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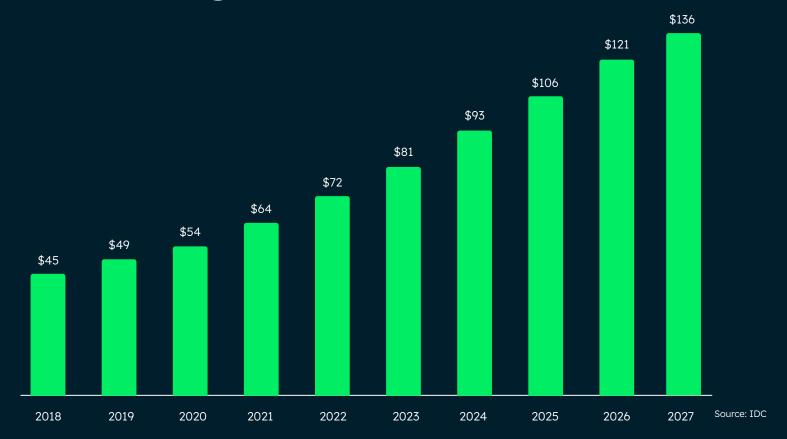
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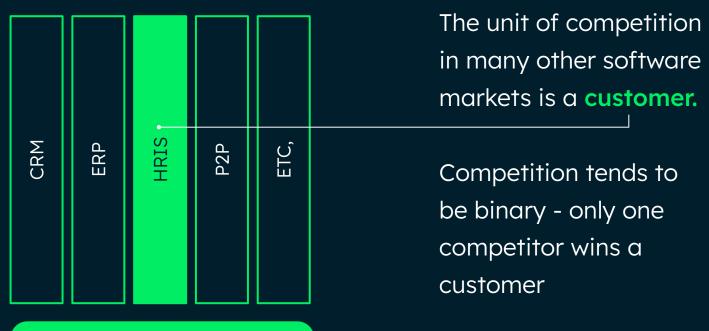
Data Management Software Market, \$Bn



