ENTERPRISES AND DECENTRALIZED DATA CLOUDS

Ethical • Efficient • Interoperable

A Cere Network Vision Paper

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Preface

While Big Tech is fighting nail and tooth to preserve a monopoly over the rules of the game in customer data management and monetization, a new age of decentralized, peer-to-peer, and ethical customer data ecosystems is breaking out on the horizon.

“Big Tech”, the modern giant technology companies led by The Big Five - (Amazon, Apple, Alphabet (Google), Microsoft, and Facebook) - have entrenched themselves as the middlemen for access to and exchange of third-party customer data. These five companies alone have hauled in a staggering USD 900 billion of revenue in 2019. If we add to this the revenue of other big companies competing in this space, such as Salesforce, Oracle, SAP, Adobe, and others, we are easily looking at a total well over USD 1 trillion, or the annual GDP of countries such as Indonesia, Mexico, or Spain.

The Big Five maintain their dominant position of data brokers by collecting data across all of their services from consumers and businesses alike. Then they use the hoarded data to sell access to consumers back to the businesses. Application owners and developers are locked into their walled gardens and are tethered to poor interoperability and high dependence. Big Tech exposes their customers to risk related to privacy, compliance, and security. Consequently, businesses are facing an ever increasing cost of customer acquisition.

Businesses and developers are frustrated and infuriated by this reality. They are tired of being forced into costly integrations and suboptimal experience with data oligopolies that are tied to vested interests. The Decentralized Web can’t come soon enough for them. The barriers to decouple from this arrangement, however, are too high, and the majority of the app owners and developers who have to play by the rules (and fees) of these walled gardens are struggling.

Now, what if two or more business partners could share data securely without the need for a centralized big tech platform to broker the exchange?

These businesses could suddenly enrich customer experience and broaden product offerings, while better preserving user privacy *and* at the same time break free from the walled gardens of big tech data silos. It’s inevitable that this is where we’re heading.

Welcome to Cere Network, the decentralized Snowflake.

The way customer data is collected, processed, and used is about to change.

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TABLE OF CONTENT

1- CERE INTRODUCTION 2

2 - THE FUTURE OF CUSTOMER DATA 4

3 - BUILD YOUR OWN DATA CLOUD 5

4 - LEVELING THE PLAYING FIELD 6

5 - OUR PAD TO MASS ADOPTION AND SCALE 8

6 - BEST OF BOTH WORLDS 9

Cere Network in 30 seconds:

Cere Network is the first Decentralized Data Cloud platform optimized for service data integration and data collaboration. While most blockchains are simply distributed ledgers, the Cere network of blockchains allows for turnkey hyper-customization of enterprise data ecosystems. Cere aims to be more ethical, more efficient and more interoperable then any of its centralized counterparts.

Cere follows the current trend of first party data management set in motion by the likes of Snowflake, optimizing and enhancing this narrative through data-interoperability, network scalability and unique new business opportunities.

Cere Network is founded by Silicon Valley veterans with 20 years of experience from Amazon, Twitch, and Bebo.

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CERE INTRODUCTION

did you know?

Cere Network is already onboarding the first enterprise clients to the platform!

Cere is the solution that relieves businesses of the growing, aching pain in customer data management.

Cere is an ethical environment that will help any business develop their own decentralized customer data cloud on top of a blockchain-powered decentralized data network, built from the ground up around privacy, security, interoperability, and an open source philosophy. Blockchain and distributed ledger technology (DLT) are the key components of Cere's differentiation and unique value proposition, because they provide the technical foundations for **Cere's Decentralized Data Storage (DDS)** and peer-to-peer data collaboration environment.

Cere lifts the veil off the black box of customer data management and makes it transparent to the end user.

The Cere decentralized Data Cloud is built on the foundations of an open source collaborative data platform, Cere's Decentralized Data Network (DDN), that can be trusted to allow all apps to share user data in a mutually beneficial way while retaining data ownership. Application owners, technology vendors, developers, validators, and consumers all take part in the Cere Decentralized Data Cloud, into which businesses can seamlessly and securely onboard their customer data. All of these participants will consequently benefit from solutions that are built into this open and connected environment. Cere's Decentralized Data Cloud guarantees the security, anonymity, and integrity of customer data shared between two or more parties. Consumers no longer need to wonder what centralized big tech platforms with vested interests are doing with their personal information and behavioral data.

