BITCOIN MARKET JOURNAL

RIPPLE (XRP) ANALYST REPORT

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The Summary

Ripple presents an opportunity for investors through buying and holding its digital currency, called XRP, which is freely available on many digital currency exchanges.

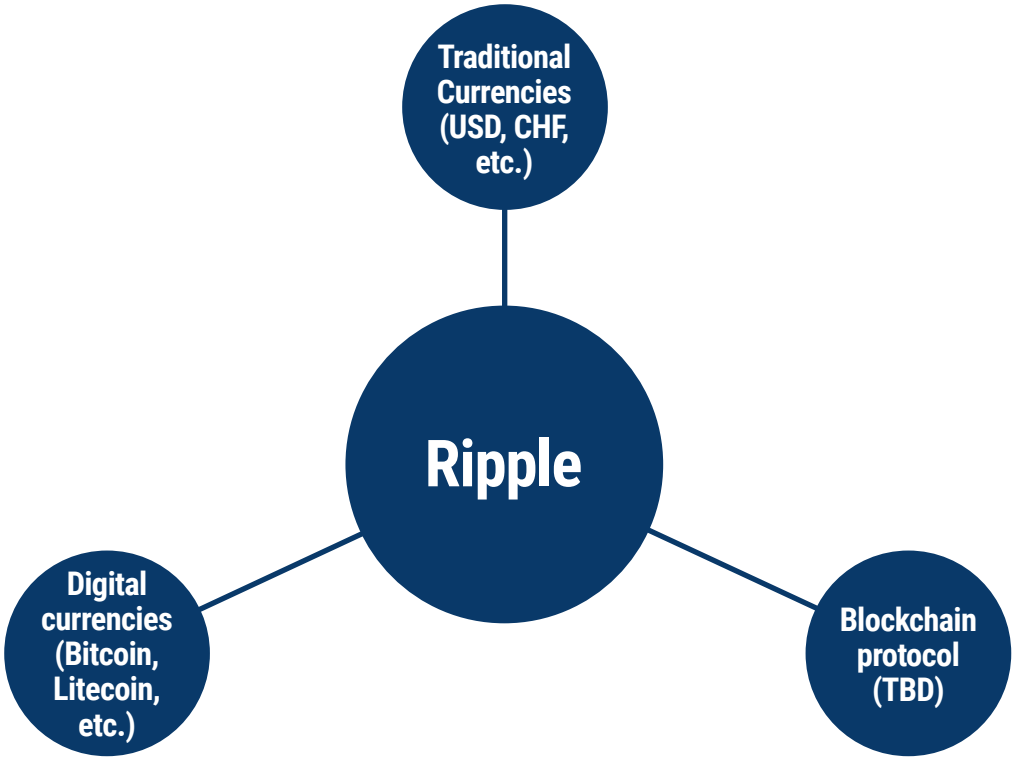
The opportunities for XRP to increase in value are significant, as it is built on the "Ripple network," a technology to "bridge" different currencies, as well as different blockchain protocols.

For the reasons we'll outline below, we believe that Ripple is a promising investment opportunity. At a current rate of $0.30 per XRP, this may be similar to the early days of bitcoin, where early adopters were rewarded handsomely as the price of bitcoin rose to nearly $3,000.

We must emphasize that the information outlined in this analysis is for information purposes only, and should not be taken as investment advice. You should not invest in XRP unless you are prepared to sustain a total loss of your money. This is a high-risk investment, so never invest more than you are willing to lose.

The Problem and the Solution

Ripple is a technology that allows banks and other financial institutions to make secure, instant, low-cost transactions of any size, regardless of the currency or blockchain platform. Think of it like a network with custom "adapters" that allow it to plug into any platform, so you can transfer money from dollars, to bitcoin, to euros, to any other altcoin.



As financial institutions are embracing blockchain technology, many are creating their own bitcoin-like solutions. Add to this the proliferation of altcoins such as Litecoin, Zcash, Monero, and others, and we are rapidly entering a world of a thousand digital currencies, each with their own protocol.

Think of it like the challenge of exchanging traditional currencies: changing dollars to euros, for example, which currently happens through a sophisticated network of money transmittal technologies and companies that took years to build.

