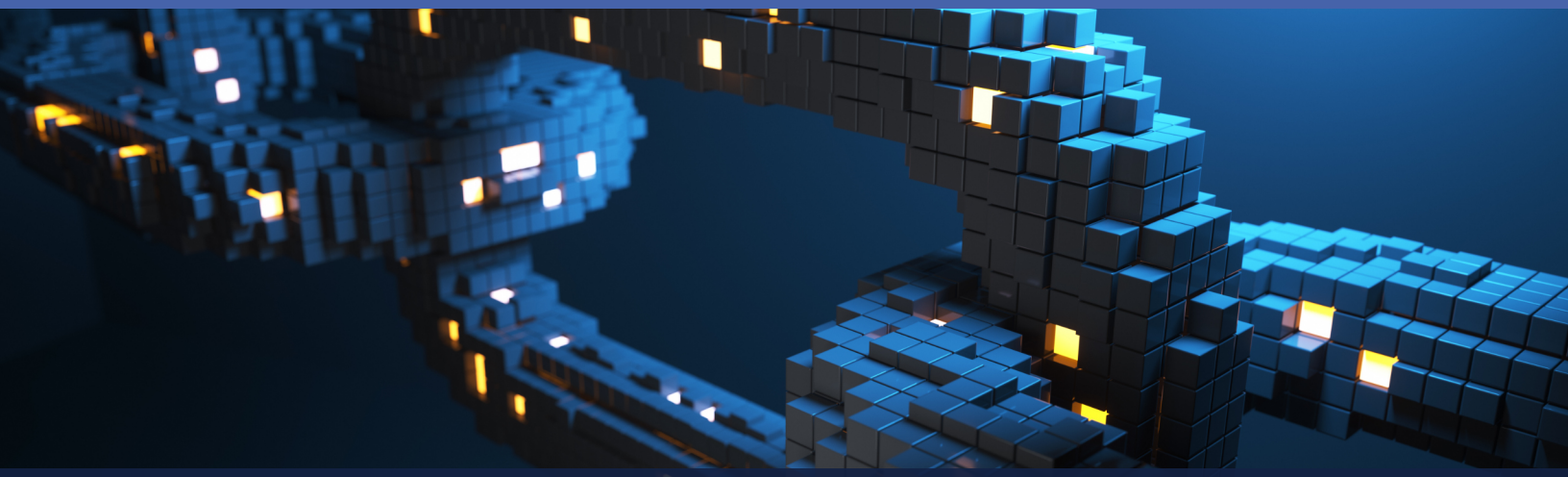

Introduction to Sidechains

What are Sidechains?

Sidechains are blockchains that run separately from Ethereum but are used to offload transactions from the Mainnet via a two-way bridge. They are known for delivering high throughput and fast transaction times at a reduced cost, and they are considered good choices for scaling expanding blockchain projects. This makes them appealing tools for businesses; however, before proceeding with sidechains, it's important to understand how they function and how they differ from Ethereum.

Background

Ethereum sidechains are independent blockchain networks specifically used to offload computations from the Ethereum Mainnet. Sidechains aren't a new type of network. Rather, they are traditional blockchain networks being used specifically for this transaction offloading. As such, to be considered a sidechain, a blockchain must be interoperable with the Ethereum Mainnet, which means it can enable asset transfer to and from the Mainnet. This is done via a blockchain bridge, a connection that allows the value of a digital asset to easily travel between the Mainnet and the sidechain – the asset itself stays locked on the Mainnet but a copy is made available on the sidechain, where its value becomes accessible. This value transfer capability helps ensure projects can expand and scale easily, an important plus for businesses.

Another key point to note is that all Ethereum sidechains are compatible with the Ethereum Virtual Machine (EVM). EVM programmability and the ability to write and run smart contracts is what elevates Ethereum's functionality beyond that of Bitcoin, allowing users to build and run their own decentralized applications (dApps) on the blockchain. EVM compatibility means users can run their Ethereum-native dApps on a sidechain, which is what makes them a great scaling option, especially during high traffic periods on the Mainnet.

While sidechains and Ethereum do share some characteristics, they differ in a few key ways. First, the main Ethereum chain is versatile and not use-case specific, whereas most sidechains are more tailored for a specific purpose or use-case. For businesses looking to get started with sidechains, it's important to have their purpose clearly defined as well as have a firm grasp on all legal and privacy requirements, as this will influence the choice of sidechain.

