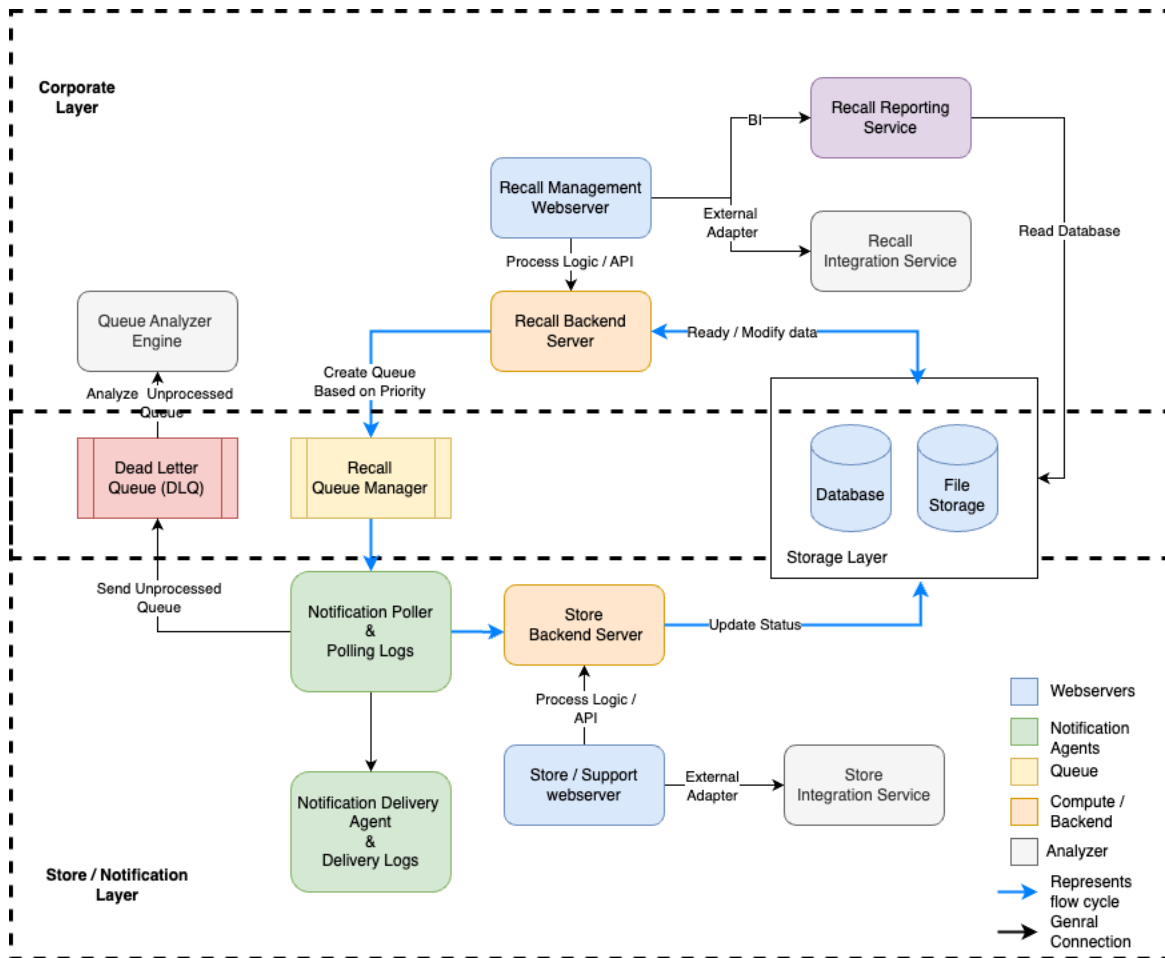


COMPONENT ARCHITECTURE



Corporate Layer

The corporate layer serves as the central command for recall management and is primarily used by corporate users. It includes several key components:

- **Recall Management Webserver:** This interface is essential for the corporate user to initiate recall processes. It hosts a suite of applications that allow for the creation, monitoring, and management of recall notifications, along with APIs for programmatic access. The web server ensures that corporate users have a centralized point of control over the recall workflow.
- **Recall Backend Server:** This server is the workhorse of the recall management system, where the business logic resides. It processes recall data, including the creation, update, and retrieval of recall records. It communicates with both the recall

queue manager and the storage layer, ensuring that the recall data is correctly processed and stored.

- **Recall Queue Manager:** The queue manager is responsible for organizing recall tasks based on their priority. By segregating tasks into high, medium, and low priority queues, the system ensures that recalls are processed in a manner reflecting their urgency. If for any reason a task cannot be processed, it's routed to the Dead Letter Queue (DLQ) for further analysis.
- **Queue Analyzer Engine:** Operating in tandem with the DLQ, the analyzer engine inspects failed tasks to determine the cause of failure. It's an important component for maintaining system integrity, ensuring that unprocessed tasks are given attention and reprocessed successfully.
- **Recall Reporting Service:** This BI component provides dynamic reporting capabilities, offering insights into the recall process through dashboards. These dashboards allow corporate users to monitor recall metrics and performance in real-time.
- **Recall Integration Service:** It facilitates external communications through an adapter, which enables the system to integrate with third-party services like messaging platforms (e.g., Slack, Teams) for alerting and logging purposes.

Storage Layer

This layer is critical for data management and retention.

- **Database:** It stores detailed recall information, including product details, recall priorities, and response tracking. The database is structured to support complex queries, ensuring that users can retrieve detailed recall data as needed.
- **File Storage:** A repository for all unstructured data associated with recalls. This could include product images, PDFs of customer notifications, and any other documents that support the recall process.

Store / Notification Layer

This layer focuses on disseminating recall notifications to the stores and support centers and receiving confirmation of actions taken.

- **Store Backend Server:** It's a crucial link between the corporate layer and store/support endpoints. The server processes incoming requests and manages the distribution of recall notifications to the appropriate store or support center.
- **Store / Support Webserver:** This interface allows store and support personnel to access recall notifications. Users can interact with the system to acknowledge receipt of a recall and detail actions taken in response to a recall, ensuring a closed feedback loop.
- **Notification Poller & Polling Logs:** The poller continuously checks the Recall Queue Manager for new recall tasks and logs these polling activities. This ensures that notifications are promptly sent out and that the system maintains a log of all polling activities for auditing and troubleshooting.
- **Notification Delivery Agent:** Once a recall notification is due for delivery, the agent takes charge of distributing the notification through the chosen communication channels. It logs all delivery activities to ensure that there's a trail of every action taken for each recall notification.

The overall design emphasizes resilience, scalability, and accountability. It allows corporate users to initiate and track recalls efficiently, ensures that priority recalls are handled expeditiously, and provides store and support staff with the information they need to act on recalls swiftly. Furthermore, the system is built to adapt to various failure scenarios, ensuring continuous operation and minimal downtime.