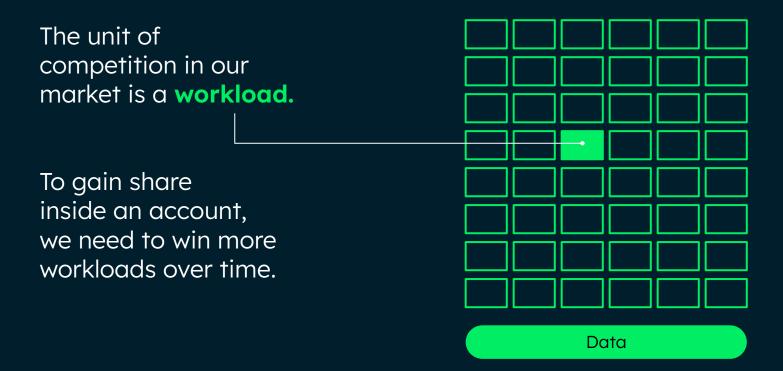


But our market is different than other software markets; it is not monolithic



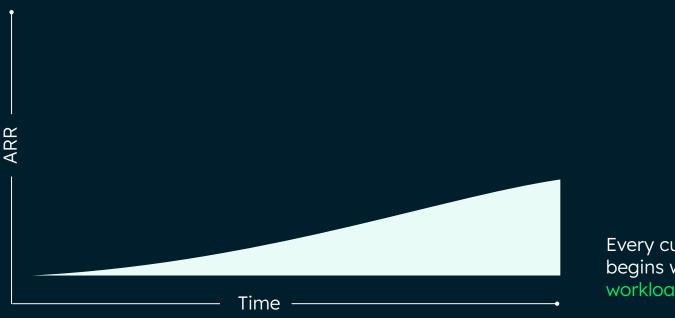


Application Software





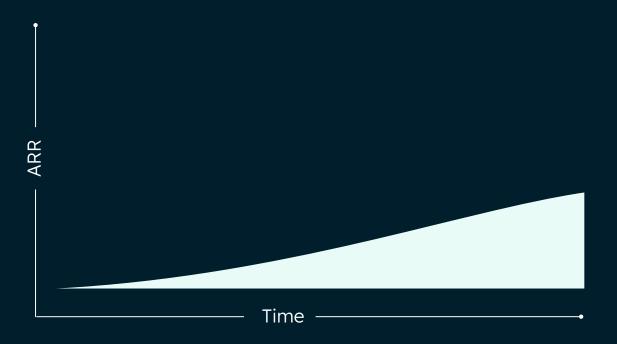
An Illustrative Atlas Customer Journey



Every customer journey begins with the first workload



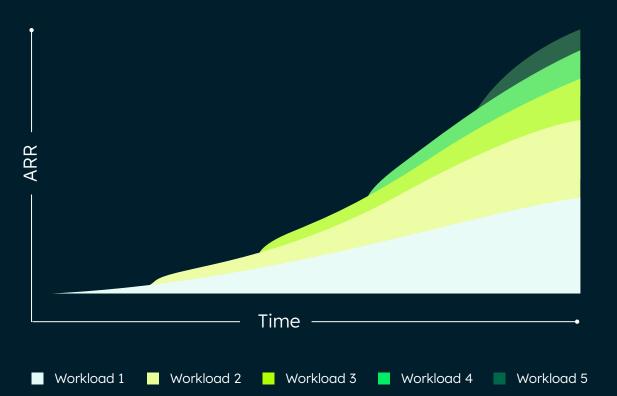
An Illustrative Atlas Customer Journey



Once we onboard a workload, its growth is a function of multiple application-specific factors and macro conditions

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An Illustrative Atlas Customer Journey



What we focus on is adding new workloads and making them more successful over time.



There will be an explosion in the number of workloads over the next few years



Accelerated Innovation

More applications will be built in the next 5 years than in the last 40 years combined

- Microsoft



Developer Power

Developers are now the real decision makers in technology.

- Stephen O'Grady, Redmonk



New Developer Tech

By 2024, 80% of tech products and services will be built by those who are not technology professionals

- Gartner

Our entire company is oriented around winning more workloads.



Winning More Workloads

Make it easier to migrate to MongoDB

App Modernization

Address even more workload types

Search

App-Driven Analytics

Time Series

Queryable Encryption

Vector Search

Support new application architectures

Streams

Serverless

Edge

Hybrid



MongoDB's foundational technical advantage is the document model.



The three fundamental truths about the document model

Document model allows developers to build and modify applications faster

A well-written app using MongoDB uses 50-70% less I/O and CPU; i.e. it is cheaper to run

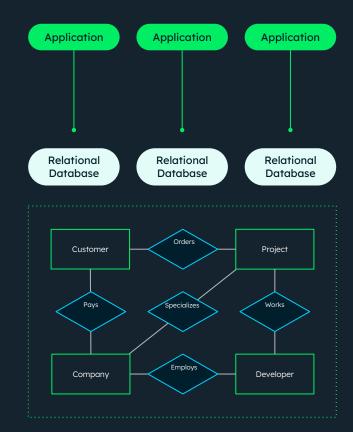
Apps built using MongoDB are more performant and scalable

Our principal competitor remains legacy relational technology



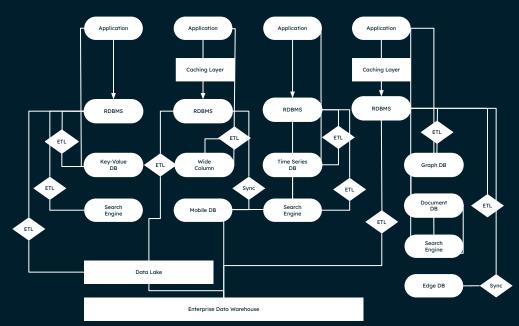
We see our customers struggle to innovate with relational databases because:

- They are optimized for constraints developers no longer have
- The data structures clash with modern data and objects developers work with
- Rigidity makes experimenting and iterating on applications difficult





- Niche Data Stores to plug gaps in RDBMS
- Search engines to serve up relevant info
- Mobile and edge databases to manage data on-device and sync to the backend
- Analytics systems for reporting and ML





Why these Band-Aid solutions?

