ΛPEX Node Ecosystem

Preliminary Overview

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What is ⬤PEX ?

APEX is the blockchain infrastructure for next-generation of consumer applications.
Helping solve and optimize incumbent problems in consumer internet and surrounding B2C interactions.

Creating better consumer experiences with increased:

Privacy and Ownership of Data,
Interactivity of Consumer Experiences
Connectivity of Value

The Technology

The Company ⬤ APEX TECHNOLOGIES

Built-in Consumer Data Protection

Native Consumer Data Protection Protocol Built Into APEX Virtual Machine

Robust Native Data Connector

Enable dApps to Connect to External Systems and Data Sources with Ease

Multi-Layer Smart Contract System

3-layered Smart Contract System for Optimal Flexibility and Enterprise Suitability

Main Network + Sidechains

Enterprise Sidechains to Optimize Performance and Localize Workstreams

100+
Employees Across 4 Offices Worldwide

300+
Mid-to-Large Size Enterprise Customers

40+
Number of Team in R&D

45+
Worldwide Technical Integration Partners

For More Information, Please Visit:
www.apexnetwork.io

The APEX Node Ecosystem

APEX is a decentralized network for consumer-focused enterprise dApps, and for consensus mechanism utilizes a hybrid DPOS (delegated proof-of-stake) for the main network and POS (proof-of-stake) for sidechains (side networks).

The role of the APEX Node Ecosystem is to facilitate functionality, governance, and infrastructural support for APEX Network and its endeavors for real world applications, and in turn delivers value to stakeholders, community, partners, and the enterprise ecosystem.

This presentation serves as an overview and snapshot of the different types of nodes, ways they participate in the ecosystem, and their incentive structures. Based on ad-hoc optimization of the design of the ecosystem - information, rules, and specs outlined here are subject to change.

3 fundamental principles we uphold when designing the APEX Node Ecosystem:

Application Value + Ecosystem Value + Governance Value

Types of Nodes

There will be 3 types of nodes on APEX Network: Supernodes and Voternodes, which participate in network consensus, and Data Cloud Nodes, which serves the role of distributed and encrypted storage of consumer data, which a critical role within the real-world use case of APEX Network.
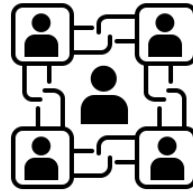
Supernodes

Supernodes are in charge of processing and validating transactions across the network as well as resolve consensus-related issues in a democratic manner.

Voternodes

Regular nodes that participate in the voting process and keep Supernodes in check, Voternode tiers are based on the amount of CPX staked.

Data Cloud Nodes

Data Cloud Nodes is a distributed off-chain network that plays a critical role in the storage and management of consumer data across the APEX Network.

Supernodes & Voternodes

Supernodes – Fact Sheet

Role in Ecosystem

Supernodes in the APEX Network Ecosystem can also be understood as "delegates" or "block producers", as more commonly referred to on DPOS-based blockchains. They are ultimately elected by stakeholders (voters), and are in charge of block production, validating transactions, and resolving consensus-related issues in a decentralized manner.

Supernodes on APEX Network also will have the ability to create new sidechains (side networks) for various dApp use cases, which will be outlined more in detail closer to launch of APEX Network Testnet. There will be a built-in comprehensive reputation scoring system to help all stakeholders in APEX Network evaluate the quality of performance and value the Supernode has delivered to the ecosystem.

Requirements and Qualifications

1. A minimum CPX stake in order to apply to become a Supernode is 2,000,000 CPX.
2. The applicant must be able to provide value to the ecosystem in at least one of the following ways:
    • Technology & Development Resources
    • Community Support & Growth
    • Application Development/Use-Cases
    • Strategy, Expertise, & Thought Leadership
    • Business and Partnership Development
3. The applicant must submit a Supernode application provided by the APEX Network Committee. For key members/personnel a KYC-process is required.
4. If approved by committee, the candidate commences to the community voting stage.
5. The team/organization involved must have experience in in server/distributed systems management, or be required to utilize APEX Managed Services (outlined in next pages).
6. Post-deployment, if node is self managed, must pass the security audit done by APEX Technologies security team.

Incentive and Reward Structure

A fair and balanced incentive and reward structure is necessary for healthy growth of the APEX Node Ecosystem and long-term scalability. Supernode rewards consists of 3 components: 1) Network Fees 2) Ecosystem Rewards and 3) Special Node Programs.

Network Fees

Network Fees is can also be known as "variable fees" in CPX, with increasing amount of accuracy in estimation with the growth of the network. Network fees we mention here are inclusive of transaction fees, system fees, fees associated with assets, APEX Virtual Machine workload, and enterprise-asset DEX fees. All fees in this category (with the exception of data transaction fees, which will be discussed in detail in the Data Cloud Nodes section), will go directly to Supernodes and consequently Voternodes. Supernodes share 30-50% of profit from Network Fees to Voternodes.

