

IST - 615 Cloud Management

Advanced Chatbot
Using

AZURE

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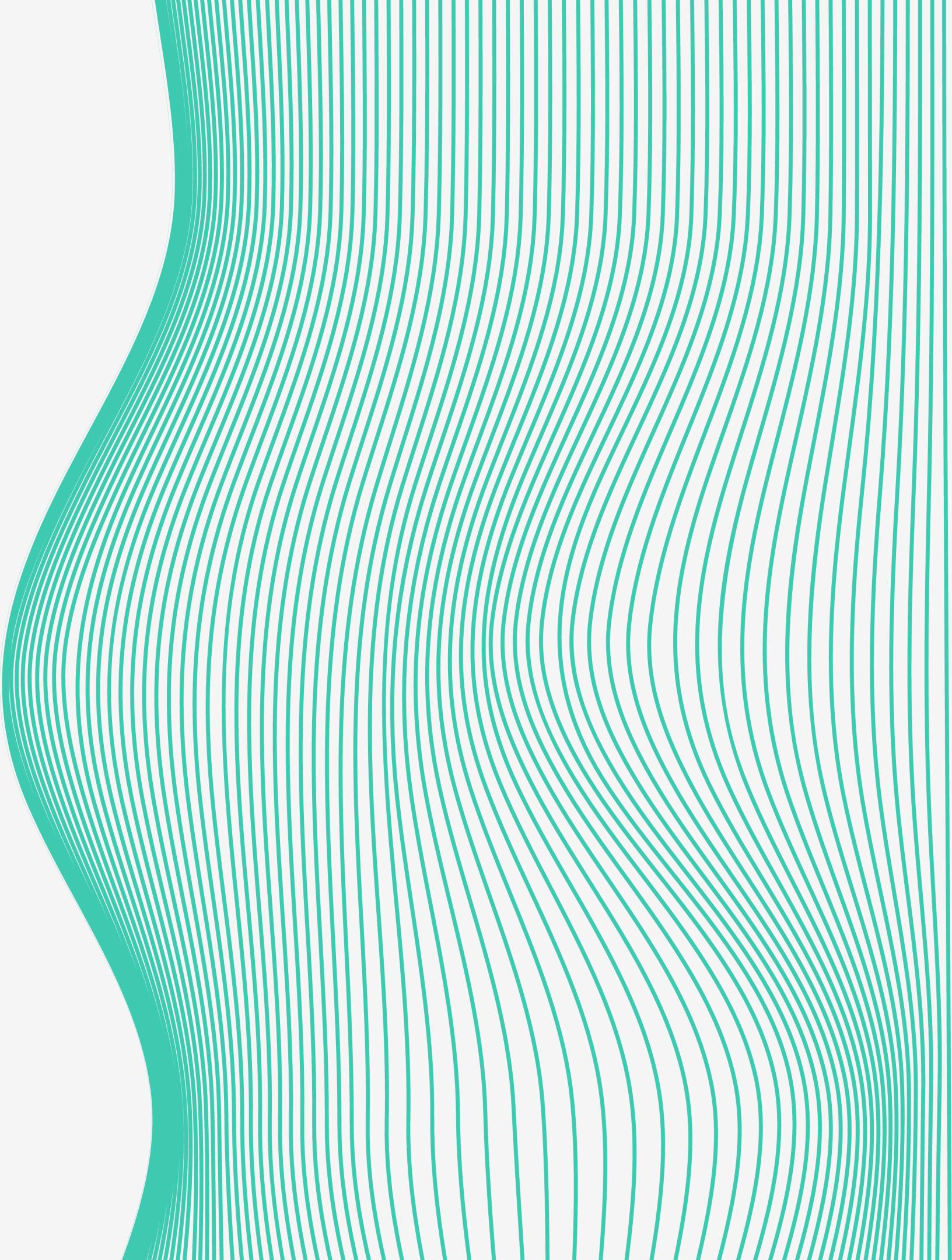
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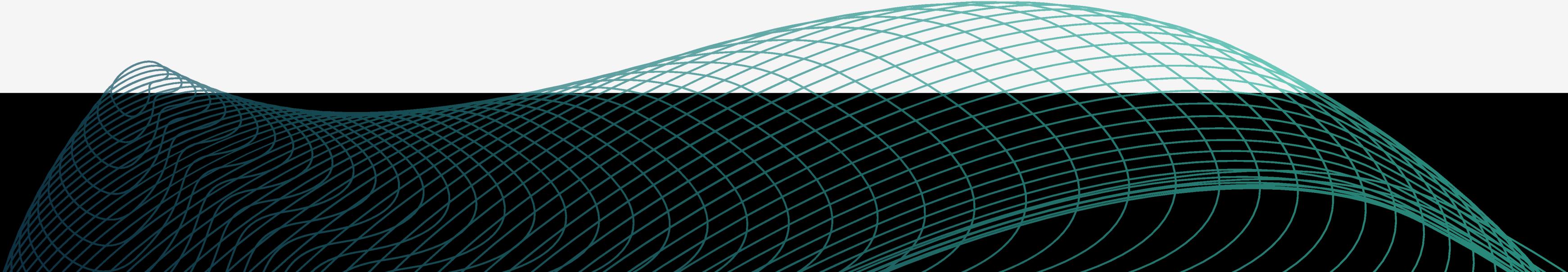
INTRODUCTION