Because getting off relational is hard.



Getting off Relational is Hard

Update schema

Rewrite code

Migrate data

Determine how the existing relational schema should be best represented in MongoDB document model.

Update or rewrite application code to support new user requirements, modern tech stack and updated schema. Perform one-time or continuous replication of data, allowing cutover from the legacy to the modernized app.



App modernization requires a holistic approach



Technology

Products and integrations to make data migration and app modernization activities as simple as possible



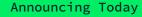
People

Organizations need to break relational mindset by training, inspiring and empowering their developers to build with modern technologies



Partnerships

Ecosystem of experts with deep modernization experience to drive outcomes at every step of customers' modernization journeys



General Availability of Relational Migrator





Design an effective MongoDB schema, derived from an existing relational schema.



Migrate data from Oracle, SQL Server, MySQL, PostgreSQL, and Sybase ASE to MongoDB, while transforming to the target schema.

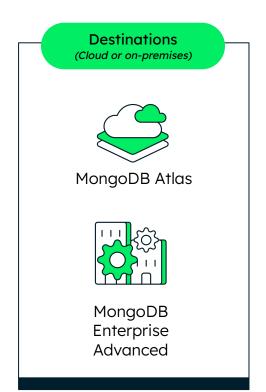


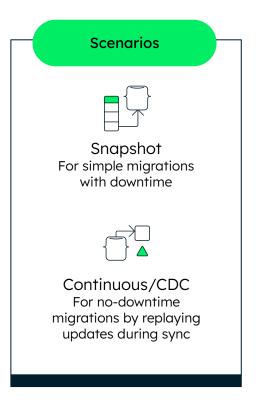
Generate code artifacts to reduce the time required to update application code.



Supported databases and scenarios







Customer Stories

Migrating an entire database is a pretty bold and risky endeavour. Amazingly, we didn't experience any disruption or downtime.

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Francesco Pagetti,
Solutions Architect at Powerledger
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Recently, I had the chance to employ MongoDB's Relational Migrator, and I was genuinely amazed by its outstanding performance. The user interface of the tool is intuitively designed, and the entity relationship diagrams proved to be invaluable in offering a detailed visual representation of my data structures.

Peter Madeley, Software Engineer at Nationwide Building Society



People: Training and empowering developers

Professional Services

Comprehensive training + consulting engagements for migration initiatives.

PS team teaches best practices and establishes

Center of Excellence as they execute their migration plan.

MongoDB University

Dedicated course - M100: MongoDB for SQL Pros

Currently developing a SQL Professionals Learning Path that includes additional courses, like a Learning Byte for Relational Migrator

Developer Relations

Design review days for large customers doing wide-spread MongoDB adoptions.

DevRel team assists with designing/reviewing a data model hand-in-hand with development team.

Partners: Building an ecosystem to support modernization

Global Systems Integrators









Jumpstart Partners





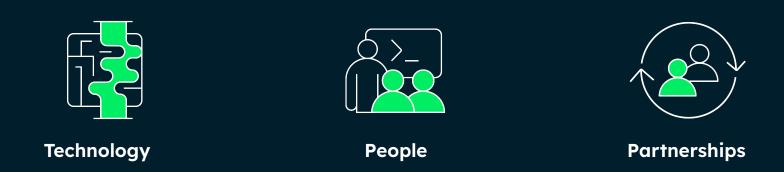








We will continue investing to drive app modernization



We'll tell you more in the AI section



Winning More Workloads

Make it easier to migrate to MongoDB

App Modernization

Address even more workload types

Search

App-Driven Analytics

Time series

Queryable Encryption

Vector Search

Support new application architectures

Streams

Serverless

Edge

Hybrid



Search is ubiquitous in application experiences

Conditioned by decades of using internet search engines, users expect all the applications they rely on at home and at work to provide the same feature-rich and intuitive search experience. This translates into three primary categories of business requirements with many common underlying required capabilities:

