Phoenix Gold Network
Technical Overview
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1. Introduction
The Phoenix Gold Network DAO issues digital assets (Cyphers) in the form of Non-Fungible Tokens that act as claims against physical gold held in a **decentralized custody network**. Each Cypher, crafted on the Polygon blockchain, embodies a specific quantity of .999 purity gold, facilitating easy redemption at participating gold shops and custodians worldwide through a meticulously designed Web3 smart contract interaction process. The Cypher can access other liquidity services in the Phoenix Network while also acting in a manner similar to a gold backed stable coin.

2. PGN Foundations
The network has three layers that interact with each other to produce the desired utility and value to Cypher holders. The first layer is the decentralized physical gold custody system made up of a worldwide network of Phoenix Nodes and Phoenix Custodians interacting with smart contracts using Phoenix Web3 processes and apps. This network ensures that no central source controls the supply of gold to, in or out of PGN.

The second layer of the network is a series of smart contracts that enable holders of Phoenix Cyphers that represent claims on the gold in the network to sell their Cyphers instantly or to exchange the Cypher for the specific amount of physical gold stated in its properties at any participating gold shop(s) or custodian in the network worldwide. These Cyphers have properties similar to warehouse receipts, bearer bonds, title deeds and stable coins rolled in one.

The third layer relates the the Phoenix Gold Coin (PGC), the native token of the network operating as a governance token, a utility token and as a way to measure the socio-economic value of the network. The coin can be mined in a unique virtual mining process, represents voting rights in the DAO governing the network, is required to be staked by gold shops participating in the network and is also used as a secure store of wealth and a currency worldwide. Beginning in 2025 the PGC token is the only way to buy Cyphers and gold in the network.

3. Decentralized Custody
PGN employs a multi-layered approach to decentralize custody, mitigating counterparty and other risks associated with centralized control and providing a secure framework for digital gold ownership.

Layer 1: Independent Phoenix Network Custodians
Independent Custodians within the Phoenix Network securely hold gold in custody on behalf of the Phoenix Network DAO, which issues the Cyphers and buys gold with the proceeds. These Custodians are dispersed geographically, avoiding concentration of gold storage under a single legal entity. This geographical dispersion enhances security by minimizing legal and business risks associated with storing gold in a single location.

Layer 2: Funds in Smart Contracts
Funds generated by borrowing against gold holdings are placed in smart contracts. These funds are exclusively accessible to Cypher holders. This unique "melting of gold to the blockchain" allows gold shops, in collaboration with Cypher holders, to participate in the worldwide redemption process. The Cypher is exchanged for gold at any participating gold shop in a secure Web3 process that burns the Cypher when gold is received by the Cypher holder and releases funds from the smart contract to the wallet of the gold shop simultaneously.

Layer 3: Community Trusted Phoenix Nodes
Phoenix Nodes that stake PGC and gain trust votes from the PGC holders play a pivotal role in the decentralized custody model. These Nodes can sell gold to PGN within the limits set by the PGC community and hold it on behalf of PGN, essentially acting is Cypher issuers for the network. The amount of gold held by each Phoenix Node is transparently recorded on the blockchain. This decentralized validation mechanism ensures the integrity and reliability of each Phoenix Node in the network and prevents any central authority from stopping the initial process of gold purchase in exchange for Cyphers.

In summary, Phoenix Gold Network's three-layered approach to custody not only enhances security and transparency but also actively involves the community through staking, ratings, and participation in the redemption process. This unique model sets PGN apart in the digital gold landscape, offering a decentralized and secure environment for the ownership, custody and exchange of physical gold.

4. Phoenix Cyphers

Cyphers are non-fungible tokens that represent a legal claim to a specified quantity of .999 gold held in the Phoenix Network. Holders can redeem physical gold at Phoenix Nodes or with Phoenix Custodians. The Cyphers act in analogous ways to warehouse receipts, title deeds, bearer bonds and stable coins, all rolled into one. The Cypher can interact with the various smart contracts that exist in the Phoenix network that provide liquidity services, market services and payment services. The Cyphers are securely stored in the Phoenix Web3 wallet provided to each Cypher buyer, or they can transfer the Cypher to their own external wallet. Phoenix Cyphers are backed 100% by physical gold in the custody of the Phoenix Network DAO via Phoenix Custodians and Phoenix Nodes with published reserves made available in a similar manner to USDC.

