HYBRID DIGITAL INFRASTRUCTURE MANAGEMENT (HDIM): AN INTRODUCTION

One of the newest tech buzzwords that emerged during the last few years is Hybrid Digital Infrastructure Management (HDIM). It stems from the emerging trend of declining on-premises data center use and the associated growth in cloud applications for many organizations. The cloud provides several advantages in everything from effectiveness to costs, but various reasons can hold a company back from fully transitioning to the cloud.

As an organization transitions from legacy systems to the cloud, it might find itself in a hybrid situation using both on-premises and online infrastructures. Some systems and applications will still deploy to on-premises data centers, while others will be on private or public clouds. Although this hybrid system has its benefits, it also brings with it complexities that require unified management in the form of HDIM.

What Is Hybrid Infrastructure?

As organizations grow and technology advances, the need for flexibility and agility without associated maintenance of tailored data centers rises as well. On-premises data centers are expensive and cumbersome to maintain, leading companies to search out alternate solutions. More and more frequently, they turn to the cloud. But the transition from legacy systems to the cloud can take time, leading to a hybrid period where both are in use at the same time.

The cloud provides the perfect mix of technology services without the need to create or operate the

physical infrastructure supporting it. Unsurprisingly, tech companies are rushing to take advantage of this tool. Doing so allows them to reduce costs while simultaneously increasing efficiency.

Although the goal for a company might be to fully transition to a cloud infrastructure for all their IT needs, various constraints can prevent such a move. Perhaps the costs of decommissioning current services are too high, or there are issues with data security or compliance. This leads to the company partially transitioning to the cloud for certain aspects of their infrastructure, while maintaining others on traditional legacy systems.

To take it a step further, within the cloud infrastructure exists a hybrid cloud. It is essentially a mix of public and private cloud services that enable companies to both take advantage of the infrastructure, platform, and software as a service (SaaS) applications on the public cloud while keeping sensitive data within private domains. Thus, a hybrid infrastructure can be composed of on-premises data centers, public clouds, and private clouds.

Particularly for larger organizations that have avoided the cloud for many years, it can take time to get from an entirely physical model to one that runs solely on the cloud. But even partial cloud implementation provides numerous benefits, so companies are often willing to work within a hybrid environment. In such cases, HDIM reduces complications that often come with the transition and management of multiple infrastructures.

Advantages of Hybrid Environments

While a hybrid infrastructure has some drawbacks, it still offers enough incentives to make the process worthwhile. These advantages primarily come from the capabilities that using the cloud brings. Incorporating the cloud even into limited aspects of an organization's system can lead to many enhanced capabilities that are either impossible or just overly expensive with legacy systems. For example, use of the cloud can open the door to:

- Easy worldwide communication, connectivity, and collaboration
- Agility via several options for workload deployment
- Scalability for growing businesses
- Automation of tasks
- Data transfer between cloud platforms
- Reduced development and maintenance costs

The combination of these capabilities leads to the flexibility and cost savings that draw in so many organizations. Because the cloud creates a virtual office, it allows you to connect to your business and collaborate with others no matter where you are. Such practices allow employees to use the work practices that fit them best. They might desire to work at home where they are more comfortable, or they may need to work from various locations due to the collaboration between different employees, contractors, or third parties. The flexibility to choose between these options ultimately improves productivity and worker happiness.

Cost savings also play a big role in infrastructure transition, and they don't come at great expense to other areas of business. Rather, they come about due to enhancements in efficiency such as the reduced need for highly-paid expert staff, decrease in time delays, lower energy consumption from physical data centers, and transferred responsibility of system upgrades and maintenance to the cloud provider.

The cloud also offers enhanced business continuity in the case of unexpected crises. Unlike physical data centers, it backs up data in protected locations. With secure backups available at a moment's notice, an organization can clean up after an event and promptly get back to business.

Disadvantages and the Need for HDIM

While the cloud can provide tremendous improvements for an organization, it does still have some downsides that may keep a company from fully switching over. The primary disadvantages to cloud computing include:

- Risks to cybersecurity
- Need for new skill development
- Increased difficulty in performing audits and controlling data
- Increased difficulty in sharing data internally
- A limited number of providers to choose from
- Privacy and data sharing complications due to "bring your own device" policies

Furthermore, maintaining a hybrid environment of both on-premises data centers and cloud computing introduces additional complications regarding complexity and visualization. After all, it can be difficult to manage two infrastructures at the same time. On top of cloud-specific issues, hybrid infrastructure introduces problems such as:

- Increase in overall complexity
- Revealing of gaps in infrastructure and operations (I&O) toolsets and coordination
- Lack of visualization tools

As organizations start incorporating hybrid infrastructures, they often need to completely restructure their operations to maximize cloud technology potential and minimize risks. Complexities in the hybrid model require learning new skills and watching out for some problems that aren't part of traditional models. For instance, hybrid infrastructures decrease the visibility that I&O leaders and IT managers have within the system. If used properly, HDIM can help these teams to increase visibility and spot issues before they turn into larger breaches of security.

The concept of HDIM proposes to address these problems associated with the management of the various tools and processes involved with cloud and hybrid infrastructures. Some analysts like Gartner suggest including insights from IT service management, data center infrastructure management, and cloud management platforms to create a unified HDIM toolset. Such a toolset can help effectively supply end-to-end services in these complicated multi-sourced environments.

HDIM for one company might include cloud-based employee management solutions that use data from legacy systems. Or, an organization might want to use HDIM to give employees access to certain applications via their personal devices. The manner in which an entity conducts HDIM and integrates the hybrid environment depends on its individual needs and how much of the organization has been transferred to cloud infrastructure.

The Continuing Rise of Hybrid Infrastructure

Based on the evaluation of spending data during the last decade, Gartner states that a large shift towards hybrid infrastructure is already underway. Data for traditional data center outsourcing shows decreasing spending, whereas cloud compute services spending is increasing significantly.

From this data, analysts predict that companies are on their way to spending roughly the same amount on each of hosting, cloud, and traditional infrastructure services this year. Some key HDIM providers to look out for in the coming years are Nlyte and Hyperview, although others are sure to join the endeavor soon. Just be weary of any providers that immediately claim to have extensive experience or full repertoires of tools, as the field is still in its infancy.

Already, it is rare for businesses to only exist in just one of either on-premises or cloud systems. This hybrid situation will likely remain the norm for years to come, making it important to plan and adapt as soon as possible. As is the case with other innovative technologies such as machine learning and edge computing, it could be quite costly not to keep up with HDIM.