Cream Pad: Transforming Token Launches with Dutch Dual-Track Auctions

Cream Pad

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Abstract

Abstract: Cream Pad is a cutting-edge asset launchpad on Sonic SVM, redefining token distribution with its Dutch Dual-Track Auction. This innovative mechanism merges a descending price curve with real-time market feedback, delivering fair, efficient, and transparent price discovery. Designed to prevent manipulation and adapt to market dynamics, Cream Pad's multi-round auction structure offers flexibility for token purchases, empowering both projects and investors. It's the future of market-driven token launches.

1 Introduction

In the rapidly evolving world of cryptocurrency, the ability to effectively price and distribute assets is critical for both project teams and investors. Traditional methods of acquiring liquidity for crypto assets, such as fixed-price offerings or bonding curves, often face challenges in addressing the complexities of market dynamics. These approaches can lead to inefficiencies in price discovery, misaligned token valuations, and uneven participation, ultimately hindering the growth and sustainability of crypto projects.

Cream Pad emerges as a solution to these challenges, introducing an innovative Dutch Dual-Track Auction mechanism that redefines how assets are priced and distributed. By combining the structured descending price curve of a Dutch Auction with a dynamic, market-driven feedback mechanism, Cream Pad creates a balanced and efficient price discovery process. This hybrid approach ensures fair participation, mitigates risks of manipulation, and aligns token prices with real-time market demand.

This whitepaper outlines the motivations behind Cream Pad, the limitations of existing liquidity acquisition methods, and the groundbreaking mechanisms that make Cream Pad a transformative solution for asset issuers and investors alike. Through its dual-track auction model, Cream Pad not only enhances

price discovery but also fosters a more transparent, equitable, and sustainable ecosystem for crypto asset distribution.

Cream Pad is poised to become a cornerstone of the Sonic SVM ecosystem, empowering projects to launch assets with confidence and enabling investors to participate in a rational and transparent manner. This whitepaper serves as a comprehensive guide to understanding Cream Pad's value proposition and its potential to revolutionize the crypto asset launch process.

2 Motivations

2.1 Current Approaches to Liquidity Acquisition

From a general perspective, crypto assets typically gain liquidity through two primary methods:

- **Fixed-Price Offerings**: Establishing an initial token price and securing liquidity through community or institutional investors.
- **Bonding Curves and AMM Pools**: Attracting external liquidity by creating bonding curves or providing initial liquidity to form Automated Market Maker (AMM) pools.

While these methods cater to different needs in asset issuance, they share a common limitation: both rely on an initial token pricing process that may not fully incorporate robust market-driven price discovery. This can result in inefficiencies, such as mispriced assets or insufficient liquidity.

2.2 The Need for a Better Solution

The current market landscape highlights a gap in effective price discovery mechanisms that balance the needs of asset issuers and investors. Fixed-price offerings often require precise macroeconomic judgment, which can be challenging to achieve consistently, while bonding curves may be susceptible to manipulation and volatile price swings.

Cream Pad aims to address these challenges by introducing a dynamic, market-driven pricing mechanism that offers greater flexibility for asset issuers and a fairer, more rational price discovery process for liquidity providers.

3 Problems with Existing Mechanisms

3.1 Fixed-Price Offerings

- **High Barrier to Entry**: Fixed-price offerings often demand a deep understanding of macroeconomic conditions, which may not always be fea-

sible for all projects.

- **Limited Market Feedback**: Without a robust market-driven price discovery process, projects risk either failing to secure liquidity or obtaining it at a price that may not align with market realities.
- **Rigid Pricing Structure**: Fixed prices do not adapt to real-time market demand, potentially leading to a misalignment between token value and investor interest.

3.2 Bonding Curves

- **Potential for Manipulation**: Bonding curves can be exploited by insiders who purchase tokens at lower prices and artificially inflate values, potentially harming later participants.
- **Volatility and FOMO-Driven Behavior**: The simplistic price discovery mechanism often leads to irrational investor behavior, resulting in extreme price fluctuations and unstable liquidity.

