Everything You Ever Wanted to Know About Blockchain

(But Were Afraid to Ask)

An Introductory eBook from Casper Labs

Casper Labs

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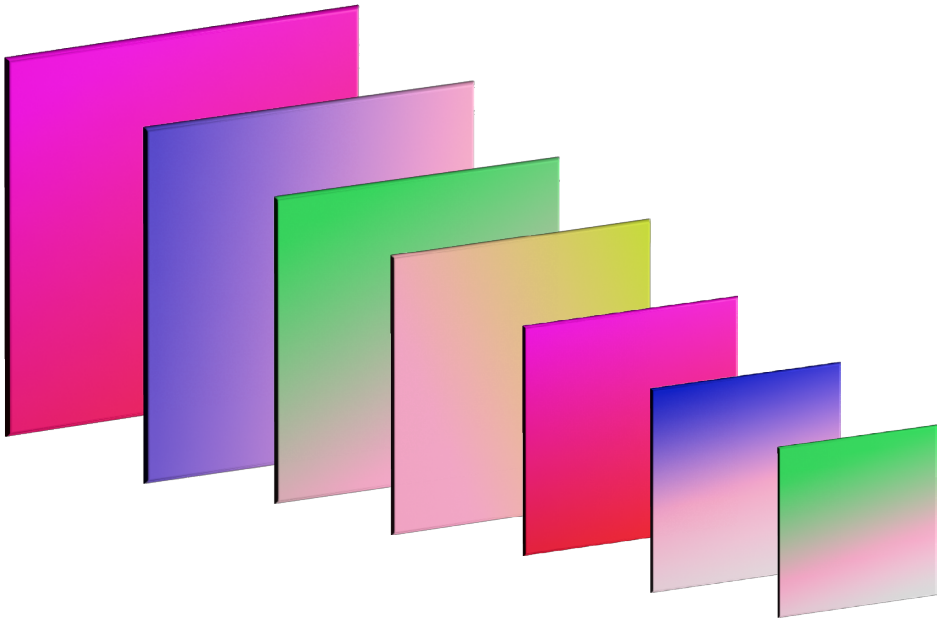


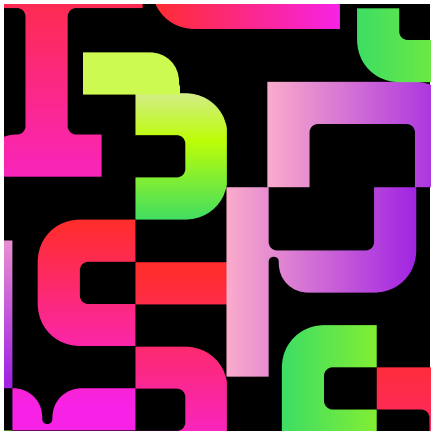
Blockchain is one of the most exciting technology innovations of the 21st century. It is increasingly impacting the way organizations and individuals transact with one another in all walks of life. Businesses and governments of all shapes and sizes are deploying blockchain in increasingly creative and powerful ways.

As blockchain's prominence continues to grow, think of this document as a handy companion to better understand why blockchains matter, how they work – and how they can work for you!

Section 01

What is Blockchain?

What is Blockchain?



Blockchain represents a new generation of technology that is fundamentally changing the way we do business. As an umbrella term, "blockchain" is inclusive of a number of interconnected sectors that include distributed ledgers, decentralized networks, and digital assets – and it's increasingly transforming the way that businesses of all shapes and sizes operate.

How businesses use blockchain today

Bitcoin's 2009 launch was a milestone moment that established blockchain as an emerging technology to watch. Since then, the blockchain ecosystem has undergone 14 years (and counting) of hyperspeed development. To date, digital asset markets – and their frequent ebbs and flows – have driven most mainstream conversations around the technology. This has in turn led to a common misconception that "blockchain" and "cryptocurrency" are interchangeable terms, when the reality is that the latter is just one of nearly limitless applications of the former.

Why blockchain may not be for you

Blockchain is not a panacea that cures all of the world's ills; it is, however, the most effective form of copy protection and digital certification the world has ever seen. Organizations are constantly confronted with the challenge of proving ownership and authentication of their assets, whether that's a mortgage reconciliation, an auto lease, a patent, a coupon code… the list goes on (and on). For all of blockchain's justifiable promise around driving radical new efficiencies and opening revenue streams, broader adoption has been hindered by a lack of enterprise-readiness. For one, it's been prohibitively difficult to find the dedicated professional services required by most large-scale organizations when deploying a new technology. Put another way: if something breaks at 2 AM, who can you call for help? While countless blockchain trials and proofs of concept have made incremental advances, the organizations with the most to gain from blockchain adoption – enterprises and governments – have been understandably conservative in adopting a technology that, until recently, was largely unproven in large-scale, production environments.

Key Term: **Blockchain**

A ledger that records and stores transactions across a distributed network of computers that are linked in a peer-to-peer network.

Key Term: **Proof of Stake**

A consensus mechanism or processing transactions and creating new blocks in a blockchain. A more secure and energy-efficient alternative to the "proof of work" consensus model.

To date, it's been open source developer communities and startups that have largely championed and proven the technology's efficacy. This is thanks in part to the 'move fast and break things' mentality that generally drives these organizations' ethos. Large-scale enterprises, on the other hand, cannot inherit the risk that comes from new and unproven tools into their tech stack; they need concrete security and performance guarantees before they can even consider adopting a new technology.

Further exacerbating this challenge: the infrastructure of most of today's leading networks is not easily interoperable with enterprise technology stacks, which results in insurmountable technical roadblocks and delays. And yet, tantalizing potential remains: according to Gartner, organizations will generate more than $3.1 trillion in value from blockchain technology by 2030. If this narrative sounds familiar, it's because it follows the pattern of almost every major technological breakthrough of the past half century, from personal computers to the proliferation of the world wide web and email and, more recently, the quiet, post-hype cycle emergence of cloud computing as a nearly ubiquitous phenomenon.

Blockchain technology is now at similar tipping point.

Breakthrough progress made by enterprise-specific blockchains like Casper – coupled with the emergence of dedicated professional services teams, like those offered by Casper Labs – is giving enterprise organizations a truly viable blockchain option.

The key developments in this regard are driven by the evolution of hybrid blockchain models, which are built to leverage the strengths of public blockchain tech — like decentralization, trust, and transparency — with private network guarantees on enterprise-grade speed and security.

Let's take a high-level overview of the blockchain spectrum to illustrate why this is so important.

Breaking down public vs private blockchains

	Public	Private	Hybrid
Decentralized	○	✕	○
Scalable	✕	○	○
Secure	✕	○	○
Permissionless	○	✕	○
Access Controls	✕	○	○
Auditable	○	✕	○

○ Yes
✕ No

What you can – and cannot – do with public and private blockchains

Public

Public blockchain networks — as exemplified by the likes of Bitcoin and Ethereum — are open to anyone for access and participation. Under the hood, essential network functions like transactional power and security are made possible by huge, decentralized networks of users and soft/hardware that span the globe. Transparency is built into the architecture of most public chains so deeply that every single transaction can be identified and verified in perpetuity — and no transaction can be censored, manipulated, or undone by a central authority.

