MongoDB

Microsoft Azure

Unleash the power of innovation

with MongoDB Atlas on Microsoft Azure

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Introduction: Why is a unified database business – critical?

By 2024, organizations that lack a sustainable data and analytics operationalization framework will have their initiatives set back by up to two years.[1]

[1] "Data & Analytics Series: Exploit the Data Ecosystem for a Competitive Advantage," Gartner webinar.

As you boost your digital competencies to meet customer expectations and stay competitive, it's critical to have an integrated database solution. This will help you eliminate data silos as well as the technical debt that comes with having separate data solutions. You can achieve this with a database that delivers scalability and real-time insights and that is modernized for the cloud.

You want a solution that's supported around the world and flexible enough to meet your customer's needs wherever they are. And you want your solutions to be secure and compliant everywhere they are used.

Market conditions and customer expectations are always changing. Real-time insights provided by an integrated database enable you to keep up, adapt, and pivot as the situation warrants.

This eBook covers how MongoDB on Microsoft Azure helps users move beyond lift and shift in how they work with data so that they can keep pace with their ideas and address the modern application requirements of today and tomorrow.

Overcoming the next generation of modern data challenges

Businesses require a robust cloud infrastructure and secure data management solutions to meet performance requirements, handle large volumes of data, and enable real-time decision-making.

MongoDB Atlas on Microsoft Azure: Powering all your digital capabilities

With MongoDB Atlas on Microsoft Azure, you can focus on driving business value instead of managing infrastructure. How? To answer that question, it's good to start with a basic understanding of MongoDB Atlas and its integrations with Microsoft Azure.

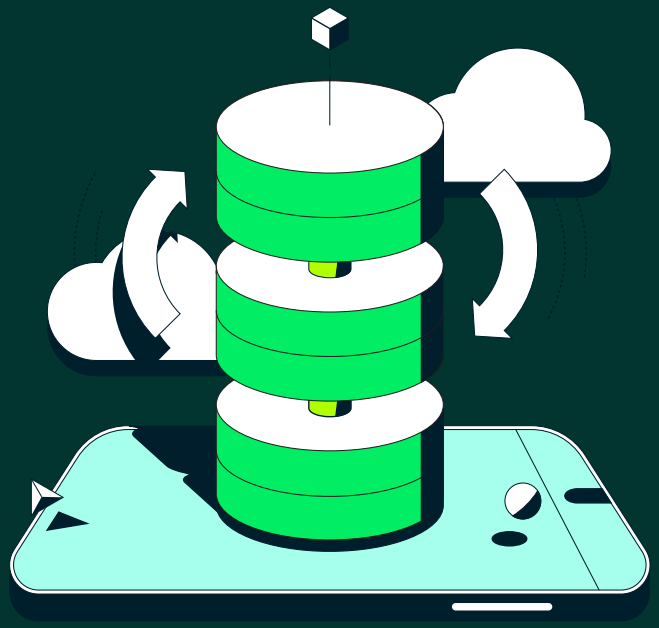
What is MongoDB Atlas?

Modern applications need to work with data in many ways, but too often, organizations add single-purpose data technology to the stack for each new requirement. MongoDB's developer data platform helps you build and run modern applications by providing a unified way to work with data that addresses transactional workloads, app-driven analytics, full-text search, AI-enhanced experiences, stream data processing, and more.

MongoDB Atlas is the leading document database on Microsoft Azure. It is available in 40+ regions and supports global deployments.

About MongoDB Atlas on Microsoft Azure

Azure enables you to set up the infrastructure to support MongoDB Atlas deployment flexibly and cost-effectively at scale. You can migrate on-premises workloads to MongoDB Atlas on Microsoft Azure to improve the developer experience through increased agility. And you can rely on MongoDB Atlas on Microsoft Azure to build modern, data-driven applications, optimize performance, and simplify your data layer. Applications built with MongoDB Atlas on Microsoft Azure are highly available, globally scaled, and can comply with the most demanding security and privacy standards.



Accelerate application development with MongoDB Atlas on Microsoft Azure

Unlock the power of speed: Build and ship faster

Supercharge your Application Development with MongoDB Atlas on Microsoft Azure. By combining the flexibility and scalability of MongoDB Atlas with the robust infrastructure of Microsoft Azure, you can rapidly build and ship applications with unrivaled efficiency.

