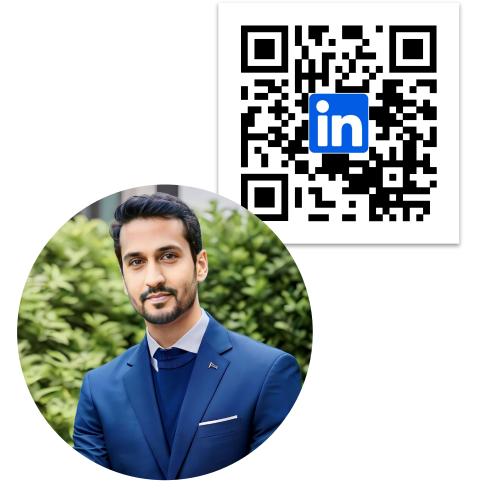
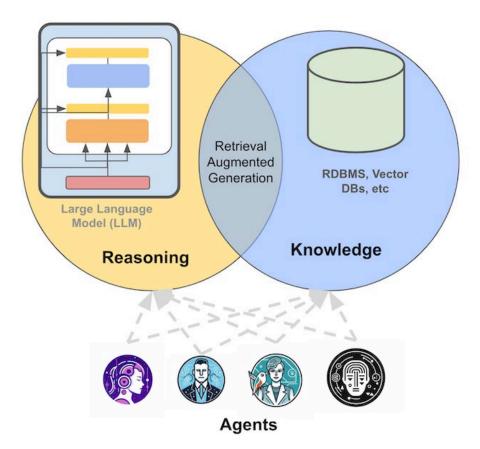
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Next-Generation
Databases for RAGPowered AI

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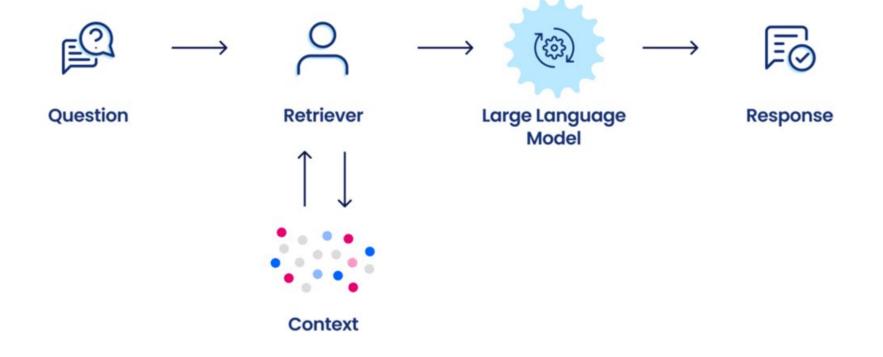
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Board Advisor ◆ Top 100 Leaders in Al ◆ Keynote Speaker

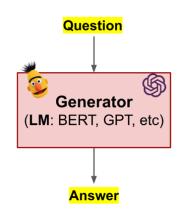


## What does RAG do?



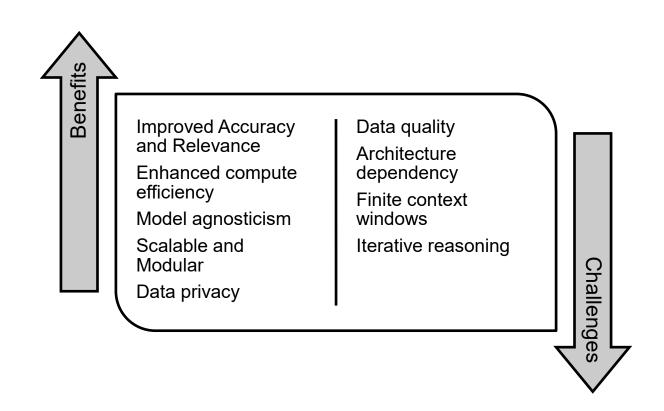
#### **Retrieval Augmented Generation Schema**



