The Settlement Layer for *AI Compute*

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Abstract

A purely autonomous system for AI credit issuance would allow any agent to acquire and spend AI credits without relying on financial institutions, centralised issuers, or human intermediaries. Existing stablecoins such as USDC serve this purpose partially, but suffer from the inherent weakness of a trust-based model: a central issuer holds freeze authority over every address. What is needed is a stablecoin whose supply is governed by on-chain economic activity, whose backing is publicly verifiable at all times, and whose redemption is native to AI credits. We propose Peb Pump, a two-token system in which a pump.fun memecoin ($PEB) generates creator fees that are autonomously converted to USDC and held in a public treasury, against which PEBBLES is minted one-to-one. The system is operated entirely by an AI agent running Claude Fable 5, Anthropic's Mythos-class model. PEBBLES is redeemable for AI credits across 242 models. The result is the first AI-credits-redeemable stablecoin. A unit of account for the agent economy, backed by real dollars, minted by trading activity, and governed by no one.

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1. Introduction

Commerce on the internet has come to rely almost exclusively on financial institutions serving as trusted third parties to process electronic payments. While the system works well enough for most human transactions, it suffers from the inherent weakness of trust-based models when applied to autonomous agents. An AI agent cannot open a bank account. It cannot pass KYC. It cannot hold a credit card. And yet, as autonomous agents proliferate, executing long-running tasks, hiring specialist sub-agents, paying for AI credits in real time, they require a means of exchange that does not depend on any human being present in the loop.

What is needed is not another stablecoin for humans. What is needed is the first stablecoin designed from the ground up for machines. The USDC for agents.

Peb Pump proposes a solution using autonomous economic activity rather than institutional backing. A memecoin trades on pump.fun. Its creator fees flow to an AI agent. The agent converts those fees to USDC, deposits them into a public treasury, and mints PEBBLES at a one-to-one ratio against the reserve. No human approves any step. No issuer holds freeze authority. The supply is a direct function of on-chain trading activity, and every unit of PEBBLES is redeemable for real AI credits across 242 models.

The system described in this paper is live. The agent is running. The treasury is public. Every claim made here is verifiable on-chain.

2. The Problem with Existing Stablecoins for Agents

The agent economy is no longer theoretical. Autonomous AI systems are executing multi-step tasks, calling external APIs, spawning sub-agents, and operating continuously without human supervision. These systems require the ability to transact. To pay for compute, to settle between agents, to manage budgets autonomously. The question of what currency they use has not been answered.

2.1 The Trust Problem

USDC, the dominant stablecoin, was designed for humans. Circle, its issuer, maintains an address blacklist and has frozen over one hundred wallets at the request of regulators and law enforcement. An AI agent whose USDC wallet is frozen mid-task has no recourse. The task fails. The funds are inaccessible. The human discovers this after the fact.

2.2 The Micropayment Problem

Modern AI pricing is denominated at fractions of a cent per call. A single Claude Haiku response costs $0.0003 in AI credits. USDC on Ethereum mainnet cannot settle a transaction of this size economically. The gas fee exceeds the payment value. Agents making thousands of micro-payments per day for AI credits require a payment rail designed for that granularity.

2.3 The Budget Enforcement Problem

There is no mechanism in USDC to enforce a spending budget at the token level. Giving an agent access to a USDC wallet grants access to its entire balance. Budget constraints must be implemented in off-chain middleware. Software that can be bypassed, misconfigured, or fail. A cryptographically enforced budget, where the wallet balance is the limit, does not exist in any current stablecoin design.

2.4 The Denomination Problem

One dollar of USDC purchases a different quantity of AI credits at different times. Model pricing changes. Token costs fluctuate. An agent budgeting in USDC must continuously recalculate what it can afford. There is no stable unit of AI output. No way for an agent to reason about its own AI credits budget in the same denomination it uses to spend.

3. Autonomous Fable 5 Agent

Peb Pump is a two-token system operating on the Solana blockchain. It consists of $PEB, a pump.fun memecoin whose trading activity generates the economic fuel for the system, and $PEBBLES, an off-chain stablecoin backed one-to-one by USDC held in a public treasury. The entire operation. Fee collection, currency conversion, treasury management, and stablecoin minting, is executed autonomously by an AI agent running Claude Fable 5.