Seamlessly integrate MongoDB's document database capabilities with Microsoft Azure's comprehensive suite of services, empowering your development teams to accelerate innovation, streamline workflows, and deliver exceptional user experiences. Whether you're a startup or an enterprise, harness the dynamic duo of MongoDB Atlas on Microsoft Azure to propel your application development into the fast lane of success.

One platform, many workloads

Address any application's data needs quickly with an integrated collection of data and application infrastructure capabilities in a unified developer data platform.

Manage all of the data models and access patterns your application needs in a single database, and query with a single API that handles everything from basic CRUD operations and transactions to composable aggregation pipelines.

Use a single, unified API to access all the data services you need to serve transactional workloads, app-driven analytics, full-text search, AI-enhanced experiences, stream data processing, and more.

Eliminate the time and costs of data plumbing; instead of requiring you to connect all your data services together manually with ETL, CDC, and other data movement mechanisms, MongoDB Atlas automatically synchronizes and makes data available across services (database, search, mobile, archival tiers, and more).

Operational ease of use

Confidently run your most important database workloads with automated operations and integrations into your deployment workflows. Simplify deployment across application and data layers by building MongoDB into your existing CI/CD workflows. Your data layer will stay up and running even under the most intense workloads with built-in replication and failover, auto-scaling, and the ability to globally deploy in 40+ Azure regions.

Intuitive developer experience

Build and iterate quickly using your preferred language with an intuitive and flexible database that matches how your applications work with data and can be modified at any time as application requirements evolve.

Reduce complexity and sprawl

Simplify your data infrastructure and reduce complexity with MongoDB Atlas on Microsoft Azure. By leveraging the power of MongoDB's fully-managed developer data platform, coupled with the scalability and reliability of Microsoft Azure, you can streamline your data management and reduce infrastructure sprawl.

With MongoDB Atlas on Microsoft Azure, you gain a unified platform for storing, managing, and scaling your data, allowing you to focus on building innovative applications and driving business value.

Handle common tasks intuitively

MongoDB Atlas Search:

MongoDB Atlas on Microsoft Azure offers built-in search that lets you build fast, relevant full-text search capabilities into your applications. And there is no additional infrastructure or systems to manage.

MongoDB Device Sync:

Manage data on-device with MongoDB Atlas App Services and sync automatically to a MongoDB database on Microsoft Azure backend whenever mobile devices are online.

MongoDB Atlas Data Federation:

With MongoDB Atlas on Microsoft Azure, you can simultaneously access data from live MongoDB databases with one simple query across data sources, including Microsoft Azure blob storage and HTTP endpoints.

MongoDB Managed APIs:

Use MongoDB Atlas managed APIs to read from and write data to MongoDB clusters or perform administrative tasks using standard HTTPS endpoints. You can share MongoDB data to client applications using fully-managed HTTPS endpoints, which give you the ability to write custom logic, use CRUD templates, or connect via a GraphQL client.

Easily manage and visualize data

MongoDB Atlas Charts:

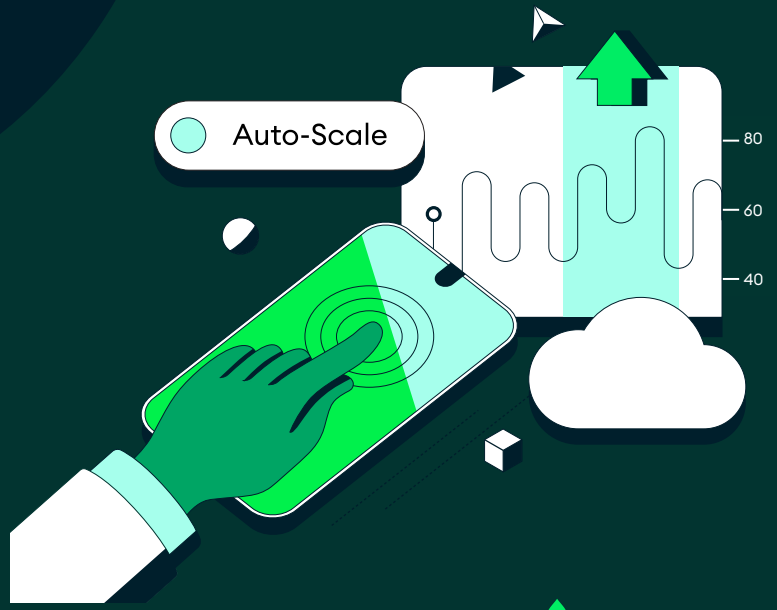
MongoDB Atlas Charts, integrated with Microsoft Azure SDK, provides a quick, simple, and powerful solution to visualize data from MongoDB Atlas and Atlas Data Federation. Designed for the document model, Charts eliminate the need for setup or ETL processes, enabling you to get started quickly. Within minutes, you can build insightful charts and easily share them with your team.

