



LBMC

AI & Data in Utilities

SEPTEMBER 2025

• [LBMC.COM](https://lbmc.com)

LBMC AI Introduction



Jon Hilton

Shareholder & Data Scientist

Jon is helping companies understand AI and build out their AI future.

Jon Hilton is Shareholder-in-Charge of LBMC's AI Practice and a Data Scientist with deep experience in AI.

Jon's technical skills include Python, Machine Learning, AI, and Deep Learning. He holds a **Master's in Information and Data Science from UC Berkeley**.

Jon is a **West Point** graduate and served in the U.S. Army from 2004 – 2009. As an Officer and **combat Veteran**, he was awarded the Bronze Star and Army Commendation Medal.

Jon lives in Franklin, TN with his wife and four children.

What are the 3 types of AI?

Rules Based

- Deterministic
- Code or formula based
- If/then, for/do loops, etc.

Can be as simple as an if/then statement in Excel

Machine Learning

- Narrow AI
- Train a model for a specific task
- Classification
- Regression
- Forecasting
- Neural Networks

Generative AI

- Train on all data
- Transformers
- LLMs
- Memory

What are the 3 levels of Gen AI Tasks?

Generative AI

- New content based on patterns.
- Content Generation
- Reactive
- Pattern recognition and statistical prediction

LLMs, Transformers, and Neural Networks

AI Agents

- Specific tasks with independent decision making
- Goal Driven
- Autonomous reasoning and execution

LLMs + Memory + Tools + Decision-making systems

Agentic AI

- Orchestrate multiple AI Agents.
- End to end dynamic workflow automation.
- Proactive – and autonomous process
- Strategic planning and coordination

Multiple agents + orchestrate + planning

What is an AI Use Case

A clearly defined scenario where AI is applied to address a specific business problem, automate a process, enhance decision-making, or create new value.

It includes:

- The problem
- The scope
- The solution outline
- Expected outcomes

Elements of an AI Use Case

- Business problem or opportunity
- Strategic alignment
- Description of the solution
- Stakeholders and users
- Data requirements
- Process scope and workflow
- Expected outcomes
- Feasibility assessment
- Risks and mitigation
- Timeline and milestones

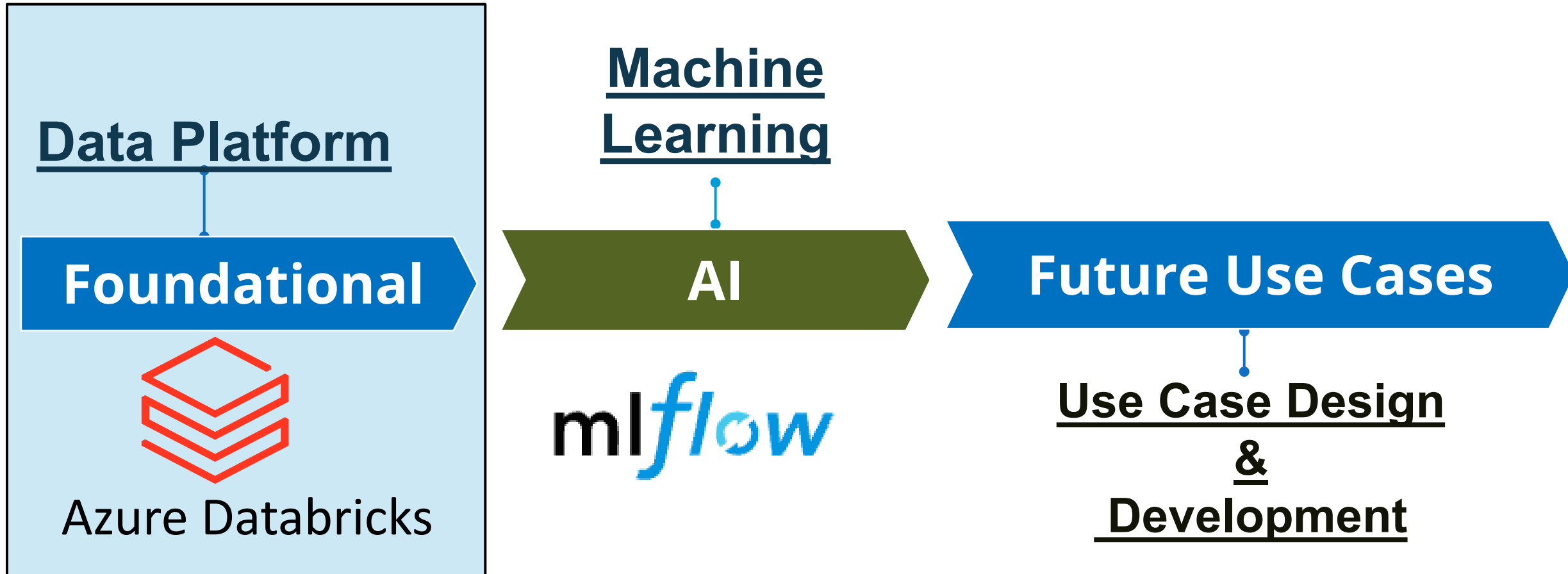
Expected AI Use Case Outcomes and Tasks

- Extraction of data and information
- Accelerated knowledge
- Contextual knowledge
- Summarized or synthesized knowledge
- Content generation
- Review or judgement of tasks or info
- Autonomous task automation
- Task enhancement
- Intelligent integration of tools or data

Examples

- Personalized account insights and recommendations
- Virtual customer support
- Conversational AI
- Credit and financial automation
- Actionable analytics and reporting
- Automated compliance and document verification
- Integrated equipment management

