Hybrid Cloud:
Meeting the needs of the three Cs

How hybrid cloud and infrastructure as a service provide solutions to business needs across the C-suite – from the CEO and CIO to the CFO.

Cloud is the powerhouse of the digital economy. Increasingly, organizations are adopting cloud-first strategies, with cloud-native platforms allowing them to scale quickly and flexibly in pursuit of new market opportunities. Amid this dynamic environment, it is a hybrid cloud – combining public and private resources – which has emerged as the preferred architecture for when data security and sensitivity need to be combined with other factors such as performance, efficiency, and cost. This whitepaper looks at how hybrid cloud, delivered through infrastructure-as-a-service models, meets the needs of executives across the C-suite – including the CEO, CIO, and CFO.

Introduction – hybrid computing comes to the fore

The adoption of cloud computing continues to gather pace as enterprises of all sizes recognize the benefits it can deliver in a broad range of areas, including scalability, efficiency, performance, and cost. Indeed, according to research from Gartner, the cloud is set to become the pervasive style of computing in the near future, with more than 85 percent of organizations embracing a cloud-first principle by 2025.

But there isn't a one-size-fits-all to the cloud. Public, private and hybrid architectures present myriad options, delivering solutions either through the internet or on-premise infrastructure or a mixture of the two. Then there are different consumption models to be considered. For instance, infrastructure-as-a-service provides compute, network, and storage resources to enterprises on a pay-as-you-go basis.

Of the available options, hybrid cloud is increasingly coming to the fore, as outlined in the recently published Technology and Cloud Security Maturity survey from the Cloud Security Alliance. Hybrid is a type of cloud computing that combines on-premises infrastructure - or a private cloud - with a public cloud. It allows data and apps to move between the two environments, while being centrally managed. Typically, an enterprise might deploy on-premise infrastructure such as servers and storage while operating public cloud services for other less sensitive workloads.

The popularity of hybrid cloud is borne out by a recent survey from IBM, which showed that only 3 percent of respondents used a single private or public cloud in 2021, down from 29 percent in 2019. The study of almost 7,200 C-suite executives across 28 industries and 47 countries showed that hybrid was seen to answer many concerns around vendor lock-in, security, compliance, and interoperability.

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The advantages of hybrid infrastructure

So, what are the primary benefits of hybrid cloud infrastructure, and how can they help transform the performance of modern enterprises in today's digital economy?

Firstly, cost can be a significant driver of hybrid cloud. Several years ago, many early adopters rushed to the public cloud on the assumption that it would deliver financial savings when compared to running on-premises infrastructure. However, in many cases, monthly bills escalated as consumption increased. Indeed, Gartner predicts that 60 percent of infrastructure and operations leaders will encounter public cloud cost overruns through to 2024, with hidden costs contributory factors.

Finding the right balance between public and private cloud models in on-premises data center deployments can deliver significant savings when the total cost of ownership is assessed. While the public cloud can help reduce hardware expenditure, running critical workloads and data in on-premise environments can represent the most cost-effective approach. Recent research by IDC suggests that a consistent hybrid cloud platform can achieve savings of up to 47 percent over five years compared with a native public cloud when evaluated for typical applications deployed on cloud infrastructure by enterprises today. The study underscores how consistent hybrid cloud platforms can enable the benefits of cloud at scale without introducing additional management and overhead cost creep, ultimately reducing TCO.

Performance and efficiency are critical factors, too. Hybrid gives enterprises better control over data – allowing them to create, shift, and scale workloads and resources to suit the business's specific requirements. For instance, a scalable public cloud can manage dynamic workloads, while more sensitive data can be kept on-premise. According to the IDG Market Pulse Global Survey of 700 IT CIOs, 35 percent of respondents cited increased flexibility as a critical factor in adopting a hybrid cloud. This flexibility supports more efficient operations and is better suited to responding quickly to ever-changing business needs.

Security has emerged as one of the critical drivers, as hybrid approaches allow for higher levels of data segmentation and isolation. For many IT leaders, using on-premise infrastructure will reduce the potential data exposure, giving them a more decisive element of control. This can be a regulatory requirement in some sectors, dictating data policies.

Other factors also come into play. Hybrid cloud can help deliver increased levels of reliability by distributing services across more than one data center. Hybrid implementations can also support business continuity, encouraging a more multi-layered approach to data back-up and preventing disaster scenarios.

Ultimately, hybrid infrastructure provides a win-win solution, as it offers the scalability and availability of public cloud but with on-premise flexibility, security, cost visibility and control. And that can be a compelling sell for enterprises of all sizes as they become ever-more reliant on digital strategies to power future growth.

New consumption models meet the needs of the three Cs

Those are some high-level advantages of hybrid over other forms of infrastructure. To support the deployment of hybrid cloud, innovative consumption models have emerged based around infrastructure-as-a-service, where the provision of data center hardware and software is combined with accurate utilization and metering technology to give an authentic pay-as-you-go experience.

