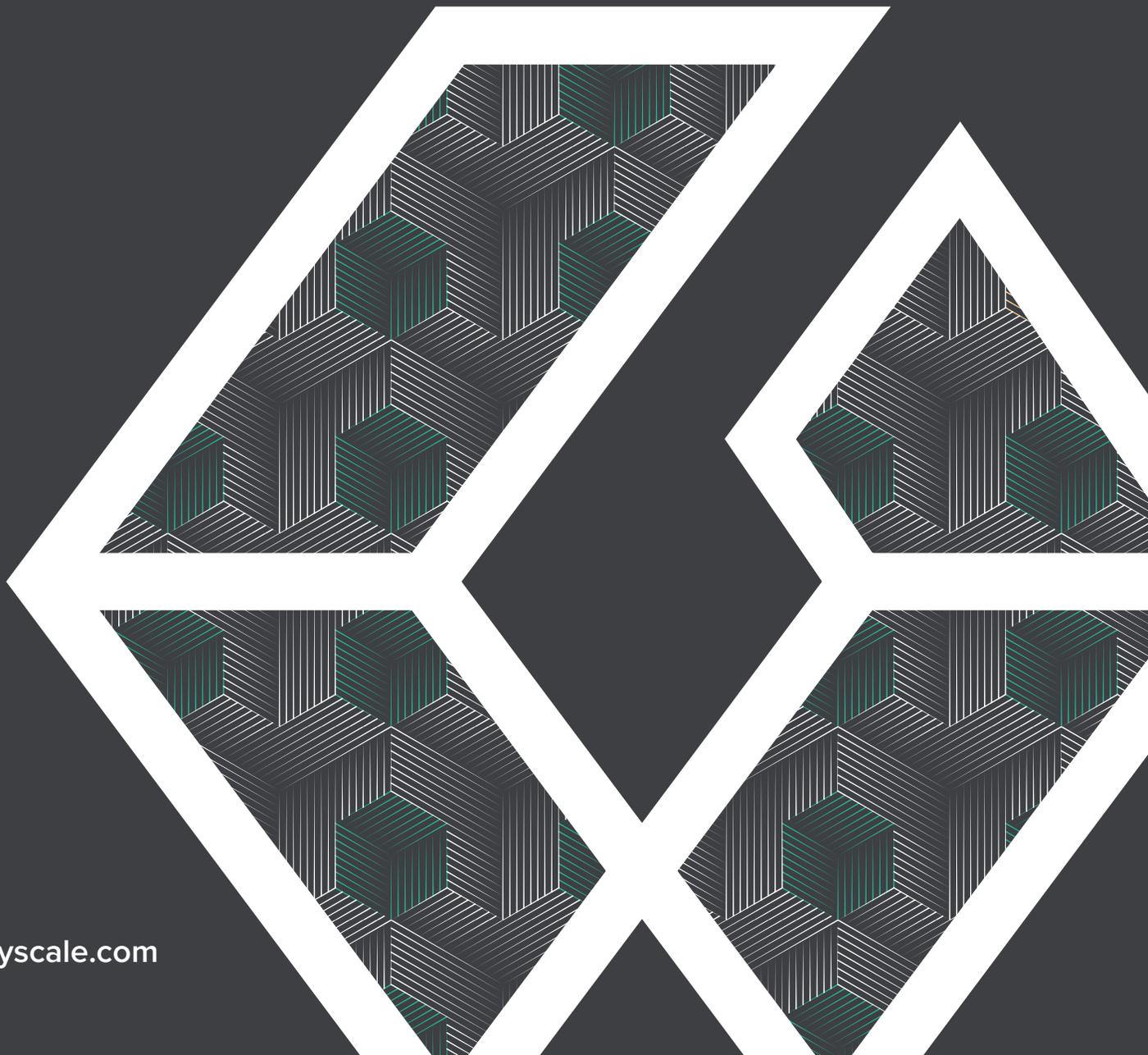


An Introduction to Litecoin



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Litecoin is a decentralized, peer-to-peer (P2P) digital currency and payment network supported by an open-source blockchain protocol. Through Litecoin, users can make payments to anyone in the world at relatively high speeds and low costs compared to traditional payment channels (i.e., SWIFT, ACH, FedWire system) and many other digital assets. It was launched in October 2011 by Charlie Lee, who held positions at Google, followed by Coinbase, until his departure in 2017 to head the Litecoin Foundation, a nonprofit organization committed to accelerating the development and adoption of the technology.

