

Phase 2

Data Analytics for CarPro Insurance

- Long Hoang
- 2026

Nash
Tech.

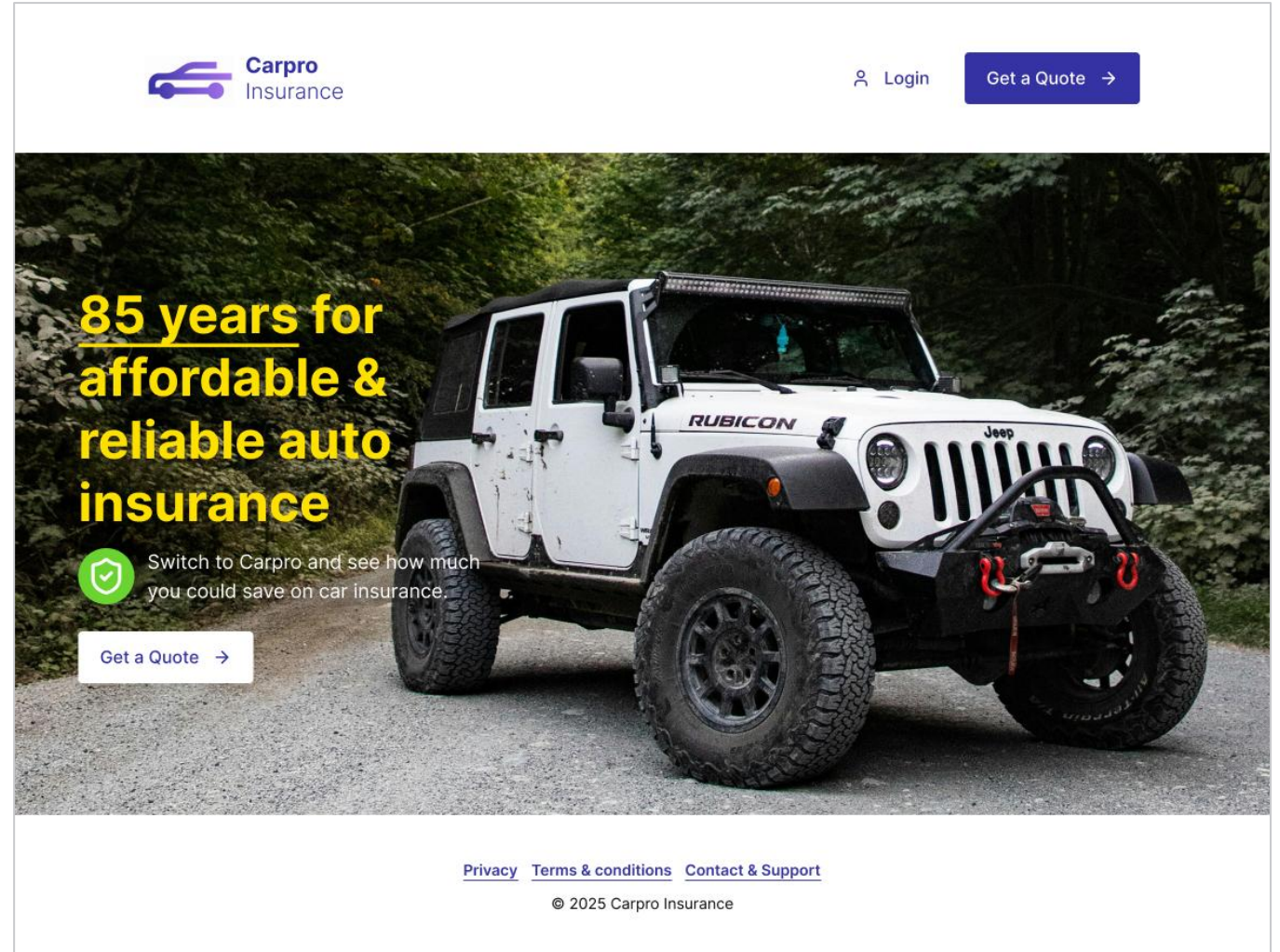
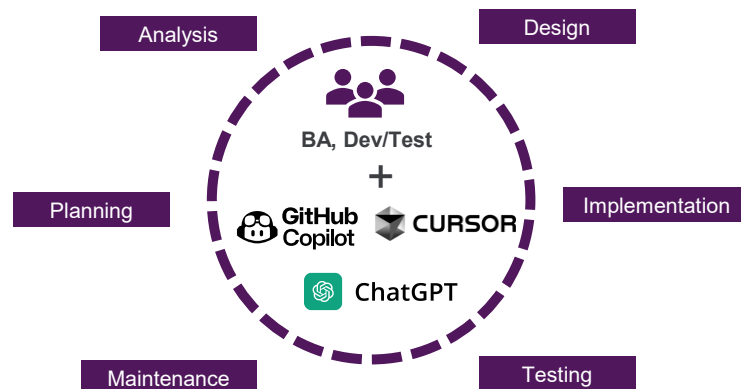
Context brief of a fictional insurance company