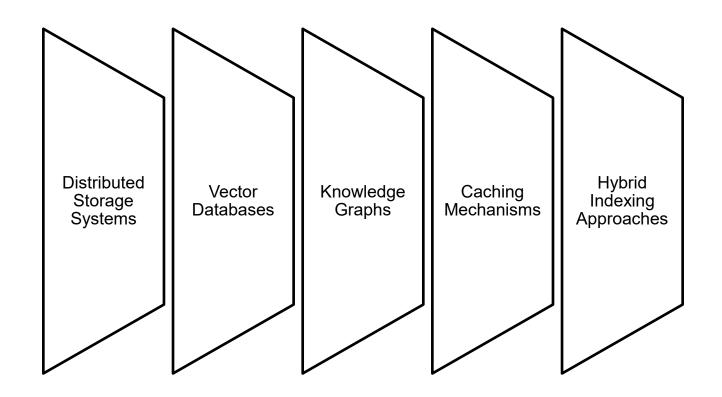


Generator

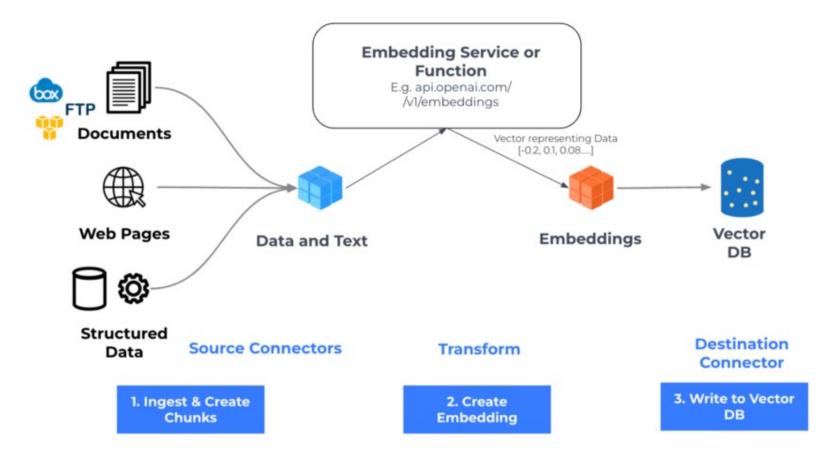
# **Query Routing and RAG**



# Database Architectures for Efficient Applied LLM use-cases

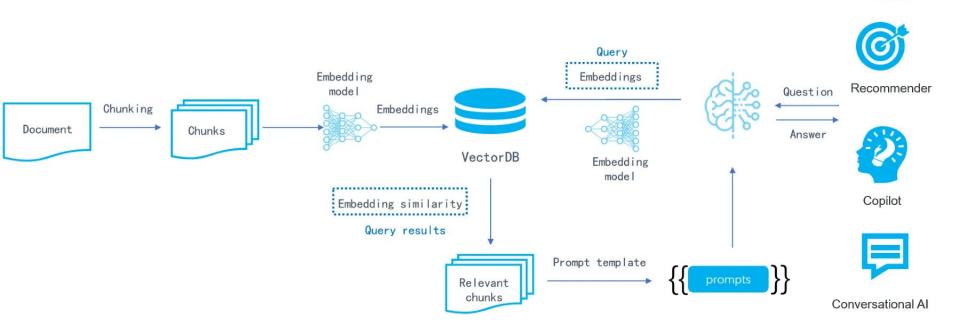


#### The case for Vector Databases

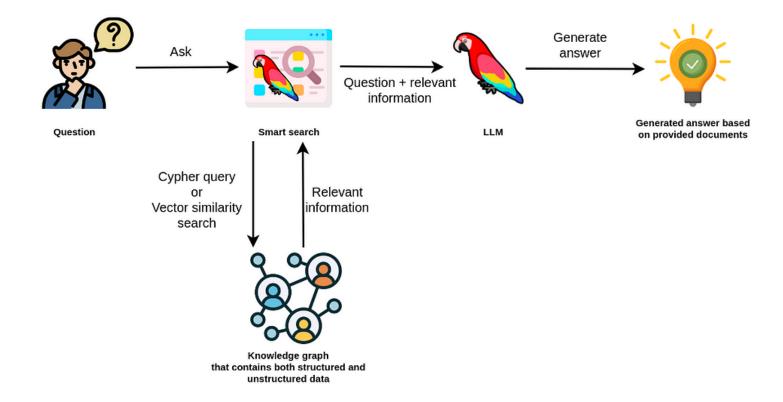


# **Current Generation Architecture using Vector Databases**

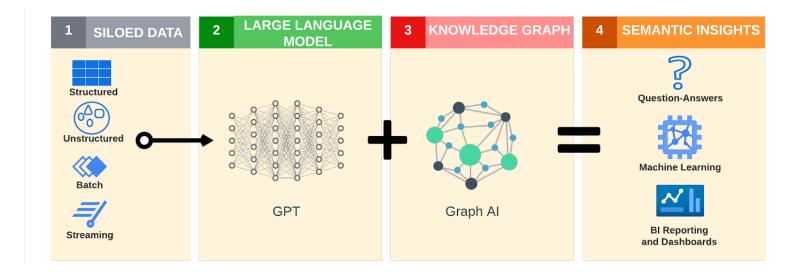




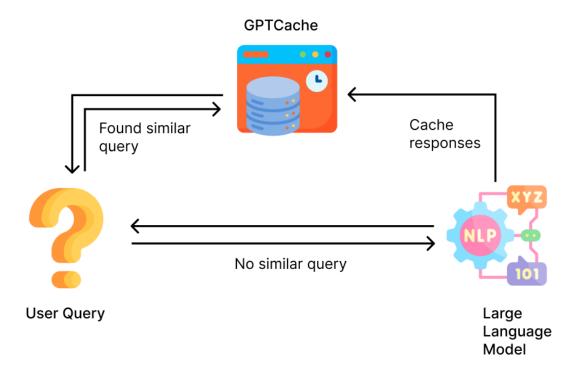
#### **Knowledge Graphs to feed RAG**



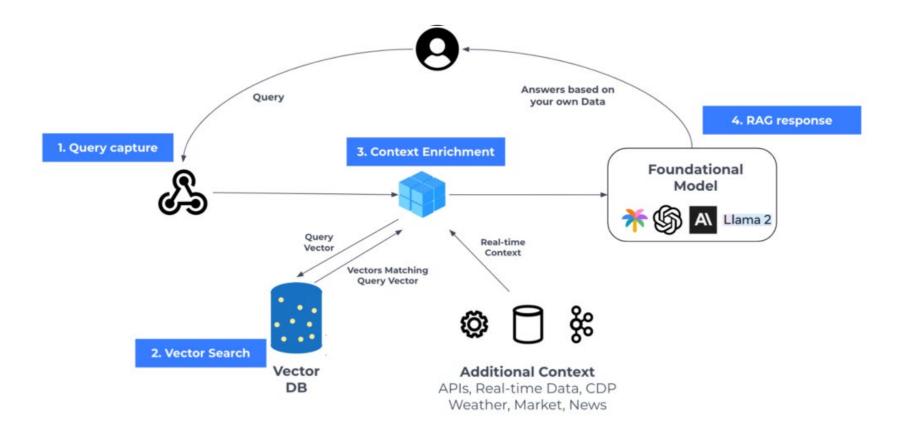
#### **Knowledge Graphs to augment LLMs**



## **Caching Mechanisms**



## **Hybrid Approaches**



#### References

- → [1] Snorkel AI: Fine Tuning vs. RAG: https://snorkel.ai/which-is-better-retrieval-augmentation-rag-or-fine-tuning-both/
- → [2] The Evolution of Retrieval Augmented Generation https://pattersonconsultingtn.com/blog/evolution\_of\_retrieval\_augmented\_generation\_jan\_2024.html
- → [3] Lil'Log: How to Build an Open-Domain Question Answering System? https://lilianweng.github.io/posts/2020-10-29-odqa/
- → [4] Looking to the future of vector databases https://medium.com/@infiniflowai/looking-to-the-future-of-vector-databases-be86f218dc94
- → [5] Embracing the future of data with Vector Databases https://jillanisofttech.medium.com/embracing-the-future-of-data-with-vector-databases-af4055a1f57a
- → [5] RAG Best Practices https://nexla.com/ai-infrastructure/retrieval-augmented-generation/
- → [6] Knowledge Graphs & LLMs: Multi-Hop Question Answering https://neo4j.com/developer-blog/knowledge-graphs-llms-multi-hop-question-answering/
- → [7] ChatGPT is not all you need https://www.wisecube.ai/blog/chatgpt-is-not-all-you-need/
- → [8] Cookbook for solving common problems in building GPT/LLM apps https://bootcamp.uxdesign.cc/cookbook-for-solving-common-problems-in-building-gpt-llm-apps-93fcdbe3f44a

# Thank You AMA

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