### **Project "Market Pulse" - Technical Specification & Changelog (V2.0)**

This document provides a complete technical overview of the Market Pulse application and a chronological history of its development.

### **1. Project Overview & Technical Specification**

* **1.1 Objective**: A multi-tenant web application that provides hotel performance metrics via a live dashboard, allowing individual hotel clients to compare their performance against an aggregated market average.
* **1.2 Technology Stack**:
  + **Frontend**: Vanilla JavaScript (ESM), HTML5, Tailwind CSS (via CDN).
  + **Backend**: Node.js with the Express.js framework.
  + **Database**: Neon Serverless PostgreSQL.
  + **Deployment**: Vercel, with continuous deployment connected to the main branch of the GitHub repository.
  + **Authentication**: Cloudbeds OAuth 2.0 (Authorization Code Grant) for user login and onboarding. User sessions are managed by  
     express-session with a persistent connect-pg-simple store.
* **1.3 Key Application Files**:
  + server.js: The main Express.js application server, handling all API logic and serving the frontend.
  + public/app/index.html & public/dashboard.js: The primary user-facing dashboard application.
  + public/admin/index.html & public/admin.js: An administrative panel for system health checks and manual job triggers.
  + api/daily-refresh.js & api/initial-sync.js: Vercel Serverless Functions that run as background jobs to sync data from the Cloudbeds API.
* **1.4 API Endpoints Summary**:
  + **Authentication**:
    - GET /api/auth/cloudbeds: Initiates the OAuth 2.0 login flow.
    - GET /api/auth/cloudbeds/callback: Handles the OAuth redirect from Cloudbeds.
    - POST /api/admin-login: Authenticates a user for the admin panel.
  + **Dashboard Data (Session-Protected)**:
    - GET /api/kpi-summary: Provides aggregated KPI values for the dashboard cards.
    - GET /api/metrics-from-db: Fetches time-series data for the logged-in user's hotel.
    - GET /api/competitor-metrics: Fetches aggregated time-series data for the market comparison.
    - GET /api/get-hotel-name & GET /api/last-refresh-time.
  + **Admin Panel (Session-Protected)**:
    - GET /api/test-cloudbeds, GET /api/test-database, GET /api/get-all-hotels.
    - Manual Triggers: GET /api/daily-refresh, GET /api/initial-sync.
* **1.5 Database Schema Highlights**:
  + users: Stores full user profiles, including encrypted tokens and the cloudbeds\_property\_id that links a user to their specific hotel data.
  + daily\_metrics\_snapshots: Stores all time-series data, partitioned by cloudbeds\_user\_id to ensure data isolation between tenants.
  + user\_sessions: Stores persistent session data, allowing users to stay logged in.

### **2. Project Development History**

* **July 5, 2025 (Morning)**: The project was migrated from a local setup to a cloud-native solution on Vercel. The database connection was configured for production, and the background refresh script was converted into a Vercel Serverless Function scheduled via  
   vercel.json.
* **July 5, 2025 (Afternoon)**: To solve the "cold start" problem, a script was created to seed the database with mock data for five competitor hotels, establishing the "market" for comparison. The backend API was updated to aggregate this data, providing a single, averaged "market" row per day for the dashboard.
* **July 8, 2025 (V2.0 Refactor)**: A major refactoring effort was completed to convert the application to a multi-tenant platform. This involved implementing the Cloudbeds OAuth 2.0 flow, updating the database schema to be user-aware, and refactoring the API server with session-based authentication to secure all endpoints.
* **July 8, 2025 (Post-Deployment Debugging)**: After deploying the V2.0 changes, the dashboard was inaccessible due to login session failures.
  + **Diagnosis**: The root cause was identified as an issue with session persistence. The default in-memory session store was not viable in a serverless environment, causing the user's login state to be lost between API calls.
  + **Corrective Actions**: A series of fixes were implemented, including configuring CORS and cookie domains, and most critically, replacing the in-memory session store with a persistent PostgreSQL-backed store (connect-pg-simple). The database logic was also refactored to use a single, shared connection pool for stability.
  + **Final Fixes**: A subsequent TypeError on the dashboard was traced to unimplemented API endpoints (/api/metrics-from-db, /api/competitor-metrics), which were then fully implemented. Finally, the non-functional Admin Panel was restored by adding its required backend API routes.
* **Current Status (As of July 8, 2025, ~8:00 PM CEST)**: The application is stable and fully functional as a multi-tenant platform. All core architectural goals of the V2.0 migration have been met.