Human-friendly UX, Ease of Navigation, Fast and Relevant Results



Catalog & Content Search

Built for discovering and consuming info



Application Search

General purpose navigation within a regular business app



Single View & Customer 360

Reconciling ingested records to build Customer 360 views



How Search is usually built without Atlas Search

Lower developer productivity

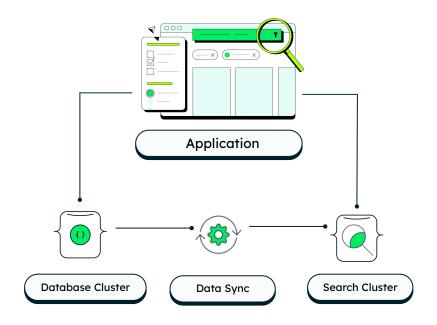
Developers need to use different query APIs for database and search and coordinate schema changes

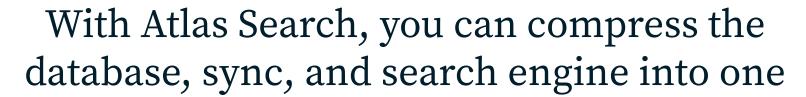
Architectural complexity

Difficult to keep data in sync between two separate systems. Requires its own systems and skills

Operational overhead

More to provision, secure, upgrade, patch, back up, monitor, scale, etc.





Avoid the 'synchronization tax'

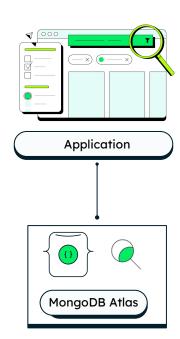
With Atlas Search, data is automatically and dynamically synced from the database to Atlas Search indexes.

Deliver new search features faster

Use a single, unified API across database and search operations.

Work with a fully managed platform

Combine Apache Lucene with the security, performance, and reliability of Atlas.





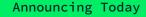
Our value proposition is resonating with customers

"We switched to Atlas
Search because I'm
already using the MongoDB
database, and everything is
in the same place. So it's a
part of my infrastructure
that I can eliminate, and I
stop having to replicate
and reindex data."

- Hermes Martin, Senior Software Engineer, Mobly "We're planning to move all of our search functionality to use Atlas Search. The ability to have a built-in full-text search engine for our data without any additional infrastructure to manage is incredibly valuable."

- Zac Rosenbauer, VP of Technology, Precognitive "All of our search is powered by MongoDB's own Atlas Search. It's so much easier and more efficient to use functionality that's fully integrated with the database instead of separate services with their own costs."

- Ryan O'Connell, CTO, Humanitix





Dedicated Search Nodes in preview

Scale search workload resources independent of the operational database

Grant customers better observability, control, and cost visibility

Pave the way for mission critical, high performance usage at scale

All while maintaining the seamless integration and intuitive developer experience





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Data encryption is a critical, yet only a partially solved problem

Data in transit is encrypted using protocols like TLS and HTTPS

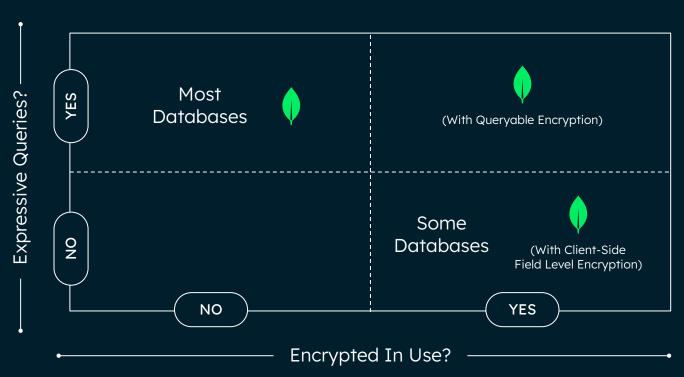
Data at rest is also encrypted, preventing data theft when the database is offline

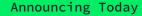
However, data in use isn't encrypted, leaving it vulnerable to insider access and active breaches