3.3 Conclusion

The absence of a more effective price discovery mechanism creates significant challenges for both asset issuers and investors. Cream Pad addresses these issues by introducing a dynamic, feedback-driven auction system that ensures fair and efficient token distribution.

4 Product Introduction

Cream Pad is an asset launchpad built on Sonic SVM, designed to enhance price discovery and ensure fair token distribution through an optimized Dutch Dual-Track Auction mechanism. This innovative approach combines the principles of Dutch auctions with dynamic feedback mechanisms to create a more efficient and market-driven pricing process.

4.1 Dutch Dual-Track Auction: A Hybrid Approach

Cream Pad's auction mechanism introduces a **Dutch Dual-Track Auction**, a hybrid model that combines the traditional Dutch Auction's descending price curve with a dynamic, market-driven feedback mechanism. This dual-track approach ensures a balanced and efficient price discovery process, addressing the limitations of conventional methods.

Track 1: Dutch Auction's Descending Price Curve
The first track follows the classic Dutch Auction model, where the token price starts at a higher level and gradually decreases over time.

Track 2: Market Feedback-Driven Price Adjustment
The second track introduces a dynamic feedback mechanism that adjusts prices based on real-time market behavior.

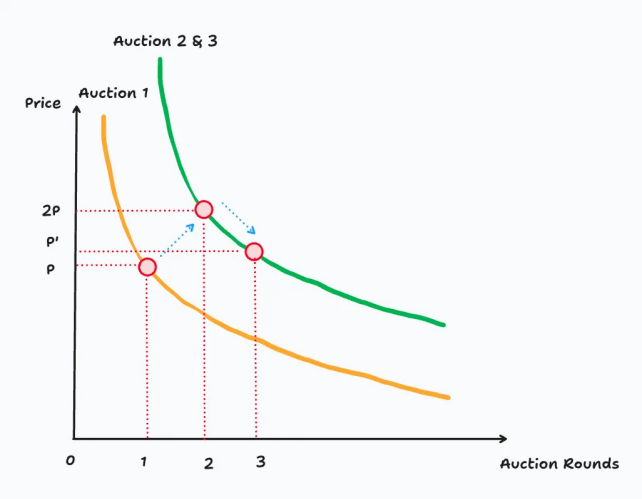

Figure 1: Price Adjustment Mechanism

4.1.1 Auction Structure & Mechanism

Multi-Round Auction Structure
Cream Pad employs a **multi-round auction structure**, designed to facilitate gradual price discovery while allowing flexibility in token purchases. Here's how it works:

- **Token Allocation per Round**:
  - The total token supply is divided into multiple auction rounds (e.g., x rounds). Each round has a **predefined allocation** of tokens.
- **Flexible Purchasing**:
  - Participants can purchase **any quantity of tokens** within the allocated amount for each round. Importantly, the **actual amount purchased** by users can exceed the predefined allocation if demand is high, ensuring that the auction dynamically adapts to market behavior.

Auction Mechanism: Dynamic Price Adjustment Based on Demand-Supply Ratio

- **Demand-Supply Ratio Calculation**:

– At the end of each auction round, the system calculates the **demand-supply ratio** as follows:

$$Ratio = \frac{CumulativeTokensSold}{ExpectedTokensSold}$$

– Where:

* **Cumulative Tokens Sold**: The total number of tokens sold up to the current round.
* **Expected Tokens Sold**: The target amount of tokens expected to be sold by the current round, calculated as:

$$ExpectedTokensSold = CurrentRoundNumber \times \frac{TotalTokenSupply}{TotalAuctionRounds}$$

- **Price Adjustment Logic**:

– **If Ratio $\geq$ 1**: Indicates that **demand exceeds supply**. The price for the next round will **increase moderately** to better reflect market dynamics and reward early participants.

– **If Ratio $<$ 1**: Indicates that **supply exceeds demand**. The price for the next round will **continue to decrease**, following the descending price curve of the Dutch Auction.