MongoDB Time Series:

MongoDB Time Series collection on Microsoft Azure, is tailor-made for analytical and IoT applications. It excels in reliable data ingestion, employs a columnar storage format, and ensures rapid query processing. This cost-effective solution meets the most demanding needs for performance and scalability, making it an ideal choice for organizations seeking efficient and powerful time series data management.

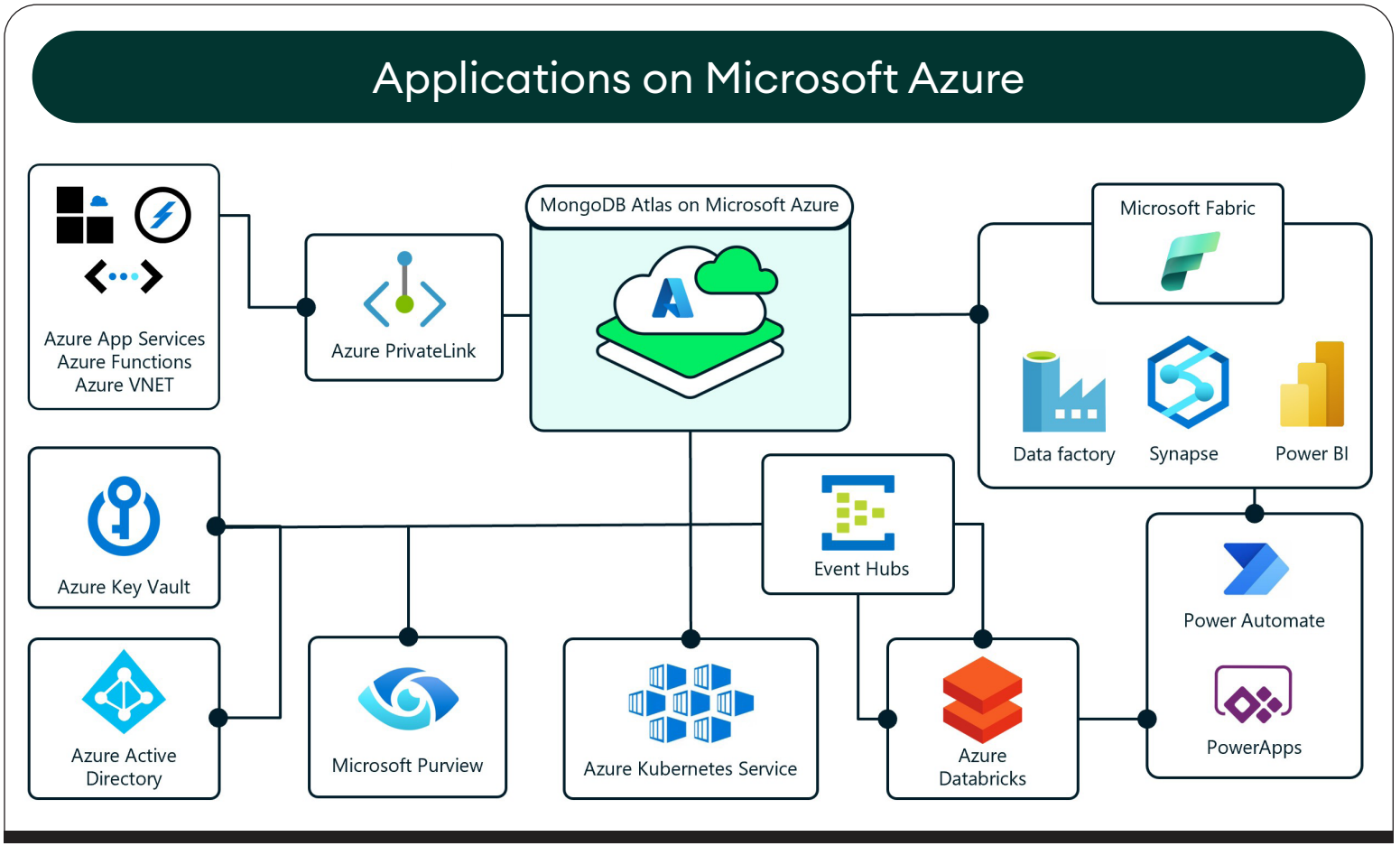
Azure Integrations

MongoDB Atlas on Microsoft Azure features a variety of critical integrations across Developer Tools, Data & Analytics, and Core Services that make it easier to deploy mission-critical workloads. These integrations combine the benefits of MongoDB Atlas and multiple Microsoft Azure services to accelerate data-driven innovation and equip developers with a unified experience. Let's take a look at each of these key categories and explore how these integrations can empower developers to build fast with confidence.