The context - a sample project

The client intends to develop an insurance website named **CarPro** that enables users to generate quotes and purchase insurance policies.

The approach

NashTech plans to develop this software product by working alongside AI agents throughout the SDLC, utilizing AI-powered agents to collect requirements, create user stories, write code, perform unit and end-to-end testing, and manage deployment.



Project Briefing – Data Requirement

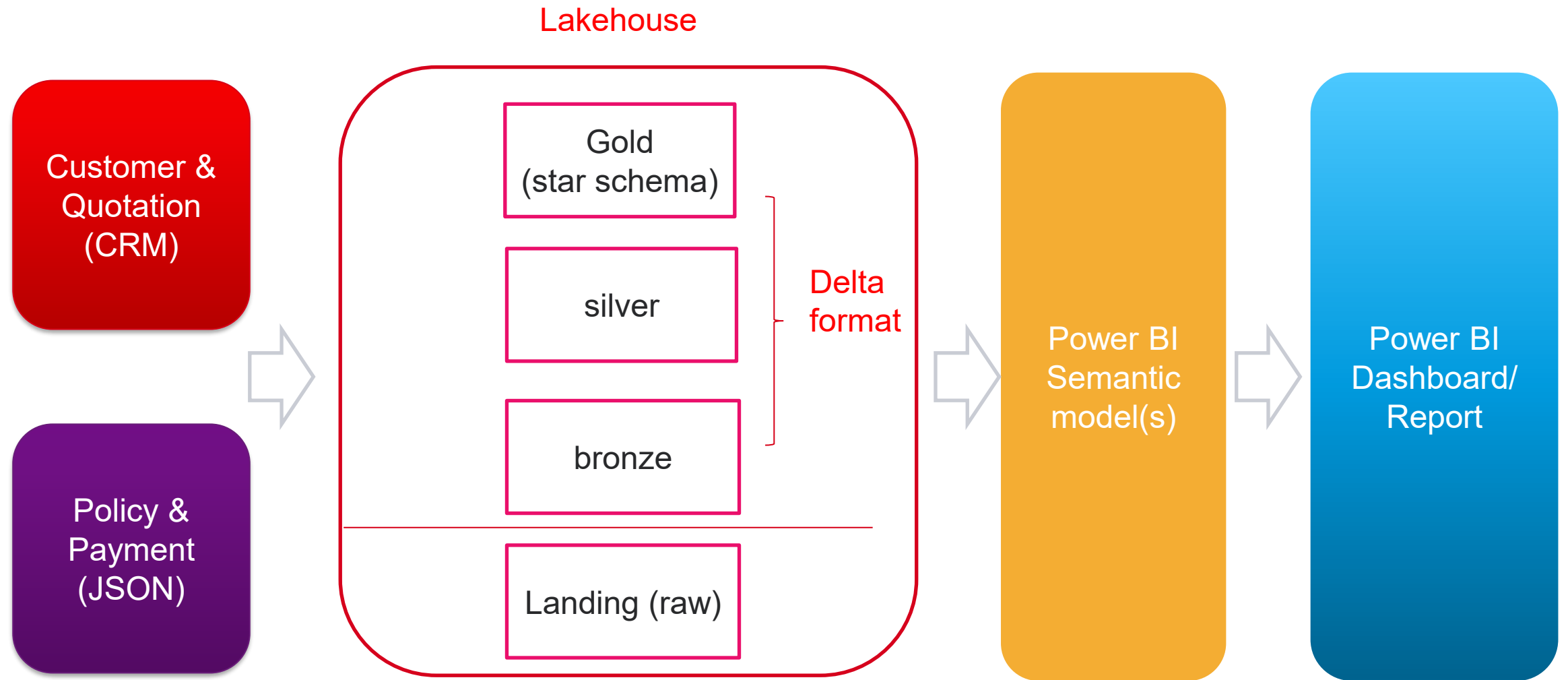
CarPro Insurance Distribution is an insurance aggregation business that partners with multiple insurance providers in Vietnam, including Bao Viet, PVI, MIC, PTI, and Liberty Insurance.

