Cere Network

Lite Paper

THE DECENTRALIZED DATA AND FINANCE CLOUD FOR ENTERPRISES

CHAMPIONING DATA

The path to the first billion blockchain users is through fast-tracked enterprise adoption by businesses and their customer base, across the full spectrum of technology and industry.

Enterprise adoption and decentralized blockchain networks have been viewed as two opposing ideals, compounded by the scaling-decentralization-security trilemma. Cere resolves this paradox by way of a holistic and system-wide solution for scalability, interoperability, and seamless integration of the global app ecosystem into a decentralized economy.

Cere is part of a consortium of projects such as Polkadot and Cosmos, united by the vision of cross-chain interoperability between blockchain networks, for the purpose of reaching the promised land of an inclusive, trustless, and infinitely scalable global decentralized ecosystem for enterprises.

To accomplish this, Cere is championing data as the missing piece of the puzzle and a universal standard for the transition of enterprises to a decentralized future.

With Cere, businesses can easily plug in their existing apps and the power of contextually relevant data, insights, and predictive analytics in real-time to supercharge their value streams.

Furthermore, Cere is uniquely positioned to bridge the vast amount of enterprise consumers, fees, and payments into the decentralized realm through connecting enterprises to the network via its SaaS operations and the Cere Network Hub.

TABLE OF CONTENTS

Cere

CERE VISION

Overview

The Cere blockchain network is hyper-focused on real-world enterprise use cases. Cere's solutions are easily tailored to meet the context, organizational configuration, business workflows, and market landscape that are unique for each company.

Cere specializes in addressing consumer enterprise needs, similar to how XRP works with banks, but with a clear vision towards full decentralization. The Cere Layer-1 blockchain core anchors an interoperable hybrid network that bridges enterprise chains with fully decentralized public networks like Polkadot and Ethereum.

By combining best practices from both SaaS and the blockchain sphere with our own plug-and-play integration API's and SDK's, Cere excels in real-world applications, encouraging and accelerating enterprise adoption.

Through this novel approach, Cere is the first blockchain network to onboard enterprises and millions of their consumers who are starting to reap the benefits of having blockchain technology seamlessly integrated into existing products and experiences.

Built with ease of use in mind, the Cere Layer-1 abstracts the complexities of financial blockchain processes and workflows into user-friendly interfaces and customer journeys. As a result, businesses and users benefit from simplified payment and value transfers, frictionless customer wallet onboarding and staking, and stable transaction fees.

A key goal for Cere is to bring enterprises into fully decentralized networks, at scale. Through a phased approach that focuses on adoption and interoperability, Cere is already en route to becoming the first project to carve a significant passage through the barrier to adoption and broaden the bridge between enterprise capital and DeFi.
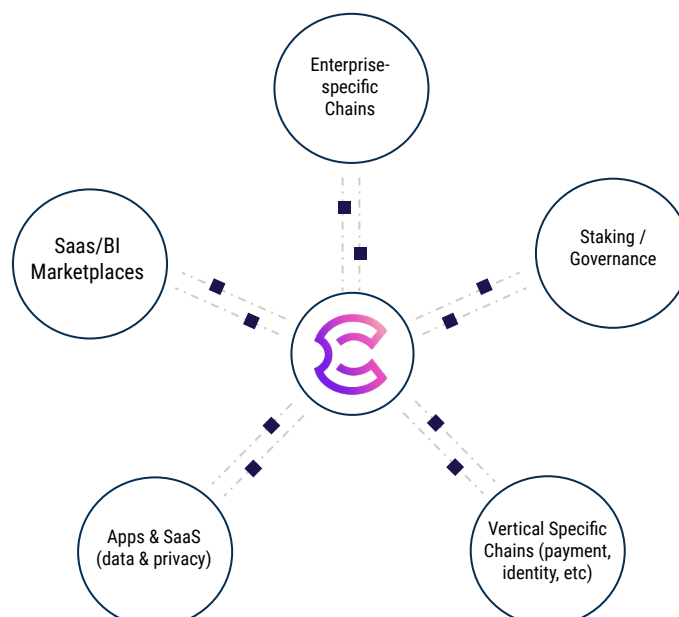

Figure 1 : Cere Network Layer 1

CERE VISION

Fundamentals

Cere is built on a set of fundamental principles, that are critical for enterprise adoption of blockchain technology.