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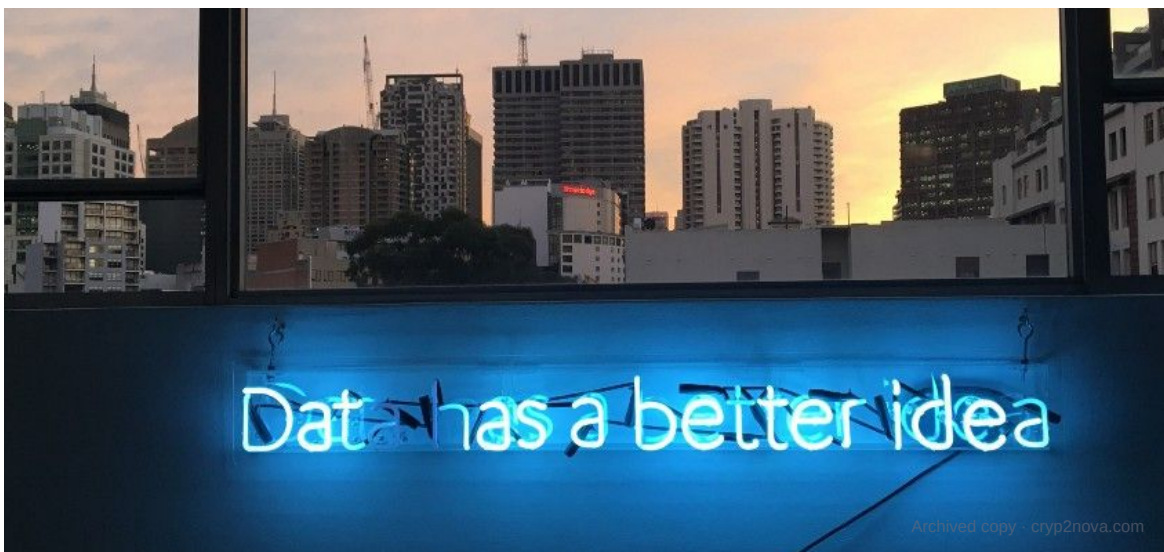
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THE FUTURE OF CUSTOMER DATA

This solves an acute need for businesses today, who are paying huge fees in efforts to keep their data compliant, while consumers finally get what they have demanded for quite some time — to have enough visibility and control over their data.

Cere has created a highly interoperable service layer on top of this Decentralized Data Cloud, which will be opened up to all vendors and developers and released as **Cere's Data Science Marketplace (DSM).** Businesses can lease their data to other businesses, vendors and data experts, or obtain insights, business intelligence services, and data products through the DSM, with full control over how, when, and for what purpose their data will be used. Data vendors and developers will use the marketplace to provide plug-in data products, services, and solutions to businesses in the Cere decentralized data cloud, who will in turn be able create better user experiences and provide more value to their customers.

A leading premise of Cere's solutions is that businesses do not have to plunge into large upfront investment and risk of re-building their applications from scratch, in order to plug into and take advantage of blockchain technology and a Decentralized Data Cloud.



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THE FUTURE OF CUSTOMER DATA

Cere Network believes that the path to the first 100 million blockchain users is through fast-tracked enterprise adoption, working with businesses who already have millions of loyal users.

Cere will, therefore, be at the forefront of blockchain adoption by providing fully integrated growth tech solutions, similar to the SaaS platforms that businesses are already using. When deployed, these solutions will bring immediate efficiency improvements and cost savings to core business units, while vastly improving consumer data privacy and security, and leveling the economic playing field by cutting out big tech data middlemen.

The world of customer data management is changing and the future lies in decentralized frameworks of data pools, exchange services, and application environments. Today's business landscape is becoming increasingly interconnected. Companies are connecting to and sharing data with an increasing number of stakeholders - customers, partners, vendors, subcontractors.

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Existing data management solutions are no longer fit to meet these demands. Most of the top CRM and CDP platforms are monolithic solutions, architected many years ago.They struggle to meet the rapidly evolving needs of today's businesses. Modern companies require a high degree of flexibility, interoperability, speed, and customization.

