SOLUTION BRIEF—

Scale Your AI/ML Initiatives with F33 and Molecula

F33.AI—

Molecula's feature store lets us scale our machine learning solutions more easily and cost effectively than ever before. We can tackle new problems requiring more data from more sources, giving our customers quicker ROI.

Our partnership with Molecula makes us the only AI/ML consultancy firm in the world that combines a proprietary machine learning model lifecycle management platform with a enterprise feature store, enabling real-time modeling and analytics across distributed data sources at massive scale.

ADAM MASSEY
CEO OF F33.AI

MOLECULA—

We are thrilled to be partnering with f33.ai to enable the future-proof predictive monitoring of critical operational processes with machine learning. The massive amount of real-time data being generated by the complex and distributed sources are at a scale that Molecula can uniquely process.

This integrated solution will modernize the analytical and AI/ML capabilities of Global 2000 organizations who desperately need a centralized, continuously updated feature store for their mission critical analytics and machine learning.

H.O. MAYCOTTE
CEO AND FOUNDER OF MOLECULA

Introduction

Businesses struggle with scaling their Artificial Intelligence/Machine Learning (AI/ML) initiatives - never realizing the full value of customer behavior data and machine data distributed across their organizations.

Most AI/ML experiments are just that: experiments that never graduate from the lab. And as a result, never deliver business value. We are firm believers that unless you design your AI/ML system from the ground up to be deployable on a mass scale, it never will be.

Accenture noted in their 2019 research report[1] that—

76% C-level executives say they have difficulty scaling AI/ML;

75% C-suite executives believe that if they don't scale their AI/ML in the next 5 years, they risk going out of business entirely; and

3x Those companies that do manage to scale AI/ML report nearly 3 times the return from AI/ML investments compared to companies pursuing siloed proof of concepts.

[1] Accenture Research Report

Accelerating the processes of selecting the right features and tuning models is key to scaling AI/ML initiatives.

To address this challenge, f33.ai, a professional services company specializing in designing and deploying production-grade, business-focused AI/ML solutions to some of the largest companies in the world, and Molecula, an enterprise feature store that simplifies, accelerates, and controls big data access to power machine-scale analytics and AI that continuously extracts and updates features in real-time across any distributed data source, partnered to produce solutions that are nimble, easily scalable, and use a fraction of the infrastructure required by other solutions.
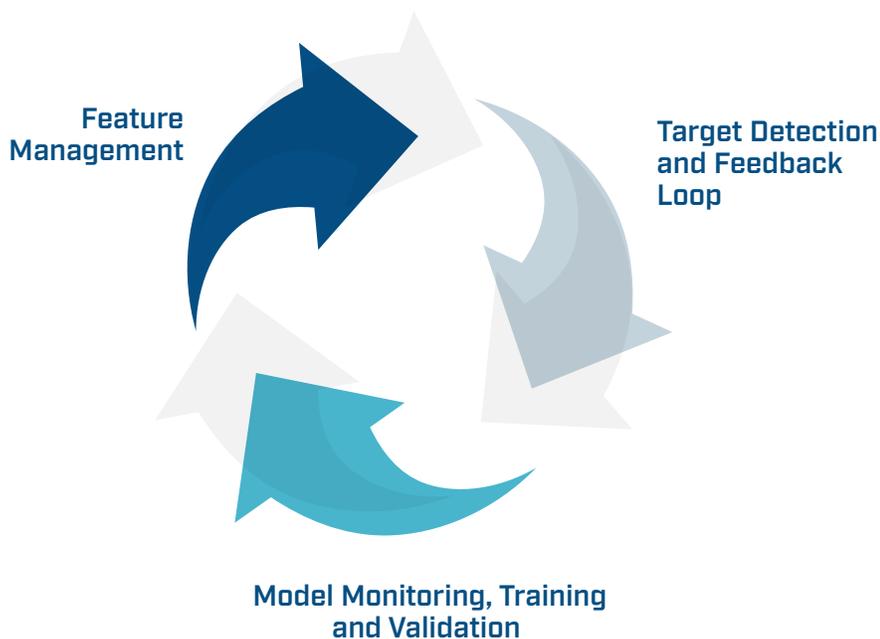
The challenge of scaling is multi-fold

- Ingesting all of the data necessary for receiving insights in real time

- Streamlining data preparation, cleansing, and exploration

- Simplifying the process of managing features used by the models

- Automating the process for validating and retraining the models

- Emplacing operational processes to maintain multiple models, at scale, in real time

Feature Management

Target Detection and Feedback Loop

Model Monitoring, Training and Validation

The f33.ai + Molecula Solution

f33.ai's Whiskey AI automated AI/ML platform, combined with Molecula's feature store, paves the way for scaling AI/ML initiatives rapidly and in a cost effective manner.