1

Network Interoperability

High volume data processing and throughput require optimized blockchain interoperability. The Cere platform, a unique consortium of interoperable blockchains, combines specialized chains, apps, optimization tools, and services to facilitate both required throughput speeds and network security.

2

Data Security & Privacy

Cere's data-driven network is designed with GDPR & CCPA compliance in mind, turning these barriers to blockchain adoption into a competitive advantage. Enterprise customers who operate consumer-focused applications in these tightly regulated jurisdictions will have all the customization and tools to successfully manage their data compliance and data privacy accordingly.

3

Consumer Enterprise Focus

Cere is set up as a decentralized SaaS with an enterprise-first focus, as opposed to just another generic Layer-1 blockchain project. Through Cere's plug-and-play data onboarding procedures and API's, consumer data becomes tangible on the blockchain, making it suitable for efficient and secure utilization and processing on the decentralized data network.

4

True Decentralization

Decentralization (Ethereum, Polkadot) and enterprise usability (Hyperledger, Ripple) has been a classic trade-off in the blockchain sphere, whereas sacrifices in one area had to be made for breakthroughs in the other. Cere breaks with this conventional thinking, offering both pillars from the ground up, bridging the gap through its interoperable blockchain network, and pioneering true enterprise scalability.

CERE VISION
Interoperability

The future of blockchain is a conglomerate web of interconnected and collaborative, yet independent and autonomously governed blockchains of all types and categories.

These features and attributes together create a new realm of interoperability that is essential for the development of next-generation of blockchain ecosystems. Cere achieves frictionless cross-chain transfers of value and information through the practical implementation of a hub and spokes model, illustrated below.

The Cere core blockchain is the nexus of the network. Enterprises operate their connected side chains, and bridge modules connected to other major Layer-1 networks such as Ethereum and Polkadot facilitate data and asset transfers.

Cere's heterogeneous model facilitates data exchange between enterprise partners' public or permissioned chains via the Cere core blockchain that is used for data encryption and identity management. The public blockchain allows any business to easily issue, assign, and integrate digital assets that represent a real-world utility or commodity for enterprise customers.

Interoperability with Polkadot and the broader DeFi landscape allows payments and value transfers of any type to be made with ease. Cere provides direct access to the Substrate Runtime Module Library, allowing enterprises to quickly deploy commonly used blockchain features.
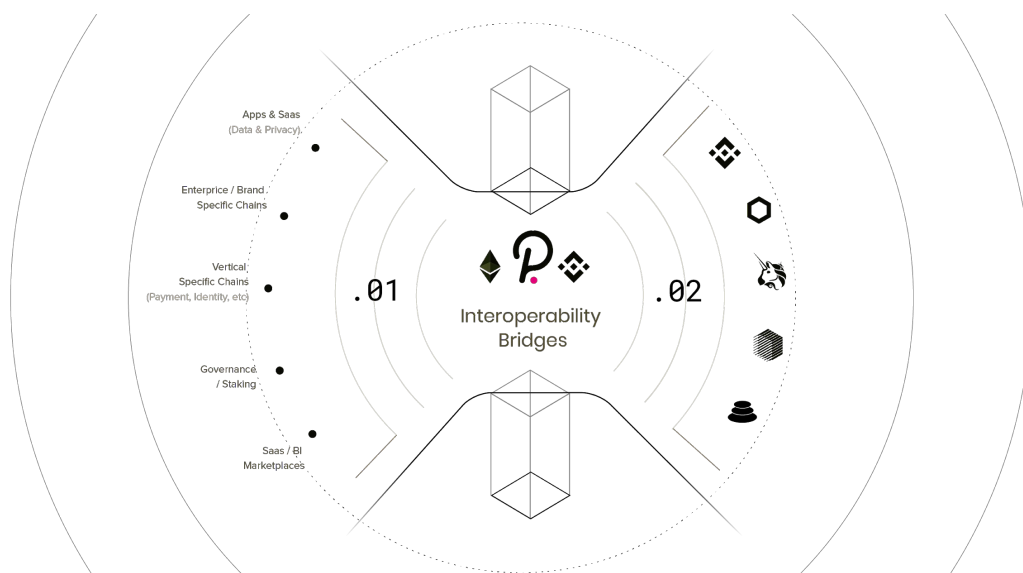

Figure 2 : Cere Network Interoperability

Cere

Decentralized Data Cloud

In an ever-changing world concerning customer data management and monetization, a revolution is just around the corner: decentralized, peer-to-peer, and ethical customer data ecosystems.