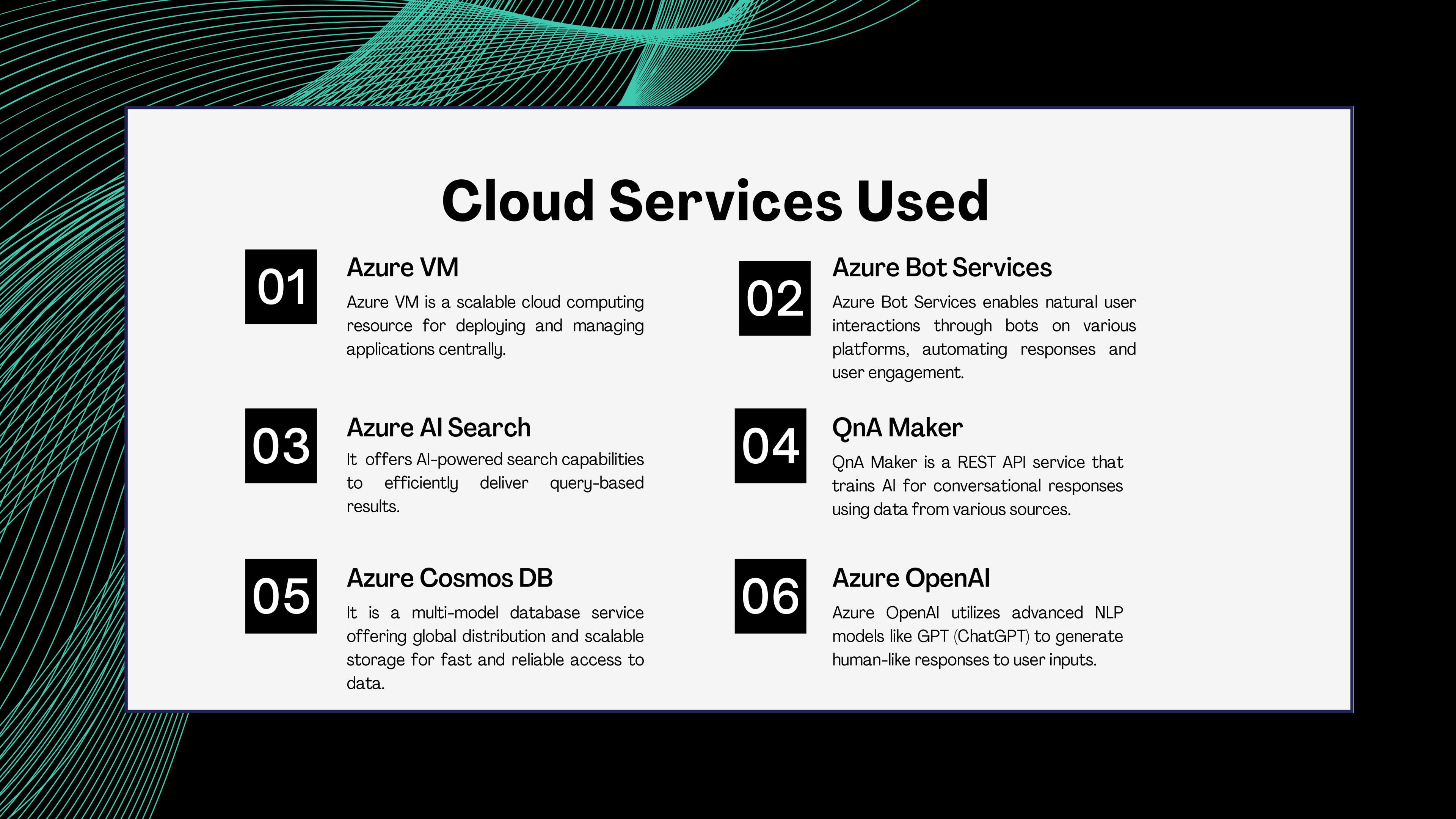
Utilizing the cutting-edge capabilities of Azure services, the project aims to streamline user interactions through a Streamlit-based interface, supported by a robust backend Azure VM. The integration with Azure Bot Services and AI Search facilitates efficient information retrieval, while Azure OpenAI, powered by GPT (ChatGPT), ensures engaging and relevant user responses.

