

Legacy Modernization – COBOL to Cloud Migration

Sector: Hospitality, Travel, and Tourism

Solution: Data Factory & Process Automation

Deployment: Google Cloud Platform (GCP)

1. Assessment & Vision Setting

Current State Analysis

The client's core operations relied on an aging infrastructure of COBOL-based systems for inventory and allotment management.

- **Technical Debt:** Maintaining 40-year-old codebases requires increasingly scarce niche expertise.
- **Operational Bottlenecks:** Batch processing in the mainframe environment was slow, leading to delays in data availability for decision-making.
- **Scalability Constraints:** The rigid nature of the legacy system made it difficult to integrate with modern digital platforms or handle fluctuating data volumes efficiently.
- **High Compliance Risk:** Manual workarounds and fragmented data flows increased the likelihood of errors in financial and inventory reporting.

Defined Objectives

The primary goal was to transition from a restrictive on-premise mainframe model to a high-performance, cloud-native architecture that supports real-time analytics and long-term business agility.

2. Why We Were Chosen

- **Proven Migration Framework:** Provide a structured "Migration Recipe" that guarantees 100% functional parity between old and new systems.
- **Deep Domain Knowledge:** Expertise in the Travel and Logistics sector to understand the complex logic behind "Stays" and "Inventory Allotments" without losing business context during translation.
- **Hybrid Technical Capability:** Bridge the gap between COBOL/JCL veterans and modern Cloud Data Engineers, ensuring that the original business rules are perfectly preserved in the move to SQL.
- **Risk-Averse Methodology:** Phased approach starting with a "Sandbox" validation before full production deployment, minimizing disruption to daily operations.

3. Technology Transformation

Cloud Deployment & Modern Tooling

Data Factory within Google Cloud Platform (GCP) to replace the legacy mainframe.

- **BigQuery:** Transitioned all data storage to a high-performance warehouse, enabling sub-minute query execution.
- **Dataform (SQLX):** Utilized for orchestrating complex data transformations with built-in version control and automated documentation.
- **OPCON Integration:** Employed a master scheduler to synchronize legacy data feeds with the new cloud-based workflows, ensuring a seamless transition period.

Process Reengineering

- **Logic Extraction:** Meticulously mapped COBOL program sequences and JCL dependencies to replicate core logic within SQL workflows.
- **Automated Validation:** Implemented self-healing logic and automated quality checks within Dataform to flag inconsistencies in real-time.
- **Functional Parity:** Rigorous "Recipe" testing ensured that every output file generated by the new system matched the legacy output precisely, maintaining data integrity across the organization.

4. Outcome & Success Metrics

- ☑ **Performance:** Processing times for critical inventory reports were reduced from hours to under one minute.
- ☑ **Cost Efficiency:** Significant reduction in mainframe licensing and maintenance costs.
- ☑ **Agility:** The modular architecture now allows for the rapid addition of new departments and data sources without major rework.
- ☑ **Accuracy:** Error rates in data processing dropped significantly due to the implementation of automated validation rules.