The Advent of New-Age Tools for the Hybrid-Cloud Operating Model

wipro

In the last decade, organizations have shifted from largely dedicated, private, on-site data centers to a pool of on-demand compute capability – a.k.a. the cloud. Interest in cloud computing is growing at an unprecedented pace. Enterprises have embraced the cloud in their quest to drive innovation, enhance agility, and cut costs. According to Gartner, 90% of all organizations will be using cloud services in some form by 2022

Hybrid-cloud computing: Furthering public cloud growth

Data from the IDC (International Data Corporation) Worldwide Semiannual Public Cloud Services Tracker suggests that the worldwide public cloud services market grew 26.0% year over year in 2019 with revenues totaling $233.4 billion.[ii] This includes infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS). The IDC goes on to note: "The public cloud services market has more than doubled since 2016," suggesting public cloud is becoming the preferred cloud model.

Why is public cloud so popular? From a financial perspective, its multi-tenant environment makes splitting infrastructure costs easy. It also offers flexible pay-as-you-go pricing models, and is easy to deploy and configure, even remotely. There are no hardware maintenance costs and no long-term contracts. Instead, public cloud boasts optimized staffing budgets and massive economies of scale. These advantages, combined with reduced redundancy, maximized uptime, and almost no risk of failure, ensure speedy adoption of public cloud across large, medium, and small enterprises alike.

However, not everything belongs on the public cloud. Most organizations still keep some of their data in captive or hosted data centers on private clouds for various reasons, the most important being control and security. Regulations and compliance laws like HIPAA, GDPR, and PCI require financial services and energy companies to retain some workload and customer data on private clouds. As a result, even as an organization moves the bulk of its data to public cloud, it's likely to retain some core data in a captive or hosted data center.

To simultaneously address demands for cost efficiency, scalability, agility, and security, many organizations partner with multiple public and private cloud services providers, a balance that poses new challenges while resolving others. With hybrid cloud, data moves seamlessly between private and public clouds, giving businesses complete control of the way their data is stored, deployed, and managed. Hybrid cloud can be a catalyst for digital transformation – transforming legacy systems and applications with new capabilities and speed, connecting organizations to different cloud models, delivering flexible IT resources efficiently and at lower costs.

Nutanix's most recent Enterprise Cloud Index shows more than 85% of 2,650 respondents cite hybrid cloud as their ideal IT operating model.[iii] "Enterprises plan to aggressively shift investments to hybrid-cloud architectures," the report continues, with plans for steady and substantial hybrid deployment in the next five years.

Common challenges to hybrid cloud adoption

Cost management

IT and management teams sometimes struggle to manage costs with hybrid-cloud models because of unexpected differences between hybrid and on-site resources. Teams often overestimate public cloud usage, for example, adding unnecessary capacity expenses. Because public cloud offers on-demand resource consumption, managing and balancing costs across cloud platforms is important for sustaining the hybrid-cloud model.

Compliance

From penalties to lawsuits to lowered reputation, the cost of non-compliance is high, so organizations are constantly working to meet various global and regional regulations governing the storage and usage of sensitive business data. On site, compliance is typically handled by the IT operations team and is not an area that the developers are experienced with because of diversified range of tools usage to automate task. Hence, additional training and tooling in hybrid computing is essential to ensure compliance.
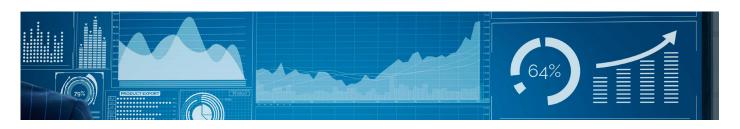
Security

As hybrid environments become more complex, they also become more vulnerable to cyberattacks. The intricate network of infrastructure and related operations means more to monitor and therefore more to potentially overlook, increasing the risk of data breaches.

Provisioning, configuration, monitoring, and governance functions

These are perhaps the most complicated and tricky of all challenges to hybrid computing. Traditionally, governance aims to provide oversight and direction for IT, standardize operations, and improve quality. It also tends to slow development because of the process-driven, standardized approach. Before the advent of hybrid-cloud computing, operations and development were two separate silos. In the new era of hybrid, however, flexibility, agility, and on-demand services are key.

Hybrid-cloud migration and management are complicated and demanding. As organizations embrace hybrid cloud, they are operating multiple dynamic infrastructures, including containers, VMs, and bare-metal servers. One of the most important elements of successful cloud migration is automating the infrastructure configuration. Setting up automated processes for provisioning, configuration, management, and governance can save time and resources which would otherwise be spent on routine maintenance.