According to recent research from Gartner, Infrastructure-as-a-Service (IaaS) is forecast to experience the highest end-user spending growth for cloud strategies in 2022 at 30.6%. IaaS is becoming popular with the C-suite as it provides access to the latest state-of-the-art hybrid cloud solutions without upfront costs. Lenovo's global study of CIOs shows that 92 percent of chief executive officers would definitely or probably consider adding new as-a-service offerings over the next two years due to a changing business model. Furthermore, 57 percent said they would replace half or more of their company's current technology. IaaS helps support these needs.

But the chief executive officer, chief information officer and chief financial officer often have different priorities, albeit with common goals such as providing internal teams with the time and resources to power business growth through digital innovation. So, how can IaaS as a consumption model fit within the cloud paradigm and meet the needs of all stakeholders?

- The Chief Executive Officer needs to develop high-level strategy and align plans with short-term and long-term business needs. That requires close alignment between IT and the business and an overview of targeted technology investments to give maximum return on investment. IaaS allows hybrid cloud strategies

to be implemented with greater cost predictability and visibility than traditional CAPEX models and ensures that infrastructure is right-sized all the time. IaaS also helps the CEO keep the business ahead of change, with faster refresh cycles.

- The role of the Chief Information Officer is increasingly evolving to embrace a more complex set of responsibilities, tackling obstacles that come with expanding digital capabilities. IaaS works for the CIO as it provides a means of quickly provisioning and scaling new capability, keeping enterprises ready for peak business performance and growth. IaaS also gives maximum security and control within hybrid environments, with physical on-premise infrastructure protecting sensitive data, while public cloud maximizes the accessibility of workloads for employees - particularly relevant in today's flexible working environment. Managed services delivered through IaaS can also address the existing resource gap in the IT market, allowing the CIO to spend less time recruiting and freeing up existing teams to concentrate on broader issues of delivering digital innovation.

- The Chief Financial Officer is responsible for financial planning and forecasting within the enterprise and is expected to utilize financial data to help establish strategy and direction. IaaS offers a more authentic pay-as-you-go consumption model, with advanced utilization and metering technology measuring actual usage rather than allocation, eliminating over-provisioning. Online portals can also provide financial executives with real-time cost insight encouraging proactive monitoring that ensures no budgeting surprises. Hybrid cloud consumed through IaaS can therefore maximize the return on available resources.

# Realizing the value of strategic partnerships

So, that outlines the benefits of hybrid cloud, delivered through rapidly evolving and increasingly popular as-a-service consumption models. Another piece in the jigsaw is the formation of strategic alliances, where hardware and software technology providers come together to provide solutions that complement each other.

For Lenovo, these partnerships see its TruScale IaaS solutions leveraging the latest technologies in a broad range of areas such as virtualization, hyperconverged infrastructure, high-performance computing, storage, and more. This partnership approach eliminates the complexity of dealing with multiple vendors and navigating conflicting solutions. TruScale delivers everything-as-a-service, overseeing engineering, integration, hardware, and certification using the best-in-class designs developed by the partner ecosystem. With everything embedded into the TruScale solution, there is just one point of contact for all inquiries, from support to invoicing.

For hybrid cloud specifically, these strategic partnerships have involved some of the best-known technology providers. For instance, Lenovo TruScale

Hybrid Cloud with Microsoft Azure Stack or VMware represent hyperconverged infrastructure cluster solutions that host virtualized workloads and their storage in a hybrid environment. In each case, by leveraging Lenovo's ThinkAgile VX and MX HCI appliances, the partnerships mean enterprises can run hybrid-cloud environments from the Edge to Core to Cloud with genuine consumption-based price models.

Meanwhile, Hybrid Cloud with Deloitte is a partner offering that evolved from specific customer requirements and was built around the findings from several mutual technical workshops. The aim was to develop a hybrid solution that combined Lenovo's infrastructure expertise with Deloitte's appliance stack knowledge and allowed customers to seamlessly manage multiple cloud environments, private, public, and hybrid. Each component was carefully put together, resulting in a hybrid solution that helps businesses to orchestrate and manage IT environments reliably, securely, and efficiently. The offering is safeguarded using Deloitte proprietary tools for monitoring, automation, security, compliance, and account management features.