Encrypting data in use has historically posed a challenge - data could EITHER be encrypted OR queryable, but not both

This is because using expressive queries on encrypted data in use is a highly complex problem that sits at the intersection of advanced cryptography and database engineering

Queryability vs Encryption





General Availability of Queryable Encryption with MongoDB 7.0



Next generation encryption technology querying on fully randomized encrypted data



Faster app development – no cryptography experience required



End-to-end encryption – Data is encrypted through out data lifecycle



Protect your sensitive workloads while still being able to query the encrypted data

Sensitive data is protected as the data remains encrypted from the client, during transport, at-rest, and while being processed in memory.

Queryable Encryption's fast encrypted search algorithm allows the server to process queries without ever decrypting the data and is performant on the most common sensitive workloads.



Highly sensitive workloads

PII/PHI, financial records, medical records, critical infrastructure



Meet data privacy requirements

HIPAA, GDPR, PCI, CCPA, etc.



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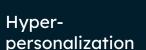
Edge

Hybrid



Streaming data is core to modern apps







IoT Sensors



Route planning



Fraud, Risk, or Intrusion events

Organizations across industries are building new applications that need access to low latency data to deliver compelling experiences to customers and be more competitive in their market.

Event based architectures and streaming data play a critical role in use cases like fraud detection, sensor networks, and real time alerting in a variety of industries from Aerospace, IoT, Manufacturing, Network Security, Fintech and more.

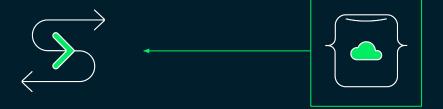


Components of a streaming system



Streaming Transport

Services that ingest data from "sources" as it's created and then stream that data to targets ("sinks"). Kafka is the dominant technology.



Stream Processing

Services that perform real-time queries on streaming data, such as transformations and aggregations.

Databases

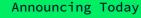
Ingest and index data from streaming platforms and processors into a persistence layer, making it queryable.

Existing stream processing solutions face limitations

Rigid schemas that are difficult to adapt to data in motion create fiction and require additional processing steps

Introducing a stream processing "point solution" to an application stack increases operational complexity and cost.

Disparate APIs, drivers, and tools create a fragmented development experience.



Atlas Stream Processing in preview





Built around the Document model and flexible schemas



Enables complex, continuous processing of streaming data



Integrates working with data at rest with data in motion in an elegant developer experience

Atlas Stream Processing brings the flexibility and developer experience that MongoDB is known for to the streaming ecosystem

Investor Session: MongoDB & AI

MongoDB.local NYC 2023



Sahir Azam CPO



Andrew Davidson SVP Product

How does AI impact MongoDB?

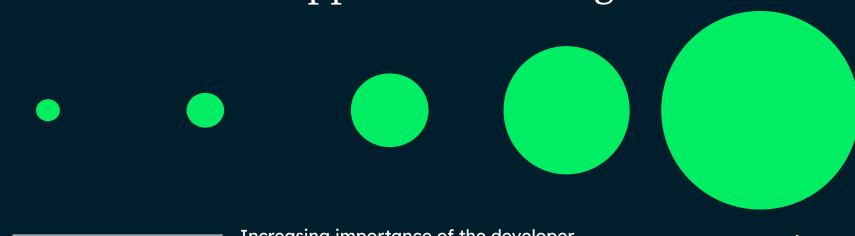
- AI will increase the volume and sophistication of applications being built
- MongoDB will be a preferred platform for AI-powered applications
- Vector Search is a foundational element for GenAI applications
- AI will accelerate application modernization



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New compute paradigms have historically created waves of app creation





Increasing importance of the developer

1970s

Mainframes
enabling back
office apps

1980s

PCs enabling the first gen of consumer apps 1990s

Client-server enabling distributed applications 2000s

The rise of mobile and smartphone/ tablet apps

2010s

Cloud enabling SaaS, Web 2.0, etc.



