Akash Network Overview

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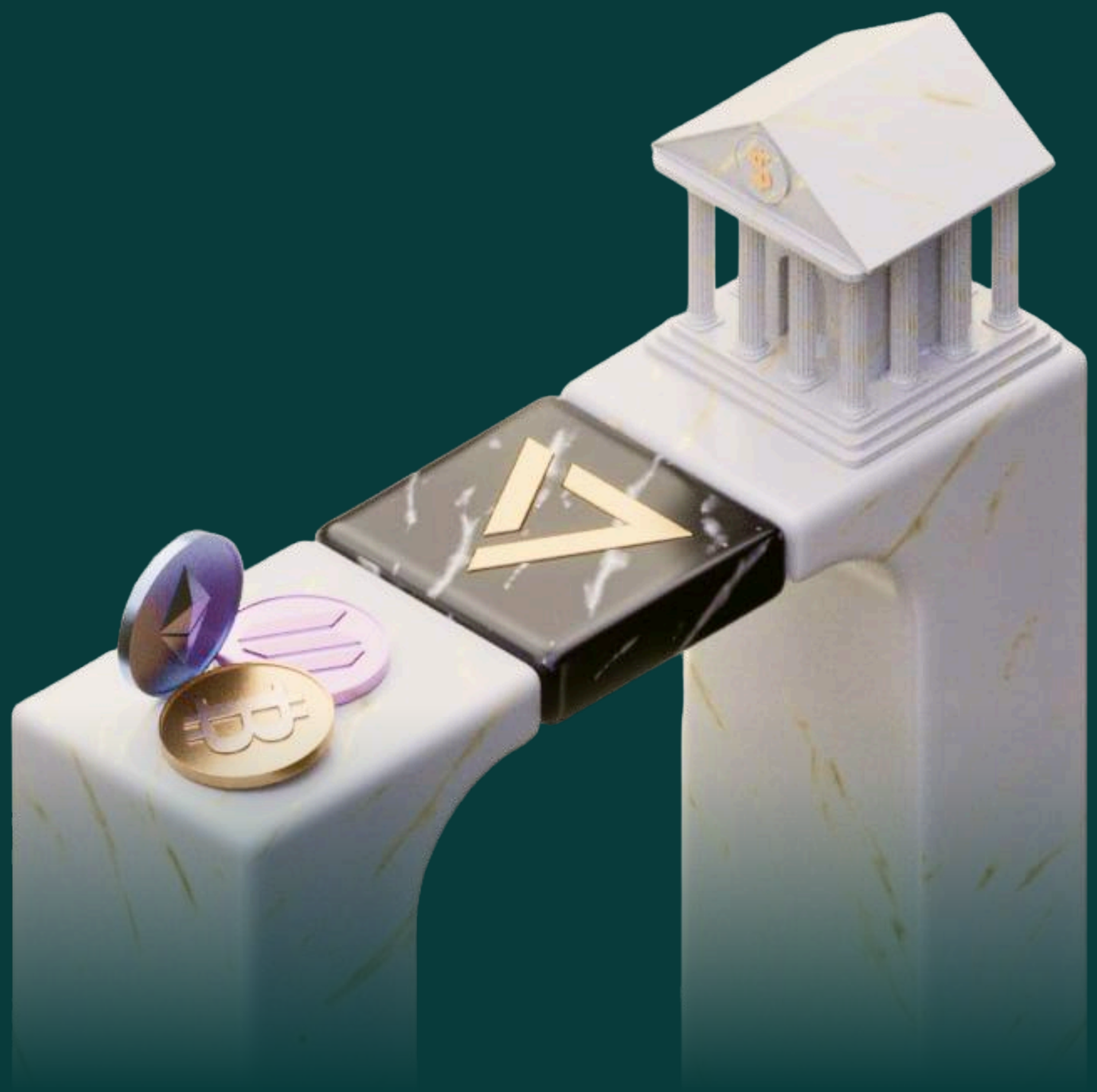