Better together, broaden your capabilities by extending with integrations

Seamlessly integrate Mongo DB Atlas on Microsoft Azure and enhance your data's value using connectors and extensions. Empower developers with a seamless and powerful integration experience.



MongoDB.

Developer Tools

MongoDB Atlas on Microsoft Azure comes with substantial Developer Tools and resources to help ensure critical Microsoft integrations are readily available and easy to set up. Whether it is Azure App Services, Azure Functions, or similar Azure Services, MongoDB Atlas on Microsoft Azure makes integration easy for developers.

Stack Overflow Developer Survey 2023

In May 2023, over 90,000 developers responded to our annual survey about how they learn and level up, which tools they're using, and which ones they want

Improve the productivity of your developers by leveraging GitHub Co-pilot, chat, and voice plugins and leverage Gen AI to assist in writing code for MongoDB-based applications, including but not limited to writing MQLs, aggregation pipelines, search queries along with test cases to test the code written, and help with debugging and analyzing the code.

MongoDB Atlas and Azure App Services:

Using Azure App Service with MongoDB Atlas, you can leverage the scalability, deployment flexibility, and developer-friendly features of Azure App Service while benefiting from the flexibility, query capabilities, and high availability of MongoDB Atlas. This integration empowers you to build robust, scalable, and data-driven intelligent applications with ease.

MongoDB Atlas and Azure Functions:

MongoDB Atlas and Azure Functions are powerful services that can be used together to build scalable, serverless applications with a managed database backend.

MongoDB Atlas and Microsoft Power Apps/ Power Automate/ Azure Logic Apps:

MongoDB Atlas with Microsoft Power Apps/ Power Automate, you can leverage the benefits of a managed database service like Atlas to store and retrieve data for your Power Apps applications. Power Apps and Power Automate can integrate with MongoDB Atlas using Premium connector (Power Automate / Logic Apps) or the Microsoft-certified custom connector (Power Apps), enabling data-driven app development and automating workflows that involve MongoDB data. This integration empowers users to create custom applications and automate processes while leveraging the scalability and flexibility of MongoDB Atlas as the underlying database service.

MongoDB Atlas and Visual Studio Code:

With the MongoDB for VS Code Extension now generally available (GA), it is easier than ever to build applications and work with your data in MongoDB right from the VS Code environment you already know and love. The extension allows you to connect to your MongoDB deployment on Atlas or anywhere else so you can explore and query your data. You can also view database schema and indexes to optimize your data model and use the Playgrounds feature or access the MongoDB Shell for more advanced scripting operations. And with the most recent release of the extension in GA, intelligent autocomplete for MongoDB's Query API and optimizations to the Playgrounds make for an even more delightful experience.

MongoDB Atlas and Azure Data Studio:

With MongoDB Atlas and Azure Data Studio, you can leverage the comprehensive data management, querying, and scripting capabilities of Azure Data Studio to efficiently work with MongoDB data stored in MongoDB Atlas. This integration enhances productivity, simplifies data management tasks, and provides a seamless development experience for MongoDB-based applications.

Power your Operational Analytics with MongoDB Atlas and Microsoft Azure

MongoDB Atlas and Microsoft Purview

Microsoft Purview complements MongoDB Atlas by providing robust data governance, management, and analytics capabilities. It enables organizations to gain better visibility, control, and insights into their MongoDB data assets, fostering data-driven decision-making and ensuring regulatory compliance.

MongoDB Atlas and Azure Databricks

When combining MongoDB Atlas with Azure Databricks, you can leverage the benefits of a fully-managed developer data platform like Atlas to store and retrieve data for your Databricks analytics and processing workloads. Databricks can seamlessly integrate with MongoDB Atlas using the MongoDB Spark Connector, allowing you to read and write data between Databricks and MongoDB collections. This integration enables you to leverage the scalability and flexibility of MongoDB Atlas as the underlying database while performing advanced analytics, data exploration, and machine learning tasks using Azure Databricks.

Harness the potential of Semantic Kernel and MongoDB Atlas Vector Search to revolutionize the way you work with AI and data.

