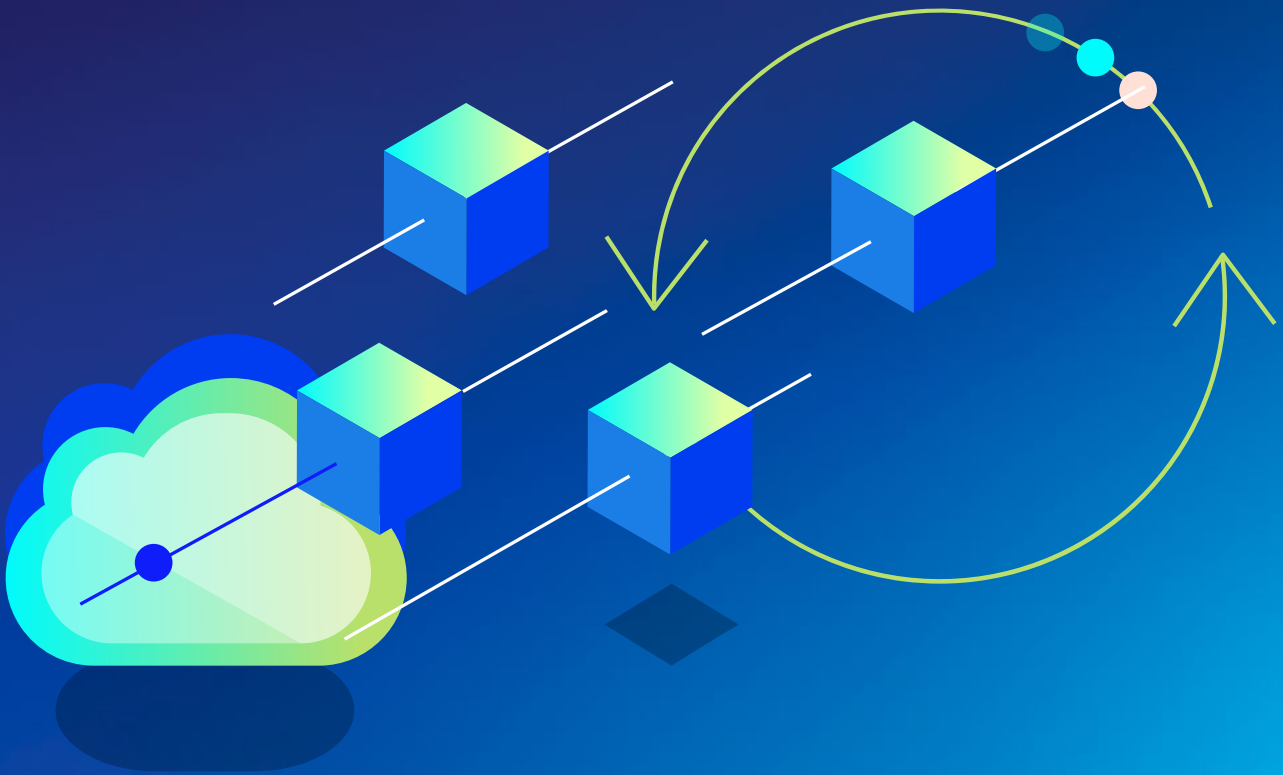


Cloud Native

Why start now?



White Paper by



Cloud native: why start now?

Now synonymous with agility and speed, the cloud has revolutionized the way we design and operate IT infrastructures and resources. Traditional IT approaches and technologies that are ingrained in companies founded before the initial cloud boom still seem to be impeding the adoption of a cloud-native approach. Lack of skills, complex migration and a short-term vision are all arguments against transitioning. Nowadays, however, it seems impossible to compete in a market whose leaders have already chosen a cloud-native architecture, often made up of micro services. This approach is the new standard for application development, deployment and management; a view further supported by a study conducted by Gartner, which found that companies' cloud expenses will exceed those spent on traditional IT by 2025.¹

The main challenges facing companies – remaining competitive in markets that are being disrupted by newcomers

Any company wishing to maintain or increase its market share must remain one step ahead of its competitors. This includes developing new software or features, updating and upgrading solutions, and much more – while working faster and more efficiently than their competitors.

Increasing operational efficiency.

Maintaining control of the budget

Keeping costs under control is a major concern for IT decision-makers. From an economic perspective, efficiency and performance cannot be downgraded. Investment is therefore needed in new approaches, technologies and processes to reduce unnecessary costs, all while maintaining or even increasing the economic performance expected for a given service. Furthermore, sustainable development, led by energy and ecology, is being increasingly integrated into companies' financial calculations.

“ The cloud has a positive impact on our solutions, bringing high availability and the ability to absorb traffic spikes. This allows us to optimize our costs, as we are able to handle higher loads without having to build outsized infrastructures.”