However, there are drawbacks to public networks. Transactions can be slow, capacity is highly limited, fees vary wildly, development is painstakingly cumbersome. Scams, breaches, and hacks are an everyday occurrence, regulatory clampdowns are always looming, and you're sharing a network with bad actors.

Private

While public networks can be understood as an update to 'the internet,' Private blockchain networks

Key Term: **Distributed application**

Digitized, permissionless programs installed and operated on a blockchain network.

Key Term:
Smart contract

The transaction protocol stored on a blockchain that runs when an application's predetermined condition(s) is met.
Ex.: If Alice pays Bob one dollar, then she will receive one apple.

function a lot more like 'intranets' found across internal operations in business. For example: A number of multinational banking and finance consortiums utilize digital tokens for hyper-efficient cross-border payments and settlements. These walled garden networks exist between participant banks — a leapfrog technological advance for that particular sector —while remaining otherwise closed, opaque, and censurable.

So public blockchain networks could be the cornerstone for the next phase of the digital economy, but are deeply hindered by design flaws, human risk and a lack of interoperability with the vast majority of IT infrastructure that most of the world uses today (and will for the foreseeable future).

Private blockchains have proven remarkable efficiencies in limited environments. While they guarantee needed security controls for sensitive data, and reduce the costs incurred by inefficient gas models considerably, the private, censurable, and centrally controlled aspects of their networks misses out on many of blockchain's core promises. You can think of private blockchains as akin to running your data center from the basement of a bank – nothing's getting in, but nothing is being distributed to other networks, either.

Hybrid blockchains: the best of both worlds

For enterprise, the answer lies in hybrid blockchain networks that take elements from both public and private blockchains. That means the power and reliability of a private network alongside the shared trust layer provided by public chains. After years of development and iteration in the nascent hybrid sector, a viable hybrid blockchain has now emerged from the pack.

Casper is the foremost hybrid blockchain built for the needs of enterprise, and the first to successfully navigate not just the technical infrastructure, but the holistic implementation, from strategy and development, integration and ongoing maintenance, required for a secure and scalable blockchain deployment.

The onset of hybrid blockchains is the trigger for meaningful adoption and integration of blockchain technology across the enterprise landscape. It's no surprise that organizations are deploying this technology at increasing rates each year[2]. The tipping point for enterprise adoption of blockchain has been reached, and now is the time for mobilizing integration.

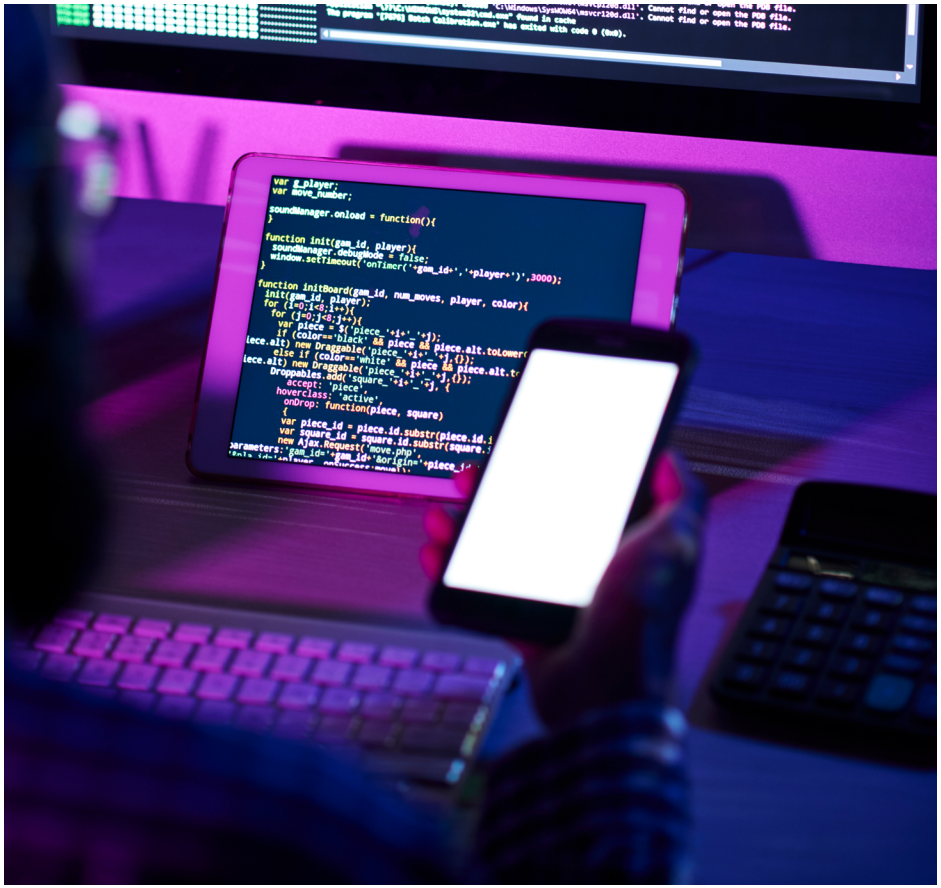
To understand where we currently are, consider these three stats:

01 By 2025, global businesses are projected to create more than $176 billion in value from blockchain use cases[3]

02 93% of global execs believe blockchain unlocks significant new revenue potential[4]

03 75% of execs believe failure to adopt blockchain in a timely manner will result in loss of competitive advantage[5]

References: 2 3 4 5



- **Sharing of Data**
- **Verification of Data**
- **Transfer of Assets**
- **Transparency**
- **Shared Security**
- **Trust Layer**

Blockchain can integrate all of these features into your operations. However, your organization's successful blockchain deployment is contingent on finding a network that delivers the right kind of block chain for you.

For example: Public blockchain networks like Bitcoin and Ethereum have proven powerful use cases in cryptocurrency, DeFi and NFTs. Their public nature and the inability to upgrade smart contracts after they've been deployed, though, has yielded a wild west of slowages, outages, hacks and breaches, coupled with a lack of regulatory clarity that has negated them as a feasible option for most large organizations.

- **Security Vulnerabilities**
- **Lack of Regulatory Clarity**
- **Chain-Specific Code**
- **Energy Usage**
- **Network Instability**

Any one of these factors can have a debilitating effect on your operations, making any meaningful development a non-starter. Because of the high stakes and low margin for error, enterprise organizations must operate with a risk-off approach to blockchain integration.

A truly enterprise-grade blockchain solution, then, must be built with interoperability in mind, and offer the ability to deploy data in and across public, private and hybrid networks as needed. And above all, it must possess the ability to seamlessly upgrade software even after it's been deployed in a blockchain environment.
It's not about one-size-fits-all solution. It's about finding a blockchain that works for your organization's specific needs, and which can adapt with your business needs evolve over time.

It's time for you to meet Casper.

