





Why Financial Institutions Are Adopting Ripple

Today, cross-border payments are slow, uncertain, and expensive. Financial institutions and their customers rely on a patchwork system of correspondent banking relationships to settle cross-border payments. This patchwork system creates costs that amount to \$1.6 trillion per year absorbed by all of the players in the ecosystem.¹ Furthermore, systemic risk is inherent, with numerous points of delay or failure and limited visibility throughout the settlement process. The result: a poor customer experience with 2+ day settlement cycles and unknown delivery times. The world is demanding a better solution for cross-border payments.

Ripple's distributed approach and global network deliver real-time settlement with end-to-end visibility and control. Financial institutions integrate Ripple to lower the total cost of every transaction.

¹ Ripple analysis across: World Trade Organization, *International Trade Statistics 2014*; Institute of International Finance, *Aggregate Capital Flows 2014*; Federal Reserve Financial Services, *Cross-Border Payments 2015*



What Is Ripple?

Ripple provides access to a global network of banks and market makers. Using Ripple as infrastructure technology, banks settle cross-currency transactions instantly and with complete visibility and certainty, resulting in the lowest total cost of settlement for every transaction.

How Ripple Works

Ripple enables financial institutions like yours to settle cross-currency payments more efficiently than ever before by connecting your bank directly to other banks around the globe. An alternative to today's correspondent banking system, Ripple eliminates time delays and ensures certainty of settlement, resulting in lower transaction costs for your bank and your customers.

Direct bank-to-bank settlement allows you to serve your customers in new ways, meeting their growing demands for faster, low-cost, global payment services and a better overall customer experience.

Benefits of Ripple



Access

Ripple enables access to a global network of financial institutions and market makers. Banks transact directly with one another instead of through correspondent banks.

Speed

Ripple's distributed technology provides real-time settlement between banks.

Certainty

Banks exchange payment and fee information on Ripple before payments execute, minimizing the risk of failure. Funds settle between Ripple-connected banks in seconds with end-to-end visibility into every transaction.

Cost

Ripple reduces the total cost of settlement for every transaction, freeing up funds for both your bank and business clients to allocate elsewhere.

The Total Cost of Settlement

The Obvious Costs: FX and Wire Fees

When we think of the costs associated with financial settlement, we think of foreign exchange (FX) fees, international wire fees, and operational costs arising from issues like failed payments. Although these costs might seem insignificant for business clients, they add up quickly.

Corporate wholesale payments account for 93 percent of the world's \$22.5 trillion annual cross-border volume.² Today, many corporations send payments in batches to minimize FX and international wire costs and to pay vendors, employees, etc. on time. These funds then sit idle in foreign bank accounts until they are needed for local payments.

The Hidden Cost: Float

While businesses save on FX and international wire fees by transferring funds in batch, there is an even bigger cost of settlement that is often overlooked: the cost of float. Funds in float are your business customer's funds that are either in transit or sitting idle in a foreign bank account, unable to be used by the business. The opportunity cost of letting these funds stagnate is significantly higher than the cost of FX or international wire fees combined. For a multinational corporation with an annual revenue of \$10-\$15 billion and a double-digit cost of capital, float accounts for about 80 percent of the total cost of settlement. Processing, operational, and FX costs amount to the remaining 20 percent.³

² BCG Perspectives, *Global Payments 2014: The Interactive Edition*

³ Ripple cost analysis based on insights and validation from corporate, banking and consulting partners.



Based on Ripple's analysis, float represents the most significant cost to multinational corporations when it comes to cross-border payments.

A New Model: Global FX Marketplace

Ripple enables financial institutions to lower the total cost of settlement for their business clients via access to a global network of market makers.

Traditionally, banks are limited to the currency offerings and FX pricing of their select group of correspondent banks, resulting in higher costs and greater inefficiencies.

Ripple opens access to currencies and liquidity by enabling a competitive FX marketplace in which market makers can compete with one another to service cross-currency transactions.

Market makers are financial institutions, hedge funds, and trading firms that provide liquidity for global markets. Since market makers earn spread by taking risks and providing liquidity on both sides of the currency exchange, they are able to increase global liquidity while reducing capital costs systemwide.

By tapping into Ripple's competitive marketplace, your financial institution can choose among offers for a payment. Ripple automatically finds the best offer for every payment, compressing costs for banks and their customers. Ultimately, you can lower your bank's FX settlement costs and improve your service offerings to business clients, enabling them to pay as needed rather than tie up working capital in foreign bank accounts.

