DPIN Whitepaper

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Abstract

As we stand on the precipice of a technological revolution, the convergence of 5G and Artificial Intelligence (AI) heralds a new era for the Internet. With NVIDIA achieving a trillion-dollar market cap, it underscores the significance of high-performance computing (HPC) in today's digital landscape. This unprecedented demand for computational power is primarily driven by advancements in AI and the booming cloud gaming sector. However, current supply chains and delivery mechanisms struggle to keep up with this explosive growth.

DPIN aims to harness this moment by implementing a novel "Cloud & Chain" business model underpinned by blockchain technology. Our goal is to create an interconnected ecosystem that balances the supply and demand for computational power globally. By democratizing access to HPC resources, DPIN is not just about enhancing performance. it's about ensuring that every individual can tap into the vast potential of AI and cloud gaming.

1. Introduction to DPIN

1.1 Vision and Mission

DPIN envisions a future where high-performance computing is accessible to hundreds of millions of individuals worldwide. The goal is to democratize technology and revolutionize the way computing power is accessed and utilized through an innovative, decentralized approach.

The mission is to create an accessible and cost-effective high-performance computing network that reshapes resource allocation in the digital space. By leveraging blockchain technology, DPIN establishes a globally connected network of superior computational power, ensuring a trusted environment for developers and users engaged in AI and cloud gaming.

DPIN aims to be the builder and leader of global GPU computing infrastructure, addressing high-performance computing needs such as AI and cloud gaming while driving future innovation with decentralized technology.

1.2 Strategic Objectives

The core strategy lies in constructing a scalable global computational power network capable of elastic scheduling and widespread sharing of resources. This network optimizes the use of computational nodes, referred to as algorithm workers, managed by users. This community-driven model reduces operational costs and enhances efficiency across the board.

Extensive technical support is provided by QPIN (qpin.world), incorporating advanced technology from the Institute of High Performance Computing (IHPC) of the Agency for Science, Technology and Research (A*STAR). This partnership strengthens the capability to build a robust and effective network.

Strategic resources are further enhanced through collaboration with the multinational council members of 42DAO, promoting in-depth expansion and seamless integration of the global AI computing resource market. This effort aims to build a powerful ecosystem for the digital economy.

Core values of cost efficiency, operational effectiveness, and exceptional user experience guide the mission of DPIN. By leveraging global resource sharing, traditional paradigms are disrupted, bridging the gap between low-cost and high-cost regions. The commitment to mobilizing social capital ensures enhanced efficiency of computational power while providing a frictionless experience that transcends geopolitical boundaries.

2. Market Overview and Demand for High-Performance Computing

High-performance computing (HPC) is increasingly vital to driving global economic growth, propelled by advancements in AI and cloud gaming. This section examines the current landscape, demand dynamics, and challenges in the HPC market.

2.1 Demand Drivers

The demand for HPC capabilities is escalating, primarily due to:

- Artificial Intelligence (AI): The rapid evolution of AI technologies necessitates vast computational resources. Notably, the advent of ChatGPT in November 2022 attracted over 100 million active users within two months, demonstrating the explosive growth of AI applications.
- Cloud Gaming: Real-time rendering for cloud gaming requires robust HPC systems to provide low-latency, high-quality gaming experiences without the need for expensive gaming hardware. The rollout of 5G technology further enhances this landscape, facilitating seamless cloud gaming and projecting over 500 million users by 2025.
- GPU Market Growth: The global GPU market is anticipated to expand from approximately $25.41 billion in 2020 to $246.51 billion by 2028. This growth reflects the doubling demand for computational power every 3–4 months for leading AI models.

2.2 Challenges in the HPC Market

Despite promising growth, several challenges threaten the HPC landscape:

- Integration Complexity: Integrating diverse systems and technologies poses significant challenges as companies increasingly adopt HPC solutions.
- Resource Allocation: Efficiently distributing and scaling computational resources to meet fluctuating demands remains a hurdle. Businesses require elastic solutions that can adapt in real-time to changes in demand.
- Cost of Infrastructure: Setting up and maintaining high-performance computing infrastructure can be prohibitively expensive, limiting access for smaller players in the market.
- Sustainability Concerns: The environmental impact of high energy consumption associated with HPC systems raises sustainability issues. Addressing energy efficiency and exploring greener alternatives are crucial for long-term viability.