These silos today hold up to 80% of corporate data. Companies waste resources in moving, aggregating, cleansing, verifying, and sharing data with other business entities and stakeholders. These walled gardens are fragmented and incomplete. They are slow, and costly to access. They are also prone to integrity decay. The consequence is considerable transactional friction leading to high barriers for efficient business interaction, compliance issues, as well as expensive migrations.

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THE FUTURE OF CUSTOMER DATA

All of this confronts businesses with the perennial question of how they can develop cost-effective and efficient 1st-party data solutions that will allow them full control over their data, coupled with tools to collect and process data to extract applicable insights about their customers' needs and behaviors, while keeping in line with privacy, security, and data compliance standards.

Stakeholders in this ecosystem want to finally unshackle from the dependencies that force them to hand over their data to the likes of Google, Facebook, SAP or Salesforce and pay big money to the likes of Accenture to implement CRM and data management solutions that still don't get the job done. These complex and expensive implementations fail to provide an optimal level of usability and agility. Unencumbered access to data is essential to serving customers and markets. It is required for making decisions that maximize ROI and optimally drive growth.

So, why not own the data and make the best use of it too?

The new Decentralized Data Clouds powered by Cere will provide businesses, developers, and data providers with a level playing field to build better experiences for their customers and target their audiences, leveraging real-time data through peer-to-peer collaboration with partners - businesses, data services vendors, developers, and data scientists - within the Cere Decentralized Data Cloud.

Businesses want an easy way to securely share customer data between multiple applications and partners, the ability to track each unique customer journey in an omnichannel view, and share that data with on-demand business intelligence experts, data scientists, and data service vendors, to help better understand the users.

Developers, on the other hand, want to build on top of an open-sourced, decentralized data cloud , with solutions that are not tied to walled-garden data silos such as Salesforce, Microsoft or SAP. Application users want to control what kind of personal information, behavioral patterns, and transactional data they are willing to let applications collect and track in exchange for utility.

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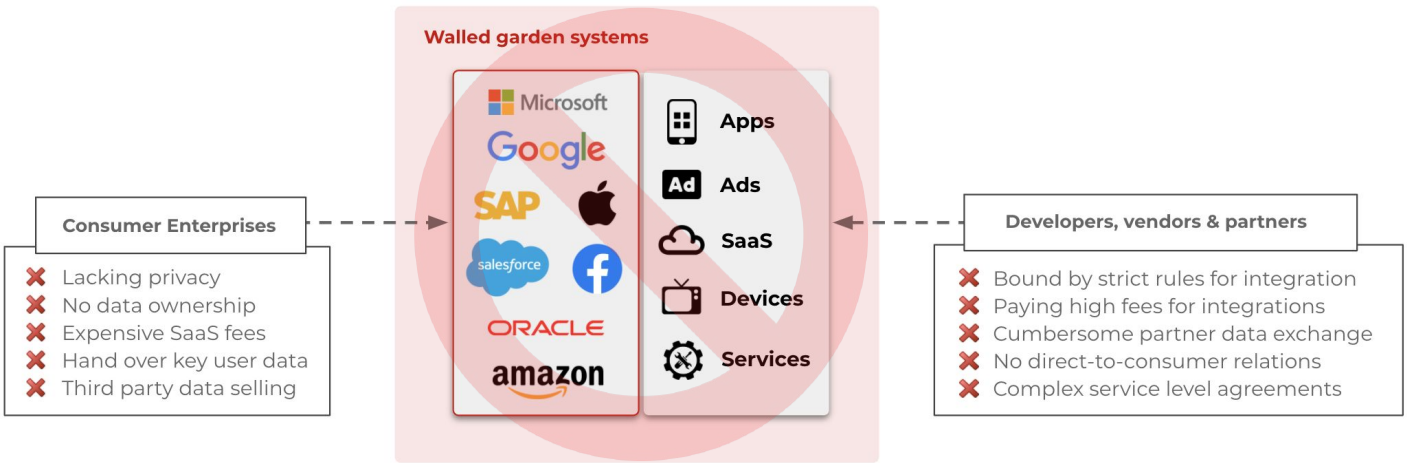
THE FUTURE OF CUSTOMER DATA

On top of this, as we are well into the privacy era, data leaks, hacks, and intransparent handling of user data is at the forefront of concern among users, businesses, and regulators alike. Therefore, the next generation customer data solutions will need to offer an unprecedented level of individual data security, privacy, and agility to comply with GDPR / CCPA regulations.

