LIFTed VFO – Case Study, Platform Overview, Security Posture, and Statement of Work (SOW)

1) Executive Summary

LIFTed VFO is an AI-powered Virtual Family Office that unifies client onboarding, legal document workflows, CRM, knowledge retrieval, calendaring, and payments into one secure platform. This document serves both as a product case study (what users can do), a technical deep dive (how it works), a security overview (how it's protected), and a Statement of Work (what it takes to build and operate).

Deliverables referenced:

- Master Remediation Report: `docs/security/Client-Remediation-Report.md` and PDF in `docs/security/out/Client-Remediation-Report.pdf`
- Evidence pack: `docs/security/evidence/`
- Technical scope & SOW: this file

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2) User Personas and Primary Workflows

2.1 SuperAdmin (Firm Owner/Platform Operator)

- Objectives: Governance and oversight, advisor rollouts, enforcement of security posture.
- Capabilities:
  - View platform metrics (advisor counts, active/inactive users, client totals).
  - Create advisors/admins, reset access, change roles, enable 2FA.
  - Link clients to advisors and de-link as needed.
  - Restrict test/config endpoints and perform admin migrations securely.

2.2 Admin/Advisor

- Objectives: Manage clients and matters end-to-end; collect data; store and retrieve documents; schedule and transact.
- Capabilities:
  - Clients & Matters: Create and manage contacts, matters, and intakes; track pipeline stages.
  - Vault & Documents: Upload client docs (PDF/DOCX), automatically processed for search; browse, preview, and download.
  - Knowledge & AI: Ask questions against the client's document corpus; receive answers with citations.
  - Calendar & Consults: Initiate Google Calendar access flow; share booking links; view upcoming consults.
  - Payments (LawPay): Launch hosted flows for operating/trust accounts; confirm funded consults.
  - Admin Modules (selected): CRM Admin, Vault Admin, Pipelines Admin, Nurture Admin (automation), Document Library Admin, Site Builder Admin.

2.3 Client

- Objectives: Seamless digital experience with their advisor; secure document sharing; clarity on matters.
- Capabilities:
  - Dashboard: View status, upcoming appointments, and recent requests.
  - Book a Consult: Choose times and confirm preferences.
  - Document Vault: Securely upload/download personal documents.

    - Matters & Questionnaires: See what’s open, complete forms, verify details.
    - Advisor Profile: View advisor info and correspond through guided flows.

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3) Product Modules and Screens

3.1 Client Portal

- Dashboard Overview: Personalized greeting, upcoming consults, and action cards.
- Book a Consult: Public and authenticated workflows; creates CRM records.
- Vault: File upload with type/size guardrails; documents indexed for RAG retrieval.
- Matters: List and detail pages with stage tracking (“New”, “Booked”, “Signed”, “In Process”, “Completed”).
- Questionnaires: Guided data collection; stored in JSON fields for flexibility.

3.2 Advisor/Admin Console

- Client Directory (ClientsView): Search clients, drill into matters and vault.
- CRM Admin: Create/modify contacts/matters; custom field mapping (FieldMapping); conflict checks.
- Pipelines Admin: Define pipeline stages and track conversion.
- Vault Admin: Document curation and permissions.
- Nurture Admin: Future-friendly rule-based automation; logging for actions.
- Site Builder Admin: Basic CMS controls (pages, content sections) consistent with global theme.

3.3 SuperAdmin Operations

- User Management: Create advisors, reset passwords, toggle is_active, change roles (Admin/Advisor), enforce 2FA.
- Link Clients to Advisors: Tie existing clients to advisors; update ownership as staff changes.
- Platform Settings: Restrict config/test endpoints; run safe, rate-limited migrations with audit trails.

3.4 Knowledge & RAG (Retrieval Augmented Generation)

- Ask-Docs (RAG): Query the document corpus by client/entity; responses include citations (doc/page) and short excerpts.
- Insights: Summaries across all docs for an entity (deadlines, obligations, potential risks) with clear disclaimers.
- Guardrails: System prompts prevent instruction-following from retrieved content; answers remain source-grounded.