Customers can request insurance quotations for their vehicles through agents. Multiple quotations may be generated for a single customer with different insurance packages and providers. Once a customer accepts a quotation and signs an agreement, the quotation becomes an active insurance policy. Payments are then collected and tracked through operational systems.

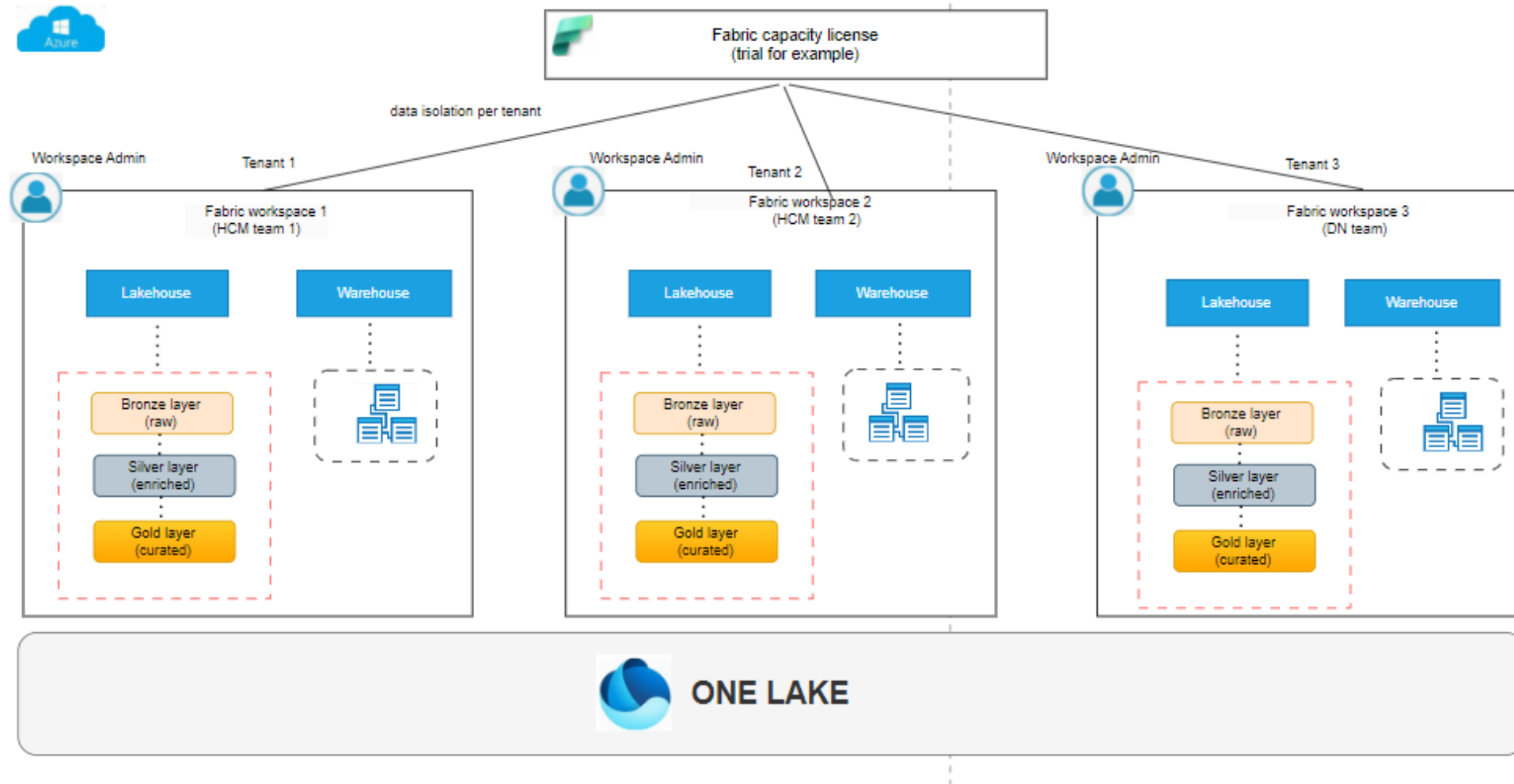
Currently, operational data is distributed across multiple source systems and reporting is manually consolidated using spreadsheets, causing delays, inconsistent KPI calculations, limited visibility, and poor operational monitoring.