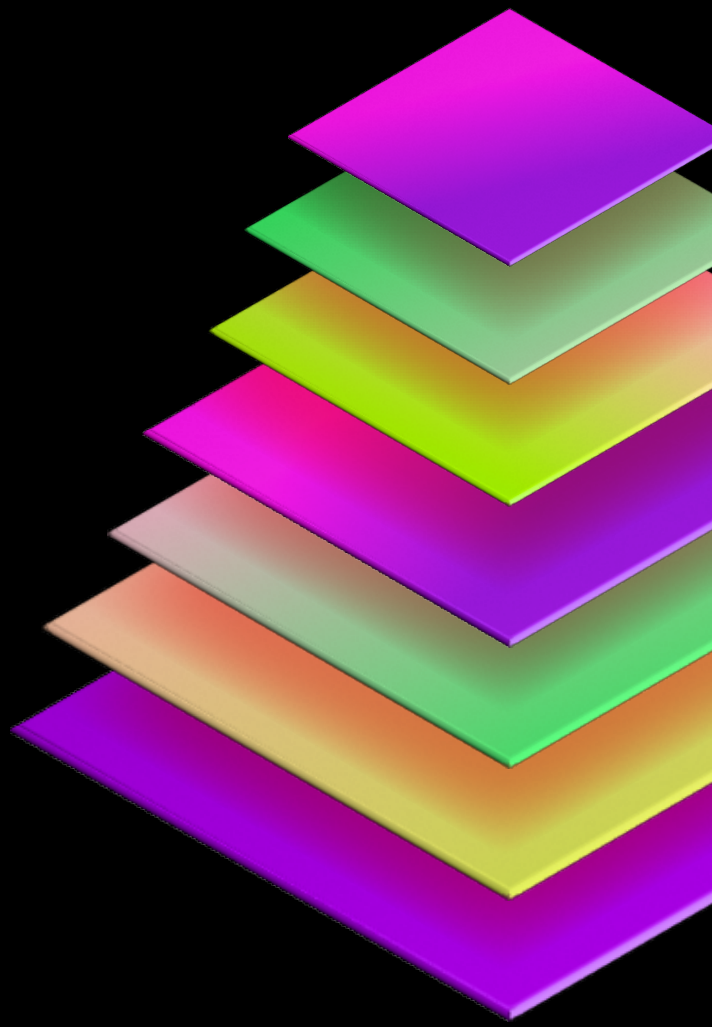
That means your business cannot:

- Inherit security risk from wider network participation
- Inherit regulatory uncertainty from wider network
- Operate in the same network marketplace as any legally or ethically unsound entities
- Add technical or logistical weight to the existing tech stack
- Rely on closed shop developer environment

Section 02

Introducing

casper



The first blockchain built for enterprise adoption

There is no longer a question of 'if' or 'why' blockchain tech will become a foundational pillar of the global economy. Now it's about 'how,' and even more importantly: "Who?"

When it comes to adopting blockchain technology, **two key considerations stand out:**

01 What technology will provide the most value and least compromise?

02 Is there a dedicated team that provides enterprise-grade services and support?

The answer to both of these fundamental questions is **Casper.**

- **Casper is the first blockchain technology built for enterprise adoption.**
- **Casper Labs is the ideal partner for developing enterprise solutions on the Casper network.**

The Casper Blockchain

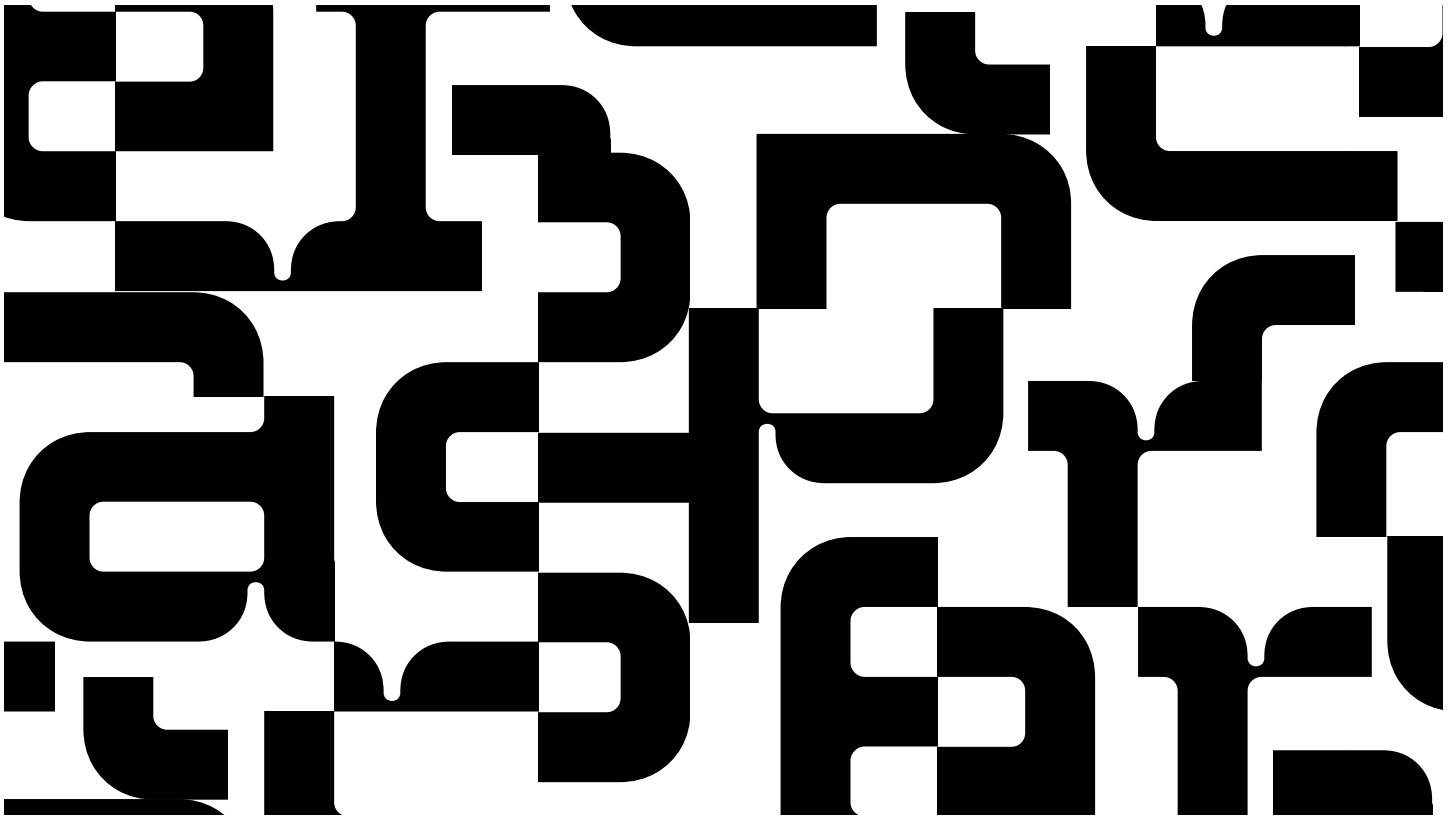
Casper is the first blockchain built for enterprise adoption. It was designed from the ground up by a team of enterprise veterans, with the specific purpose of accelerating enterprise and developer adoption of blockchain technology today, while maintaining the flexibility needed to meet future needs.

Casper at a Glance

The Casper Network is a permissionless, decentralized, public blockchain. Casper is a new Turing-complete smart-contracting platform, backed by a Proof-of-Stake (PoS) consensus algorithm and WebAssembly (Wasm).