Cypher holders within the Phoenix Gold Network enjoy access to several powerful smart contract enabled services:

***Staking**:* Users can choose to stake their Cyphers, locking them in a smart contract for a predetermined period. In return, they receive Phoenix Gold Coins (PGC) as rewards, a feature traditionally absent from physical gold ownership. The staked gold is not put at risk or invested, staking rewards come from PGC rewards at no cost with no dependence on actions or skills of third parties.

Redemption: The ability to redeem their Cyphers for physical gold is a fundamental aspect of PGN. Cypher holders can review a list of independent gold shops and providers who have committed to exchanging these Cyphers for physical gold in the specified quantity, creating a transparent and secure redemption process.

Spending: Phoenix Gold Network extends the practical utility of Cyphers by allowing users to spend them at participating merchants. Cyphers are divided into smaller Cyphers at the point of sale in real time and securely transferred. This feature eliminates the traditional hurdles associated with conducting point of sale transactions in physical gold.

Burning for PGC: Cyphers can be burned (destroyed) in exchange for PGC, the native utility token of the Phoenix Gold Network. The amount of PGC is related not to the price of PGC or to the price of gold, but rather is set in the burning smart contract as a ratio of gold ounces burned to PGC. This becomes a desirable option in the event that the value of the PGC on DEFI marketplaces that can be received from the burn exceeds the value of the gold claim the Cypher represents agains the network.

Exchanging: The Phoenix Network maintains a liquidity pool that supports exchange of the Cypher for PGC, USDC, wETH or MATIC.

Secondary Market and Transfers: Cypher holders have the freedom to trade their Cyphers on NFT marketplaces or transfer them directly to other wallets.

5. Phoenix Node Incentives

Gold shops around the world can join the Phoenix Network by staking PGC. Upon acceptance to the network by vote of the Phoenix DAO, they are contractually required to redeem Cyphers for gold equal to the value of the PGC they staked at the time they staked it when presented with Cyphers by holders. They can set a fee on their redemption service that must be paid by the Cypher holder, and the Cypher holder also can rate the service of the Phoenix Node for others to see in the Phoenix Web3 app. When they redeem the Cypher, the Node receives payment for the quantity of gold stated in the Cypher immediately from the smart contract.

Incentive for gold shops, sellers and custodians to join PGN

- **Increased Gold Sales.** The Phoenix Network serves as a conduit for gold sales, driving business to gold shops.
- **Free New Customer Acquisition.** Staked and DAO-approved gold shops gain visibility within the Phoenix Gold Network community. They appear in a list within the Phoenix Web3 application, enhancing their market presence and credibility.
- **Support of PGN.** Because they have a stake the network through acquisition of PGC, and because Phoenix is very good for gold in that it makes gold more usable in commerce and more secure in custody, that is a benefit to all in the gold community worth supporting.

6. Phoenix Cypher to Gold Redemption Process

Phoenix Cypher holders gain access through the Phoenix Web3 App to a list of participating gold shops obligated to exchange Cyphers for physical gold, ranging from international gold sellers and custodians to local gold shops. The redemption process is streamlined: Cypher holders initiate the transaction, the gold shop confirms acceptance through the Phoenix Web3 application. During the over-the-counter redemption, the Cypher is burned, triggering the contractual obligation of the gold shop to provide the gold while simultaneously transferring to the shop wallet funds from the Phoenix redemptions smart contract in the amount equal to the quantity and quality of gold provided at spot price at the time of the transaction. The entire transaction is recorded on the blockchain, including signed receipts, securing the process and providing transparency on network transactions.

Discovering Gold Shops: Phoenix Cypher holders have the privilege of accessing a comprehensive list of independent gold shops that have committed to exchanging their Cyphers for physical gold or who are holding gold on behalf of the network. This diverse array of participating gold providers includes both internationally recognized giants and smaller, local shops, each catering to the unique preferences and needs of gold holders. PGN ensures inclusivity by accommodating gold shops with varying levels of inventory. The shops are ratable by the Cypher holder depending on the quality of the services provided, providing further value to future Cypher holders when deciding which gold shop(s) to make their exchange at.

