



SUMMIT  
INDIA

# Empower enterprise applications: Harnessing the power of generative AI

With MongoDB Atlas and AWS



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Senior Partner Solutions Architect  
MongoDB





# Agenda

- Building GenAI Applications
- How we help?
- What is a Vector Database?
- Demo
- Useful links



# Building GenAI Applications



# Building the next Big Step with GenAI



MongoDB Atlas  
Vector Search +  
Amazon Bedrock  
Foundation Models



Easy and quickly  
build applications  
with AI-powered  
features



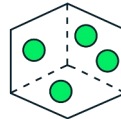
Amazon Bedrock  
generates  
embeddings from  
data stored in  
MongoDB Atlas



**Amazon  
Bedrock**



**MongoDB®**  
Atlas



Vector Search  
Index



# Uses Cases



## Video Personalization

Customer engagement platform used for sales outreach.

Working from a video template, Potion's vision and audio models inspect each video frame and reanimate it with personal messages.



## Cyber risk and trust platform

Cybersecurity risk decisions and reduce their threat: B2B transactions Retrieval-augmented generation (RAG).

MongoDB Atlas Vector Search, Amazon Bedrock.



## AI-powered Customer Service

Building on massive advances in transformer models and RLHF to build sophisticated bots and agents augmented with proprietary reasoning engine.



“

*MongoDB's ease-of-use, speed, & efficiency  
are all critical as we build and scale*  
*Kanad Bahalkar, Co-founder and CEO at*  
*Potion*



# Isn't that just a Chat Bot in a fancy window?



The scale of the data solution is immense, but yet still operational.



LLMs are prone to Hallucinations, results that look plausible but are fundamentally wrong.



Combating Hallucinations requires accurate domain specific knowledge encoded as vectors



How do I keep my Vector Database in sync with all my other data sources?





# AWS GenAI Competency

Speed up application development with MongoDB's flexible and powerful developer data platform, allowing you to stay at the forefront of AI innovation, deliver unparalleled user experiences, and remain agile in a rapidly changing technological landscape, all while harnessing the capabilities of AWS and MongoDB Atlas.



## **Amazon CodeWhisperer for MongoDB**

Streamlines development workflow, integrates with popular IDEs, bolsters developer productivity by offering intuitive code snippets, pinpoint bugs, and upholding best practices for effective coding process.

## **MongoDB Vector Search and Amazon SageMaker Jumpstart**

Deploy variety of open-source, public, and private models to power your GenAI applications with MongoDB Atlas Vector Search on AWS.

## **MongoDB Vector Search and Amazon BedRock**

Build your GenAI applications easily with Amazon Bedrock and MongoDB Atlas Vector Search on AWS. Take advantage of Bedrock's privately customizable FMs to power you generative AI applications. Use Titan Embeddings and MongoDB Atlas for personalization and semantic search.



How we help?

# The document model is the easiest and most intuitive way for developers to work with data

## Document Model & Unified API



OLTP



TIME  
SERIES



FULL-TEXT  
SEARCH



ANALYTICS



STREAM  
PROCESSING



VECTOR  
SEARCH

Multi-Cloud Scale, Resilience, Performance, & Security

The document model aligns to how developers think and code

Documents map to objects in your code, eliminating the need for an ORM layer in your stack

# The document model accelerates your pace of innovation

## Document Model & Unified API



OLTP



TIME  
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VECTOR  
SEARCH

Multi-Cloud Scale, Resilience, Performance, & Security

Documents are inherently flexible, enabling you to rapidly adjust to changing app requirements

Documents allow you to easily store data of any structure and incorporate new data types while ensuring data integrity with ACID and schema guarantees

# Broad use case support through a unified interface simplifies both the development and operational experience

## Document Model & Unified API



OLTP



TIME  
SERIES



FULL-TEXT  
SEARCH



ANALYTICS



STREAM  
PROCESSING



VECTOR  
SEARCH

Multi-Cloud Scale, Resilience, Performance, & Security

Access all platform capabilities through a single unified API

Support for transactional processing, including the speed and high volumes of time series data

Build smarter, more relevant application experiences with in-place analytics, text search, and vector search capabilities

Unify how your teams work with data in motion and data at rest to quickly build reactive, real-time applications

