

Enterprise Reference Architecture Healthcare Multi-Product Platform

This Enterprise Reference Architecture (ERA) defines a standardized, scalable, and secure platform for multi-product healthcare initiatives supporting clinical, member, provider, claims, and analytics domains. It enables product autonomy while enforcing enterprise-wide governance, safety, and compliance.

Architecture Principles

- Patient safety over speed
- Platform-first, product-enabled
- Loose coupling, strong contracts
- Security & privacy by design (HIPAA)
- Event-driven integration
- Cloud-native and vendor-agnostic

Logical Architecture Layers

Experience Layer – Member, Provider, Clinician, Partner channels

Product Services Layer – Domain-aligned product microservices

Enterprise Platform Layer – Shared services (API, identity, consent, events, audit)

Data & Intelligence Layer – ODS, lakehouse, analytics, AI, governance

Core Systems Layer – EHR, claims, billing, lab, pharmacy

Infrastructure & Security Layer – Cloud, zero trust, IAM, DR, observability

Enterprise Platform Services (Mandatory)

API Gateway, Event Bus, Identity, Consent Management, Audit & Logging, Workflow Engine, Notification Service, Integration Facade, Document Service, Search, Configuration Management

Product Line Integration Pattern

Product → Product Services → Platform Services → Integration Facade → Core Systems

Governance & Guardrails

- All major decisions captured as ADRs
- No direct EHR integration without approval
- All APIs are contract-tested
- PHI flows require data flow diagrams
- Exceptions are time-boxed and reviewed quarterly

Architecture Health Metrics

Platform reuse %, Integration lead time, MTTR, PHI incidents, Schema breakages, Shared service adoption, Technical debt exceptions

Why This Architecture Works for Healthcare

Supports safe scaling of multiple product lines, reduces duplication, enforces compliance, enables incremental modernization, and provides a foundation for AI-enabled care delivery.