Path to Machine Learning



Data Intelligence Platform



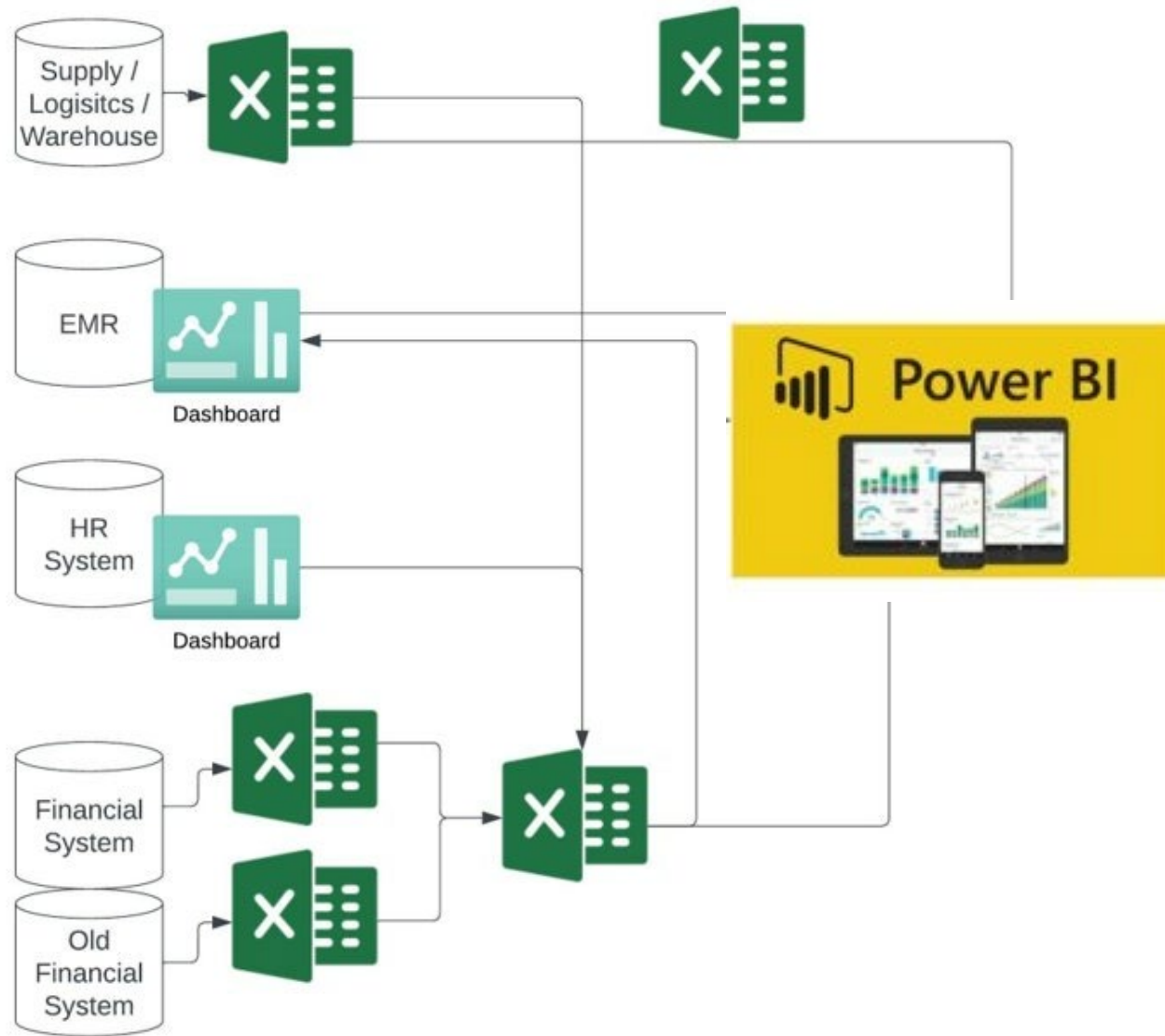
Cloud Infrastructure

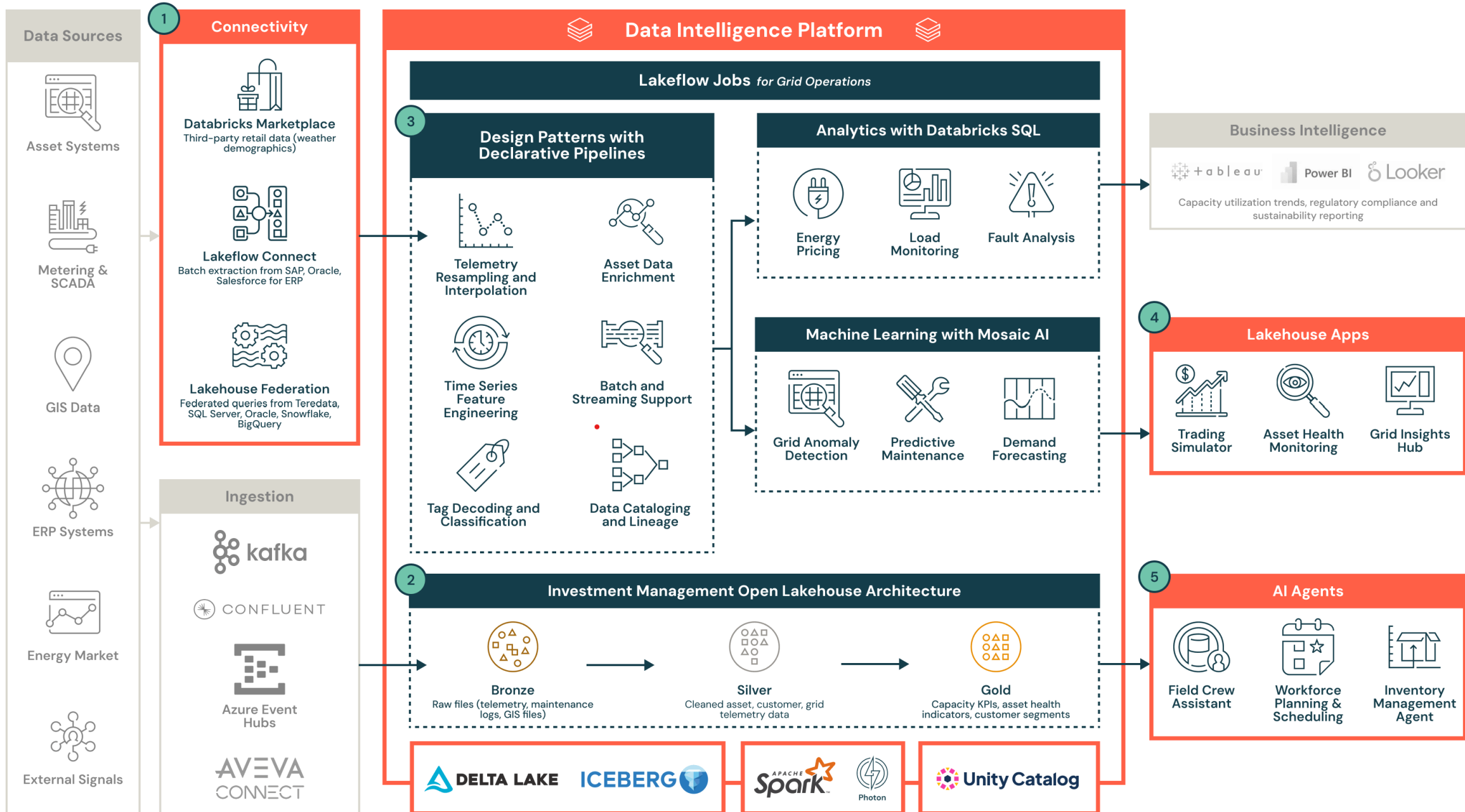


Data Layers

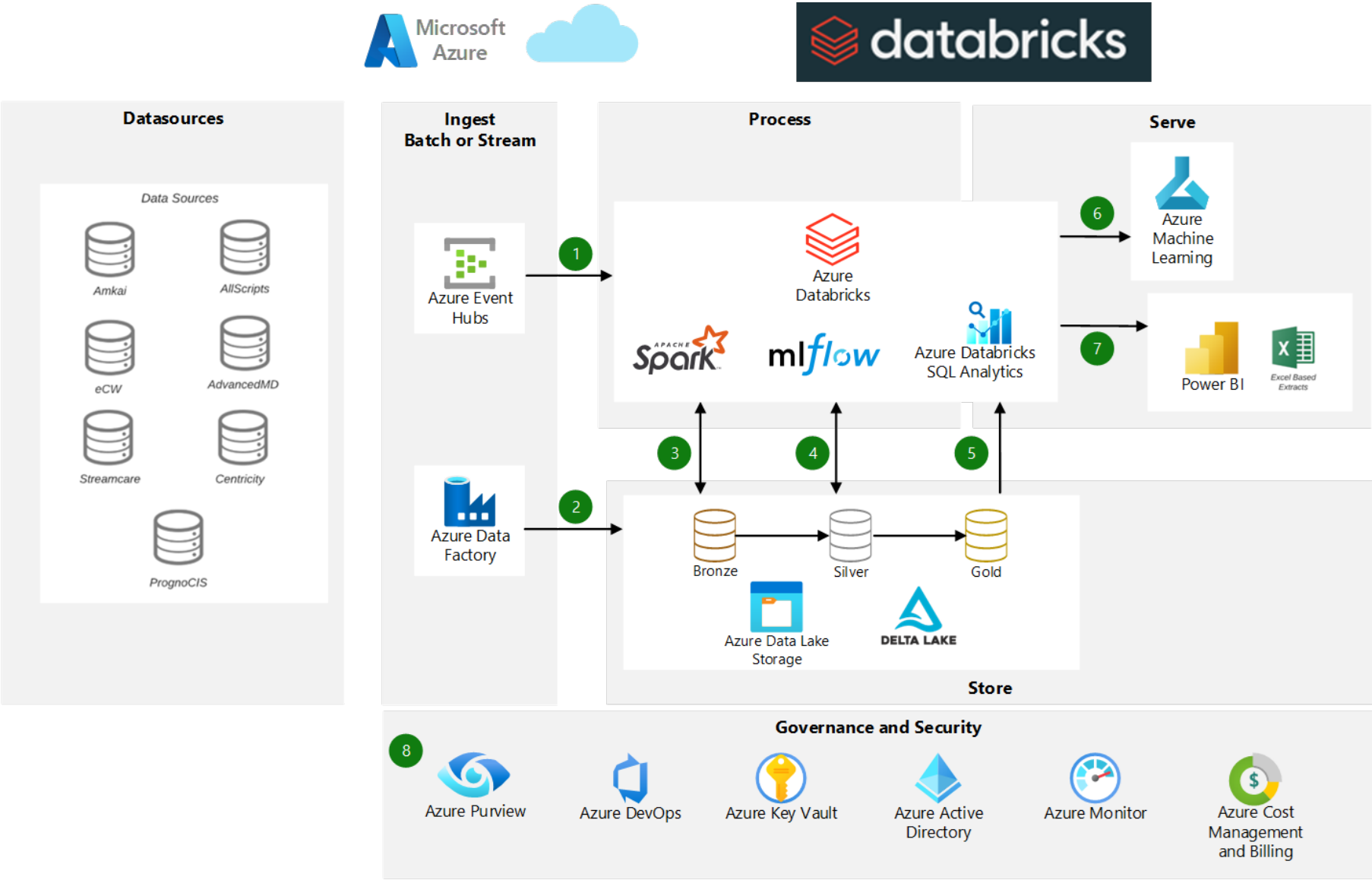