Demo: https://video.syr.edu/media/t/1_gclyck17

OBJECTIVE

The primary goal is to develop an advanced chatbot capable of understanding and processing natural language queries, providing intelligent responses, and integrating with external systems for enhanced user engagement. Our chatbot aims to serve as a first point of contact for customer support, significantly reducing response times and improving customer satisfaction.





Cloud Services Used

01

Azure VM

Azure VM is a scalable cloud computing resource for deploying and managing applications centrally.

03

Azure AI Search

It offers AI-powered search capabilities to efficiently deliver query-based results.

05

Azure Cosmos DB

It is a multi-model database service offering global distribution and scalable storage for fast and reliable access to data.

02

Azure Bot Services

Azure Bot Services enables natural user interactions through bots on various platforms, automating responses and user engagement.

04

QnA Maker

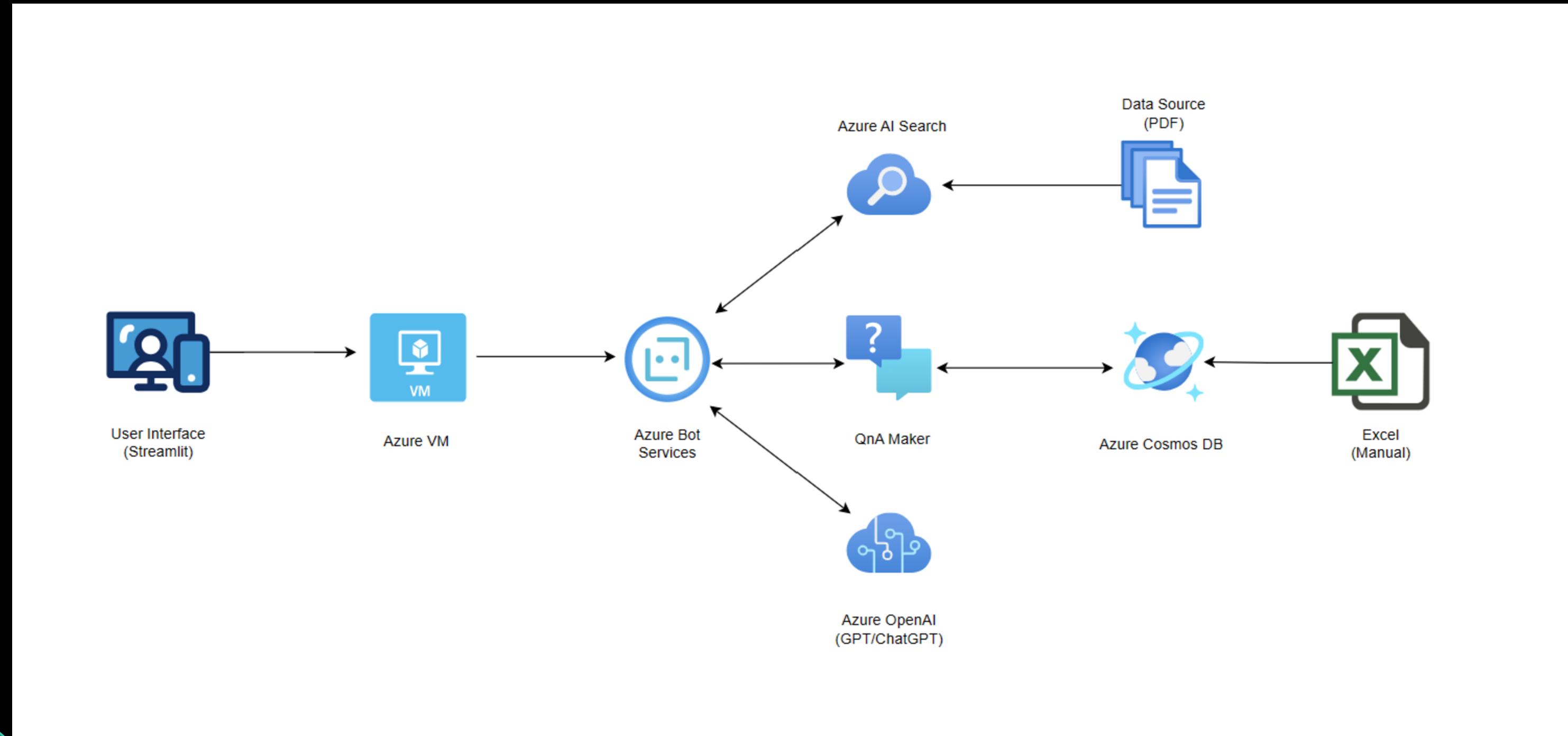
QnA Maker is a REST API service that trains AI for conversational responses using data from various sources.

06

Azure OpenAI

Azure OpenAI utilizes advanced NLP models like GPT (ChatGPT) to generate human-like responses to user inputs.

