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ATLANTA MARCH 16 - 20, 2026



Autonomous Fabric

Agentic Data Quality Using Fabric Data Agents



Author: David Mills

Position: Azure Data Architect

Email: dmills@arcazure.co.uk

LinkedIn: [linkedin.com/in/david-mills-etl/](https://www.linkedin.com/in/david-mills-etl/)



David Mills

Azure Data Architect

- Involved with data since 2000
- Started career using Oracle products
- Jumped ship to Microsoft products in 2012
- Moved into Consultancy in 2019
- Heavily involved in Microsoft Azure
- Architecting Microsoft Fabric solutions
- Plenty of AI & Fabric Data Agent exposure!
- Now Contracting in 2026



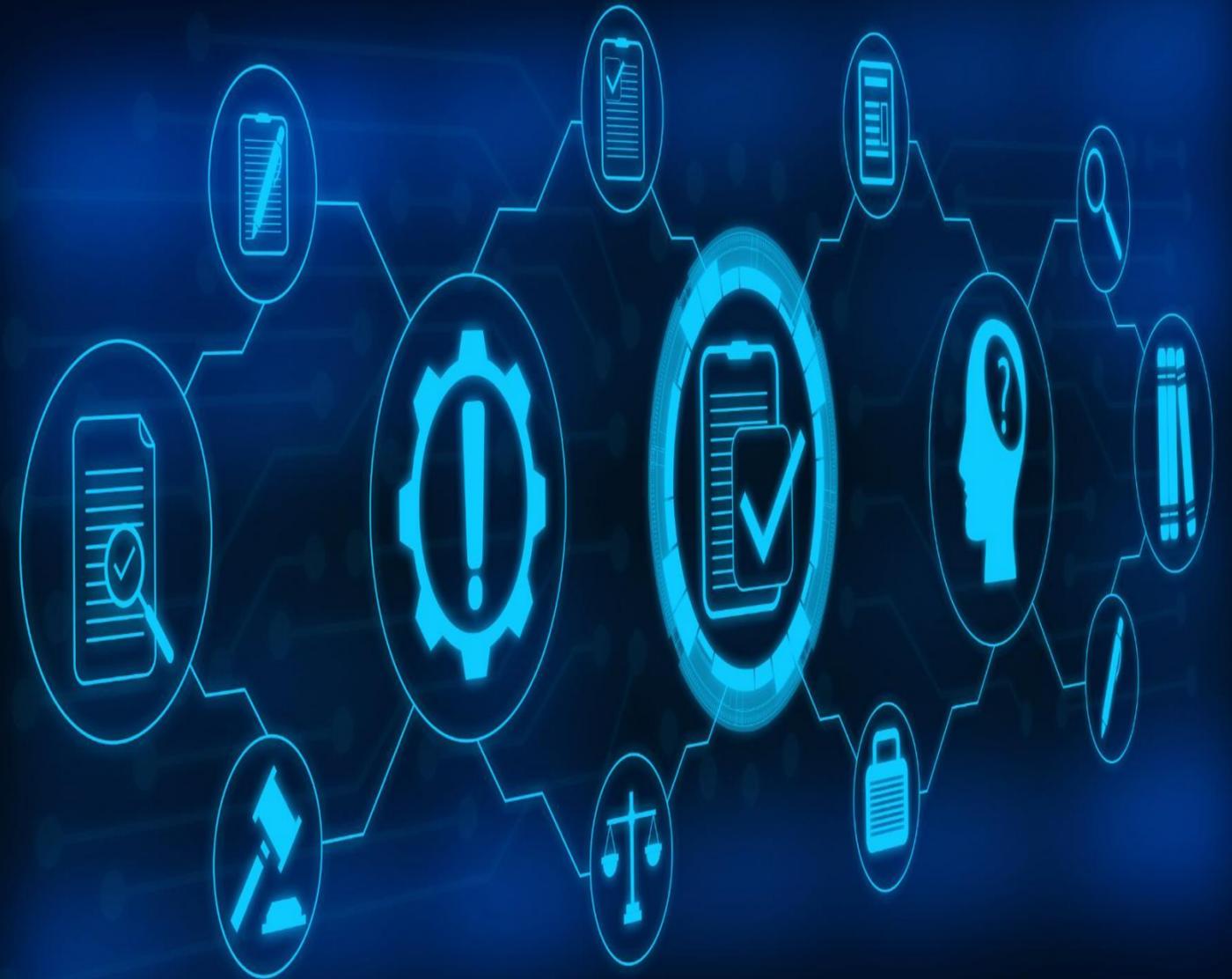
Session Overview

What You'll Learn Today

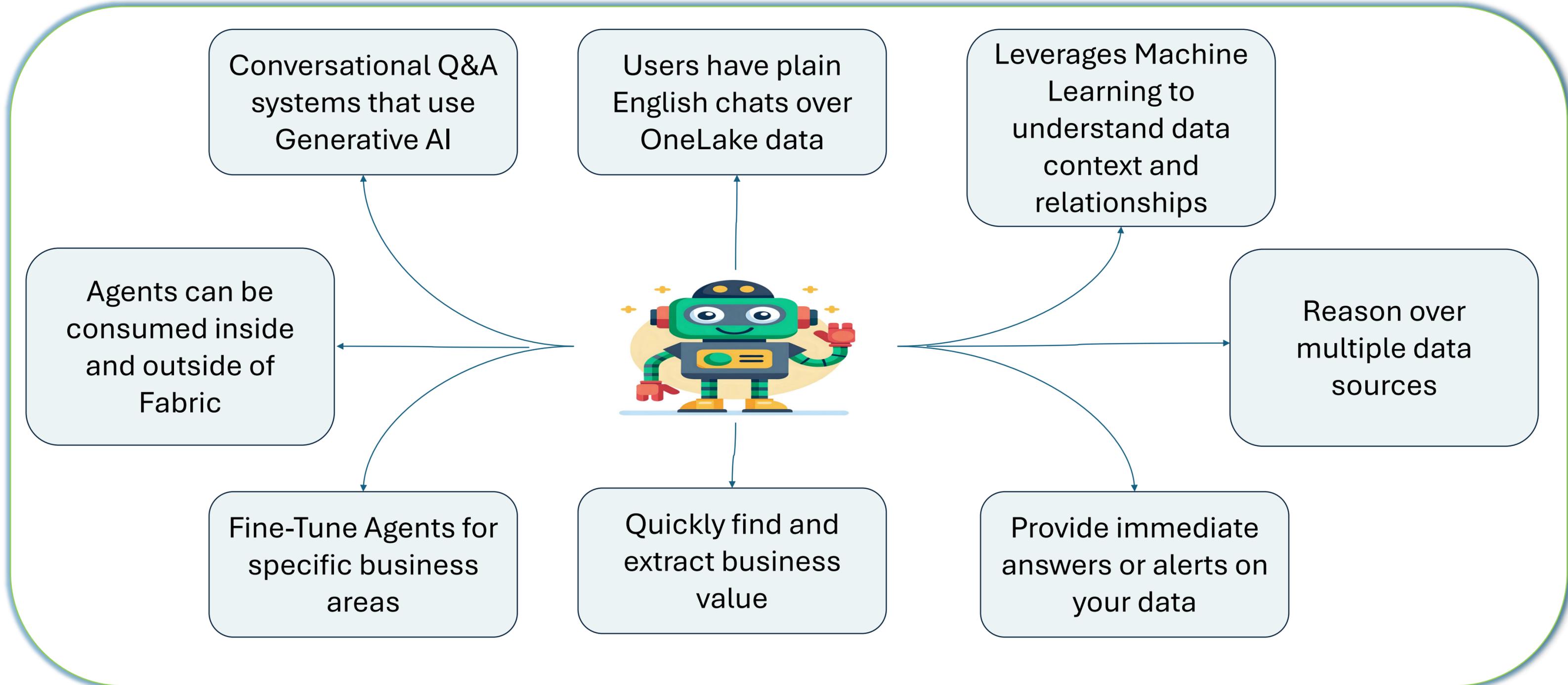
- The Data Quality Challenge 
- Fabric Data Agents 101 
- Agent Configuration 
- DQ Agent Architecture 
- DQ Agent Demos 
- Gotchas & Key Takeaways 
- Q&A 