The usual starting point

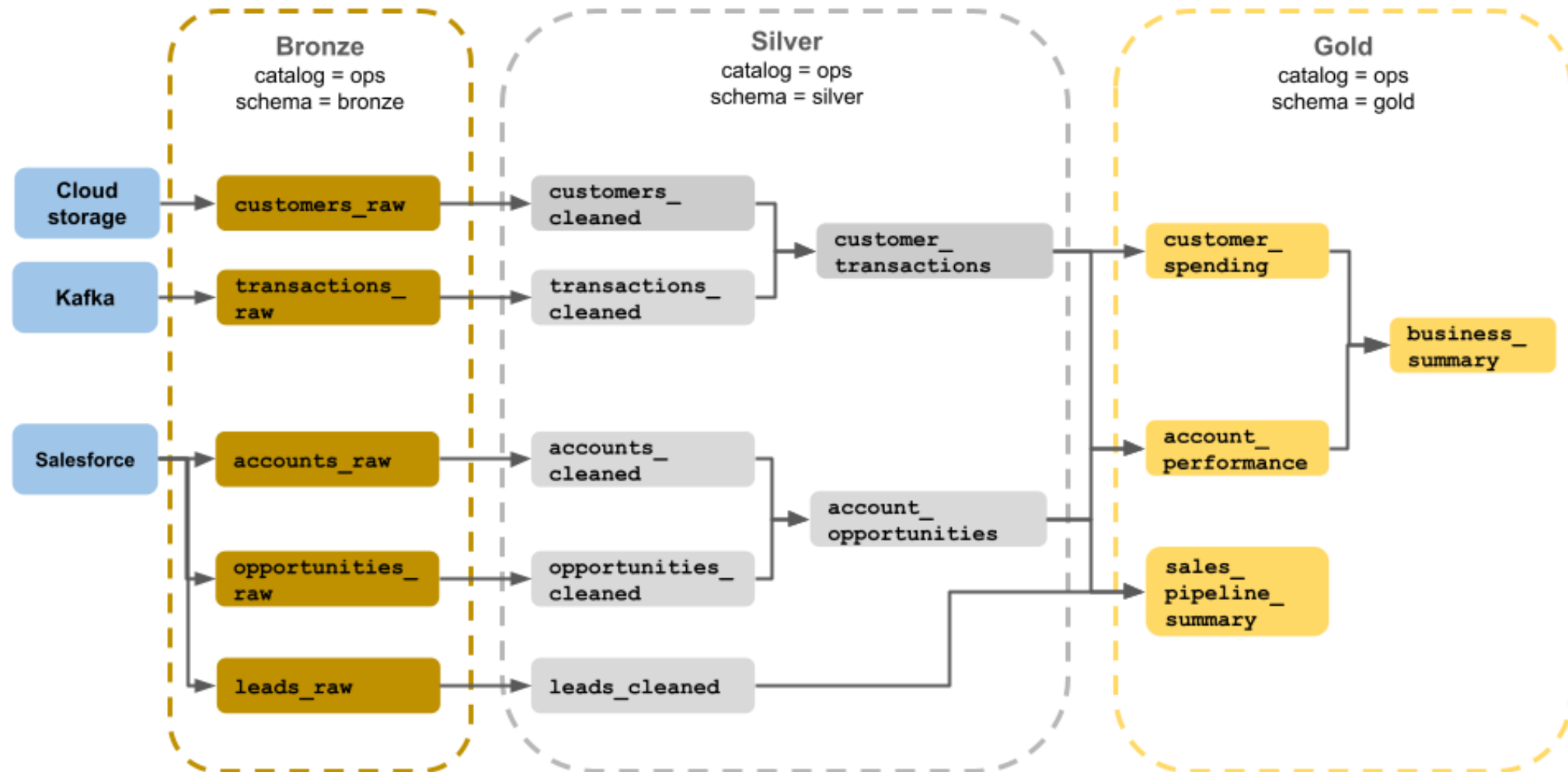




Bring AI to your Data



Thinking of Data in Quality Layers



HISTORICAL DAILY DEMAND

Week Start Date

8/4/2024



1.72K

Actual Max Demand (MW)