Architecture



Methodology

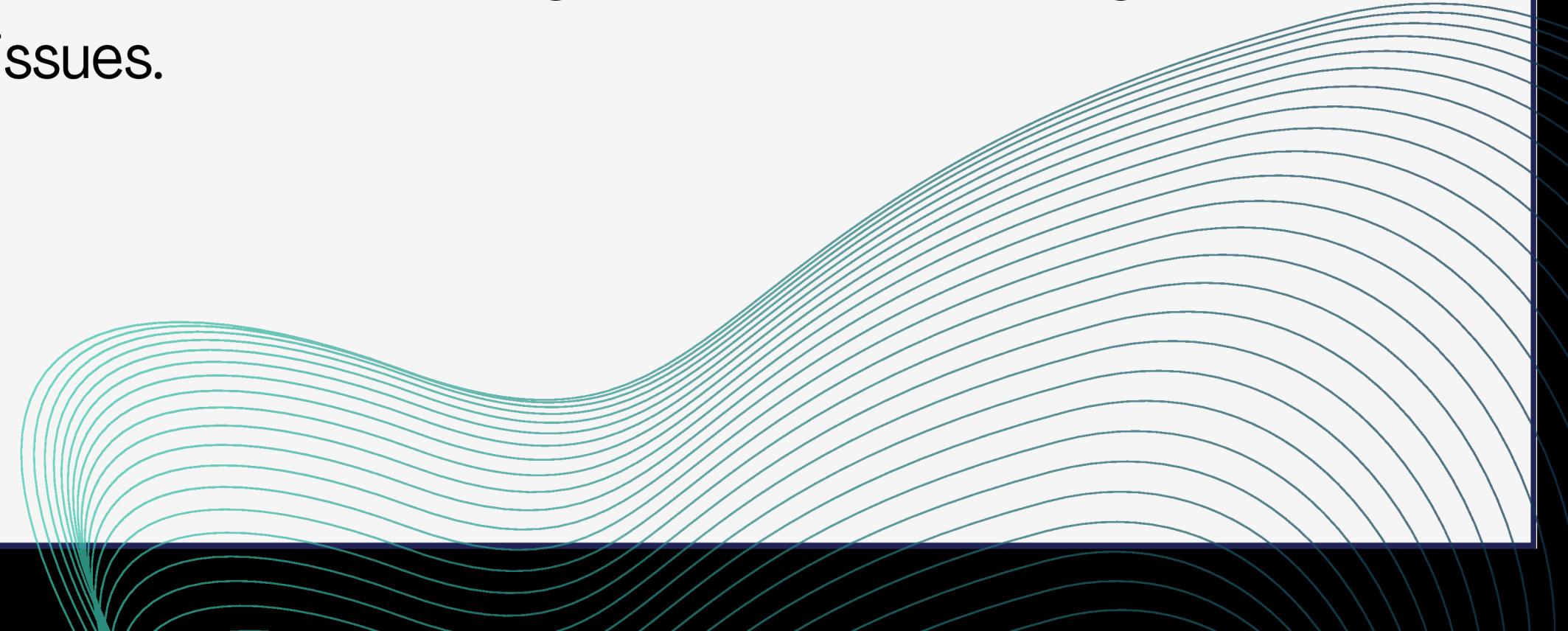
- Integrated Azure services to create a user interaction platform; Streamlit on Azure VM for the UI.
- Azure Bot Services manage information flow for user query processing.
- Azure AI Search utilizes AI for accurate content searches from PDFs and Excel files.
- QnA Maker enhances conversational AI using data from various sources.
- Azure Cosmos DB ensures fast, reliable data transactions with its global database service.
- Azure OpenAI (GPT/ChatGPT) for human-like text responses, improving user interaction.
- Architecture emphasizes seamless operation, scalability, and flexibility for future enhancements.
- Python scripts are used for data processing and automation tasks within the system.