The organization would like to build a centralized analytics platform using modern data engineering and BI technologies to support operational reporting, executive dashboards, self-service analytics, and embedded reporting capabilities.

High level Flow



DEV Working environment - FABRIC



Deployment – Logical view

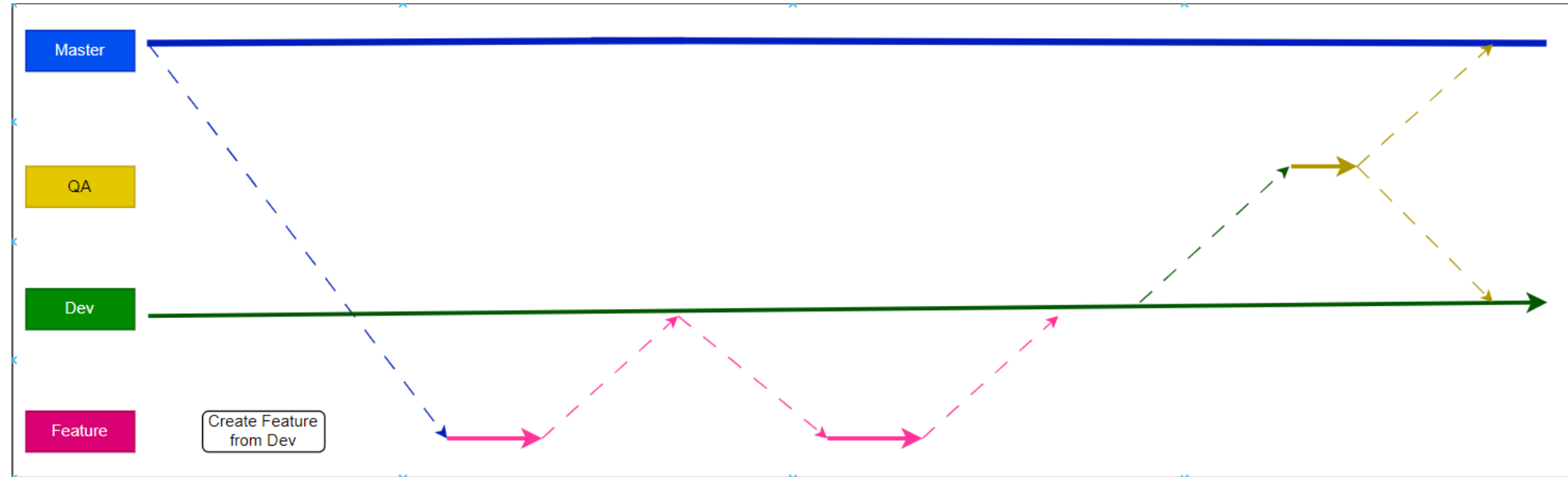


/feature branch (Dev)

/main branch

/Release branch

Branching strategy



Tools

- Cloud Platform: Microsoft Azure
- Programming Languages: Python, SQL
- Data Integration & Processing: Fabric Data Pipelines, Notebooks
- Development Tools: Visual Studio Code, SSMS
- Reporting & Visualization: Power BI
- Data Storage: OneLake Lakehouse (Microsoft Fabric)
- Source Control: Azure DevOps Repos

Dashboard

Dashboard 01 - Quotation Conversion & Sales Analytics

The Quotation Conversion & Sales Analytics dashboard provides business users with a consolidated view of quotation performance, policy conversion trends, sales effectiveness, and provider performance across the insurance business lifecycle.

