WHITEPAPER

Quota Protocol

A decentralized forward market for API quotas and rate-limits on Solana.

Version 1.0 · Blockchain: Solana · Category: DeFi / derivatives
Network: Devnet (mainnet on explicit release). $QUOTA settlement asset; quota is paid in USDC.

1. Abstract

Quota Protocol is a derivatives layer on Solana for the market of access to external APIs. Teams whose products depend on third-party APIs (AI inference, payment gateways, data and geo APIs) face two structural risks: rising prices and rate-limit throttling during peak demand. Quota lets a buyer lock the price and volume of future API quota today through USDC forward contracts, reserve priority throughput under an SLA, and consume the paid quota through a single gateway, while margin, settlement and penalties execute on-chain rather than inside a vendor's closed ledger.

2. The Problem

API access is sold on opaque, vendor-controlled terms. Prices change without notice, and during demand spikes providers throttle exactly when throughput matters most. A team cannot hedge either risk: there is no market to fix tomorrow's price today, and no enforceable guarantee of priority capacity. The dependency is real revenue risk, but it lives entirely off-chain in a counterparty's private books.

3. The Solution

Quota turns API access into a tradable, on-chain instrument. Liquidity providers list forward offers for a specific API tier (model / endpoint / limit) at a fixed price per unit of calls for a set term. Buyers purchase a forward in USDC, lock $QUOTA margin, and receive a tokenized quota position (an SPL position account) in their wallet. They then route their real API traffic through the protocol gateway, which meters every call and debits the balance. At expiry the contract settles on-chain in USDC.

- **Fix price & volume today** via USDC forwards on explicitly resellable tiers.
- **Own the position on-chain** as a tokenized quota balance, not a vendor credit.
- **Consume through one gateway** that is REST / OpenAI-compatible, with per-call metering.
- **Settle transparently** in USDC at expiry, with buyback funded from protocol fees.

4. How It Works

Step	What happens	Where
1. Browse	Buyer opens the marketplace, filters tiers by API, term and price.	Off-chain (UI)
2. Buy forward	Pays USDC, locks $QUOTA margin; a position SPL is minted to the wallet.	On-chain
3. Wire gateway	Buyer generates a gateway API key and points their product at the gateway baseURL.	Off-chain
4. Consume	Each call is routed to the vendor, metered, and the quota balance is debited.	Off-chain + sync
5. Settle	At expiry the contract settles in USDC: LP paid for consumed units, buyer refunded the rest, margin released.	On-chain

5. System Architecture

The product is split into five services with a clear on-chain / off-chain boundary. On-chain is the source of truth for money; off-chain handles speed and convenience, reconciling to chain at settlement.

Service	Stack	Responsibility
Frontend	React	Marketplace, contract cards, dashboard, staking, wallet connect, API keys.
Backend	Express + PostgreSQL	Signature auth to JWT, API keys, balances, usage logs, settlement orchestration.
Gateway	REST / OpenAI proxy	Accepts buyer requests, checks balance, routes to the vendor, meters and debits.
SDK	TypeScript (npm)	Drop-in client: override baseURL, pass key, handle balance / limit errors.
Smart contract	Anchor (Rust)	Position issuance (SPL), margin lock, USDC settlement, buyback; staking and slashing in Stage 2.

On-chain (truth for money): margin, USDC settlement, position issue/redeem, buyback, staking and slashing. **Off-chain (speed):** per-call metering, usage logs, balance cache and authentication, reconciled and finalized on-chain at expiry.

6. The $QUOTA Token

The utility of $QUOTA is tied to the real volume of hedged quota: the more access flows through the protocol, the more token is locked in margin and staking and the more active the buyback. Scarcity follows usage, not speculation.

> **Important:** buyers pay for quota in **USDC**, not $QUOTA. This lowers price risk for the user. $QUOTA is a collateral and incentive asset, not the means of payment for access.

Mechanism	How it works	Stage
Forward margin	$QUOTA collateral locked against an open position; frees supply on redemption.	MVP
Buyback & burn	A share of protocol fees buys back and burns the token, shrinking supply.	MVP
Fee discount	Paying the protocol fee in $QUOTA (or staking) yields a reduced fee.	MVP
LP staking	LPs stake $QUOTA as SLA collateral; yield in USDC, slashing for under-delivery.	Stage 2
Staker share	A share of fees is distributed to stakers in proportion to stake.	Stage 2

7. Roadmap

Functions not in the current release are marked as in progress and are never presented as working. The contract ships first on devnet with explicit network labeling.

Stage	Scope	Status
MVP	Forward marketplace, USDC purchase + tokenized position, gateway metering, dashboard, wallet auth, on-chain settlement, buyback, TypeScript SDK.	Shipping
Stage 2	LP staking as SLA collateral, slashing for under-delivery, staker fee share.	In progress
Stage 3	Vendor partnerships to legalize quota and expand the tier list.	Planned
Stage 4	Secondary market and trading of positions with leverage.	Planned

8. Honest Positioning & Network

The protocol launches via devnet with clear labeling. The contract address (CA) is published on the official site with a copy button and an explicit network tag (Devnet now, Mainnet after migration), and is mirrored to Solana Explorer / Solscan for verification. A devnet address is never presented as mainnet. Roadmap features are labeled in the UI and documentation, not advertised as live.

9. Risk & Disclaimer

This document describes a research-stage protocol and is for informational purposes only. It is not an offer of securities or financial advice. Smart contracts carry technical risk; an external audit is required before mainnet. $QUOTA is a utility and collateral asset whose value is not guaranteed. Resale of API

quota is enabled only for tiers where the vendor license explicitly permits it.