8/5/2024

Actual Max Day

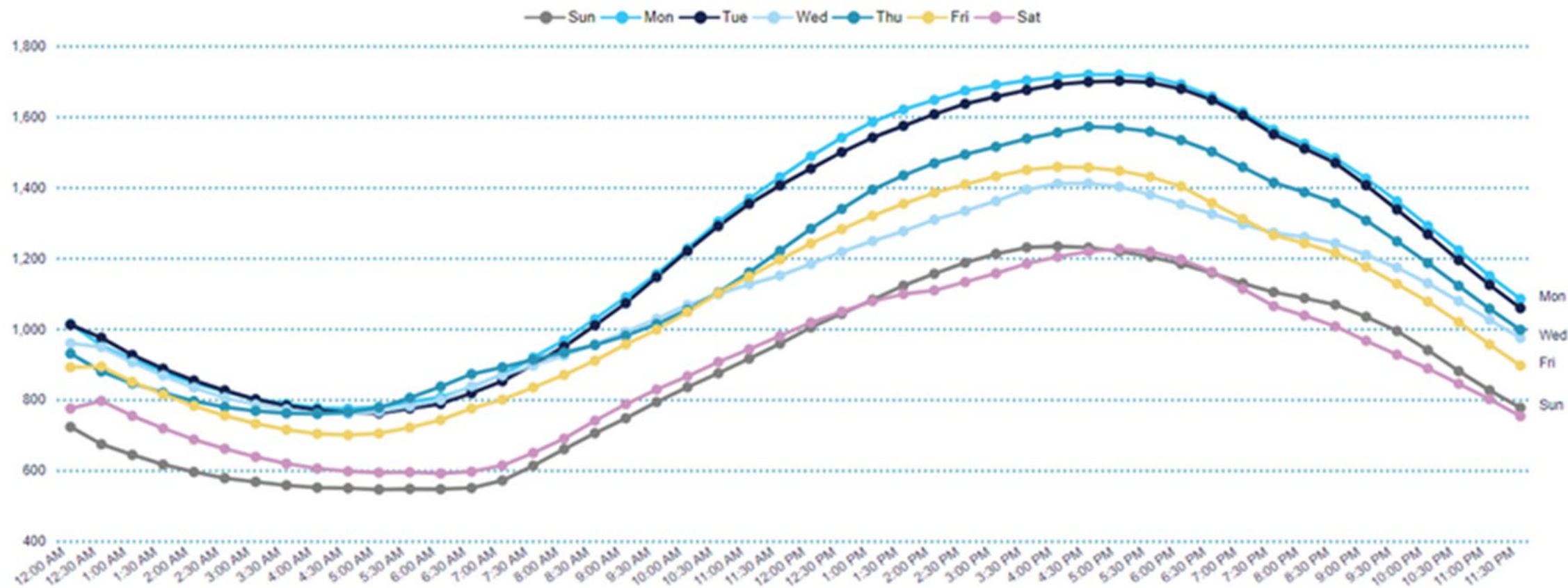


5:10 PM

Actual Max Hour

Demand Forecast

Average of Actual Demand (MW) by Time and Day of Week



Business Intelligence



Custom Reporting

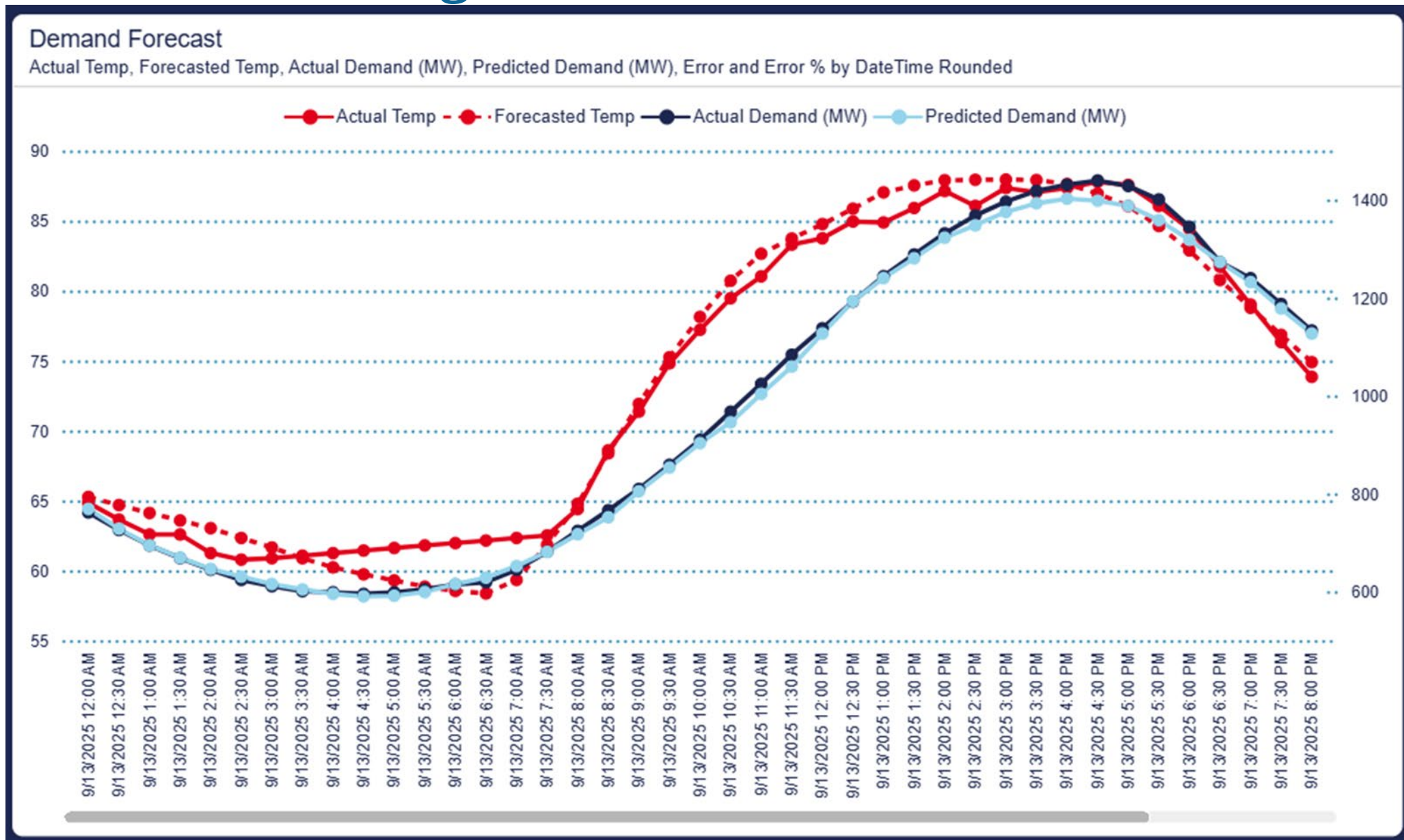
Real Time Analysis

Data Cataloguing

Data Architecture and
Integration



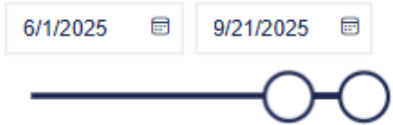
Predictive Modeling



Predictive Modeling



Accuracy Tracking



33K
Mean Absolute Error



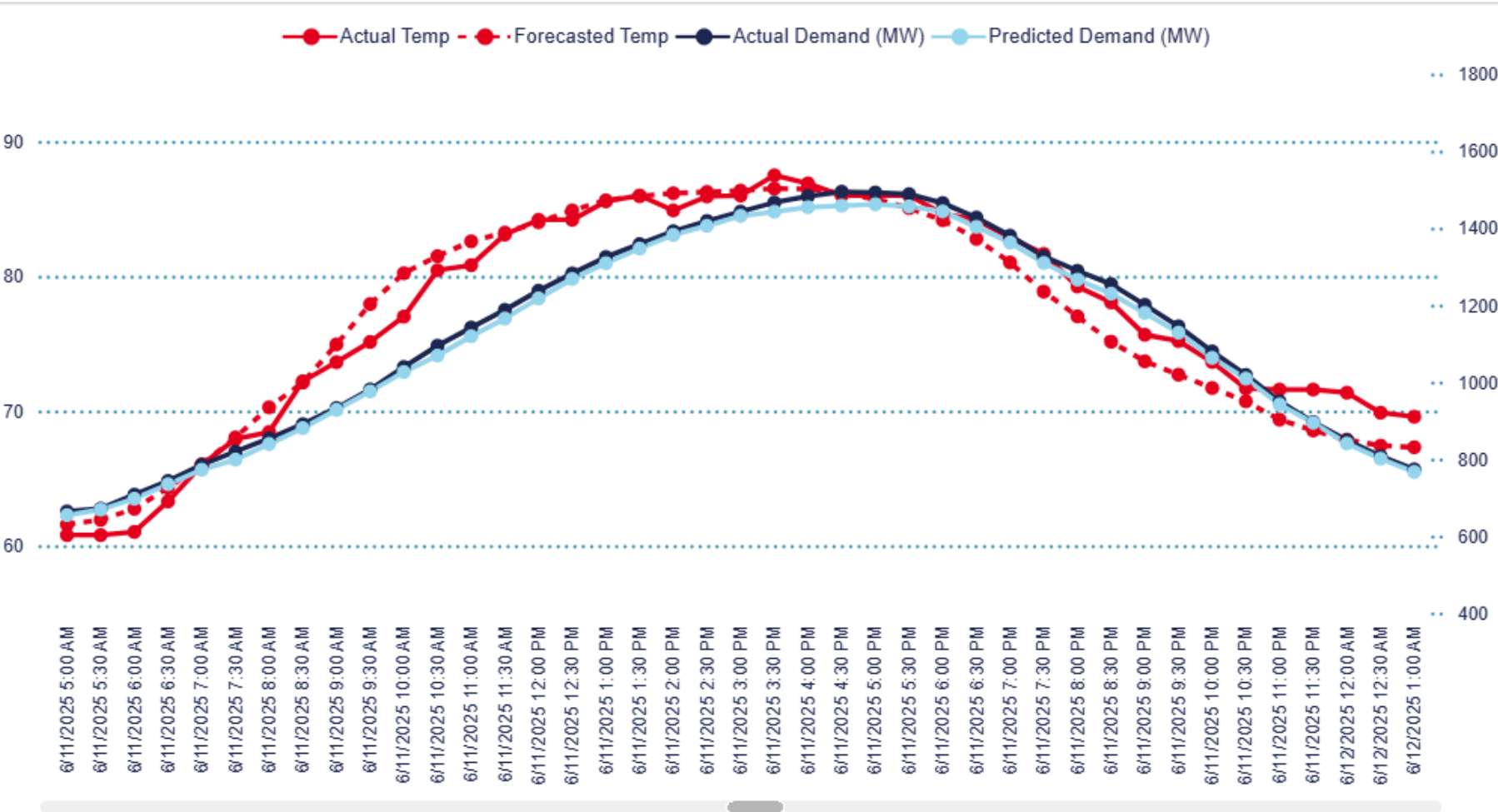
2.68%
Mean Absolute % Error



19K
Mean Error

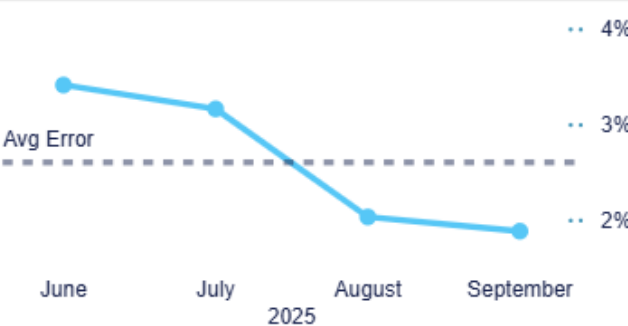
Demand Forecast

Actual Temp, Forecasted Temp, Actual Demand (MW), Predicted Demand (MW), Error and Error % by DateTime Rounded



Year	Mean Abs Error	Mean Abs Error %	Mean Error
2025	32,549	2.68%	19,177
June	40,237	3.41%	22,647
July	42,320	3.16%	31,151
August	23,949	2.03%	9,783
September	19,857	1.88%	10,437
Total	32,549	2.68%	19,177

