- TEAM NAME - TEAM WHAT-IF
- INSTITUTE NAME - NATIONAL INSTITUTE OF TECHNOLOGY, JAMSHEDPUR

Theme **-** ***Smart Payment Optimization***

Build an AI-powered solution that enhances any aspect of the payments ecosystem — from payment optimization and fraud detection to personalized rewards, budgeting, or innovative payment experiences. The goal is to make payments smarter, more efficient, and user-centric for individuals or businesses.

Problem Faced by the customers

- In Tier 2/3 regions, digital payments fail due to low or no connectivity.
  - Low speed networks and inconsistent Wi-Fi hotspots make it hard for **rural people** to pay digitally.
  - Transaction don't go through, or worse, the money is debited but the order isn't confirmed.
- Price drops post-purchase go unnoticed, resulting in regret and low user confidence.
  - The product price sometimes drops down due to algorithmic pricing, or stock shifts.
  - Losing faith of the loyal customers, who also leave the cart **abandoned.**
- First time buyers, who are hesitant to use the online payment system, mainly students and/or aged people

Scope of Innovation:

Introducing **VaultX**, an AI-powered payment trust engine, consisting of two solutions to make payments a more smoother experience.

- ***SnapPay***: Offline payment buffer with biometric lock; syncs automatically later.
  - Payment gets locked in locally (with biometric authentication) and auto-syncs with Amazon servers once the user comes online again.
- ***SmartCoins:*** Post-purchase price protection + rewards = visible value.
  - If the price drops after buying, **SmartCoins refund that difference** into a visible, spendable reward.

VaultX redefines payments from a transaction to a trusted, intelligent, and gamified experience.

Who is Our Customer?

Target Persona:

- Amazon customers from ***Tier 2/3 regions***, often shopping via mobile apps on ***patchy networks.***
- Hesitant to complete payments during ***unstable conditions*** or due to fear of post-purchase loss.
- Value-added features strongly influence their buying decisions—they are motivated by loyalty rewards, voice-enabled assistance, social gifting, and prefer interfaces in vernacular languages.

Insights:

- They **abandon carts** not just from fear of failure, ***but lack of post-purchase assurance.***
- Their confidence grows when they feel in control—VaultX makes them feel secure, rewarded, and smart.
- Emotional and social triggers play a vital role—users seek ***assurance***, recognition, and ***simplicity*** in their digital shopping journey.
- For many, first-time online buying experiences shape long-term behavior—a poor experience can cause long-term drop-off.

Outcome:

- *VaultX meets deep user needs—financial safety, emotional satisfaction, social recognition—backward-designed from pain points.*
- By meeting users where they are, VaultX fosters a feeling of empowerment and safety, ensuring that users feel smart, secure, and rewarded at every step.

Success Metrics (Estimates Based on Industry Benchmarks & AWS Observability Tools):

Metric	Target (est.)	Measured Via
Offline Transaction Success Rate	+40%	AWS SQS Retry Logs, CloudWatch
Cart Abandonment Drop	-25%	UX Funnel Analytics, Baymard Benchmark
Repeat Purchase Rate Increase	+30%	QuickSight User Retention Metrics
SmartCoin Redemption Rate	+50%	DynamoDB Logs, QuickSight Dashboards
Refund-related Support Tickets ↓	-35%	Lambda Automations + Aurora Logs

***These metrics will be actively tracked and refined as we scale, using built-in AWS monitoring and analytics tools from day one.

Impact of Our Solution:

- Increases **checkout** confidence and reduces post-purchase regret, especially in price-sensitive markets.
- Brings offline resiliency to Amazon Pay — crucial for **Tier 2/3 users**.
- Leverages SmartCoins + social trust features to drive organic engagement and community loyalty.
- Reduces **dependency** on customer support, enhancing overall Net Promoter Score (NPS).
- Positions Amazon as a more user-centric, equitable shopping platform.

Scope for Scalability & Marketplace Expansion

Modular Scalability:

- VaultX's AWS-native infra allows phased rollout per geography/marketplace.
- Dynamic feature toggles → Customize per category, region, seller tier.
- Scalable to Tier 2/3 customers and first time buyers.