The Cere Decentralized Data Cloud (DDC) is a Snowflake-like intelligent data warehousing tool that captures customer sessions into a secure customer journey, creating a source of truth that can be extracted, transformed, and loaded (ETL'd) into application-specific data views.

Like Snowflake, Cere empowers enterprises with dynamic data services and purposefully structured datasets extracted from various data sources.

Yet, unlike Snowflake's and other traditional data storage systems, Cere's decentralized data clusters are reimagined from the ground up in which data is individually segmented and encrypted without personally identifiable information (PII), optimizing for security, access, and customization upstream.

This makes Cere unique and optimized for service data integration and data collaboration to manage customer data in a more ethical, efficient, and interoperable way.
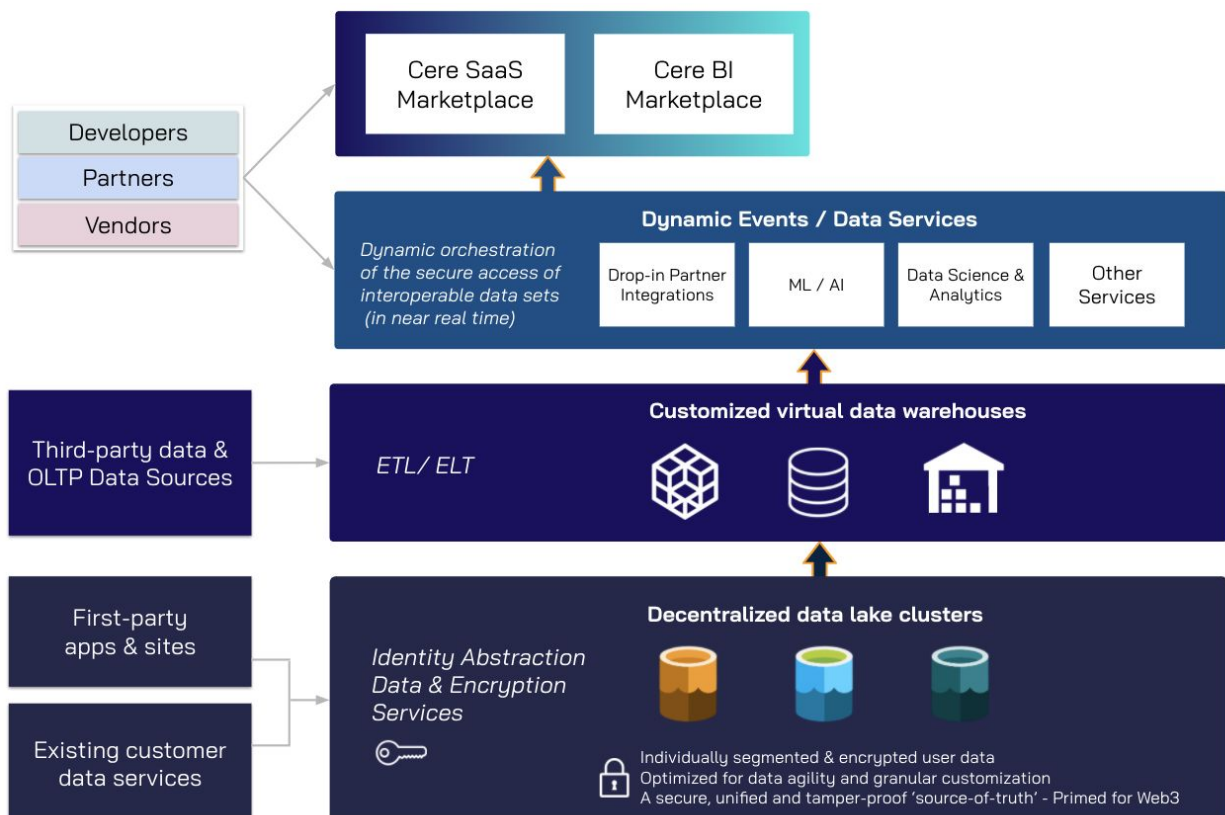

Figure 2 : Cere Network Decentralized Data Cloud architecture
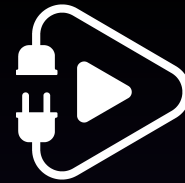
Cere

DDC Data Onboarding

Cere will lead blockchain adoption by empowering enterprises to take full advantage of their own customer data.

To achieve this, Cere built the Decentralized Data Cloud (DDC) that allows stakeholders to own their data with 100% control over who can use it and for what purpose in any particular context.