Average Monthly Error



AI Agents



DOC-FLOW

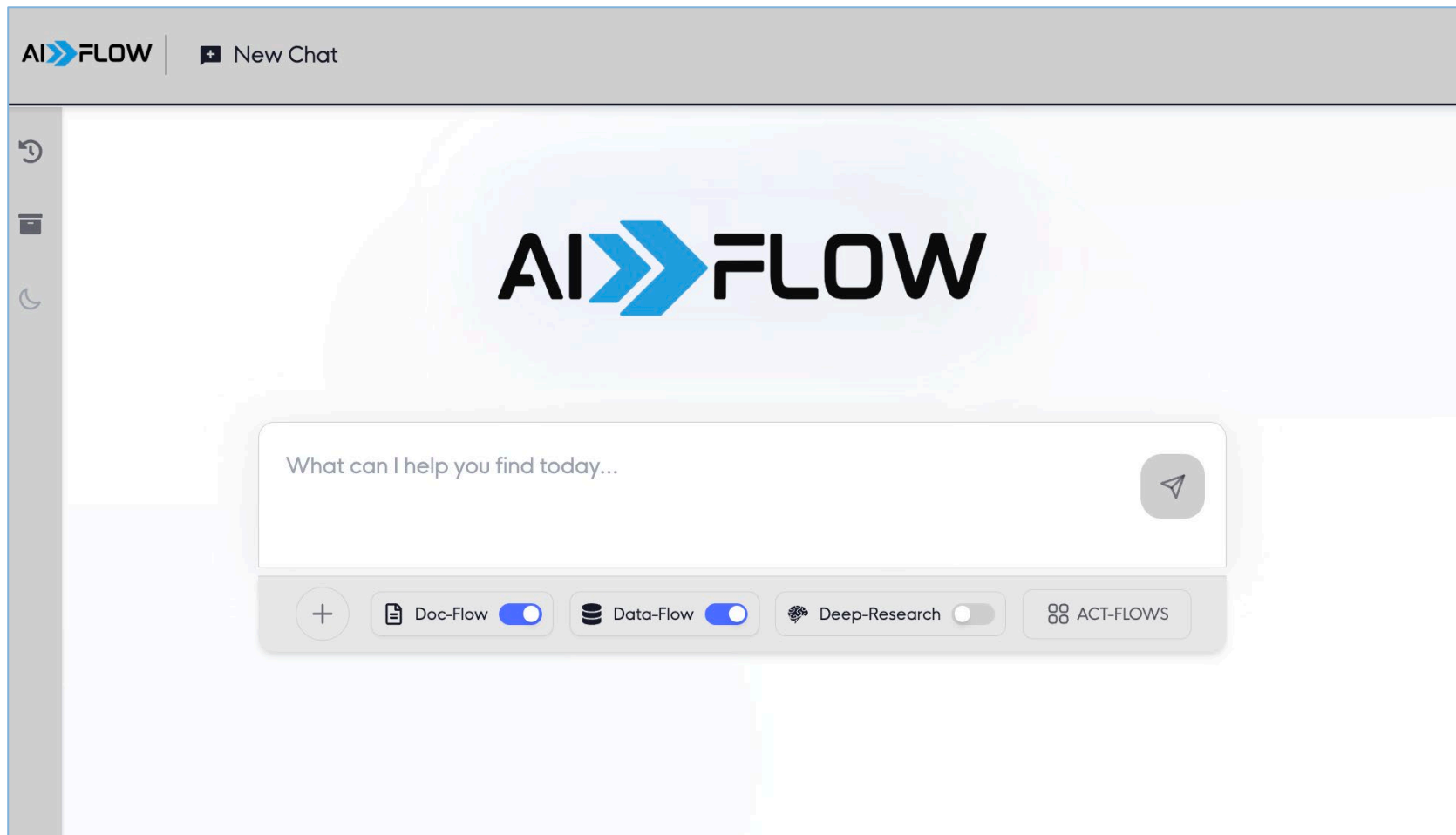


DATA-FLOW



AGENT WORKFLOWS

AI Applications



DOC-FLOW



DATA-FLOW



AGENT WORKFLOWS

AI Applications - Accelerate



Retrieve Knowledge from Documents

Custom Query from Data

Combined DOC-FLOW DATA-FLOW

90 VERIFIED

Annual Sales of Apple in the Past 3 Years

- 2024: \$395.760 billion [\[SQL\]](#)
- 2023: \$385.706 billion [\[SQL\]](#)
- 2022: \$387.537 billion [\[SQL\]](#)

Current CEO

Apple's current CEO is Tim Cook.

Details

> SQL Results Table

> Source Analysis

The SQL data is highly reliable for the annual sales figures as it is the most recent and detailed. The document sources are also reliable but slightly outdated compared to the SQL data. The information about the current CEO from the documents is accurate and up-to-date.

> Synthesis Process

To provide the most accurate and recent information, I prioritized the SQL data for the annual sales figures as it is more up-to-date compared to the document sources. The SQL data provided the latest revenue figures for 2024, 2023, and 2022. For the current CEO, I used the document information as it is consistent and reliable.

Combined DOC-FLOW DATA-FLOW

> SQL Query

```
WITH RecentYears AS (
  SELECT ticker, fiscal_year, SUM(revenue) AS 'Annual Revenue ($M)'
  FROM financial_metrics
  WHERE ticker = 'AAPL' AND fiscal_year >= 2021
  GROUP BY ticker, fiscal_year
  ORDER BY fiscal_year DESC )
SELECT c.ticker AS 'Ticker', c.company_name AS 'Company', ry.fiscal_year AS 'Year', ry.'Annual Revenue ($M)'
FROM RecentYears ry
JOIN companies c ON ry.ticker = c.ticker
ORDER BY ry.fiscal_year DESC;
```

Q Search table... [Download CSV](#)

4 records

TICKER	COMPANY	YEAR	ANNUAL REVENUE (\$M)
AAPL	Apple Inc	2024	\$395,760,000,000.00
AAPL	Apple Inc	2023	\$385,706,000,000.00
AAPL	Apple Inc	2022	\$387,537,000,000.00

AI Applications - Automate

 **Invoice Processing** ×

Access intelligent document flow



Open Invoice Flow?

Navigate to the intelligent invoice processing system to upload, analyze, and manage your financial documents with AI-powered automation.

- Intelligent document parsing
- Automated GL coding
- Real-time processing status

Cancel

→ Open Invoice Flow

SERVICE PROVIDER

AI Innovations Corp
234 Neural Network Ave
Boston, MA 02101
Phone: (617) 555-0451
Email: billing@aiinnovations.com
Federal Tax ID: 67-8901234

BILLING INFORMATION

Client: Financial Services Inc.
Address: 654 Wall Street
New York, NY 10005
Contact Person: Robert Kim

INVOICE DETAILS

Invoice Number: INV-8323
Issue Date: May 08, 2025
Due Date: June 07, 2025
Payment Terms: Net 30 Days

SERVICES RENDERED

Item	Service Description	Hours	Rate/Hour	Total Amount
1	Data Analytics Dashboard	24.00	\$165.32	\$3967.68
2	AI Model Training	8.00	\$234.80	\$1878.40
3	Data Visualization	24.00	\$182.00	\$4368.00
4	Statistical Analysis	16.00	\$209.50	\$3352.00

FINANCIAL SUMMARY

Services Subtotal: \$13566.08

Invoice-Flow 0 completed 3 processing

AI-powered Invoice Extractor

[+ Add Files](#)

 invoice001_missing_detailed.pdf **Processing** 82%

 invoice002_detailed.pdf **Processing** 82%

 invoice003_standard.pdf **Processing** 82%

Invoice Details ×

AI Innovations Corp

Invoice Information
Invoice #: INV-8323
Issue Date: May 8, 2025
Due Date: Jun 7, 2025
Payment Terms: Net 30 Days

Service Provider
Company: AI Innovations Corp
Address: 234 Neural Network Ave
Boston, MA 02101
Contact: (617) 555-0451
billing@aiinnovations.com

