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The Future of Hybrid IT Made Simple

IDC OPINION

Digital transformation (DX) is disrupting every industry. Digital transformation is the use of new-generation (also referred to as IDC's 3rd Platform) platforms and technologies by enterprises to create value and competitive advantage through new offerings, new business models, and new relationships. The information technology (IT) market will become dominated by tools that need to be connected to DX initiatives to stay relevant. Industries like media and entertainment and retail have already been transformed; some industries like healthcare and government are being transformed, while other industries like manufacturing and utilities are on the cusp of a major DX shake-up. We live in a world where information technology is embedded everywhere, and every device is in some way, shape, or form connected.

There is a deluge of data, thanks to a "connected compute everywhere" paradigm, and businesses that can master the art of gaining timely insight into this data are the ones that can stay ahead of their competition. Such businesses treat information technology not just as another function but as a core competency — one that drives new sources of competitive differentiation while supporting ongoing business processes. Business outcomes are tied directly to the effectiveness and timeliness of their IT service delivery environment.

A suitable IT platform enables businesses to innovate and transform aggressively. Delivering business transformation is an incredibly complex task for IT. On the one hand, IT must keep the business running (i.e., support the current production environments, mostly deployed on traditional or private cloud infrastructure). On the other hand, IT must support DX initiatives (i.e., support big data and analytics environments and next-gen applications developed using Agile development methodologies). And, IT must do so while offering the best of both worlds: the security, service quality, and improved user experience of an on-premise infrastructure with the scalability, agility, and efficiency of a public cloud. *Digital transformation is ushering in the era of hybrid IT.* The term *hybrid IT* is not just a moniker for private and public cloud IT mashed

up together. Rather, it is an operating paradigm that enables IT to address the needs of an expanded group of constituents that includes not just IT operations staff but also application developers and line-of-business (LOB) executives. Collectively they need:

- » A unified “consumption centric” view of all IT resources; a unified view of on-premise and off-premise (public cloud) tiers, with visibility into economic, health, performance, and utilization analytics of each tier
- » Flexible premises-agnostic composable compute and storage resource pools for current-gen and next-gen apps, front ended by a cloudlike portal for simple and metered (pay per use) consumption
- » A comprehensive and scalable “infrastructure as code” application programming interface (API) toolkit that enables application developers and IT operations staff to deploy methodologies like DevOps across the entire organization and, thus, shift focus from managing infrastructure to accelerating application delivery

Methodology

This white paper is based on in-depth interviews of IT operations staff and LOB individuals at Fortune 1000 enterprises, specifically in industries disrupted by DX. The interviews sought to understand their Hybrid IT strategy and determine some of the challenges and opportunities seen with how their IT organizations have implemented “hybrid IT.” This white paper tells a story from each of the viewpoints of three personas: application developers, IT operations staff, and LOB executives.

Situation Overview

We live in a world where digital technology is a way of life. Everyone and everything has access to some form of connected technology. “Compute” is embedded in every technology and is primarily designed to change the user experience, whether via an interactive interface or built-in analytics.

Digital transformation is disrupting every industry where user experience ultimately influences business outcomes (i.e., how companies conduct business). Industries like media and entertainment, travel, and retail have already been transformed, whereas industries like healthcare, transportation, agriculture, construction, and government are undergoing transformation. Finally, industries like manufacturing and utilities are on the cusp of a major DX shake-up. In each case, the user engagement ultimately drives the pace of transformation.

The “connected compute everywhere” paradigm that spans end-user and industrial devices has created a data deluge, which is only going to get worse as more devices come online. Businesses that master the science of gaining timely insight from these diverse and sometimes big data sets are the ones that will race ahead of their competitors.