QUICK TAKEAWAYS

- Sidechains are independent blockchains that are used to offload transactions or computations from the Ethereum Mainnet.
- Sidechains offer a number of business benefits, including higher throughput, faster transactions and reduced costs. They are a great option for scaling blockchain projects.
- While they can connect to the Ethereum Mainnet, sidechains do not benefit from the security of the Mainnet. Instead, sidechains provide their own security mechanisms, the quality of which varies from chain to chain.

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Second, Ethereum is now a Proof of Stake (PoS) platform, meaning it uses PoS as a consensus mechanism, or a way of proposing new blocks and gaining consensus from participants to add them to the Ethereum blockchain. Sidechains operate differently and can utilize a variety of consensus protocols, depending on their purpose and needs. It's important to note that different consensus mechanisms deliver varying levels of security. Additionally, the high level of security delivered by Ethereum's PoS approach is NOT passed on to any sidechains. This is a key differentiator between sidechains and Layer 2 solutions, a different class of blockchain scalability solutions that are built on top of the Ethereum Mainnet and DO benefit from its security properties. It is also another important reason why businesses must have a firm grasp on their security requirements before choosing a sidechain.

Block parameters are another area where sidechains often differ from Ethereum. While Ethereum limits block times (time needed to produce a new block) as well as block size (data level in a block), sidechains take a different approach, instead promoting speedier block times and allowing more leniency with gas usage. These parameters help promote the high throughput and fast transaction times that sidechains are known for and that make them popular choices, but they do come with a cost. Factors like fast block times and large block sizes make running a full node on a sidechain increasingly challenging. As a result, sidechains often rely on fewer nodes to support the chains and provide security. This sacrifices some decentralization and could leave the chain more vulnerable to malicious actions.

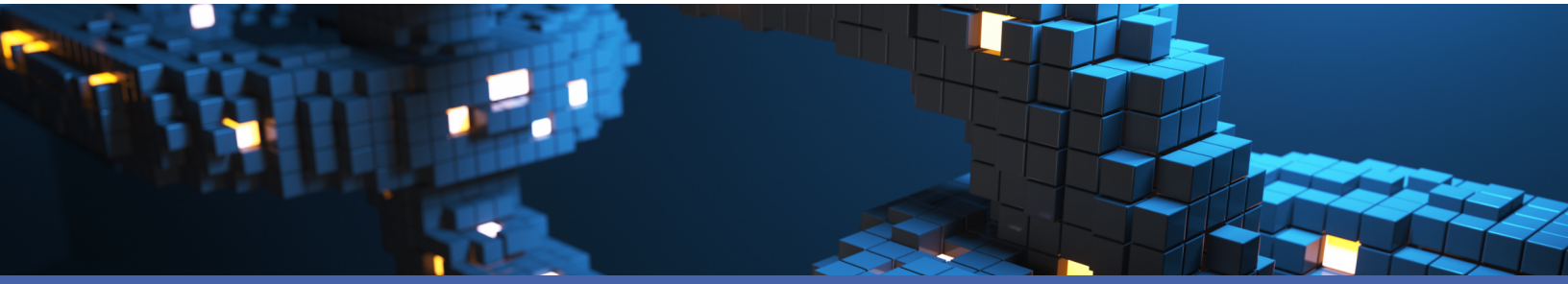
For business users, the key takeaways around sidechains are that they offer an effective way to scale projects and enable higher throughput and faster transaction times, at a reduced cost. These benefits make them an attractive option for businesses looking to drive efficiencies and grow their operations. However, sidechains do require some compromises. Perhaps the biggest consideration for businesses is that sidechains don't offer the same level of security as the Ethereum Mainnet, which could be a significant hurdle for some. That said, sidechains have already proven their value, and the space remains quite young. Just as we will continue to see Ethereum mature and improve, we are likely to see significant advances in sidechains in the years to come.

HOW DO I FIND OUT MORE?

Read: The Ethereum Foundation's pages on Sidechains and Blockchain Bridges

Peruse: "An Introduction to Sidechains," by CoinDesk

View file on web page



About the EEA

The Enterprise Ethereum Alliance (EEA) enables organizations to adopt and use Ethereum technology in their daily business operations. The EEA empowers the Ethereum ecosystem to develop new business opportunities, drive industry adoption, and learn and collaborate.

To learn more about joining the EEA, reach out to james.harsh@entethalliance.org or visit https://entethalliance.org/become-a-member/.

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