

## Chapter 1

# The Lightning Network

“What the internet did for communication, Bitcoin and the Lightning Network is doing for money.”

-Jack Mallers, CEO of Strike

**O**ur current global monetary system is a slow, clunky antiquated dinosaur, full of obstacles and roadblocks, lacking the speed and accessibility essential for today’s national and global financial landscape. Is Bitcoin the solution? Bitcoin is not a company. No one controls Bitcoin. It operates as an open-source system maintained by millions of users worldwide, without any central authority controlling it. No other coin, token, or currency shares these unique characteristics.

In the past, Bitcoin has faced criticisms for its relatively slow transaction processing time, which takes an average of 10 minutes. This is by design.

### ***FUD (Fear, Uncertainty, and Doubt) #1:***

Bitcoin is slow. It takes an average of 10 minutes to send a transaction.

The solution to this “slow” processing time is the Lightning Network, which moves money seamlessly at the speed of light.

## Money at the Speed of Light

The Lightning Network *is* Bitcoin. It offers a fast, frictionless payment method for its users, similar to credit cards. With the Lightning Network, you can send Bitcoin instantly and nearly for free—if not free, then for fractions of a penny—anywhere in the world. Bitcoin is an open, secure, permissionless system. This means anyone can create or download a bitcoin wallet to send or receive bitcoin. Anyone can use Bitcoin and the Lightning Network without permission regardless of where they live or their economic situation.

Money around the world currently operates in closed systems. Consider Venmo, PayPal, Zelle, and Revolut. All of these companies and systems can only send money within their own network. You can't send money from Venmo to Zelle or from Zelle to PayPal; transactions must occur within the same system. If someone in the U.S. wants to send dollars or any other paper currency to someone in Zimbabwe, it would be nearly impossible short of physically transporting the money to them and somehow making it through customs unscathed.

Sending money internationally is nearly impossible without using a third party, which adds additional costs and requires long processing times. For example, using a service like Western Union to send money from the U.S. to Mexico can cost up to \$45 in transfer fees, *plus* any exchange or bank fees, and the settlement can still take up to five days.<sup>1</sup> Fees can be much higher for other currencies. The bank fee alone is over 10% when sending money to Afghanistan. By the time you factor in transfer and exchange fees, the end recipient receives only a fraction of what was sent.<sup>2</sup> Even bank-to-bank transfers within the U.S. can take up to five business days to settle or may not be interconnected at all. As

a business owner, I've constantly struggled to send money bank to bank in the U.S.

Today, there are companies utilizing the Lightning Network as the payment infrastructure to instantly bridge between currencies.<sup>3</sup> Someone in the U.S. could send \$100 over the Lightning Network using the app *Strike*, and a second later, someone in Mexico could receive the equivalent amount in pesos. The final settlement occurs in just a second, and the fees might equate to less than a penny. Bitcoin and the Lightning Network is the highly liquid, open network in between that allows this to happen.

Western Union, one of the largest international money transmitters that exist today, generated \$4.35 billion in 2023 in revenue from fees and over \$5 billion in 2021.<sup>4</sup> Anyone sending money home to their family is losing a significant chunk of their earnings by using such predatory services.

I believe Bitcoin and the Lightning Network is the open system we need to fix this. Imagine if value could be transferred instantly and seamlessly all over the world. We live in a global society, and we need a form of money that matches our needs.

If a business owner accepts credit cards as payment, the credit card companies charge 3% or more for each transaction. However, if a business were to accept bitcoin using the Lightning Network, this fee could be reduced to almost nothing. They could even offer a 2% discount to customers for using the Lightning Network and still save money. Additionally, while credit card payments can take 2-5 business days to settle, the Lightning Network settles instantly.

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FEATURES	LIGHTNING NETWORK	CREDIT CARDS	BANKS	PAPER CURRENCY \$
Settlement Time	INSTANT	2-5 BUSINESS DAYS	2-5 BUSINESS DAYS	INSTANT
Transaction Fee	NEAR 0%	3%	\$15-50 (wire transfer)	\$0
Chargebacks	0%	.6%	1% (bounced checks)	0%
System	OPEN	CLOSED	CLOSED	EITHER OPEN OR CLOSED (location dependent)
Global Access	YES	NO	NO	NO
Digitally Native	YES	YES	IN BETWEEN ANALOG AND DIGITAL	NO

Figure 1.1

With the Lightning Network, you can instantly buy a coffee using bitcoin with nearly zero fees. Before Lightning was implemented, spending bitcoin took an average of 10 minutes and the fees were higher for small payments. All transactions took place on the main chain, which is optimized for security, not for fast payments. Lightning introduced a second layer to be built on top of this secure model, optimizing for instant payments while still using the underlying asset—bitcoin. The internet is constructed in a similar fashion, having a secure first layer (TCP/IP) on which everything else is built—such as websites.

Some other cool ways people are using Lightning is by “streaming sats.” Let’s back up. What is a “sat?” One bitcoin can be divided into 100 million pieces called satoshis, also known as “sats.” On the Lightning Network, sats can be divided even further into 1,000 units called millisats. At the time of writing this, 1 cent is equivalent to 15 sats or 15,000 millisats <sup>5</sup>

When the price of bitcoin reaches \$1 million per coin,  
**1 sat** will equal **1 cent**.

## **Micropayments**

Companies such as Fountain Podcasts utilize the Lightning Network to offer a platform where creators can upload their podcasts. Users are able to “stream sats” as payment for listening, and have the option to choose the number of sats they wish to stream—for instance, they can decide to stream 5 sats for every minute of listening. This way, listeners can send their favorite creators a few pennies’ worth of sats in appreciation of their content. Additionally, listeners have the opportunity to earn sats by opting in to advertisements.

How many times have you encountered a paywall? You try to read an article or watch a video, only to find yourself forced into subscribing for a month or a year, undergoing a lengthy and expensive sign-up process, just to read one article—all while being bombarded with advertisements. Streaming sats can fix this. What if these paywalls said, “For every 1 minute you spend reading this article or watching this video, you must stream 10 sats.” Wouldn’t you be more inclined to read the article or watch a video for less than a penny? You could integrate a Lightning wallet into your web browser and set it up as your streaming wallet. By funding this wallet with \$5 worth of sats, you could access content for weeks. Through these micropayments, authors get paid, and more people are encouraged to read, watch, listen, or share their work, and it can be an alternative to advertising revenue.

Micropayments can also revolutionize social media. Did someone post something that you love? Tip them a sat. Open sourced social media protocols like Nostr have already

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integrated this feature. Watched an incredible YouTube video? Tip them 100 sats.

Lightning has fixed not only local payments for goods and services but also global and digital payments over the internet. It puts the power back in the hands of the user without having to go through costly intermediaries. Lightning offers an updated, faster, and cheaper system for a global economy. In a world where messages and information travel the globe in seconds, Lightning ensures our money moves as quickly as our words.