In the new digital economy, transferring value between two blockchain protocols is often far more difficult, as the industry is still young, and two protocols may not be able to "speak the same language." Ripple acts as kind of a "global translator" for all these different platforms.

Ripple is focusing first on one big opportunity: *cross-border payments*, or transferring money from one country to another, which it claims can be done cheaper and easier on the Ripple network. This is the selling point for most of the institutions signing up as early Ripple partners.

To be clear, payments is only one potential use case for the technology: it is easier to think of Ripple as a platform on which many other products and services can be built. As an analogy, HTTP is the platform of the Web, on which many other layers have been built (such as HTML and JavaScript). The challenge — and the opportunity — is for Ripple to become a dominant standard for banks and financial institutions: the HTTP of the financial world.

The Ripple Effect

The most confusing thing about Ripple is that it is the name of a company, a protocol (Ripple Transaction Protocol), a network that runs the protocol, and a digital currency that runs on that network (traded under the symbol XRP). For the sake of clarity, we will use:

- "XRP" to describe the currency (investors can hold XRP directly)
- "RTXP" to describe the protocol, or the underlying technology
- "Ripple network" to describe the network that runs the protocol
- "Ripple" to describe the company behind the technology

Other than the naming, the Ripple team has made some astoundingly good decisions, in our view. The company not only has a working product that addresses a market need, it has made significant progress in signing up banks and large financial institutions as early partners.

We are also impressed with the team, the company culture, and the financial backers of Ripple. All these factors could make Ripple a major player in the financial industry, which is likely to increase the value of XRP.

The Customer

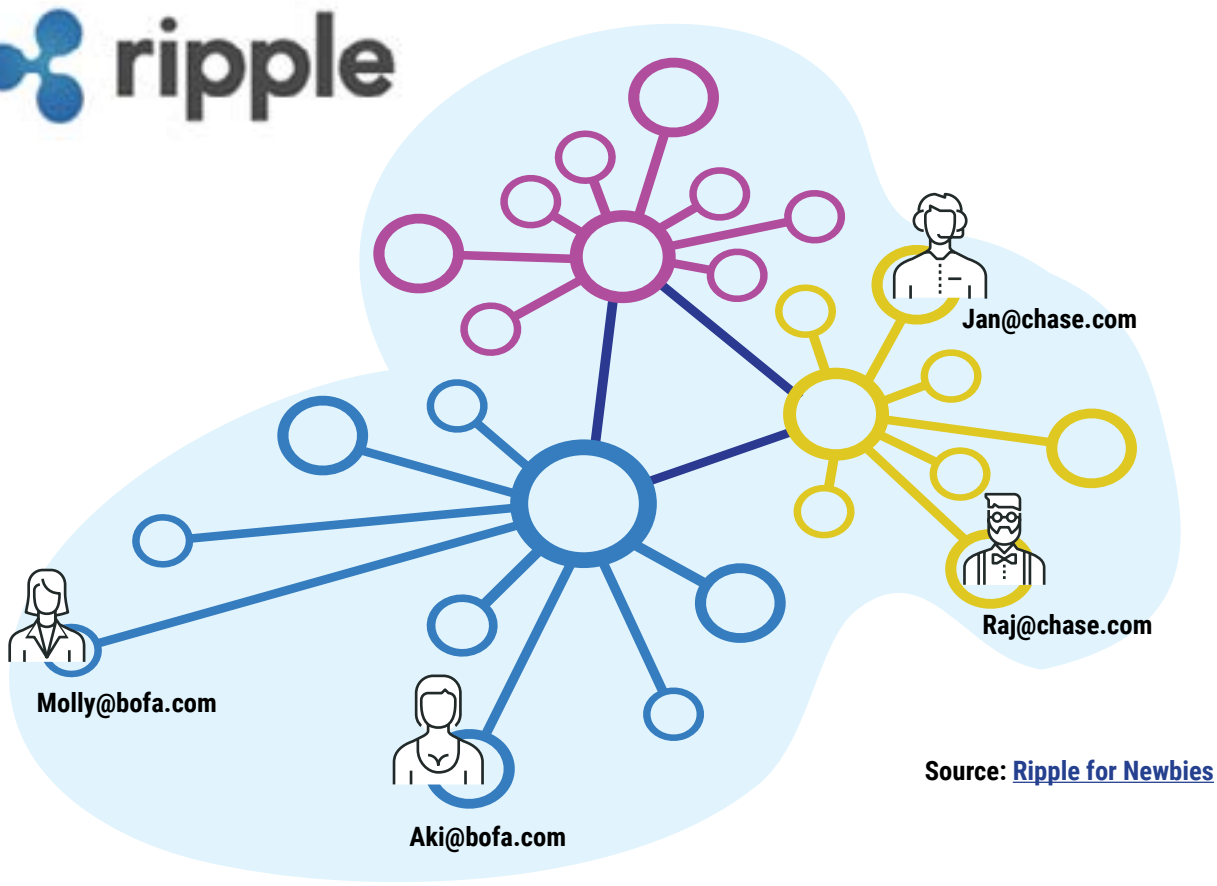
Ripple's target customer is the **Chief Technology Officer** or **Chief Information Officer** of a financial institution, who is actively exploring how to use blockchain technology to transfer money cheaper and faster.

