Yuzu Lottery Spec [PRD]

Yuzu Lottery Product Specification

Overview

The Yuzu Lottery is a decentralized raffle system where users spend Yuzu tokens in exchange for raffle tickets. Each ticket grants a chance to win a share of a designated prize pool. The lottery will run as a modular, singular event, meaning multiple lotteries can occur in parallel without interference. Winners are selected based on a provably fair mechanism.

Key Features

- **Yuzu Token Entry**: Users spend Yuzu tokens to receive raffle tickets.
- **Ticket Allocation**: The number of tickets received is proportional to the Yuzu spent (e.g., 1 Yuzu = 1 Ticket, or a dynamic pricing model).
- **Prize Pool**: A fixed or dynamic prize pool distributed among a set number of winners.
- **Randomized Winner Selection**: Transparent and verifiable selection process using Chainlink VRF or another fair RNG mechanism.
- **Multiple Prize Tiers**: Different winner categories (e.g., Grand Prize, Secondary Prizes, Consolation Prizes).
- **Non-Custodial & Automated Payouts**: Winning tickets receive prizes directly in their wallets.
- **Time-Limited Draws**: Each lottery operates within a fixed period before drawing winners.
- **On-Chain Transparency**: All transactions and results are verifiable on-chain.

Yuzu Burn Mechanism

The Yuzu Lottery system ensures that all spent Yuzu is permanently removed from circulation, contributing to the token's scarcity and long-term value. Instead of directly transferring Yuzu to a burn address, the system will **consume** Yuzu within the smart contract, ensuring proper tracking through existing event logs.

Burn Process

1. **Lottery Entry & Ticket Purchase**
   - Users spend Yuzu tokens to receive raffle tickets.
   - The smart contract registers the transaction and the total Yuzu spent.
   - A `Consumed` event is emitted in `Points.sol`, logging the Yuzu burned.
2. **Burn Execution via Consumption**
   - The contract calls the `consume` function within `Points.sol`, specifying:
     - `operator`: The lottery contract.
     - `reasonCode`: A unique identifier for lottery transactions.
     - `holder`: The user spending Yuzu.
     - `amount`: The number of Yuzu tokens spent.
   - This ensures the Yuzu is **burned via the consumption mechanism**, removing it from circulation.
3. **Transparency & Verification**
   - The `Consumed` event logs all burned Yuzu transactions.
   - On-chain data tools can track total Yuzu burned over time, ensuring full transparency.

Impact of Burning Yuzu

- **Deflationary Effect**: Reducing circulating supply supports Yuzu's long-term value proposition.
- **Encourages Participation**: Players contribute to ecosystem health while engaging in raffles.

- **Sustainable Incentives**: With each lottery, a portion of Yuzu supply is locked away, preventing excessive inflation.

User Flow

1. **Entry**
    - Users connect their wallet.
    - Select the amount of Yuzu to spend on tickets.
    - Confirm transaction to receive raffle tickets.
2. **Ticket Allocation**
    - Users receive tickets based on the amount of Yuzu spent.
    - Ticket distribution is recorded on-chain.
3. **Lottery Draw**
    - At the end of the draw period, winners are selected randomly.
    - A Chainlink VRF or similar mechanism ensures fairness.
4. **Prize Distribution**
    - Prizes are automatically distributed to winning addresses.
    - Users can claim prizes manually if required.

Technical Implementation

- **Smart Contract Components**:
    - Ticket Issuance: Uses an **ERC-20 token** to represent raffle tickets instead of ERC-721 NFTs.
    - RNG Selection: Uses a verifiable randomness function (VRF) for draws.
    - Prize Distribution: Automates payouts to winning addresses.
    - Burn Execution via `consume()`: Ensures Yuzu is burned properly through the Yuzu Points contract.
- **Frontend UI**:

- Intuitive interface for purchasing tickets and viewing results.
- Leaderboard or historical results display.
- Dashboard to track total Yuzu burned.

Open Questions & Considerations

- **Fixed vs. Variable Prize Pool**: Should the prize pool be a fixed amount or determined by the total Yuzu spent?
- **Burn vs. Redistribution**: Spent Yuzu will be burned via consumption.
- **Frequency**: Each lottery will be a modular/singular event, allowing multiple lotteries to run in parallel.
- **Fee Structure**: Should there be a fee deducted from entries for sustainability?

Next Steps

- Finalize prize structure and allocation.
- Implement `consume()` logic in the Yuzu Lottery contract.
- Develop frontend and test the user flow.
- Conduct smart contract audits and security reviews.
- Deploy beta version and gather user feedback.

Potential Raffle Prizes

- Capy Merch
- Ecosystem Tokens
- Other rewards TBD