Business Requirements Document (BRD)

Project Title: Multi-Function Data Integration and Transformation Application

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1. Executive Summary

This application is designed to facilitate seamless data exchange and transformation across various systems. It integrates with Google Pub/Sub, PostgreSQL, external APIs, and FIP (File Interface Protocol) systems. It also supports XML and JSON data formats and includes basic authentication for secure API access.

2. Business Objectives

- Enable real-time messaging via Pub/Sub.

- Read and write data to PostgreSQL.

- Consume and expose APIs with basic authentication.

- Convert and transform data between XML, JSON, and PDF formats.

- Interface with FIP systems for file operations.

3. Functional Requirements

3.1 Pub/Sub Integration

- Receive Messages from Pub/Sub

- Subscribe to a topic.

- Parse and log incoming messages.

- Trigger downstream processing.

- Send Messages to Pub/Sub

- Publish messages to a specified topic.

- Ensure message delivery confirmation.

3.2 PostgreSQL Integration

- Read Data from PostgreSQL Table

- Connect using secure credentials.

- Execute SELECT queries.

- Return results in JSON format.

3.3 API Consumption and Exposure

- Read Data from External API

- Make authenticated HTTP requests.

- Parse JSON/XML responses.

- Handle errors and retries.

- Convert Application to API with Basic Auth

- Expose internal logic as RESTful endpoints.

- Implement basic authentication.

- Log access and usage.

3.4 FIP System Integration

- Read XML File from FIP

- Connect to FIP directory.

- Read and validate XML structure.

- Write XML File to FIP

- Generate XML from internal data.

- Save to FIP directory with proper naming conventions.

3.5 Data Transformation

- Convert XML to JSON

- Parse XML.

- Map to JSON schema.

- Handle nested structures.

- Read XML and Convert to JSON and PDF