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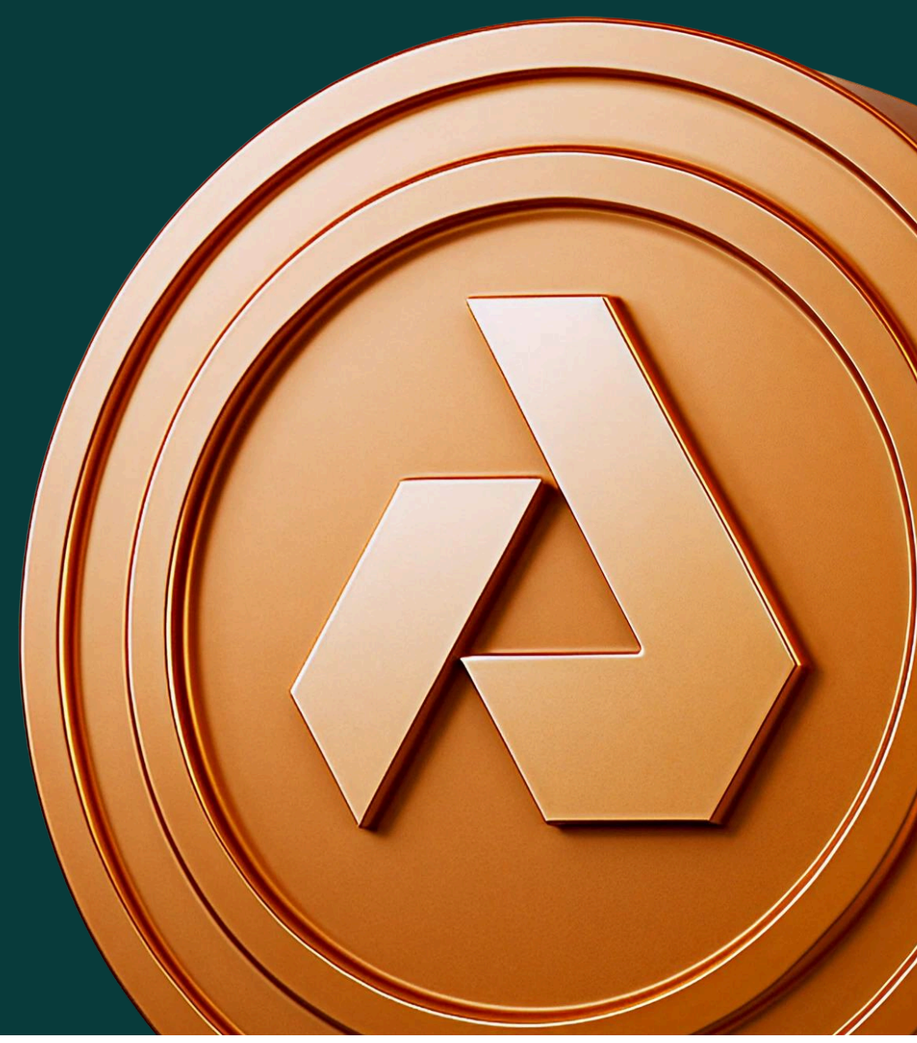
Introduction

The Akash Network is a decentralized compute marketplace designed to meet the rising demand for cost-effective, secure, and censorship-resistant cloud infrastructure. In contrast to traditional cloud providers such as Amazon Web Services (AWS), Google Cloud, and Microsoft Azure, Akash operates as an open and permissionless ecosystem. Within this ecosystem, users can lease underutilized computing capacity from data centers and infrastructure operators around the world, resulting in substantially lower costs for deploying and managing cloud workloads.



High-level Overview of Akash Network

Source: akash.network

akash

Akash Providers

(owned and operated by many entities)

Providers run Kubernetes clusters

Provider 01 | Provider 02 | Provider 03 | . . . | Provider “N”

Akash Network is Airbnb for Datacenters

Benifits:

Low cost & Greater Choice | Standardizes cloud resources for access | Open Source | Community Driven

Akash Tenants

Tenants deploy apps as Docker containers

User 01 | User 02 | User 03 | . . . | User “N”

By leveraging blockchain technology, container orchestration platforms, and a sophisticated set of incentives, Akash provides a flexible, scalable alternative to centralized cloud services. It aims to empower developers, enterprises, and end users to freely access computing power without the constraints of vendor lock-in, opaque pricing models, or the overarching control of a single corporate entity. As a result, Akash is poised to benefit the future of cloud computing by delivering a transparent, community-driven, and economically efficient model that benefits providers, tenants, and validators alike.

