

4. Build Hotel Reservation System

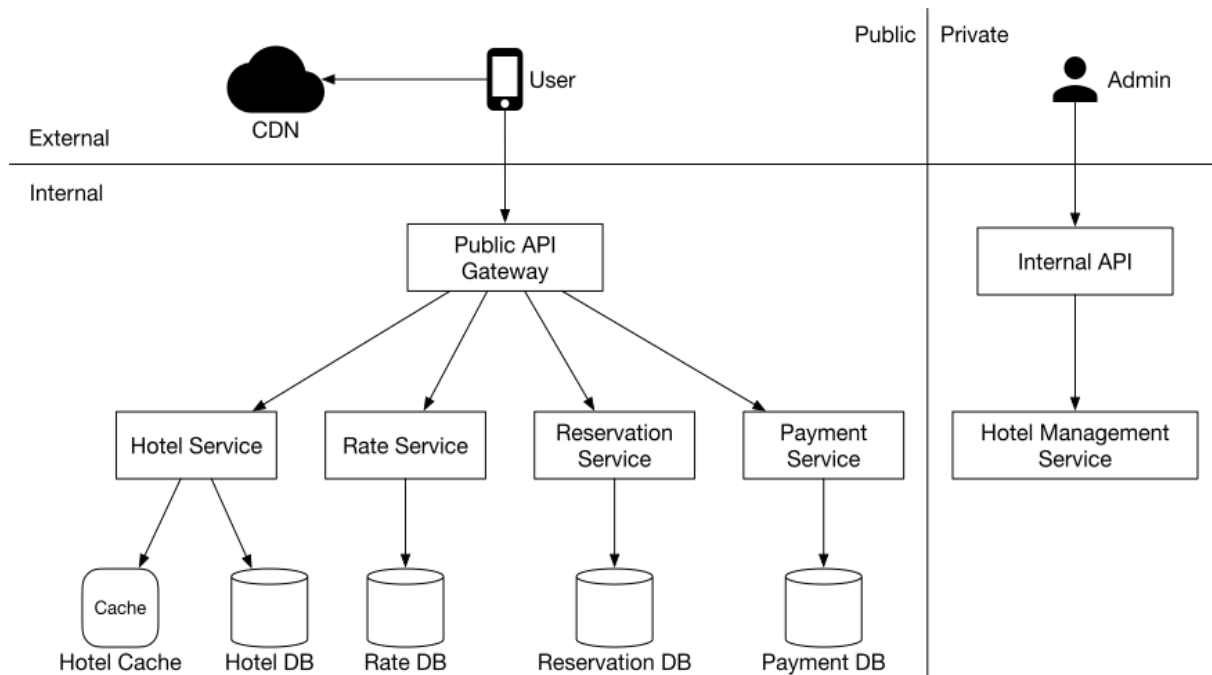
Real-life examples:

- Airbnb
- Priceline
- Booking.com

Requirements clarification:

- **Functional requirements**
 - Users can search hotels.
 - Users can see detailed pages about hotels and rooms.
 - Users can reserve a room.
 - Hotel owners can use admin portal to add/remove/update hotel or room info.
- **Non-functional requirements**
 - High concurrency
 - ✓ During peak season or big events, some popular hotels may have a lot of customers trying to book the same room.
 - Moderate latency
 - ✓ It's acceptable if the system takes a few seconds to process a reservation request

High-level design



Public

✓ Public API Gateway

- Directs requests to specific services based on the endpoints.
- Supports rate limiting, authentication, etc.

✓ Hotel Service

- Provides detailed information on hotels and rooms.

✓ Rate Service

- Provides room rates for different future dates.

✓ Reservation Service

- Receives reservation requests and reserves the hotel rooms.
- Tracks room inventory as rooms are reserved or reservations are canceled.

✓ Payment Service

- Executes payment from a customer and updates the reservation status.

Private

- **Internal APIs**
 - Only available to authorized hotel staff.
 - They are accessible through internal software or websites and protected by a VPN (virtual private network).
- **Hotel Management Service**
 - View the record of an upcoming reservation
 - Reserve a room for a customer
 - Cancel a reservation