### **Entry: Tuesday, July 8, 2025 - 9:08 PM CEST**

**Objective:** Establish a safe and isolated local development environment to prepare for the multi-property and competitive set refactor.

**Summary of Actions:**

* **Code & Data Isolation:**
  + Created a new Git branch named feature/multi-property-and-comps to isolate all upcoming code changes from the stable main branch.
  + Created a new Neon database branch named dev-multi-property to serve as a complete, isolated checkpoint of the database schema and data, protecting the production database from any development changes.
* **Local Development Environment Configuration (server.js):**
  + **Development Login Endpoint:** Added a new POST /api/dev-login route. This endpoint is wrapped in a !isProduction check, ensuring it only exists in the local environment. It allows developers to create an authenticated session by sending a userId, bypassing the need for the live Cloudbeds OAuth flow which is tied to the production URI.
  + **CORS Policy Update:** Modified the corsOptions to conditionally add "http://localhost:3000" to the allowedOrigins array when the application is not running in a production environment. This permits API requests from the local frontend to the local server.
  + **Session Cookie Policy Update:** Modified the express-session cookie configuration to be environment-aware. It now sets sameSite: "lax" for local development (allowing cookies over HTTP) and sameSite: "none" for production (required for cross-domain OAuth).

**Current Status:** The local development environment is fully configured and operational. We are now ready to begin the database schema modifications for the multi-property and competitive set features on the isolated development branches.

**Entry: Tuesday, July 8, 2025 - 10:44 PM CEST**

**Objective:** Refactor the application to support multi-property user accounts and implement an intelligent competitive set based on a manually assigned hotel quality tier.

**Summary of Changes:**

* **Database Schema Rework:**
  + Added a  
     star\_rating column to the hotels table to store a manually assigned quality tier for each property.
  + Removed the cloudbeds\_property\_id column from the users table to de-couple users from a single property.
  + Created a new user\_properties linking table to establish a many-to-many relationship between users and their properties.
* **Backend API Refactor (server.js):**
  + The /api/auth/cloudbeds/callback endpoint was updated to query all of a user's properties from the Cloudbeds API and create a link for each one in the user\_properties table.
  + All data-fetching API endpoints (e.g., /api/kpi-summary, /api/metrics-from-db) were refactored to accept a propertyId as a query parameter and include a security check to verify the logged-in user has access to the requested property.
  + The /api/competitor-metrics endpoint was significantly enhanced. It now first determines the star\_rating of the user's selected property and then filters the market data to only include competitor hotels with a matching rating, providing a true "like-for-like" comparison.
  + A new /api/my-properties endpoint was created to provide the frontend with a list of properties a user has connected.
* **Frontend UI Development (dashboard.js & index.html):**
  + The property switcher dropdown in the dashboard header was made dynamic. It now populates by fetching data from the new /api/my-properties endpoint.
  + All data-loading functions were updated to pass the propertyId of the currently selected property from the new dropdown to the backend API, ensuring the correct data is displayed.
* **User Experience & Authentication Flow:**
  + A new /login page was created to serve as a dedicated entry point for new and returning users.
  + The authentication flow was corrected by implementing Vercel Middleware (middleware.js) to protect page routes. Logged-out users attempting to access /app/ or /admin/ are meant to be redirected to the login page - this is not working for unknown reason. Additionally, in the future logged out users shouldn’t be redirected to the oAuth stage again - this should happen only once with Cloudbeds when connecting the app for the first time. Instead after this is done we should have our own login page - either with email and password or magic link.  
      
    Also on the <https://www.market-pulse.io/admin/> page - Run Job Daily Forecast Refresh doesn’t work, resulting in a 404 error in the console.