**Episode 1: Why is Nervos important? (est. 4 minutes)**

a) Nervos is a multi-asset settlement layer (aka smart contract platform) which is optimized for long term security and sustainability
b) Why is this important?
c) They key value proposition of L1 blockchains as introduced by Bitcoin is high value trustless settlement over the internet
    i) Bitcoin introduced this for the Bitcoin asset
    ii) Ethereum introduced this for arbitrarily defined digital assets
d) Each of these networks introduced a novel financial innovation, but each approach has risks
e) Bitcoin is designed to trustlessly settle one asset - the SoV digital commodity bitcoin. But the mechanism which ensures scarcity creates long term risks to the system.
f) Ethereum is designed to trustlessly settle many assets - however the architecture is not optimized for settlement, but rather attempts to enable both secure settlement and advanced computation, and the system design is optimized to pay for computation rather than asset storage. As a result, assets are issued with a “pay once, store forever policy” which reduces long term security guarantees and increases state bloat which undermines decentralization.
g) Nervos introduces a novel economic model which uses an elegant form of state rent to solve the heavy asset problem, reducing state bloat to ensure long term decentralization, and address the issue of long-term sustainability which can arise from declining block rewards for a SoV asset like Bitcoin
h) These problems are not widely understood, because usage is still low and we are still early into the lifecycle of the technology, but for long term success they are critical
i) In the next videos we will describe the problems and Nervos’ solution in more detail

**Episode 2: The long-term security risk for SoV single asset chains (4 min)**

a) Public blockchains provide the unique service of trustless transaction and settlement between financial counterparties over the internet, with no intermediaries
b) The Bitcoin network introduced this revolutionary concept via a system optimized to securely settle one particular asset, Bitcoin
c) The system is decentralized to ensure ongoing permissionless access and censorship resistant service, which is achieved by ensuring that the network integrity has no central point of failure
d) In order for decentralization to be maintained, node validation requirements must be kept to a minimum
e) Security, the ability to transact without fear of reversal, is achieved by incentivizing transaction validators through compensation in the native asset. This reward is provided in exchange for the validator making an unrecoverable investment which creates a cost to undo the transaction they processed. The value of the reward they receive must become increasingly valuable over time in order for the cost of reversal to rise over time, thereby continuously increasing the security of the network.
f) The requirement for the native asset to be a SoV means that it must satisfy the following criteria:

i) Scarce supply / conservative inflation policy
ii) Sufficient network decentralization
iii) Network architecture trending toward ossification

g) Since a store of value must both
    1) Have a limited-inflation monetary policy which results in reduced block reward payouts to validators over time to ensure scarcity; and
    2) Maintain low requirements for node validation to maintain decentralization
    ii) The network can run into a problem long term where transaction fees to users must rise dramatically to compensate validators, which can lead to perverse incentives undermining the security mechanism

**Episode 3: Security risks to multi-asset chains (The Heavy Asset Problem) (est 4 minutes)**

a) Ethereum introduced the concept of a “smart contract platform”, an alternative type of public blockchain which could issue arbitrarily defined digital assets and execute business logic around those assets programmatically
b) This has led to an explosion of application tokens which are leveraged in software that runs on the Ethereum network
c) While there is much to be excited about regarding Ethereum’s multi-asset settlement capabilities and the emergence of a decentralized financial system, the architecture of Ethereum (and that of other platforms which seek to compete with its value proposition) entails risks which undermine the long term sustainability
    i) Ethereum’s security budget, like Bitcoin, is derived from the value of the underlying asset, ETH
    ii) Like Bitcoin, miners compensated via inflationary block rewards (paid in the native asset) and transaction fees
    iii) This means that the growth in value of ETH, and then by extension the growth in transaction volumes, are the mechanisms for securing all economic activity on the network
    iv) What this really means is that the security budget is first dependant on ETH being a valid store of value, and secondarily dependant on high transaction volume being processed on the network
    v) The heavy asset problem relates to the latter risk
    vi) As application tokens issued on the platform grow and increase in value, the growth in value demands more security from the underlying network
    vii) However, the ETH token does not benefit directly from the increase in value of the assets issued on the platform.
        1) Let’s use an example of a digital asset issued as a form of equity for a digital marketplace for trading collectibles. Imagine that the business accepts stablecoin payments and takes a percentage of transactions as revenue, which are then issued to token holders or used to burn the underlying token.