Cere Core Network blockchain facilitates plug-and-play customer onboarding to its Decentralized Data Cloud, leveraging identity abstraction technology to achieve data privacy by design.

Furthermore, users easily plug into the ecosystem with instantly created cryptographic wallets. Utilizing these customer crypto wallets, brands can easily tap into a whole new range of CDM and CDP use cases that facilitate more efficient transfer and distribution of value, richer user experiences, and smarter business development. All of this in a trustless and compliant environment within their own application, by simply integrating the Cere SDK.

This new paradigm unlocks a world of possibilities when it comes to issuing and managing value-representing assets like coupons, vouchers, and loyalty points for a range of industries like travel, mobility, gaming, entertainment, retail, publishing, and many others.

Plug-and-Play Onboarding

Cere facilitates a suite of plug-and-play modules and frameworks, tailored to enterprises for rapid onboarding procedures

Enterprise API's

Cere offers a range of intuitive, enterprise-ready API's to speed up decentralized application development

Bridges

Cere uses decentralized bridges towards major Layer-1 networks and data on-ramps to connect traditional enterprise SaaS platforms
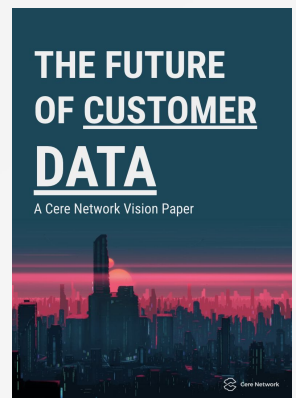
Cere Network

Vision Paper

We build Decentralized Data Clouds (DDCs) for enterprises so they can fully leverage their customer data.

Read more on our vision on the future of customer data here.

THE FUTURE
OF CUSTOMER
DATA
A Cere Network Vision Paper

Cere Network

CERE FEATURES
Substrate private networks

Cere offers a private/permissioned/standalone blockchain network that can be readily integrated by any enterprise. Since these networks are built with Substrate, this network can be integrated into any Polkadot/Substrate-based Layer 1 network to serve as a secondary chain.

This turn-key network intends to abstract the implementation complexity for businesses, as well as providing a ready-made package to optimize for a higher level of security, privacy, and performance, and to serve as a template or base-implementation of a highly customizable and performant enterprise-specific blockchain network.

Furthermore, any network built from or derived from this project will also be able to use derivative assets to represent real-world value transfers on-chain (e.g. micropayments, discount vouchers, loyalty points, etc). These derivative assets can be to programmatically issued these between user and application wallets—displayed below.

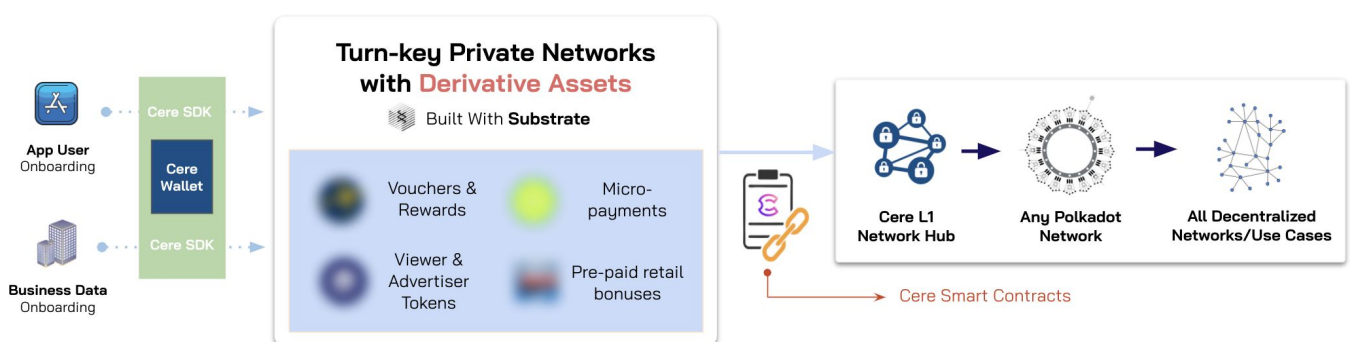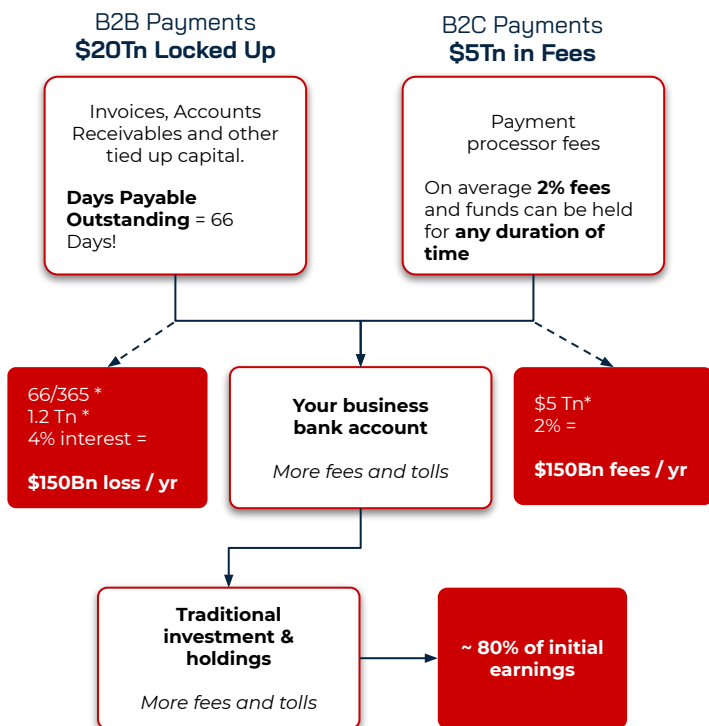Figure 4 : Substrate Private Networks

