

Omnisonic — Master Roadmap & Blueprint

Creation ▶ Data Integrity ▶ Global Intelligence

Prepared for: **Danial Hendi** • Version: **1.0** • Date: **November 6, 2025**

Executive Summary

A lifetime-scale, three-layer ecosystem that starts in the *heart of music* (live creation), advances to the *infrastructure* (open graph + royalty integrity), and culminates in a *global intelligence* layer (analytics, news, and prediction).

Phase 1

Omnisonic Studio

Real-time, cross-genre creation & collaboration platform.

Phase 2

Omnisonic Core

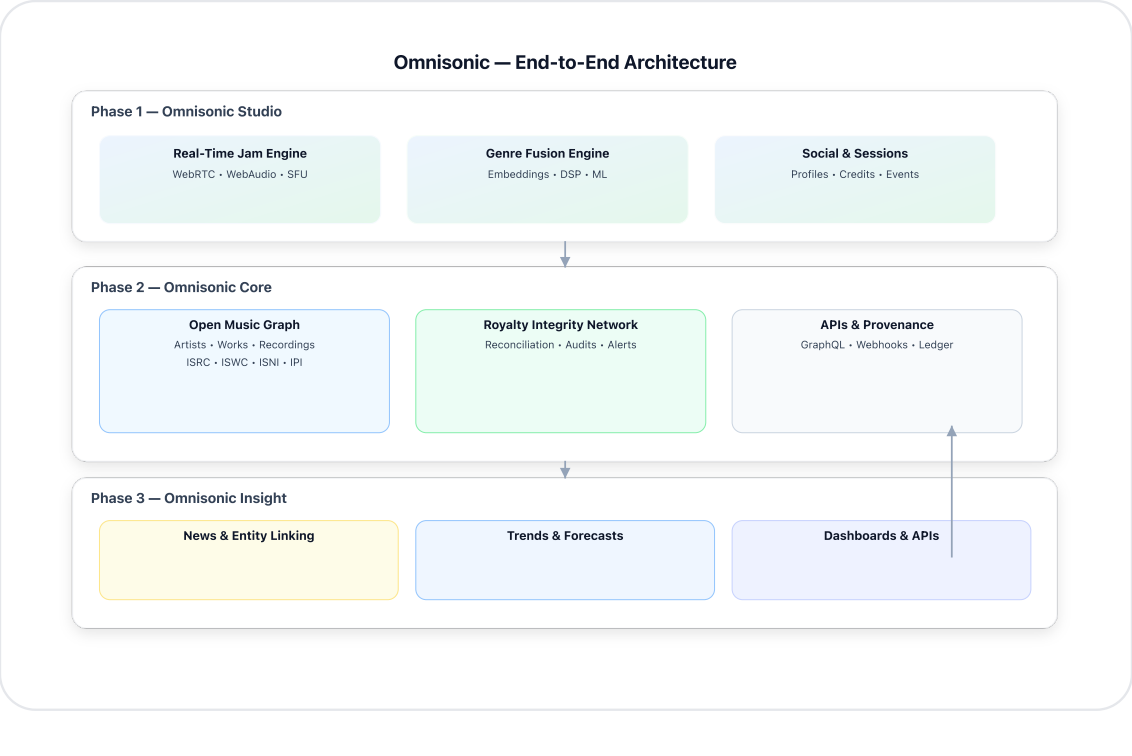
Open Music Graph + Royalty Integrity Network (RIN).

Phase 3

Omnisonic Insight

Cross-genre news & deep analytics (subdomain).

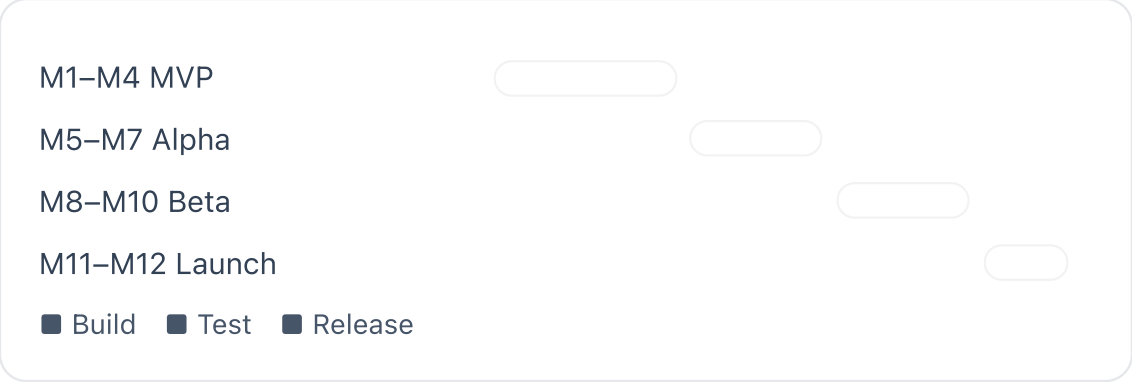
System Blueprint (High-Level)



Phase Roadmaps (12-Month Windows)

Each phase can run as a focused 12-month program; phases overlap with staggered start for compounding progress.