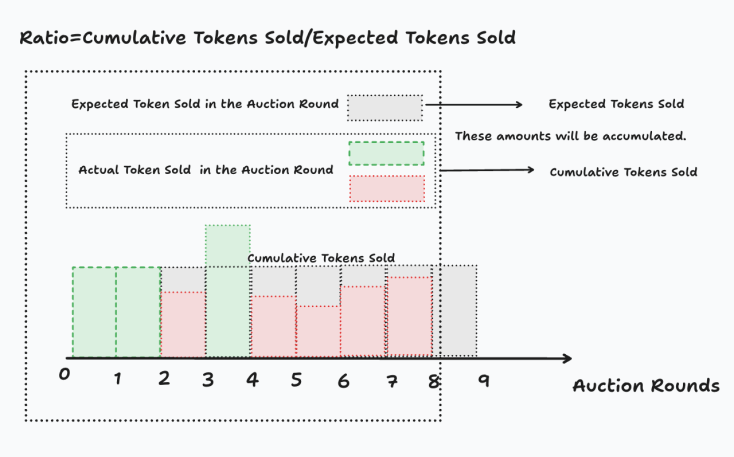

Figure 2: Demand-Supply Ratio and Price Adjustment

By integrating these two tracks, Cream Pad's Dutch Dual-Track Auction offers a robust solution that mitigates the risks of mispricing, manipulation, and volatility, while fostering a fair and transparent token distribution process.

4.2 Unsold Token Handling Mechanism

To ensure the full distribution of tokens and promote long-term ecosystem growth, Cream Pad implements a **two-tiered approach** for handling any unsold tokens at the end of the auction. This mechanism balances fairness for participants with sustainable development for the ecosystem.

4.2.1 50% Airdrop to Auction Participants

- **Proportional Distribution**: The unsold tokens are **airdropped proportionally** to all participants based on their contribution to the auction.
- **Fairness and Incentivization**: This approach rewards active participants and ensures that those who contributed to the auction receive a proportional share of the unsold tokens.

4.2.2 50% Transferred to Vault for Ecosystem Development

- **Lock-Up and Vesting**: The remaining 50% of unsold tokens are **transferred to a vault** and subject to a **1-year lock-up period**, followed by a **1-year linear vesting schedule**.
- **Ecosystem Growth**: These tokens are earmarked for **ecosystem development**, including community incentives, partnerships, and other initiatives that drive long-term value for the platform and its users.

4.3 Pricing Curve

4.3.1 Track 1: Dutch Auction's Descending Price Curve

The baseline price follows a predefined descending trajectory over time, independent of market activity. This track ensures a predictable price floor and auction structure. Two decay models are supported:

Feature	**Linear Decay**	**Exponential Decay**
Global Formula	$P(t) = P_0 - k_0 \cdot t$	$P(t) = P_0 \cdot e^{-\lambda_0 t}$
Iterative Update	$P(t) = P(t-1) - k_0 \cdot \Delta t$	$P(t) = P(t-1) \cdot e^{-\lambda_0 \cdot \Delta t}$
Parameters	$k_0 = \frac{P_0 - P_{t_{\max}}}{t_{\max}}$	$\lambda_0 = \frac{\ln P_0 - \ln P_{t_{\max}}}{t_{\max}}$

4.3.2 Track 2: Market Feedback-Driven Price Adjustment

Track 2 dynamically adjusts the baseline price based on **sales performance**, ensuring prices reflect real-time demand. A **Boost Factor** quantifies how sales compare to predefined targets:

$$boost = \alpha \cdot \frac{S(t-1)}{N_{target}(t-1)} \cdot I(S(t-1) \geq N_{target}(t-1)) \tag{1}$$

Key Components:

- $I(\cdot)$: Indicator function where $I\left(\frac{S(t-1)}{N_{target}(t-1)}\right) = 1$ if $\frac{S(t-1)}{N_{target}(t-1)} \geq 1$, else 0
- α: Boost intensity parameter controlling adjustment magnitude
- $S(t-1)$: Cumulative sales through previous auction rounds
- $N_{target}(t-1)$: Expected cumulative sales through previous rounds