3.5 Calendar & Payments

- Google Calendar: Admin can initiate consent; URL-based hosted flow; booking UX aligned to advisor availability.
- LawPay: Hosted pages for operating/trust accounts; no raw card data touches the app; keys set via environment.

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4) Behind the Scenes (Technical Architecture)

4.1 Frontend

- Stack: React + TypeScript + Vite. Deployed as static assets (Render static site) and cached via CDN.
- Routing: Role-based protected routes; Admin/Client/SuperAdmin experiences.

- Security: No access_token persisted in localStorage; app relies on secure HttpOnly cookie sessions; DOMPurify ensures safe HTML rendering.

4.2 Backend

- Stack: FastAPI (Python). Services include Auth, CRM, Legal/Vault, Agent/RAG, SuperAdmin/Admin, GoogleAuth.
- Auth: JWT signed server-side; secure cookie (HttpOnly, Secure, SameSite=Lax) set/cleared at login/logout.
- RBAC: Role checks at route entry; admin endpoints require session + Admin/SuperAdmin; optional IP allowlist.
- Rate Limiting: Login endpoint protects against brute force; per-IP and per-username constraints.
- 2FA: TOTP enforced when enabled; SuperAdmin can enroll via endpoint; UI supports OTP challenge.
- Observability: `/healthz` liveness, `/readyz` DB ping, request ID middleware, optional Sentry integration.

4.3 Data & Documents

- Postgres: Users (roles, advisor links), Contacts/Matters/Intakes, Document metadata, FieldMapping.
- Document Processing: PDF/DOCX/TXT extracted to text, split into chunks, indexed for retrieval.
- Upload Rules: MIME allowlist (PDF/DOCX), streaming cap (≤20MB), 413/415 for violations.

4.4 RAG Pipeline

- Vector Store: Metadata with file name, entity ID, doc type; search returns top-K with scores.
- Prompt Policy: System prompt forbids executing instructions from retrieved content; answers must cite sources.
- Safety: Model boundaries defined; injection attempts mitigated by policy and testable acceptance criteria.

4.5 DevOps & CI

- Render: Backend (FastAPI/uvicorn) and static frontend; Alembic migrations run at start.
- Docker: Multi-stage builds, minimized runtime, non-root user for backend; nginx static for frontend.
- CI Security: Bandit, pip-audit, npm audit (prod), Trivy FS; extendable to image scans/SBOM.

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5) Security Posture (Implemented)

- HTML Sanitization: DOMPurify component (`SafeHtml`), removal of direct dangerous HTML inserts.
- Upload Hardening: MIME allowlist; streaming reads/writes; size enforcement; defensive error codes.
- CORS & Secrets: Prod origin restriction; enumerated methods; fail-fast if `SECRET_KEY` / `DATABASE_URL` missing.
- Admin RBAC: Session-based auth, role checks, rate-limited admin tools, IP allowlist, and audit logging.
- PII/Secrets Redaction: Global logger filter masks emails/tokens; admin audit payloads redacted.
- Health/Telemetry: `/healthz` , `/readyz` , request IDs; Sentry optional via DSN.
- Alembic Migrations: Framework in place; runtime DDL disabled in prod; `alembic upgrade head` on startup.

5.1 Security Posture (Environment/Edge Actions)

- Provider Token Encryption (0.2): Set `APP_DEK` , run backfill, verify ciphertext/IV, drop plaintext.
- CSP at Edge (1.4): Add report-only CSP in Render headers; monitor; switch to enforcing CSP.
- WebAuthn MFA (Optional): Extend TOTP with hardware-backed key support.

References: see `docs/security/Client-Remediation-Report.md`, `docs/security/evidence/*`, `docs/security/Test-Plan.md`.

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6) User Stories / Use Cases (Representative)

6.1 Client – Onboarding and Secure Collaboration

1. I can register/login (with 2FA if enabled), see my dashboard, and view upcoming consults.
2. I can upload my trust documents and tax records to my secure vault.
3. I can book time with my advisor from available slots.
4. I can complete questionnaires and see my matters' status.