Under the hood, Casper houses a powerful blockchain apparatus that can outperform even the speediest of chains in the most favorable of conditions.

That's because Casper uses a type of Proof of Stake consensus protocol called Casper CBC, which is what the Ethereum network is expected to adopt once it transitions to its eventual, hyper-performant 3.0 model — forecasted



to take years of development before its release. These features are live on Casper today.

The single guiding principle that guides Casper from conception to code to consensus mechanism, it's modularity. This manifests in a number of ways. Firstly, all individual components of the Casper blockchain are built to plug into existing IT systems, and can be taken apart and reconfigured as needed. The Casper protocol was written with interoperability in mind, thanks in no small part to the pedigree of its founding team, which hails from the likes of Adobe, Avalara, Cisco, Dropbox and Google. It's not realistic to expect organizations to reverse engineer all of their existing infrastructure to accommodate a new technology, as is the requirement with most blockchains.

The other half of the equation is Casper Labs

The Casper Blockchain provides a powerful, secure and endlessly customizable sandbox for building and deploying blockchain-based applications. Casper Labs provides professional services and bespoke software that caters to the specific needs of the organizations building in the Casper network.

Casper Labs is the enterprise blockchain software leader. Casper Labs built the first layer-1 blockchain for the scale and operational needs of business, creating complete transparency and trust for all business transactions. Casper Labs delivers applications and services that drive revenue and radical efficiency for companies and governments. We are on a mission to build the essential foundation for an entirely new era of customer value and business success.

The professional services team at Casper Labs provides world class

Key Term:
Immutability

The inability to change or alter data once it's been recorded.

training, local advisory services and technical support that makes it easy to learn about, plan for, and deploy applications in blockchain environments for the first time. It's the software development shop and partner service that's directly plugged into the Casper Blockchain.

The Casper Labs engineering team comes from leading global technology companies, including AWS, Google, IBM and Microsoft. Wielded together, the Casper Blockchain and Casper Labs professional services can deliver powerful custom blockchain integrations into your organization's tech stack – and you can do so in public, private or hybrid environments (and move data between them).

Casper Labs is the ideal long-term partner in an organization's blockchain journey. The entire organization has been built for the long term; its success depends on the success of its customers' realizing successful deployments. The founding team's deep enterprise roots have directly informed the way the company is structured, a stark contrast to the looser and more open structures favored by most blockchain organizations.

Casper Blockchain: key features

Casper presents a much richer operating system and ecosystem than any other existing protocol. It is the only blockchain that natively supports upgradeable smart contracts, and it provides organizations with unparalleled flexibility in terms of where and how they deploy their data – and who can access it. Casper's standout viability as an enterprise solution is evidenced throughout its software, and beyond into plug-and-play tooling, developer support and kits.

Genuine interoperability

Casper offers the most advanced and intuitive interoperability of any blockchain on the market.

Casper's ultra-modular components are all built from scratch to plug into your existing infrastructure and tech stack. That means Casper integrates seamlessly with the tools that your business uses on a daily basis: whether it's plugging into database systems, web servers, ERPs, CRMs or any other part of your IT toolkit, there's no reverse engineering required.

Developer-friendly

Casper's ability to rapidly and continuously deploy and develop software provides a significant advantage over alternatives, which require much more extensive development cycles, along with the need for hyper-specialized programming languages.

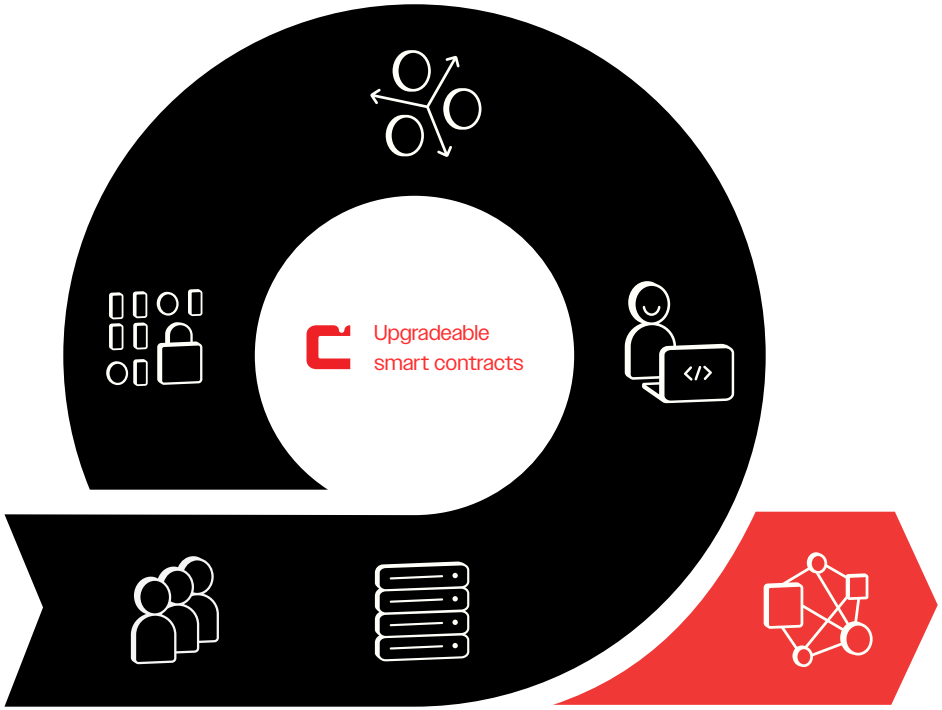
Upgradeable smart contracts

Smart contracts are the levers of blockchain technology. They're what furnishes elements like automation, decentralization, and transparency, and will be a primary tool in any blockchain infrastructure.

However, many blockchain networks suffer from smart contracts that are difficult and costly to implement, upgrade, and iterate upon.

Casper's smart contracts are easily upgradeable. That means you can quickly and simply update the smart contracts that furnish your programs and apps.

You can iterate continuously, building for the future in the present — never get stuck behind the times while futureproofing your business operations.



Key Term:
Gas fee

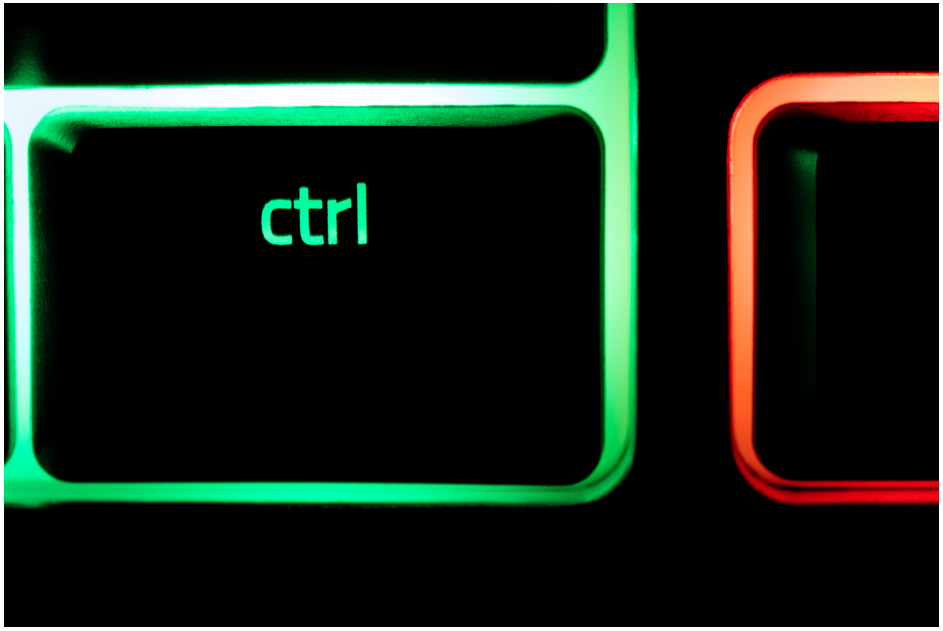
A small transaction fee, paid to network validators for their role in maintaining the blockchain – and the core incentive mechanism for securing the network.

