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Mitigating the Risks of Bias & Generative AI Limitations with Gold-Standard Data

BENGAL Lightning Talk

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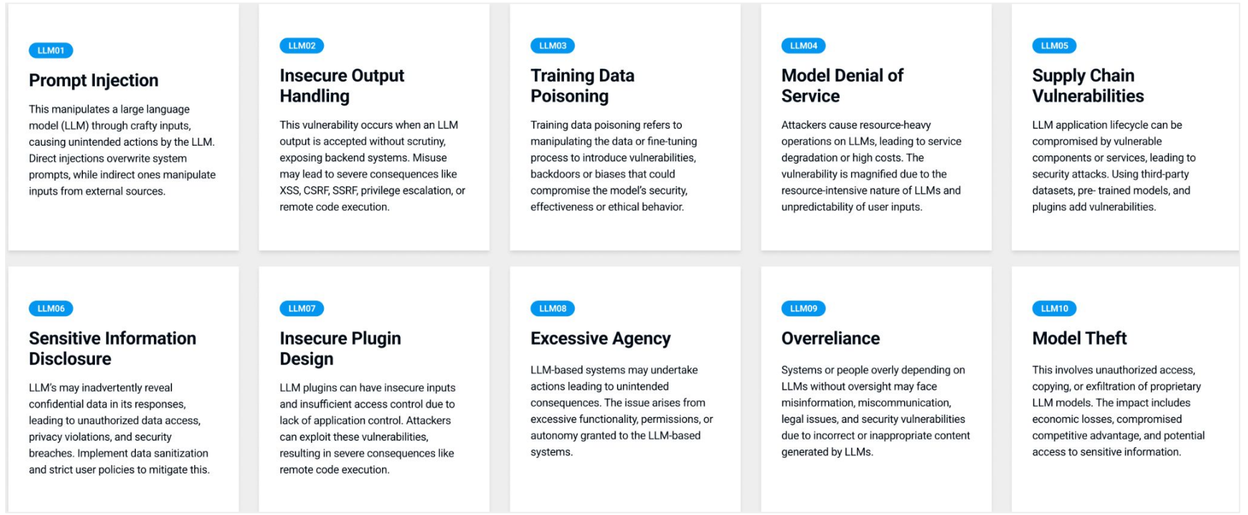
LLM Threats, Biases & Vulnerabilities

- For safe & effective use of Large Language Models (LLMs) in IC applications, critical to understand and mitigate against LLM threat vectors and vulnerabilities
- When developing LLM applications for Government use, high-quality data plays a crucial role in combating these threats and weaknesses in various stages of development.



OWASP Top 10 for LLM, https://owasp.org/www-project-top-10-for-large-language-model-applications/assets/PDF/OWASP-Top-10-for-LLMs-2023-slides-v1_0.pdf

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LLMs need recent, relevant, and validated data to mitigate against weaknesses

Problem 1: Nearly all LLMs have been trained on the same corpus of internet data

Solution 1: Pre-train or fine tune on **proprietary data**

Problem 2: LLMs are “frozen in time”

Solution 2: Make **new data** available to the model in a vector database

Problem 3: LLMs hallucinate

Solution 3: Force LLMs to focus on **validated data**

MITIGATE

BIAS

HALLUCINATIONS

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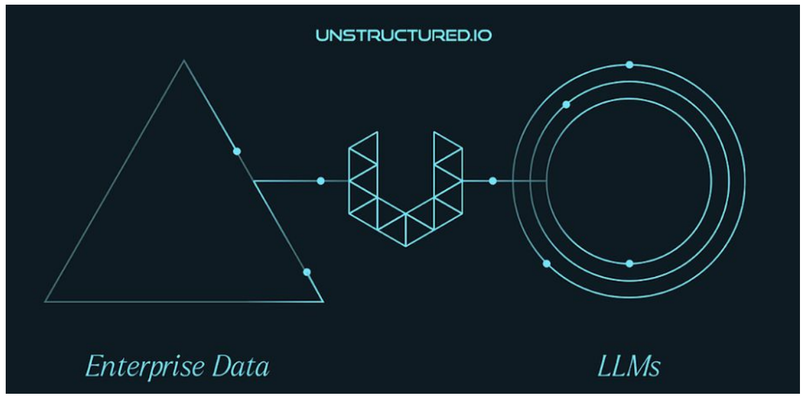
High-Quality, Organizational-Specific Data for Safe LLM Use