A typical customer — let's call him Dick — is the CTO of a regional U.S. bank chain. He is technically savvy, probably male, middle- to late-middle age, and extremely risk-averse. He's paid well to stay awake at night and worry about security. But he's also tasked with innovating, as his customers increasingly do their banking online.

Dick is wary of bitcoin, since it is unregulated and volatile. But he understands what bitcoin represents: a tidal wave of change that's about to hit his bank. As a geek, Dick sees the promise of the underlying technology, blockchain, which will allow his bank to transfer money around the world without the payment processors and middlemen.

He lived through the dot-com revolution, and he remembers how the internet decentralized everything from the local news, to airline pricing, to transportation. Dick predicts that blockchain will do the same thing to the financial system itself.

As CTO, one of his tasks is figuring out how he will connect to all these new blockchain projects. That's where the Ripple protocol, RTXP, comes in. RTXP aims to be the "glue" that holds these together, the translation engine between all these projects.



Source: Ripple for Newbies

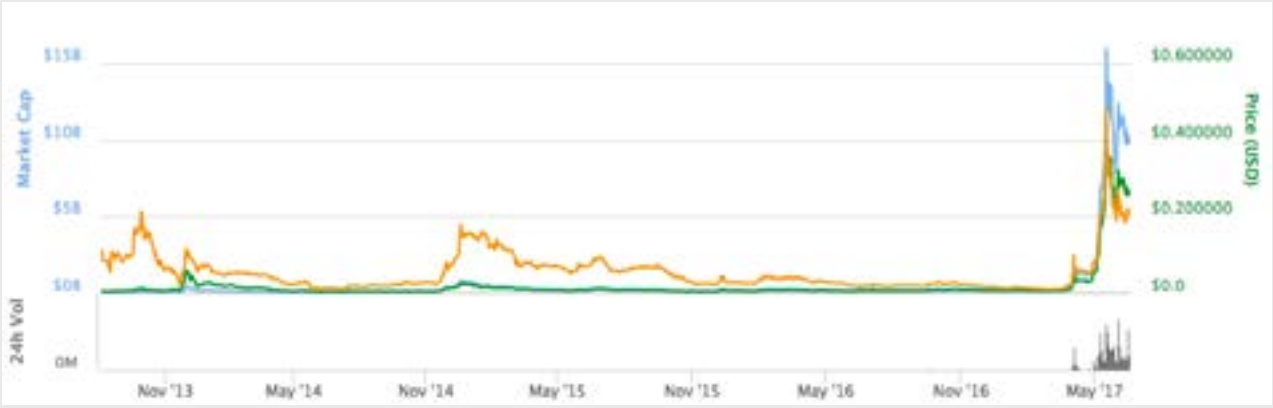
However, Dick sees one obvious use case right away: **cross-border money transfer**. Sending money to other countries is currently a slow, painful, and expensive process – and the Ripple network claims to make this faster, easier, and cheaper. That is likely to be the reason that Dick agrees to a test, and that is likely to become Ripple's killer app.

There is also "social proof." Because Dick is conservative and nervous, he will likely follow what his banking peers are doing. Who wants to be the CTO that bet on the wrong technology, and was all alone? There's safety in numbers. The more institutions that sign on with Ripple, the easier it gets to sign on new institutions (assuming word of mouth remains positive). With over 175 institutions already signed up, that's significant social proof.