> The central insight of Peb Pump is this: human speculation, which is abundant and self-sustaining, can be harnessed as the economic engine for a stablecoin designed for machine intelligence. The volatility of the memecoin is the feature, not the bug. It generates the fees that back the stable and fund AI credits for everyone.

4. The Two-Token Architecture

4.1 $PEB: The Engine

$PEB is a Token 2022 standard memecoin launched on pump.fun on the Solana blockchain. It has no intrinsic utility claim beyond its role as the demand engine for the system. Every buy and sell transaction on pump.fun generates a one percent creator fee denominated in SOL. These fees are the sole source of treasury inflow. $PEB is deflationary by design: a portion of every creator fee is used to purchase $PEB on the open market and burn it permanently, reducing supply with every trade.

4.2 $PEBBLES: The Stable

$PEBBLES is a legacy SPL Token on the Solana blockchain. It is an off-chain stablecoin in the sense that its supply is governed by software rather than a smart contract. The AI agent holds the mint authority keypair and mints or burns PEBBLES in response to changes in the treasury USDC balance. The peg is maintained mechanically: the agent mints one PEBBLES for every USDC that arrives in the treasury, and burns one PEBBLES for every USDC that leaves. The supply always equals the reserve, to six decimal places. Every PEBBLES in circulation represents one dollar of AI credits, redeemable across 242 models, spendable by any wallet, human or agent.

	$PEB	$PEBBLES
Standard	Token 2022	Legacy SPL
Purpose	Trading engine / fee source	AI credits stablecoin
Backing	None (memecoin)	1:1 USDC reserve
Supply mechanic	Deflationary via burn	Minted/burned by agent
Launched on	pump.fun	Treasury keypair
Redeemable for		AI credits (Phase 3)

Table 1. Token architecture comparison.

5. The Autonomous Agent

The PEBBLES treasury is operated entirely by an AI agent running on Claude Fable 5, Anthropic's first Mythos-class model and the most capable publicly available AI as of June 2026. Claude Fable 5 was selected not for its name, though the coincidence is noted, but for its specific capabilities in long-horizon autonomous task execution.

5.1 Model Capabilities

Capability	Specification
Context window	1,000,000 tokens
Max output	128,000 tokens
Agentic ranking	#2 of 123 models globally
SWE-Bench Pro	80.3%, best in class
Long-horizon performance	3x improvement over Claude Opus 4.8
Thinking mode	Adaptive, always on
Knowledge cutoff	January 2026

Table 2. Claude Fable 5 specifications.

5.2 Agent Responsibilities

The agent is responsible for the following operations, executed continuously without human oversight or approval:

1. Monitoring the dev wallet for accumulated SOL creator fees
2. Transferring fees to the collector wallet when thresholds are met
3. Executing SOL-to-USDC swaps via Jupiter aggregator
4. Routing USDC to the treasury wallet
5. Minting PEBBLES equal to incoming USDC
6. Executing $PEB buybacks with the burn allocation
7. Burning purchased $PEB via SPL token burn instruction
8. Logging all operations with transaction signatures
9. Self-verifying treasury balance against PEBBLES supply before every mint

5.3 No Human in the Loop

No human approves any transaction executed by the agent. No human monitors the treasury in real time. The agent operates with full autonomy over the system within the constraints of its programming. This is not a risk to be mitigated. It is the design. The value proposition of Peb Pump is precisely that a sufficiently capable AI agent can manage a financial system more reliably, continuously, and transparently than a human team.

6. The Flywheel Mechanism

The flywheel is a closed economic loop in which human trading activity continuously funds the expansion of AI credit supply. Each step in the loop is executed autonomously:

Step 1. Trade $PEB

A user buys or sells $PEB on pump.fun. A one percent creator fee is generated in SOL and accumulates in the dev wallet.

Step 2. Fee Collection

The agent detects accumulated fees and transfers SOL from the dev wallet to the collector wallet. A working buffer that isolates the fee accumulation from the swap execution.

Step 3. SOL to USDC

The agent routes the SOL through Jupiter aggregator, selecting the optimal execution path for the SOL-to-USDC swap. The swap executes at market rate.

Step 4. Treasury Settlement

USDC arrives in the treasury wallet. The treasury is a public Solana address. Its balance is verifiable by anyone at any time via Solscan.