Ecosystem Rewards

Ecosystem Rewards can also be thought of as "guaranteed rewards". In the first 2 years within post-Mainnet launch, each year will have a rewards pool of 1% of total token supply, 0.5% from the APEX Ecosystem token pool, and 0.5% from new increased supply, distributed to Supernodes proportionally based on amount of CPX staked. Within two years of mainnet launch, the total token supply will increase 0.5% each year. The standard Ecosystem Rewards Program will end after 2 years, when network fees are expected to have increased significantly.

Special Node Programs

Special programs are strategically timed and positioned programs that incentivize the community, enterprise users, partners, and other potential node holders to take certain action in the APEX Node Ecosystem. The most imminent upcoming Special Node Programs are APEXION and KRATOS.

Supernodes – Fact Sheet

Who are Supernodes Run By?

In the early stages of the APEX Network blockchain, APEX Core Development will manage a significant portion of the Supernodes, for optimal tuning, stability, and scaling. As the ecosystem grows, APEX Network will increasingly entrust the Supernode network to various types of partners.

Enterprise Users/Partners

APEX's enterprise ecosystem utilizes features of APEX Network for customer-driven dApps, and has naturally a large role in driving value and contributing to the entire network and ecosystem.

System Integration Partners

System integration partners of APEX Technologies also profit indirectly from APEX Network, as they are able to build dApp solutions for enterprise users as a service for revenue.

Community Contributors

Community contributors create value and help the growth of the APEX community, and may include marketing partners and local community leaders.

Strategic Partners

Strategic partners provide APEX Network key resources, partnerships, and other value points that strengthens the core competency of the network and ecosystem.

Supernodes – Fact Sheet

Voternode Incentives

Voternodes are regular nodes on APEX Network that participate in voting and supervision of Supernodes. Supernodes depending on pre-defined policy can distribute a minimum of 30% of profits and a maximum of 50% of profits to voter nodes.

Voternodes do not need to run special hardware and software, except for the standard desktop CPX Wallet, which is set to be released around Testnet.

Voternode Tiering

Voternode profits are based on two factors 1) amount of CPX staked 2) Voternode Tier. Voternode Tiers are solely differentiated through the amount of CPX staked, and for each CPX held across different Voternodes have different weight. Profits will be distributed based on [weight x CPX amount].

- **Tier Genesis** Min. 400,000 CPX required [Weight: 40]
- **Tier 1** Minimum 200,000 CPX required [Weight: 30]
- **Tier 2** Minimum 70,000 CPX required [Weight: 20]
- **Tier 3** No minimum requirement [Weight: 10]

* There may or may not be Voternodes of every tier under each Supernode. The weights listed are for comparison and the are relative between tiers.

Supernode System Specs

- Minimum 8-Core Processor (16-Core Recommended)
- Minimum 16 GB RAM (32 GB Recommended)
- 1 TB SSD (2 SSD Recommended)
- Redhat, CentOS, Ubuntu
- AWS or Azure Recommended
- DDOS Protection

Network Requirements

There will be strict network and connectivity requirements for Supernodes:

- 50 MB of outbound bandwidth (100 MB recommended)
- Ping value should not exceed 500ms

Managed Services

APEX Technologies will provide managed services as a solution for Supernode selectees that meet all non-technical requirements. APEX Technologies is able to provide both an all-inclusive (service + hardware + network) service package or service-only.

Enterprise Services

APEX Technologies is able to provide a variety of services for enterprise users to increase adoption speed and ease for APEX Network, including:

Fiat-Staking Solution

For enterprise users that require their own sidechain(s) for extensive applications, it will often not be easy to acquire CPX from secondary market and stake. APEX Technologies provides a solution in a form of a technology services contract that enables enterprises to use fiat payments that can be expensed.

Sidechain Management

Managing sidechain infrastructure may require extra technical resources from the enterprise – APEX Technologies can provide turnkey solutions and enable enterprises to focus on application strategy.

dApp Strategy & Advisory

APEX Technologies is able to advise enterprises on how to design, create, and deploy decentralized applications on APEX Network that can maximize bottom-line value for customer-centric use cases.

Special Node Programs

APEXION

KRATOS

APEXION

Who It's For:
The APEXION Program is designed to incentivize and reward early potential Supernode participants in the APEX Node Ecosystem. The first wave of Supernode candidates (roughly 20) to pass APEX Committee's review qualify for this program, regardless if the candidate gets elected via community voting.