The Litecoin Project emerged as an alternative solution to Bitcoin in light of early concerns over Bitcoin's wait times in confirming block transactions. By introducing minor technical modifications to the original Bitcoin source code, Litecoin allowed for faster transaction speeds and even lower processing fees. As one of the earliest and most successful derivatives of Bitcoin, Litecoin has established its position as the fifth largest network by market cap in the digital currency ecosystem, complementing and reinforcing Bitcoin in purpose, function, and utility, and challenging our traditional notions of money.¹

1. Source: CoinMarketCap.com. As of August 1, 2021.



FIGURE 1: LITECOIN SUMMARY STATISTICS²

As of August 1, 2021

Asset	Litecoin (LTC)
Inception of Network	October 2011
Price (USD)	\$140.95
Market Cap (USD)	\$9.67 billion
Circulating Supply (LTC / % of Max Supply)	66.75 million / 75.2%
Max Supply (LTC)	84 million
Current Mining Block Reward (LTC)	12.5
Next Block Reward Halving Date (Expected)	August 4, 2023
Average Block Time	2.5 minutes
Market Segment	Digital Currency Payments

Defining Characteristics of Litecoin

Litecoin possesses the following qualities that make it a valuable counterpart to Bitcoin:

- **Decentralized:** Litecoin is supported by a P2P blockchain protocol that eliminates the need for a central authority (e.g., governments and financial institutions). Vitalik Buterin, the creator of Ethereum, asserts that blockchains are politically and architecturally decentralized, but behave in a logically centralized way, in which the nodes hold equal power in the network and must collaborate to validate transactions.³
- **Permissionless:** Anyone can participate in the network.
- **Secure:** The relatively fast rate of completed transactions compared to other blockchain technologies makes it difficult for attackers to overtake the Litecoin network.

2. CoinMarketCap.com, Messari / OnChainFX. As of August 1, 2021.

3. Vitalik Buterin, "The Meaning of Decentralization." February 6, 2017. Medium. <https://medium.com/@VitalikButerin/themearing-of-decentralization-a0c92b76a274>.



Addressing growing security and privacy concerns, the Litecoin Foundation also announced a partnership with the BEAM team to incorporate [MimbleWimble](#), an additional encryption feature based on Confidential Transactions. This serves two purposes: (i) concealing the transacted amount of Litecoin and (ii) detecting fraudulent activity if the transaction amount were changed while being processed.⁴

- **Open-source:** The source code for the [Litecoin Project](#) is viewable on the Internet, free for anyone to access, contribute to, or fork. This is an important characteristic for building trust and accumulating users, and it has helped to amass a large base of Litecoin supporters.

Users can introduce [Litecoin Improvement Proposals](#) (LIPs), which are feature suggestions designed to improve the network and follow strict technical guidelines.

- **Transparent:** Like other blockchains, all transactions are recorded and publicly viewable on the Litecoin blockchain from anywhere in the world.
- **Pseudo-anonymous:** Public wallet addresses are not necessarily directly linked to any identifying personal information. However, in the current state of affairs, complete anonymity is difficult to achieve. This is because addresses involved in any Litecoin transaction are permanently and publicly available on the blockchain. Information like multiple transactions originating from one wallet or data leaks from custody solutions or exchanges can almost always trace back to one's identity.⁵
- **Immutable and irreversible:** Transaction amounts cannot easily be changed or reversed once added to the blockchain.⁶
- **Finite supply:** Litecoin's maximum supply cap is set at 84 million LTC and is equipped with a disinflationary mechanism. With 63.17 million LTC already in circulation today (~75%), it is estimated that the total Litecoin supply will be mined around the year 2142. An established and transparent money supply and issuance schedule is critical for determining a digital currency's investability.