Phase 1 — Omnisonic Studio



Phase 2 — Omnisonic Core

Schema Design

Pipelines MVP

RIN Alpha

API Beta

Phase 3 — Omnisonic Insight

Data Lake

News & NLP

Dashboards

API & Docs

Canonical Tech Stack

Domain	Primary Choice	Why
Frontend	Next.js 15 • TS • Tailwind • ShadCN • Framer Motion	Modern DX, SSR/ISR, strong component system, print-ready PDFs.
Realtime	LiveKit (WebRTC SFU)	Battle-tested for multi-party low-latency A/V rooms.
Audio DSP	Rust DSP + GStreamer; WebAudio + WASM	Performance for mixing/effects +

Domain	Primary Choice	Why
		browser capability.
ML	PyTorch + HF Transformers + Faiss/Milvus	Embeddings, NER, recsys, vector search.
Backends	Bun/TS + Rust microservices • Temporal.io	Fast services + durable orchestration of workflows.
Graph	TypeDB (Grakn) + GraphQL API	Rich, typed ontology + dev-friendly interface.
Databases	PostgreSQL (Citus) • Redis	Relational core + caching + horizontal scale.
Search	Elasticsearch/OpenSearch • pgvector	Text + similarity across credits, lyrics, entities.
Data Lake	Parquet/Delta • DuckDB • S3/GCS	Cheap, scalable analytics and batch/stream unification.
ETL/Streams	Flink + Airbyte + dbt	Real-time ingest + transformations.
Provenance	IPLD/Hypercore ledger	Auditable history of

Domain	Primary Choice	Why
		credits & rights.
Edge	Cloudflare Workers + KV + Durable Objects	Global low-latency state & delivery.
Auth	OpenID Connect • OAuth 2.1 • RBAC	Standardized, secure, partner-friendly.
Payments	Stripe Connect • optional USDC on Base	Split payments; programmable royalties.
Analytics	ClickHouse/Snowflake • Superset	Fast OLAP + visualization.
Observability	OpenTelemetry • Prometheus • Grafana • Sentry	Full-stack visibility.
DevOps	Kubernetes • ArgoCD • Terraform • GitHub Actions	GitOps, reproducible infra, multi-cloud ready.

Data Contracts & Entities

Core Entities

Identifiers & Schema

- **Person/Org:** Artist, writer, producer, label, publisher (ISNI, IPI).
- **Work:** Composition (ISWC), writers, splits.
- **Recording:** Master (ISRC), performers, engineers.
- **Release:** UPC/EAN, territories, dates.
- **Event:** Setlist ties to works/recordings.
- **Session:** Studio fusion session; stems; roles; provenance.
- ISRC • ISWC • ISNI • IPI • UPC
- JSON-LD vocab for linked data (schema.org + custom context).
- All mutations emit *Provenance Records* with actor, time, source.

Risk Register & Mitigations

Risk	Impact	Mitigation
Latency in live collab	Session quality degrades	Region-aware SFU; edge relays; adaptive bitrate; pre-roll sync.
Data licensing friction	Graph growth slows	Open sources first; facts + provenance only; partner tiers later.
False positives in RIN	Creator trust risk	Confidence scores; human review; transparent evidence.
Fraud/AI spam uploads	Royalty leakage	Fingerprinting; anomaly models; KYC for payouts.

Risk	Impact	Mitigation
Scaling costs	Runway pressure	Usage-based infra; cold storage; tiered features.

Five-Year Milestones

- **Year 1:** Studio MVP, 500 creators, 50 fusion sessions/week.
- **Year 2:** Public Studio, seed funding/partnerships, Core schema live.
- **Year 3:** Open Music Graph + RIN beta, first royalties recovered for artists.
- **Year 4:** Insight dashboards + API, 10 media partners.
- **Year 5:** Global expansion; education/Grants program; AI-assisted composition tools.

Appendix — Implementation Notes

Security

- Zero-trust; rotate keys; OPA policies; threat modeling each release.
- End-to-end encryption for private sessions; watermark public exports.

Developer Relations

- Public GraphQL explorer, SDKs (TS/Python), example apps.
- Monthly open data snapshots; bug bounties; contributor program.

Compliance

- GDPR/CCPA tooling; data residency; audit trails.
- Right-to-be-forgotten flows integrated with provenance ledger.

