

Technical Briefing: The Community Hub Digital Infrastructure

Date: 5th February 2026

Subject: Digital Revitalisation of Scotland's High Streets

Lead Developer: Allan Jamieson

Infrastructure Stack: Google Antigravity (Gemini 3.1 Pro) / Firebase / Firestore / Stripe Connect / PWA Architecture

1. Executive Summary

The Community Hub is a live, high-performance Progressive Web App (PWA) designed to provide a secure digital ecosystem for Scottish town centres. Built on the principle of **Civic Self-Sufficiency**, it empowers local leadership to generate independent revenue for high street maintenance while providing a state-of-the-art Emergency Broadcast System (EBS).

2. Core Infrastructure: Google Firebase & Firestore

The platform leverages the full power of the Google cloud suite to ensure national-grade security and reliability:

- **Scalability:** Serverless architecture allows the platform to handle sudden traffic spikes (e.g., during a national emergency) without performance degradation.
- **Security & Identity:** Utilises Firebase Auth for secure, encrypted login management for all stakeholders (Community Leaders, Businesses, and Citizens).
- **Data Protection:** Powered by **Google Firestore** with strictly enforced **Firebase Security Rules**. All data access is audited and governed by enterprise-grade permission layers, ensuring only verified users can access sensitive community information.
- **PWA Deployment:** Eliminates the "App Store Barrier." Users access the hub via a URL, ensuring 100% device compatibility (iOS, Android, Desktop) across all demographics.

3. Public Safety: The Emergency Broadcast System (EBS)

The Hub features a sophisticated, hierarchical communication tool designed to integrate with Scottish Government and Emergency Service protocols:

- **Tier 1: Community Broadcasts:** Local news, event updates, and road closures managed by verified Community Leaders.
- **Tier 2: National/Regional Alerts:** A high-priority "Override" tier reserved for the Scottish Government, Police, Fire, and NHS.
- **Multi-Channel Delivery:** Alerts are delivered via instant mobile push notifications and redundant email backups to ensure maximum reach during critical events.

4. Economic Model: Civic Self-Sufficiency via Stripe

To address the decline of the high street, the Hub implements a unique "Circular Economy" financial model:

- **Zero-Commission Commerce:** Unlike global platforms, the Hub extracts 0% commission from local business sales, keeping wealth within the town.
- **Stripe Connect Integration:** Stakeholders manage their own **Stripe Express Accounts**. 40% to 60% of all local advertising and subscription revenue is automatically routed to a community-controlled fund at the point of sale.
- **Financial Integrity:** All transactions are processed via Stripe's Grade-A encryption, providing a transparent and auditable trail for Community Councils to manage local maintenance funds.

5. Governance & Data Ethics

- **Civic First Rollout:** The platform is designed to be championed by **Community Councils** and elected bodies to ensure the digital space is governed for the public good.
- **"Store Nothing" Policy:** The Hub operates as a utility, not a data-mining tool. We do not track user movement or sell personal data.
- **Moderation Suite:** Back-office dashboards provide Community Leaders with robust tools to maintain the safety and integrity of the local digital forum.

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