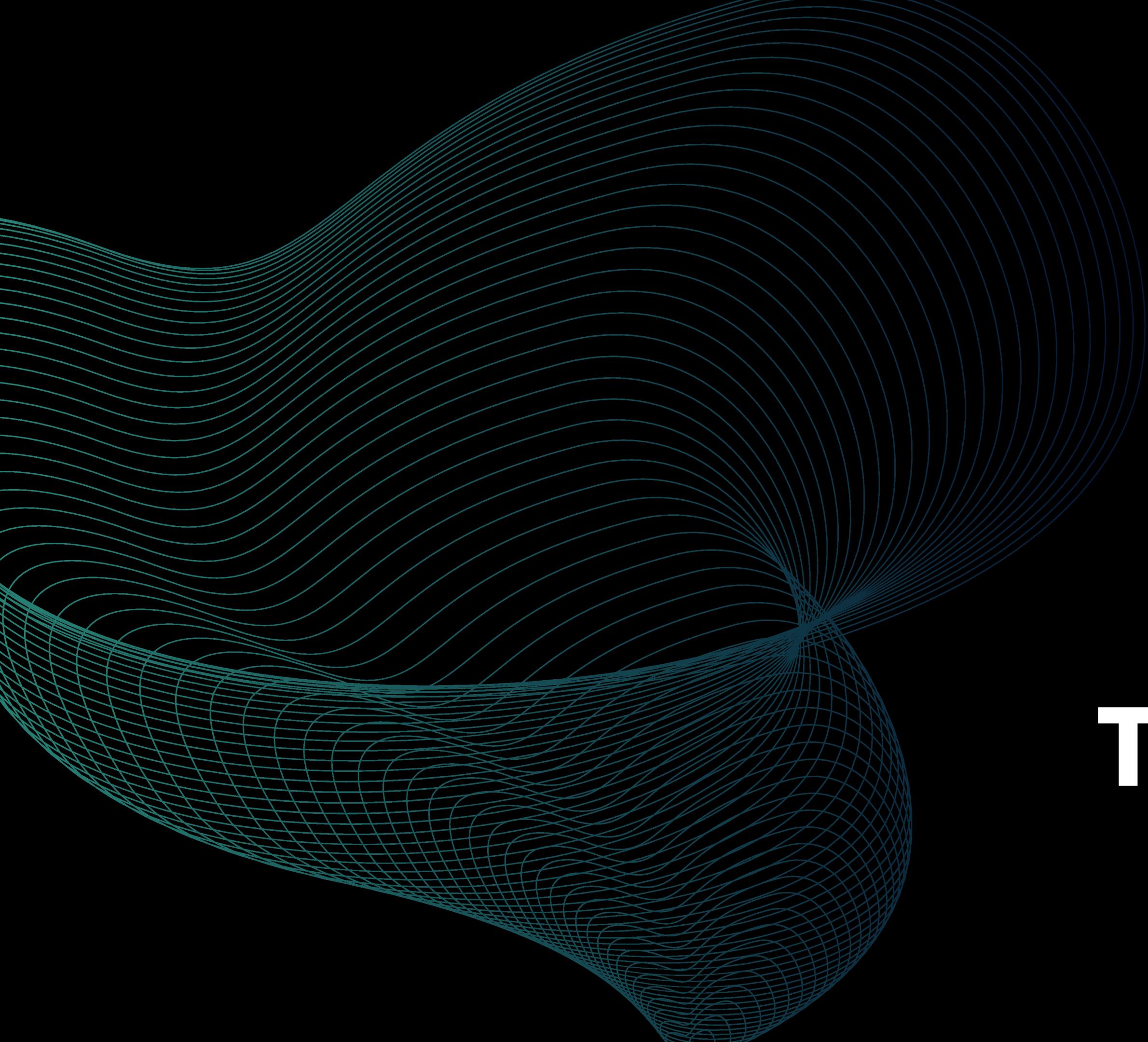
Issues encountered

- Our initial data crawler faced challenges in managing and processing large data volumes, impacting its efficiency and scalability.
- Data quality inconsistencies and access limitations led to reliability issues in the information provided by the chatbot.
- We experienced integration complexities with Microsoft Teams, including API permissions, user authentication hurdles, and real-time data synchronization challenges.

Lessons learned

- It's crucial to design data crawlers with scalability in mind, anticipating the need to handle expanding data sets with high efficiency.
- Ensuring access to high-quality data sources is fundamental to maintain the reliability of chatbot responses and user trust.
- Adequate planning for integration complexities, particularly around APIs, permissions, and user authentication, can mitigate potential deployment delays and user experience issues.



A large, abstract graphic on the left side of the slide features a series of thin, light blue lines forming concentric, wavy patterns that radiate from the bottom left corner towards the top right. These lines create a sense of depth and motion, resembling a stylized wave or a complex mathematical plot.

THANK YOU