Casper's upgradeable smart contracts enable businesses to adopt key DevOps best practices, like continuous integration and continuous deployment, with blockchain-based software — just as they do with non-blockchain-based software.

Minimal gas fees and low transaction costs

On the Ethereum network, a single transaction can cost anywhere from $2 to $45, and costs can fluctuate rapidly. In comparison, the average transaction on Casper costs approximately 10-20 cents. This enables highly intensive computational programs with minimal cost.

Further, Casper's stable fees offer a predictable model for projecting gas costs, so you're never stuck in line for a transaction or held at the whim of network congestion.



Programming Language compatible

Casper is the most compatible enterprise blockchain software available. Casper's own code is written in Rust, and the network's dev ecosystem **supports common programming languages like Java, Javascript, Typescript** — for all of which Casper provides SDKs. Casper also supports WebAssembly by design, rather than requiring proprietary languages like Solidity.

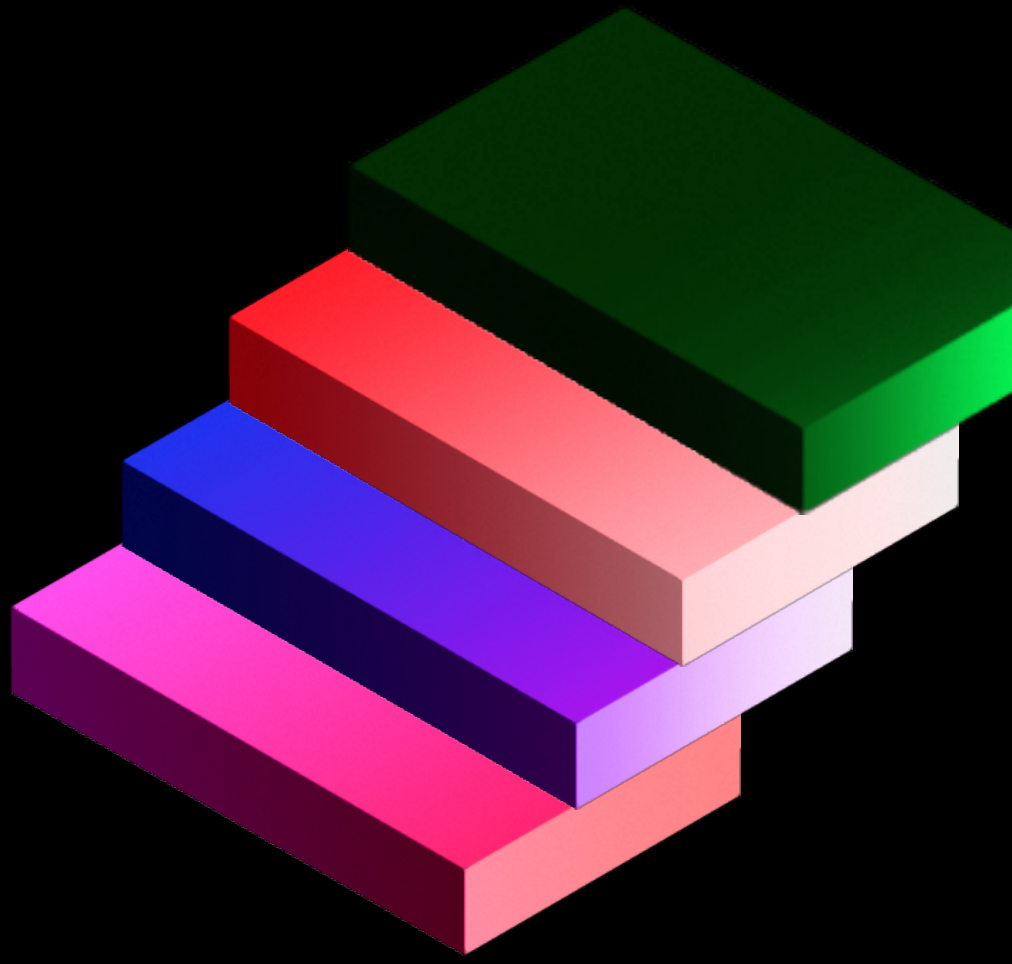
This feature simplifies the development path, while ensuring your team maintains in command of your codebase. It also makes Casper far more accessible for the vast majority of the world's 25 million-plus developers who write in popular languages like Java and Javascript, as opposed to the select few thousand that specialize in more niche, blockchain-centric languages.

Energy efficiency

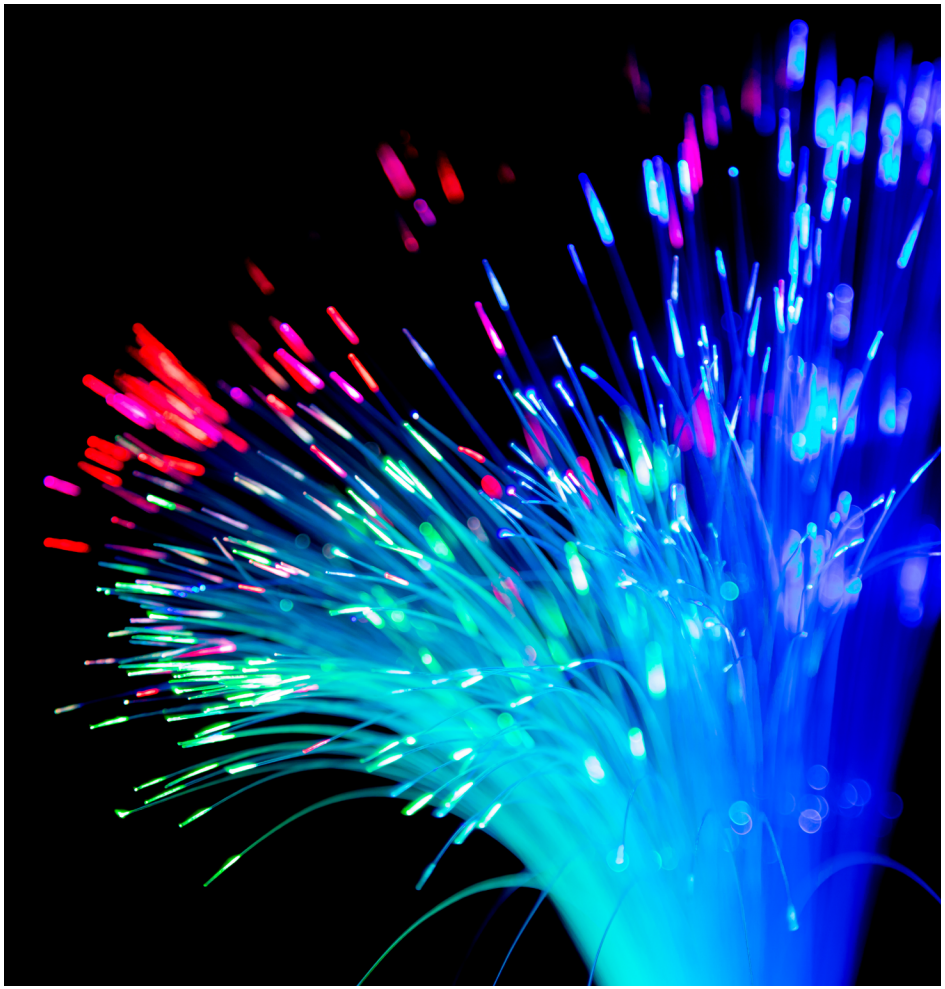
Casper runs on a Proof of Stake consensus mechanism. This model is minimally hardware or data intensive, and decreases the energy usage of powering a blockchain network by as much as 99% in comparison to Proof of Work networks like Bitcoin.