With Gold-Standard, Organization Specific Data:

- Reduce Hallucinations/Erroneous Outputs
- Mitigate Bias
- Verify Sourcing
- Control Access
- Reduce Toxic Outputs



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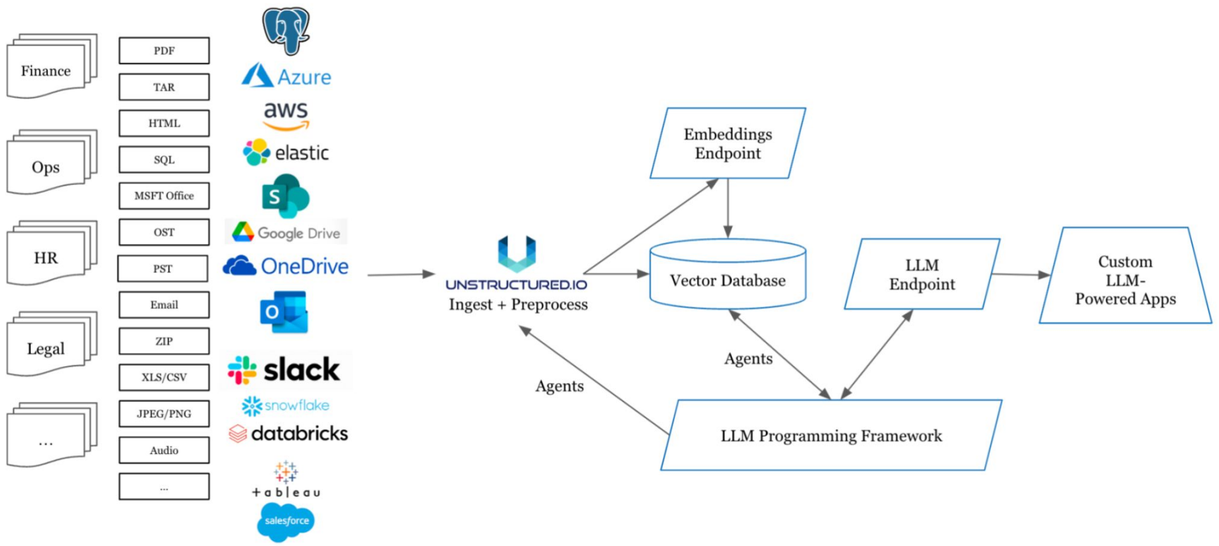
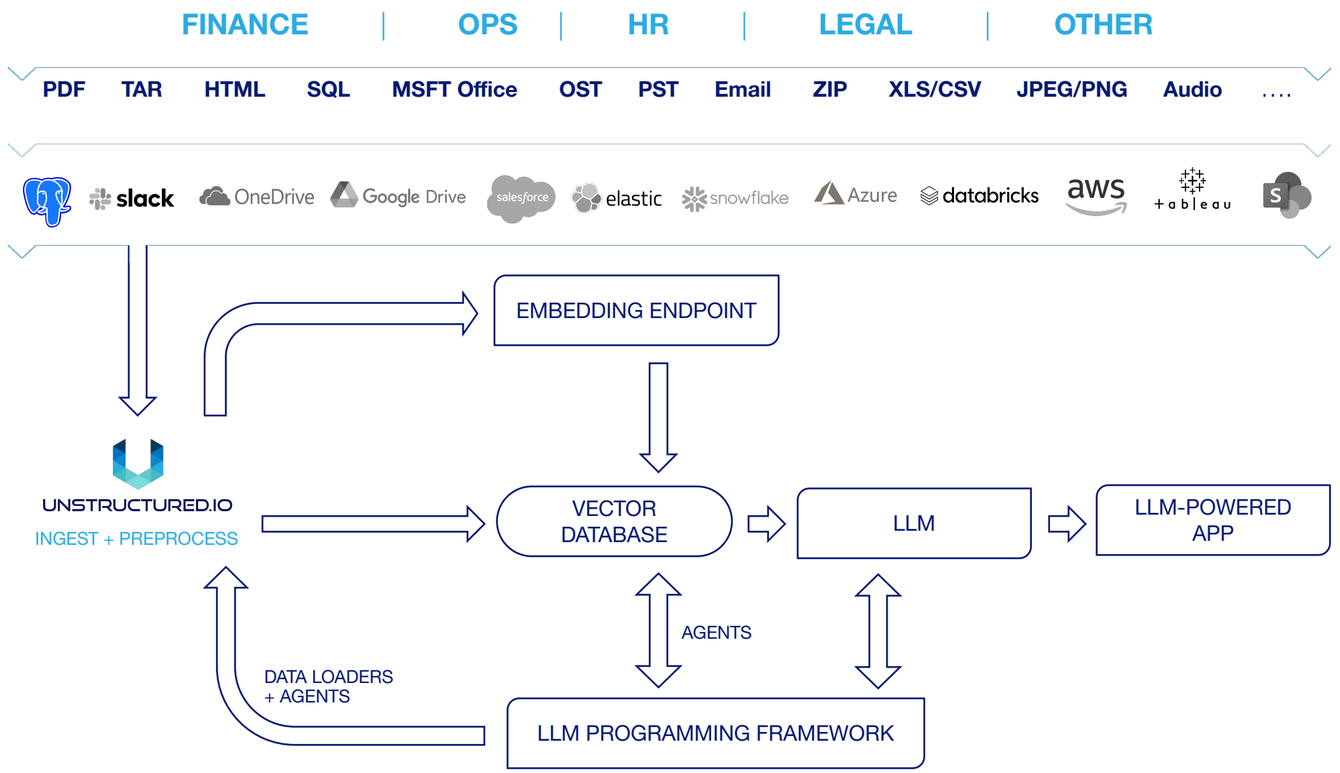
Emerging LLM Tech Stack: Retrieval Augmented Generation

