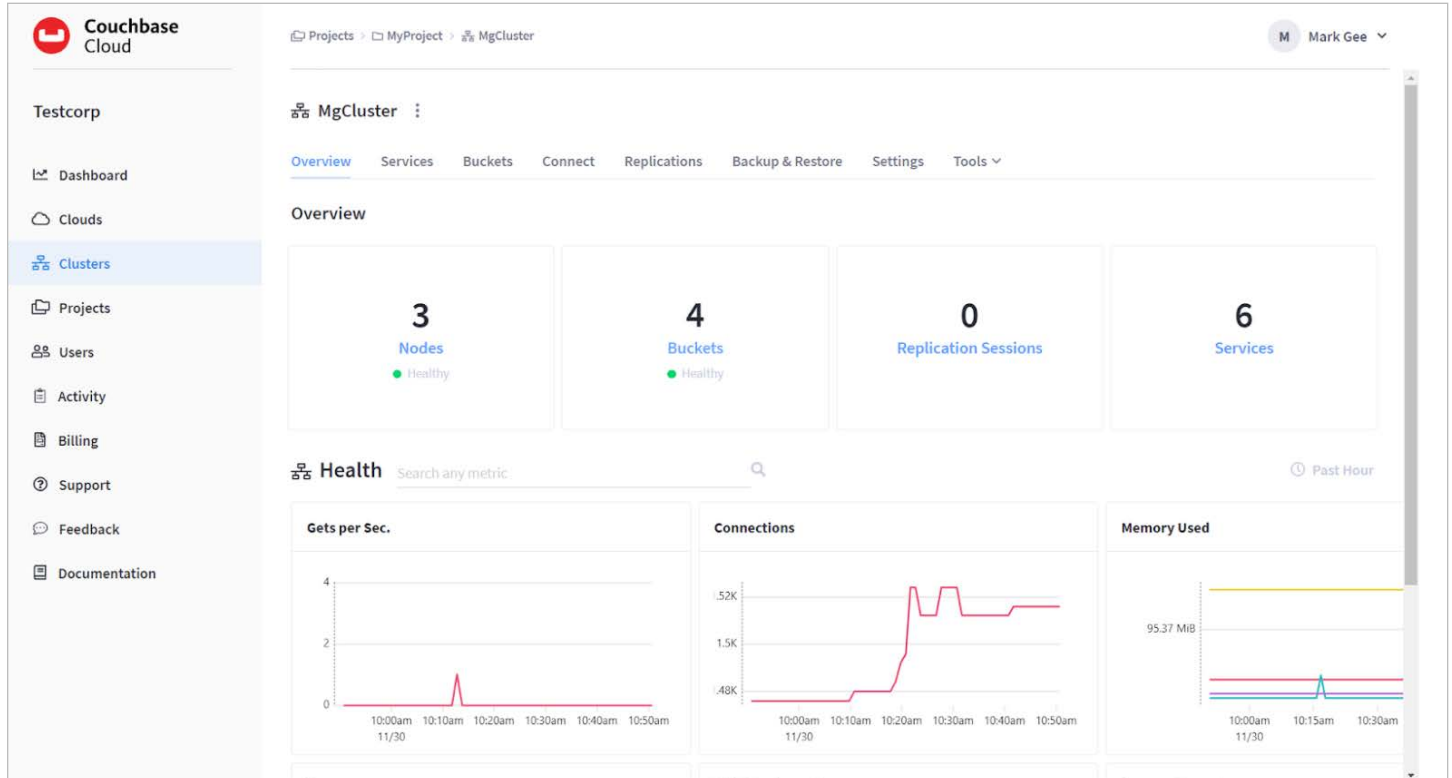
beer-sample sampled 0 of 0

0



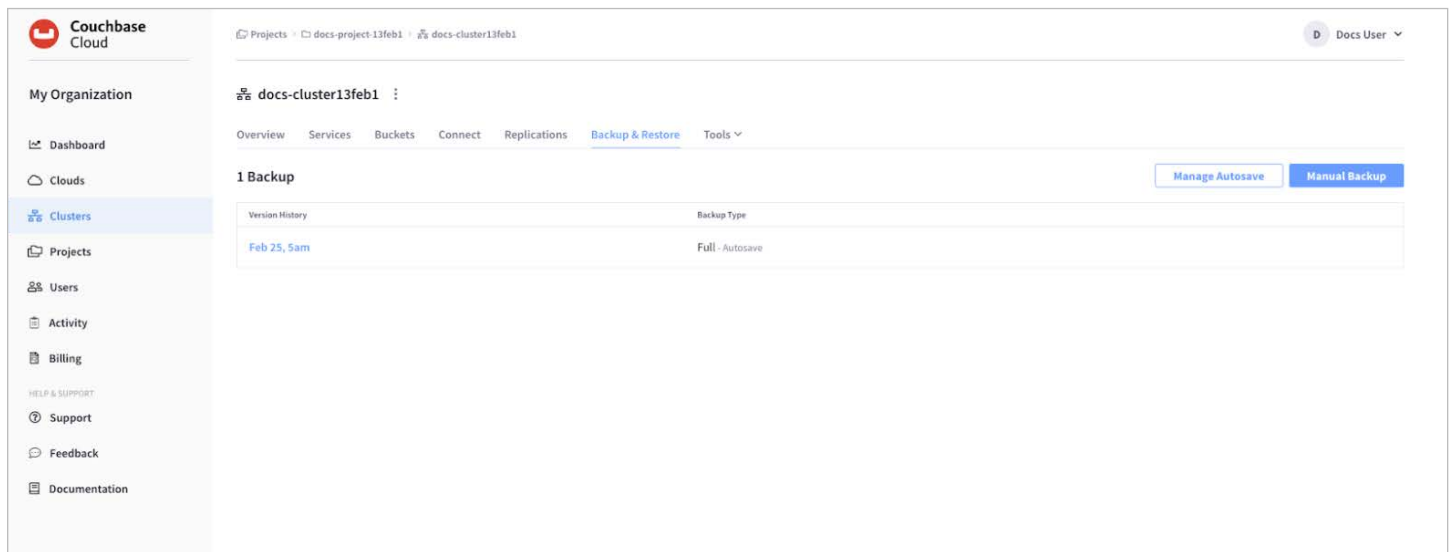
## Monitoring

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](http://www.couchbase.com).

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