

Building HIPAA-Compliant AI Pipelines for Telehealth

A zero-trust reference architecture for triaging patient messages with LLMs.

Three-layer pipeline

1. Encrypted ingestion (TLS 1.3, customer-managed KMS keys)
2. PHI de-identification using a medical NER model
3. LLM triage in an isolated VPC with no internet egress

Outcomes

- 98.7% PHI detection accuracy
- Zero HIPAA violations across 18 months in production
- 40% reduction in nurse triage time
- Passed OCR audit with zero findings