

High Performance Computing





High-Performance Computing: Growing Competition Means Evolution for HPC Providers

Emerging business pressures signify a time of transformation for all.

Companies across the industrial spectrum are being compelled to adapt to revolutionary changes in the business environment. As they face increasingly stronger competition, they must identify how customer demands can be better met, determine where costs can be trimmed, build efficiencies in supply chains and generate improvements in any number of other operational processes.

In this context, data is increasingly becoming commoditized through high-performance computing (HPC). By using the connected power of multiple computer nodes, businesses can run deeply granular data sets, not only in order to identify operational efficiencies, but also to forecast changing trends within their sectors.

This is a relatively new market and, until now, incumbent providers of HPC services—operating in existing markets such as government departments and agencies—have enjoyed unrivaled latitude. However, as leaner, more nimble competitors enter this rapidly expanding market, these HPC service providers must adapt to changing trends and develop a more agile approach.

Revolutionizing the Business Environment

A decade ago, the cloud—while theoretically possessing the capacity to support HPC—lacked the maturity to gain the trust of the government agencies and other corporations that were the main customers of HPC providers. The big data workloads that only HPC was capable of handling remained in the realm of either in-house or outsourced server farms.

Fast forward ten years, the cloud is revolutionizing the IT industry. Companies are increasingly migrating their IT services to the cloud as its storage and computing capacities have advanced to enable efficient high-performance computing, and as initial suspicions about security have been overcome.

As these capabilities improve, HPC is transforming the way in which businesses operate. To stay competitive, companies are using the unique qualities of highly granular analysis of large data sets to better understand their businesses, ascertain efficiencies and create new revenue streams.

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In the financial services industry, HPC is being used for more accurate risk analysis, running new trading models and identifying customer trends. Pharmaceutical companies can run deeper analyses of test results in the development of new drugs, and, in manufacturing, complex simulations can be executed in the push for shorter lead times on product design, development and delivery.

Cloud Capabilities Drive Growth in HPC Competition

This growth in demand for deep data analysis is driving the trend toward the commoditization of HPC. This, in turn, has spurred a fast-paced expansion in competition within the HPC industry, creating a dilemma for the incumbents and their customers.

These new, innovative, flexible HPC service companies are utilizing the capabilities of the cloud to provide fast and relatively inexpensive computing power using state-of-the-art processes such as ‘cloud bursting,’ which enables large workloads to be sent to the cloud and processed by a multitude of available computing resources.

Incumbents must either raise their game to compete in this new environment or risk losing valuable customers. Their current business model is under threat—and needs an immediate rethink if they are to remain relevant in the HPC market.

Primarily, they need to examine what their core services are and identify their unique value proposition, thereby developing the tools necessary to showcase the expertise and offerings that differentiate them from the newcomers. Such an exercise is not a simple accomplishment from an objective standpoint: without a trusted advisory partner to consult with, it is very easy for bias or knowledge gaps to creep in and, therefore, for companies to overlook crucial facets of the business.

How Companies Can Help Themselves in a Rapidly Changing Environment

End users are already expressing their rising expectations for IT solutions. HPC is increasingly figuring in these demands, as business managers become more confident in leveraging the power of the cloud for their technology needs.

Industries from both the commercial and public sectors are partnering with IT specialists that are enabling them to harness the benefits of this emerging technology: health care, financial services, energy, defense and national security firms are just a few among the many sectors that are transforming the way they do business through HPC and the cloud.

This means HPC service providers need to plan carefully how they adapt to this new environment, meticulously determining what new resources will be needed and how to make the best use of existing resources and processes. For example, if they are using services based on legacy software that is no longer relevant in an IT environment that increasingly demands simple, seamless customer interfaces to provide a richer experience for customers, HPC providers need to rethink their business strategy and underlying technologies. To gain the trust of their customers, they must be more empathetic toward their needs—and provide services that demonstrate this stance.

To achieve this deeper engagement with customers, HPC service providers may have to customize their offerings. After all, every client will have different needs, so it is not always suitable to provide a one-size-fits-all service. Providers must ensure, however, that the business elements that differentiate them from the competition in a positive way are not eliminated in any strategy rethink. As well, they should create skills hubs to help develop talent and allocate resources appropriately to maximize returns from each group.

Providing HPC-as-a-Service

While some end users may require access to HPC routinely, many potential clients will only ever need it on an ad hoc basis and, therefore, only on rare occasions. The former may find it practical to invest in the required servers, upskilling of staff and maintenance costs. They may also find, however, that the total cost of ownership mitigates any return on investment for several years.

By supplying HPC-as-a-service, new entrants into the market are providing both types of users with simple and inexpensive access to HPC whenever they need it. Services can be customized to each client's exact specifications—and trusted advisors can help broker such services to a range of potential clients, as well as aid in creating the 'stickiness' required to keep them coming back.

Even the incumbents, who have been providing HPC for their clients for decades, must start adapting to this new business model. As competition in all sectors of industry increases, so, too, will the need to streamline costs and generate greater operational efficiencies. Companies in ever-increasing numbers will migrate IT services to the cloud—therefore, the need for cloud-based services, including HPC, will continue to expand.



Conclusions—Support for Change

Industry is increasingly looking to technology and data to identify efficiencies, forecast customer trends and create new sources of revenue, but high up-front costs of building architecture capable of the computational power needed to solve such problems prohibits most businesses from seeking in-house solutions.

Growth in demand for such IT services is being matched by the proliferation of nimble and pioneering IT start-ups, commoditizing these resources in the cloud and providing on-demand HPC-as-a-service. The incumbent HPC providers—which operated with minimal competition for so long—must now adapt to this agile new approach or risk losing their customers.

High-quality thought leadership—ideally from a team with extensive experience in introducing principles of change management—can help prepare executives and their staff for such a transformation in their business model. Partnering with a trusted advisor will help corporate executives or agency leadership make these informed and unbiased decisions on the changes needed. Such a business partner can help determine where resources are best deployed, advise on the development of human capital, demonstrate the skills needed to create empathy with customers and keep them coming back.

In this process, setting goals and measuring their outcomes is as important as continued investment in technology and skills, leaving businesses with a lot to manage throughout. Nonetheless, with an innovative and informed approach to change, what might initially seem like a challenging threat can soon be recognized—and managed—as an opportunity.

For more information,
please contact:

Robert McNamara

rmcnamara@guidehouse.com

Anil Kumar Krishnananda

akrishnananda@guidehouse.com

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