- Talent Shortage: A shortage of skilled professionals equipped to leverage advanced HPC capabilities hinders the industry's potential. Training and development initiatives are essential to cultivate a workforce adept in HPC technologies.

2.3 Strategic Insights

As the need for computational power increasingly shifts toward decentralized edge computing, DPIN is strategically positioned to address the challenges within the HPC landscape. By facilitating elastic utilization of HPC resources, DPIN can effectively cater to the dynamic demands of emerging B2C markets, paving the way for future innovations.

3. Ecosystem Overview

3.1 Design Philosophy

DPIN is committed to tackling the complexities involved in the application of computational power, particularly in AI and cloud gaming. Our team leverages deep industry expertise to develop robust, commercially viable solutions. We aim to accelerate the adoption of next-generation high-performance computing technologies that can transform various industries.

3.2 Key Aspects of the Business Model

- **Global Dispatchment of Computational Power**: DPIN facilitates the movement of AI computational power from low-cost regions to high-cost regions, allowing cost reductions of approximately 30% when exporting computational power from the United States to markets like Japan, South Korea, or Singapore.
- **Peer-to-Peer Marketplace**: Our platform creates a global computational power-sharing model enabling individuals and businesses to rent out idle computational resources.
- **Consumer-to-Consumer (C2C) Platform**: We empower users to utilize consumer-grade GPUs for business applications, enabling a further reduction in computational power costs.
- **Localized Services**: We prioritize offering localized services that effectively navigate and minimize geopolitical risks, ensuring a seamless user experience regardless of location.
- **Decentralized Governance**: Utilizing blockchain technology, we are developing decentralized rules for cooperative decision-making and mutual benefits among ecosystem participants.

3.3 Network Mechanism

DPIN operates on a two-layer network combining blockchain and distributed cloud technology. The blockchain layer pools global high-performance computing resources, while the cloud layer addresses industry-specific applications, providing a versatile ecosystem suitable for businesses of all sizes.

3.4 Core Technology

DPIN's technological foundation consists of cutting-edge cloud and blockchain systems designed to align with its business objectives. Key components include:

- **Decentralized Computing Engine**: A proprietary computing engine offers unstructured and dynamically adjustable capabilities.

- **Loose B2B Network Design:** This structure supports tens of millions of interconnected nodes.
- **Shared System Resources**: We maintain a balanced load through shared CPU and GPU resources, optimizing task execution and resource utilization.
- **Efficient Encoding Protocols**: Our advanced encoding protocols enhance data integrity and transmission efficiency.

3.5 Empowering Users and Businesses

DPIN democratizes the cloud computing market, dismantling the dominance of a select few corporate entities. The platform allows enterprises and individuals to contribute computational power based on market demand. Resource providers can derive income through:

- **Rental Fees**: Users pay for access to high-performance computing power, ensuring transparent transactions within the DPIN ecosystem.
- **Token Rewards**: Participants earn rewards based on their contributions, fostering engagement and encouraging greater participation in the network.

This approach not only empowers users but also paves the way for diverse applications of DPIN's computing power. Key scenarios include:

- **E-sports Hotel**: Efficient computing power support ensures a smooth cloud gaming experience for hotel users, leading to improved player satisfaction.
- **Cloud Gaming**: Leveraging DPIN's computing capabilities provides high-quality cloud gaming services, allowing players to enjoy high-definition and seamless gaming experiences on any device.
- **Cloud Internet Cafe**: Building a cloud internet cafe utilizing DPIN computing power enhances equipment utilization, reduces maintenance costs, and provides users with high-performance gaming experiences.
- **AI Computing Power**: DPIN meets the high-performance computing needs of AI R&D teams, accelerating AI model training and optimizing research and development efficiency while promoting innovation.
- **GPU Computing Power:** The network supports professional-grade GPU computing power for high-intensity tasks such as deep learning and image rendering, significantly improving project execution efficiency.