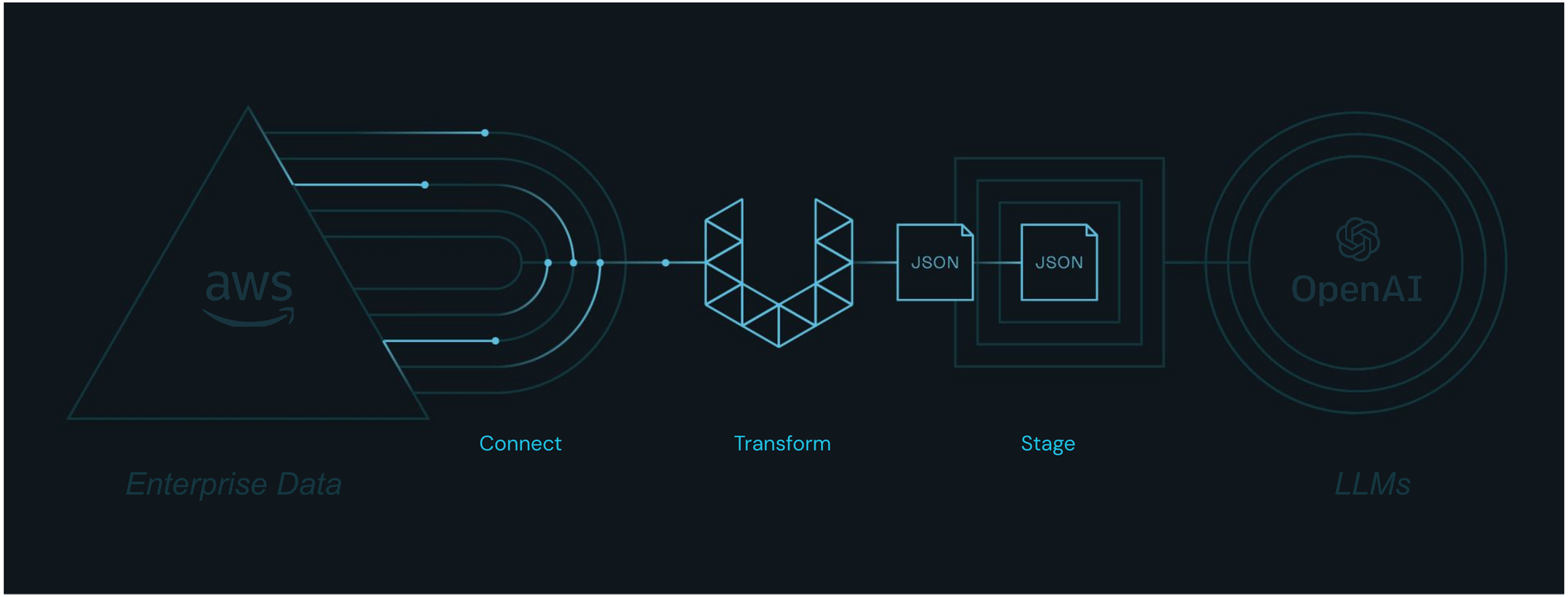
- **Retrieval Augmented Generation (RAG):** an AI framework that synergistically combines the capabilities of LLMs with an integrated information retrieval system, leveraging external databases to deliver more precise, contextually relevant, and up-to-date responses & limit hallucinations