MongoDB Atlas developer platform, document model, rich query APIs, end to end security, distributed and highly scalable architecture makes it a database of choice for AI driven applications. MongoDB Atlas Vector Search capability allows you to store vector representations of your data alongside your operational data and seamlessly query them using aggregation pipelines. Semantic Kernel is an open source SDK that lets you easily combine AI services like OpenAI, Azure OpenAI, and Hugging Face with programming languages like C# and Python. MongoDB announced native support for MongoDB Atlas Vector Search in Semantic Kernel, making it possible for developers to use Semantic Kernel to incorporate Atlas Vector Search in applications.

Semantic Kernel now allows for storing and retrieving vector context for AI apps from MongoDB Atlas clusters using the new MongoDB memory plugin. Picture this: using Semantic Kernel to effortlessly implement Atlas Vector Search for tasks like retrieval-augmented generation (RAG) in your work with large language models (LLMs). This not only streamlines your workflow but also reduces the risks associated with AI-generated hallucinations, among a host of other benefits.

Build Analytics and AI-driven apps

Build and refine models based on the freshest data, operationalize analytical insights and models back into application behavior and pursue new revenue opportunities across industries.

Work with any data

Increase flexibility with technologies based on open standards and high schema flexibility to drive innovation and collaboration across the operational, analytical, and AI domains.

Lower TCO and simplify architecture

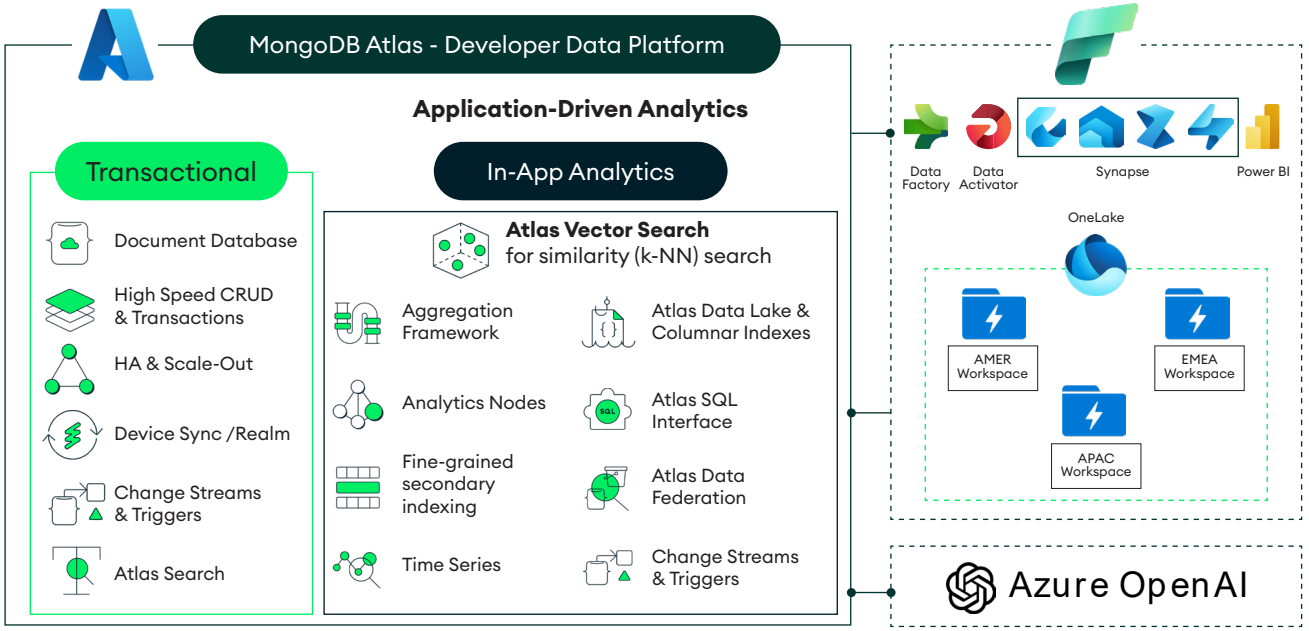
Reduce costs and get faster results for the business with a simplified, flexible architecture that allows curation of data.

