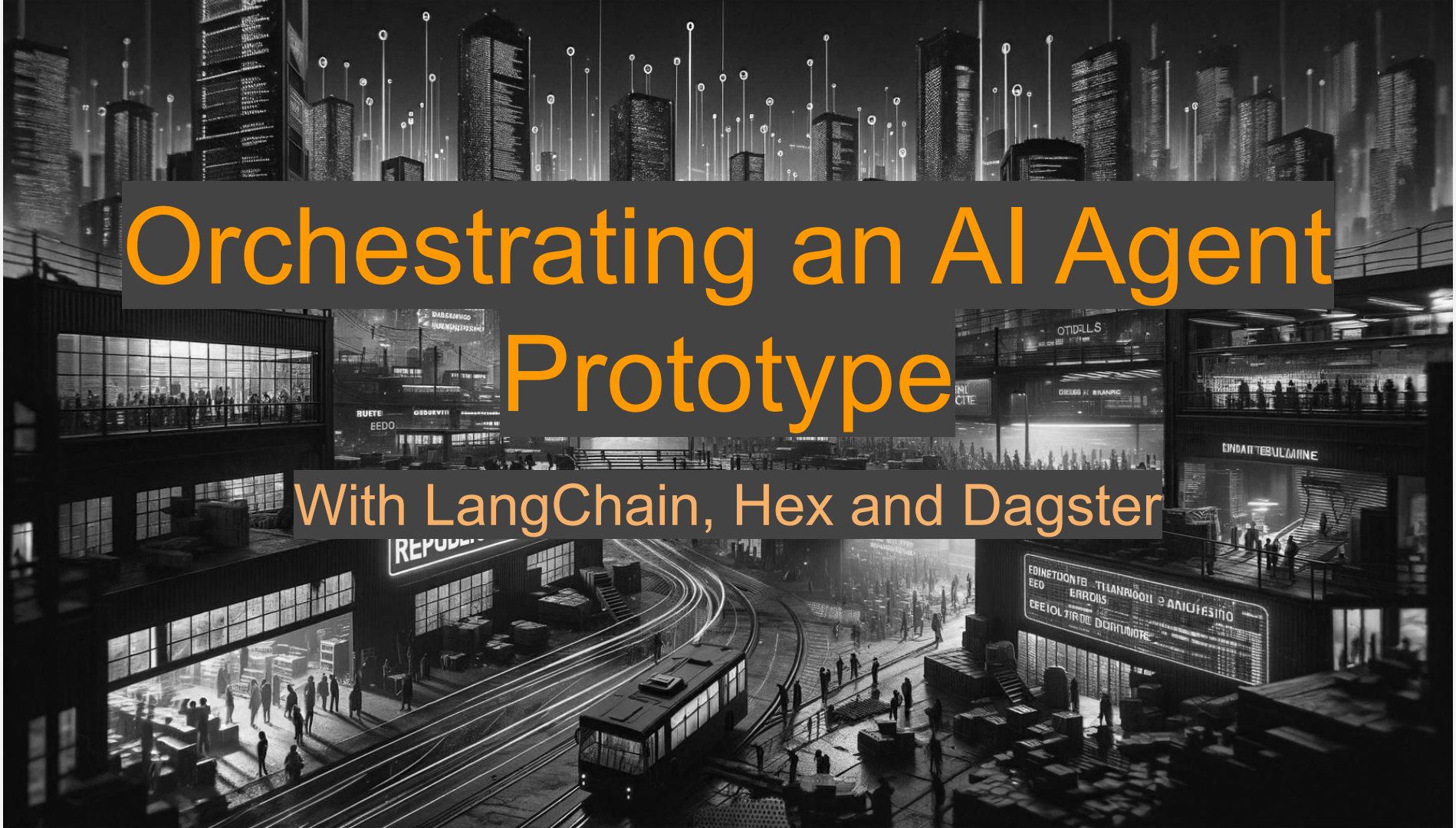
Orchestrating an AI Agent Prototype
With LangChain, Hex and Dagster

# Intros

**Izzy Miller**
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Developer Relations and Technical Marketing at **Hex**.

