Introduction

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Welcome to Pell Network

Pell will do for BTC what EigenLayer has done for ETH Network

Pell is the first and omnichain BTC Restaking Network. By building an Omnichain **Decentralized Validated Service** (DVS, aka AVS) Network driven by BTC Restaking, Pell extends BTCFi into the cryptoeconomic security sector, fully unlocks Bitcoin's security potential, enhances capital efficiency for stakers, and provides developers with an efficient, secure, and affordable way to validate services.

What is Pell Network?

Pell ↗ serves as a **Omnichain Restaking Network** designed to simplify the provision of cryptoeconomic security (universal trust network) using BTC and its Liquid Staking Derivatives (LSD). Pell plugs the gap in ecosystem security, reduces cost to build decentralized applications and offers passive income for BTC holders. It opens up new possibilities for developers to seamlessly and securely create innovative infrastructure designs.

Pell allows protocols to leverage robust and secure trust networks from the outset, significantly lowering the barriers to securing new protocols. This eliminates the need for protocols to incentivize their own validator sets with highly dilutive reward mechanisms, making the process of bootstrapping security more scalable, accessible, and affordable.

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> Pell aims to become the largest shared liquidity and cryptoeconomic security platform of BTCFi and across all blockchain ecosystems.

How does Pell Network work?

Pell enables users to repurpose their staked assets, extending the security of BTC and other trust networks to additional applications by Decentralized Validated Services (DVSs).

Stakers can allocate their assets to Decentralized Validated Services (DVSs) on Pell and agree to grant additional enforcement rights to their staked assets. This opt-in feature introduces additional slashing conditions to meet the requirements of secured services such as data availability protocols, bridges, or oracles. These slashing conditions enforce participant integrity and ensure the security of the applications utilizing Pell Network

Pell Network functions as a marketplace where developers can incentivize validators to allocate their restaked assets to secure their services. This represents a significant improvement over applications having to issue their own highly inflationary tokens as rewards for validators and having to establish a new trust network from the ground up. With Pell, developers can attract validators to their projects through simple, non-dilutive incentives, significantly reducing the financial and temporal investment compared to building a new trust network from scratch.

Additionally, Pell's universal restaking facilitates enhanced bootstrapping and composability across various networks. Despite the varying staking parameters of different blockchains, introducing a multi-asset restaking approach can help standardize these capital requirements.

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Pell originates real value for all stakeholders

- **Restaking Layer** allows stakers to redeploy their BTC Liquid Staking Derivatives (LSD) to enhance the security of services within the Pell ecosystem, known as Decentralized Validated Services (DVSs). By utilizing Restaking, the security provided by staked tokens is extended to a wide range of DVS.
- **Operators** are entities that facilitate the operation of DVS software built on Pell Network. They register with Pell Network, allowing stakers to delegate to them, and then opt-in to provide various services (DVSs) on the platform.
- **Delegation** is the process by which stakers delegate their staked BTC to operators or choose to run validation services themselves, thereby becoming operators. This process involves a mutual double opt-in agreement between both parties, ensuring mutual consent. Restakers maintain control over their stakes and decide which DVSs they wish to validate.
- **Decentralized Validated Services (DVSs)** are services built on the Pell protocol that leverage the shared security of BTC.
    - Operators perform validation tasks for DVSs, contributing to the security and integrity of the network.
    - DVSs deliver services to users (**DVS Consumers**) and the broader Web3 ecosystem.

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How does Pell extend the BTCFi value chain?

Pell and Babylon provide security services at different levels of the ecosystem.

Let’s explain this diagram：

- BTC holders can liquid stake their BTC with protocols such as Lorenzo, Lombard and other liquidity staking protocols and receive BTC LST.
- The liquid staking protocols can stake the native BTC to Babylon on behalf of their users.
- Babylon will use the staked BTC to help secure PoS chains and validate transactions on the chains. In exchange, the PoS chains will offer a security yield to Babylon and BTC holders.
- Essentially, what Babylon offers is similar to native ETH staking while Lorenzo / Lombard offers liquid staking similar to that of Lido / Rocket Pool.
- Pell extend this value chain by allowing BTC LST holders to restake their tokens. These assets are then used to help provide cryptoeconomic security to a separate group of audiences, namely the DVSs, which have more customized rules and requirements for slashing conditions and rewards and therefore can only be satisfied with Pell's more tailored service offerings.

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- These DVSs will provide an additional layer of yield on top of the PoS security yield earned from Babylon, thereby enhancing yield and maximizing capital efficiency for BTC holders.

Ecosystem Architecture Overview

Pell employs a layered modular architecture to offer omnichain shared security to developers on any type of blockchain ecosystems (EVM, SVM, MoveVM, Cosmos SDK, TVM, etc.). This design significantly reduces the integration and maintenance costs for developers in multi-chain environments while lowering the participation barriers and security concerns for stakers.

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Pell Ecosystem Architeture Overview

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The Restaking Layer of Pell is composed of Pell Restaking Contracts deployed across multiple blockchains, the Restaking Ledger within the Pell Network, and cross-chain transmission protocols. This architecture allows stakers to easily perform operations such as staking and delegation without the need to switch wallets or RPC nodes, significantly enhancing the user experience and reducing operational complexity.

With the cross-chain interoperability provided by Pell Chain, Operators and Decentralized Validated Services (DVSs) can register and manage their services on a unified platform. This not only enables DVS developers to achieve multi-chain development and deployment with minimal development and modification costs but also helps Operators significantly reduce the operational and maintenance costs of DVS Clients.

Pell's entire design prioritizes security and user experience, ensuring that users can enjoy a seamless and efficient experience in a complex multi-chain environment while maintaining system robustness and security.

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Ecosystem Synergy

From a public chain perspective: The synergy between Pell and Babylon

Pell works in close collaboration with Babylon and underlying blockchains to co-develop a multi-layered, comprehensive security framework that encompasses everything from the security of the underlying chains to the on-chain ecosystem infrastructure.

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- Babylon, together with the chain's native trust network, achieves an enhanced network validation layer, ensuring the security of the base layer.
- On top of the chain's foundational security, Pell provides cryptoeconomic security for all decentralized infrastructures and services on the chain.

Pell, Babylon, and the PoS chain collectively build a more secure blockchain ecosystem.

Next
Pell Network Architecture

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