Section 03

How are organizations using blockchain?



Telecommunications



Driving new efficiencies on the telco value chain

After centuries spent primarily digging the information age into the earth with heavy infrastructure, the telecommunications industry has evolved into a digitally driven landscape. Applications on mobile devices are the dominant human standard for communication globally. This trend has seen telecommunications carriers emerging as trusted brokers in today's dynamic app market — particularly in regards to data and financial services.

Telecom Industry leaders are now aggressively seeking to differentiate product offerings with more developed and holistic customer experiences. Mobile devices are already vital to financial services, and the integration of blockchain-enabled wallets will ride those rails and rapidly reach market saturation. This will open up vast opportunities for innovative telecommunications firms to incorporate digital assets and blockchain benefits throughout internal operations and customer experience.

Key Term: **Decentralization**

The transfer of control of an activity or organization to a distributed network as opposed to a single source.

The Casper Effect

Unleash the Full Potential of 5G

5G is the largest upgrade to networks in 20+ years; however, it isn't easily available throughout the world and with limited capabilities.

Leverage the Casper Blockchain to bring more benefits to subscribers and upgrade network connectivity.

Open New Revenue Streams

Memes and content capital create value and wield power. Soon, users uploading pictures to popular apps will mint corresponding NFT digital assets to realize ownership and monetization opportunities.

Beyond arts and culture, NFTs will act as identity-bound tokens that can represent any of a number of items, including rights, access, credentials, in addition to compelling offers and coupons for your users.

Carriers will create their own marketplaces for buying, selling and trading the spectrum of mobile-native NFTs. The most effective carriers will be market leaders in a new asset class: comms assets.

Enhance Network Security

As technology advances, so do the bad actors that leverage it. That's why hacks, breaches, and scams are a perennial issue across industries.

Blockchain introduces a more transparent and identity-bound infrastructure driven by significantly reducing incentives for fraud and theft.

It also provides a drastically more efficient framework for real-time settlements and roaming agreements between carriers. Roaming settlements alone can cost providers up to 15% of annual operating profit.

Expand IOT & AI Capabilities

The telecommunications industry is about much more than just providing telephone coverage.

The race is on to integrate new tech — like IoT and AI — into its global infrastructure. These digital industries will provide tangible benefits to daily life to users and huge market share to the winner.

IoT, AI, and blockchain are three pillars of tomorrow's economy.

Casper's paramount focus on interoperability now is a strategy designed to frontrun the debilitating pain points of future compatibility retrofitting.

You do not want to get stuck footing the bill for retrofitting your infrastructure.

Energy & Utilities

Drive new efficiencies, gain competitive advantage in a fast-evolving industry

Energy and utility companies are currently navigating the most volatile landscape the industry has ever endured. Amid an ongoing global energy shortage and price shocks, it's critical for firms to maximize existing assets to positively impact bottom lines. The same amount of energy needs to go further.

Energy giants are incorporating blockchain technology as organizations seeking to buy, sell and trade energy assets to better meet ESG goals.

Create Energy Asset Marketplaces

As ESG plays an increasingly prominent role in corporate agendas during a period of energy scarcity, the management, maintenance, and monetization of energy assets becomes a topline priority.

Casper, enables highly performant, secure, and scalable marketplaces that allow for buying, selling and trading of energy assets as NFTs.

Optimize Oil & Gas Supply Chains

Gas and traditional fossil fuel levels have dramatically increased in price recently, far outpacing supply. It's imperative for energy and utility firms to maintain hyper-accurate supply chains to minimize the chasm.

Casper seamlessly integrates with existing IoT infrastructure to produce more accurate, timely insight into the supply chain with built-in transparency and automation, along with the ability to update conditions.

Key Term: **Non-fungible token (NFT)**

A unique, cryptographic token that provides a unique and traceable claim of ownership over a specific asset or assets.

Financial Services

Rethinking financial data is a multi-trillion dollar idea

As the world returns to its “new normal,” executives at the largest wealth management, banking, insurance and corporate banking firms are continuing digital transformations to stave off stagnant market forces on one flank and the chaos of crypto impinging on fintech turf from the other.

Positive growth at this juncture comes from humanizing digital interactions, evolving payments, creating super-apps, and leveraging new and exciting artificial intelligence. Casper has emerged as a superincumbent when it comes to providing access, analytics and transparency for financial data, as well as real-time data access across disparate databases.

Improve Customer Engagement

Most banks and insurance carriers remain reliant on self-service approaches online. Innovative in the 1990s, it’s now static, restrictive, and an engagement deterrent.

Casper’s identity-bound system helps firms better understand customers, clients and policyholders to enable adaptive experiences that better serve customers with improved financial services products.

Deliver Lightning Fast Payments

Financial services have long been trending towards instantaneous payments and transfers. Innovative banks and insurance firms are driving towards real-time gateways and payments processes to customers. With Casper’s transaction speeds already near zero, supercharging your customer experience to the limit is highly secure and cost-effective.

Enhance App Functionality

Financial services firms are being challenged by communications “super apps” that also offer payments and financial functions within the same digital experience.

Better experiences, deeper features, and developed interoperability within a single platform is how they stay competitive in a fast-evolving market.

Leverage the Casper Blockchain to connect data-rich businesses together to develop the ultimate banking and insurance experience that provide more value than chat app widgets can.

Unify Financial Data

We foresee a common language for the financial world that integrates existing databases tot allow for real-time data access.

Smart Financial Contracts, introduced by Nucleus Finance and powered by Casper technology, are establishing such a common language. This will enable new levels of automated insight into key trends and open new avenues for bespoke offerings and products that appeal to immediate demand.

Healthcare & Life Sciences

Faster, more accurate insights to improve patient experience and your bottom line.

Healthcare and life sciences are data-driven industries. The ability to collect, integrate and optimize diverse data is often the difference between success and failure in the industry. Healthcare and life sciences firms are increasingly focused on sharing data between allied organizations in a secure and timely manner.