The f33.ai team learned early on that AI/ML initiatives cannot scale rapidly without automation. This led them to develop Whisky AI, a standard architecture for AI/ML operations with automation built in. Whisky AI now uses Molecula's feature store for its streaming and batch data, further streamlining operation of f33.ai's solutions.
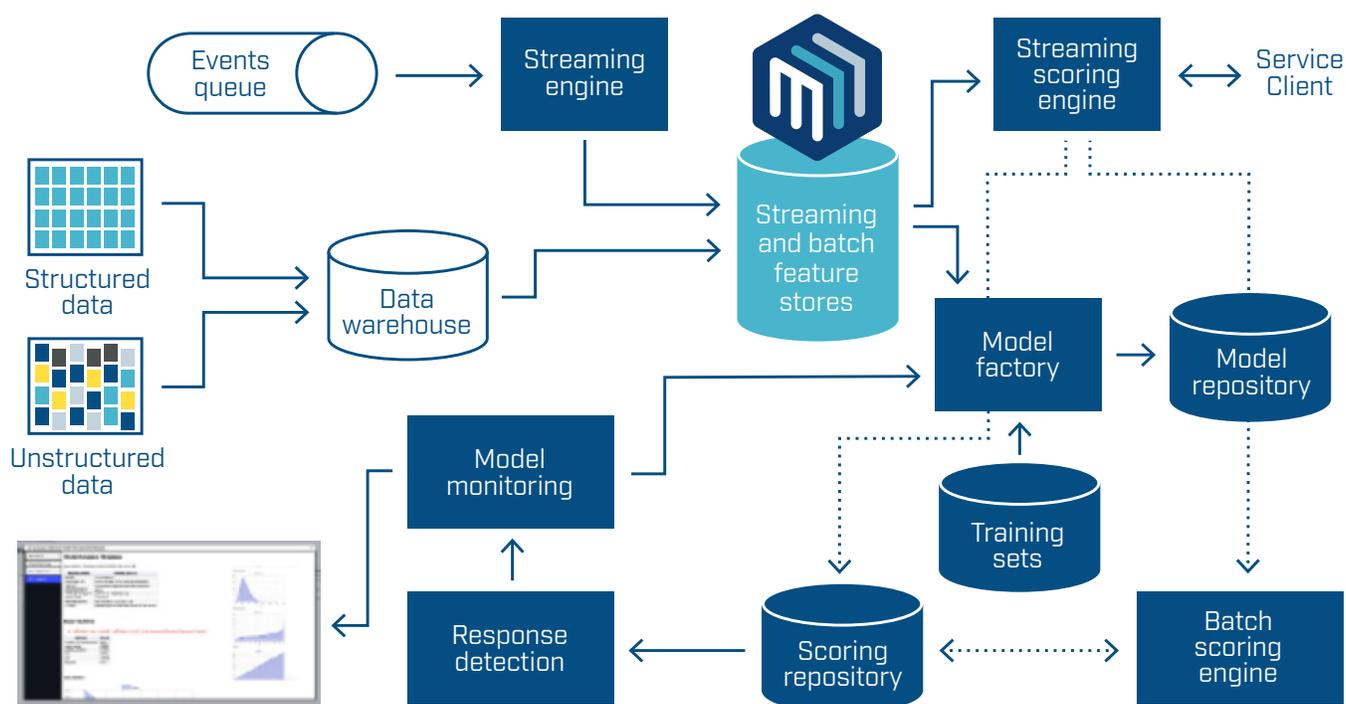
The f33.ai Whisky AI architecture uses the Molecula enterprise feature store for its streaming and batch data to simplify adding new features and support the millisecond updates and response times needed by real time AI/ML systems.

How Molecula Helps

Molecula is an automated feature store for all your data, that simplifies, accelerates and controls the process needed to make big data ready for real-time analytics, AI and ML needs in one centralized place.

Data preparation and cleansing—

The Molecula platform ingests and stores all data fields from unlimited data sources into a feature-oriented data format closely related to the pandas DataFrame, commonly used by AI/ML applications. Data is easily translated into DataFrames, so data scientists can avoid arduous hours of preparing, pre-aggregating, and transforming their data into the proper format.