It's worth mentioning that there is a secondary Ripple customer: **digital currency exchanges**. These are exchanges where bitcoin and altcoins can be bought and sold, like Bitstamp (www.bitstamp.net), which recently began trading XRP, the native Ripple currency. The more digital currency exchanges that support XRP, the more users that have easy access to buy, sell, and trade. Ripple has a dedicated team working to sign up these exchange partners, which further increases XRP liquidity and builds interest in the platform.

The Market

At the time of this writing, the "market capitalization" of XRP, the native Ripple currency, is $11.2 billion, putting it in the top 3 digital currencies.



Source: CoinMarketCap

But what is the potential market for RTXP? One of the most obvious uses for RTXP is the remittance market: foreign workers sending money back to their home countries. According to the World Bank, the remittance market is currently $500 billion per year,[1] one of the largest sources of income to developing nations. If we assumed that Ripple captured 10% of that market, that alone would be a $50 billion business, or about 5x XRP's current market cap.

However, this 10% number is a mighty assumption. The heavyweight player in the remittance market is currently Western Union, which has about a 10% global market share.[2] The remittance market is highly fragmented, and with so many startups competing in this space, it is likely to stay that way. However, fragmentation could be an advantage for RTXP, which aims to simplify.

The **best-case scenario** for RTXP is that the remittance market consolidates into a winner-takes-all situation, with the protocol becoming a universal standard. This seems less likely, given the great deal of competition in this market, but another scenario is that it consolidates into an oligopoly of just a few standards, like major programming languages or cloud computing providers, in which case Ripple could take 50% or more of the $500 billion market.

The **worst-case scenario** is what we'll call the "Esperanto problem," in which the market becomes even more fragmented. The inventors of Esperanto wanted to build a global language that would bring together the 7,000 languages spoken around the world. Instead, Esperanto ended up becoming the 7,001st language. This could be the fate of RTXP, with everyone building their own "custom translators," in the way that we use human translators for languages today.

[1] **Source:** http://blogs.worldbank.org/peoplemove/trends-remittances-2016-new-normal-slow-growth

[2] **Source:** https://www.saveonsend.com/blog/western-union-money-transfer/

However, the remittance market is only one potential area where Ripple could gain traction:

- Banks could also use it for currency exchange;
- Users could adopt it for P2P money transfers;
- An entire ecosystem of new products and services can be built on top of it.

Indeed, one of the biggest advantages of the Ripple network is that it is meant as a platform, so it has many different ways of succeeding. Thus, like a software platform, it is critical for the company to get partners and developers building on top of it.

The Competition

Imagine Dick, our hypothetical bank CTO, looking for a way to move money between different currencies, or different blockchain protocols. Like so many of his decisions, Dick is faced with the "build vs. buy" dilemma: is it preferable to build a new technology solution from scratch, or to buy it off the shelf?

The benefits of building are that he owns the code completely, and can fully customize the final product. The benefits of buying are that it's faster, and may be far superior to what his team is capable of building.

"What we really need in IT is someone who has super powers."

Currently, blockchain development is a "dark art": it's technically complex, mastered only by a few. It's risky from a security perspective. It's evolving daily. Why would an IT manager – especially at a risk-averse financial institution — choose to build, if there is an option to buy?

We predict the industry will coalesce around a few blockchain protocols, which will become standards — in the same way that websites coalesced around standards like JavaScript and CSS. While it is far from guaranteed, RTXP has a good chance of becoming one of those standards.

This is because RTXP has a sizeable head start. The earliest versions of the protocol, called Ripplepay, was created in 2004[3] (bitcoin was not launched until 2008). Early investors in the company included heavy hitters like Andreessen Horowitz, Google Ventures, and IDG Capital Partners.[4]

This early start has given the company years to develop the technology and pursue relationships with financial institutions: over 175 at the time of this writing, including UBS, Western Union, and Wells Fargo. Ripple has obtained a BitLicense from the New York State Department of Financial Services, a significant accomplishment that is likely to build credibility and confidence with investors, in our view.

The company also has a head start in building and buying its own development talent, in the form of programmers who are mastering the dark art of blockchain development. At the time of this writing, Ripple has 170 employees, who struck us as deeply knowledgeable about the technology, but also able to explain the technology clearly to laypeople.

