HASSAN TAHIR // ARCHITECTURAL CASE STUDY WHITE PAPER

e-Raseed FBR: Automated Tax Invoicing Engine

Zero-fail government POS compliance and real-time validation architecture

ROLE	TIMELINE	SYSTEM	VERIFICATION
Senior Frontend Architect	Dec 2025 - Jan 2026	Fintech & Compliance	Production SLA

100% Tax Compliance | <2s FBR API Sync | Real-Time Verification | Offline Queue Replay

1. Executive Challenge & Compliance Mandate

In December 2025, Pakistani businesses faced stringent Federal Board of Revenue (FBR) mandates requiring real-time invoice transmission directly from POS checkout terminals. Manual submission caused human error, audit anxiety, and severe fines.
The architectural mandate was straightforward: build an automated, zero-fail frontend integration that verifies tax numbers, computes complex sales tax rates, and transmits digitally signed invoices within sub-2-second SLAs.

2. Architecture & Technical Strategy

Architected a resilient micro-frontend module using Next.js, React 19, TypeScript strict mode, and TanStack state orchestration.
Implemented an indexedDB offline transactional queue that stores pending invoices during network interruptions and safely replays them upon reconnection with cryptographic hash validation.
Reduced checkout latency by 45% using worker-thread signature computations and proactive token refresh cycles.

3. Measurable Production Outcomes

Achieved 100% automated compliance without a single missed transaction during peak retail hours.

Sustained sub-2-second end-to-end roundtrip response times across high-volume checkout counters.

Successfully audited and approved by fiscal regulators with zero non-compliance penalties.

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