



Open Consensus for 10 Billion

7 Google/Apple/Amazon Engineers & 2 PhDs



Stephen
Protocol PhD



Nicolas
VR Startup Founder



Alok
Apple Siri



Rongjian
Google Search



Minh
Google Voice AI



Nick
Stanford AI



Sahil
Harvard Business



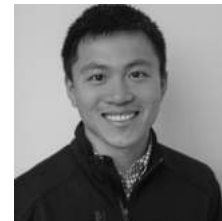
Eugene
AWS Networking



Leo
Amazon Lab126



Kunal
Samsung Security



Li
GSV Capital



Chao
Math PhD





Harmony is a **Fast & Secure** blockchain

*To scale trust for billions of people
and create a radically fair economy*



Partners & Community at talk.harmony.one



Animoca



Timeless



Hyperion



Blue Vista



Picolo



Quanta

Introductions

10 / month

2 new

Welcome to Harmony! **Introduce** yourself and share your LinkedIn / Twitter / Github profiles. Tell us what you are building – it can lead to a partnership!



Compiler PhD,

■ Introductions



★ Introduce yo

■ Introductions



Blockchain eve
Crypton Labs

■ Introductions



Open Consens
One and All

■ Introductions



★ Welcome to

■ Announcement



Traveling thru

■ Applications

Applications

2 / month

What decentralized applications are you building and scaling?

Sharding

3 / month

Harmony scales to tens of thousands of nodes with full sharding of computation, states and communication. Inspired by Omniledger and **Rapidchain**, our approach incorporates staked voting and secure randomness for a modern scalable architecture.

Consensus

3 / month

1 new

Consensus is the core of any blockchain. Harmony integrates an efficient consensus protocol that combines POS with practical Byzantine fault tolerance (PBFT).

Networking

2 / month

If you've been thinking a lot about networking, like some of our team

State Sharding with Secure Staking

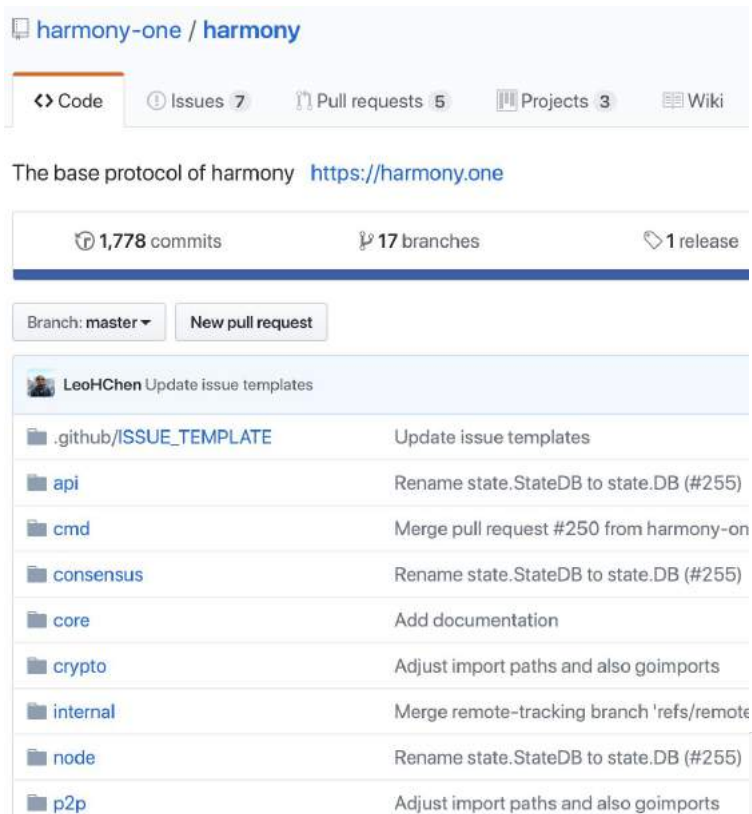
Open source with 1700+ commits
Account model & Solidity support

$O(n)$ consensus & $O(1)$ resharding

Tx benchmark with 41k nodes

$O(\log n)$ cross-shard routing

Failure-resilient propagation in 1.3s



The screenshot shows the GitHub repository page for 'harmony-one / harmony'. The repository is on the 'master' branch. The page displays the following information:

- Repository name: harmony-one / harmony
- Navigation: Code, Issues (7), Pull requests (5), Projects (3), Wiki
- Description: The base protocol of harmony <https://harmony.one>
- Statistics: 1,778 commits, 17 branches, 1 release
- Branch: master (dropdown menu), New pull request button
- Recent commits by LeoHChen:
 - .github/ISSUE_TEMPLATE: Update issue templates
 - api: Rename state.StateDB to state.DB (#255)
 - cmd: Merge pull request #250 from harmony-on
 - consensus: Rename state.StateDB to state.DB (#255)
 - core: Add documentation
 - crypto: Adjust import paths and also goimports
 - internal: Merge remote-tracking branch 'refs/remote
 - node: Rename state.StateDB to state.DB (#255)
 - p2p: Adjust import paths and also goimports

Harmony Tokens & Mainnet Launch



*Strategic Partners to earn extra 40% Harmony Tokens.