# All built on a foundation of industry-leading performance at scale, resilience, & security

## Document Model & Unified API



OLTP



TIME  
SERIES



FULL-TEXT  
SEARCH



ANALYTICS



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PROCESSING



VECTOR  
SEARCH

Multi-Cloud Scale, Resilience, Performance, & Security

Deploy across over 110+ cloud regions from the 3 major clouds to get the best from each provider with no risk of lock-in

Continuous uptime with advanced automation to ensure performance, no matter the scale

Comprehensive and cutting edge capabilities to ensure data security and privacy

# Developer Data Platform

## Document Model & Unified API



OLTP



TIME  
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FULL-TEXT  
SEARCH



ANALYTICS



STREAM  
PROCESSING



VECTOR  
SEARCH

Multi-Cloud Scale, Resilience, Performance, & Security



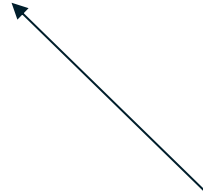
# What is a Vector Database?





Vectors in ML are lists of numbers that represent attributes.

**[0.743, 0.720, -0.325, 0.195, 0.835, -0.945, ...]**



Each number represents a feature  
(or a property of a data object)



# Words with close semantic meaning should have similar vectors

Each Number is  
An Attribute

**“Man”** = [0.243, 0.765, -0.312, 0.361, -0.325, ...]

**“Dog”** = [0.293, 0.774, -0.391, 0.401, -0.391, ...]

Has Hair

Eats

Sleeps

Sits on  
Command

Likes Going  
For Walks

**MongoDB Atlas**  
Vector search  
supports

# 4096

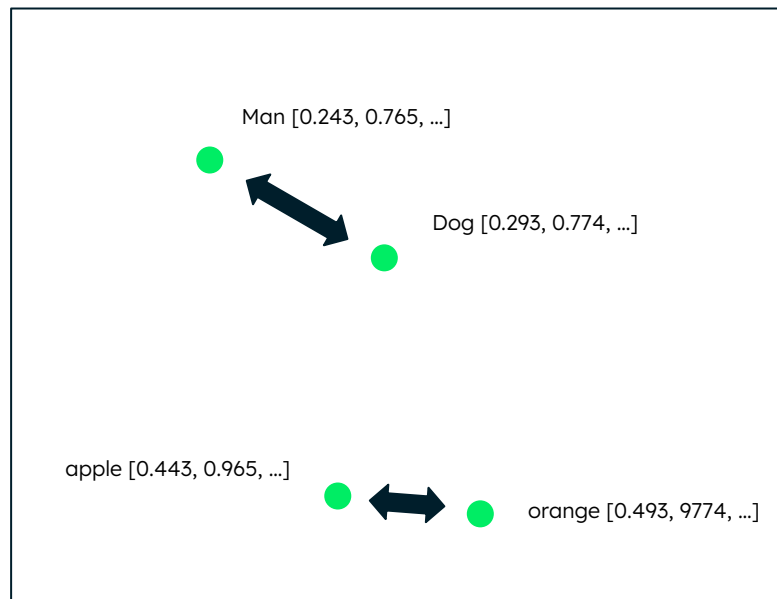
Dimensions



UNSTRUCTURED.IO

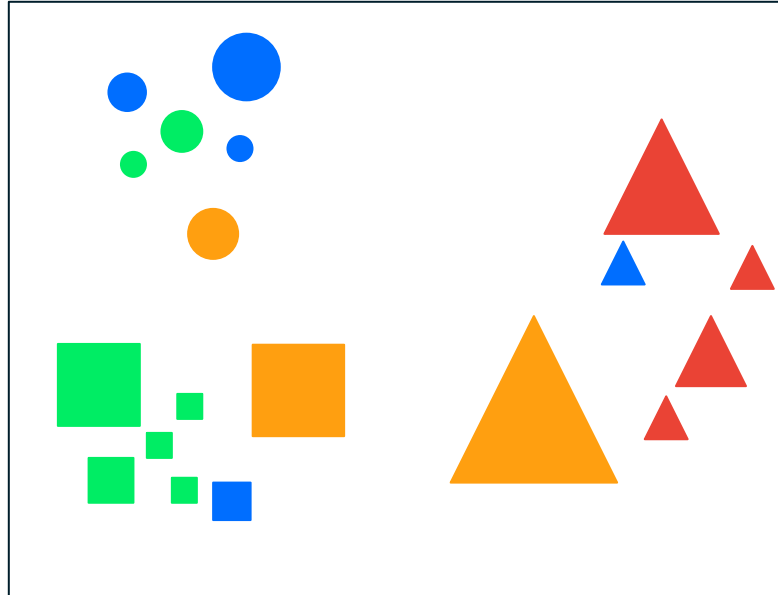


Similar vectors plotted in space  
will be near one another



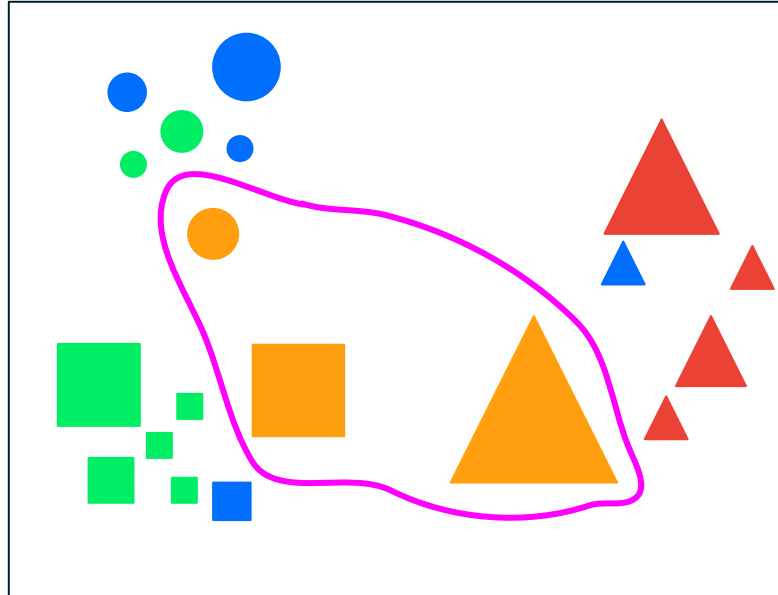


We can then take search queries and use algorithms to find clusters in high-dimensional space



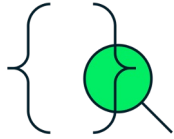


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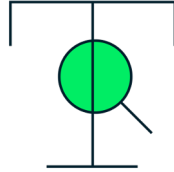


# Feeding the LLM with the right data



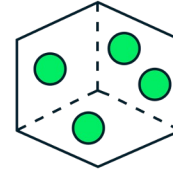
## `.find()`

Basic search capabilities. Great for retrieving a single document, or known criterias.



## Full text search

Great to find words that aren't grouped. Easily add fuzzy matching or autocomplete.



## Vector search

Search based on meaning. Great to retrieve related content, or to search for similar topics.



# Differentiators : Atlas Vector Search



Data sources  
(operational and vector)



