



# Building Network Effects on Ripple

XRP's Role on Ripple and in the Internet of Value

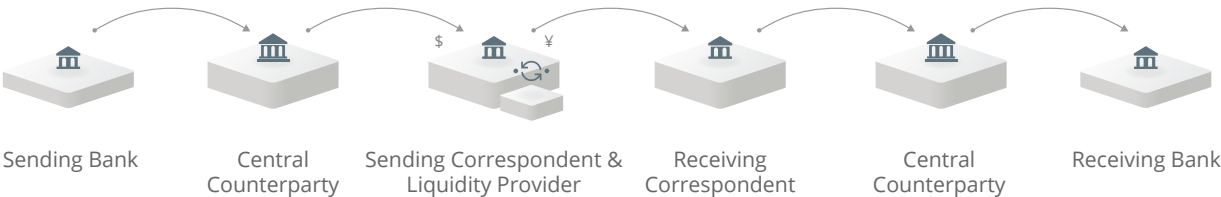
November 30, 2015

# Why the World Needs Ripple

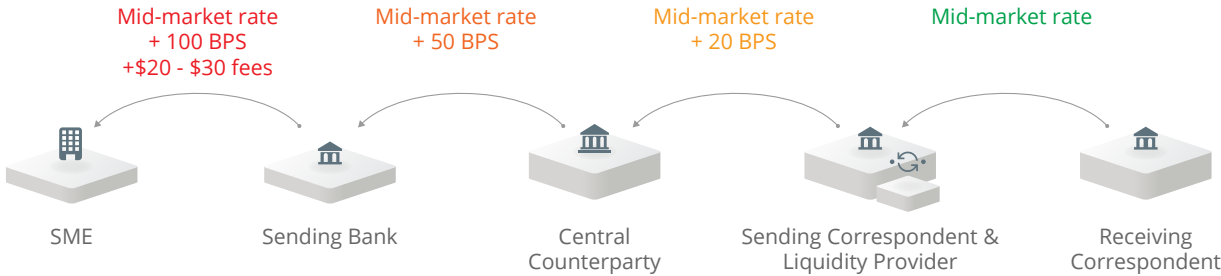
Payments don't meet the expectations of 21st century consumers or the needs of an inclusive global economy. They are the cornerstone of global economic activity. Yet, as the modes of payment grow more inventive and more convenient (mobile, social, machine to machine), the actual settlement of payments is mired in decades old technology.

Think about the last time you sent an *international payment*, in particular. Did it take days? Did you understand the fees and foreign exchange rate? Was it expensive? Were you worried it wouldn't get there? Domestic payments encounter friction too, but cross-border payments are the slowest and most expensive. The reason they're so slow and expensive is they're beholden to antiquated and inefficient infrastructure, built country by country, before the dawn of the Internet.

Today, payment networks are siloed. Correspondent banking connects networks through a series of intermediary banks and central counterparties. Each intermediary adds cost, obstructs visibility, and creates a potential point of delay or failure.



Correspondent banking is capital intensive for liquidity providers. It requires they have global operations and hold liquidity in local currencies all over the world. Thus, fewer than ten banks in the world provide liquidity for global payments, so FX rates aren't competitive. Then, each intermediary marks up the rate, so smaller banks and end customers see worse rates.



Illustrative Example

The numbers are telling. On average, international payments take 2+ days to settle, 4 percent fail<sup>1</sup>, 12 percent result in errors<sup>2</sup>, and they create total costs of \$1.6 trillion<sup>3</sup> annually.

1 Robinson, Edward. "Former Goldman Exec Wants to Upend the Way the World Moves Money." Bloomberg: n. pag. Web. 7 Apr. 2015.  
 2 "Does Valid Bank Account Data Matter?" Experian: 8. Web. 2014.  
 3 World Trade Organization, Federal Reserve Financial Services, Institute of International Finance, Ripple Analysis

We believe payments, and more broadly value, should move like information moves on the web today - globally, securely, instantly, freely. By design, this Internet of Value will be built on open web standards (e.g. [Interledger Protocol](#)) and involve the participation of existing payment service providers (e.g. financial institutions, payment networks) and new types of providers (e.g. distributed financial technology companies). These standards and new distributed financial technologies will connect the world's financial systems - both new and old - so value will move across systems and borders with the least friction possible, and so all participants can benefit from the economies of liquidity at scale.

