

# **High-Performance Computing (HPC) as a Service Market – Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By Component (Solutions, Services), By Deployment Type (Private Cloud, Public Cloud, and Hybrid Cloud), By End User (BFSI, Healthcare, Media & Entertainment, and Others), By Region and Competition**

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## **Abstracts**

High-Performance Computing (HPC) as a Service Market is expected to grow at a robust pace during the forecast period of 2024-2028 due to the rise in demand for flexible computing services among large and small- and medium-sized organizations. Additionally, an increase in the demand for quick storage and efficient computation is anticipated to spur market expansion. Another important aspect driving the need for HPC services internationally is the expansion of government projects.

High-performance computing (HPC) as a service allows businesses to leverage AI, improve data analytics, and run simulations at a faster rate. To gain access to the essential technology for handling their biggest, most difficult workloads, organizations can sign up for HPC as a service. Enterprise organizations may fully realize the value of their data and applications by utilizing HPC as a service. The risk of over-provisioning is minimized with a pay-per-use framework, thereby safeguarding capital and resources. Organizations are better able to acquire precise data insights, enable improved decision-making, and preserve the competitive advantage required to successfully drive innovation by using this model to access high-performance computing technologies.

## Increasing Need for Flexible Computing Services

HPC clusters must operate continuously and efficiently to execute high-performance computation. As a result, HPC services give users total control over computing infrastructure, including operating systems and analysis tools. In addition, while HPC offers many advantages, it also faces several problems and difficulties, including network bandwidth and latency, virtualization overhead, and multi-tenancy, which necessitates improved management of HPC infrastructure and solutions. Additionally, cloud-enabled HPC keeps software and deployment models up to date, giving consumers more options and solutions. The demand for high-performance computing services is, therefore, influenced by these factors.

## Increasing Need for Efficient and High-Speed Computation & Storage Safety

Speed and scalability are two major features of high-performance computing that are expected to lead to the demand for the implementation of HPC during the forecast period. Additionally, combining high-performance computing with the cloud has many advantages, including vast storage and powerful calculation. Users may have access to multi-core processors for multi-threaded deployment types via high-performance computing in the cloud, which makes it possible for various forms of memory deployment to use a fast network.

Additionally, as smartphones and IoT-enabled devices become more prevalent, massive data volumes are being produced globally, driving up the demand for high-speed computing services. The main driver of demand for high-performance computing services is the storing of enormous data collections and the analysis of insights from these complicated data sets. Additionally, users frequently save their data in many locations so that, even if it is deleted from one location, it can still be recovered from another. As a result, many organizations have a high need for HPC services. Thus, these factors are expected to drive the global high-performance computing (HPC) as a service market over the next few years.

## Rise in Government Initiatives

Governments all over the world are launching a variety of projects and investing in HPC technology to handle computational complexity and create fresh high-performance computing (HPC) programs and solutions. For instance, Environment and Climate Change Canada (ECCC) uses the HPC solution primarily to forecast the adequacy of weather alerts and safeguard Canadians' safety and health. The Exascale was installed

by the U.S. in 2021 at Argonne National Laboratory. Additionally, the European Commission is investing in HPC solutions for supercomputers and digital transformation. For instance, the European Commission plans to construct the European Data Infrastructure for supercomputer and quantum technologies as part of the European Cloud effort. As a result, these factors are expected to drive the global high-performance computing (HPC) as a service market over the next few years.

### High Proliferation of Cloud in Emerging Economies

The adoption of the cloud is increasing rapidly as big businesses and small and medium-sized businesses see its possibilities. Additionally, developing nations, such as India, China, Mexico, Saudi Arabia, Indonesia, and others are embracing cloud solutions and making significant investments in them. Furthermore, due to the cost-effectiveness, simple deployment, management, and other aspects of cloud solutions, startups, and large and small & medium organizations, are adopting them.

Additionally, the main driver of cloud uptake in emerging nations is the rise in the use of smartphones and the internet. The demand for HPC as a service in emerging economies is expected to be fueled by the rise in the need for scalable and quick-processing computing and storage solutions.

### High Cost of HPC Services

The rising workload in different industries necessitates the use of specialized graphics processing units (GPUs) with more powerful HPC clouds, which propels the use of clouds internationally. Additionally, many sorts of HPC deployments might entail hundreds to thousands of dedicated machines. If the proper management controls are not in place, businesses risk paying their cloud service provider (CSP) a lot of money. A significant barrier to the market's expansion is the disparate cost structures for spot instances, on-demand instances, reserved instances, and spot fleets. Additionally, high-density servers with multiple nodes per chassis are a component of HPC, and these servers must support accelerator cards. Therefore, service providers charge a price/performance ratio based on the service they give to make all these processes easy to implement, administer, and configure. This is expected to cause hindrance to the growth of the market of the global high-performance computing (HPC) as a service in the coming years.

### Market Segmentation

The global high-performance computing (HPC) as a service market is segmented based on component, deployment type, end user, and region. Based on component, the market is bifurcated into solutions and services. Based on deployment type, the market is bifurcated into private cloud, public cloud, and hybrid cloud. Based on end user, the market is bifurcated into BFSI, healthcare, media & entertainment, and others. Based on region, the market is further bifurcated into North America, Asia-Pacific, Europe, South America, and the Middle East & Africa.

### Market players

Key players in the global high-performance computing (HPC) as a service market are Amazon Web Services, Inc. (AWS), Dell Inc., Google LLC, Hewlett Packard Enterprise Development LP, International Business Machines Corporation (IBM), Microsoft Corporation, Nimbix, Inc., Penguin Computing, Inc., Sabalcore Computing, Inc., and TheUberCloud, Inc.

### Report Scope:

In this report, the global high-performance computing (HPC) as a service market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

#### High-Performance Computing (HPC) as a Service Market, By Component:

Solutions

Services

#### High-Performance Computing (HPC) as a Service Market, By Deployment Type:

Private Cloud

Public Cloud

Hybrid Cloud

#### High-Performance Computing (HPC) as a Service Market, By End-User:

BFSI

Healthcare

Media & Entertainment

Others

High-Performance Computing (HPC) as a Service Market, By Region:

North America

United States

Canada

Mexico

Asia-Pacific

India

Japan

South Korea

Australia

China

Europe

Germany

United Kingdom

France

Italy

Spain

South America

Brazil

Argentina

Colombia

Middle East

Saudi Arabia

South Africa

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global High-Performance Computing (HPC) as a Service Market.

Available Customizations:

The global high-performance computing (HPC) as a service market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to ten).

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