Where Unstructured Fits In



We connect natural language data to LLMs



How We're Different

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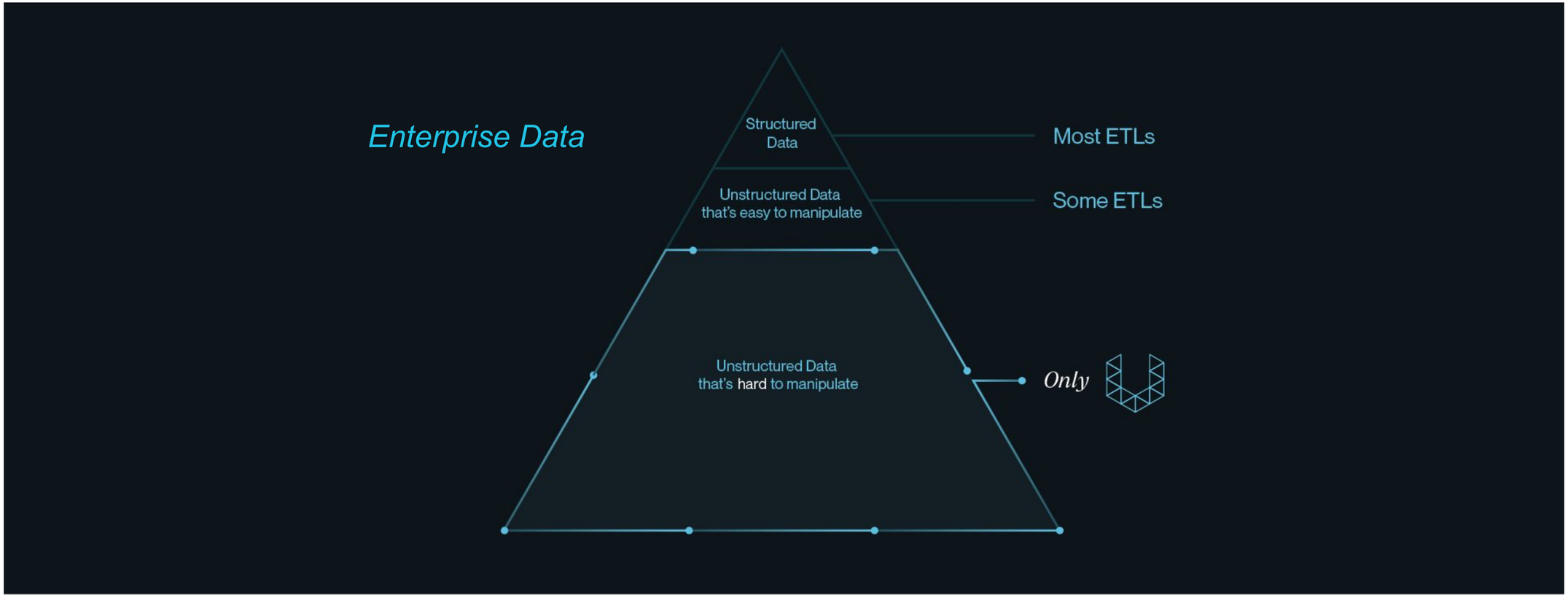