Such businesses treat information technology as a core competency and their IT organizations as essential partners to help them drive new sources of competitive differentiation while supporting ongoing business processes. Business outcomes are tied directly to the effectiveness and timeliness of their IT service delivery environment. A suitable IT platform enables businesses to innovate and transform aggressively. However, the task of delivering business transformation is incredibly complex:

- » **Steady-state operations:** The primary task for IT is to keep the business running (i.e., support the current production environments, mostly deployed on traditional or private cloud infrastructure). Every second of unplanned downtime is potentially lost revenue.
- » **Future-state initiatives:** IT must support businesswide DX initiatives (i.e., support big data and analytics environments and next-gen applications developed using Agile development methodologies).

IT must support operations and development while offering the best of both worlds: the performance, protection, governance, and resiliency of an on-premise infrastructure with the scalability, agility, and efficiency of a public cloud. It must be noted here that for enterprises, scaling the infrastructure in the public cloud can get quite expensive in the longer run compared with doing so on-premises.

This operating paradigm (known as hybrid IT) enables IT to address the needs of an expanded group of constituents that includes not just IT operations staff but also application developers and line-of-business executives.

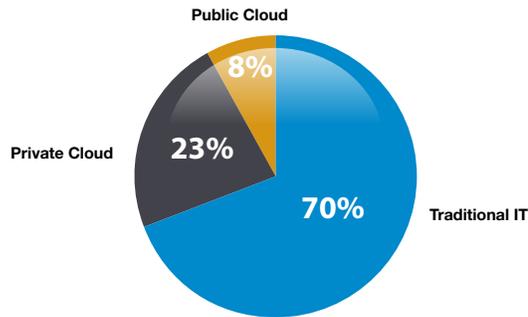
The State of Hybrid IT Today

Today the term *hybrid IT* is often misused to represent the mash-up of private and public cloud IT, without much of a strategy binding the two disparate worlds together. The result is often mixed and inconsistent, and success varies from company to company and industry to industry. To illustrate this situation, IDC interviewed IT operations staff and LOB individuals at Fortune 1000 enterprises, specifically in industries disrupted by DX. Almost all interviewees (90%) said that their firms currently have a hybrid IT strategy in place. Furthermore, all the firms with a hybrid IT strategy have their core business applications deployed in multiple locations (see Figure 1).

FIGURE 1

Location of Core Applications

Q. Where are your core business applications developed and/or running?



n=10

Notes: Traditional IT can be on-premises or off-premises. Private cloud can be on-premises or off-premises.

Source: IDC, 2017

What Hybrid IT Means to IT Operations

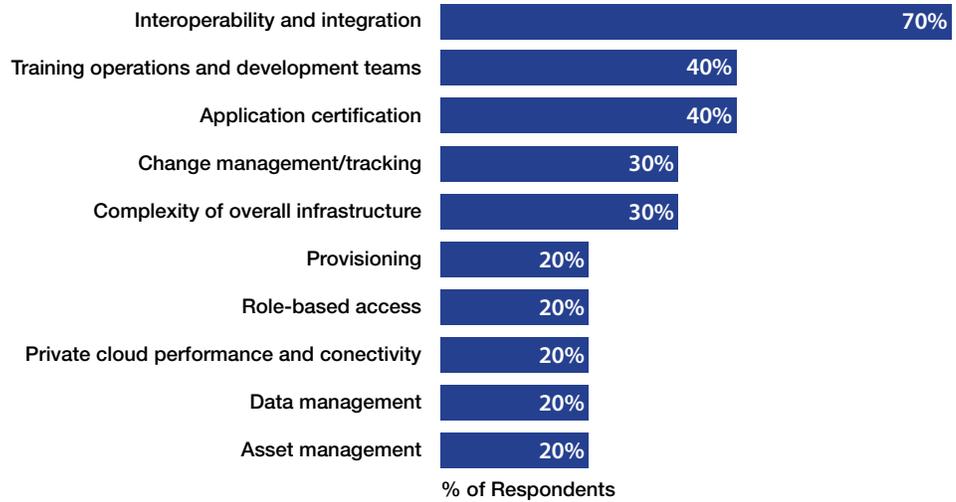
IT operations staff consider hybrid IT to be a drag on deployment and management processes. Figure 2 illustrates the key categories of challenges IT ops teams identified with extending their infrastructure across the cloud. They also consider hybrid IT to be more limiting than homogeneous virtualized compute at an on-premise infrastructure. Hybrid IT also does not mean hybrid management — as the lack of automation means each silo must be managed independently.

