System Clarifications Document

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Contents

1 Introduction

This document serves as a central repository for clarifying design ambiguities and ensuring consistency across system specifications. Each section addresses a specific area of ambiguity, providing clear definitions, responsibilities, and workflows.

2 Booking Management vs Transport Request

The **Booking Management Service (BMS)** and the **Transport Request Service (TRS)** are two critical components of the on-demand logistics system. While their responsibilities overlap in some areas, they serve distinct purposes. This section clarifies their roles, responsibilities, and interactions.

2.1 Booking Management Service (BMS)

The BMS is responsible for managing the **customer-facing booking lifecycle**. Its primary focus is on the end-to-end process of creating, confirming, and canceling bookings. Key responsibilities include:

- **Booking Creation**:
  - Accepts booking requests from customers.
  - Validates booking details (e.g., pickup/drop-off locations, item type, urgency).
  - Coordinates with the **Pricing and Payment Service** to calculate and display pricing.
- **Booking Confirmation**:
  - Confirms bookings once payment is successfully processed.
  - Publishes the `BookingEvents.Booking.Confirmed` event to trigger downstream processes.
- **Booking Cancellation**:
  - Handles cancellations initiated by customers or system policies.
  - Coordinates with the **Pricing and Payment Service** to process refunds.
  - Publishes the `BookingEvents.Booking.Cancelled` event to notify other services.
- **Booking Lifecycle Management**:
  - Tracks the status of bookings (e.g., pending, confirmed, completed, canceled).
  - Enforces booking policies and SLAs (Service Level Agreements).

2.2 Transport Request Service (TRS)

The TRS is responsible for managing the **logistics-facing transport lifecycle**. Its primary focus is on fulfilling transport requests generated from confirmed bookings. Key responsibilities include:

- **Transport Request Creation**:
  - Subscribes to the `BookingEvents.Booking.Confirmed` event.
  - Creates transport requests based on confirmed bookings.
  - Validates transport requirements (e.g., capacity, vehicle type).
- **Transport Request Fulfillment**:
  - Coordinates with the **Provider Matching Service** to assign a provider (driver) to the request.
  - Optimizes routes using the **Route Optimization Service**.
  - Tracks the status of transport requests (e.g., assigned, in progress, completed).
- **Transport Request Completion**:
  - Publishes the `TransportEvents.Transport.Completed` event once the transport request is fulfilled.
  - Notifies the **Booking Management Service** to mark the associated booking as completed.

2.3 Interaction Between BMS and TRS

The BMS and TRS interact through a well-defined event-driven workflow:

1. The BMS receives a booking request from a customer and validates it.
2. The BMS calculates pricing and confirms the booking after payment.
3. The BMS publishes the `BookingEvents.Booking.Confirmed` event.
4. The TRS subscribes to this event and creates a transport request.
5. The TRS coordinates with other services (e.g., Provider Matching, Route Optimization) to fulfill the transport request.
6. Once the transport request is completed, the TRS publishes the `TransportEvents.Transport.V1.Completed` event.
7. The BMS subscribes to this event and marks the booking as completed.

2.4 Key Differences

To avoid confusion, the following table summarizes the key differences between the BMS and TRS:

Table 1: Key Differences Between BMS and TRS

Aspect	**Booking Management Service (BMS)**	**Transport Request Service (TRS)**
Focus	Customer-facing booking lifecycle	Logistics-facing transport lifecycle
Primary Responsibility	Booking creation, confirmation, and cancellation	Transport request creation and fulfillment
Key Events Published	`BookingEvents.Booking.Confirmed`, `BookingEvents.Booking.Cancelled`	`TransportEvents.Transport.Completed`
Key Events Subscribed	`TransportEvents.Transport.Completed`	`BookingEvents.Booking.Confirmed`

2.5 Conclusion

By clearly separating the responsibilities of the BMS and TRS, the system ensures a clean and maintainable architecture. The BMS focuses on the customer journey, while the TRS handles the logistics operations. This separation of concerns improves scalability, reduces complexity, and ensures a smooth workflow between the two services.