How it Works:
There will be a reward pool of 1,200,000 CPX from APEX Ecosystem Growth allocated to APEXION. The reward pool will be distributed to each party according to amount of CPX staked at an indicated snapshotted time (Q4 2018), with no weight difference. (4,000,000 CPX holder would receive 2x the reward of a 2,000,000 CPX holder)

Rules & Details:
The rewards will be distributed evenly across a period of 6 months. If the snapshotted CPX amount decreases within the 6 months, then the monthly reward payment amount decreases proportionally. Leftover CPX from pool will be distributed to remainder CPX-holders whose CPX amount did not decrease.

Timeline:
Terms and rules for APEXION will officially be released in Q3 will start execution in Q4. Terms are subject to adjustment and optimization.

KRATOS

Who It's For:
The KRATOS Program is designed for APEX Network's future significant CPX-holding Voternodes, which also play a crucial role in the APEX Node Ecosystem. All CPX stakeholders that qualify for Tier Genesis and Tier 1 qualify for this program.

How it Works:
There will be a reward pool of 2,000,000 CPX from APEX Ecosystem Growth allocated to KRATOS. The reward pool will be distributed to each party according to amount of CPX staked at an indicated snapshotted time (Q4 2018), with weight difference according to Voternode tier.

Rules & Details:
The rewards will be distributed evenly across a period of 3 months. If the snapshotted CPX amount decreases within the 3 months, then the monthly reward payment amount decreases proportionally. Leftover CPX from pool will be distributed to remainder CPX-holders whose CPX amount did not decrease.

Timeline:
Terms and rules for KRATOS will officially be released in Q3 and will start execution in Q4. Terms are subject to adjustment and optimization.

Data Cloud Nodes

"APEX Network's Data Cloud Nodes not only play an integral role functionally for the ecosystem, but more importantly in a decentralized manner advances the state of consumer data ownership and privacy, a fundamental component in our vision."

- Jimmy Hu
APEX Network CEO

Role in Ecosystem

Data Cloud Nodes plays an important role in the real-world use case that APEX Network was designed for – applications surrounding consumer data and B2C interactions. It is required to achieve seamless off-chain storage at the same time natively connected to on-chain applications.

It combines distributed storage with data encryption to achieve safekeeping of ready-to-transact consumer data both off-chain and off-device.

Data Node Client

There will be no special software and hardware required for participating in Data Cloud Nodes - the functionality will be made available as a feature module within desktop version of CPX Wallet, which is due for release around the same time as Testnet.

Requirements and Qualifications

Running a Data Cloud Node requires staking of at least 20,000 CPX as the lower threshold, a moderately low requirement. There will be Data Cloud Node system and network specs to be released in Q4 2018. Not meeting minimum data processing KPIs will disqualify the account from participating in the Data Cloud Node until adequate KPIs are met.

The specs for running a Data Cloud Node requires a minimum storage capacity and network bandwidth.

Recruitment Mechanism

There will be a maximum threshold of Data Cloud Nodes at any given time. The Data Cloud Node network will calculate data size and transaction load across systems, and use a proprietary methodology to determine when new Data Cloud Node slots are open.

Incentives

There are 4 components to Data Node Cloud incentives, that all factor into the resultant fee in CPX:

Data Node Scoring

Data Nodes are rated and organized into hierarchies based on a scoring system revolving around performance. New data added to the Data Node Cloud is more likely to be appended to nodes that have a higher rating. The scoring system takes into a combination of factors including but not limited to latency, remainder storage capacity, uptime, etc. Data Nodes that score higher naturally tends to earn a larger than average of the entire network's payout.

Data Transactions

Data transactions are a critical aspect of the APEX Network dApp ecosystem, and is expected to be one of the most common use cases. Rules for data transactions are enforced by ATDM (APEX Transactional Data Management System) on the APEX Virtual Machine. Currently we expect for each data transaction, 5% of the transaction amount results as fees to be distributed to the Data Node Cloud.

Data Storage

Data storage is another part of the entire fee makeup for Data Nodes. Data storage fees are paid by data owners, which can be a combination of both consumers and enterprises. For each consumer data profile, there is a negligible small fee for the data owner, but given the Data Cloud Node has ample storage capacity, could rack up to an noticeable amount.

Types of Data Cloud Nodes

APEX Network gives Data Cloud Node participants the flexibility of choosing node type depending on use-case.

Community Nodes

Community Nodes are nodes run by the APEX community that serves the greater network. Data Cloud users who do not require data transaction and storage performance and KPIs are able to use Community Nodes at a minimal cost.

Enterprise Nodes

Enterprise Nodes are an alternate consumer data storage solution for full or partial dimensions of their consumer data, and have much stricter requirements on performance and data management practices. Enterprise Nodes are a good way for enterprises to protect consumer data privacy, ownership rights, and take one step closer to GDPR compliance.