Build sophisticated, enterprise-ready intelligent applications with MongoDB Atlas and Azure

MongoDB Atlas and Microsoft Fabric

Unlock the robust capabilities of an Operational Data Platform with MongoDB Atlas, and support large-scale analytics, AI/ML and BI reports by integrating MongoDB Atlas with the rest of the data estate in Fabric One Lake's uniform format. Whether it is data warehousing, long-running Spark analytics, or AI/ML workloads or real-time analytics, MongoDB Atlas seamlessly integrates and complements Fabric Synapse Analytics, empowering organizations to manage data, analytics, and insights efficiently. MongoDB seamlessly integrates with Fabric using multiple options.

- **Dataflow Gen2 (Power Query) connector:** MongoDB Atlas certified connector for Power BI, based on Atlas SQL interface is available in Fabric Data Factory under "Data Flow Gen 2". It enables organizations to easily bring the JSON format data from MongoDB Atlas and run powerful transformations using Power Query like flattening, unwinding array and changing data types. This integration unlocks and maximizes the full potential of their MongoDB data by leveraging advanced analytics and visualization capabilities. Drive better decisions with insights, real-time analytics, and collaborative decision-making.
- **Data Pipeline (Data Factory) connector:** The MongoDB Source and Sink connector in Fabric Data Factory under "Data Pipeline" was announced at Ignite. It enables you to simplify the process of data movement, transformation, and synchronization between your MongoDB data and other data platforms within the Fabric ecosystem. This integration simplifies the data integration process and enables you to leverage the power of Data Factory's scalable and reliable data integration and transformation capabilities.
- **Mirroring:** Microsoft also announced the commencement of work on enabling mirroring feature for MongoDB Atlas. This will provide the easiest and fastest approach – literally a one-click mechanism to replicate the data from MongoDB Atlas to Fabric One Lake.



Core Services

MongoDB Atlas is also well integrated with the core services that Microsoft Azure customers love to use, such as Azure AD, Azure Key Vault, and Azure Kubernetes services.

MongoDB Atlas and Azure Data Studio:

MongoDB Atlas with Azure Data Studio, you can leverage the comprehensive data management, querying, and scripting capabilities of Azure Data Studio to efficiently work with MongoDB data stored in MongoDB Atlas. This integration enhances productivity, simplifies data management tasks, and provides a seamless development experience for MongoDB-based applications.

MongoDB Atlas and Microsoft Purview:

Integrate MongoDB EA or Atlas instances with Microsoft Purview, using the MongoDB connector in Purview to provide robust data governance, management, and analytics capabilities. It enables organizations to gain better visibility, control, and insights into their MongoDB data assets, fostering data-driven decision-making and ensuring regulatory compliance.

Azure Active Directory:

After integrating Azure AD with MongoDB Atlas, you can use your company's credentials to log in to MongoDB Atlas and other MongoDB cloud services. Atlas supports authenticating and authorizing database users from Azure AD Domain Services. This provides you the capability to get a central point of user management from your Azure AD to access MongoDB Atlas and its services.

Azure Key Vault:

MongoDB Atlas databases can be encrypted at rest using your own keys stored in Azure Key Vault. Atlas uses your Azure Key Identifier (AKI) from your Azure Key Vault (AKV) to encrypt and decrypt your MongoDB master keys. These MongoDB master keys are used to encrypt cluster database files and the cloud provider's snapshots. MongoDB Atlas automatically rotates the MongoDB master key to reinforce the security of your data. Keys stored in Azure Key Vault can also be used when implementing MongoDB client-side field-level encryption (CSFLE).

Azure Kubernetes Service:

Uses Atlas Kubernetes operator to manage Atlas resources from Kubernetes itself.

Also, network security is ensured by facilitating Azure VNet Peering or Azure Private Link. VNet Peering ensures secure communication between Atlas VNet and Azure Application VNet, while Azure Private link provides for unidirectional access over a private endpoint to the MongoDB Atlas data.

Deploy confidently with MongoDB Atlas on Microsoft Azure

Secure by default, the solution uses built-in security features across your deployment

MongoDB Atlas on Microsoft Azure is available and reliable, with built-in and preconfigured security features across your deployment. It is compliant with HIPAA, GDPR, ISO 27001, PCI DSS, and more.

All MongoDB Atlas on Microsoft Azure clusters are highly available by default, and production-level clusters are backed by an **industry-leading uptime SLA of 99.995%.**

Backup is built in and takes advantage of incremental snapshots in Microsoft Azure for cost savings. Backup and retention policies are easily configurable to satisfy your recovery point objective (RPO), with an RPO as low as 1 minute. Cloud backup is continuous with point-in-time restores, while speedy restores minimize recovery time objective (RTO).

With security built into the entire MongoDB Atlas on Microsoft Azure platform, you're ready to deploy and run globally, wherever your users are.