**Colton Padden**
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Data Engineer & Developer Advocate at **Dagster**.

**Olivier Dupuis**
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Freelancer with homebase at **RepublicOfData.io**, a playground at the intersection of social sciences, data engineering and product building.

# Agenda

- Understanding the Use Case
- Platform Architecture and Data Flow
- Demo: Agent Prototyping in Action
- Next Steps and Takeaways
- Q&A and Discussion

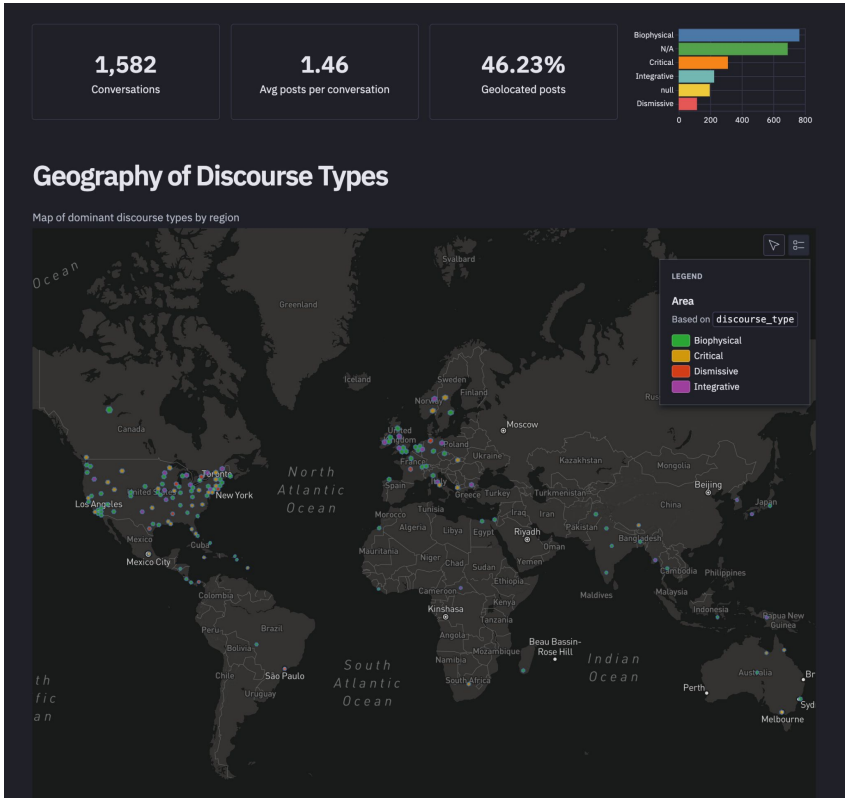
# What this webinar is… and isn’t

- **This is not** a master class on any of those technologies.
- **This is** the outcome from an enthusiastic user of the wonderful tools that smarter people than myself are giving us access to.
- **This is** an example of how you can leverage AI agents in a data platform.
- **This is not** the only way we could have approached this use case.

# Use Case

# What is the Climate Narratives data product

- The Climate Resilience Data Platform is a tool that analyzes how people talk about climate change online.
- It collects data from media articles and social networks to track how climate change discussions evolve over time and in different geographic locations.
- The platform uses this information to offer insights into public perception of climate change