Core Mission and Vision

At the heart of the Akash Network's mission is the democratization of access to global cloud computing resources. It seeks to create a permissionless, decentralized environment where developers and organizations can instantly tap into a network of distributed compute power. This vision embodies the principles of openness, cost efficiency, and equitable resource allocation.

In the conventional cloud landscape, customers are often tied to a single provider with limited bargaining power and inflated costs. In contrast, Akash envisions a world where computing capacity is readily available, competitively priced, and not subject to undue control or censorship. By deploying blockchain technology and embracing decentralized governance, Akash reduces complexity, improves transparency, and aligns incentives for all participants. Ultimately, it aims to build an ecosystem that fosters innovation, supports a range of use cases, and continually adapts to user needs.

Key Features and Capabilities

1. **Decentralized Supercloud:**
   The Akash Supercloud stands at the core of the network's value proposition. Through a reverse auction marketplace, it allows tenants to obtain compute, storage, and networking resources at highly competitive prices. By tapping into underutilized capacity across a global provider base, Akash can offer cost reductions of up to 85% compared to conventional hyperscale providers. This decentralized model effectively mitigates common challenges associated with vendor lock-in, overly complex pricing structures, and the rigidity of traditional cloud ecosystems.

2. **Kubernetes-Powered Infrastructure:**
   Akash's infrastructure leverages Kubernetes, a widely adopted orchestration platform renowned for its reliability, security, and scalability. Kubernetes enables users to easily manage complex, containerized deployments and ensures that applications run consistently across a diverse set of providers and geographic locations. This choice of orchestration not only streamlines application management but also simplifies scaling, updates, and resource allocation.

3. **Persistent Storage and Dedicated IP Leasing:**
   Akash offers critical features that bolster its capabilities for enterprise and data-intensive workloads:
   - **Persistent Storage:** Data remains secure and accessible even when instances are restarted, making the platform suitable for mission-critical applications, databases, and analytics workloads.
   - **Dedicated IP Leasing:** Tenants can lease dedicated IP addresses, improving reliability and predictability for hosting web servers, DNS services, APIs, and other latency-sensitive tasks.

4. **Permissionless Deployment:**
   By removing gatekeepers and intermediaries, Akash lowers barriers to entry and encourages innovation. Developers can deploy their applications without restrictive oversight or centralized approval. This permissionless environment promotes rapid experimentation, faster time-to-market, and the creation of novel applications that might never thrive under more rigid, centralized infrastructures.

5. **Peer-to-Peer Communication and Resilience:**
   Akash employs peer-to-peer (P2P) communication protocols that ensure privacy, transparency, and fault tolerance. This removes the vulnerabilities associated with relying on a single central authority. Decentralization increases reliability, as no single point of failure can bring down the network. Instead, the system's resilience grows with the number of participants, making it an appealing choice for critical industries that require uptime, data security, and operational continuity.

Ecosystem Overview

The Akash Network's ecosystem involves three primary participant categories (providers, tenants, and validators), each playing a vital role in ensuring a secure, efficient, and sustainable marketplace.

1. **Providers:**
   Providers contribute underutilized computing resources, such as servers, storage, and bandwidth, from data centers, hosting services, or other infrastructure facilities. By joining the network, they monetize capacity that might otherwise remain idle. This not only increases their revenue but also contributes to a more efficient global computing market.

2. **Tenants:**
   Tenants are developers, enterprises, and end users who lease these computing resources. Akash's architecture supports a broad range of use cases, from hosting simple websites and running decentralized applications (dApps) to supporting complex machine learning workloads and blockchain nodes. Tenants benefit from lower costs, flexible deployment options, and reduced lock-in, all while enjoying a censorship-resistant environment.

3. **Validators:**
   Validators secure the Akash blockchain, validate transactions, participate in governance, and maintain network integrity. Operating well-connected nodes, they earn incentives through staking and secure the Proof-of-Stake (PoS) consensus mechanism. By holding and staking AKT, validators ensure the network's reliability and trustworthiness, making it safe for all participants.