This early start, we believe, can become a sustainable competitive advantage. While the first (and often best) technology does not always become the standard, a first-mover advantage is certainly a big advantage, particularly if that time is spent well. In our view, Ripple has spent both the time and money wisely.

While Dick may still choose to build it himself, preferring to have total control over the finished product, it is more likely that he will join the herd, and "buy" into the Ripple ecosystem. His confidence and trust in Ripple is likely to be encouraged when he sees the team leading the country.

[3] **Source:** https://bitcoinmagazine.com/articles/introducing-ripple/

[4] **Source:** https://www.gsb.stanford.edu/insights/chris-larsen-money-without-borders

The Team

Brad Garlinghouse (Ripple CEO)

is a Silicon Valley veteran, having held previous positions at AOL and Yahoo, where he was the author of the famous "peanut butter manifesto," arguing that Yahoo was spreading itself too thin and needed to focus on core areas of competency. He was previously CEO of the file sharing service Hightail, where he reportedly left after disagreements with the board about whether to sell the company (Garlinghouse wanted to sell; the board did not).

Chris Larsen (Co-Founder)

Garlinghouse takes over from company co-founder Chris Larsen, who started Ripple (then called OpenCoin) in September 2012. Larsen is a serial entrepreneur who founded the online mortgage lending site E-Loan, which he took public, followed by the peer-to-peer lending marketplace Prosper, currently valued at around $2 billion.[5] Moving from an entrepreneurial leader (Larsen) to an operational leader (Garlinghouse) is common as a company begins to scale; this seems like the right time for that transition.

The company's leadership team brings deep technology and finance experience from an array of respected companies:

- VP Finance **Cameron Kinloch** held executive roles at Box, Netflix, and Goldman Sachs;
- General Counsel **Brynly Llyr** served as attorney at PayPal and eBay;
- VP Marketing **Monica Long** managed PR for Intuit;
- VP Sales **John Mitchell** led global sales for Reval, a SaaS treasury management platform;
- Chief Cryptographer **David Schwartz** has developed solutions for CNN and the NSA;
- CTO **Stephan Thomas** created the BitcoinJS open source library, used worldwide.

[5] **Source:** https://www.wsj.com/articles/prosper-marketplace-completes-funding-round-1428533267

We are impressed with the team's dedication to the Ripple brand. One telling sign is the "Ripple pin." At a recent blockchain conference, employees wore silver pins sporting the Ripple logo, similar to the U.S. flag pin worn by politicians. The pin shows a dedication to the Ripple brand that goes beyond the typical company T-shirt. They're building something to last.

Ripple receives a favorable 4.2 rating from employees on GlassDoor.com. Employees anonymously comment that the company is filled with "smart and interesting people," an "intelligent and driven team," and "palpable passion." A minority of employees criticize the company for "long hours," "high burnout," and a "lack of product direction."

The company communicates openly, buying large exhibits at industry events, speaking frequently, and posting content from senior executives on its corporate blog.

In short, the Ripple team is filled with industry veterans who bring a wealth of knowledge, experience, and Silicon Valley connections. They are transparent and passionate. The biggest downside is their price: all those executives don't come cheaply, which means Ripple will continue burning through cash as it seeks to gain traction.

The Investment Opportunity

Garlinghouse has articulated his vision of an "Internet of Value," where money flows as freely as information moves today.[6] But moving money today is an expensive affair: consumers and banks pay fees for every transaction through a network.

Ripple's solution is a digital currency called XRP that runs on the RTXP network. Think of it as a "bridge currency" to provide liquidity. For example, if you want to convert dollars to euros, you can first convert dollars to XRP, then convert XRP to euros, all within the RTXP network. This has the potential to save financial institutions and consumers billions in exchange fees.

Any institution using the network to move money is required to hold a reserve of XRPs to act as a "trust line," in the same way that banks are required to hold a certain amount of cash reserves. XRPs are also used to pay transaction fees, which helps eliminate spam on the network.

Investors can buy and hold XRP: it's available through various digital trading platforms like Bitstamp and Poloniex. There are various ways to view an investment in XRP:

- As an investment in a new type of digital currency, which is likely to increase in value as adoption increases;
- As an investment in a financial network, an ecosystem that will increase in value as new products and serves are built upon it;
- As an investment in a company, which is likely to increase in value if RTXP is adopted as a standard.