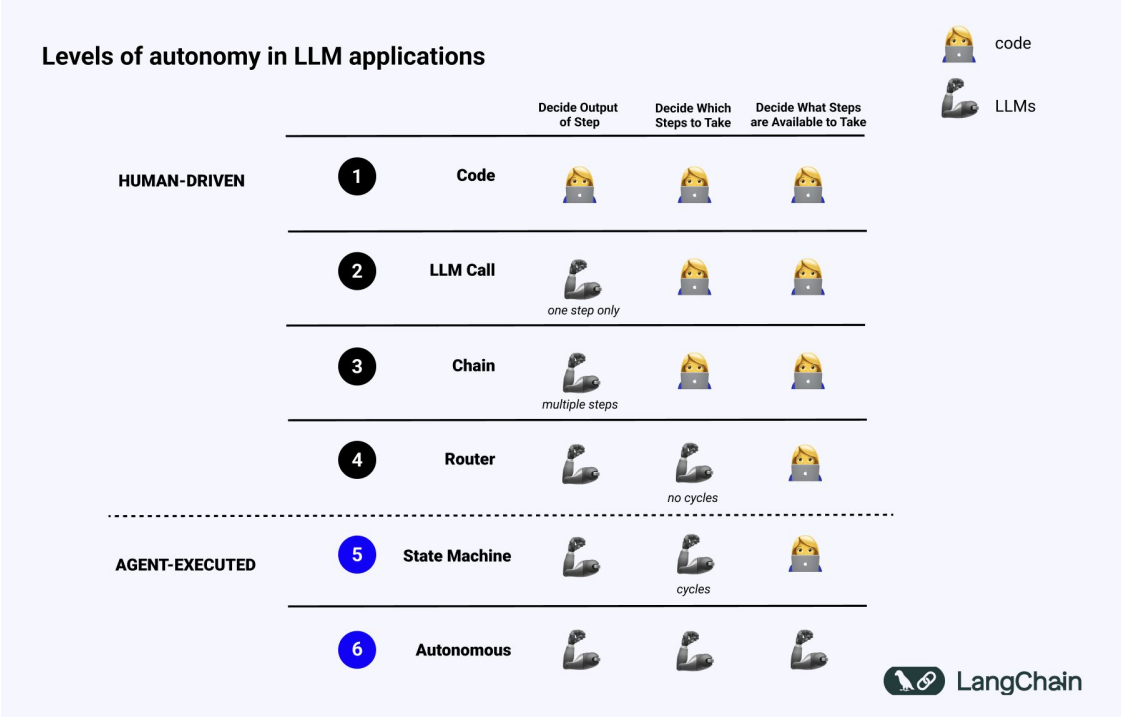


# What are AI agents?

From Harrison Chase, Co-Founder and CEO at LangChain

“An agent is a system that uses an LLM to decide the control flow of an application.”

“Rather than arguing over which work to include or exclude as being a true agent, we can acknowledge that there are different degrees to which systems can be **agentic**.”




https://blog.langchain.dev/what-is-an-agent/

# Introducing Agents in the Climate Narratives Data Platform

- Started out as just being curious about how agents could be used elsewhere than just chatbots
- Platform deals with unstructured data
- First experiments to classify
- But how about for more complex tasks?
- What if I could have a reporter gather richer context to each conversation

# Platform Architecture

# Stack

LangChain

**LangChain** is a framework to build with LLMs by chaining interoperable components.

**LangGraph** is the framework for building controllable agentic workflows.

**LangSmith** to monitor your LLM app

HEX

**What is Hex?**

A multi-modal data workspace with support for Python, SQL, R, and no-code workflows.

Enables anyone to rapidly prototype and understand their data— and present it to others.

Strong support for visuals, collaboration, and AI assistance.