More data-intensive applications - data volumes, real-time availability, distribution

Apps using all classes of data images, video, audio, geospatial, etc

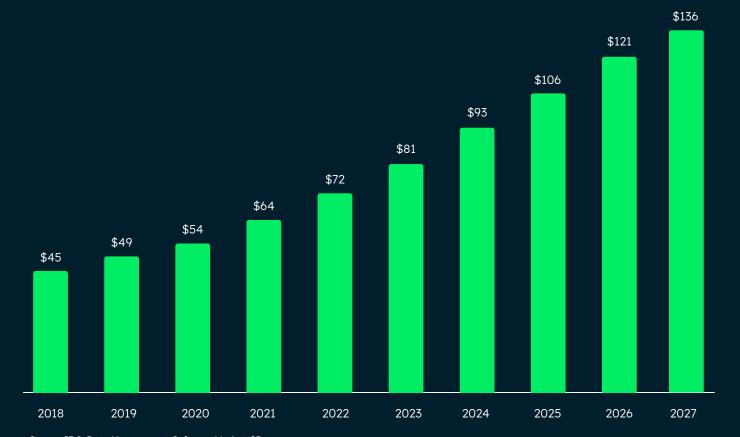
New user experiences -Natural Language Processing and personalized AR/VR experiences

AI is the next platform paradigm...



...driving demand in an already large market





Source: IDC, Data Management Software Market, \$Bn

At the most basic level, we see AI as a driver of application volume, which should benefit us over time



- AI will increase the volume and sophistication of applications being built
- MongoDB will be a preferred platform for AI-powered applications
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What does an AI-powered app need from its operational data layer?



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Represent the versatility and rich structure of the real world

Efficiently handle rapidly changing access patterns as applications evolve

Support the scale and performance of multi-layered machine to machine applications of the future Distribute data across clouds and regions for resilience, low latency, and differentiated AI cloud services

What is MongoDB known for?



Flexibility & Rich Query Language



Broad Workload Support



Performance at Scale



Global and Multicloud

All of our competitive advantages are even more relevant for AI-powered workloads













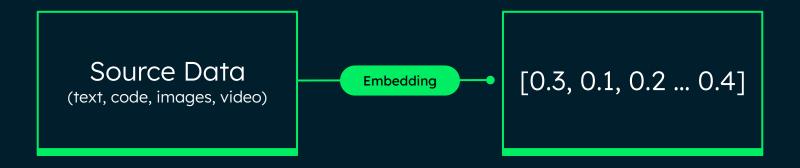




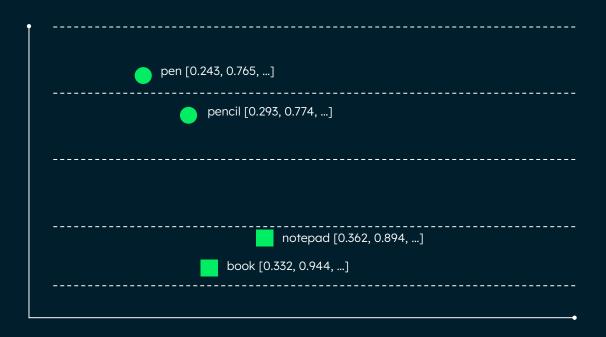


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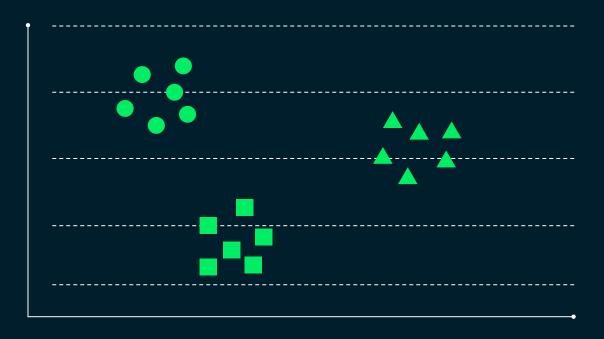
Vectors are a numeric representation of data and related context







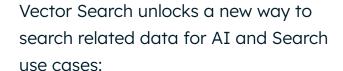
Relate data based on characteristics and meaning