On August 5, 2019, the Litecoin block reward halved for the second time from 25 LTC to 12.5 LTC. For more information on the potential impact of halving on the price of a coin, please refer to our report, [The Next Bitcoin Halving](#).

4. "Confidential transactions". *Bitcoin Wiki*. https://en.bitcoin.it/wiki/Confidential_transactions.

5. Aaron Van Wirdum. "Is Bitcoin Anonymous? A Complete Beginner's Guide." *Bitcoin Magazine*. November 18, 2015. <https://bitcoinmagazine.com/articles/is-bitcoin-anonymous-a-complete-beginner-s-guide-1447875283>.

6. In order to reverse a transaction that has been added to a blockchain, an attacker would have to amass greater than 50% of a network's computational power. For large, decentralized networks like the Litecoin network, this is most cases economically and practically infeasible.



Differences Between Litecoin and Bitcoin

Litecoin and Bitcoin function as peer-to-peer currencies supported by their respective blockchain protocols. Both use proof-of-work (PoW) consensus algorithms to validate transactions. Once a transaction is verified, miners, or network nodes, will record the completed transaction on the blockchain and receive mining rewards for their efforts. This authentication process hinders attacks and abuses of the network by requiring computational power on behalf of the miner, which is resource-intensive and expensive.

However, the difference between the two protocols with respect to their algorithmic architectures have helped to propel Litecoin's popularity amongst users:

Bitcoin's SHA-256 Algorithm

Bitcoin uses the SHA-256 algorithm, which was created by the US National Security Agency in 2002. It is processor-intensive and requires a lesser amount of memory. It is integral to the mining process and in creating Bitcoin addresses.⁷

Bitcoin mining is computationally expensive and now requires custom hardware equipment called ASICs (Application-Specific Integrated Circuits). ASICs are far superior to the CPUs and GPUs found inside personal computers (PCs) in terms of performance and efficiency. However, they are relatively more expensive, and with Bitcoin block rewards set to [half](#) for the third time in 2023, profit margins from mining could decrease significantly without any offsetting increase in the Bitcoin price.

For more details on the technical implementation of SHA-256, please refer [here](#).

Litecoin's Scrypt Algorithm

Litecoin uses the newer Scrypt algorithm, which was created in 2009 by Colin Percival, a computer scientist known for creating Tarsnap, an encrypted cloud storage service. It is memory-intensive and requires a lesser amount of processing power. Scrypt effectively eliminated the need for ASICs by allowing mining to be completed using CPUs or GPUs, which are considerably cheaper and more accessible.

For more details on the technical implementation of Scrypt, please refer to Percival's whitepaper [here](#).

Over the past few years, Litecoin-specific ASICs have been introduced as miners continue to face increasing competition for block rewards. Though it is still possible for entities without ASIC capabilities to mine Litecoin, profitability is lower compared to using specialized machines.

⁷ "SHA-256". *Bitcoin Wiki*. <https://en.bitcoinwiki.org/wiki/SHA-256>.



Potential Advantages of Litecoin Compared to Bitcoin

The differences in the PoW algorithms lead to three potential advantages of Litecoin over Bitcoin with respect to on-chain transactions.⁸

- 1. Faster transaction speeds:** Litecoin blocks are generated at a rate of 2.5 minutes as opposed to 10 minutes for Bitcoin, allowing for faster transaction speeds and settlement times.⁹
- 2. Lower transaction fees:** Transaction costs for Litecoin are also lower compared to Bitcoin -- as of August 1, 2021, the average transaction cost for Litecoin in USD was \$0.014, compared to \$2.157 for Bitcoin.¹⁰ In addition, transaction fees for Litecoin payments are far less than those accrued when making or accepting credit card payments as an individual or merchant. In April 2018, a \$99 million Litecoin transaction cost 40 cents in fees to process.¹¹
- 3. Lower barriers to entry for miners:** Litecoin mining may be more accessible to those who are limited by equipment, as the expense of confirming a block, in electricity costs and computational capacity, may be cheaper than Bitcoin.¹² Therefore, Litecoin mining may be attractive to potential miners because it requires less processing power and has lower operating costs.