The Role of AKT in Tokenomics and Governance

AKT, the native utility token of the Akash Network, underpins governance, security, and economic incentives. Its multifaceted role ensures the smooth operation and long-term sustainability of the network.

AKT holders can vote on proposals affecting protocol upgrades, inflation rates, and fee structures. This community-driven decision-making process ensures that changes reflect the interests of a diverse group of stakeholders rather than a single centralized authority.

Validators stake AKT to participate in the PoS consensus mechanism. By committing their tokens, they secure the blockchain and earn rewards proportionate to their contribution. This model aligns validators' financial incentives with the network's health and long-term growth.

AKT incentivizes providers and validators by distributing rewards derived from transaction fees and controlled inflation. It also functions as a reserve currency within the Akash ecosystem and the broader Cosmos interchain environment. Seamless value transfer across chains is possible, fostering a dynamic and interoperable multi-chain world.

Economic Sustainability and Network Economics

Akash's tokenomics are carefully designed to ensure enduring sustainability. Strategies include:

Inflation Decay:
Over time, inflation rates gradually decrease, stabilizing AKT's value and encouraging holders to take a long-term perspective on the network's future.

Multi-Currency Settlement:
Tenants may settle payments in multiple currencies, including stablecoins, to maintain pricing predictability. This approach broadens accessibility, reduces volatility exposure, and enhances user confidence.

Aligning Usage with Security:
The network ties hosting fees directly to staking incentives. As demand grows, increased usage translates into additional fees that bolster the security budget. This ensures that security scaling remains in proportion to overall network demand.

Akash Network Economics 2.0 Proposal

The Akash Network Economics 2.0 proposal introduces a revised economic framework designed to address current shortcomings in network incentives, pricing stability, and participant engagement. It builds on the existing model by introducing structural changes that aim to support long-term network sustainability, reduce volatility-related friction, and better align economic rewards with network usage and security requirements.

A key priority of the proposal is to reduce the impact of AKT token price fluctuations on both tenants and providers. Pricing instability has made it difficult for tenants to forecast long-term hosting costs and for providers to plan for predictable income. By introducing a stable payment option and offering discounts for payments made in AKT, the network aims to support broader adoption while still maintaining AKT's role as the native utility token. This dual approach creates cost certainty for tenants and helps stabilize provider revenues without undermining the value accrual of AKT.

The proposal also introduces a stronger link between network demand and security funding. As more compute resources are consumed, the staking rewards offered to secure the network rise accordingly. This coupling ensures that the cost of attacking the network scales with usage, making it harder to exploit or disrupt as demand increases. In effect, network security becomes a function of activity, not just token issuance.

To stimulate supply-side participation, the Economics 2.0 framework includes targeted subsidies for providers. These are designed to offset operational costs in the network's earlier phases when demand may be inconsistent. By ensuring sufficient compute availability at competitive prices, the system becomes more attractive to new tenants and helps prevent supply bottlenecks. These subsidies are funded through a new Incentive Distribution Pool, sourced from transaction fees and token emissions.

The proposal introduces a fee structure where both tenants and providers pay network fees when interacting with the marketplace. Tenants are charged a "take fee" when leasing resources, while providers incur a "make fee" when listing resources. These fees are governed on-chain and are directed into the Incentive Distribution Pool. From there, they are allocated to three main areas: provider subsidies, a Public Goods Fund, and staker rewards.

The Public Goods Fund is another key feature, designed to support developers and contributors who expand the network's capabilities. These grants are designed to support software development, infrastructure upgrades, and open-source tools that enhance the overall ecosystem. By explicitly funding public goods, the network reduces reliance on speculative incentives to drive development.

Tenants will also have the option to pay in stablecoins or other approved tokens, offering a more predictable cost basis. AKT payments will be incentivized through direct discounts, thereby preserving demand for the token while allowing users to make informed choices. To reinforce long-term value, non-AKT payments will be converted to AKT and burned. This deflationary mechanism reduces token supply, potentially increasing value over time and rewarding long-term holders.

