How to build your successful blockchain infrastructure in the cloud.

Keep costs low without compromising efficiency and flexibility.

White Paper by

OVHcloud®

There are many variables to consider before you decide on the ideal blockchain infrastructure setup.

You can imagine there are countless creators in the IT universe currently building blockchain ecosystems, both in the front-end and the back-end space. Infrastructure strategy is fundamental to building a viable blockchain offering, and there is a range of critical variables that will determine infrastructure success. To manage your costs and overhead without undermining your IT efficiency and flexibility requires a solid understanding of these variables.

The creators in the front-end space.

Many innovators working in the front-end space are software-as-a-service (SaaS) providers and software houses. Many specialize in the creation of decentralized applications (DApps) and decentralized exchanges (DEXs), as well as decentralized finance (DeFi) applications consumed by large fin-tech and fin-ops companies and even decentralized autonomous organizations (DAOs). Use cases for blockchain technology have also surged in gaming, the metaverse (VR/AR/XR), the Internet of Things (IoT), art, NFTs and AI.

Understanding infrastructure variables will help keep costs and management overhead low without compromising efficiency and flexibility.

The creators in the back-end space

There are also many creators innovating in the back-end space. That includes mining pools – the large clusters equipped with highly powerful, efficient, multi-GPU-based dedicated servers. Staking businesses are similar but less resource intensive. They operate nodes equipped with cryptocurrency assets that ensure the legitimacy of transactions. These businesses operate blockchain validation on Proof of Stake (PoS) networks.

Companies such as blockchain-as-a-service (BaaS) providers also fall under this umbrella. Their expertise involves using services that are ready to connect. They have ready-to-go solutions based on nodes equipped with a specific software stack, interoperable with the P2P network. These solutions may also be based on automation nodes or application programming interfaces (APIs) that can be integrated with both the front-end and back-end software layers.

The choices you make during the early-stage development of your infrastructure setup can accelerate the chances of success.

Many blockchain companies offer the back-end network itself, whether a private blockchain solution, such as Hyperledger fabric, or a public blockchain, such as an Ethereum network. Some networks offer inter-blockchain communication protocols (IBC), such as Cosmos.

Other companies operate in both the front-end and back-end spaces. They usually have comprehensively designed private blockchain solutions, often in industries such as retail and logistics. These businesses are known as system integrators (SIs). They typically own the hardware in their data centers, build the front-end software layer and tailor the back-end functionality. This is mainly offered as a service for businesses. Discussing private solutions, however, is limiting as they may be decentralized across several countries or continents. Depending on the use case, solutions may also be limited to decentralization among a few nodes in a single data center.

The infrastructure strategy variables.

Building a sustainable blockchain database is one thing, but building one that is efficient, cost-effective and compliant is another. This process requires careful planning and an understanding of how the underlying infrastructure impacts the success of your blockchain company.

OpEx is essential for businesses with a high level of uncertainty or volatility from a demand perspective.

OpEx vs. CapEx

Increasingly, companies opt for the OpEx model rather than the traditional CapEx model. This is mainly because CapEx requires the company to invest large amounts upfront. The OpEx model allows for higher elasticity, especially in the start-up and scale-up phases when companies have limited budgets. The OpEx pricing model offers transparent operational costs for infrastructure.

Cloud-based infrastructure products are not only available at monthly expenditure costs, but they are highly scalable. Cloud helps contain management overheads and improve efficiency.

If your business is based on demand with a high level of uncertainty or volatility, the OpEx model is the safer choice. It allows companies to decrease financial risk by removing the need to invest in infrastructure that doesn't meet the demand requirements. The flexibility of cloud services unlocks the need for minimal users per profitable project, providing the ability to set the margin per end user or consumer. This allows early blockchain adopters to maximize cost-effectiveness with just a small pool of users.

Building a successful strategy.

With an ever-increasing number of businesses working in the blockchain industry, novel and creative ways of powering blockchain services are starting to appear. The decisions businesses make during the early-stage development of their infrastructure setup can accelerate their chances of success.