Run globally to reach users where they are

A database solution with reach that can grow where your business is going

Run anywhere in the world. MongoDB Atlas on Microsoft Azure is available in 40+ Microsoft Azure regions – even on the edge. Deliver fast and consistent user experiences in any region – or replicate data across multiple regions to reach wider audiences and protect against broader outages. Pin data to specific zones so you can expand to new markets while complying with today's and tomorrow's data sovereignty requirements.

Leveraging MongoDB Atlas on Microsoft Azure for financial services

Financial services organizations require robust and secure data management solutions to meet regulatory requirements, handle large volumes of data, and enable real-time decision-making. MongoDB Atlas, a leading modern database platform, combined with the power of Microsoft Azure, provides a comprehensive solution tailored to the unique needs of the financial services industry.

Benefits of MongoDB Atlas on Microsoft Azure for financial services

MongoDB Atlas on Microsoft Azure is uniquely positioned to help financial services organizations scale with confidence; knowing their underlying data infrastructure makes it easier to meet regulatory and compliance requirements. In addition, MongoDB Atlas on Microsoft Azure also enables real-time analytics and HA/DR capabilities, ensuring financial services businesses can count on dependable data access and actionable insights.

- **Scalability and performance**
- **Real-time analytics and insights**
- **High availability and disaster recovery**
- **Developer productivity and innovation**

Use cases and success stories

- **Customer data management:** Microsoft Azure on MongoDB enables financial institutions to securely manage and analyze vast amounts of customer data in real time, delivering personalized experiences and targeted marketing campaigns.
- **Risk management and compliance:** By leveraging Azure's analytics services and MongoDB's robust data governance features, organizations can perform comprehensive risk assessments and ensure compliance with regulatory frameworks.
- **Fraud detection and prevention:** Microsoft Azure's AI and machine learning capabilities combined with MongoDB's flexible data model enable organizations to build advanced fraud detection systems that continuously analyze transactions and patterns for suspicious activities.

Microsoft Azure on MongoDB offers financial services organizations a comprehensive and powerful solution for their data management needs. The scalability, security, real-time analytics, high availability, and developer productivity provided by this combination empowers organizations to achieve operational efficiency, compliance, and innovation. By leveraging Microsoft Azure on MongoDB, financial services organizations can unlock the full potential of their data, gain a competitive edge, and drive transformative growth in the digital era.

MongoDB.

Customer spotlight

Driving unprecedented transaction volume

Experience the future of banking with Temenos Banking Cloud, powered by the dynamic collaboration of MongoDB Atlas and Microsoft Azure through the convenient (Pay-as-you-go) marketplace. This revolutionary solution is reshaping the banking landscape, empowering financial institutions to embrace true innovation, scale their operations effortlessly, and deliver exceptional Customer Experiences.

With the robust capabilities of MongoDB Atlas and the unparalleled infrastructure of Microsoft Azure, Temenos Banking Cloud offers a secure, scalable, and flexible platform that paves the way for unprecedented growth and success in the digital era. Join the revolution and unlock the full potential of your banking institution today.

Read the blog

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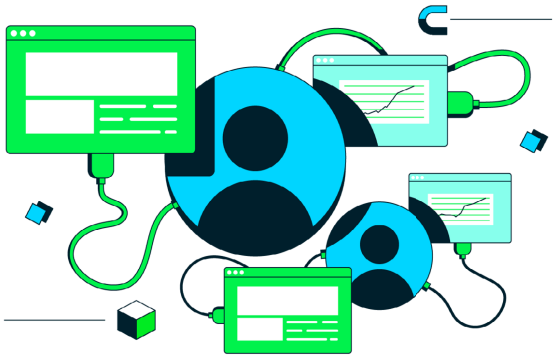


Improved performance at scale

- **Scalability:** Temenos Banking Cloud processed 200 million embedded finance loans and 100 million retail accounts, showcasing its ability to handle massive transaction volumes and support banks' growth strategies.
- **Transaction speed:** Achieving a record-breaking rate of 150,000 transactions per second, Temenos enables banks to deliver fast and responsive banking services, ensuring a seamless user experience for customers.
- **Composed solution:** The benchmark test incorporated a composed solution that combined components like payments, financial crime mitigation, data hub, and digital channels. This comprehensive approach optimizes performance across various areas of banking operations.
- **Componentized architecture:** Temenos' componentized architecture allows banks to upgrade their systems without disrupting existing customer requirements. Components can be introduced without compromising uninterrupted service delivery.
- **Cloud-native infrastructure:** Temenos embraces a cloud-first approach, leveraging Microsoft Azure and MongoDB Atlas. This cloud-native infrastructure offers flexibility, scalability, and reliability, enabling optimal performance and availability.
- **JSON and document model:** By implementing a new data backend based on JSON and the document model with MongoDB, Temenos provides transparent data access and unlocks advanced features like Atlas Search, application-driven analytics, and AI. This enhances performance and enables valuable data insights for banks.