As a result of these advantages, Litecoin may be better suited to service specific market segments, such as the commercial payments industry, in ways that are nuanced but more efficient than Bitcoin. Given Litecoin's ability to process transactions in a faster, cheaper, and more accessible manner, it may be able to target entities with high transaction volumes, including exchanges and merchants.

8. We refer to on-chain (Layer 1) transactions as those settled on the main blockchain versus off-chain (Layer 2) transactions that are settled outside of the main blockchain. For the Litecoin Network, the Litecoin blockchain is Layer 1.

9. Litecoin Foundation. <https://www.paywithlitecoin.co/>.

10. Bitinfocharts. As of August 1, 2021. <https://bitinfocharts.com/comparison/transactionfees-btc-ltc.html>.

11. Oscar Williams-Grut. "Someone transferred \$99 million in litecoin — and it only cost them \$0.40 in fees." *Business Insider*. April 23, 2018. <https://www.businessinsider.com/a-99-million-litecoin-trade-took-just-25-minutes-and-cost-040-2018-4>.

12. "Litecoin versus Bitcoin: What's the Difference?" *Genesis Mining*. <https://www.genesis-mining.com/litecoin-vs-bitcoin>.



Potential Disadvantages of Litecoin Compared to Bitcoin

There are important trade-offs to consider when choosing between different digital currency networks to use and invest in. Selection will often depend on the asset that best satisfies the needs of the user. We outline some potential risks related to investing in Litecoin below¹³:

Adoption: Litecoin has a relatively low rate of adoption and use when compared to Bitcoin. For example, according to Coin Metrics, as of August 1, 2021, the count of active addresses holding more than \$10 in Litecoin was 1.6 million versus 24.4 million on the Bitcoin network. Moreover, this lower rate of adoption is not constrained to active users. It also extends to exchange listings and basic network infrastructure, such as wallet and front-end payment processing software.

Regulatory Uncertainty: The SEC has stated that certain digital assets may be considered “securities” under the federal securities laws. To date, the SEC has only identified two digital assets, Bitcoin and Ethereum, for which it does not intend to take the position that they are securities. As a result, any other digital asset, including LTC, is at risk of being deemed a security, which may have material adverse consequences for such digital asset.

Summary

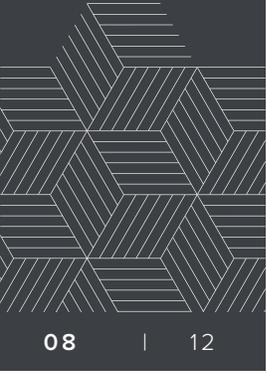
Litecoin was introduced as a solution to Bitcoin’s scalability problem, exacerbated by a bottleneck of transactions, which contributed to increased waiting times for completed transactions. Since then, Litecoin has evolved to complement Bitcoin as a comparable alternative digital currency and payment method with fast confirmations and low fees. Upgrades to the main Litecoin blockchain in the form of Segregated Witness (SegWit) and the Lightning Network, both in May 2017, have led to even faster Litecoin transactions. Additionally, the Litecoin Foundation is aggressively targeting the commercial payment market by expanding the number of merchants accepting Litecoin and recently released a debit card in collaboration with Bibox Exchange and Ternio, which will allow customers to spend in both physical and online locations.¹⁴ For more information on the latest Litecoin developments, please visit litecoin-foundation.org.

To learn more about other digital assets underpinning the Grayscale family of products, please visit the *Building Blocks* section of [Grayscale Insights](#).

13. This summary of potential risks is not a complete list of the risks and other important factors relevant to an investment in Litecoin or any Grayscale investment product that holds Litecoin. More complete disclosures are contained in the applicable Grayscale investment product’s private placement memorandum and other offering documents, copies of which may be obtained from Grayscale.

14. Litecoin Card. <https://litecoin-card.com/>





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Grayscale is headquartered in Stamford, Connecticut. For more information on Grayscale, please visit www.grayscale.com or follow us on Twitter [@Grayscale](https://twitter.com/Grayscale)



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