Most businesses are currently struggling to satisfy these requirements in full, without disrupting the accuracy and predictive value of the data they collect.To conclude, stakeholders in the current data silos are struggling to embrace digital transformation, lacking data solutions that are privacy and security compliant, stored, owned in the cloud, and interoperable across a wide array of applications and technological frameworks.As a result, today's world of customer relationship and data management is in need of a conceptually new solution and ecosystem, that will meet all of these demands - the Cere Decentralized Data Clouds.

Cere is aiming to lead the movement that empowers businesses, developers, and consumers to take back control of their data, by helping them develop their own Decentralized Data Clouds.

The status quo of current customer data silos:



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BUILD YOUR OWN DATA CLOUD

Cere is a secure first-party customer data solution built around privacy, security, and interoperability from the ground up. Cere's solutions allow businesses to create and grow their own data Decentralized Data Clouds, rather than hand the data and money over to third-party customer data platforms.

Cere Network is the first Decentralized Data Cloud that allows stakeholders to **own their data with 100% control over who can use it and for what purpose** in any particular context.

Businesses are currently paying expensive SaaS contracts and handing their data to tech giants such as Salesforce, Microsoft, SAP, to provide them with data management solutions.

By doing so, they are elevating these siloed data platforms into even stronger positions of power, who in turn 'reward' them with additional fees to access apps and solutions that are built on top of their platforms.

With Cere, businesses large and small can have their own Decentralized Data Clouds, supplanting inadequate and expensive enterprise solutions with their own "NikeForce", "ExpediaForce" or "[InsertYourBrand]Force".

Cere's solutions are easily tailored to conform to the context, organizational configuration, business workflows, and market landscape that are unique for each company.In addition to this, Cere blockchain-based identity and encryption services protect the app and user data through private keys and thus retain true ownership.

This is markedly different from what tech giants, acting as the middlemen for data, offer today.

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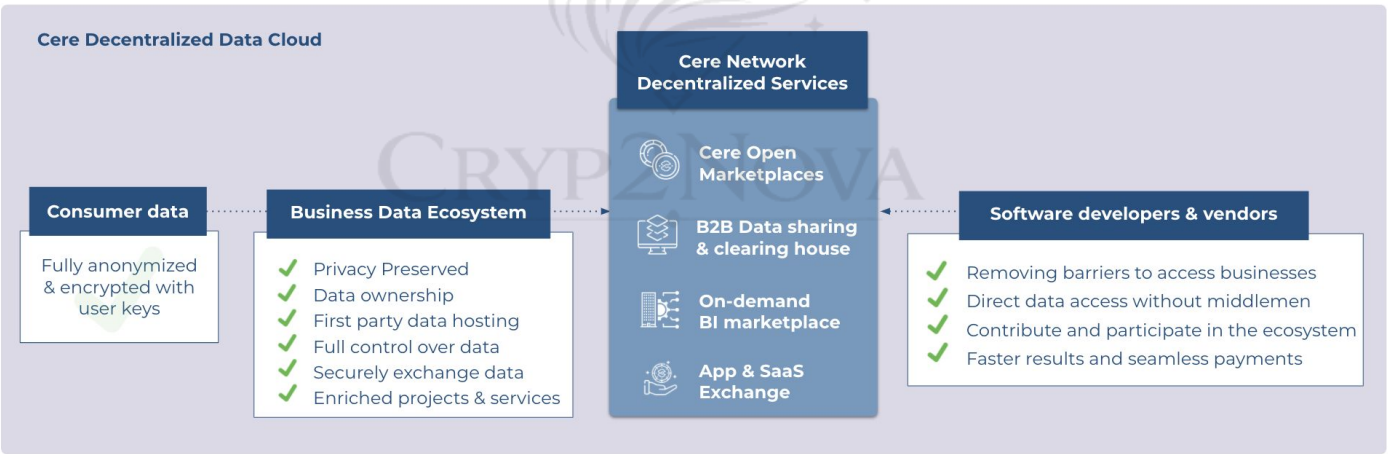
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BUILD YOUR OWN DATA CLOUD

Businesses should not be compelled to hand over their data, only to wonder and worry what the likes of Facebook and Google will use it for, or how they can make them “unsee” this data.