The Data Quality Challenge

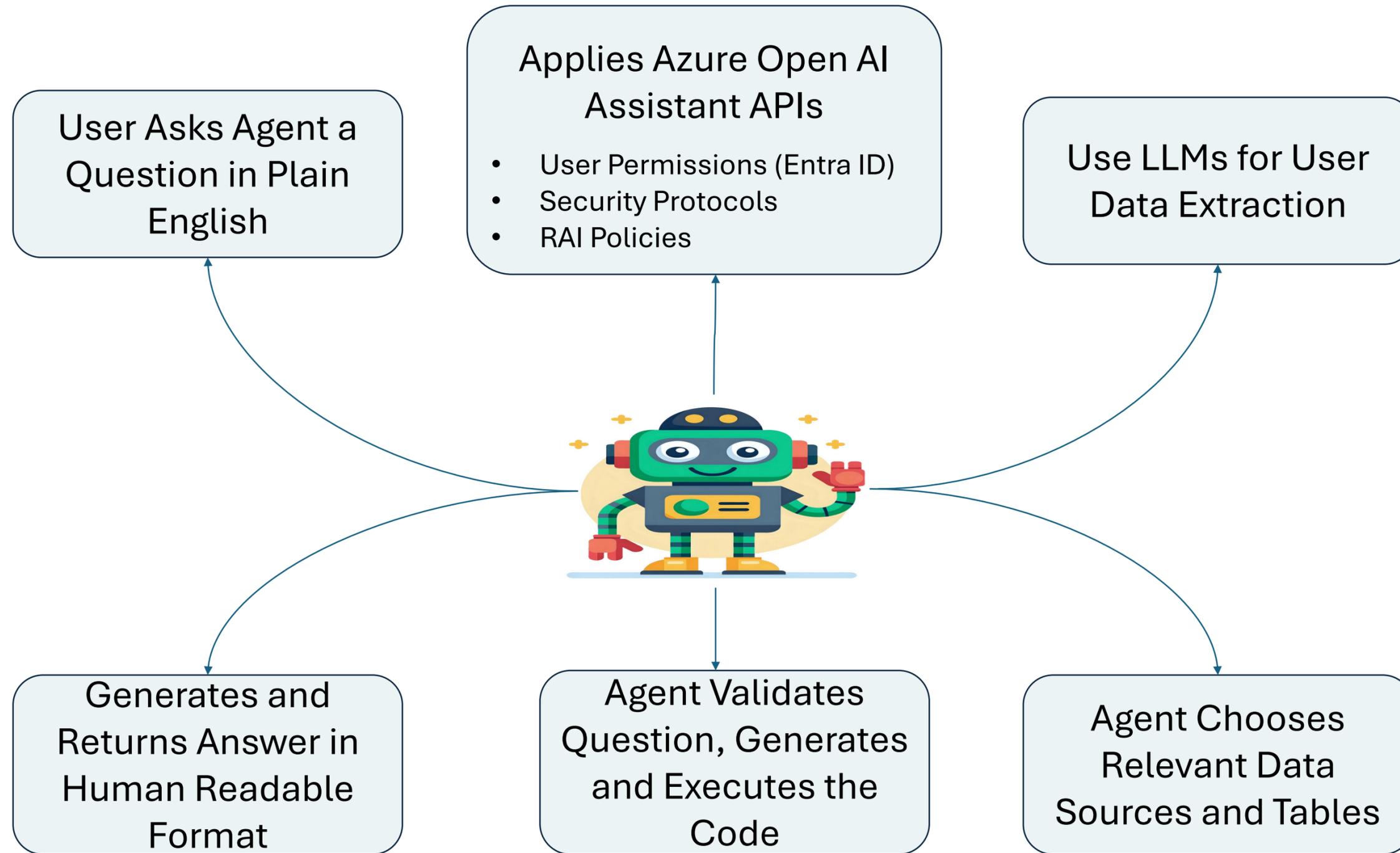
- Manual checks slow engineers down
- Automated DQ tools on the market?
 - Miss some DQ issues
 - Get it wrong!
 - Are Expensive
- Root-cause analysis is time-consuming
- Hard-to-diagnose anomalies
- Poor DQ = Reduced business trust
- Can Fabric Data Agents Help?



What are Fabric Data Agents?



How Do Fabric Data Agents Work?



Microsoft Fabric Data Agents: Best Practices for Configuration

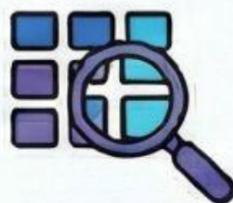
DATA PREPARATION & SCOPE



1. GET YOUR DATA AI READY

Use clear, descriptive names for data sources, tables, and columns. Avoid generic labels like Table1, col1.

Example: Rename "Table1" to "CustomerOrders", "col1" to "CustomerID".



2. MINIMIZE DATA SOURCE SCOPE

Include only necessary data sources, tables, and columns for expected questions.

Example: Select only CustomerID, OrderData.

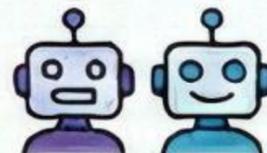


3. DEFINE BUSINESS TERMS & SYNONYMS

Define ambiguous or organization-specific terms, abbreviations (e.g., "MQL" as "Marketing Qualified Lead").

Example: Define "FY25" as "Fiscal Year 2025", "MQL" as "Marketing Qualified Lead".

AGENT DESIGN & FOCUS



4. CREATE SPECIALIZED AGENTS

Design agents for specific domains (e.g., HR, Sales) rather than broad topics. Improves accuracy.

Example: Create separate agents: 'HR Benefits'



5. WRITE CLEAR, FOCUSED INSTRUCTIONS

Be concise and purposeful. Avoid unnecessary details, outdated info,

Example: "Always provide the most recent pay information from the official payroll system."

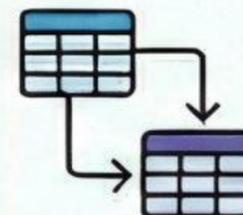


6. WRITE DETAILED AGENT INSTRUCTIONS

Define agent role, tone, expected behavior, preferred data sources, and fallback actions.

Fallback: 'If unsure, prompt the user to ask clarifying question.'

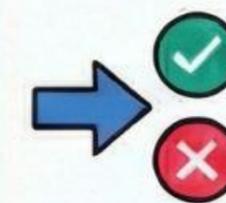
INSTRUCTION & LOGIC



7. PROVIDE DETAILED DATA SOURCE INSTRUCTIONS

Describe purpose, required columns, join logic, and typical value formats (e.g., State abbreviations).