Security on Ripple

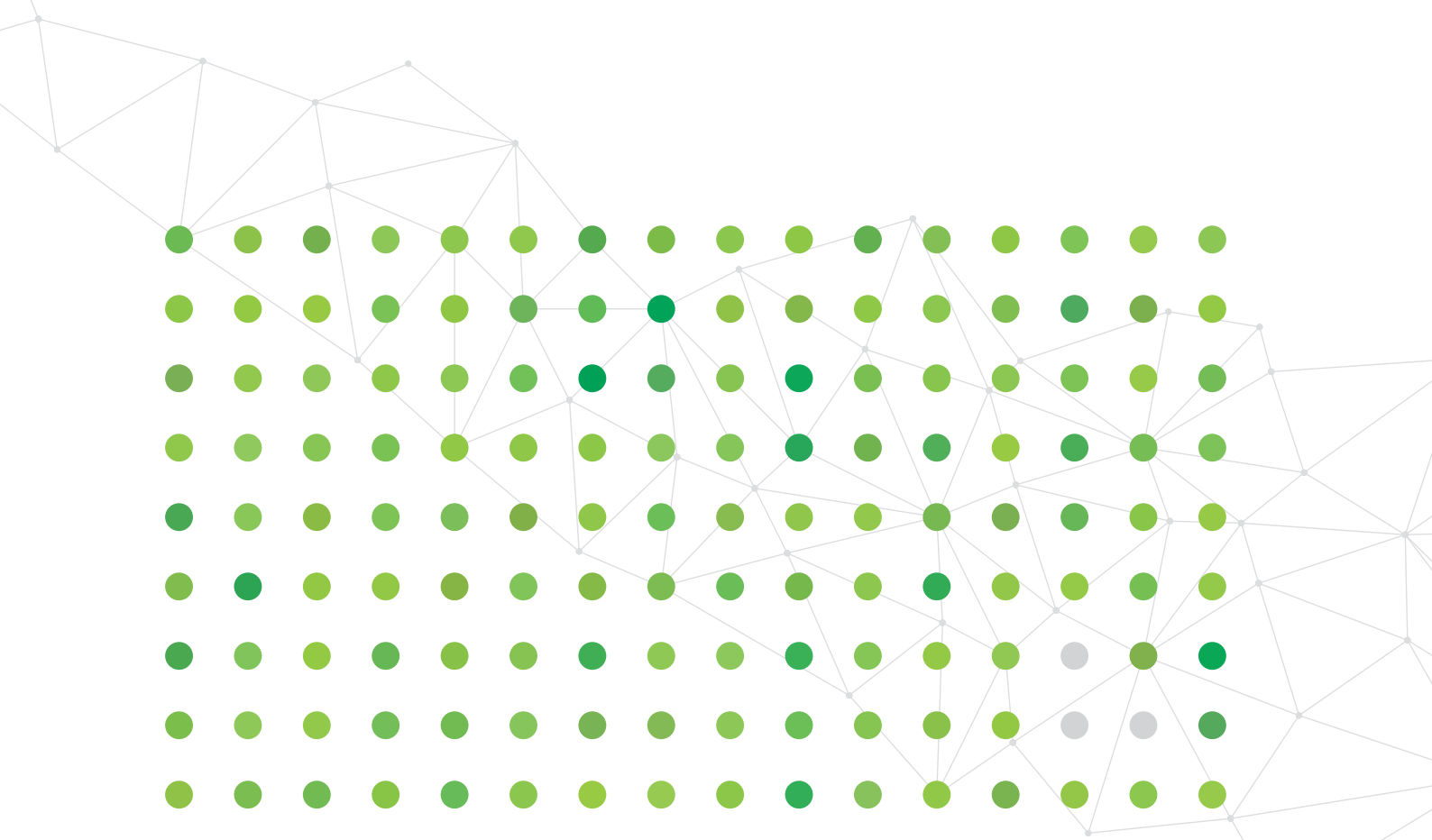
At Ripple, we provide secure solutions for real-time cross-border settlement. Ripple utilizes advanced encryption and bank-grade security features to keep your sensitive information secure and compliant with the latest industry standards.

Privacy of Information

Using Ripple, your customers' data remains private and secure, behind your bank's firewalls. Financial transaction history is recorded on the Ripple ledger; however, transactions are not linked to any identifiable information and cannot be directly associated with any individual account or your financial institution. Transaction values and fees represent the only information recorded on the public ledger. In addition, Ripple is releasing a private ledger version for financial institutions in which no information is tracked on a public record.

Cryptographic Security

Financial transactions on Ripple are signed using industry-standard cryptographic algorithms ECDSA and ED25519. Only your financial institution can cryptographically sign for your transactions — no other institution or individual can do it on your behalf.



Security of Funds on the Ripple Consensus Ledger

When integrating with Ripple, your bank will receive its own private, cryptographic key to ensure that funds remain secure. Only your financial institution can access the key; Ripple cannot access it. Financial institutions are responsible for keeping their private keys secure to ensure that no other entity can access their funds. For additional layers of private key security, multi-sign options are also available.

Security of Validators on the Ripple Consensus Ledger

Ripple uses a distributed network of validators to verify financial transactions. Anyone can become a validator on Ripple — this openness drives diversity of validators and ensures robustness of the network. Validators vote to confirm financial transactions. Validators that consistently vote reliably will remain active on the network, while validators that fail to vote reliably are recognized and removed.