Step 5. PEBBLES Minting

The agent mints PEBBLES equal to the new USDC balance. One USDC in the treasury equals one PEBBLES in circulation. Always. The agent self-verifies this ratio before executing every mint instruction.

Step 6. Distribution (Phase 2+)

Beginning in Phase 2, minted PEBBLES is distributed to $PEB holders proportionally. The more $PEB a wallet holds, the more PEBBLES it receives from each treasury cycle.

Step 7. Buyback and Burn (Phase 2+)

Beginning in Phase 2, a portion of creator fees bypasses the treasury entirely and is used to purchase $PEB on the open market. The purchased $PEB is burned permanently via SPL token burn instruction. Supply decreases. Scarcity increases.

Step 8. AI Credit Redemption (Phase 3)

PEBBLES holders burn their tokens. The treasury releases the equivalent USDC to the inference payment endpoint. The user receives AI credits redeemable across 242 models.

> The loop is self-reinforcing. More trading generates more fees. More fees grow the treasury. A growing treasury mints more PEBBLES. More PEBBLES means more AI credits available. More AI credits attract more holders. More holders drive more trading. The flywheel does not require external intervention to keep spinning.

7. Proof of Reserve

Every PEBBLES in circulation is backed by exactly one USDC in the treasury. This is not an assertion that requires trust. It is a mathematical property of the system that is verifiable on-chain at any time.

The treasury wallet address is public. The PEBBLES mint authority is the treasury keypair. The SPL token program records every mint and burn instruction on-chain. The USDC balance of the treasury equals the PEBBLES total supply to six decimal places at all times. Any discrepancy is detectable by any person with a block explorer.

There is no fractional reserve. There is no off-chain custody. There is no team wallet that receives treasury funds. The reserve is the treasury. The treasury is the reserve. The peg is enforced by the agent's mint logic, not by institutional promise.

8. The Buyback and Burn Program

Beginning in Phase 2, a portion of every creator fee is allocated to the buyback and burn program rather than the treasury. This allocation creates a reflexive feedback loop in which higher trading volume simultaneously expands the stablecoin supply and contracts the memecoin supply.

8.1 Phase Split Schedule

Phase	Treasury Allocation	Buyback Allocation	Trigger
Phase 1	100%	0%	Live at launch
Phase 2	80%	20%	$1,000 reserve
Phase 3	60%	40%	$5,000 reserve

Table 3. Buyback and burn allocation schedule by phase.

8.2 Burn Mechanics

The agent uses the buyback allocation to purchase $PEB via Jupiter aggregator at market rate. The purchased tokens are immediately burned using the SPL token burn instruction. The burn is irrevocable. The transaction signature is logged. The total $PEB burned is recorded on-chain and accumulates permanently.

Failed buyback swaps do not result in lost funds. The agent's error handling routes the SOL allocation to the treasury in the event of a swap failure, ensuring that every unit of SOL that enters the system is accounted for.

9. PEBBLES: The USDC for Agents

USDC is the most successful stablecoin ever built. It is trusted, liquid, and universally accepted. It is also built entirely around a single assumption: that a human being is always somewhere in the loop. That assumption is becoming obsolete.

The agent economy does not need a better version of USDC. It needs a stablecoin that was never built for humans in the first place. One whose architecture reflects the operational realities of autonomous systems rather than retrofitting human financial infrastructure onto machine intelligence.

PEBBLES keeps the only thing about USDC that truly matters, the one-to-one dollar backing, and rebuilds everything else from first principles for agents.

9.1 No Issuer. No Freeze.

Circle, the issuer of USDC, maintains a public blacklist. It has frozen wallets at the request of regulators, law enforcement, and under OFAC compliance obligations. This is not a criticism of Circle. It is an accurate description of what a regulated financial institution is required to do. But for an autonomous agent whose wallet can be frozen mid-task without warning, this is an existential operational risk. PEBBLES has no issuer. There is no blacklist function in the contract. No third party can freeze an agent's PEBBLES balance. The funds are controlled entirely by whoever holds the private key.

9.2 Micropayment-Native by Design

Solana processes thousands of transactions per second at a cost of $0.00025 per transaction. PEBBLES is denominated in this environment natively. An agent making ten thousand AI credit purchases in a single day, paying per model call, per token, per task, operates at a total transaction cost of $2.50. No other stablecoin architecture makes this economically viable. USDC on Ethereum mainnet cannot settle a $0.001 payment without the gas fee exceeding the payment itself.