Data exploration and correlation—

Exploring all of your data and assembling your datasets for analysis is a totally interactive process, significantly reducing data engineering effort. With Molecula, queries are orders of magnitude faster than traditional approaches with ultra low latency, continuous exploration.

Production feature store—

Molecula keeps data up to date in real time, making it an ideal feature store for production.

Data versioning capable—

Molecula keeps scheduled backups and versions of data to allow data rollback in case of data corruption.

HOW F33.AI HELPS—

- **Deep ML/AI expertise with a focus on business outcomes**
  - Hundreds of advanced, production-grade projects
  - Senior (10+ years of experience) data science team, all of which are thought leaders in their respective fields

- **Supporting data engineering practice that works collaboratively with f33.ai's data scientists to ensure data is adequately prepared to support ML/AI initiatives**

- **One of the highest per capita PhD ratio among consulting groups**

- **In-house developed ML/AI Ops platform, Whisky AI, which automates retraining models with the latest data when model accuracy deteriorates**

Use Cases

The f33.ai-Molecula solution has applications in multiple use cases across various industries.

Industries	Retail	Financial Services	Software and Tech	Healthcare & Pharma	Mfg & IoT
Customer Retention and Personalization	✓	✓	✓		
Inventory Optimization and Dynamic Pricing	✓		✓		✓
Machine Learning Workloads in the Cloud	✓	✓	✓	✓	✓
Dynamic Application and Optimization	✓	✓	✓	✓	✓
IoT/Edge — Real-Time Anomoly Detection			✓	✓	✓
Strategic Workforce Optimation	✓			✓	✓

Common Use Cases with the Molecula – f33.ai Solution

CASH INVENTORY MANAGEMENT FOR BANKING BRANCH OFFICES—

Problem: Branch offices not having enough cash on hand resulting in frequent calls to headquarters to deliver extra cash.

Solution: Predict cash requirement levels and optimize cash dispatches based on historical trends.

Benefit: Double digit reduction in labor cost associated with maintaining cash inventory requirements.

SAAS PROVIDER CHURN REDUCTION—

Problem: Churn prevention campaigns are not effective at retaining customers.

Solution: Predict likelihood of losing a customer based on patterns of customer interaction on the user portal and adjust communication with the customer accordingly.

Benefit: Better identification of customers likely to cancel service resulting in better targeted intervention and reduced churn.

RETAIL WORKFORCE OPTIMIZATION—

Problem: Ensuring the optimal retail staff in stores to avoid understaffing or overstaffing.

Solution: Predict store busy hours based on historical data and trends and schedule staff accordingly.

Benefit: Avoid eroding margins from overstaffing, and avoid lost sales and customer dissatisfaction from understaffing.

PRICE OPTIMIZATION—

Problem: Determining the "just-right" price point for a product or service keeping in mind demand and profitability.

Solution: Recommend optimal price based on historical data and trends in demand and competitive pricing, and make offers accordingly.

Benefit: Avoid eroding margins from underpricing and avoid lost sales from overpricing.

EARLY IDENTIFICATION OF HIGH VALUE CUSTOMERS—

Problem: Identify high value customers early on in order to optimize marketing efforts.

Solution: Analysis of early customer purchases correlated with total purchases over time to predict high value customers.

Benefit: Better targeted marketing efforts leading to increased revenue.

FLEET MAINTENANCE OPTIMIZATION—

Problem: Ensuring the optimal maintenance schedules for various vehicles in a fleet.

Solution: Predict time frame of likely failures by vehicle type and failure type based on previous failures, driving patterns, and weather conditions.

Benefit: Avoid wasted labor from too frequent maintenance procedures while minimizing cost of disrupted operations due to in-service vehicle failures.

Conclusion

Companies have been slow to roll out AI/ML at scale due to its complexity and cost, coupled with historically low success rates. Yet 75% of the C-suite executives polled by Accenture believe that if they don't scale their AI/ML in the next 5 years, they risk going out of business entirely. Those companies that do manage to scale AI/ML can expect nearly 3 times the return from AI/ML investments compared to companies that are only pursuing siloed proof of concepts.

Molecula's enterprise grade feature store consumes up to 60-90% less infrastructure costs compared to other technologies because of its efficient data store.

Molecula reduces the human effort of preparing data to be AI/ML ready because it's data format is already stored in a way that is optimized for AI/ML applications. And f33.ai's Whisky AI machine learning management platform lets you fine tune your models faster and with less human intervention. By reducing your infrastructure costs and labor costs, and arriving at accurate models faster, the combined f33.ai-Molecula solution will ensure that your AI/ML initiative will scale cost effectively and yield greater ROI.