[6] **Source:** https://ripple.com/insights/ripple-to-place-55-billion-xrp-in-escrow-to-ensure-certainty-into-total-xrp-supply/

To be clear, you are not investing in a company – XRP holders do not have any ownership stake in the Ripple company – but it is our view that investors will come to see it in a similar way as Ripple "stock."

We believe it is more helpful to think of digital currencies as something like a "store of confidence." In some ways, this is the use of any financial instrument: when investors are confident about an equity or a currency, the price goes up. A sudden loss of confidence brings a market crash.

What is critical for valuing new financial instruments is *the amount of confidence they are likely to generate.* This is why the number of financial institutions that Ripple signs up is a key metric: each new partner generates more confidence, and each successful test generates even more confidence.

In our view, Ripple has a strong base of confidence, which we have laid out in this report:

- The quantity and quality of investors in the company (Andreessen Horowitz, Google Ventures, Accenture)
- The quality of the management team (Silicon Valley veterans from PayPal, Intuit, eBay)
- The quality of the development team (20 top C++ developers, deep experience in cryptography)
- The potential size of the market ($500 billion remittance market alone)
- The quantity and quality of financial institutions that have signed on (UBS, RBC, Santander, BBVA, among others)

A sampling of Ripple integration partners (source: Ripple.com)

Still, there are obvious risks to investing in XRP. Among these are:

- **SPEED OF TECHNOLOGY.** The digital currency space is evolving quickly. In the early days of the internet, many early leaders (Netscape, Altavista, MySpace) did not emerge as the ultimate winners. This is particularly true when trying to establish a technology standard. A short-term lead frequently does not result in a long-term win.

- **SPEED OF BANKS.** Large financial institutions are notoriously slow: it's more like steering an aircraft carrier than a speedboat. The test partners that Ripple has signed to date will require months, even years to conduct their initial tests. Will the company have enough capital to survive the excruciatingly slow pace of adoption?

- **REGULATION.** The digital currency space is still like the Wild West, largely unregulated, with a loose patchwork of national and international laws, many of which conflict with each other. *Tighter regulation is inevitable.* The question is to what degree that regulation will hamper the company's ability to grow, and to destroy value that's already been created.

- **SCALABILITY**. One of our biggest areas of concern is how many transactions the Ripple network can handle. Bitcoin, for example, has reached the limits of its scalability, with new transactions becoming increasingly slow and expensive. Ripple developers have indicated the network currently processes about 10 transactions per second, and they have stress-tested it up to 1000 TPS, at which point it starts to show performance problems.

  By way of contrast, Visa processes about 15,000 transactions per second[7], with the ability to process a maximum of 47,000 transactions per second. Clearly, major performance upgrades will be needed before the Ripple network is ready to take on major payment processors.

- **CAPITAL.** This is an expensive business. Everything from development to recruiting talent to building partnerships is capital-intensive. Ripple is privately traded, so there are no financials to review, but we do know the company has raised nearly $100 million, including a Series B round of $55 million in September 2016.[8] The company founders also hold about 20% of XRP, currently worth about $2.2 billion. If the company needs cash, hopefully they'll be willing to share.

The Takeaway

There's a lot of hype in the blockchain industry, with investors pouring large amounts of money into unproven altcoins and tokens. That XRP is currently valued at $.30 is something of a mystery: the company has a working product, a strong management team, solid financial backing, and a partner network of large financial institutions. It seems poised to take on the future.

It is easy for investors to buy XRP on any of the major digital exchanges like Bitstamp and Poloniex. We see it as a long-term investment, since banks move slowly, and it is likely to take years before the investing public understands the full potential of the technology.

If someone had advised to buy $1,000 of bitcoin when the price was $0.30, that would be worth nearly $3,000,000 as of the time of this writing. While XRP is not bitcoin, it holds similar promise, as a "universal adapter" or a "glue" that banks can use to move money between different protocols.

We know banks need to move money, and we know there will be an explosion of different currencies and protocols. The only question is whether Ripple will become one of the standards to do so. We think it will.

[7] **Source:** http://www.visa.com/blogarchives/us/2013/10/10/stress-test-prepares-visanet-for-the-most-wonderful-time-of-the-year/index.html

[8] **Source:** https://www.crunchbase.com/organization/ripple-labs