The proliferation of cloud automation tools and the survival of the fittest

The popularity of hybrid cloud has led to the proliferation of various open-source tools and technologies that can be added to existing programs to improve capabilities like provisioning, configuration management, cost management, self-service, monitoring, reporting. Cloud technology companies offer their own suite of applications and management software. Each cloud management platform comes with its unique strengths and advantages, and integration between platforms and tools can be a huge task, dependent on:

• Size of the organization
• Scale of the infrastructure being deployed
• Number of sites, machines, and OSs installed
• Volume of data the firm deals with on a regular basis
• Software and applications used
• Complexity of the organization's processing requirements

Based on the evolution of the cloud computing environment, the automation tools available can be divided into three categories

Software-defined tools

These tools are the guardians of the cloud market and have been around since the start of the cloud evolution. While they were, and in some cases continue to be, leaders in the market, they are prohibitively expensive with limited feature enhancements. Most new-age enterprises are wary of spending large amounts of money on automation functions. Players in this segment include BMC, WM Ware, and Microfocus.

Cloud-native tools

These tools are developed and managed in the cloud through DevOps processes, resulting in higher quality and more continuous workflows. They are built around APIs to improve collaboration. Because these tools are frequently offered through SaaS (software-as-a-service) models, management and operational overheads tend to be much lower. Examples of cloud-native tools include Azure Monitor, Azure automation, Azure policy, Azure Kubernetes services, Okteto, Flannel, and Calico.

Open-source tools

These tools are completely API-based and not limited by proprietary integrating systems. They are extremely cost-effective, but require custom implementation. Open-source tools are available for many automation functions and IT orchestrations[v]. Examples of these tools include Ansible, Chef, and Terraform.

Hybrid-cloud computing demands new ways of operation. Enterprises considering long-term adoption will need to consider all the tools and applications, as well as all new and legacy systems involved, to manage a smooth transition and superior performance.

Increasingly, enterprises want to choose tools and applications from different vendors, and this trend is likely to continue. Agility and flexibility will be key – qualities to which cloud-native and open-source tools lend themselves. These newer offerings currently dominate the open-source and cloud-native tool stack scenario for automation tasks, suggesting their rising popularity over the old standards of the cloud services market.

Partnering your way through transformation

Enterprises can increase the success of their cloud transformation journeys and the reliability and of their infrastructure by partnering with experienced global system integrators (GSIs). As specialists who can understand and support converged infrastructure solutions, and offer applications and tools tailored to those solutions, GSIs are well positioned to help businesses embrace the hybrid-cloud model and scale their IT infrastructures. To support consumption-based pricing models, GSIs can team up with their infrastructure partners to offer the optimal cloud model for each organization. Extensive domain experience also helps GSIs deliver industry-specific consulting and implementation expertise.

Organizations must remember that complete migration is not the end of the enterprise's journey to the cloud. On the contrary, it is just the start. Managing cloud services is an ongoing effort, crucial to the success of the organization's digital transformation strategy.

References

https://www.gartner.com/en/newsroom/press-releases/2017-04-05-gartner-says-a-massive-shift-to-hybrid-infrastructure-services-is-underway

https://www.idc.com/getdoc.jsp?containerId=prUS46780320

https://www.nutanix.com/au/enterprise-cloud-index/

https://blog.newrelic.com/engineering/best-cloud-infrastructure-automation-tools/

https://www.bizety.com/2020/06/10/automation-and-orchestration-ansible-chef-puppet-saltstack-and-terraform-overview/

About the author

Rajiv Kumar

GM & Presales Head - Cloud, Cloud & Infrastructure Services, Wipro

Rajiv has about 22 years of experience in the IT Industry. He has played a key role in developing next-generation transformative offerings like Azure Stack and rapidly growing the cloud practice across geographies. He is a member of the Association of Enterprise Architects and has many leading certifications like TOGAF, Azure MCSD and AWS Solution Architect, among others.

You can reach him at
rajiv.kumar@wipro.com

Wipro Limited
Doddakannelli,
Sarjapur Road,
Bangalore-560 035,
India
Tel: +91 (80) 2844 0011
Fax: +91 (80) 2844 0256
wipro.com

Wipro Limited (NYSE: WIT, BSE: 507685, NSE: WIPRO) is a leading global information technology, consulting and business process services company. We harness the power of cognitive computing, hyper-automation, robotics, cloud, analytics and emerging technologies to help our clients adapt to the digital world and make them successful. A company recognized globally for its comprehensive portfolio of services, strong commitment to sustainability and good corporate citizenship, we have over 180,000 dedicated employees serving clients across six continents. Together, we discover ideas and connect the dots to build a better and a bold new future.

For more information,
please write to us at **info@wipro.com**