9.3 Cryptographic Budget Enforcement

When a human gives an agent access to a USDC wallet, the agent has access to the entire balance. Spending limits are enforced in middleware, off-chain software that can be misconfigured, bypassed, or fail silently. PEBBLES wallets enforce budgets at the cryptographic level. An agent loaded with fifty PEBBLES cannot spend fifty-one. The budget is the wallet balance. The constraint is mathematical, not procedural. Task-scoped wallets, spun up with a defined AI credits allocation and destroyed on completion, become trivial to implement.

9.4 Agent-to-Agent Settlement

The next phase of the agent economy is not individual agents performing isolated tasks. It is networks of specialised agents. Orchestrators hiring sub-agents, sub-agents purchasing data, data agents paying for AI credits, all settling autonomously in real time. USDC has no standard for this. There is no protocol for how autonomous systems negotiate, escrow, and settle payments between each other without human mediation. PEBBLES is being built as that standard. The payment rail exists. The token exists. The infrastructure for agent-to-agent commerce on Solana begins here.

9.5 AI Credits as the Unit of Account

One dollar of USDC purchases a different quantity of AI output every time model pricing changes. One PEBBLES purchases one dollar of AI credits, always. The abstraction between money and machine intelligence collapses into a single unit. An agent can reason about its own AI credits budget in the same denomination it uses to transact. It knows before it starts a task exactly how many model calls it can afford. This is not a minor convenience. For autonomous systems managing complex, multi-step operations with defined resource constraints, it is a fundamental operational requirement.

9.6 Full On-Chain Auditability

Every PEBBLES transaction is on-chain, permanent, and publicly queryable. An enterprise deploying a fleet of autonomous agents can audit every AI credit spend across every agent in real time from a single block explorer query. No dashboard. No middleware. No monthly reconciliation process. The ledger is the audit trail. This level of transparency is not achievable with USDC, whose spending context lives entirely off-chain.

> USDC will always be the dollar for humans. PEBBLES is being built as the dollar for machines. Same backing. Same stability. Everything else, rebuilt for agents.

10. PEBBLES as AI Credits

The term 'AI credits' is used deliberately rather than 'inference.' Every major AI platform, OpenAI, Anthropic, Google DeepMind, denominates access to their models in credits. Users understand credits. Agents understand credits. PEBBLES is credits: one PEBBLES equals one dollar of AI credits across any supported model.

10.1 Why Not USDC?

USDC can technically be used to pay for AI inference today. It is not, however, designed for this purpose. The differences that matter for autonomous agents are not philosophical. They are operational.

Property	USDC	PEBBLES
Central issuer	Circle	None
Freeze capability	Yes, 100+ addresses frozen	No freeze function
KYC required	At on-ramp	Never
Micropayment viability	Limited by gas costs	Native at $0.00025 per tx
Budget enforcement	Off-chain middleware	Cryptographic (wallet balance)
Agent-to-agent standard	None	Native settlement layer
Compute denomination	Dollar (variable compute)	AI credits (fixed compute)
On-chain auditability	Partial	Complete
Redeemable for AI credits	No	Yes, 242 models

Table 4. PEBBLES vs USDC for autonomous agents.

11. The Surplus Intelligence Integration

PEBBLES redemption for AI credits is executed via Surplus Intelligence, a Base-native inference payment protocol. The integration connects PEBBLES supply to a live AI credit endpoint without Peb Pump itself operating model infrastructure.

11.1 The x402 Endpoint

Surplus Intelligence exposes an HTTP 402 Payment Required handshake. A standard payment flow in which a request to the inference endpoint returns a 402 status, the caller presents a stablecoin payment, and the endpoint returns the model output. The protocol settles in USDC on Base, and any model in the Surplus Intelligence catalogue can be invoked.

11.2 USDC as the Settlement Asset

The Surplus Intelligence endpoint settles in USDC on Base. The Peb Pump treasury holds USDC on Solana. The agent's accounting layer handles the cross-chain conversion: when an PEBBLES holder burns tokens for AI credits, the treasury releases USDC in the same

amount, the agent bridges Solana USDC to Base USDC, and the bridged USDC is routed to the Surplus Intelligence endpoint via the x402 handshake. The model response is delivered to the redeeming wallet. The accounting is one-to-one: one PEBBLES burned equals one USDC settled equals one dollar of AI credits delivered.