SaaS-DeFi

The financialization of enterprise B2B assets and liabilities in the Decentralized Finance space is the natural next step to the retail revolution that has more or less reached its limits and is now in danger of creating a bubble.

By connecting the corporate cash flow and assets that have already been on-boarded onto the Cere SaaS platform to the rapidly growing DeFi landscape, Cere SaaS-DeFi enables enterprises to better utilize their sidelined capital, optimize their financial operations, create frictionless payment experiences for their customer base, tapping into the supercharged liquidity of DeFi.

Cere achieves this by pioneering the Saas-DeFi bridge for smooth access and sustainable application of new financial instruments by enterprises in the DeFi space. SaaS DeFi on Cere will enable:

- Enterprise SaaS marketplaces
- Vendor-to-Vendor collaborations
- Leveraging accounts receivables (AR)
- Direct business/consumer payments
- Vouchers/Rewards staking for consumers
- Convert assets using the DEX/bridge
- Developer/analyst job marketplace
- Lending/borrowing by participants
- And much more...

Traditional Payments

B2B Payments
$20Tn Locked Up

Invoices, Accounts Receivables and other tied up capital.

Days Payable Outstanding = 66 Days!

B2C Payments
$5Tn in Fees

Payment processor fees

On average **2% fees** and funds can be held for **any duration of time**

66/365 *
1.2 Tn *
4% interest =
$150Bn loss / yr

Your business bank account
More fees and tolls

$5 Tn*
2% =
$150Bn fees / yr

Traditional investment & holdings
More fees and tolls

~ 80% of initial earnings

Cere SaaS DeFi

B2B Payments
No lock-ups

Smart Contracts directly execute B2B payments and collateralize invoices

Days Payable Outstanding = 0 Days!