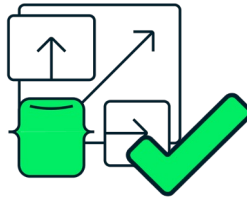
Orchestration



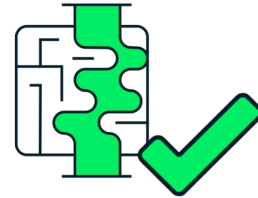
Incremental updates  
to vector store



Coding effort



Workload Isolation



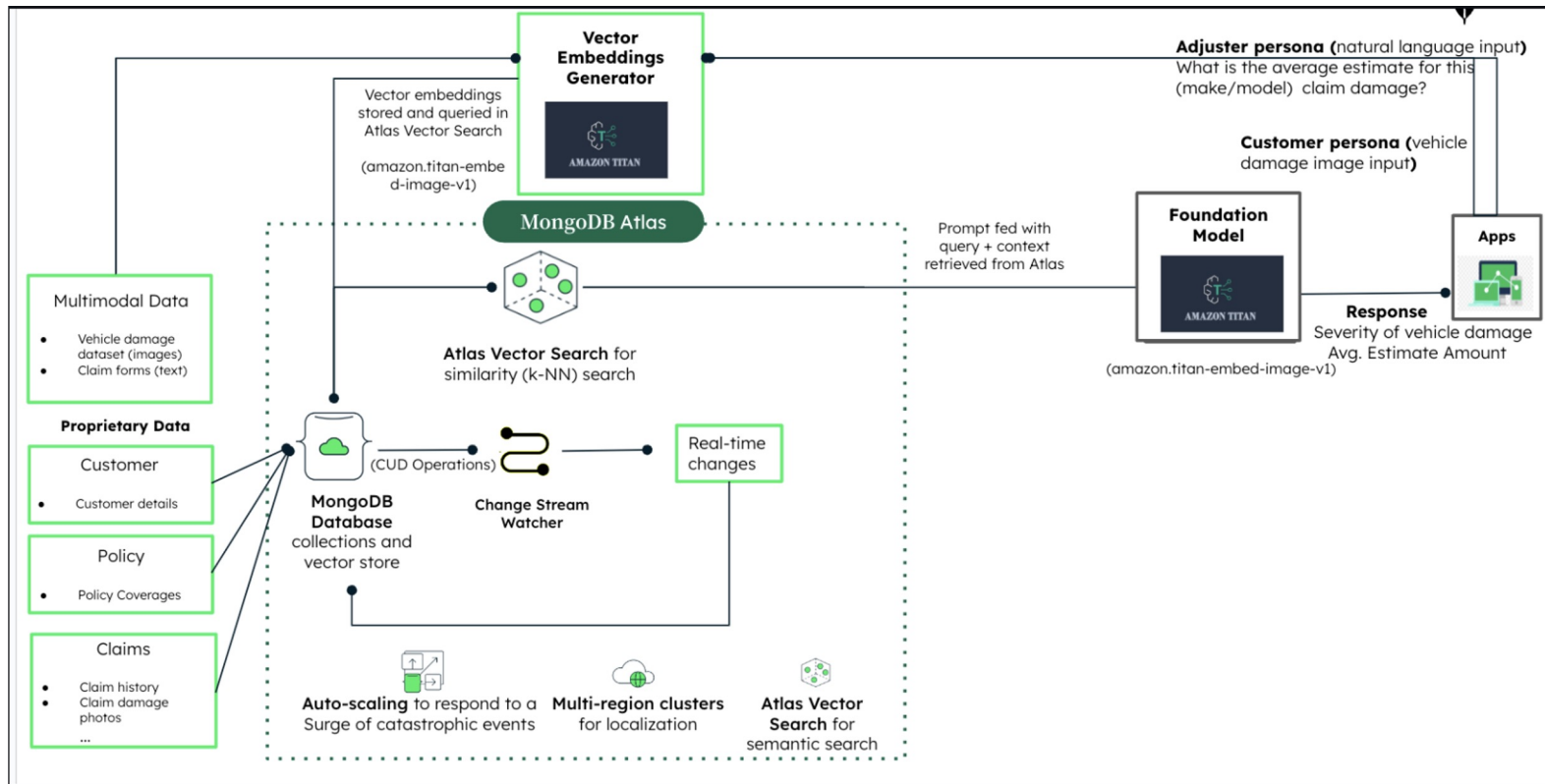
Architectural  
complexity

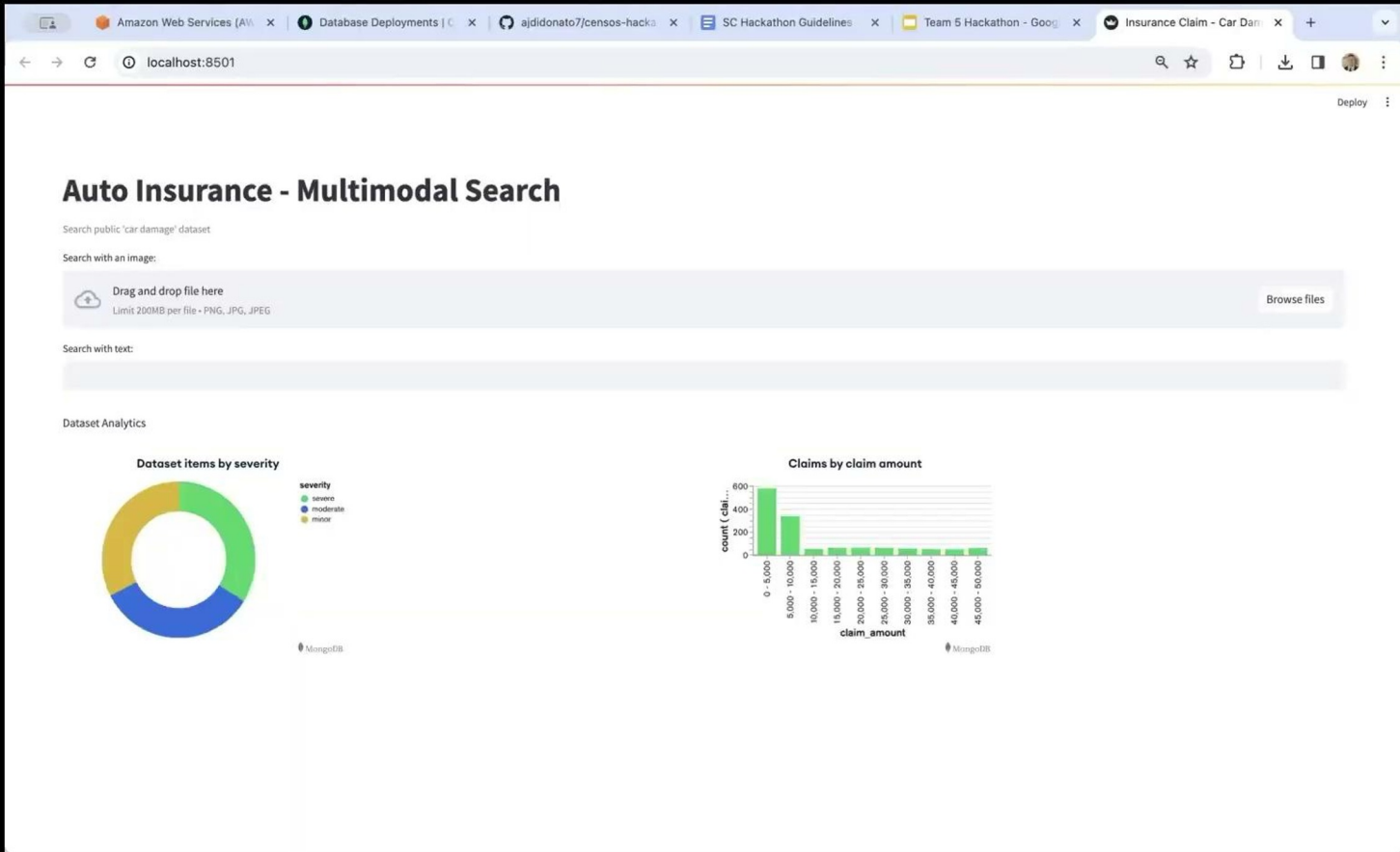


Demo



# Reference Architecture







# Thank you to the Adjust AI team



**A.J. DiDonato**  
Solutions Architect



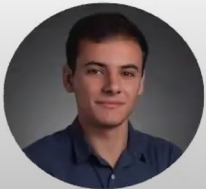
**Abhi Chakraborty**  
Senior Partner Solutions Architect



**Mark Brown**  
Senior Solutions Architect, Mobile



**Adeola Williams**  
Solutions Architect



**Henrique Vasconcellos**  
Solutions Architect



**Farid Mohammad**  
Senior Partner Solutions Architect



# What do these demos show us?



LLMs require access to your Domain knowledge to be accurate and protect against hallucinations



You need a data platform that can combine Operational and Vector data, seamlessly, for agile development



MongoDB Atlas and AWS provide the entire end-to-end solution for rapid GenAI development



# MongoDB in AWS Marketplace



Retire your AWS EDP Commitment



Consolidated billing through your AWS account



Simplified procurement with just a few clicks



[Get started here with a free trial today](#)



Available in  
AWS Marketplace





**Visit our booth #G14**

Our experts are on-hand to answer  
your questions!

# Thank you!



Please complete the session survey in the mobile app



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