Use Cases and Applications

Akash's decentralized, cost-effective infrastructure supports a diverse range of applications:

1. **Blockchain Infrastructure:**
   By reducing costs and offering a decentralized environment, Akash is well-suited for hosting blockchain nodes, validator nodes, and RPC endpoints. This is especially beneficial for multi-chain ecosystems like Cosmos, Ethereum, and Solana, as it delivers flexible and resilient node hosting to support evolving blockchain networks.

2. **AI and Machine Learning (ML):**
   The growing demand for GPU-powered workloads makes Akash an attractive solution for running inference, model tuning, and training tasks. By containerizing ML applications and integrating with data stores,

developers can efficiently scale their workflows, minimize costs, and access robust compute resources without relying on centralized providers.

3. **Web and API Hosting:**
   Akash's flexible infrastructure and reduced costs make it an ideal environment for hosting websites, APIs, and distributed applications. Users can achieve improved scalability and enhanced privacy for their deployments, while also benefiting from simplified multi-region availability and load balancing through Kubernetes.

4. **Decentralized Applications:**
   Deployed on Akash, dApps can operate free from the control of a single cloud provider, ensuring genuine decentralization. This environment empowers developers to build and scale innovative services without fear of censorship or sudden price hikes, ultimately fostering a more vibrant decentralized economy.

Akash Strategic Advantages

Akash stands apart from traditional cloud providers and other decentralized platforms due to several unique value propositions:

1. **Cost Efficiency:**
   By tapping into underutilized computing power, Akash lowers hosting costs dramatically. The reverse auction system ensures tenants receive competitively priced resources, improving ROI for developers and enterprises.

2. **Decentralization and Resilience:**
   The network's decentralized nature eliminates single points of failure. Unlike centralized data centers that can suffer large-scale outages or targeted censorship, Akash spreads resources across a global network. This approach ensures better uptime, fault tolerance, and freedom from arbitrary restrictions.

3. **Scalability:**
   Powered by Kubernetes, the Akash Network is inherently scalable. Applications can seamlessly expand or contract based on demand, enabling both small businesses and large enterprises to find a suitable and cost-effective home for their workloads.

4. **Interoperability:**
   Integration with the Cosmos Inter-Blockchain Communication (IBC) protocol allows Akash to interact with other blockchains. This interoperability fosters collaboration, data exchange, and interoperability-driven innovation across the decentralized ecosystem.

Akash Challenges and Solutions

While Akash offers numerous advantages, certain challenges remain:

1. **User Experience (UX):**
   Decentralized cloud platforms can sometimes feel more complex compared to traditional services. To address this, Akash continually improves its user interfaces, documentation, and tutorials, ensuring both experienced and novice users can navigate the platform easily.

2. **Standardization:**
   Non-standardized deployment processes can hinder adoption. Akash's governance and development processes emphasize reliability, performance, and the creation of standards that simplify deployment practices over time.

3. **Provider Onboarding:**
   Attracting a wide range of providers is crucial to achieving economies of scale and ensuring resource availability. By offering provider subsidies, clear documentation, and a supportive community, Akash encourages more participants to join, further enriching the marketplace.

Akash Node & Network Mechanics

The Akash Node is a crucial component within the decentralized cloud computing platform. It facilitates interactions with the network, validates transactions, and participates in the consensus process.

Node Overview

Node Responsibilities	Description
Blockchain Synchronization	Continuously synchronizes with the network to maintain a current copy of the blockchain, ensuring data consistency and real-time availability.
Transaction Submission	Validates and propagates transactions (deployments, bids, leases) submitted by users, integrating these into the network's operational framework.
Querying Network State	Utilizes the Application Blockchain Interface (ABCI) to provide an accessible means of querying on-chain data such as deployments, orders, and balances.

Each Akash Node maintains a synchronized copy of the blockchain. When a validator proposes a new block, other nodes verify the block through Tendermint's consensus protocol. Upon reaching agreement, the finalized block is added to each node's ledger. Incoming transactions are screened for compliance with protocol rules and, if valid, placed into the mempool. These transactions are then shared with peer nodes through a gossip protocol, which allows for rapid and reliable data propagation across the network. This approach ensures network consistency and reduces the likelihood of conflicting views among nodes.