By modernizing the underpinnings of payments infrastructure with IP-based technology, the Internet of Value will initially allow individuals and businesses to enjoy instant, lower cost, secure cross-border payments, and payment service providers to enjoy greater business opportunities. In the future, it will create access for the financially underserved to affordable payment services, for individuals to tap into new sources of value, for businesses to expand reach, for technology companies to innovate in presently unimaginable ways, and for economies to grow exponentially.

## How Ripple Can Spark the Internet of Value

To map how we get there, let's look at how all successful Internet technologies, including the Internet itself, took off. They built network effects, matching supply with demand. As these marketplaces flourished, efficiencies increased, participants realized greater returns, and experiences improved exponentially.

Every marketplace starts with a chicken-and-the-egg problem: the supply side won't come to the table or make significant change unless there's demand. And, demand is challenging to prove without real supply. The classic example is the telephone network - a brilliant invention but pretty useless for the first phone owner, who had no one to talk to.

### **How, then, does Ripple build network effects?**

Let's start by identifying the actors. When we evaluate how all payments work, they ultimately require account-to-account settlement either within a bank or between banks. Even if you use Venmo or Paypal to pay a friend or a merchant, you still ultimately rely on banks to custody and move your money. Cross-currency payments require liquidity provision, which top global banks provide today as discussed earlier. Then, in Ripple's marketplace, banks and third-party liquidity providers supply payment services and liquidity for individual and business customers, who have demand for payments.

## What's in it for banks?

Ripple offers, for the first time in history, the ability to transact directly, instantly and with end-to-end visibility and certainty of settlement. These unique characteristics present new business opportunities for banks to compete with upstarts.

For large, global banks, Ripple reduces risks and thus compresses operational costs<sup>4</sup>, furnishing them the opportunity to leverage their existing FX operations to build profitable low-value payment services, like remittances and disbursements, and increase their wallet share.

For small to mid-sized banks, Ripple offers an entirely new, unbundled model for cross-border payments. Ripple enables them to directly transact with other banks globally, sourcing liquidity from an open marketplace of third parties and allowing them to introduce competitive cross-border payment services to attract new customers.

## What's in it for third-party liquidity providers?

Through its novel design, Ripple facilitates competitive bidding on liquidity provisioning. Third-party market makers, such as hedge funds, enjoy access to an entirely new and ever-growing opportunity to provide liquidity for global payments, profiting from spreads.

## What's in it for individual and business customers?

Banks that adopt Ripple can offer their consumer and business customers improved payment services that are faster, less expensive, and offer greater visibility into delivery status.

Ripple leads the market today in delivering on the interbank cross-border payment use case. Banks now adopting Ripple benefit from new efficiencies in payments processing. To date, Ripple is the only provider of enterprise-grade solutions, tried and tested by more than a dozen banks using real money. Ripple solutions are based on Ripple's core technology, which accommodates instant cross-currency settlement and is scaling to process limitless throughput of transactions.

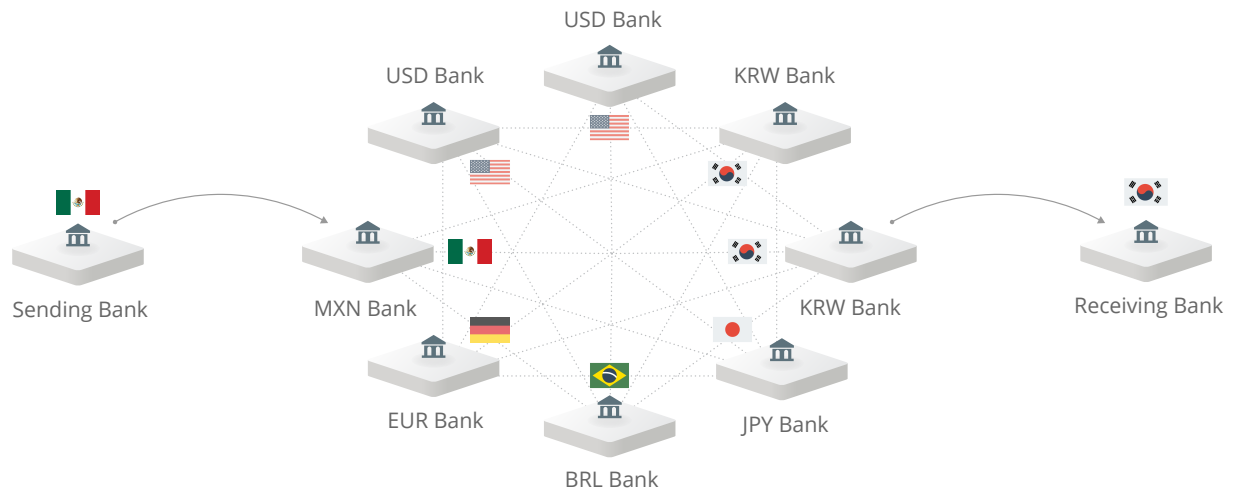
Out of the gate, Ripple injects an outmoded system with new processing efficiency, creating immediate return on investment for first adopters. As a marketplace, benefits grow exponentially as more participants join and as it becomes a thick market. Ripple's native digital asset, XRP, can help expedite market thickness on Ripple.