The Cypher for Gold Redemption Process: The process of redeeming Cyphers for physical gold is designed to be straightforward, secure, and transparent:

- **Initiation**: The holder of an Cypher initiates the redemption process by signaling their intent to exchange their digital asset for physical gold. This interaction with the smart contract triggers the redemption sequence.
- **Shop Acceptance**: On the other side of the transaction, the chosen gold shop interacts with the smart contract through the Phoenix Web3 application. Here, the gold shop declares its willingness to provide either the full or a partial amount of gold specified in the Cypher.

- **Partial Redemption**: In cases where partial fulfillment is necessary, the smart contract automatically divides the Cypher into multiple smaller Cyphers, each representing a portion of the original gold quantity. This ensures a seamless process for users and gold shops alike.
- **Burning the Cypher**: Prior to receiving the physical gold, the Cypher holder is prompted to burn (destroy) their Cypher. This action is the trigger for the contractual obligation of the gold shop to be enforced. The burned Cypher represents the fact that the Cypher holder has fulfilled their part of the transaction.
- **Gold Handover**: Once the Cypher is burned, the gold shop is legally bound to provide the corresponding physical gold to the former Cypher holder. This ensures that every Cypher redeemed results in the transfer of its associated physical gold, reinforcing trust in the system. The Gold Shop is required to obtain a signed receipt that they have handed the physical gold specified in the blockchain record to the former Cypher holder.
- **Immutable Blockchain Records:** All aspects of the redemption transaction are scrupulously recorded on the blockchain. This immutable ledger serves as a comprehensive legal record of the entire process, capturing every step from offer to acceptance and performance. This blockchain-based transparency bolsters user confidence and guarantees the integrity of each transaction.
- **Receipts for Accountability:** To further safeguard the interests of users, gold shops are required to obtain signed receipts upon handing over the physical gold. These receipts serve as critical documentation in the event that a former Cypher holder disputes the receipt of their gold. This dual-layered approach, combining blockchain records and physical documentation, reinforces the accountability of gold shops.
- **Standard Gold Shop Practices:** It's important to note that while PGN provides a secure and transparent process for converting Cyphers to physical gold, the standard practices of gold shops still apply for the physical handover of gold. This ensures that all legal and customary procedures associated with gold transactions are followed, providing users with additional layers of protection. Any fees specified by the gold shop in the Web3 app must be paid separately by the Cypher holder as part of the redemption process.

7. Phoenix Network Liquidity Services

Phoenix also has enabled smart contracts that will let the holder of a Phoenix Network Cypher sell the Cypher to the smart contract at spot price instantly. The liquidity pool for this service is funded from funds borrowed against the physical gold that PGN holds in custody. The service is available while there is liquidity in the pool, and each gold sale adds liquidity to this pool. The Cypher holders with the highest ratio of PGC ownership to Cypher ownership have priority for use of this service.

Cypher holders can also exchange their Cyphers for PGC (which in turn can be exchanged for wETH or USDC in the Uniswap liquidity pool), and PGC liquidity on Uniswap is also increased with each gold sale. Cyphers can also be sold privately, and in some cases gold shops may offer to buy the Cyphers rather than redeem them.

8. Facilitating Gold Commerce
It is widely recognized that many businesses around the world would eagerly embrace gold as a form of payment if the logistical challenges associated with physical gold could be surmounted. Measuring, validating, storing, and handling physical gold can be cumbersome, costly, and fraught with security concerns. These challenges have historically deterred businesses from embracing gold as a form of payment. PGN gives an easy way to accept payment in gold via the Cypher.

PGN's Solution: Gold Cypher Payments: The Phoenix Gold Network offers an elegant solution to this longstanding predicament. Through "The Phoenix Gold Spending Smart Contract," PGN facilitates the acceptance of gold payments by merchants worldwide, rendering the logistics of physical gold transactions obsolete.

The Phoenix Web3 Application Merchant Pay System: The Phoenix Web3 application, at the core of PGN's ecosystem, features a merchant pay system that allows Cypher holders to initiate transactions with participating merchants. This system seamlessly integrates digital gold Cyphers into everyday commerce.