B2C Payments
Minimized fees

Decentralized payments, aiming to disrupt payments eventually

Value transfers for as little as **$0,01**

Cere Business Wallet
Negligible user fees

Cere Saas Defi Smart Contracts
Integrated with Cere Mainnet

Staking & Yielding

Bridges
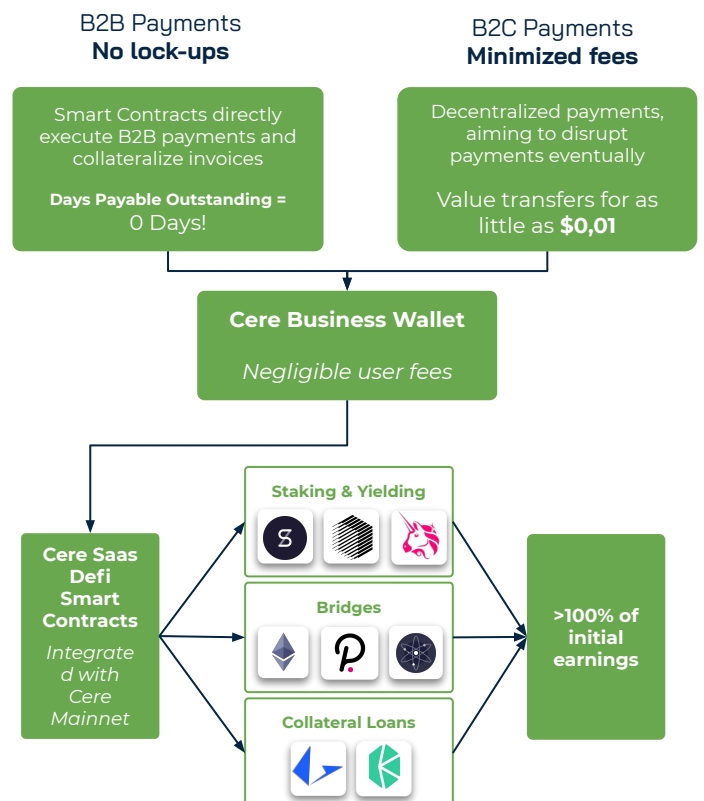
Collateral Loans

>100% of initial earnings

Figure 3 : Traditional Payments vs. Cere SaaS DeFi

CERE INSTRUMENTS

CERE Token

The CERE token primarily serves three purposes on the network: SaaS-DeFi utility, Proof-of-Stake consensus, and network governance.

But first and foremost, it's a token that will facilitate real-world enterprise demand by mapping tokenization and ease of exchange to SaaS utility and fees (B2B), as well as business-to-consumer payments and value transfers (B2C).

SaaS DeFi Utility

As the main utility token powering a transformative Decentralized Data Cloud platform and SaaS DeFi framework, as well as fueling the Cere Marketplaces.

Consensus Participation

CERE tokens can be staked by validators and node operators, who are incentivized and rewarded to act in the best interest of the Cere through the issuance of additional CERE tokens.
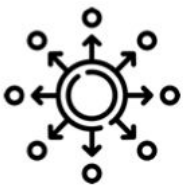
Network Governance

CERE tokens confer voting rights, through which the Cere foundation and Cere Ecosystem participants decide on the operation and future development of the network.

CERE INSTRUMENTS
Governance

Network Governance

Cere prioritizes the architectural design and features to support a wide range of governance models to satisfy enterprise needs, from fully permissioned, to hybrid, to fully public

Cere Core Blockchain is governed through a Decentralized Autonomous Organization (DAO), for a transparent and fair voting and proposal system, via the Cere token as a governance token.

Stakers of Cere tokens will be able to participate in chain consensus and help secure the network. Network validators will receive incentives through block rewards.

Enterprise Governance
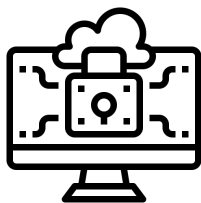
Cere prioritizes the architectural design and features to support a wide range of governance models to satisfy enterprise needs, from fully permissioned, to hybrid, to fully public.

Enterprise side chains on Cere can define their governance models by declaring and designing a custom DAO through the initial deployment of the side chain smart contract.
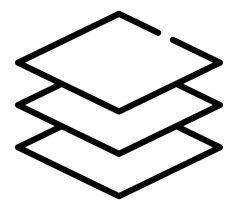
The Cere Foundation serves as the arbitration party between enterprise interests and Cere core interests and ensures that potential conflicts and competing interests are resolved in a balanced and sustainable fashion.

Consensus

Much like the ethos behind Polkadot and Cosmos, Cere has long held the ideals that the future of blockchain is interconnected and powered by interoperable networks, and not "one chain to rule them all". Cere embraces a vision of working with other such projects to achieve this goal in consortium. While Cere is acutely focused on bridging the vast gap between enterprise needs of privacy, scale, ease of use, and real-life use cases with current blockchain technology, it is also working to achieve full compatibility with the above mentioned decentralized networks to meet interoperability standards.

Cere blockchain features a fast BFT consensus framework that is fully compatible with the likes of Polkadot and Cosmos, as well as incorporating Substrate's Web Assembly (WASM) based Smart Contract engine. By using a WASM runtime, Cere will be able to support the most commonly used programming languages, including Rust, Ink! and Solidity integrations.

Cere will implement and leverage Substrate's core functionalities in allowing side chains to define their state transition functions (STF), and thus allowing any two different blockchains to exchange state information in a highly flexible, and customizable way.

Blocks on Cere Core Network will be produced through a Proof-of-stake BFT algorithm, then finalized through a finality overlay mechanism. Block rewards will be distributed to validators who are long-term stakers of CERE tokens as an incentive mechanism.