4.3.3 Combined Pricing Model

Feature	**Linear Model**	**Exponential Model**
Global Formula	$P_t = P_0 - k_0 \cdot \sum_{k=0}^{t}(1 - boost(k))$	$P_t = P_0 \cdot \exp\left(-\lambda_0 \cdot \sum_{k=0}^{t}(1 - boost(k))\right)$
Iterative Update	$P_t = P_{t-1} - k_0 \cdot (1 - boost)$	$P_t = P_{t-1} \cdot e^{-\lambda_0 \cdot (1-boost)}$
Boost ≥ 1	Linear price increase	Exponential price increase
Boost $= 0$	Linear price decrease	Exponential price decrease

Key Benefits:

- **Predictability**: Track 1 ensures structured price floor
- **Responsiveness**: Track 2 adapts to real-time sales data
- **Stability**: Boost Factor prevents overshooting adjustments

4.3.4 Intuitive Understanding of the Boost Factor

The Boost Factor rewards strong sales by **slowing or reversing price decay**, visualized through two mechanisms:

- **Time Travel Delay** (Rightward Shift):
  - Pricing curve slides *right* along time axis
  - *Example*: Original \$50 price at Day 5 becomes \$60 (Day 3's price)
  - Mechanism: Pricing curve shifts right by α time steps
- **Baseline Stepback** (Leftward Shift):
  - Price "rewinds" to earlier point on original curve
  - *Example*: Original \$70 price at Day 4 resets to \$80 (Day 2's price)
  - Mechanism: The price reverts to an earlier point on original pricing curve by α time steps

4.4 Key Benefits

4.4.1 For Asset Issuers

- **Flexibility**: The multi-round structure allows issuers to adapt to market demand dynamically.
- **Efficient Price Discovery**: The dynamic feedback mechanism ensures that token prices align with real-time market conditions.
- **Reduced Risk**: By avoiding fixed-price rigidity, issuers can mitigate the risk of mispricing and liquidity shortfalls.

4.4.2 For Investors

- **Fair Participation**: The auction mechanism is designed to prevent manipulation and ensure a level playing field for all participants.
- **Rational Pricing**: Investors benefit from a transparent, market-driven price discovery process that minimizes FOMO-driven volatility.
- **Accessibility**: The descending price curve in undersold rounds provides opportunities for late entrants to participate at reasonable prices.

5 Roadmap

Cream Pad's development and rollout are structured into two distinct phases, each designed to progressively enhance the platform's functionality, accessibility, and decentralization. The roadmap reflects our commitment to creating a robust, user-friendly, and permissionless asset launchpad that empowers both project teams and individual users.

Phase 1: Permissioned Asset Launch (Initial Stage)

In the initial phase, Cream Pad will operate as a permissioned platform, focusing on establishing a strong foundation for asset issuance and liquidity acquisition. During this stage, the team will actively onboard projects and facilitate asset launches through a curated approach.

Phase 2: Permissionless Asset Launch (Open Platform)

In the second phase, Cream Pad will transition to a fully permissionless platform, democratizing access to asset issuance and liquidity creation. This phase represents the realization of Cream Pad's vision as a decentralized, open ecosystem for crypto asset distribution.

6 Conclusion

Cream Pad represents a transformative leap in the world of token launches, combining innovation, fairness, and efficiency to redefine how assets are distributed on the Sonic SVM ecosystem. By introducing the Dutch Dual-Track Auction mechanism, Cream Pad addresses the limitations of traditional methods, offering a market-driven, transparent, and manipulation-resistant approach to price discovery.

The platform's multi-round auction structure ensures flexibility for participants while dynamically adapting to real-time demand, creating a rational and equitable environment for both asset issuers and investors. Cream Pad's commitment to fairness and transparency is further reinforced by its phased roadmap, transitioning from a permissioned to a fully permissionless platform, democratizing access to token launches.

As the crypto landscape continues to evolve, Cream Pad stands as a cornerstone of the Sonic SVM ecosystem, empowering projects to launch with confidence and enabling investors to participate in a fair and transparent manner. With its innovative design and unwavering focus on market-driven principles, Cream Pad is not just a launchpad—it's the future of token distribution, setting a new standard for the industry.