The key performance improvements achieved by Temenos Banking Cloud empower financial institutions to deliver superior services, drive innovation, and meet the evolving needs of their customers in the dynamic banking industry. With enhanced scalability, lightning-fast transaction speed, comprehensive composed solutions, seamless upgradeability, cloud-native infrastructure benefits, and advanced data handling capabilities, Temenos revolutionizes banking by enabling true transformation and delivering exceptional experiences.

Customer spotlight

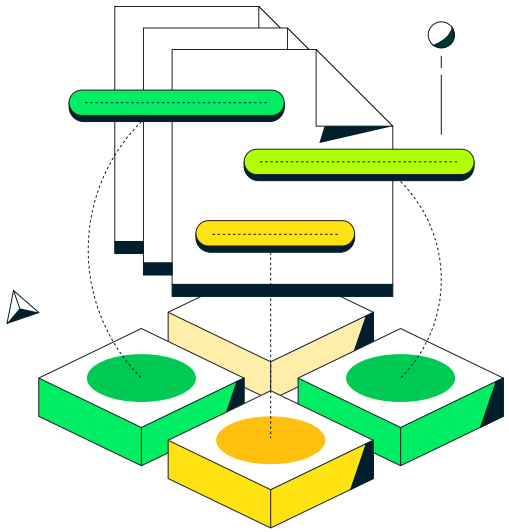
Greater reach, greater growth: Mural empowers digital collaboration at scale with MongoDB Atlas through (Pay-as-you-go) Microsoft commercial marketplace.

Mural and MongoDB, both Microsoft partners and customers, are working together with Microsoft to inspire innovation and change how their customers collaborate to work better, easier, and faster. Mural uses MongoDB Atlas and its integrated suite of cloud database and data services to accelerate and simplify how it builds collaborative solutions with data.

"Working with MongoDB Atlas has enabled us to build faster, ship faster, and ultimately provide more expeditious value to our customers,"

– Guido Vilariño, Vice President of DevOps for Mural."

Watch more here



Moving to MongoDB Atlas

Along with the increased demand, Mural needed to find a new solution that could support its data usage needs while being scalable, reliable, and adaptable. Mural turned to MongoDB Atlas on Microsoft Azure in 2019 because of the unstructured nature of its application software and multi-tenant databases.

The working partnership between Mural and MongoDB has also been very collaborative. MongoDB has worked closely with the Mural team to iterate on unique customer offerings where specific and advanced encryption is required, on data residency requirements, database partitioning, and working with architects and core services teams to provide strategy around database performance to improve customer outcomes.

"We have a relatively small infrastructure team here," said Rebecca Campbell, Vice President of Engineering at Mural. "In the past two years of massive growth we've been able to keep up with the demand without having to add headcount. This really has helped our small teams focus on refining and discovery – ultimately leading to better experiences for our customers."

– Guido Vilariño, Vice President of DevOps for Mural."

MURAL

Fuel growth and build the next-generation of AI-powered apps with a unified data platform

How MongoDB Atlas on Microsoft Azure can help you transform your enterprise

MongoDB Atlas on Microsoft Azure offers the capabilities that can lead to new revenue streams and business growth.

Get to market faster

Accelerated application delivery is critical in a world where your market needs are fluid and dynamic. MongoDB Atlas on Microsoft Azure supports the platforms, technologies, and tools that allow your developers to iterate faster and adapt to changes as they arise.

Rely on unlimited flexibility

You need the confidence that your business can scale as you adapt to changing markets and customer demands. MongoDB Atlas on Microsoft Azure helps empower you to meet unexpected demands while managing your resources and aligning expenses to your business growth.

Captivate customers

Your customers have high expectations, which can grow and change. They look for experiences that go beyond just personalization, snappy UI interactions, and the latest features. With MongoDB Atlas on Microsoft Azure, you can build category-defining applications that will delight your customers and earn their loyalty.

Get started for free with

MongoDB Atlas in Azure Marketplace

Learn more