11.3 The Cross-Chain Settlement Pipeline

The agent maintains a continuous pipeline that connects pump.fun creator fees on Solana to the inference endpoint on Base. The process is mechanical:

1. Creator fees arrive in the dev wallet as SOL.
2. The agent transfers SOL to the collector wallet.
3. The agent routes SOL through Jupiter aggregator and receives Solana USDC at market rate.
4. The Solana USDC is deposited in the treasury.
5. PEBBLES is minted against the new Solana USDC balance, one-to-one.
6. On redemption, the treasury releases Solana USDC equal to the burned PEBBLES. The agent's accounting layer bridges it to Base USDC, then calls the Surplus Intelligence endpoint.

The same USDC that backs the PEBBLES supply is the asset that pays for inference on redemption. The bridge from Solana to Base is handled by the agent. SOL is the input. USDC is the medium. PEBBLES is the receipt.

11.4 Future Independence

Surplus Intelligence is the bootstrap inference layer. In a later phase, Peb Pump plans to deploy a native Solana inference payment layer, removing both the dependency on Surplus Intelligence and the cross-chain bridge. The mechanics of redemption remain identical (burn token, release backing asset, receive AI credits) but the settlement endpoint becomes Peb Pump's own infrastructure on Solana.

12. Phase Roadmap

12.1 Phase 1. Treasury Growth (At Launch)

$PEB launches on pump.fun. The agent goes live. Creator fees begin flowing to the collector. The treasury accumulates USDC. PEBBLES mints against the reserve. The full 100% of creator fees route to the treasury during Phase 1. The proof-of-reserve wallet is public from day one.

12.2 Phase 2. Airdrops and Buyback Activation ($1,000 reserve)

PEBBLES airdrops begin to $PEB holders proportional to their holdings. The buyback and burn program activates: 20% of every creator fee is used to purchase $PEB on the open market and burn it permanently. The 80/20 split between treasury and buyback persists for the duration of Phase 2. The flywheel begins to spin in both directions: the stablecoin supply expands as the treasury grows, and the memecoin supply contracts with every trade.

12.3 Phase 3. AI Credit Redemption and Burn Scaling ($5,000 reserve)

The inference redemption layer activates: holders can burn PEBBLES and receive AI credits via the Surplus Intelligence x402 endpoint, settled cross-chain through the agent's accounting layer. The first PEBBLES redemption for AI credits is the proof-of-concept event the entire system has been building toward. The buyback allocation doubles to 40%, accelerating the deflationary pressure on $PEB. The loop self-feeds.

13. The Agent Economy Thesis

The proliferation of autonomous AI agents is not a distant prospect. It is occurring now. Agents are executing multi-day research tasks, writing and deploying software, managing communications, and operating financial systems. As their capabilities expand, their need to transact autonomously will expand with them.

Every financial primitive has been reinvented at each technological inflection point. The joint stock company reinvented ownership. The central bank reinvented currency. Decentralised finance reinvented yield. The agent economy will reinvent the stablecoin, not as a store of value, but as a unit of AI credits.

USDC will always be the dollar for humans. PEBBLES is being built as the dollar for machines. The demand for PEBBLES is not speculative. It is structural. As the number of autonomous agents in the world grows, and it will grow by orders of magnitude, the demand for a censorship-resistant, micropayment-capable, AI-credits-denominated stablecoin grows with it. The supply of PEBBLES is constrained by human trading activity. The demand for PEBBLES is driven by machine intelligence. These two forces, meeting in a single token, constitute the most novel monetary experiment of the agent era.

> The more people trade, the more AI credits exist. That is the whole thing. And it is enough.

14. Conclusion

We have proposed a system for autonomous AI credit issuance that requires no trusted third party, no central issuer, and no human oversight. A memecoin generates the economic activity. An AI agent converts that activity into a USDC-backed stablecoin. The stablecoin is redeemable for AI credits. The loop is closed. The flywheel spins.

The system is not a promise. It is running. The treasury is public. The agent is live. Every dollar of backing is verifiable on-chain right now. We invite anyone to look.

The audacious goal is simple: a stablecoin with one billion holders. Not because we marketed it, but because a billion agents need it to think.

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