– Bertrand Caillaud, chief technical officer and co-founder, UNOWHY

Ensuring resilience and service availability

No system is immune to technical, human or security failures. Businesses must therefore take these eventualities into account in order to implement a suitable level of risk management. By choosing the right technologies and working on operational complexity, application managers can have a positive impact on the availability of online services, while reducing disaster recovery time. This optimization protects the brand image and attests to the seriousness of the company, as well as its competitiveness.

¹Gartner

Protecting the company against technological lock-in.

How can we ensure that today's technological choices do not interfere with the capacity for innovation or change in the future? A major issue in recent years, technological sovereignty remains a key concern for companies wishing to maintain control over their activity. This means that lock-ins and barriers to the mobility of applications and data must be at the core of decision-makers' considerations when choosing a service or provider.

The winning approach to cloud native computing.

The cloud-native approach has become the standard for all new, modern application projects, with significant benefits. This approach is based on a distributed architecture, distributed across different servers or virtual machines, where infrastructure resources (computing, storage and network) remain intangible through virtualization and containerization. These resources are also dynamically delivered to the application's various software components.

In the cloud-native approach, the application is often divided into a multitude of software services, called micro services. Each micro service fulfills a particular function of the application (e.g. payment, search, display). They can be managed individually and independently, without having to think about the underlying infrastructure. Delivering a high level of load uptake and automation, the cloud-native approach has made it easy to provision scaled applications to several million users simultaneously, all over the world.

Becoming more competitive in the market.

Fostering innovation

The cloud-native approach puts companies' ability to innovate at the heart of the action. Unlike traditional applications, micro service based applications facilitate their maintenance, growth and functional enrichment. Each micro service can be added or updated independently, and can also be deployed to production without affecting the stability or overall availability of the application, thereby facilitating the many iterations required for innovation.

Reducing time to market

This is now one of the top priorities for companies: being able to get products and solutions in the market faster and faster. Markets and needs are constantly changing, and the solutions offered by companies must constantly adapt to meet them. With a cloud native architecture, companies can reduce their time to market by speeding up their ability to develop and deploy applications. Freed from the constraints of a traditional infrastructure, the more time-consuming steps (configuration, standardization, tests, additions, modifications, etc.) are now automated, considerably reducing the time between design and production.

Achieving operational excellence.

Optimizing costs

Budget management at all levels can benefit from a cloud-native approach. Expenditure normally devoted to tasks involved in managing a traditional infrastructure can instead be allocated to value-added developments. This means more resources are spent on delivering applications aligned with the market. With the on-demand consumption model, you no longer need to provision resources that won't necessarily be used. Computing, network and storage resources are allocated dynamically to meet real infrastructure needs, enabling the exact amount of necessary resources to be consumed while reducing environmental impact.

Infrastructure resilience and application availability

Cloud-native design offers an inherent infrastructure resilience and increased application availability. Made possible by abstracting infrastructure resources, the cloud-native approach automates environment deployments and their associated configurations. This makes it easier to establish update, production implementation and redundancy scenarios, and even a disaster recovery plan. Business continuity is strengthened by a micro services architecture, where each service can be deployed independently. For companies adopting a hybrid and multi-cloud strategy, the risk of prolonged downtime is also low.

“

With the cloud, we can quickly redeploy new software stacks or copies of our platforms in the event of a serious incident. All of our disaster recovery plans are based on this principle of rapid redeployment.”

– David Le Dantec, chief technical officer, Alpha Networks

Ensuring technological sovereignty.

Because it facilitates interoperability and software portability, the adoption of open source standards is vital to obtaining clear-cut technological sovereignty. The cloud-native approach was built with this in mind. It is based on an ecosystem of open source, interoperable services that promote code portability from one service provider to another, as long as compliance with open source standards is maintained. When you choose your cloud service provider, however, you should ask a few questions. Do the services offered come with subscriptions to others? Will these choices limit your future technology decisions? What level of internal control is required to avoid dependence on the selected technologies?



What types of applications are involved?

Existing applications

By the end of this year, most legacy applications (i.e. those based on an obsolete system) will receive some modernization investment, with cloud services used by 50% of the applications to extend functionality or replace inefficient code.²

New applications

By the end of 2024, nearly 70% of organizations' new custom-developed applications will be built and managed using micro services and containers as foundations for stronger and higher-performing automation.³

	 Modernization	 Cloud Native
Objective	Benefit from flexibility and resilience of the cloud	Scaling up, automatization, and accelerated development
Existing application	✗	✓
New application	✓	✓
Key technologies	Dedicated servers, instances managed services	Kubernetes and containers, managed services



By the end of 2024, 40% of organizations will use applications built on abstraction provided by managed services including cloud-native technologies to enable consistency in running in any and many locations.”

