BUSINESS BRIEF

Data Center
Cloud

Is Your Enterprise Ready for Hybrid Cloud?

Decrease application time to market and empower agile application development by focusing on the business need

"By 2020 Gartner predicts that 90 percent of IT Enterprises will adopt hybrid cloud, making it the predictable future for all competitive businesses."[3]

Gartner, April 2017

Industry Strategic Challenges

The cloud computing discussion has moved far beyond a simple question of whether to host an application on-premise or in the public cloud. According to a recent study by Microsoft and 451 Research, a third of all organizations now work with four or more cloud providers (see Figure 1).[1] But another study by IDC indicates that only a few pathfinders are making the necessary technology and process adjustments to make this viable in the long run.[2] Despite all this, studies still show hybrid cloud as inevitable; by 2020 Gartner predicts that 90 percent of IT Enterprises will adopt hybrid cloud, making it the predictable future for all competitive businesses.[3]

But exactly what is a hybrid cloud strategy? How does an enterprise protect its existing investments in applications and on-premise infrastructure while taking optimal advantage of cloud-based services? These are questions plaguing many CIOs, as they struggle to maintain their competitive edge by balancing business agility and cost efficiency.

Business Drivers and Desired Outcomes

Forrester reports that integrating public cloud services with private enterprise cloud infrastructure gives companies choice, flexibility, and access to innovation; hybrid cloud users gain cost efficiency, IT resource and data manageability, security and scalability.[4] A Gartner study also recommends that "IT leaders should not be migrating everything toward cloud services, nor should they be… waiting for the market to settle. A prudent data center strategy incorporates the best of both worlds, for the right reasons, at the right time."[5]

To achieve the desired outcomes of hybrid cloud, the only thing to do is to adopt a mindset change. IT must shift from an "infrastructure up" approach to an "application down" model. To get the most out of a mixed cloud environment, decoupling physical location from business needs enables those business needs to determine where infrastructure comes from.

Figure 1. Although hybrid cloud adoption is increasing, few companies understand how to get the most benefit.

Key Characteristics of a Successful Hybrid Cloud Strategy

An optimal hybrid cloud strategy incorporates several key elements:

- Shift from an emphasis on infrastructure to an emphasis on line of business (LOB) and application needs.
- Land each workload in the right place for optimal hybrid workload placement.
- Provide application developers with the skills necessary to create cloud-native apps.

Combined, these elements support an "anything-as-a-service" (XaaS) environment that can embrace the use of multiple clouds across public and private infrastructure and increase business velocity and agility (see Figure 2).

Focus on LOB Needs

A hybrid cloud strategy should encompass all lines of business, ranging from manufacturing and sales to product development. Regardless of operational domain, the strategy must address governance, application type, and platform as a service (PaaS) and infrastructure as a service (IaaS) requirements. Inevitably, some legacy, non-cloud-compatible applications will remain in use, and these must be accommodated along with virtualized and cloud-native apps.

It is also important to consider the cost of an application from an application-down perspective. By balancing the cost of an application with the required capabilities, you can ascertain whether it is providing maximum value to the business. A thorough application rationalization process can help remove unnecessary apps from the portfolio, or refactor them into a lower-cost capability tier elsewhere in the cloud.

Optimize Workload Placement for Hybrid Cloud

According to Forrester, less than 50 percent of organizations actively optimize workload configurations and therefore fail to maximize the benefit of their hybrid clouds.[5] With a cloud-mature application stack that is abstracted from the infrastructure and that has the ability to systematically identify whether an application is providing business value, you are well-positioned to take advantage of a hybrid cloud environment. Some applications, such as those with strict security requirements or those that are used only internally, may be hosted in a private cloud. For other applications, you can engage with a variety of public service providers according to the provider's strengths and the application's needs. To learn more about hybrid cloud workload placement, see the white paper, "Optimal Workload Placement for Public, Hybrid, and Private Clouds."

For example, one provider may have excellent identity management and security features, while another may excel at offering container-as-a-service (CaaS) capabilities. As cloud providers innovate, you can move apps from a private cloud to a public cloud, or from one public provider to another—if doing so better meets LOB needs. Landing the right workload in the right place at the right time enables you to maximize the value of the cloud across the enterprise.

Develop Cloud-Native Skills

Cloud-native apps provide business value through resiliency—which is achieved by abstracting applications from the infrastructure. Pursuing cloud-native app development can increase uptime and enhance disaster recovery capabilities. Cloud-native apps can also better meet security needs.