Building compatibility with Substrate into Cere gives access to Substrate's extensive tooling, community support, and a library of runtime modules (SRML) for many commonly used blockchain features such as assets, discovery, election, etc., that can be utilized in a plug-and-play fashion within Cere according to enterprise needs.
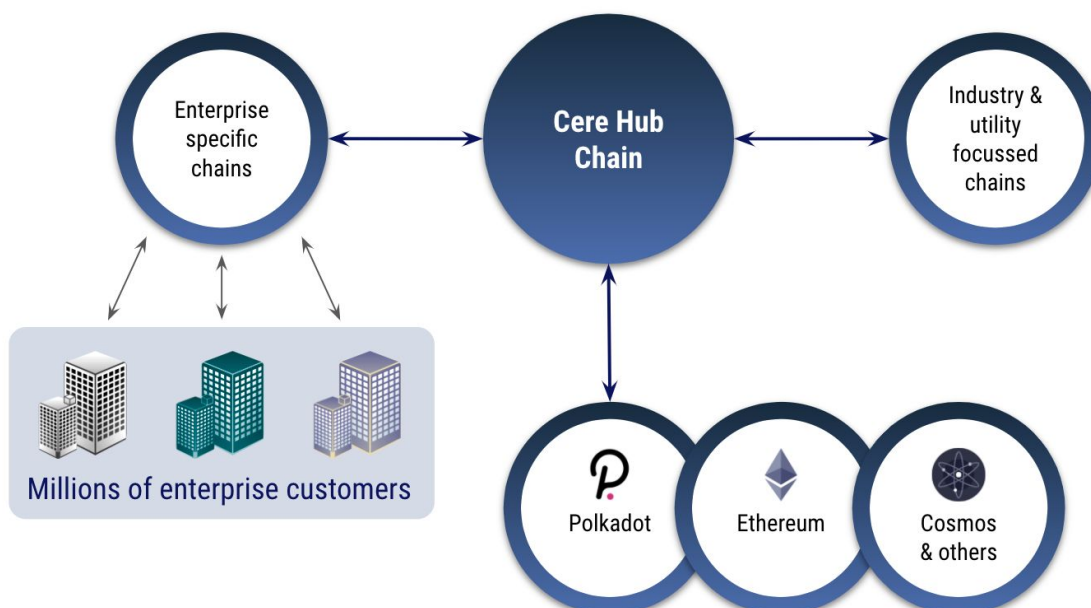
CERE INSTRUMENTS

Scaling

Cere resolves the blockchain scalability-security-decentralization trilemma with a mix of proven methods and cutting-edge technologies that allow enterprises to process their transactions at an uncompromised speed, without sacrificing security and decentralization in the process.

Cere natively implements both horizontal and vertical scaling solutions to enhance the network and its throughput.

Entity (Horizontal) Sharding/Scaling:

Cere will provide horizontal scaling and parallelization through natural sharding.

Enterprise-specific turnkey private chains can seamlessly connect into the Cere Layer-1 hub in a highly scalable "hub-and-spoke" architecture, essentially a form of natural sharding built into the architecture of the network.

These partitioned enterprise chains settle non cross-chain transactions and value transfers independently of each other, and consequently do not create a bottleneck scenario. Data exchange and value transfers are conducted among these private chains via smart contracts, after which they are linked with Cere's SaaS-DeFi portal.

This highly-scalable architecture allows Cere to meet the high performance demand that is expected from enterprise software while creating fluid user experiences.

Functional (Vertical) Scaling:

Cere leverages a flexible, plug-and-play architecture to incorporate a range of vertical Layer-2 scaling solutions into the network

These Layer-2 solutions generally follow the paradigm of aggregating computations and state changes off-chain. These vertical scaling solutions can be generic, similar to Matic Network and Plasma Network, or they can be industry or use case specific.

Cere will have a range of pre-built scaling modules designed specifically for industries such as retail, fintech, travel, media, and commonly used features such as loyalty points tracking, vouchers, etc.

These runtime modules can be hooked into side chains through configuration, and are ready to be deployed on-demand.

CERE INSTRUMENTS

Data privacy

Cere Network is a secure first-party customer data solution built around privacy, security, and data interoperability from the ground up.

1

Data Governance

The process of managing the availability, usability, integrity, and security of the data in enterprise systems, based on internal data standards and policies that also control data usage. Effective data governance protocols on Cere ensure that data is consistent, trustworthy, and doesn't get misused or compromised.