dagster

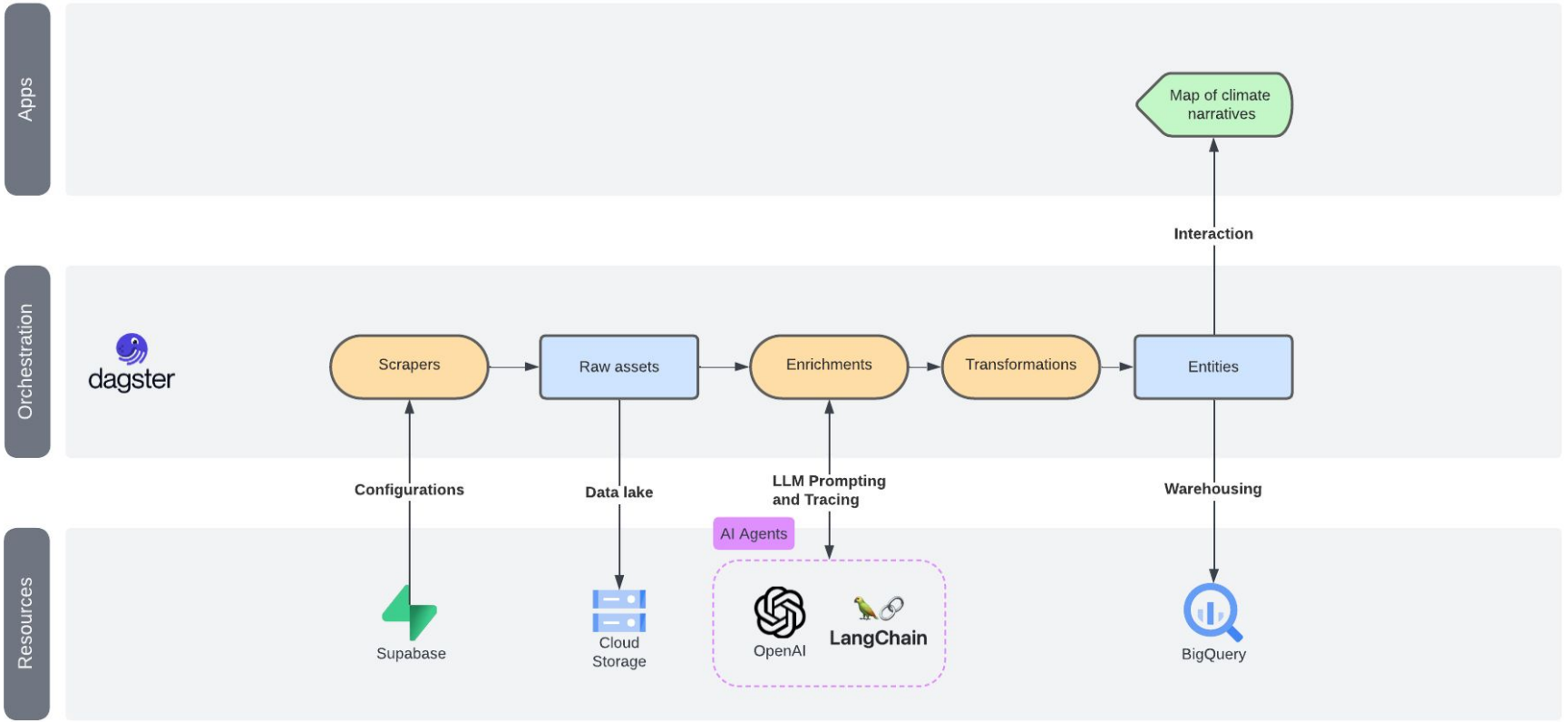
**What is Dagster?**

A flexible asset-centric orchestrator.