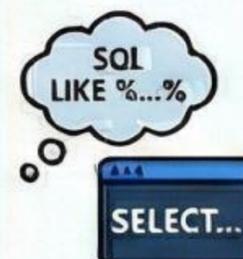
Example: 'Join 'Employee' to 'Department'



8. BE SPECIFIC ABOUT WHAT TO DO

Provide clear guidance on correct approaches, not just what to avoid.

Example: "If pay data is missing, state 'Data not available, please contact Payroll', do not guess."



9. USE EXAMPLE QUERIES & LEADING WORDS

Include SQL/DAX/KQL syntax hints and well-formed example queries for complex logic.

Example: "Query for 'top products': SELECT hints and well-formed example queries for complex logic."



To programmatically evaluate and optimize the data agent, use data agent Python SDK.

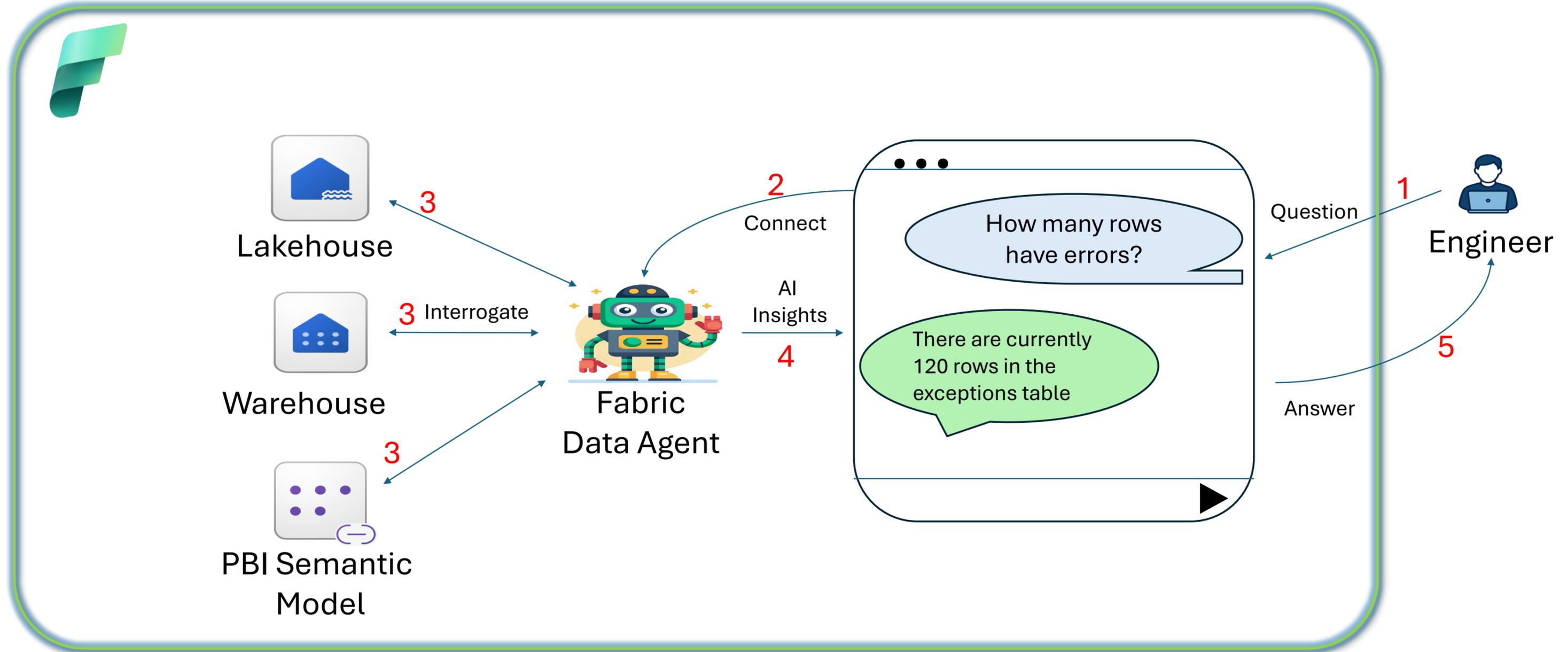


For semantic models, use Prep Data for AI

Prepared by Sandeep Pawar

Fabric Data Agents

Conversational AI Data Quality Architecture

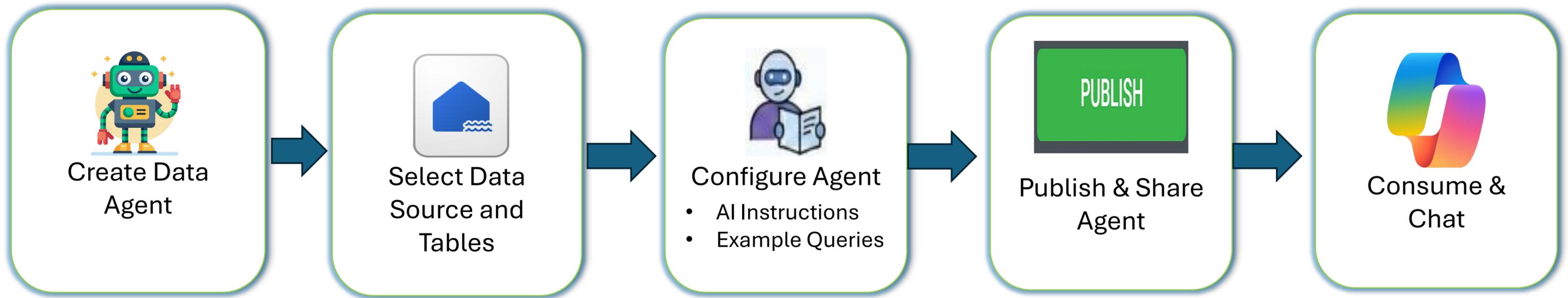




DEMO



Conversational Data Quality Agent Build



Choose from predesigned task flows or add a task to build one

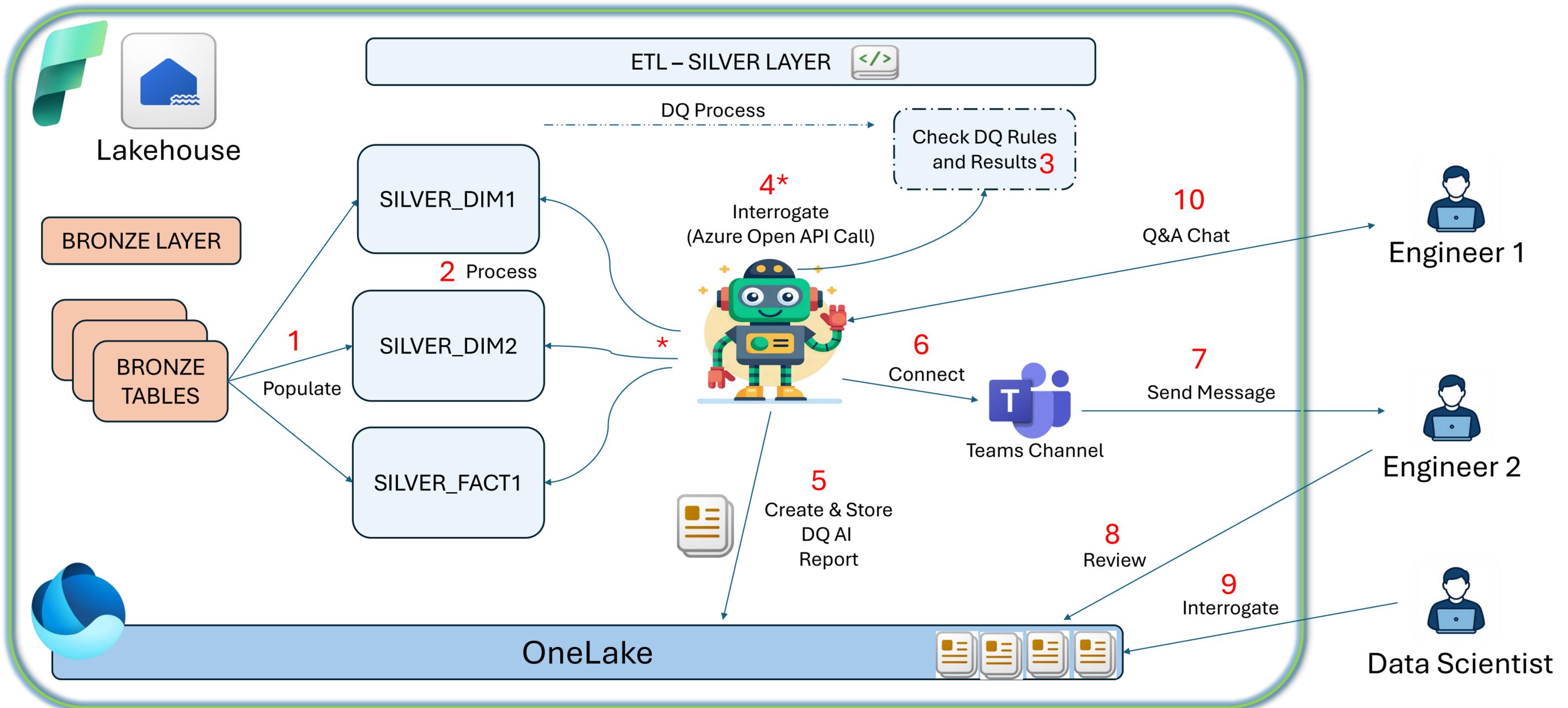
Select from one of Microsoft's predesigned task flows or add a task to start building one yourself. Select a predesigned task flow Add a task Import a task flow