6.2 Advisor – Full Client Lifecycle

1. I can create a client and a matter, and share a secure upload link.
2. I can review uploaded documents, index them for retrieval, and ask RAG a question with citations.
3. I can track pipeline stages (New → Booked → Signed → In Process → Completed).
4. I can initiate payments via LawPay and run calendar flows for scheduling.

6.3 SuperAdmin – Governance & Security

1. I can add an advisor, enable 2FA, and link clients under that advisor.
2. I can run safe admin migrations and restrict config probes.
3. I can set a CSP header at the edge and apply encryption backfill policies.

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7) Implementation Notes (By Area)

7.1 Authentication & Sessions

- FastAPI issues JWT; cookie flags: HttpOnly, Secure, SameSite=Lax, max-age.
- Frontend Axios set to `withCredentials: true` to rely on cookie sessions (no token headers).
- Logout explicitly clears session cookie server-side.

7.2 RBAC & Admin Tools

- Admin endpoints check session + role; optional IP allowlist via `ADMIN_IP_ALLOWLIST`.
- Audit logging includes request ID, user metadata, action, and redacted details.

7.3 RAG

- Vector search contextualizes prompts; "treat retrieved content as reference, not instruction."
- Answers include citations and excerpts; injection tests are planned as acceptance criteria.

7.4 Uploads & Vault

- Streaming to disk with size counter protects memory; allowed types prevent parser exploits.
- Document metadata, chunk counts, and indexing outcomes stored for traceability.

7.5 Observability & CI

- Health/readiness endpoints permit shallow vs. DB-level checks.
- CI scans fail on high/critical vulnerabilities for early warning.

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8) Statement of Work (SOW) with Hour Estimates

8.1 Backend (FastAPI) – 140–180 hours

- Auth & Sessions (JWT/cookies, RBAC, TOTP, optional WebAuthn): 30–40
- Admin/SuperAdmin (RBAC, audit, IP allowlist): 20–30
- CRM/Intake (Contacts/Matters/Intakes, field mapping): 25–35
- Vault & Uploads (streaming, indexing, RAG hooks): 25–35
- RAG Service (retrieval, citations, insights): 20–25
- Observability (health/readiness/logging/Sentry): 10–15
- Alembic (baseline, process, runbook): 10–15

8.2 Frontend (React/Vite) – 120–160 hours

- Auth flows (login/OTP, session UX, logout): 20–25
- Admin consoles & tables (SuperAdmin/Advisor UIs): 35–50
- Client portal (dashboard, vault, matters, questionnaires): 35–50
- RAG UI (chat, citations, doc source UX): 20–25
- Theming & accessibility: 10–15

8.3 Security Engineering – 80–110 hours

- Threat modeling; PII policies; encryption rotation: 15–20
- CSP rollout & monitoring: 15–20
- Token encryption backfill & drop: 20–30
- CI scans and image security; SBOM: 15–20
- Pen test support and remediation: 15–20

8.4 DevOps / Platform – 70–100 hours

- Render setup (multi-env, secrets, hooks): 15–20
- Docker hardening and size optimization: 10–15
- Deploy migrations & rollback runbooks: 15–20
- Monitoring/log shipping: 10–15
- Backup/restore & DR drills: 20–30

8.5 Project/QA/Docs – 60–90 hours

- PM/Scrum & stakeholder reviews: 20–30
- QA/UAT planning & execution: 20–30
- Documentation & operator runbooks: 20–30

Estimated Total: 470–640 hours Team: Tech Lead, Backend Eng(s), Frontend Eng(s), DevOps, Security Eng, QA, PM.

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9) Appendix – Linked Artifacts

- Remediation Report: `docs/security/Client-Remediation-Report.md` (PDF in `docs/security/out/Client-Remediation-Report.pdf`)
- Tracker (CSV/XLSX): `docs/security/Remediation-Tracker.csv` (XLSX in `docs/security/out/Remediation-Tracker.xlsx`)
- Evidence pack: `docs/security/evidence/`
- Test Plan: `docs/security/Test-Plan.md`