A popular blockchain infrastructure approach involves buying either semi-managed or fully managed cloud products with ready-made software layers and additional functionalities to enhance networking management. Integrated automation features, monitoring and out-of-the-box backup solutions and functionalities can be added to ensure high availability, such as disaster recovery (DR) options. It is vital for companies to consider infrastructure strategies, such as the multi-product, multi-cloud or hybrid cloud. Getting these early-stage decisions right will reduce infrastructure management, giving teams the flexibility to focus their energy and talents on R&D.

Bare metal servers usually come with root access and cloud-integrated security layers, but they can be highly demanding in terms of the internal workforce required to build and maintain the right infrastructure functionality.

It is a challenge to estimate ingress and egress traffic for infrastructure when working with the major cloud service providers, and this represents a real pain point for every company operating blockchain infrastructures. Most cloud service providers charge additional fees that are then added to the cost of the infrastructure itself. This lack of predictability makes it almost impossible to estimate the infrastructure operating costs.

Key variables to remember.

Many key variables need to be considered before a decision is made on the ideal infrastructure setup, including:

- **Infrastructure strategy:** the connectivity and interoperability of products and services
- **Financial strategy:** including your decision on OpEx vs. CapEx
- **Transparency:** your provider's approach to data traffic fees and predictable billing

A strong partnership with your provider will ensure your infrastructure supports your business ambitions while easing management overhead and keeping costs optimized.

Choosing the right cloud provider.

It is important to recognize there are differences between cloud service providers (CSPs). They may offer very different solution sets, and not all will meet the needs of your ideal blockchain infrastructure. It's also critical that you partner with a provider who offers dedicated support.

When it comes to developing your blockchain infrastructure, hybrid and multi-cloud options are crucial, as they open the door to blockchain interoperability and decentralization. Some CSPs are multi-local, which is an advantage for the decentralized nature of the blockchain back-end. However, only providers with large portfolios of implemented solutions are likely to offer both hybrid and multi-cloud networking services.

A provider might also offer the benefits of open source solutions, which is a huge asset for interoperability, reversibility and multi-cloud strategies. Very few cloud service providers offer their cloud products with no ingress and egress data traffic fees*. These are all vital things to factor in, as they will likely save you money in the long run.

*Except on object storage and servers licensed in the APAC region

Blockchain and cloud are a powerful combination but it requires careful selection and planning with your cloud provider and a strong partnership to minimize challenges.

Key considerations when choosing cloud infrastructure.

The use of cloud in the blockchain industry is growing exponentially. Many cloud services and products support blockchain infrastructure needs, whether **bare metal**, **public cloud** or **hosted private cloud** solutions. To learn more, reach out to our blockchain **experts at us.ovhcloud.com**.

Criteria	What should you look for?	Why is it important?
Hybrid/multi-cloud strategy enablement	Interoperable solutions that enable you to interconnect different products and services, and connect to solutions from other providers and any on-premises or co-location setup.	Interoperable blockchain solutions open the door to higher decentralization of blockchain networks and robust disaster recovery options.
Transparency in pricing	No charge for ingress and egress traffic.	Simply put, ingress and egress traffic is data moving in and out of the cloud. Without a guarantee of zero charges, your monthly billing may become unpredictable.
Openness and reversibility	The inclusion of the careful choice of cloud products that embrace open source values.	Crucial for future migrations and multi-cloud strategies, as well as decreasing business risk.
Security and scalability	Robust security solutions and tools built to be scalable from the ground up. Examples include Anti-DDoS protection, included as standard, and hardware encryption solutions, such as Intel Software Guard Extension (SGX).	Companies working with blockchain often deal with security threats. That demands a robust security response from the infrastructure layer. As they grow, blockchain technologies rely on enterprise-grade security to meet increasing demand.

OVHcloud US is a subsidiary of OVHcloud, a global player and Europe's leading cloud provider operating more than 400,000 servers within 37 data centers across four continents. For over 20 years, the company has relied on an integrated model that provides complete control of its value chain from the design of its servers to the construction and management of its data centers, including the orchestration of its fiber-optic network. This unique approach allows it to independently cover all the uses of its 1.6 million customers in more than 140 countries. OVHcloud now offers latest generation solutions combining performance, price predictability, and total sovereignty over their data to support their growth in complete freedom.


us.sales@us.ovhcloud.com


x.com/OVHcloud_US


us.ovhcloud.com