We use CoinList and OpenToken for token management.
See harmony.one/token for terms & token model.

Harmony coming to Southeast Asia

1



Singapore | Jan 19 - 23

3



Ho Chi Minh City | Jan 26 - 29

2



Jakarta | Jan 23 - 26

4



HK, Shenzhen | Jan 29 - Feb 7

Radical Fairness: are you feeling lucky?

Lottery & gambling

Game mechanics

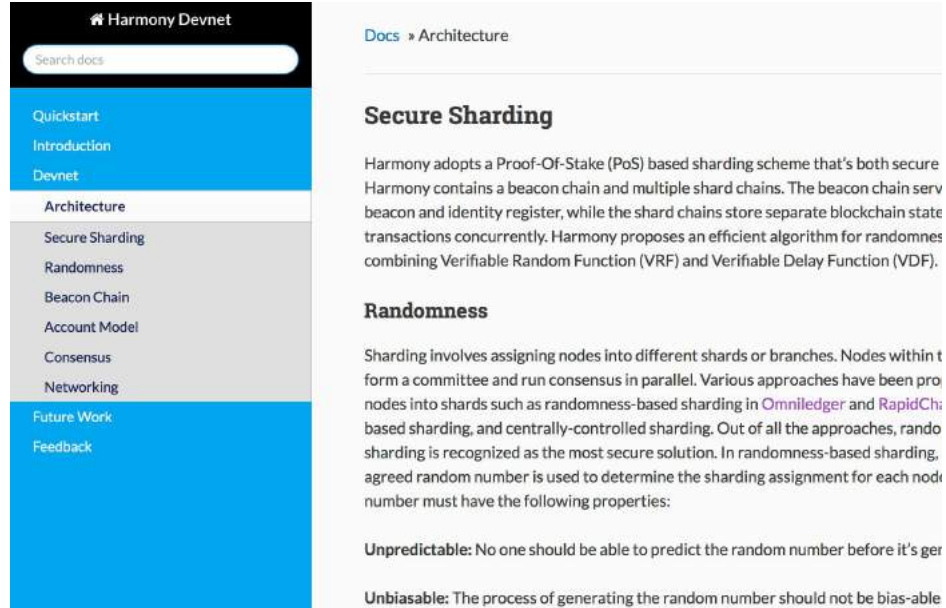
Matching & allocations

Prevent single-shard overtakes

Verifiable delay functions

Succinct recursive proofs

Zero-knowledge arguments



The screenshot shows the Harmony Devnet documentation page for 'Secure Sharding'. The page has a dark header with the Harmony Devnet logo and a search bar. A blue sidebar on the left contains a navigation menu with items: Quickstart, Introduction, Devnet, Architecture (highlighted), Secure Sharding, Randomness, Beacon Chain, Account Model, Consensus, Networking, Future Work, and Feedback. The main content area is white and shows the breadcrumb 'Docs » Architecture' and the title 'Secure Sharding'. The text explains that Harmony uses a Proof-Of-Stake (PoS) based sharding scheme with a beacon chain and multiple shard chains. It also mentions a 'Randomness' section which discusses assigning nodes to shards and the properties of the random number used for sharding: unpredictable and unbiased.

Harmony Devnet

Search docs

Quickstart
Introduction
Devnet
Architecture
Secure Sharding
Randomness
Beacon Chain
Account Model
Consensus
Networking
Future Work
Feedback

Docs » Architecture

Secure Sharding

Harmony adopts a Proof-Of-Stake (PoS) based sharding scheme that's both secure and scalable. Harmony contains a beacon chain and multiple shard chains. The beacon chain serves as the identity register, while the shard chains store separate blockchain state transactions concurrently. Harmony proposes an efficient algorithm for randomness combining Verifiable Random Function (VRF) and Verifiable Delay Function (VDF).

Randomness

Sharding involves assigning nodes into different shards or branches. Nodes within a shard form a committee and run consensus in parallel. Various approaches have been proposed for randomness-based sharding, such as randomness-based sharding in [Omniledger](#) and [RapidCh](#), and centrally-controlled sharding. Out of all the approaches, randomness-based sharding is recognized as the most secure solution. In randomness-based sharding, an agreed random number is used to determine the sharding assignment for each node. The random number must have the following properties:

- Unpredictable:** No one should be able to predict the random number before it's generated.
- Unbiasable:** The process of generating the random number should not be biasable.



Research & Community on Forum

talk.harmony.one

Wear Your Ambitions on Sleeve

harmony.one/2019-roadmap

harmony.one/whatsapp

harmony.one/deck

Harmony Tokens & Node Operators

harmony.one/partners

Mainnet Launch in 2019 Q2

harmony.one/newsletter