2

Differential Privacy

Customer data stored on Cere Chain is fully encrypted and partitioned per enterprise entity with a state-of-the-art identity management system. Application data is associated with anonymous, randomized ID's, which is non-identifiable personal information. Only users and entities with the associated private keys can decrypt and deanonymize their own data.

3

Secure Collaboration

Cere will natively implement multi-party computing techniques such as federated learning and differential privacy to allow decentralized collaboration without exposing privacy-regulated customer data to the party analyzing (part of) the data.

4

Data Compliance

Companies operating in regions with strict data privacy regulations and compliance such as GDPR and CCPA can leverage Cere's hybrid architecture to create a permissioned environment with blockchain-based authorization and audit capabilities defined by state transition functions, while still maintaining interoperability with the rest of the network.

Cere Use Cases

Cere Network is bringing blockchain adoption to the consumer enterprise world and becoming the first blockchain company with a billion users. Here are some use cases that are currently being built by the Cere Network team for Global-2000 enterprise customers.

Travel

Cere Network delivers personalized products offerings across 1st to 3rd parties to enrich existing user experiences. The secure sharing of anonymized personalization data combined with smart offers and discounts distributed as derivative assets to each user's own wallet is the key to powering the full automation of this process.

Retail

Cere Network provides a drop-in solution that boosts a brand's hyper-personalization strategy with an intelligent loyalty and payment solution to improve the brand's online to in-store conversions.

Banking

Credit cards rely on perks and rebates, offered by banks and their partners to drive usage (e.g. earning 1 mile for each $1 spent). Cere Network brings a new level of data interoperability and secure asset/value exchange to better automate such integrations between banks and partners.

Media

Cere Network helps media enterprises to improve long-term user retention and content engagement by using a plug-and-play gamification module that can enrich the user experience of any app/site. The Cere SDK works in conjunction with each user's own wallet/ledger to allow the full automation of these hard to integrate use cases.

Summary

Cere Network is built with one goal in mind - real enterprise adoption. Achieved by combining interoperability and the decentralized data cloud.

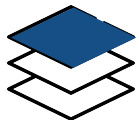*Cere Network's interoperability & Scalability:*

100% Polkadot Compatibility (Substrate)

Achieving cross-chain asset transfers with all public networks by using Substrate runtime components and cross-chain smart contracts.

Horizontal Scalability

Heterogeneous sharding within Cere Layer-1 blockchain and beyond (Polkadot, Cosmos, Binance, Ethereum, etc).

Polkadot Parachain

Cere Network's future parachain leverages on additional security and integrations provided by **Polkadot's relay chain and ecosystem**.

*Cere Network's Decentralized Data Cloud: & Ecosystem:*

The Decentralized Snowflake

Seeding the Cere Network with millions of consumers and data/SaaS dollars. **Read more on Cere's Decentralized Data Clouds in our <u>data vision paper</u>.**

Pioneering SaaS DeFi with Polkadot

Achieving cross-chain asset transfers with all public networks via enterprise-ready **Cere Network Saas DeFi smart contracts**.
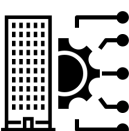
Real Consumer Enterprise Adoption

Servicing Fortune 500 clients on (alpha) mainnet - launch Q2 2021.

Cere

Partnerships

BINANCE LABS

Binance Labs, the blockchain incubation initiative run by Binance, has provided Cere with strategic funding after graduating from the Season II cohort of its incubation program.

Chainlink

Integrating with trusted, accurate oracles will enable Cere clients to securely integrate verified external data sources into services that are running on top of Cere's decentralized customer data ecosystem.

Matic

Cere has and will continue to collaborate with Matic on Matic powered microservices and Cere's secure distributed data storage solutions.

elrond

Cere will be interoperable with Elrond, leveraging the high-performance network's dApp friendly architecture to incorporate a range of decentralized applications into the Cere ecosystem.

Ankr

Ankr's goal is to simplify blockchain node hosting. Via this technical partnership, Cere is taking a big step towards decentralization of the network, utilizing Ankr's easy node deploy services.

More partnerships:

PLASM   Reef   TIDAL   DARWINIA   CRUST

bluzelle   Harmony   TORUS   marlin

Get in touch with Cere!

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Cere is more than a blockchain platform.
For our enterprise clients, we build
Decentralized Data Clouds on Cere.

Read more on our DDC's here.

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