2) Imagine the platform is growing exponentially due to the growth of blockchain gaming, and transactions move to a L2 for increased throughput, settling periodically to the main chain.
3) Now imagine this token grows 20x in value, meanwhile Ethereum platform concurrently sees a delay in its progress toward V2, the market discounts its value as an independent SoV, and the security budget for the system declines
4) Malicious miners can

viii) This design does not line up with the security needs of the platform, incentivizing for transactions does not improve security to the base layer when the base layer is primarily used to store assets

d) Ethereum, via DeFi, has found product market fit for settling various financial assets and has demonstrated a PoC of a future financial system
   i) This is an amazing vision but requires sustainable security, where growth of value does not lead to security risks

**Episode 3b: State bloat and risks to decentralization** (2 min)

a) The heavy asset problem is compounded by the unbounded state of Ethereum
b) Since the economic model is centered around transaction and not state occupancy, Ethereum essentially enables “pay once, store forever”
c) This leads to an ever increasing state storage, which increases the resource requirements of node validators, threatening long term decentralization
d) As previously mentioned, sufficient decentralization is a key pillar for store of value, and if store of value traits are diminished, so is the overall security and utility of the platform

**Episode 3c: Monetary for multi asset chain**

a) If the security budget for a multi-asset chain is derived from the SoV properties of the native asset, then it stands to reason that the monetary policy of the asset’s issuance must be non-inflationary and be difficult to change

**Episode 4: Last piece of puzzle - Cell model (est. 4 minutes)**

a) Explain why this aspect of the architecture also contributes to the goal

Other

a) Nervos is Optimized for settlement
   i) What is trustless settlement
   ii) Why is this the core value of L1

L2 as a topic (based on Hasu’s article)

a) How Nervos is built to support L2 for transaction throughput
   a) How cell model enables this to work seamlessly

**Episode 5: Tying it all together - a sound base for a new financial system (Est. 4 minutes)**

a) Imagery - pillars supporting some strong monolith or city above
   i) Multi asset issuance enables long term security budget for sustainable security
   ii) Bounded state via novel rent model ensures that native asset gains value with growth of assets settled to the platform and not the opposite
   iii) State bloat and decentralization ensured by limiting state availability to 1st class assets
   iv) Cell model ensures [XXXX]
b) Treasury, Secondary Issuance, Governance (est. 1 minute)

Positioning Paper in Order
Green = Very Important
Yellow = Moderately Important
Red = Minimally Important

1) Intro
2) Overview
   a) Scalability
      i) On chain
      ii) Multi chain
      iii) Layer 2
   b) Sustainability
      i) Decentralization
      ii) Economic models
      iii) BTC Economic model
      iv) Smart contract platform economic model
      v) Funding of development
   c) Interoperability
3) Core principles
   a) Sustainable, multi-asset, L1 chain must be a SoV
   b) L2 is best scaling option
   c) PoW is essential
   d) Must have generic programmability for use cases and interoperability
   e) State storage must be a key pillar which gives sustainably aligned income to miners
4) CKB Blockchain
   a) Overview
   b) Consensus
      i) Throughput enhancement
      ii) Block propagation bottleneck
      iii) Mitigating selfish mining attack
      iv) PoW vs PoS
      v) PoW Function

vi) Eaglesong

c) Cell Model

d) Virtual Machine

i) CKB-VM and Cell Model

ii) Running other VM's on the CKB-VM

e) Economic Model

f) Treasury

g) Governance

5) L2

a) What is L2

b) Payment and State Channels

c) Side Chains

d) Commit-Chains

e) Verifiable Off-chain Computation

f) Economic model for L2

6) The Nervos Network

a) Multi Asset SoV Platform

b) Scale with L2

c) Sustainability

d) Aligned Incentives

e) Value Capture and Value Creation

f) Bridging the Regulatory Gap

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Archive

**Episode 3: State bloat and tail emissions (est 3 minutes)**

a) 2 other problems solved by this economic model which are also critical aspects of a sustainable layer 1

b) Bitcoin was and is a revolutionary concept because its ledger acts as a platform where counterparties can transfer a digital SoV asset without needing to trust each other, as the process is secured by economic incentives which consistently grow the amount of value which can be secured and transferred on its ledger

i) However, Bitcoin's long term security is not without risks

ii) The process which ensures Bitcoin's scarcity is also responsible for paying miners to validate transactions. As these mining rewards dry up (the process which limits Bitcoin's supply), the economic model will shift toward a fee based model.

iii) To optimize decentralization which ensures the "trustless" nature of the system, the Bitcoin architecture limits transaction throughput. Thus, the system is not optimized for transaction fees to be the basis of its economic model.

iv) The long term impacts of shifting Bitcoin's incentive structure to one which relies on fees are unknown. However, there are numerous risks that can arise and potentially undermine the functionality of the system. Click here for more information on this topic.

c) Explain the function of settlement and why this is core value of L1