Upon integration with Ripple, your bank can select which validators you choose to trust. Today, Ripple monitors validators and maintains a list of trusted and reliable validators to share with our partners to help you make informed decisions. We also encourage you to consider running your own validator servers to contribute to the reliability and stability of the network.

Compliance and Risk Management on Ripple

At Ripple, we understand that compliance and risk management are critical to your bank, which is why we build solutions that offer greater visibility into and control over cross-border settlement.

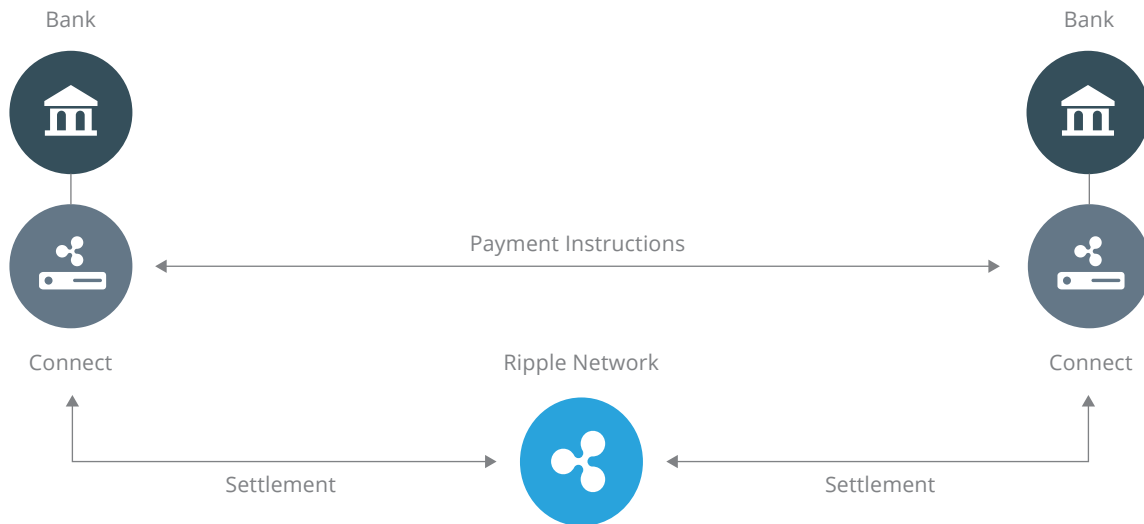
Ripple offers seamless integration with your bank's existing systems and processes, such as anti-money laundering controls, fraud detection, sanction screening, and regulatory reporting. Ripple makes it efficient for your financial institution to meet compliance requirements while reaping the benefits of real-time settlement.

While financial institutions integrating Ripple remain responsible for employing their own compliance measures, Ripple offers a way for your bank to reduce operational and risk management costs.

Reducing Operational Costs Through Pre-Transaction Communication

Today, sending banks transmit messages to receiving banks without any possibility of a response. If any information is incorrect, the payment will fail and has to be repaired or returned to the sending bank, which creates operational cost for both banks. In addition, payments take 2+ days to settle and are transferred simultaneously but separately from payment information, meaning there is a high risk of miscommunication leading to payment failure.

Ripple improves the efficiency of communications between sending and receiving banks. Pre-transaction communication on Ripple enables both banks to validate all required payment information — such as customer identity and risk profiles, fees, FX rates, and expected times of delivery — before funds are transferred. This capability allows banks to know whether a payment will execute, thus eliminating the need to return failed payments. Any issues with a payment are immediately visible and can therefore be rectified more quickly than in the traditional banking system. Pre-transaction communication on Ripple greatly reduces operational costs and risks associated with repairing and returning invalid payments.



Banks easily and securely integrate with the Ripple network via a software component called Connect.

Managing Liquidity and Compliance with Associated Regulations

Banks face increasingly demanding liquidity and compliance requirements. These requirements hedge risk inherent to today's infrastructure in order to provide greater stability to financial systems.

By providing modern infrastructure for cross-currency settlement, Ripple reduces systemic risks in three key ways:

1. Banks transact directly with each other, eliminating counterparties and associated settlement risk.
2. Banks leverage a competitive marketplace for liquidity instead of depending on one FX provider.
3. Banks use Ripple to communicate with each other in real-time, which allows them to identify and resolve risks to payments before executing them, as well as confirm delivery with absolute certainty.

By removing the risks of correspondent banking, Ripple enables banks to lower their operational and risk management costs.

Our Partners

Banks around the world — including Fidor Bank in Germany, as well as Cross River Bank and CBW Bank in the U.S. — have partnered with Ripple to offer more efficient cross-border payment services to their customers and to gain access to Ripple's growing, global network of financial institutions and market makers.

Global payment networks like Earthport are also integrating Ripple to offer real-time settlement to their bank clients.

Contact Us

Ripple has offices in San Francisco, New York City, and Sydney.

Please contact us at www.ripple.com/contact.