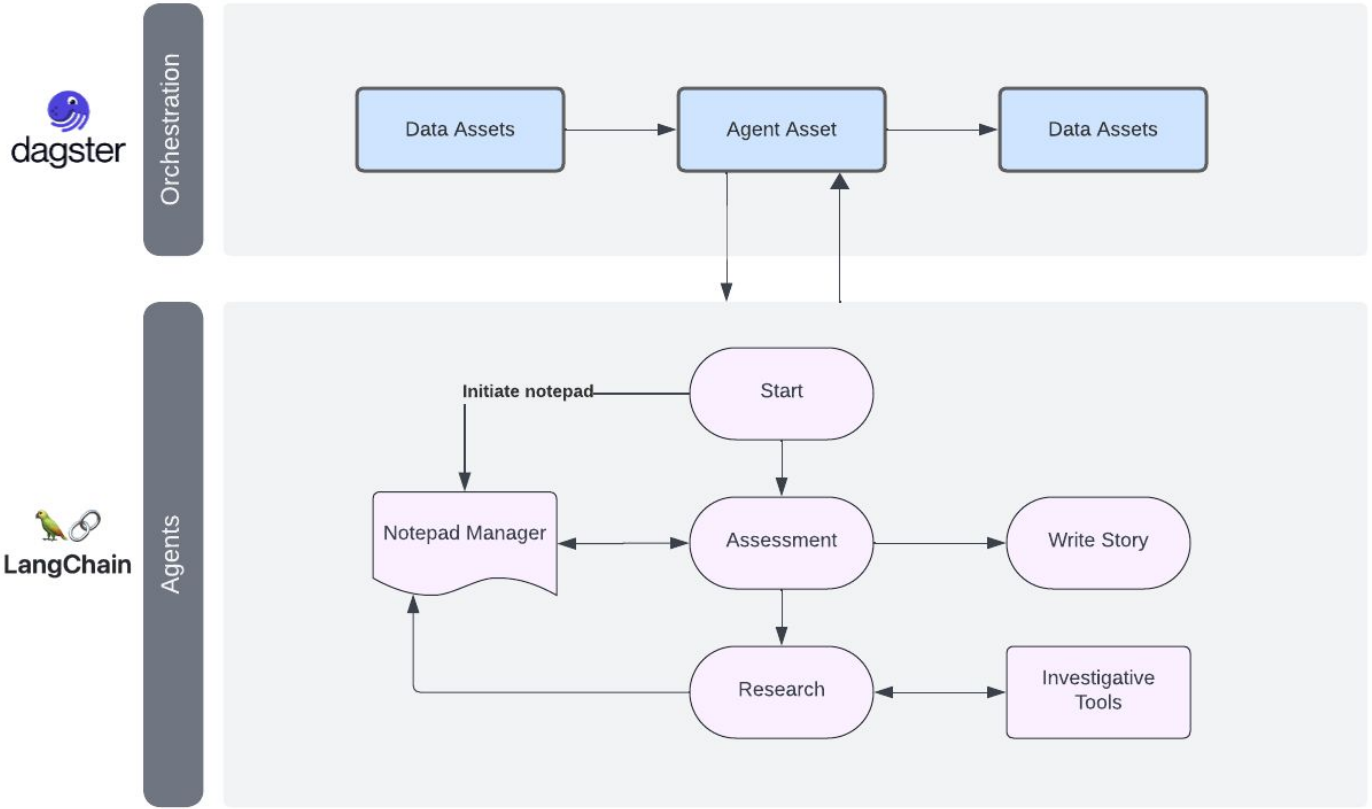
Has integrations with many tools including Hex!

Has a strong developer experience, bringing software engineering lessons-learned to the data ecosystem.

# Architecture



# Agent’s Design



# Demo

# Walkthrough

- Assembling
  - Agent’s definition
  - Run example
  - Writeback to BigQuery
- Orchestrating
  - Lineage
  - Asset definition
  - Asset run
- Monitoring
  - BigQuery
  - Hex
  - Dagster
  - LangSmith

# Next Steps and Takeaways

# What’s Next for this Project

- Agent’s specialization
- Access to more tools
- Productionisation of agents

# Key Takeaways

- LangChain, Hex and Dagster work well together to build AI agents

- As they become more autonomous, you can rely on strong orchestration and monitoring to produce reliable and high quality results

- Most importantly, this is all rapidly evolving. This is just one way of using and implementing AI agents in a data platform.

Explore this project's source code:

https://github.com/republicofdata-io/climate_resilience

Subscribe to the Republic of Data blog:

https://blog.republicofdata.io/

Try out Hex and Dagster, and join their communities!

https://hex.tech/

https://dagster.io/

# Q&A