On top of Cere’s Decentralized Data Cloud, that can pull in data from relevant stakeholders in a network, businesses can build tools and services at lower cost, with faster and easier data access, to help them better understand and serve their customers.

The new realm of decentralized data clouds:



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LEVELING THE PLAYING FIELD

Cere Network is leveling the playing field in customer data management by empowering businesses and stakeholders in the data economy to own their data and collaborate directly with each other, thereby cutting out the big tech middlemen who have disproportionate economic leverage by way of data oligopolies.

Billions of people around the world are using millions of apps and sites every day to aid them in and beyond the workplace, to find and purchase products and services, or to consume news and entertainment content.

Yet, none of these apps can work directly with each other. They have to pay a huge ransom to the data middlemen in order to target and have insight into each others' users.

The cost of acquiring, retaining, and converting users to paying customers varies across markets and industries, but on average, businesses in 2018 have had to dish out up to US$ 4 just to get a user with verified app store purchases to install an app, and up to US$ 112 to get them to the point of making an in-app purchase.

The dog-eat-dog competition in almost vertical, along with the scarcity of acquisition platforms and marketplaces for mobile apps, today controlled by a handful of big tech companies, will only drive this cost for businesses up.

What is more, the digital footprint users leave behind in an application is a treasure trove of data that businesses strive to gather, process, and analyze to the fullest extent possible, in order to better understand the needs of their users, customers, and target audiences.

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LEVELING THE PLAYING FIELD

New Goals

However, it is the likes of Google, Apple, and Facebook who own much of this valuable information, accumulating it via their toolkits, applications and platforms, by wedging their foot into the anteroom, the living room, and eventually into every room of a company's digital real estate.

This gives them an incredible amount of power, as they have complete control over the distribution of applications and web content. They use this power to generate billions of dollars every month through a walled-garden and pay-to-play approach, leveraging the data that businesses hand over to them, only to sell back access and services they have built on top of this data.

The tech giants set the rules and control the experience of user search, discovery, and recommendations on their platforms, and decide who to promote and at what price. With this kind of leverage, they are in a comfortable position to pursue a strategy of maximizing revenue, often at the expense of providing the best experience and service to end users.

Cere Network wants to lead the movement of empowering businesses to directly work with each other, without having to pay or succumb to these dominant middlemen.

With millions of applications available for download in app stores, serving billions of users worldwide, Cere is offering an ecosystem in which businesses and developers can collaborate to make the most of what they already have - their users and their customer data.

Instead of paying the likes of Facebook or Google to target a person who uses a popular Fintech app, such as Robinhood, a bank, such as JP Morgan can directly pay Robinhood to access and engage such a user in a much more personalized way that capitalize on existing user behavior data which Robinhood is ok with sharing.

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LEVELING THE PLAYING FIELD

Currently, there isn't a trustless framework that can allow secure and real-time sharing of user data between two partners, while maintaining compliance in terms of privacy, transparency, and accountability.

Sticking with the example above, imagine if JPMorgan could directly engage a Robinhood user seamlessly with highly personalized product offerings, due to the fact that the customer journey of this user has been shared by Robinhood in a secure and privacy-preserving way in real-time.

Not only will this cut out the middlemen and keep the money between the two businesses, but it will also dramatically increase the chance that the offer will match the user's needs and meet or exceed their expectations, creating the feeling of delight that every brand is after when serving their customers and communicating their value proposition to the market.

This will happen because of the much higher degree of targeting and customization that is fully controlled by both parties, unlike what is possible with campaigns and experiences built around solutions developed by the likes of Facebook and Google.

One just has to take a quick look at the distribution and revenue charts for app stores, to see that they are very top heavy. Most of the money is made by the top apps, while 90%+ of app developers struggle to make money.

Cere Network is out to level the app distribution and monetization playing field, by creating opportunities for businesses to directly share data with each other and bypass the data middlemen, by using Cere's data ecosystem and token.