3.6 QPIN: A High-Efficiency Computing Power Solution Provider

DPIN collaborates with QPIN to enhance its high-performance computing service offerings, particularly for AI development and cloud gaming applications. QPIN is dedicated to delivering cost-effective and easily accessible computing solutions through a decentralized high-performance computing network, effectively revolutionizing the acquisition of computing power for AI developers and gamers alike.

To achieve optimal performance and support, QPIN utilizes advanced technologies sourced from the Agency for Science, Technology and Research (A*STAR) and the Institute of High-Performance Computing (IHPC). This strategic alignment enables QPIN to provide flexible, on-demand access to computing power, allowing users to customize solutions that meet diverse and specific needs. Additionally, its decentralized model significantly reduces overall

computing costs, making advanced technology more accessible. By fostering the development and support of emerging projects and innovations, QPIN actively promotes technological advancement and industry progression.

3.7 Strategic Partnerships

DPIN has strategically partnered with several organizations to enhance the infrastructure construction of the global GPU computing power pool, jointly creating an efficient and innovative computing power ecosystem.

- **Dreamcore**: A leading GPU equipment supplier in Singapore, focusing on providing cost-effective GPU computing power servers and terminal equipment.
- **42DAO**: Integrated into the 42DAO ecosystem, relying on the resources of the 42DAO Global Council.
- **UKiss MOU**: A leading digital asset security service provider, ensuring secure protection of digital assets.
- **CESS**: Provides decentralized data storage infrastructure, enhancing flexibility and security in data management.

3.8 GPU Computing Power Application Ecosystem Support

DPIN is dedicated to enhancing its computing power application ecosystem through strategic collaborations aimed at providing comprehensive support for e-sports and gaming solutions.

Collaboration with Roland Ong

DPIN will partner with Roland Ong to deliver advanced computing solutions specifically tailored for e-sports hotels in Southeast Asia, leveraging his insights and expertise in the gaming industry.

Partnership with Samsung Odyssey

As the first computing power partner, Samsung Odyssey plays a pivotal role in developing the DPIN computing power pool, aimed at providing users with an exceptional gaming experience.

3.9 DPIN Application Ecosystem Support

- Capcom: A renowned Japanese gaming company known for globally recognized IPs, including Street Fighter, Resident Evil, Devil May Cry, and Monster Hunter. These contributions enhance the DPIN ecosystem, bringing quality experiences to users.
- New Legend: A classic MMORPG promoted within the DPIN ecosystem, featuring core gameplay dynamics such as free PK (Player Killing) mechanics, engaging siege warfare, and opportunities for player-driven equipment upgrades.

3.10 Integration with the 42DAO Ecosystem

DPIN is now deeply integrated into the 42DAO ecosystem, strengthening its presence in the blockchain-driven AI computing power sector. This integration allows DPIN to enhance its influence and operational capacity within the application ecosystem.

As part of this collaboration, DPIN's AI computing power settlement system operates on the BLC stablecoin ecosystem. This ensures both efficiency and transparency in the payment and settlement processes, effectively optimizing the usage of computing power resources across the network.

Furthermore, by leveraging QPIN's technical support and the resource capabilities of the 42DAO Global Council, DPIN is committed to building the world's largest AI computing power pool. This initiative aims to connect global resources and promote the coordinated development of the overall AI computing power network, fostering innovation and accessibility in AI technology.

4. Tokenomics of DPIN

The DPIN tokenomics is designed to promote sustainable growth, incentivize user participation, and enhance the value of DPIN tokens through strategic buybacks and community engagement.

Total Supply: **210,000,000** DPIN Tokens

Category	Supply	Proportion	Vesting
Airdrop Program	180,600,000	86.00%	Vesting is the gradual release of Airdrop Program over time
Core Contributor Reward	12,600,000	6.00%	12-month cliff, then 36 months of equal monthly vesting
Super Nodes	4,950,000	2.357%	Vesting refers to the gradual release of airdrop rewards for Super Nodes over time
Initial Liquidity	4,200,000	2.00%	Fully Unlocked at TGE
Liquidity Bonds*	4,200,000	2.00%	Fully Unlocked at TGE
Community Governance	3,450,000	1.643%	6-month cliff, then 36 months of equal monthly vesting

*Note:
Liquidity bonds: Use 2% as a bond to suppress rapid price increases, and repay borrowed tokens once the price normalizes.