As an IT ops executive puts it, “Hybrid IT is more complex when it comes to deployment and ongoing management. The initial setup of the process takes some time, and training people how to use the different portals further extends deployment timelines. Every time something new comes up, it’s always a challenge because people don’t necessarily like to learn anything new. There’s always a learning curve, and they are usually not too happy about it. Change management is always a headache.”

FIGURE 2

IT Operations: Challenges with Deploying and Managing IT Infrastructure Across Cloud Resources

Q. What do you consider as major challenges in deploying your organization's IT infrastructure across various cloud resources?



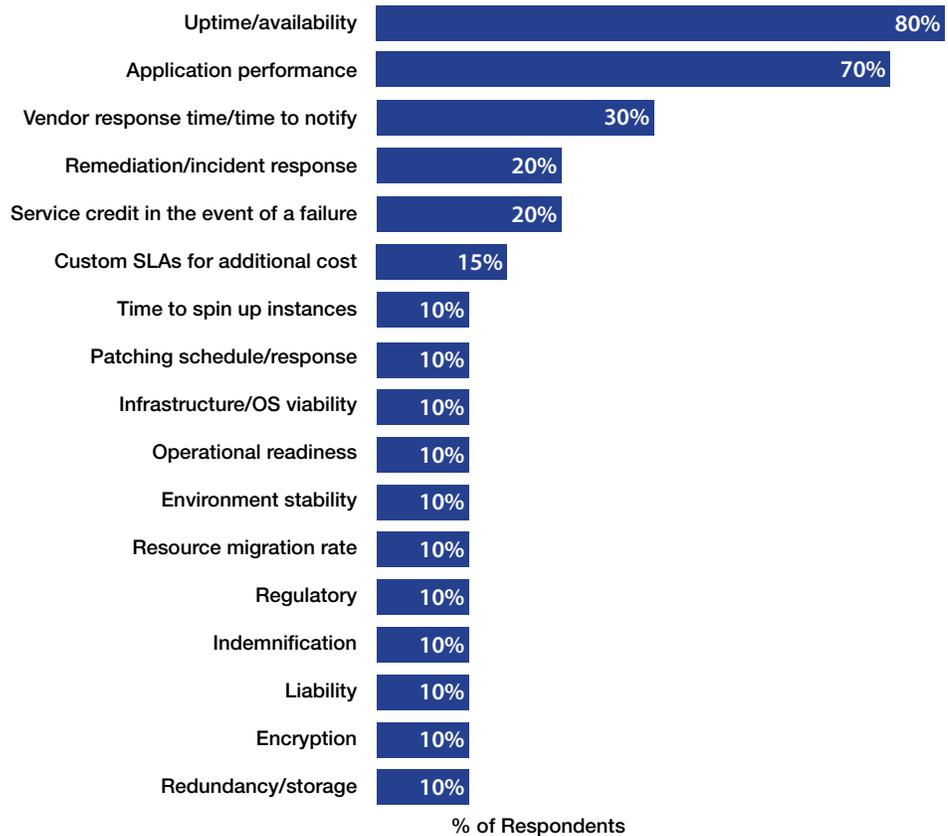
n = 10
Source: IDC, 2017

Figure 3 illustrates the key service-level agreements (SLAs) IT ops teams seek to put in place when deploying a hybrid IT infrastructure. IT ops teams interviewed by IDC admitted that while on paper these SLAs provide the impression that the infrastructure is covered end to end, it is often subjectively interpreted by the individual cloud provider. Point tools for managing individual clouds further exacerbate this problem. This often leads to enterprises asking for custom SLAs, which come at an additional price and add to the overall cost of the solution.

