

TECHNICAL BLUEPRINT · FINAL

MP Ensystems Website Redesign Architecture Document

*The complete technical blueprint — frontend, backend, data, security, hosting,
DevOps, cost, and operations.*

Prepared for: MP Ensystems Advisory Pvt. Ltd.

Prepared by: Architecture/Engineering Lead (Claude)

Date: 11 September 2026

Status: Final — all Conflict Register items confirmed

Region: asia-south1 (Mumbai) · Load target: 1,000 DAU / 50 peak QPS

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1. Document Control & Version History

Version	Date	Author	Change
v0.1-draft	11 Sep 2026	Architecture (Claude)	First draft — reconciled Input 1 (arch-doc.docx), Input 2 (mockups), Input 3 (PRD) with the Google Cloud migration context. 9 open items raised.
v0.2-draft	11 Sep 2026	Architecture (Claude)	Round 2 — all 7 Conflict Register items confirmed by stakeholders; ADR-02/03/05/09 accepted; Cloudflare's role clarified (DNS + firewall only); max-instances behaviour documented.
v1.0 (this document)	11 Sep 2026	Architecture (Claude)	Final — approved, converted to Word with rendered figures.

Field	Value
Owner	MP Ensystems Product/Engineering Lead
Review cadence	Re-review at the end of every architecture-affecting sprint, and mandatorily before any change to region, database engine, or CDN/edge layer.
Status	Approved. One external dependency remains open — the ClimaKosh/GRVC Dashboard API contract (Section 5, Conflict #6) — tracked as a placeholder, not a blocker.

2. Executive Summary

MP Ensystems is moving its website off Squarespace and onto Google Cloud, in India's Mumbai region (asia-south1), because the company's data-residency policy requires it. The new site is a single Next.js application — one codebase serving the public marketing site, a gated-download flow for project reports, and an internal Admin panel — all running in one container on Cloud Run.

Everything public is free to browse with no login. The only gate is a one-time registration form in front of downloadable project reports; the file is never shown on the page, only emailed. Two things — outbound email and embedded videos — are explicit, documented exceptions to the India-only hosting rule, because no compliant alternative exists for those two functions.

THE SINGLE MOST IMPORTANT DECISION IN THIS DOCUMENT

The original architecture assessment (Input 1) planned to store all website content as JSON files directly in Cloud Storage, with no database at all — MongoDB was only for admin login. The PRD's requirements for full-text search, taxonomy filtering, and a real Admin CRUD interface cannot be built well on flat JSON files at scale. This document's central, **now-confirmed** recommendation is a proper database and CMS — **Cloud SQL for PostgreSQL** in asia-south1, managed through **Payload CMS** — replacing the original "no database for content" plan.