Agent Demo > WorkingAgent

Name	Status	Type	Task	Owner	Refreshed	Next refresh	Endorsement	Sensitivity	Included in app
agt_insurance		Data agent	—	David Mills	—	—	—	—	
env_agent		Environment	—	David Mills	—	—	—	—	
lh_insurance		Lakehouse	—	David Mills	—	—	—	—	
lh_insurance		SQL analytics en...	—	David Mills	—	—	—	—	
nb_agent_API		Notebook	—	David Mills	—	—	—	—	
nb_lakehouse_create_SCHEMAS		Notebook	—	David Mills	—	—	—	—	
nb_lakehouse_GOLD_tables		Notebook	—	David Mills	—	—	—	—	
nb_lakehouse_SILVER_tables		Notebook	—	David Mills	—	—	—	—	
pl_Agent_DQ		Pipeline	—	David Mills	—	—	—	—	

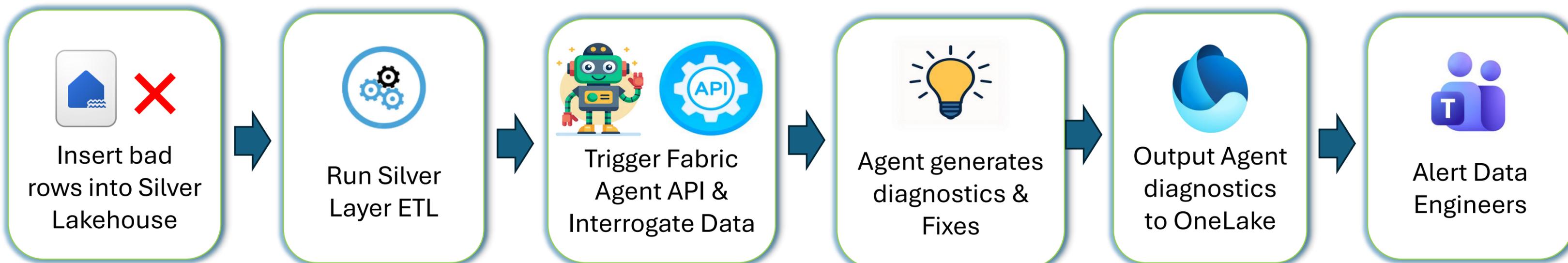
Fabric Data Agents

API ETL Integration Architecture



DEMO

Fabric Agent API ETL Integration



Choose from predesigned task flows or add a task to build one

Select from one of Microsoft's predesigned task flows or add a task to start building one yourself.