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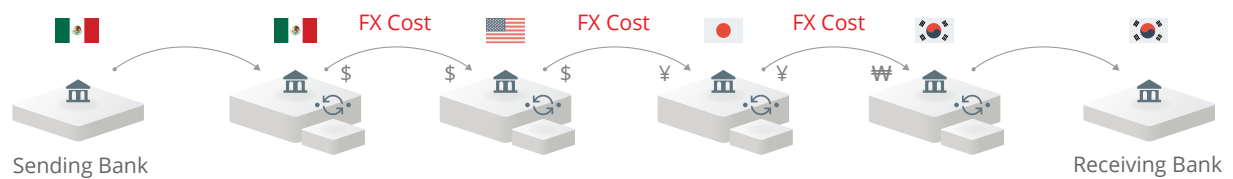
<sup>4</sup> Operational costs include treasury operations, processing and liquidity costs.

# From a Spark to a Wildfire

As liquidity on Ripple grows, so do the number of currencies and counterparties. In this state, there will be many options to execute a currency trade. Liquidity providers need to open and maintain accounts with each institution for each currency - a capital- and time- intensive endeavor that spreads liquidity thin. It's more challenging for the marketplace to offer tight spreads with thin liquidity. In the example below with eight banks, a liquidity provider would need to quote up to 28 currency pairs to participate in all order books.

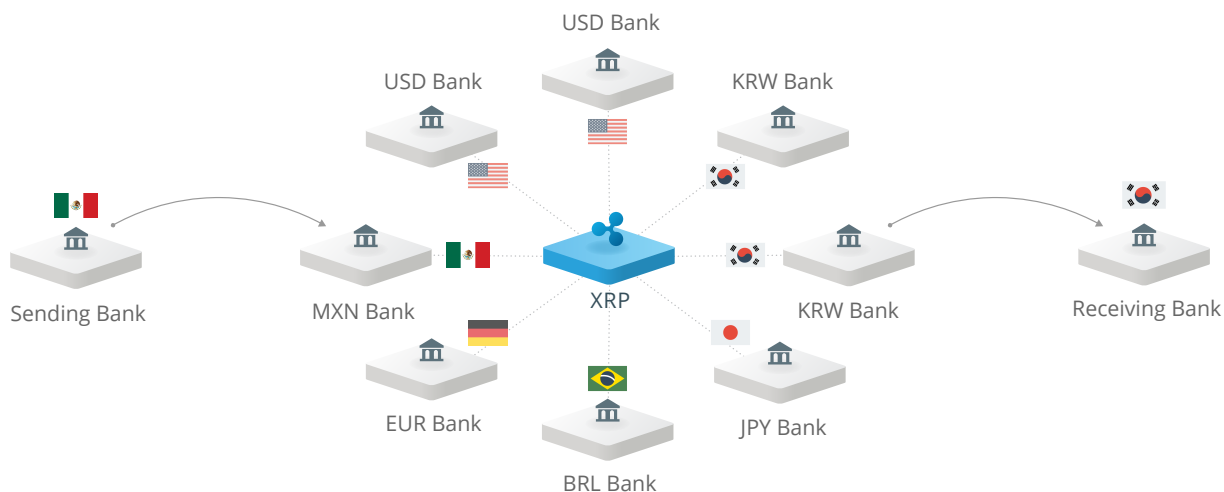


Further, some options will involve many trading parties, who each layer costs to the transaction, especially long-tail payments in exotic corridors. These complex paths make competitive pricing challenging for long-tail payments.