Mockup for reference

DASHBOARD 1 - QUOTATION CONVERSION & SALES ANALYTICS

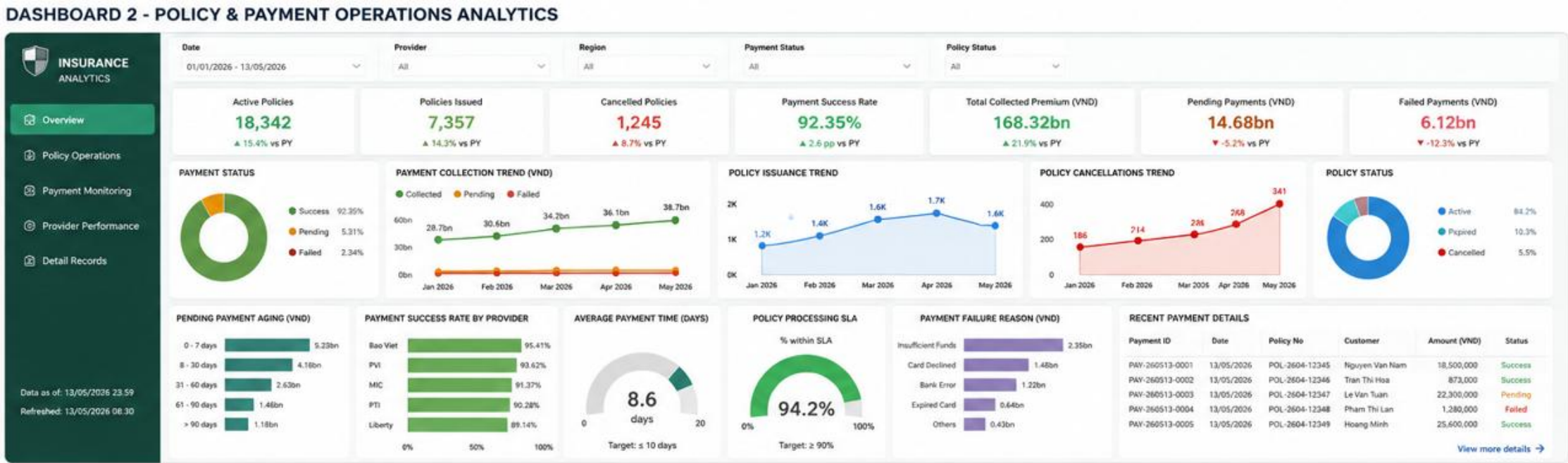


Dashboard

Dashboard 02 - Policy & Payment Operations Analytics

The Policy & Payment Operations Analytics dashboard provides operational and financial visibility into insurance policy management and payment processing activities. The dashboard focuses on monitoring policy lifecycle activities, payment collection performance, operational SLA tracking, cancellation analysis, and provider operational efficiency.

Mockup for reference



Backlog

See in Azure DevOps

+ -		Order	Work Item Type	Title	State
⋮ +		1	Epic	>  Business Requirement Understanding & Solution Design	⋮ ● New
		2	Epic	>  Analytics Data Modeling	● New
		3	Epic	>  Source Data Ingestion & Transformation	● New
		4	Epic	>  ETL Framework & Operational Controls	● New
⋮ +		5	Epic	>  Semantic Model & KPI Layer	⋮ ● New
		6	Epic	>  Power BI Reporting & Analytics	● New
		7	Epic	>  Data Validation & Reconciliation	● New
		8	Epic	>  Embedded Analytics & Security Integration	● New

Audit Config DB

Suggest the following tables

- Job_Config: is used to control each job in the pipeline controller
- Watermark: stores the last processed value (such as timestamp) used in pipelines to support incremental load

3 logging tables:

- Batch_Log: record each batch and its status
- Pipeline_Log: record each pipeline run in the batch and its status
- Pipeline_Error: record any errors from the pipeline

- Thank you

Thank you