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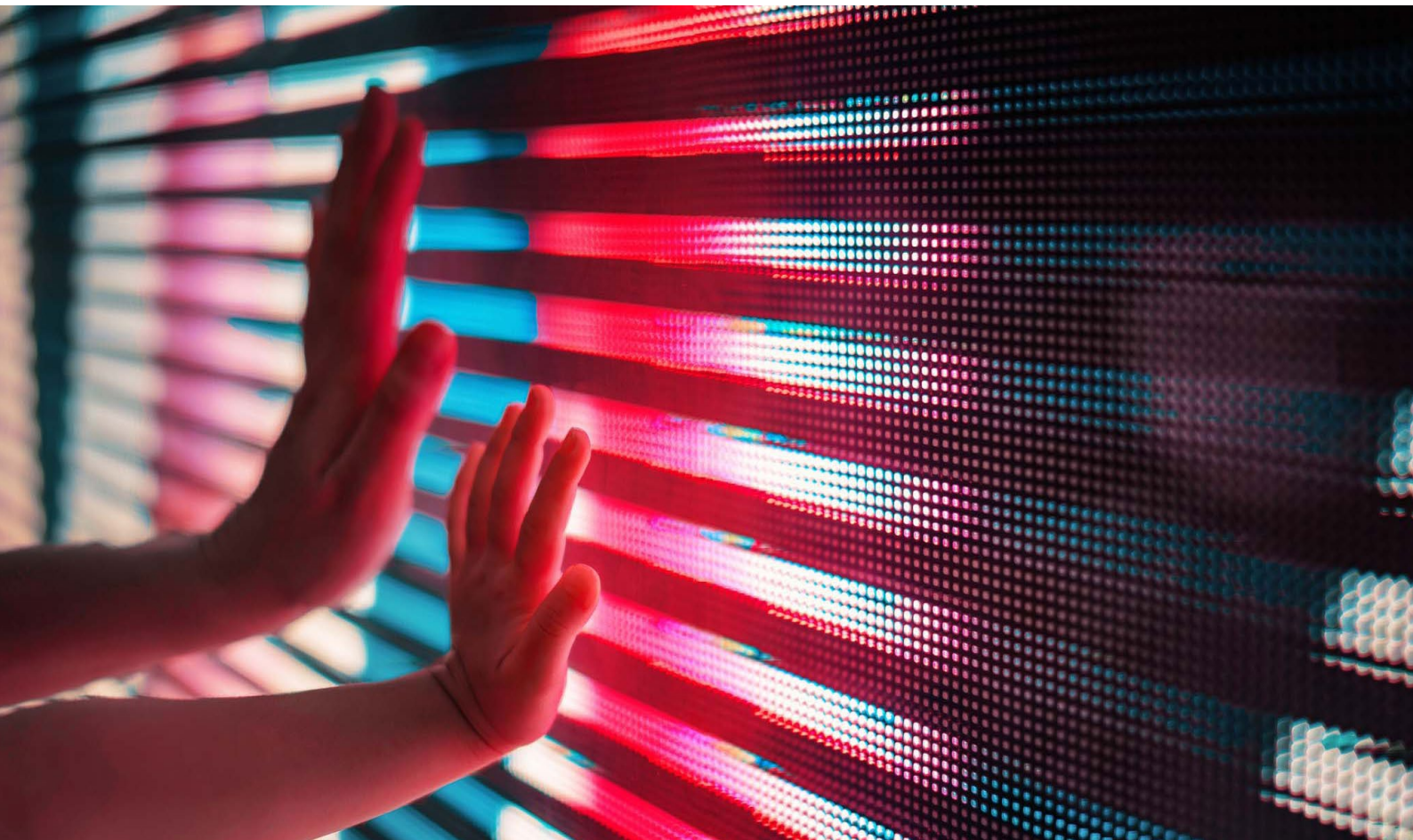
Adopting hybrid cloud through IaaS models

Finally, there have been several advances in the ease of adoption of hybrid cloud through IaaS, with technology providers working closely with enterprises to customize solutions for global or regional implementation. Hybrid cloud solutions can be right-sized for initial implementation, with an accurate forecast of future needs.

Migration from existing infrastructure to IaaS architecture also needs to be managed seamlessly. Stage-gate process planning is used to minimize any disruption to day-to-day business activities. Modern automation and management tools are deployed to reduce build times, and advanced

supply chain and logistics techniques used to speed time to market. Customer service managers are allocated to each deployment, ensuring that enterprises have the proper levels of support on the ground and that future capacity needs can be accurately planned.

Service level agreements are also transparent, with clear delivery commitments and incentives providing the end-user with peace of mind. Resource consumption, whether compute storage, memory, or virtualized desktops, is visible at all times, ensuring that end-users stay within OPEX budgets and there are no surprises.

Conclusion – hybrid cloud as a service provides the answers

Hybrid cloud has clearly come of age, with almost nine out of ten organizations now having a multi-cloud strategy, and 80 percent taking a hybrid approach by combining the use of both public and private clouds.

Increasingly, this architecture is best delivered through as-a-service consumption models with scalability, visibility and cost-efficiency built in. These models answer the needs of executives across the C-suite. From the CEO and CIO through to the CFO, IaaS provides specific business, technical and financial benefits that can power the digital strategies of tomorrow.

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