Cere will provide ways for businesses and developers to rent out their customer data to other apps, providing specific usage insights such as the activities or consumption of content - articles titles read, video categories watched, songs listened to, products purchased - to facilitate a better understanding of the consumer in an omnichannel perspective across apps.

This gives the power that only the likes of Facebook, Google, and Apple have at the moment - back to the developers and app publishers.

As a result, businesses will be able to acquire, retain, and delight users with personalized experiences and tailored offers at a fraction of the marketing budget they are coerced into spending, and keep a lion's share of the money spent by users in their applications, that would otherwise be surrendered to the intermediary app stores and martech platforms.

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THE PATH TO ADOPTION AND SCALE

Cere Network believes that the path to the first 100 million blockchain users is through fast-tracked enterprise adoption, specifically in working with brands/businesses who already have millions of loyal users.

Cere will be at the forefront of blockchain adoption by providing fully integrated growth tech solutions, similar to the SaaS platforms that businesses are already using, deployed to bring immediate efficiency improvements and cost savings to core business units, while vastly improving consumer data privacy and security, and leveling the economy playing field by cutting out big tech data middlemen.

Blockchain as a service or infrastructure has yet to become a technology stack and framework that is easy to understand and integrate into real world use cases. At present, companies find it hard to recognize clear-cut benefits of rebuilding their business model in a decentralized ecosystem as “the new game”, or calculate the risk and returns on investment into a technology stack that will facilitate this transition. However, on the business side of things, there are several realities about today’s context that are driving this inevitable change:

1. Cross-business interactions are becoming increasingly complex and diverse, requiring a decentralized business model that will remove bottlenecks in communications, transactions and value distribution;
2. Decentralization has an increasing role and appeal in decision making among stakeholders in business systems in which the long tail of the stakeholder matrix (employees, consumers, supply chain partners) are demanding a greater impact in decision making and reduced cost of doing business; and
3. A lack of sufficiently proven decentralized organizational and business models, professional resources, and technological solutions prevent current IT systems from simultaneously providing scalability, trust, and security, also known as the Scalability Trilemma.

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THE PATH TO ADOPTION AND SCALE

On the end-user side, the current app marketplace centered around app stores, has matured to the point that users are accustomed to smooth onboarding, app performance and seamless transactions.

Decentralized applications (DApps), on the other hand, are still in their infancy, with performance severely impaired by the limits of the current technology to accommodate a high throughput of data and transactions.

Furthermore, to engage with a DApp, a user would need to already own some cryptocurrency, and to own cryptocurrency, the user must feel confident in the security, usability, and storage of their tokens, as well as the stability of their value.

However, three main concerns among users continue to build up the market pressure that is driving innovation towards a Decentralized Data Cloud:

1. End-users are increasingly disgruntled with how data containing their personal information and behavioral patterns is handled and used by the data middlemen, with little to no transparency in relation to who has access to it and for what purpose it is used:
2. User experiences that are laced with disruptive promotional messaging and an economic logic that prioritizes value for the app stores and walled-garden data services providers, over businesses and end-users;
3. The high cost of in-app utility that end-users end up paying, as a result of the high profit margins collected by app store and data service providers.

Cere Network has undertaken to solve the problem of adoption and scaling by creating an Decentralized Data Cloud that takes the best of both worlds.

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BEST OF BOTH WORLDS

A leading premise of Cere Network's solutions is that businesses do not have to plunge into large upfront investment and risk of re-building their applications from scratch, in order to plug into and take advantage of blockchain technology and Decentralized Data Clouds.

Cere is the missing link that businesses need, providing fully integrated solutions, packaged similarly to the SaaS platforms that they are already using, and deployed to bring immediate efficiency improvements and cost savings to core business units.

We believe that the path to the first 100 million blockchain users is through enterprise adoption, specifically in working with brands/businesses who already have millions (or even billions) of loyal users.

While this is a challenging task, we fully embrace this approach to help businesses serve their customers more effectively and efficiently, while vastly improving consumer data privacy and security.

By providing solutions to businesses with large established user bases, many of the friction points inherent to adoption and scaling DApp environments can be avoided, paving a much easier path to massive impact once the businesses are onboarded.

We thank you for reading this extensive paper and we'd love for you to join our mission towards more data ownership to help us build the *best of both worlds* together.

Get in touch or give us a follow!

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