



A High AI-Q[™]
Company

Simplifying Financial Transactions through Intelligent Inventory & Admin Management

Optimizing national-scale payment networks through an automated middle-office inventory and back-office transaction processing ecosystem.

Overview

QBurst engineered a comprehensive enterprise solution comprising a Terminal Inventory System (TIS), an Admin Portlet, and a Standalone Scheduler to automate complex financial lifecycles. Built on the Liferay platform using Java Spring MVC, the system integrates middle-office terminal management with back-office file processing and bank settlements. This centralized architecture provides seamless multi-channel payment aggregation and automated commission reporting, significantly reducing manual intervention across the supply chain.

- **Operational Scaling:** Delivered a highly flexible scheduler and SFTP interface capable of handling massive volumes of daily transaction files and merchant requests.
- **End-to-End Governance:** Established a "Maker-Checker" summary and single sign-on (SSO) authentication to ensure rigorous financial oversight and security.



Client Profile

Based in South Asia, the client operates a secure, high-speed payment network owned by the country's largest financial institutions. As the designated national payment system, they facilitate financial connectivity between merchants, banks, and consumers across millions of monthly transactions.

Fragmented Infrastructure and Manual Processing

The client's growth was hindered by aging systems that could not effectively coordinate between warehouse teams and financial administrators.

- **Logistics Gaps:** Warehouse and field teams lacked a unified tool to track the movement, repair, and delivery of payment terminals.
- **Disconnected Admin Workflows:** Merchant service requests and channel linking were handled through decentralized interfaces, slowing down new business onboarding.
- **Data Silos:** Daily transaction consolidation and the distribution of payments to merchants required heavy manual file handling and lacked a scalable scheduling mechanism.
- **Lack of Visibility:** Monitoring the inventory of consumables and tracking repair expenses was difficult, leading to potential financial discrepancies.

Solution: Integrated Portlet and Workflow Architecture

We developed a multi-module solution centered on the Liferay Portlet framework, leveraging Java Spring MVC, EJB, and JPA for a high-performance backend. The system is deeply integrated with Red Hat BPM to ensure that business processes are strictly rule-driven and auditable.

- **Terminal Inventory System (TIS):** A workflow-based portlet that manages the entire lifecycle of hardware—from procurement and scanning/tagging to maintenance and write-offs.
- **Centralized Admin Portlet:** Provides total control over merchant verification, service-to-channel linking, and multithreaded transaction file processing.
- **Standalone Scheduler & SFTP Interface:** A generic worker system powered by Quartz Scheduler that automates the ingestion of daily customer transactions and the generation of settlement advice files for banks.
- **Financial Automation:** Implemented batch processing for bulk file uploads and automated the calculation of client commissions to be collected from merchants.

Key Features and Technical Highlights

The platform combines industrial-grade inventory tracking with sophisticated financial logic:

- **Inventory Mastery:** Includes SIM card tagging, terminal "trade-in" management, and automated discrepancy checks for inventory validation.
- **Maker-Checker Action Summary:** A security-focused UI component that displays all pending financial items awaiting a second level of user authorization.
- **SFTP Feed Processing:** Robust integration with external servers for automated input/output of settlement and reconciliation files.
- **Dynamic Schedulers:** Allows admins to create new action events and link them to specific file generation implementations without code changes.

Implementation Approach

The project utilized a Rule-Driven Design to ensure that multiple complex tasks (like delivery and system updates) are performed in a single, atomic process. We employed Hibernate ORM for efficient data persistence in a MySQL environment, all hosted on the JBoss application server.

Impact

- **Supply Chain Transparency:** Real-time visibility into consumables and terminal health significantly reduced expenses related to lost or unmaintained hardware.
- **Streamlined Administration:** Consolidating payment interfaces into a single hub accelerated merchant onboarding and service deployment.
- **Error-Free Reporting:** Automated file generation for settlements and reconciliations improved the accuracy of financial reporting and bank communications.
- **Enterprise Scalability:** The solution's flexible architecture allows the client to incorporate additional scheduling actions easily as transaction volumes increase.