Merchant Visibility: Within the Phoenix Web3 application, Cypher holders have access to a comprehensive list of participating merchants. This transparency ensures that users can make informed decisions about where to spend their gold-backed Cyphers.

Initiating Payment: To initiate a payment using gold-backed Cyphers, the holder simply selects the desired merchant within the app and initiates a payment request. This user-friendly process mirrors conventional digital payment experiences, making it accessible to a broad audience.

Breaking Down Cyphers: The smart contract executes a pivotal function by breaking down the Cypher into smaller, more manageable components based on the transaction's value. For instance, if an Cypher holder possesses an Cypher worth 100 USD in gold at the time of purchase but needs to make a 5 USD transaction, the smart contract will split the Cypher into two: one with a quantity of gold equal to 95 USD and the other with a quantity of gold equal to 5 USD.

Payment Execution: The Cypher with a quantity of gold equal to 5 USD is then sent directly to the merchant, serving as payment for the transaction. This process ensures that the merchant receives an equitable amount of gold-backed value for the goods or services rendered.

Merchant's Unique Option: The Phoenix Gold Spending Smart Contract introduces a unique feature for merchants: the ability to exchange the received Cypher for USDT immediately through the smart contract. This feature provides merchants with an invaluable safety net by safeguarding them against potential fluctuations in the price of gold relative to the currency in which they conduct their business.

Bridging Gold and Digital Commerce: In essence, the Phoenix Web3 Gold Pay system represents the harmonious union of gold and digital commerce. It transforms gold-backed Cyphers into a practical and efficient medium of exchange, eliminating the logistical complexities that have hindered the adoption of physical gold as a payment method.

Expanding Gold's Utility: The Phoenix Gold Spending Smart Contract expands the utility of gold by making it accessible for everyday transactions. It empowers both users and merchants to transact with confidence, bridging the gap between traditional commerce and the world of digital gold ownership.

9. The Role of Phoenix Gold Coin (PGC)
At the heart of PGN lies Phoenix Gold Coin (PGC), a utility coin with multifaceted applications within the Phoenix Gold Network.

DAO Governance: PGC serves as the catalyst for decentralized autonomous organization (DAO) voting, allowing participants to influence the network's direction, make decisions about gold shop participation levels, and improve processes within the Phoenix Network.

Priority Access to Network Liquidity Services: Cypher holders access to liquidity services is increased to the extent they hold PGC. This is by ratio, so that smaller gold holders are also secured the benefits of the network. In practical effect that means a holder of a Cypher for 1 ounce of gold that also holds 1 PGC has a 100% holding ratio. If a holder of 5 ounces has only 3 PGC, the former holder has priority access to the liquidity pool from the request fulfillment queue.

Staking PGC for Participation: One of the core features of PGN is the requirement for gold shops participating in the network to stake a certain amount of PGC. This staking requirement creates a compelling demand for PGC, a digital asset with a limited total supply of 21 million tokens.

Buying Cyphers: Beginning in 2025, Phoenix Gold will be ‘priced’ in PGC, making PGC the only way to purchase a Cypher in PGN. As Phoenix Gold holdings grow over the years, this creates a significant advantage for PGC versus new market entrants in any similar model and makes PGC a reserve currency for purchase of Phoenix Gold.

10. PGC Distribution Model
The PGC token has a unique distribution model designed to align with the network's growth and the preferences of its participants.

Pre-mined PGC: All 21million limited supply PGC is pre-mined, meaning that all tokens are created and available from the network's inception. 20 million PGC are Locked in the Distribution Smart Contract and can only be obtained through the mining process,

staking process or melting process. This ensures slow release into circulation as network usage rises.

The Mining Process
Attached to the Phoenix Network's model is a mechanism that allows network participants to engage in and benefit from a simulation of gold extraction via cryptographic virtual 'mining' techniques. An algorithmically defined quadratic bonding curve determines the energetic value of these virtual mining endeavors, tying them inextricably to the core liquidity pool.

Mining Device Economics
Transactional virtual mining devices, through their strategic issuance and subsequent capital flow, constantly revitalize the underlying liquidity pool with 5% of the proceeds going to Uniswap PGC liquidity and 90% to a liquidity pool in a smart contract supporting sale of the mining device back to the smart contract from where it was purchased. The price is managed on a quadratic bonding curve that steps up and down in algorithmically controlled increments This self-perpetuating economic activity engenders arbitrage potential, ensuring the network's long-term viability and stability and increasing its liquidity. The more miners who purchase the devices, the more liquidity there is for the other miners to sell their devices at a profit at the price set by the bonding curve smart contract.