FIGURE 3

IT Operations: Hybrid IT Infrastructure–Related SLAs

Q. What are some of your infrastructure-related SLAs



n = 10
Source: IDC, 2017

How Application Developers View Hybrid IT

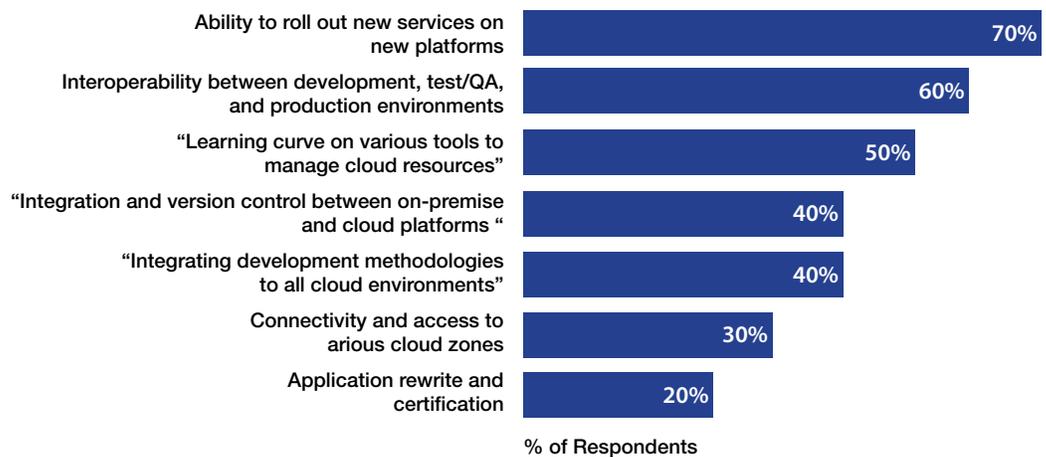
Application developers are not too fond of hybrid IT as developer services such as infrastructure APIs, workflow, and automation tools are not consistently available across private and public clouds. Further, IT must serialize much of public and private cloud service delivery for the lack of unified provisioning tools, leading to bottlenecks. Figure 4 illustrates the key challenges developers face with hybrid IT. These challenges ultimately lead to an incredibly complex infrastructure that is hard to interact with and slows down the pace of application development. From a developer’s perspective, the reality of hybrid IT runs counter to business goals of accelerating digital transformation.

As an application developer puts it, “Our major concern is with deploying third-party applications across multiple clouds. A big issue is the proprietary nature of each of these clouds. I can’t just take the virtual image of the machine and deploy it across multiple clouds without tweaking it.”

FIGURE 4

Application Developers: Concerns About Hybrid IT

Q. What do you consider as major challenges for developers to get their objectives met with the IT infrastructure across various cloud resources?



n = 10
Source: IDC, 2017

Line-of-Business Executives and Hybrid IT

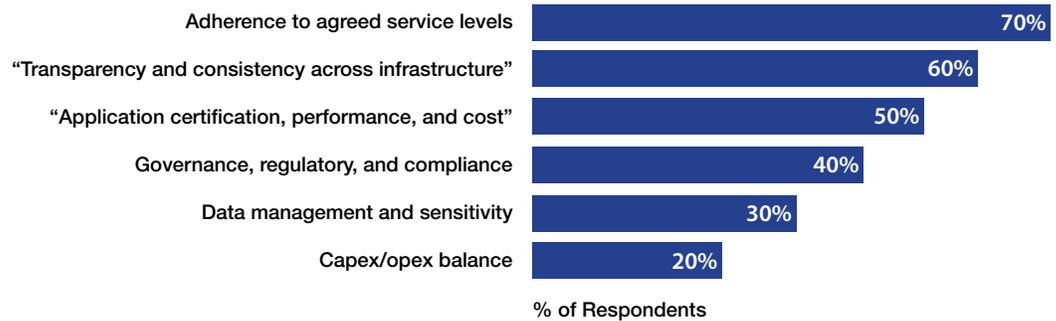
Hybrid IT is often a point of contention between LOB executives and IT operations staff. Figure 5 illustrates some of the challenges LOB executives face with hybrid IT. Many LOB executives are baffled by the slow response for new private cloud services. While public cloud services are fast, they also carry the risk of exposing the business model to the outside world and the perception that public cloud services lock businesses into their ecosystem. Fragmented business controls and governance standards, including service levels across public and private clouds and data security and privacy, also continue to be top of mind for LOB executives who deploy hybrid IT.