Use Cases



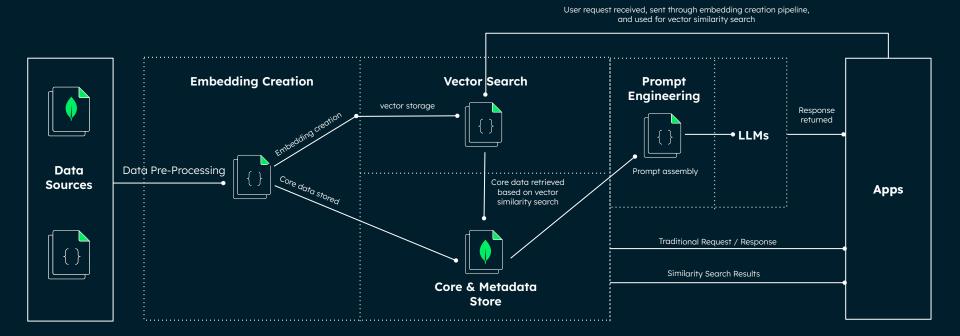


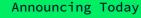
- Indexes text, images, sound, and video
- Augment foundational LLMs with proprietary incremental data & reduce hallucinations
- Question & Answer Systems
- Improved Recommendations& Relevance Scoring
- Dynamic Personalization
- Conversational Support
- Synonym Generation





Illustrative Vector Search App Architecture





Atlas Vector Search in preview





Vector data is integrated with application data and seamlessly indexed for semantic queries



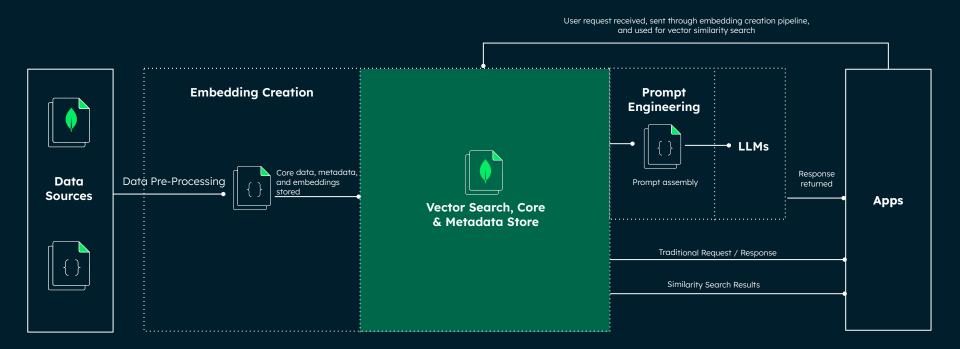
Developers work with database and search via the unified MongoDB Query API



Fully managed for you so you can focus on your application



Vector Search With MongoDB



We bring to Vector Search the value proposition of our Developer Data Platform a fully managed, unified, and elegant developer experience



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Getting off Relational is Hard

Update schema

Rewrite code

Migrate data

Determine how the existing relational schema should be best represented in MongoDB document model.

Update or rewrite application code to support new user requirements, modern tech stack and updated schema. Perform one-time or continuous replication of data, allowing cutover from the legacy to the modernized app.



Today we announced a big step in making it easier - Relational Migrator



Design an effective MongoDB schema, derived from an existing relational schema.



Migrate data from Oracle, SQL Server, MySQL, PostgreSQL, and Sybase ASE to MongoDB, while transforming to the target schema.



Generate code artifacts to reduce the time required to update application code.

But rewriting application code remains a difficult task, and AI can help



Rewriting code with AI

Feature in development

SQL query conversion

Imported stored procedures and embedded SQL queries from connected relational databases.

Relational Migrator uses generative AI to convert these into MongoDB Queries.

Creates MongoDB Query based on the schema that has been designed in Relational Migrator.

In the future

Application code conversion

Assessment: search and understand codebases to understand the effort and risk involved in refactoring an application

Code conversion: suggest application code alongside application architecture recommendations to best take advantage of MongoDB

Testing: verify that converted applications perform as expected on MongoDB