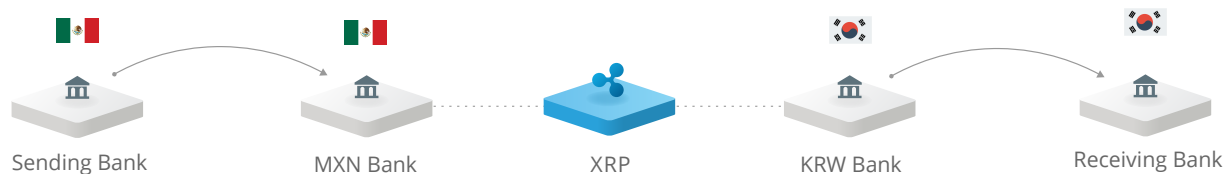


Ripple is uniquely positioned to solve these problems as a multi-currency distributed financial technology with a native digital asset, XRP, that directly bridges any two currencies. By using XRP, liquidity providers reduce operational costs and have the opportunity to specialize in certain currency corridors. Similar to USD, XRP allows market makers to concentrate their liquidity around fewer pairs, creating order book thickness and competitive FX rates.

Unlike USD, trading through XRP does not require bank accounts, service fees, counterparty risk, or additional operational costs. In this example, market makers collectively only have to quote eight currency pairs (versus up to 28 in the previous example) to reach the same number of destination currencies.



Using XRP as a bridge asset, complex cross-currency payments can be executed without additional trading parties, translating to lower costs for even exotic corridors.



XRP is an attractive asset for liquidity providers to create liquidity between any two currencies at incremental cost. To offset the risk of bridging currencies with a new asset like XRP, we plan to subsidize its use in the early days. With XRP, market makers systemwide can offer tighter spreads than traditional currency markets, fast-tracking Ripple's path to market thickness.

This offer is immediately compelling to small to mid-sized banks, which today rely on large correspondents to provide liquidity for cross-border payments. By sourcing liquidity from third-parties who make markets through XRP, smaller banks can offer more competitively priced payment services to attract new customers.

Initially, large banks will continue to source liquidity from their own FX operations and improve their processing efficiency using Ripple. However, as Ripple's currency market grows, large banks will see benefit to posting and sourcing liquidity to and from it as well.

# Conclusion

The advent of distributed financial technology has set the unfolding of the Internet of Value in motion. As our CEO Chris Larsen says: “The genie is out of the bottle.” As with any marketplace, the Internet of Value needs to first solve the chicken-and-the-egg problem: attract both supply and demand.

As a uniquely positioned distributed financial technology, Ripple plays a key role initiating network effects in the Internet of Value. In a marketplace context, Ripple affords liquidity suppliers (banks and third-party market makers) and liquidity takers (people and businesses who need payments) step-function improvement over how cross-border payments work today:

- Large, global banks lower operational costs to increase wallet share.
- Small to mid-sized banks gain direct access to competitive liquidity to attract new customers.
- Third-party market makers compete to provide liquidity for global payments.
- People and businesses enjoy faster, less expensive payment services with new visibility into tracking and delivery status.

The introduction of third-party liquidity providers significantly transforms the face of payments and accelerates the growth of Ripple’s marketplace. The more participants in liquidity provisioning, the more competitive the marketplace. Competition encourages broader adoption and participation - in sum, network effects.

As a digital asset, XRP is a useful trading instrument to reduce spreads and expedite market thickness. To incentivize early participation of liquidity providers, Ripple will implement programmatic distribution of XRP to those who use it to offer better spreads on currency trades and payments.

With clear and validated benefits to bring both supply and demand actors to the table, Ripple’s marketplace is already developing: large banks are joining to improve processing efficiency, and small to mid-sized banks are joining to leverage third-party liquidity providers for cross-border payment services. As these network effects build, Ripple and XRP will play a central role in driving development of the Internet of Value.

## About Ripple

Ripple provides global financial settlement solutions to ultimately enable the world to exchange value like it already exchanges information – giving rise to an Internet of Value (IoV). Ripple solutions lower the total cost of settlement by enabling banks to transact directly, without correspondent banks, and with real-time certainty of settlement. Banks around the world are partnering with Ripple to improve their cross-border payment offerings, and to join the growing, global network of financial institutions and market makers laying the foundation for the Internet of Value.

Ripple is a venture-backed startup with offices in San Francisco, New York and Sydney. As an industry advocate for the Internet of Value, Ripple sits on the [Federal Reserve's Faster Payments Task Force Steering Committee](#) and co-chairs the [W3C's Web Payments Working Group](#).

## Contact Us

For institutional XRP purchases or for market making questions, please contact us at [mm@ripple.com](mailto:mm@ripple.com).

For further information on XRP visit [ripple.com/xrp-portal](https://ripple.com/xrp-portal).

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