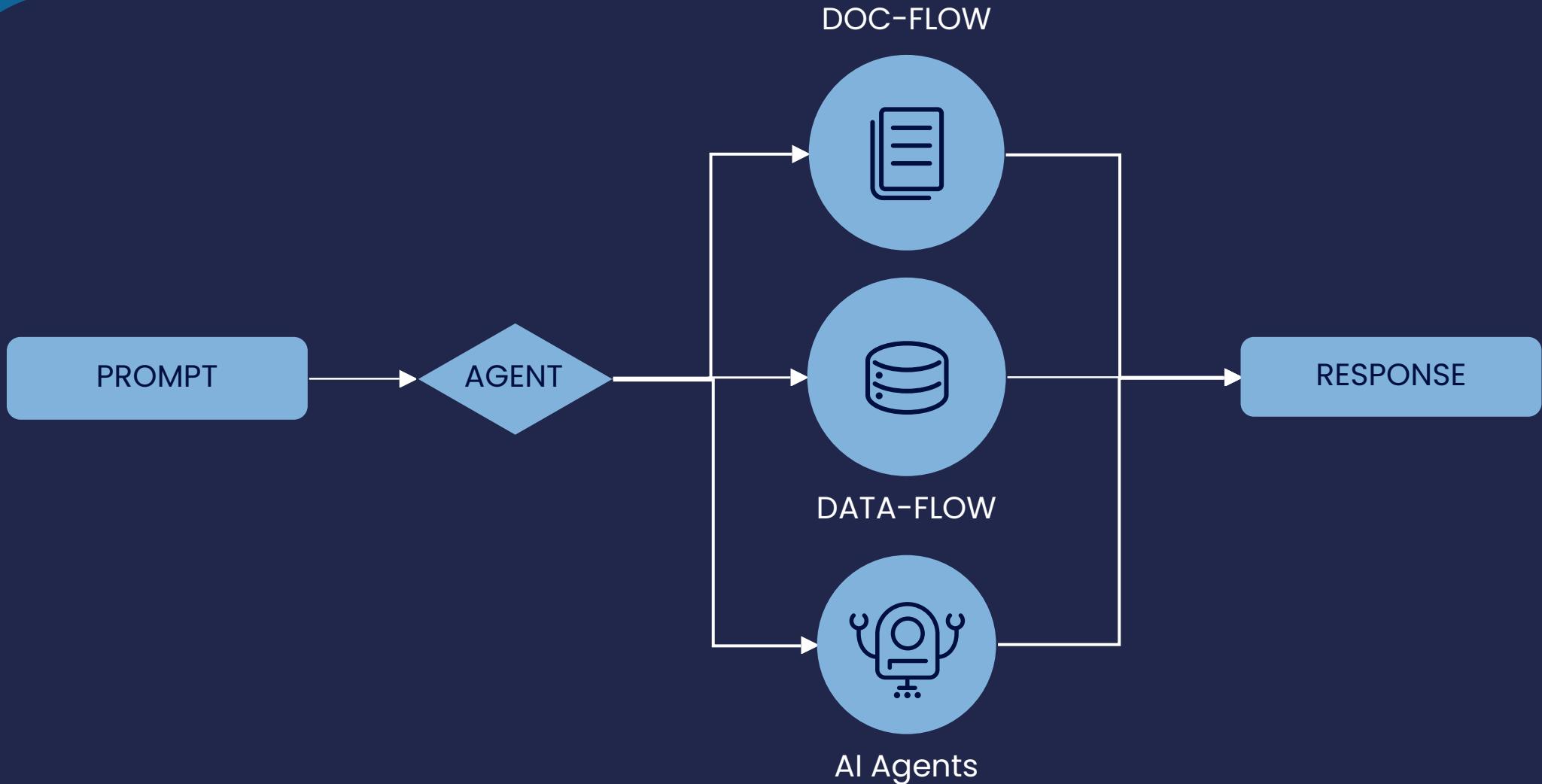
Financial Summary
Subtotal: \$13,566.08
Total Due: **\$13,566.08**
GL Department: 2000
GL Account: 2000

Line Items

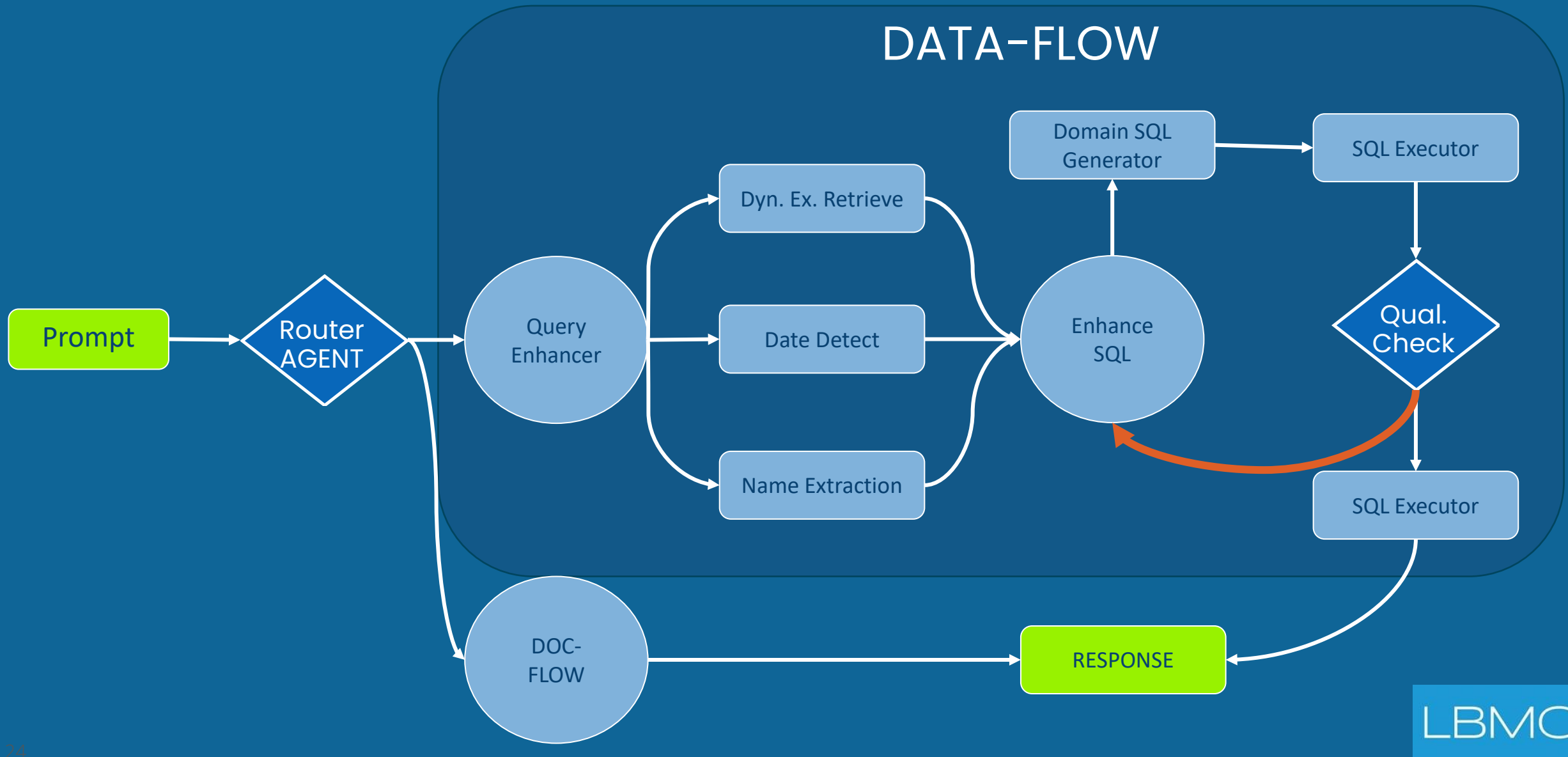
#	DESCRIPTION	HOURS	RATE	TOTAL
1	Data Analytics Dashboard	24	\$165.32	\$3,967.68
2	AI Model Training	8	\$234.80	\$1,878.40
3	Data Visualization	24	\$182.00	\$4,368.00

How does an AI agent
workflow work?