Beyond consensus and validation, Akash nodes participate in governance and staking. Validators must stake AKT, the network's native token, to become active participants. This stake serves both as collateral and as a mechanism for incentivizing honest behavior. Validators also help shape the network’s direction by voting on protocol upgrades and governance proposals, reinforcing the network’s decentralized and community-driven design.

On the infrastructure side, Akash Providers operate as compute suppliers within the ecosystem. These entities install and run the Akash Provider software, offering their idle or underutilized resources to users looking to deploy applications. By doing so, providers gain the ability to monetize unused infrastructure, contributing to the network’s decentralized cloud marketplace.

The core software component for providers is the akashd daemon. This service manages all aspects of resource provisioning and deployment. It interfaces with the blockchain to listen for deployment orders, submit competitive bids, and execute the winning deployments. Once a deployment is live, akashd ensures its smooth operation by interacting with container orchestration platforms such as Kubernetes or Docker Swarm. These orchestration tools handle the granular distribution of CPU, memory, storage, and bandwidth across user workloads, providing secure and isolated runtime environments.

Provider responsibilities span several operational areas. Resource management is foundational, requiring continuous oversight to maintain system health, performance, and uptime. When a tenant issues a deployment order, providers assess the order’s resource demands and submit bids that reflect both cost and capacity. A successful bid results in a lease agreement, obligating the provider to allocate the specified infrastructure. During the lease period, the provider manages the application lifecycle, starting, stopping, and scaling services based on user needs.

In parallel, providers must also perform system monitoring and reporting. This includes tracking resource usage, detecting service anomalies, and communicating deployment status to both users and the Akash blockchain. Transparent reporting builds accountability, supports dispute resolution, and enhances trust in the marketplace. By maintaining high service standards and competitive pricing, providers contribute to a healthy network economy while creating real utility for tenants seeking decentralized compute.

Future Roadmap and Vision

The Akash Network's long-term vision is to achieve parity with centralized cloud providers in terms of reliability, performance, and services offered. Several key roadmap initiatives guide this evolution:

- **Expanding GPU Support:**
  Enhanced GPU capabilities will attract AI, ML, and research vworkloads that demand high-performance compute resources.

- **Decentralized Storage Integrations:**
  Partnering with storage solutions like IPFS and Storj aims to provide tenants with seamless, integrated file and data management, further reducing reliance on centralized services.

- **Scalability and High Availability Improvements:**
  Ongoing efforts to enhance Kubernetes integration, load balancing, and failover mechanisms ensure production-grade applications can reliably run on Akash.

- **Web2 and Web3 Integrations:**
  Building bridges between legacy Web2 and emerging Web3 tools broadens Akash's appeal. By integrating with popular CI/CD pipelines, container registries, and developer frameworks, Akash becomes even more accessible to mainstream enterprises and startups alike.

Through community engagement, continuous innovation, and economic refinement, the Akash Network aims to redefine the future of cloud computing.

Valour's AKT ETP

Valour Akash (AKT) SEK is an exchange-traded product (ETP) tracking AKT, the native token of the Akash Network. Akash is a decentralized cloud computing platform that connects developers with unused computing resources, offering a cost-effective and scalable alternative to traditional cloud providers. The AKT token is used for payments, staking, and governance, allowing holders to influence decisions about the platform's operations and growth. By enabling flexible, permissionless access to cloud services, Akash Network supports innovation and decentralization in the digital economy.

Conclusion

The Akash Network represents a bold step forward in cloud computing, bridging the gap between cost-effectiveness, security, and decentralization. By leveraging blockchain technology, distributed consensus, and container orchestration, Akash delivers a permissionless, community-driven infrastructure that benefits providers, tenants, and validators. Its tokenomics and governance mechanisms encourage sustainable growth, while its decentralized nature ensures resilience, interoperability, and independence from traditional gatekeepers. As the network evolves, the Economics 2.0 Proposal and other enhancements could refine its financial models, improve predictability, and stimulate further innovation. With a thriving community, strategic partnerships, and a broad range of use cases, Akash is well-positioned to meet growing demand for a more open, transparent, and inclusive cloud.

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