Particularly in the United States, healthcare data and data privacy operate in lockstep. Casper's tamper-proof, identity-bound functionality, coupled with its ability to support hybrid and private – as well as public – deployments, is enabling firms to realize competitive advantages at a key moment in time — all while having the flexibility to stay within best privacy practices.

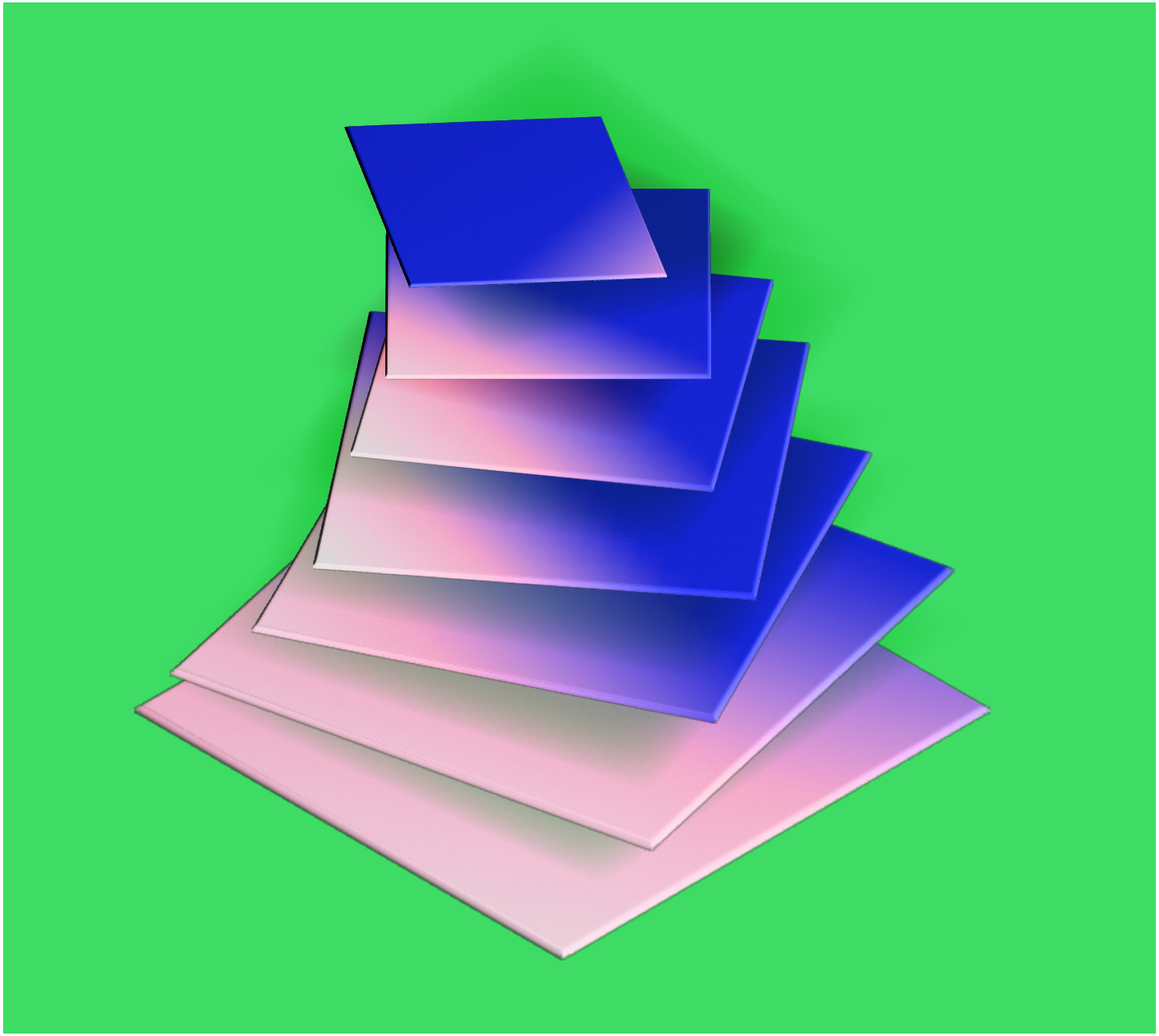
Deliver Faster, More Accurate Results

The COVID pandemic has stress-tested hospitals and clinics to their limits, and resources remain scarce.
Casper's secure, identity-bound nature enables efficient data sharing and analysis in a pseudonymous nature.
This method does not sacrifice patient privacy, while delivering timely and accurate results to patients.

Safely Share and Analyze Data

One of the biggest challenges that hinders healthcare and life sciences firms is the inability to securely and efficiently unify data and share it between organizations.

Casper offers a compliant and highly secure manner for firms to upload encrypted data to shared environments while retaining full control, along with the ability to set permissions for who can and cannot access specific data points for the entirety of the process.



Realize Homomorphic Encryption

Accessing a patient's data in a pseudonymous manner that doesn't violate key regulations is a longstanding challenge. The emerging field of homomorphic encryption is enabling firms to do just this, unlocking rich new data sets in the process.

Casper's secure, identity-bound system is uniquely suited to power these initiatives.

Improve the Verification Process

Healthcare firms are consistently challenged to digitize and improve the patient experience. With Casper's hybrid blockchain model, you can create secure, user-friendly NFTs that match up with QR codes that immediately point to patient records and verify critical health information.

Manufacturing & Supply Chain

Effective supply chain management requires a more decentralized approach, underscored by immutability and security

Even as COVID-driven supply shocks recede, executives are grappling with a litany of supply chain issues hindering output and adversely impacting bottom lines. Supply chains remain fragmented, and the inability to provide a more unified and timely view prevents disparate participants from maximizing value and efficiency.

Blockchain technology is enabling manufacturers to create new, unified systems that provide greater levels of transparency and access without compromising security or data integrity. This equitable model means all parties to join the value chain on even footing.

Reduce Operational Overhead

Supply chain management is a labor-intensive process, by virtue of the sheer number of personnel and technologies involved. Casper Labs' solutions platform does not depend on proprietary physical technology or complex systems.

Rather, systems built on the Casper Blockchain can work with any simple scanning technology and any major programming language that can compile to Wasm. This allows for rapid technology onboarding and a reduction in costly equipment deployment and training.

Mitigate or Eliminate Fraud

One of the most important aspects of a blockchain platform is its ability to store data in a decentralized, immutable way. Integrating this technology with supply chain management ensures that data input at any destination along the supply chain is accurate and unchangeable.

Further, it identifies the last provable location of any shipped materials, allowing for rapid and accurate tracking of breakdowns along the chain. Casper provides the industry's most secure, flexible option for doing just this.

Employ NFT Metadata Mutability

Casper's CEP-78 enhanced NFT standard allows for mutability within an NFT's metadata – a feature unique to the Casper network. You can assign an NFT to each item that functions as both a digital Certificate of Origin, as well as an on-chain record of travel for the item in question. This provides unique and unparalleled insight into every step of the supply chain.

Integrate with Your Existing Systems

We built the Casper blockchain with enterprise clients in mind. We've ensured that your team can rapidly onboard with our system and easily integrate existing technology stacks.