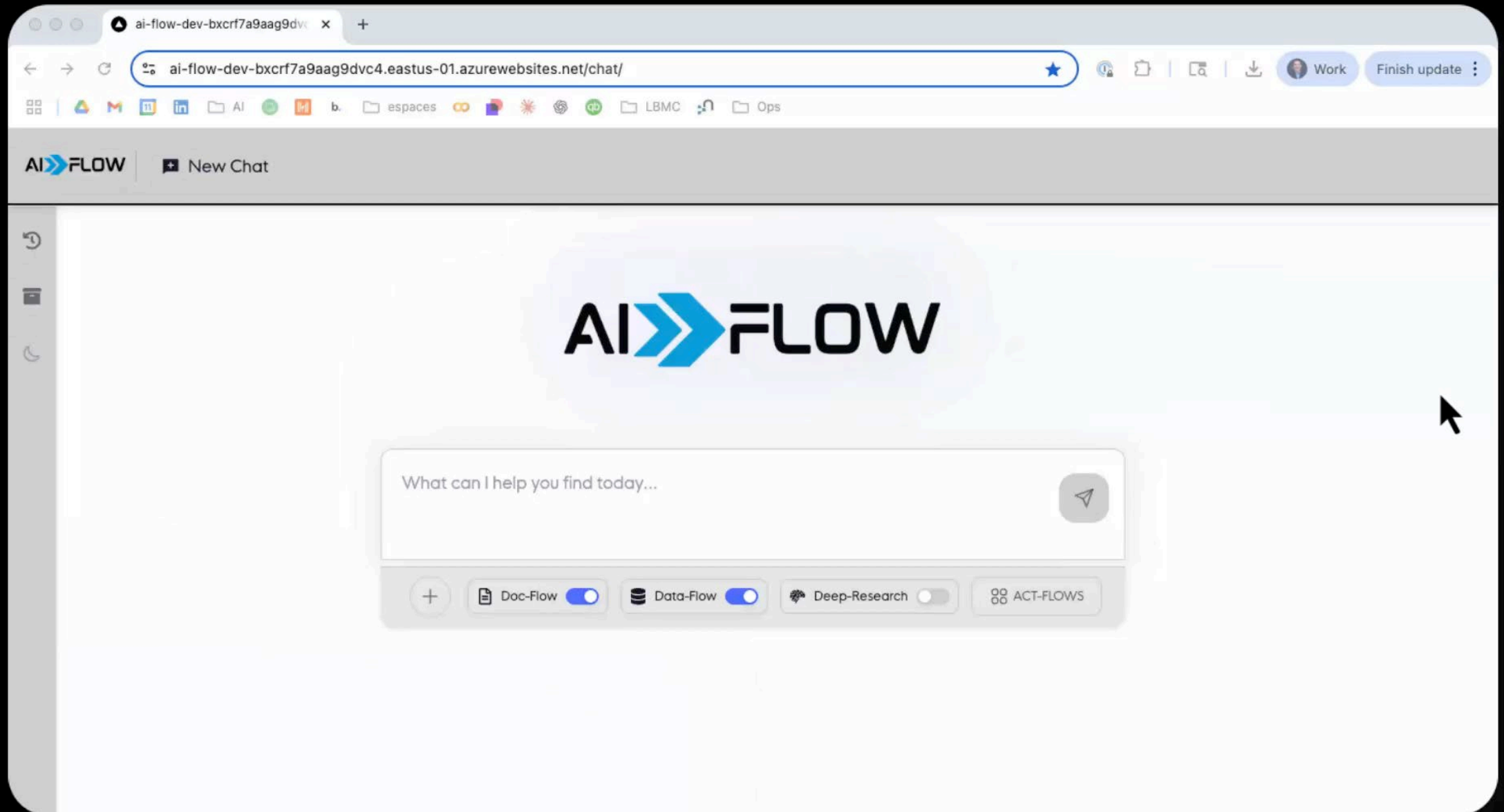
Agent – Workflow Orchestration



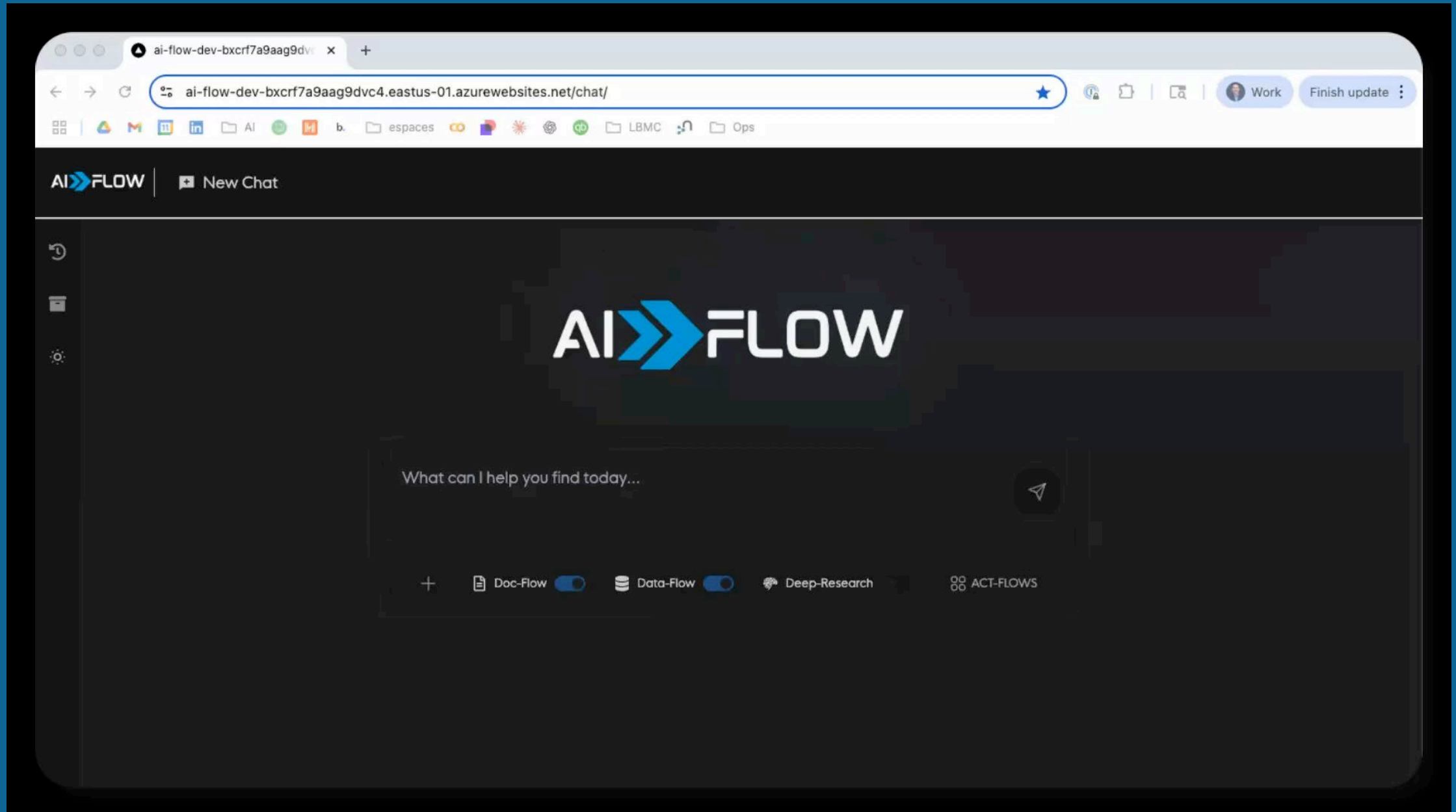
Document & Data – Technical Infrastructure



AI Agent Document & Data Retrieval (RAG)



AI Agent Orchestration – Invoice Example





Agent Na...



Internet Sold

All



Date Range

6/2/2025



9/8/2025



46

of Calls Analyzed

11

Internet Sales

23.9%

Conversion Rate

Strengths Across All Calls

- You show strength in matching customer needs to appropriate speed tiers when they express specific usage requirements like gaming or streaming, building trust through personalized recommendations.
- You proactively identify fiber internet eligibility at new addresses without waiting for customers to ask, which positions you as helpful and knowledgeable.
- You excel at immediately highlighting the 'three month free promotion with no contract' when introducing fiber internet, which creates instant value and removes risk barriers for customers.
- You effectively present clear pricing tiers by explaining all three speed options with their specific monthly costs, helping customers understand their choices.
- You consistently emphasize flexibility with phrases like 'you can cancel at any point without penalties' and 'you are not locked into a contract,' which successfully reduces customer hesitation.

Growth Areas (Non-Sale Calls)

- Consider exploring the customer's situation more deeply when they mention having existing service or arrangements by asking who their provider is and what they like/dislike about their current service.
- When customers say they need time to decide, you have an opportunity to create more urgency by emphasizing limited installation slots and calculating the total savings value of the three-month free promotion.
- You could enhance your sales approach by asking 2-3 discovery questions about internet usage habits (streaming, gaming, number of devices) before recommending speed tiers, creating more personalized recommendations.
- You could try explaining the specific benefits of fiber internet (reliability during storms, symmetrical speeds, lower latency for gaming) to differentiate from competitors when customers mention other providers.
- You might strengthen your approach with rental property owners by highlighting how internet services can increase property attractiveness or discussing tenant-paid options rather than accepting the initial objection.

Call Date	Areas to Focus On	Event Num
9/5/2025	1. Practice probing questions when customers mention existing service (e.g., 'How satisfied are you with your current United service?' or 'Would you be interested in hearing how our current promotion might save you money over your existing plan?'). 2. Develop competitive comparison skills to highlight advantages over existing service, even when it's with the same provider.	10000125189
9/5/2025	1. Practice probing questions to understand current internet situation before offering service (e.g., "Who is your current provider? What speeds are you getting? Are you satisfied with your current service?"). 2. Develop objection handling techniques specifically for customers who indicate they already have internet service, focusing on the unique benefits of fiber and creating value propositions that differentiate from competitors.	10000125179
9/4/2025	1. Practice conducting brief needs assessments with 2-3 targeted questions (e.g., 'How many devices connect to your internet?' 'Do you work from home or stream HD video?') to recommend appropriate speeds. 2. Develop simple explanations for what each speed tier supports in everyday terms customers understand (e.g., '300 Mbps supports X devices streaming, while 1 Gig allows for Y').	20000124035
9/4/2025	1. Practice needs-based discovery questions to understand customer's internet usage before presenting the offer (e.g., 'How are you currently handling internet at this property?' or 'What kind of internet activities will you need to support?'). 2. Develop objection handling responses for the 'not interested' scenario, focusing on understanding the reason behind the objection before accepting it.	10000124743
9/2/2025	1. Practice needs-based discovery questions for property owners (e.g., 'Will you need internet at this property for showing to new tenants or for smart home features while it's vacant?'). 2. Develop value statements specifically for property managers/landlords focusing on the benefits of having internet ready for new tenants or property management purposes.	10000123840