Expansion Potential:

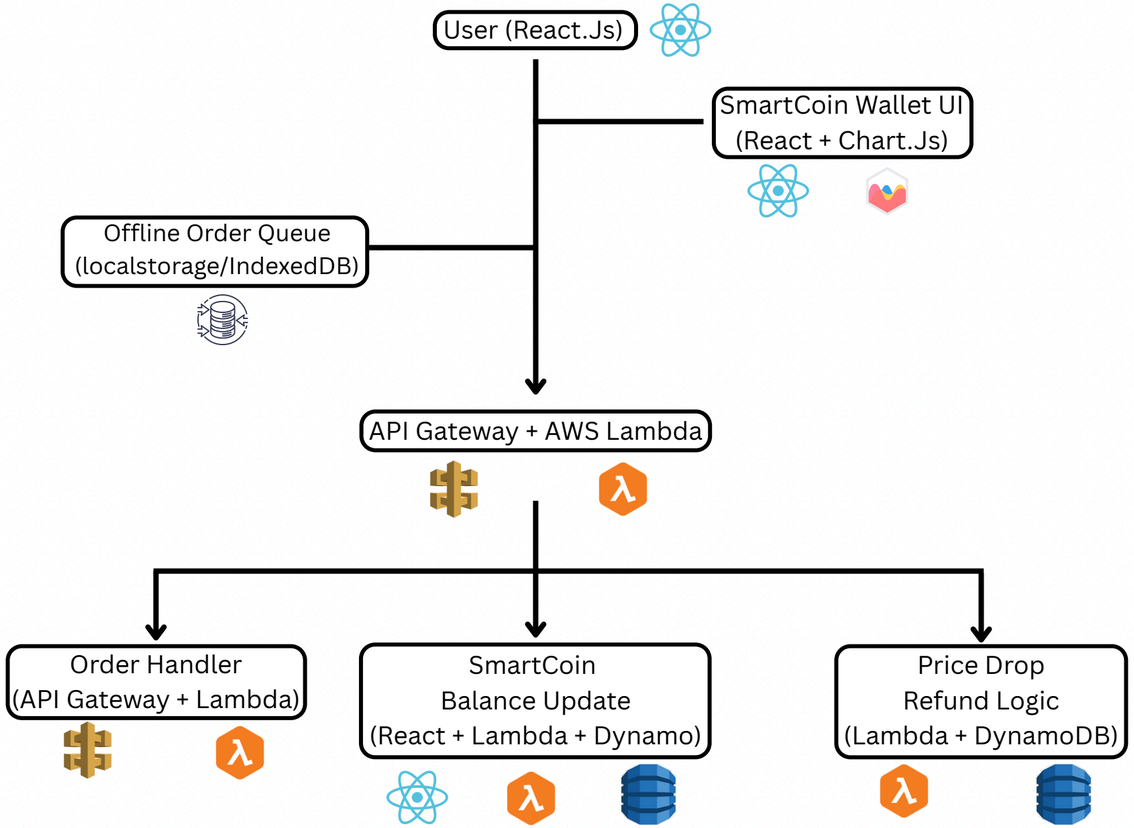
- SmartCoins = cross-platform token (usable on food delivery, travel, partners)
- Seller Trust Index = Filters for "VaultX Preferred Sellers"
- CBDC (Central Bank Digital Currency) Ready = Future-fit for India's Digital Rupee or similar

Integration with Amazon Pay:

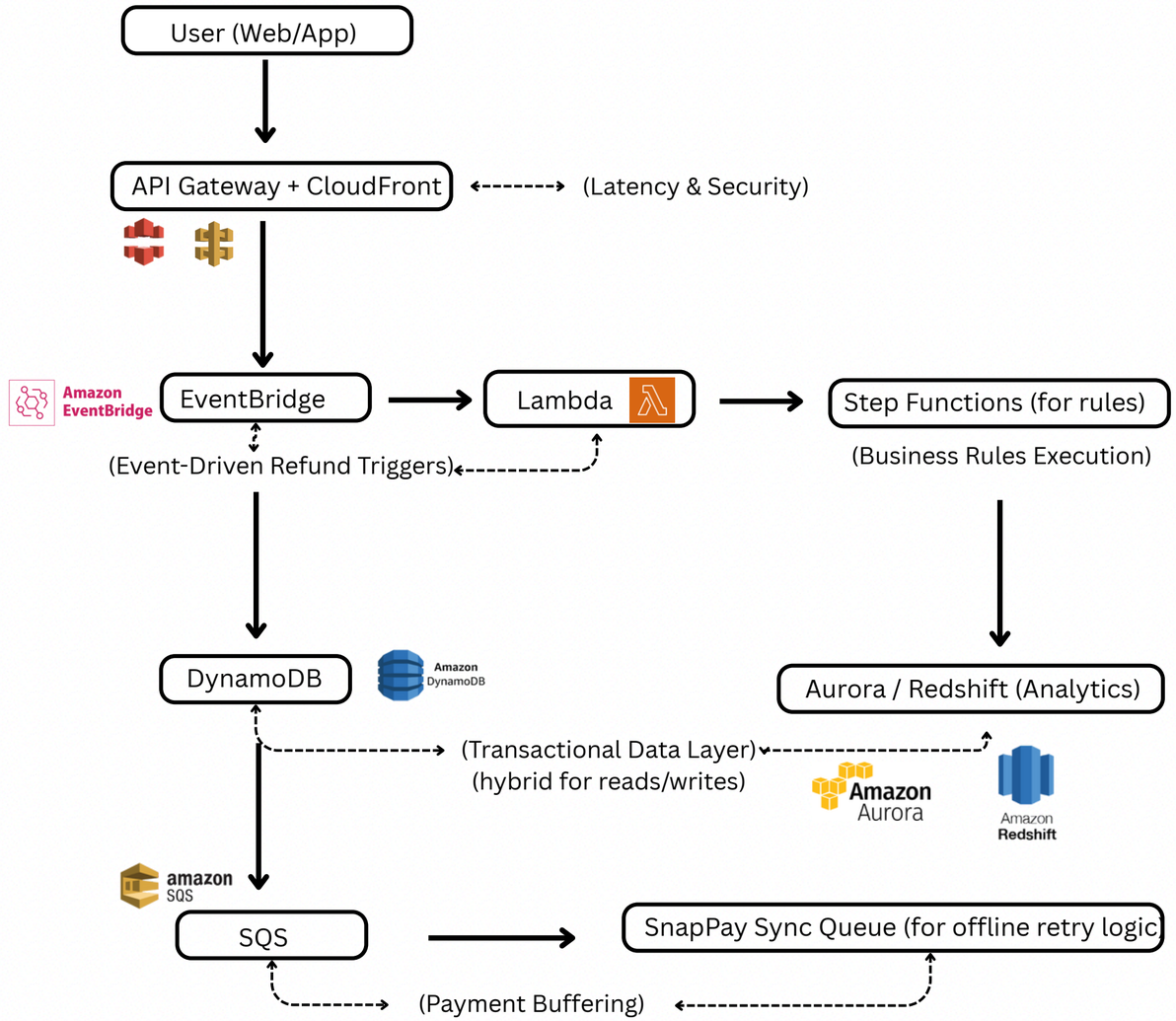
- VaultX plugs into Amazon Pay as a trust and intelligence middleware.
- No user behavior change required — works post-payment or ambiently.
- Interfaces like Alexa, dashboards, and push-notifications enhance transparency.
- VaultX is not a new payment system — it's a **trust optimization engine** inside Amazon Pay. No disruption. Just a better experience for the next billion users.

Architecture Overview

Section I - MVP Architecture (Frontend + Core Logic)



Section II - Scalable production Architecture



***For Security + Infra**

- WAF (Web App Firewall)
- GuardDuty (Threat Detection)
- IAM (Role-based Access)
- CDK / CloudFormation (Infra as Code)

Why VaultX is a Gamechanger ?

Differentiators:

- SnapPay: Always-on offline buffer with biometric fallback.
- SmartCoins: Dynamic value engine, community utility, cross-platform use.
- Trust Missions: Behavioral nudges to encourage safe, meaningful purchases.

Strategic Positioning:

- "VaultX integrates directly with Amazon Pay as a ***trust and intelligence middleware*** — requiring no change in how users pay, only adding value in how they feel after they do."
- "A ***modular trust engine layered on top of Amazon Pay,*** turning each transaction into a more secure, rewarding, and insightful experience — without changing how people pay."
- RBI's offline CBDC wallets are rolling out, SnapPay architecture will be ready to integrate with tokenized digital cash.