Owners if virtual mining devices earn daily PGC rewards depending on the specifications of the purchased virtual mining device. Half the PGC daily mining rewards can be sold instantly, and half are locked for a period of one year from the date mined, incentivizing both immediate liquidation for fiscal utility and long-term retention strategies by token holders, thereby mirroring and complementing economic interventions in traditional markets.

The virtual mining devices can instantly be sold back to the mining smart contract liquidity pool. The price of the sell is simply one step down on the bonding curve from the last buy price plus a 10% fee. Half of the fee is used to add liquidity to the PGC/USDC pair on Uniswap.

The Staking Process
Users can choose to stake their Cyphers, locking them in a smart contract for a predetermined period. In return, they receive Phoenix Gold Coins (PGC) as rewards, a feature traditionally absent from physical gold ownership. The staked gold is not put at risk or invested, staking rewards come from PGC rewards at no cost with no dependence on actions or skills of third parties. The staking period is weekly, and the amount of reward offered is updated weekly

The Melting Process
The melting process, facilitated by the Phoenix Gold Melting Smart Contract, is meant to provide gold holders with a bonus in the event that the price of PGC exceeds the price for an ounce of gold in the future:

Cypher Conversion: Users can send their Cyphers to the melting smart contract for burning, effectively forfeiting their claim to the associated physical gold.

Initial Reward: Upon burning their Cyphers, users receive a reward of 2 PGC for every ounce of gold represented by the Cypher.

Halving Events: The PGC distribution undergoes a halving event after every 21,000 ounces of gold are melted through the contract. During each halving event, the reward is reduced by half. For example, after the first 21,000 ounces, the reward becomes 1 PGC per ounce melted, and so on.

10. Summary

In conclusion, the Phoenix Gold Network (PGN) stands at the forefront of a transformative era in the digital gold landscape, offering a comprehensive and secure ecosystem for the ownership, custody, and exchange of physical gold through its innovative Cypher system. Crafted on the Polygon blockchain, the Phoenix Cypher, as a non-fungible token, provides a direct claim to physical gold held in a decentralized custody network.

PGN's three-layered approach to custody ensures security, transparency, and community participation. From decentralized physical gold custody systems to smart contracts and community-trusted Phoenix Nodes, every layer contributes to a robust and reliable network. The network not only facilitates the secure exchange of Cyphers for physical gold but also incorporates a unique governance and utility token, the Phoenix Gold Coin (PGC).

The Cyphers themselves represent a groundbreaking blend of functionality, acting as non-fungible tokens with properties akin to warehouse receipts, title deeds, bearer bonds, and stable coins. The ability to stake, redeem, spend, burn for PGC, exchange, and trade on the secondary market provides Cypher holders with a plethora of opportunities to engage with the network.

Phoenix Network Liquidity Services, with its unique spot price mechanisms and priority access based on PGC ownership, further enhances the liquidity and flexibility of the Cypher in the market. Additionally, the Phoenix Gold Spending Smart Contract bridges the gap between gold and digital commerce, making gold-backed transactions accessible for everyday use.

The role of the Phoenix Gold Coin (PGC) as a governance token, utility token, and measure of socio-economic value adds depth to the network's functionality. The distribution model, encompassing mining, staking, and melting processes, aligns with the network's growth and provides incentives for network participants, gold shops, and PGC holders alike.

In essence, the Phoenix Gold Network represents a harmonious convergence of traditional gold ownership and cutting-edge blockchain technology. By overcoming logistical challenges and introducing innovative features, PGN not only facilitates the seamless exchange of Cyphers for physical gold but also propels gold into the digital age, expanding its utility in commerce and investment.

As PGN continues to evolve and set new standards in the digital gold space, it not only benefits current participants but also paves the way for a broader adoption of gold as a form of payment and investment. The transparent, secure, and community-driven nature of Phoenix Gold Network positions it as a pioneer in redefining the future of digital gold ownership and commerce.