Any major programming language that can compile to Wasm will work directly with our network, including Rust and JavaScript.

Government & Public Sector

Modernizing systems to improve trust and make life easier for citizens.

Governments do more than create laws and regulations. They serve as a central database for important paperwork of all kinds, including birth certificates, identification documents, passports and more.

A complex, but inevitable necessity, digitizing records can unlock drastic new efficiencies. Casper Labs provides an enterprise-grade blockchain platform, coupled with dedicated services and support, that's helping a growing number of government organizations do just that.

Accelerate Digitization Initiatives

Digitization initiatives have taken hold across the private sector, creating seamless and personalized experiences – and citizens are now demanding it from the public sector.

Casper provides the ideal platform to securely create immutable records at scale while maintaining the ability to integrate with other technology solutions.

Enhance Data Security

Security is always at the top of the list because of the highly sensitive data in which governments traffic. Growing cyber threats only exacerbate this concern.

Casper enables governments to seamlessly port identity-bound data between highly secure private, hybrid and public environments for more efficient processes.

Improve Data Access

Making data accessible without compromising its integrity or security is an existential challenge for governments.

Our blockchain platform allows for immutable records to be stored in a highly secure manner, while remaining accessible in near real-time (think: seconds, not weeks/months).

Streamline Identity Verification

Securely store identity records on-chain to more easily facilitate tasks like renewing a driver's license or establishing marital certificates. Tourists can quickly verify passport terms and conditions in a non-intrusive manner, even, regaining key documentation without lengthy waits.

Retail

In a $6 trillion (and growing) market, blockchain technology is changing the customer engagement game

The once slow and steady shift to digital sales has accelerated significantly in recent years, and retailers large and small are throwing out their old playbooks to attract and retain loyal customers.

Traditional, 1:1 engagement models rely on the customer taking the first step, creating an account to which stronger offers can be attached. In contrast, Casper Labs works with retailers to pre-generate identity-linked offers based on known target metrics using our highly secure NFT framework.

Win with Ecommerce

Although the world has moved past COVID lockdowns, consumer behaviors have been changed forever. It is simply too easy and convenient to buy a lot of things online. Casper gives retailers a leg up for managing, tracking and understanding consumer trends to deliver the optimal shopping experience.

Launch Better Loyalty Programs

Craft identity-bound offers for specific customers, including NFT-based coupons that are unique to a user's credentials and unusable by anyone else, and which integrate directly with your website. If the customer chooses to act on that offer, it's instantly applied to their cart at checkout.

Reduce Transaction Fraud

Fraud remains an existential issue for retailers. By storing customer transactions on Casper's secure and tamper-proof ledger, you can realize a more effective, transparent and timely system for resolving disputes and minimizing the risk of transaction fraud.

Personalize Customer Experiences

Gamification and rewards systems improve retention. And rest assured that personal data is fully secure in a tamper-proof database. Casper even enables stock-specific actions. Down to your last five items? Convert limited supply into auctions to maximize revenue.

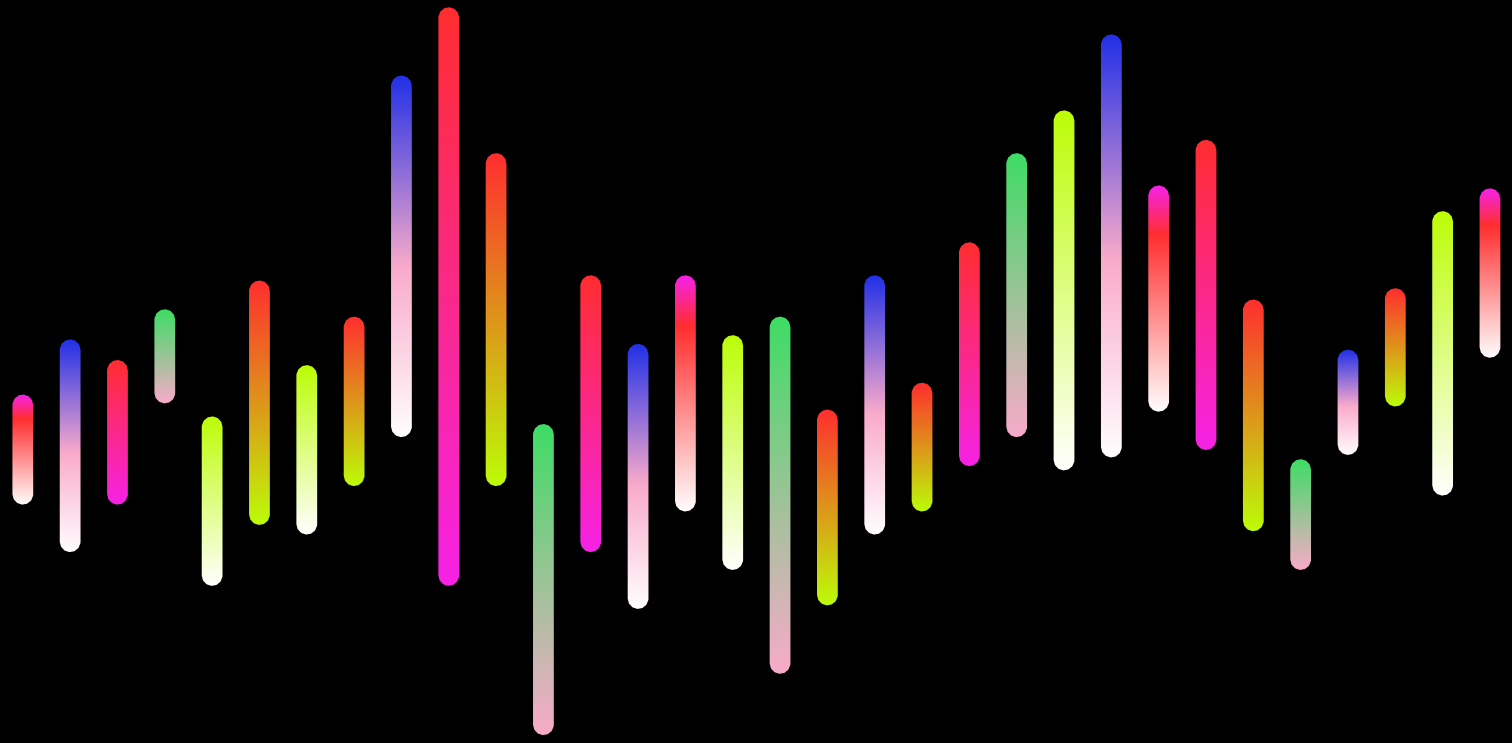
Now What?

Thanks to the enormous strides that have been made over the past decade, blockchain is ready for primetime. While it's still an emerging technology, projects like Casper have introduced enterprise-grade architecture to the equation that provide the performance and security guarantees large-scale organizations require before deploying new software.

We're on the precipice of an exciting new era for not only computing, but the fundamental way in which we manage transactions — and blockchain is at the heart of it. It's a transformative technology just realizing its potential; there has never been a more effective way to protect proprietary assets and trace ownership.

If you're ready to learn more about how you can add a blockchain solution to your IT tool belt, we'd love to hear from you! You can contact us here.

- The Casper Labs team



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