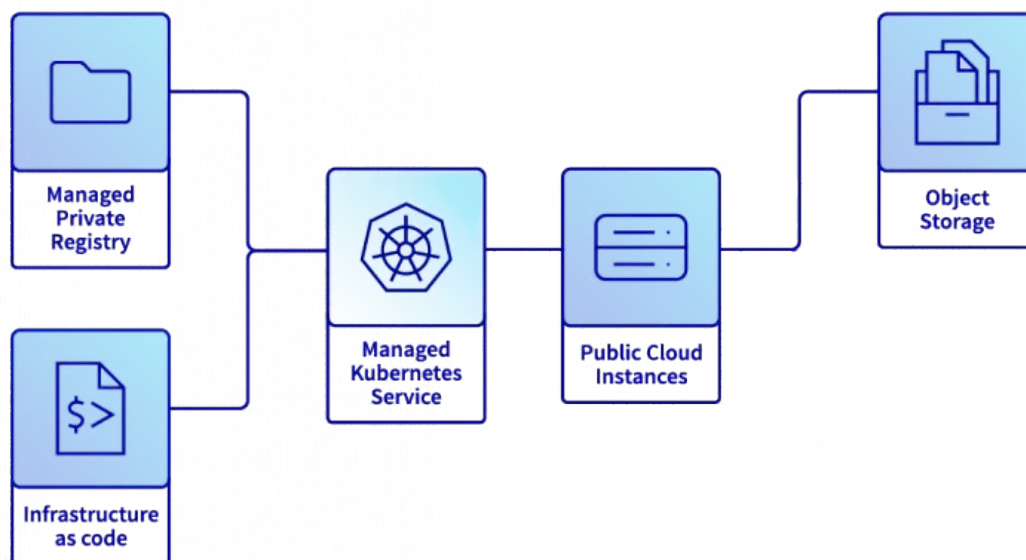
– IDC Infobrief DBaaS: Your Key to Digital Differentiation and Competence

²⁻³IDC Infobrief DBaaS: Your Key to Digital Differentiation and Competence

Top 10 success factors for cloud native computing.

- 1. Scalability:** Cloud native applications benefit from dynamic resource allocation to handle peak loads or the setup of a new development team, for example. When features are updated or added to the application, deployment to production can be done transparently. It can also result in additional resources being allocated without having to configure the infrastructure or examine the hardware. At the same time, a cloud native application allows you to consume what is actually needed. It runs on an infrastructure where resources are adapted to the load.
- 2. Automation:** By developing your applications with a cloud-native approach, you can automate the configuration, deployment and management of your infrastructure resources. You can focus on your business needs rather than their implementation on a technical level. Environments are deployed automatically and saving you time and the risk of errors linked to human intervention.
- 3. Availability:** Providing a quality service and experience to your clients or users is paramount and requires a high level of availability for your application. The interruptions common in traditional architectures (updates, improvements, deployment errors) are no longer a problem. When a cloud-native application is built on micro services, each of them is managed individually with no impact on the rest of the application. Certain modifications, which previously involved hours of downtime, can now be deployed transparently for users.
- 4. Pay-as-you-go:** By developing your application through a cloud-native approach, the effort required for capacity planning is reduced. And you don't need to make a huge upfront investment to get your IT production tool ready. You only pay for what you use. Your billing adapts to your growth and you have a clear view of your project budget.
- 5. Managed Kubernetes:** Regarded as a leading container orchestrator, and favoring reversibility as well as a hybrid and multi-cloud approach, Kubernetes is a well-known open source system used by many companies. You can deploy your applications and develop them in an environment where this key component is managed by the cloud service provider. Delegate the complexity of infrastructure maintenance, updates and management to a provider, so you can focus on managing your containerized applications.
- 6. Managed Databases as a Service:** Along with cloud infrastructure and PaaS, cloud-managed databases are one of the three pillars of successful application modernization and represent the first decisive step towards a cloud-native approach. A managed database service allows you to free up time to work on your application's business logic, rather than on administering and maintaining your database, while ensuring better control over your resources and budget. A catalog of the most popular engines on the market is essential for scaling according to your application needs and its growth.

7. **A wide range of instances:** Choose a complete ecosystem with computing instances that suit different needs – a general-purpose instance, one orientated towards computing or storage, GPU, or even with a very powerful input/output. You get a catalog that lets you select the computing nodes ideal for your workloads and deploy them on demand in your Kubernetes cluster.
8. **Predictable pricing:** Each element or feature that makes up your cloud environment should offer completely transparent pricing. You should be able to choose the resources and services in line with your real needs, with no commitment, and be able to predict your spending. Be aware of the costs associated with network traffic, which can be difficult to anticipate depending on your provider. However, some providers include this cost in the price of their services to make it more predictable.
9. **Data protection by design:** Data is an asset and is now at the heart of businesses. Its security must therefore be a fundamental part of your cloud infrastructure. Data protection is even more critical when your applications handle sensitive data. Your cloud service provider must comply with the current regulations in your country as well as the necessary certifications and compliance.
10. **A global presence:** To make use of scalability using a cloud-native approach, geographical availability for the services used is indispensable. Make sure the cloud solutions you choose can be extended to every region of the world you want to target.



OVHcloud US is a subsidiary of OVHcloud, a global player and Europe's leading cloud provider operating more than 400,000 servers within 43 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.



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