DPIN Token-Destruction Mechanism

- Computing Power Revenue Buyback: Generated revenue for computing power will regularly be used for market buybacks, thus increasing the demand for DPIN tokens.
- DPIN Token Burning: Tokens acquired through buyback will be burned, reducing the circulating supply and enhancing the value of remaining tokens.

DPIN Computing Power Allocation Mechanism

- Automatic Deduction of 30%: A percentage of rewards from airdrop will be automatically redirected to sustain and develop the DPIN computing power ecosystem.
- Promoting Sustainable Ecosystem Development: This mechanism ensures both the ecosystem and users benefit from the allocation of resources.

5. Roadmap

The DPIN roadmap outlines key developmental milestones and marketing strategies from 2024 to 2028, focusing on enhancing platform capabilities, expanding market reach, and fostering user engagement.

Phase 1: Q4 2024 - Q1 2025 – Establishment of DPIN

- Finalize architectural design and core functionalities.
- Start backend development with QPIN for GPU management.
- Acquire initial GPU resources and set up strategic data centers.
- Begin compliance with data privacy and cybersecurity regulations.
- Engage users and partners to build a community.

Phase 2: Q2 2025

- Finalize the A*Star Cloud platform and conduct beta testing.
- Launch campaigns for early adopters and organize webinars.
- Introduce gamification and community forums.
- Launch the E-sports Hotel for enhanced cloud gaming.
- Partner with technology providers.

Phase 3: Q4 2025

- Finalize the AI remittances app with 15,000 GPUs for 500,000 users; ensure compliance and security.
- Promote the app through localized campaigns and host community events.
- Create onboarding materials and conduct workshops.
- Support AI model training and launch the AI Remittances App for secure transfers.

Phase 4: 2026

- Launch a mobile cloud gaming platform with 30,000 GPUs for 1,000,000 users; optimize infrastructure.
- Partner with gaming studios and implement influencer marketing.
- Invest in cloud infrastructure and develop analytics tools.
- Provide high-quality mobile gaming experiences.

Phase 5: 2027

- Deploy regional self-operated cloud platforms with 15,000 GPUs for 500,000 users; enhance regional support.
- Tailor strategies for Asian markets and create educational content.
- Collaborate with fintech and gaming companies.
- Research new markets and prepare multilingual support.

Phase 6: 2028

- Deploy 30,000 additional GPUs across regions for 1,000,000 global users; explore GPU tech advancements.
- Launch global campaigns and partner with gaming tournaments.
- Continuously enhance user experience through feedback.
- Invest in analytics and maintain optimization for growing user demands.

6. Conclusion

DPIN represents a transformative step in the cloud computing landscape, merging advanced technology with decentralized principles to create a more accessible and equitable marketplace. By democratizing high-performance computing, DPIN dismantles traditional barriers, allowing individuals and businesses—regardless of size or location—to harness AI and computational resources effectively.

The innovative approach of enabling users to contribute computational power based on market demand not only fosters financial incentives through rental fees and token rewards but also encourages a vibrant ecosystem. This community-driven model enhances user engagement and promotes a collective effort towards technological progress.

Key application scenarios, from e-sports hotels to AI research and GPU computing power, highlight the versatility and capability of the DPIN network. Each application not only showcases the platform's functionality but also signifies its commitment to delivering high-quality services that cater to diverse user needs.

As the landscape of computing continues to evolve, DPIN is poised to lead the charge, integrating cutting-edge technology with a vision for a connected future. The commitment to transparency, efficiency, and user empowerment will drive the growth and adoption of DPIN, making it a cornerstone in the next generation of cloud computing.

In summary, DPIN is not just a platform. it is a movement towards a collaborative future where technology is accessible to all. By participating in this ecosystem, users and businesses can take part in shaping an innovative and decentralized computing landscape that is prepared to meet the challenges of today and the opportunities of tomorrow.