Select a predesigned task flow Add a task Import a task flow

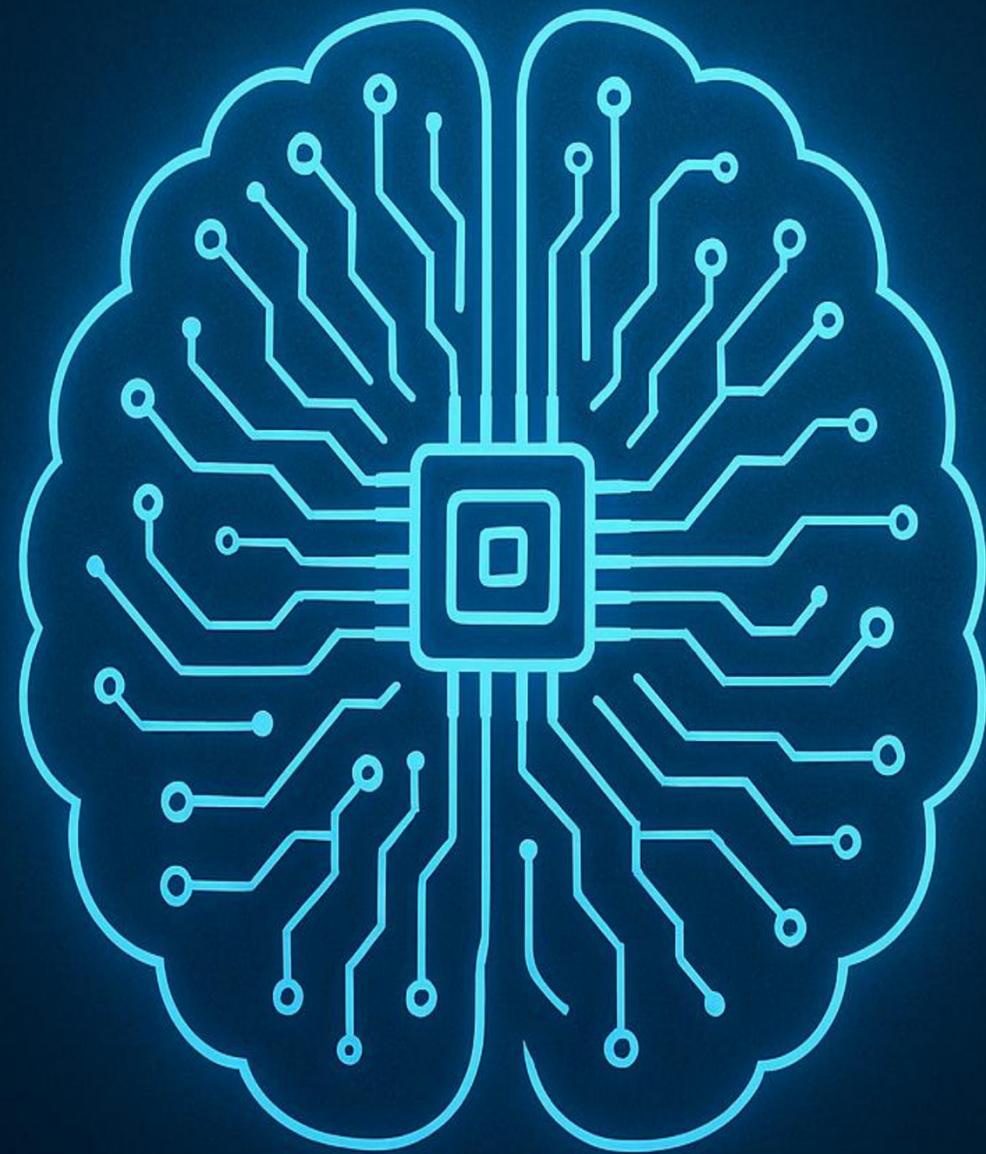
Agent Demo > WorkingAgent

Name	Status	Type	Task	Owner	Refreshed	Next refresh	Endorsement	Sensitivity	Included in app
agt_insurance		Data agent	—	David Mills	—	—	—	—	
env_agent		Environment	—	David Mills	—	—	—	—	
lh_insurance		Lakehouse	—	David Mills	—	—	—	—	
lh_insurance		SQL analytics en...	—	David Mills	—	—	—	—	
nb_agent_API		Notebook	—	David Mills	—	—	—	—	
nb_lakehouse_create_SCHEMAS		Notebook	—	David Mills	—	—	—	—	
nb_lakehouse_GOLD_tables		Notebook	—	David Mills	—	—	—	—	
nb_lakehouse_SILVER_tables		Notebook	—	David Mills	—	—	—	—	
pl_Agent_DQ		Pipeline	—	David Mills	—	—	—	—	

Fabric Agent Pre-Requisites and Limitations

- Fabric F2 Capacity or PBI PPC P1 or Higher
- Enable Agent Tenant Settings in Admin Portal
- Need at least 1 and a maximum of 5 data sources
- Only SQL, DAX and KQL languages are supported
- Agent code execution is strictly READ-ONLY
- Unstructured data NOT supported
- Lakehouse files NOT supported
- CANNOT change underlying LLM
- Conversational agent history may NOT persist
- Agent is Region Specific



