

# Agentic AI Mainframe Modernization Accelerator

Enhancing productivity across the Software  
Development Life Cycle



# Overview

The Agentic AI mainframe modernization solution has been built to accelerate the legacy migration by enhancing the productivity of diverse personas working on the program across the Software Development Life Cycle.

The solution targets improving the productivity of the following personas:



## Data analyst

Use the accelerator to analyze the complex source policy management data, generate business logic and rules from existing code to help prepare required business documentation



## Developer

Utilize the platform for application re-engineering, data transformation and analysis, generate source-target mapping files, ETL scripts or code transformation from Cobol, JCL to Java or any other programming language



## Quality analyst

Generate test cases based on source data, mappings and target data. Execute the use cases and generate results



## Business stakeholders (UAT)

Review the quality of data in the target system by running queries in natural language and reviewing output

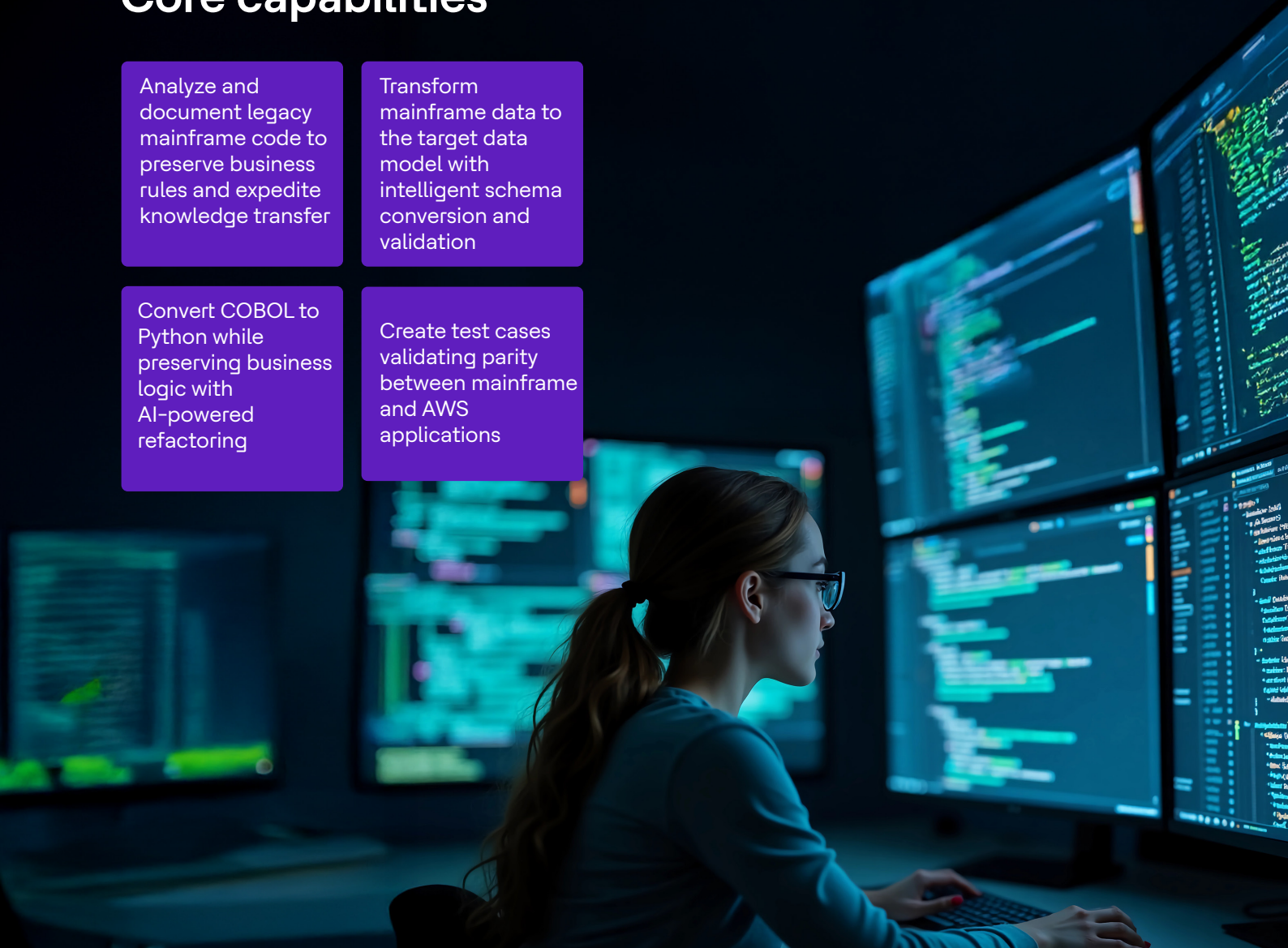
# Core capabilities

Analyze and document legacy mainframe code to preserve business rules and expedite knowledge transfer

Transform mainframe data to the target data model with intelligent schema conversion and validation

Convert COBOL to Python while preserving business logic with AI-powered refactoring

Create test cases validating parity between mainframe and AWS applications



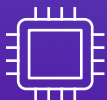
# Solution architecture

The solution has been built using Amazon Bedrock Multi Agent Framework, Amazon Nova Pro, AWS Lambda, WebSocket API, S3, React UI and RDS.

- **Amazon Bedrock Agents** – The solution utilizes the Amazon Bedrock Multi-Agent Framework and has three agents
- **The Orchestrator Agent (Supervisor)** focuses on routing and collaboration between different agents
- **Transformation Agent (Collaborator)** analyzes the data for insights and generates the transformation logic – mapping, ETL scripts, code transformation
- **Database Agent (Collaborator)** generates SQL queries to insert data into relational DB
- **Large Language Model** – The Agents leverage Amazon Nova Pro.
- **AWS WebSocket API** – Acts as a persistent chat interface to route communication between the user and Bedrock Agents, which are deployed on the API gateway
- **AWS Lambda** – The user input received via web WebSocket API is sent to agents by calling the invoke Agent API
- **Responsible AI** – Solution has incorporated all the principles of Responsible AI. Amazon Bedrock Guardrails have been used for toxicity control, PII redaction and contextual grounding to detect and mitigate hallucinations. Authentication and Authorization using Amazon Cognito or integration with AD



## Benefits



Leverages an Agentic AI Solution built using Amazon Bedrock Agents to reduce the mainframe migration effort and timelines



Utilizes the solution for business logic extraction, code transformation, ETL script generation, test case and script generation



Enables productivity gains across SDLC and multiple personas such as Data Analyst, Developer, QA Analyst and Business Stakeholders

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