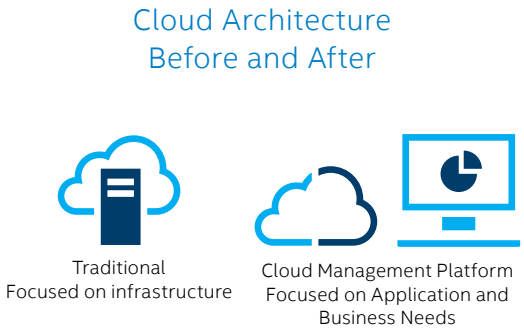


Figure 2. Top-performing enterprises are transitioning from an infrastructure-focused cloud strategy to one that focuses on applications and business needs, using an application platform to increase business velocity and agility.

Developing cloud-native apps that can be deployed on a variety of private and public cloud infrastructures requires app developers to learn a variety of critical skills. These include:

- Implementing controls for hybrid cloud security and compliance.
- Writing code for software-defined infrastructure (SDI), which includes expertise with proprietary and open source solutions, integration, and orchestration of all resources including networks, storage, compute, hypervisors and containers.
- Brokering public cloud services, including design, integration and support.
- Becoming proficient in modern application development languages, cloud-native app development techniques (such as stateless applications and use of containerization technology) and continuous integration/continuous delivery (CI/CD).
- Upgrading big data skills, such as working with in-memory databases and advanced analytics.

Intel IT: Putting Hybrid Cloud to Work

Intel IT is no stranger to cloud computing, having built an enterprise private cloud in 2010 to increase agility and scalability, as well as enable substantial cost savings. Over the last seven years, Intel IT has strategically used private and public cloud resources to offer choice and flexibility to Intel application owners, helping them achieve high levels of performance, agility, scalability, and efficiency.

Intel IT has formulated a cloud strategy that abstracts applications from the infrastructure. Using an application platform, apps can run wherever they provide optimal value. The strategy includes training Intel's application developers how to create cloud-native apps. Lines of business at Intel are quickly adopting Intel IT's application platform—the number of application instances hosted on the application platform has grown from nearly zero to more than 3,500 in just two years.[6] Database-as-a-service instances have also experienced similar growth. Intel IT's rapidly maturing application stack will be able to take advantage of a hybrid cloud environment.

Enabling Transformation

Intel believes that smart hybrid cloud investments deliver the agility and versatility necessary to contend in today's hyper-competitive and innovative business landscape. Intel's workload placement decision framework can help you determine which solution best aligns with your business and technical needs. And when you are ready to deploy a modern cloud-aware solution, visit Intel® Cloud Builders, a collaborative environment that helps lower technical barriers and accelerate innovation so enterprises and cloud service providers can build clouds based on easy-to-deploy and fully optimized infrastructure.

To stop the hybrid cloud "stall" within your organization, and get to market faster, consider Intel® Select Solutions, a new offering from Intel that delivers optimized, easy to deploy infrastructure that can reduce your time to deployment and value. These solutions feature pre-defined settings and system-wide tuning and are designed and benchmarked to perform optimally for specific workloads. Intel currently offers two Intel Select Solutions for hybrid cloud:

- Microsoft Azure* Stack brings Azure public cloud services to an on-premise private environment. Azure Stack lets you deliver Azure services from your organization's data center, while balancing the right amount of flexibility and control—for truly-consistent hybrid cloud deployments.
- VMware Cloud Foundation* (VCF*) offers integrated cloud infrastructure (compute, storage, networking and security) and cloud management services to run enterprise applications in both private and public environments.

The Powered by Intel® Cloud Technology program can help you chose from a broad range of services developed by cloud service providers that specifically optimize for Intel® processors. The result is an agile, scalable cloud with the power and capabilities to handle your most data-intensive workloads. Knowing that the technology that runs in your data center also runs in your public clouds enables you to deploy cloud-native apps with confidence.

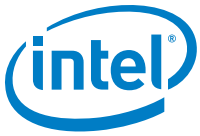
Intel is committed to simplifying the path to delivering hybrid cloud services by developing the foundational technology that powers high-performance, energy-efficient, highly available and security-enabled cloud environments. We are working closely with other industry leaders to accelerate cloud computing solutions that take advantage of our latest innovations, such as the Intel® Xeon® Scalable processor platform, Intel® Optane™ technology, and Intel® Omni-Path Architecture (Intel® OPA). Initiatives such as Intel® Cloud for All and Intel® Cloud Finder are making the cloud easier to deploy for a wide range of workloads. Intel is also extending virtualization from individual servers to the entire data center via SDI, providing a critical on-ramp for scalable hybrid clouds.

Solution Summary

By abstracting apps from infrastructure using cloud-native development methodologies and application platforms, you gain business velocity, flexibility, and agility. A hybrid cloud strategy that focuses on business and application needs rather than on infrastructure provides optimal business value to all lines of business through a consistent user experience and best-fit workload placement.

Learn More

- Read this white paper, to see how to get most out of hybrid cloud with optimal workload
- Listen to a podcast about optimal workload placement and get answers to your hybrid cloud questions
- Get the full picture on how to drive innovation with cloud at www.intel.com/cloud



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