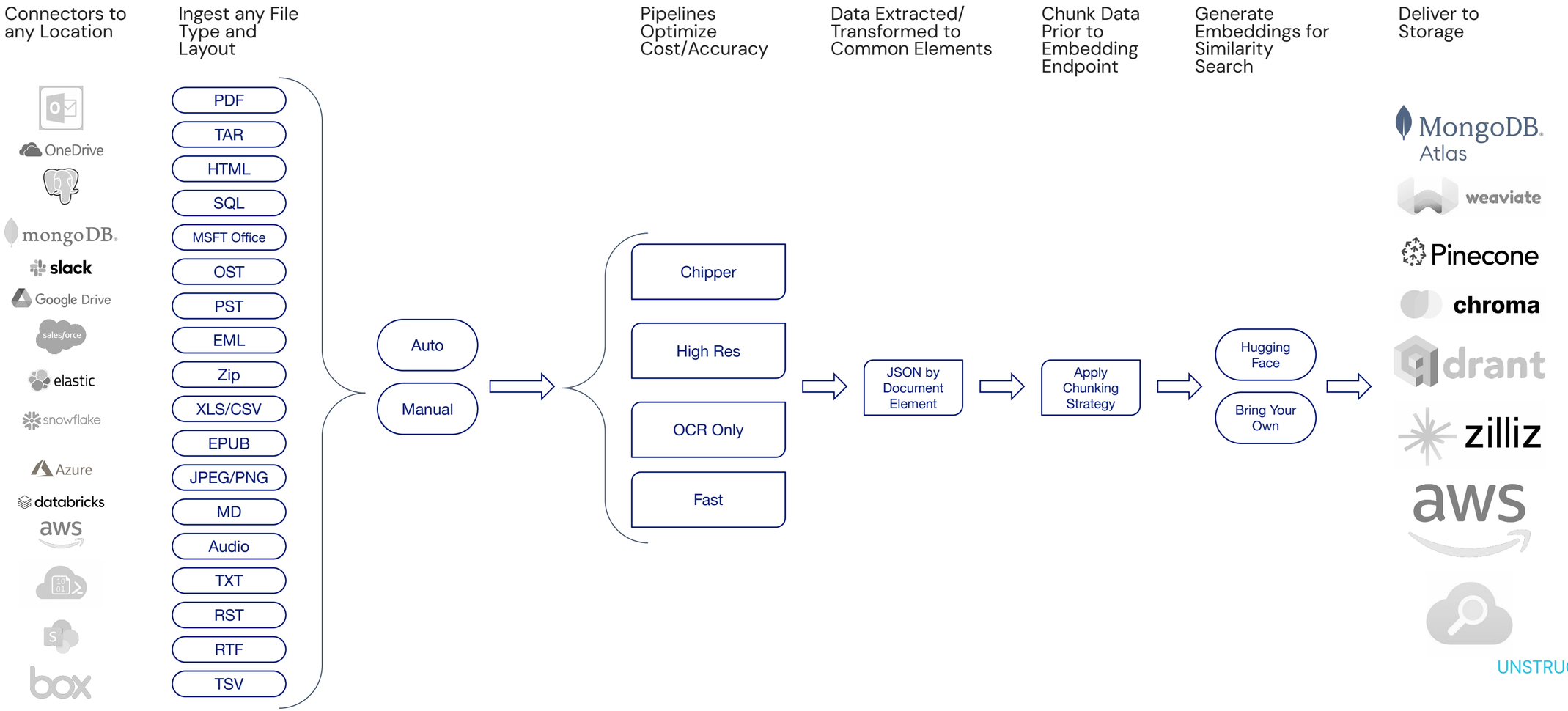
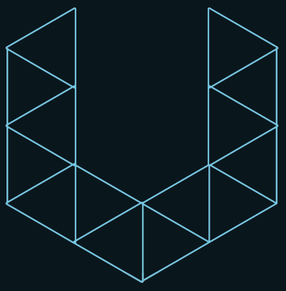


In Detail

Logical Architecture:





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