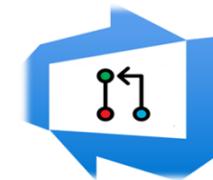


Next Steps

- External Platform Integration

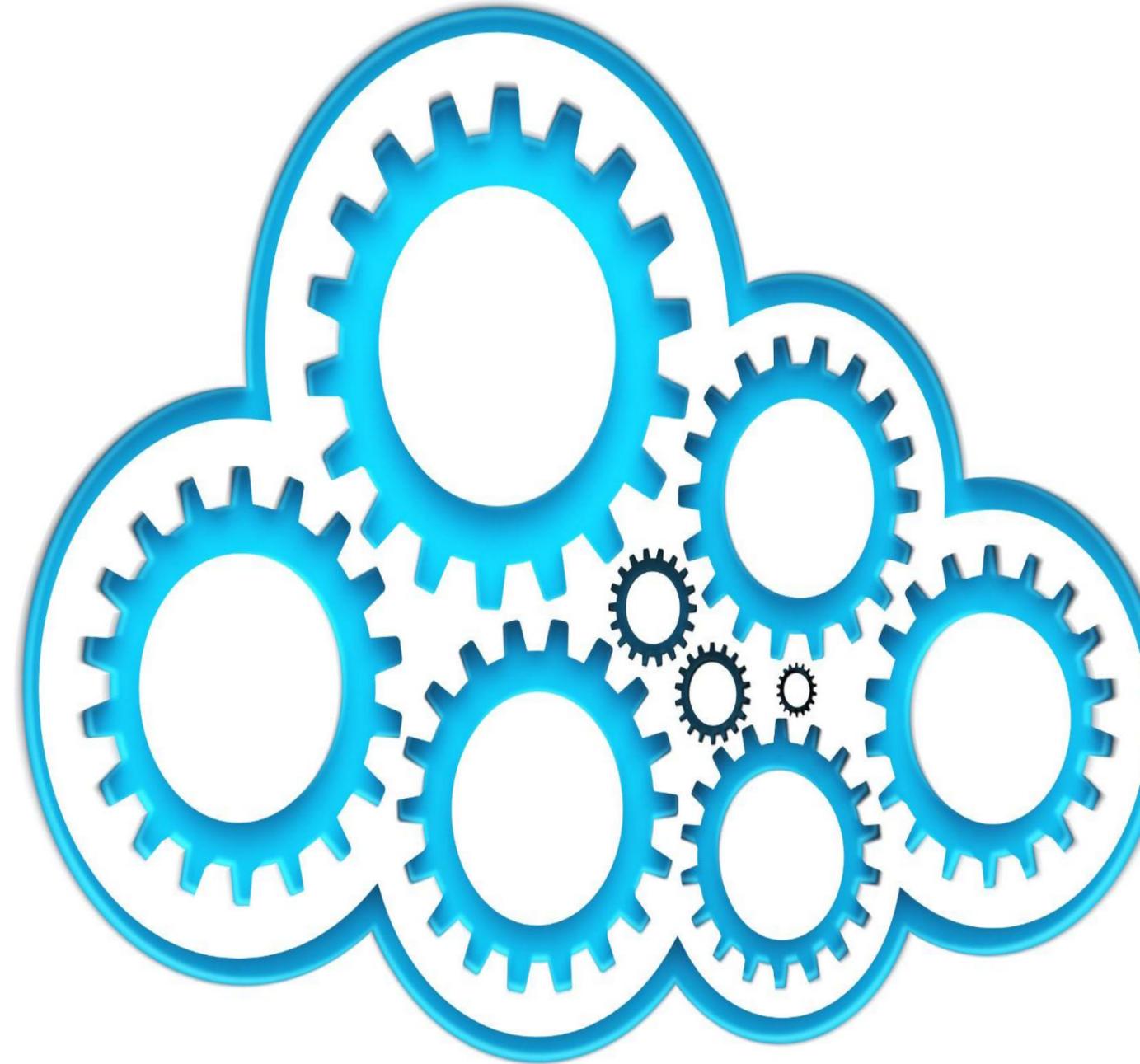


- Automated Pull Requests



Key Takeaways

- Agent Configuration is Key
- Embed agents within your ETL
- Build Your Own Fabric Agent
 - (it's not that hard!)



Thanks for attending the session! 🤖 🤖 🤖



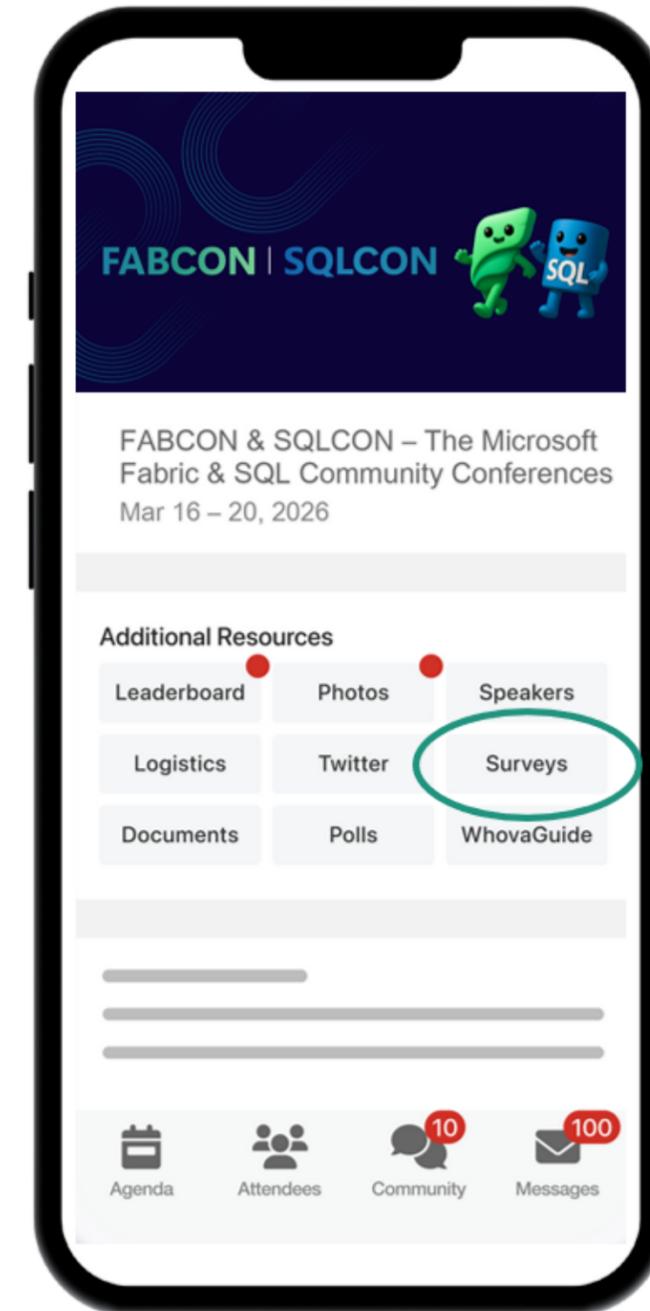
QUESTIONS?



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Join the SQL User Panel



Influence our SQL roadmap and ensure it meets your real-life needs

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