Call AI LLM-Generated Dataset

Fields about call customer:

A _C ^B customer_interest_level	🗨️ objections_raised	A _C ^B main_objection	🗨️ benefits_discussed
high	> ["Installation timing concerns due to vacation plans"]	No Objections	> ["Free installation", "Three months free service", "No contract"]
high	> []	No Objections	> []
none	> ["Not interested today"]	Need Time to Decide	> ["Fiber internet", "Free installation", "Three months free", "No contract"]
low	> ["Already has internet with Xfinity", "Wants to wait before making a decision"]	Need Time to Decide	> ["Fiber optics direct to house", "No contract", "Promotional pricing"]
low	> ["Wants to check other options first"]	Need Time to Decide	> ["fiber internet", "promotional period"]
none	> ["No need at this time"]	Not Interested	> []
low	> ["Not ready to decide about internet at the moment"]	Need Time to Decide	> ["Fiber optic internet", "Direct to home connection", "Not shared with others"]
medium	> ["Needs to check with employer who is handling the move"]	Need Time to Decide	> ["Fiber optic internet", "Direct to home connection", "Not shared with others", "No contract"]
high	> ["Concerned about installation timing", "Needs service by move-in date", "Considering other opti...	Need Time to Decide	> ["Fiber optics directly to home", "Not shared with neighbors", "Faster speeds", "Free installation", "No contr...
high	> []	No Objections	> []
high	> []	No Objections	> ["fiber is faster", "not shared with others", "direct connection to home"]
medium	> ["Needs to check with wife"]	Need Time to Decide	> ["Fiber going directly to home", "Not shared line", "Local customer service", "No contracts"]

Fields about agent performance:

A _C ^B sales_technique_used	A _C ^B initial_mood	A _C ^B final_mood	A _C ^B satisfaction_level	A _C ^B success_factors_detail	A _C ^B objection_handling_detail
Price/Promotion-Led	neutral	neutral	satisfied		> Agent did not attempt to overcome the objection when customer said they needed to check with wife. Agent simply accepted this an...
Minimal Sales Effort	neutral	neutral	neutral		No objections were raised during this brief call
Benefits-Focused	neutral	positive	satisfied	> The agent proactively identified the broadband opportunity during a ser...	> The agent effectively addressed the customer's installation timing concerns by offering to check for earlier dates and promising a foll...
Price/Promotion-Led	neutral	positive	satisfied		> The agent did not effectively address the customer's need to check with their employer who is handling the move. The agent simply a...
Price/Promotion-Led	neutral	positive	satisfied		The agent did not attempt to address the customer's hesitation about deciding on internet service at that moment.
Price/Promotion-Led	neutral	neutral	satisfied		> The agent mentioned the promotional period ending June 30th to create urgency but didn't address the customer's question about o...
Price/Promotion-Led	neutral	positive	satisfied		> Agent addressed the customer's hesitation by highlighting no contract requirement, promotional pricing, and creating urgency by me...
Benefits-Focused	neutral	positive	satisfied	> The agent identified that fiber internet was available at the customer's n...	> No significant objections were raised. The customer was already familiar with the service and expressed satisfaction with their current ...
Price/Promotion-Led	neutral	positive	satisfied	> The customer had already arranged for internet service with United Co...	
Benefits-Focused	neutral	positive	satisfied	> The agent proactively offered broadband service before the customer h...	> When the customer expressed concern about installation timing conflicting with vacation plans, the agent immediately checked for ea...
Minimal Sales Effort	neutral	positive	satisfied		> The agent did not attempt to address the customer's objection of not needing internet at this time. No follow-up questions were aske...
Price/Promotion-Led	neutral	positive	satisfied		The agent did not attempt to address the customer's 'not today' response or explore reasons for lack of interest.

DATA & AI STRATEGY

Data and AI Strategy



Leadership

Data and AI Leadership services to augment your data journey.



Assessment & Readiness

Data and AI assessment to evaluate your data architecture, quality, governance, and AI readiness.



Strategy and Roadmap

Workshops for jumpstart your Data and AI transformation journey along with a roadmap for AI use case success.

Data and AI Strategy

AI Vision and Objectives

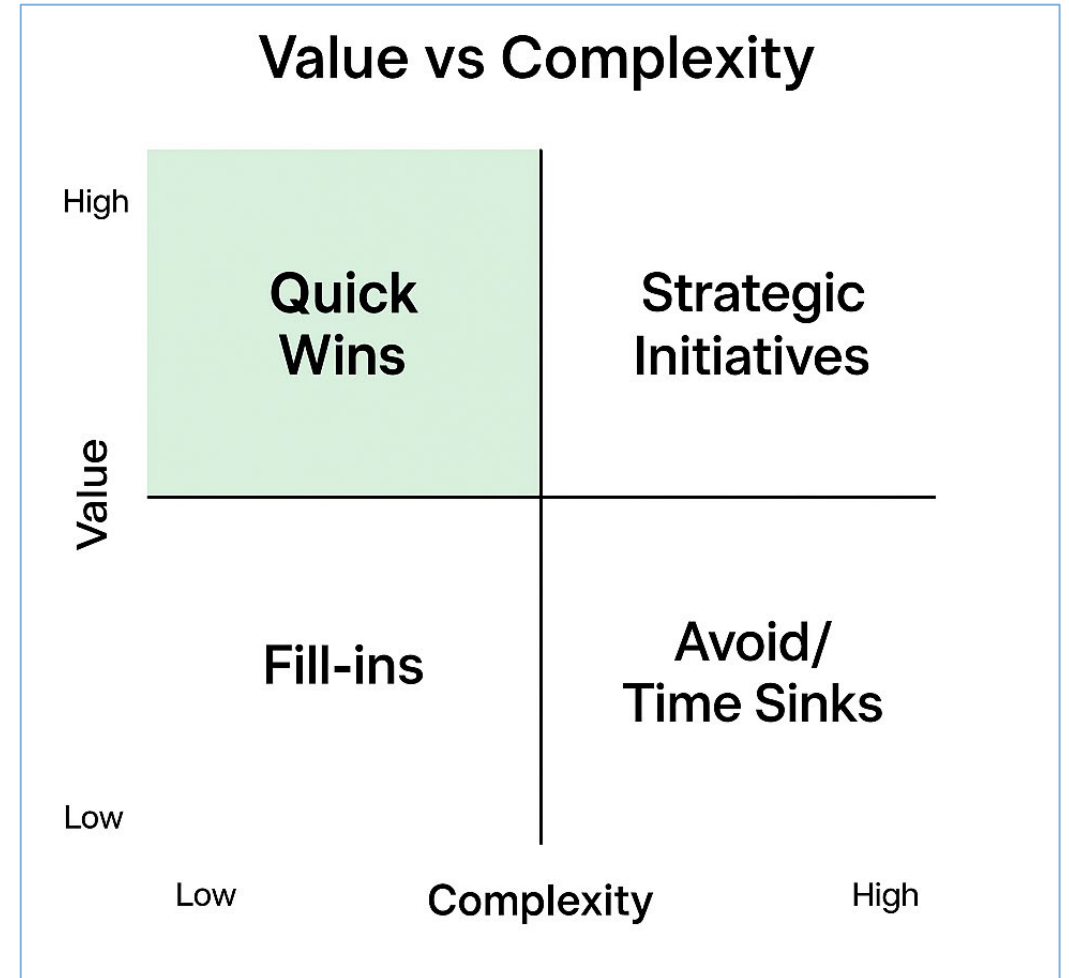
Vision Statement | Measurable Objectives | Alignment

Identify and Prioritize AI Use Cases

Identify | Prioritize | Buy-in | Roadmap

Establish an Agent Workflow

User Journey | Workflow Orchestration | Tech Architecture





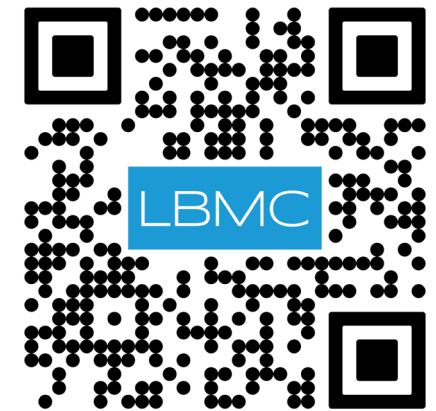
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Any Questions?

Stop by and see us

www.LBMC.com

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