As an LOB executive puts it, “Application integration with on-premise data management layers like file systems is a problem when developing in the cloud. With hybrid IT, our goal is to ensure that data is available across all locations, using some kind of a secure message broker integrated with a database and a distributed file system.”

FIGURE 5

Line-of-Business Executives: Concerns About Hybrid IT

Q. What do you consider as major challenges for the line of business who work with hybrid IT



n = 10

Source: IDC, 2017

IT operations staff, application developers, and line-of-business executives all agree that hybrid IT as a strategy is bound to fail if it cannot ultimately deliver on a core set of requirements:

- » A unified "consumption centric" view of all IT resources; a unified view of on-premise and off-premise (public cloud) tiers, with visibility into economic, health, performance, and utilization analytics of each tier
- » Flexible premises-agnostic composable compute and storage resource pools for current-gen and next-gen apps, front ended by a cloudlike portal for simple and metered (pay per use) consumption
- » A comprehensive and scalable "infrastructure as code" API toolkit that enables application developers and IT operations staff to deploy methodologies like DevOps across the entire organization and, thus, shift focus from infrastructure management to accelerating application delivery.

Optimizing Cost and Application Performance Across On-Premises and Public Clouds

Hybrid IT enables businesses with an on-premises and multicloud strategy to optimize cost across these resources. A dashboard designed specifically for line-of-business executives provides a unified view of business metrics across all on-premise and off-premise tiers. A unified view of cost and service provider usage at project-level granularity further simplifies billing and chargeback functionality and ROI analysis capabilities. It also allows businesses to measure cloud providers by performance.

A Continuous DevOps Platform

Hybrid IT serves as a continuous DevOps platform — one that presents a common set of APIs and access portals for on-premise and off-premise resources. It offers a single, secure, and curated platform with integrated developer tools enabling DevOps teams to focus on application development and delivery instead of infrastructure management. DevOps teams also benefit from built-in application-centric performance tools that provide crucial health metrics across all infrastructure locations.

Enable IT Operations to Become a Virtual Cloud Service Provider

Hybrid IT empowers the IT organization to take on the role of a “virtual cloud service provider” (VCSP) as a part of its core competency. IT selects the right mix of public and private cloud resources to establish a “hybrid infrastructure real estate,” with dynamic clouds of infrastructure as a service (IaaS), container as a service (CaaS), and virtual machine as a service (VMaaS). This enables rapid provisioning of virtual machines, containers, and even bare-metal instances as required for current- and next-generation applications. Hybrid IT is a self-service portal that provides a single view across the entire estate and is designed to be used by LOB executives, developers, IT executives — and practically anyone in the business that has a need to know about the health of their hybrid IT deployment.

Infrastructure as Code with Composable Infrastructure

Hybrid IT champions a “low ops” model in which the entire infrastructure is software defined and is treated as code (infrastructure as code) via a unified API. Ideally built on top of a composable infrastructure stack, hybrid IT enables provisioning (and rapid deprovisioning) of autonomous compute, storage, and fabric instances from fluid resource pools. With composable infrastructure, provisioning tasks can be completed in minutes compared with traditional IT provisioning taking hours (and even days in many cases).

Future Outlook

Many businesses are investing in — and will continue to invest in — their own on-premise infrastructure while spreading their wings across multiple cloud providers. This multicloud strategy will eventually lead to an unmanageable asset sprawl (if it hasn’t already) — that is, unless it is bound together with an overarching hybrid IT strategy.

Without a comprehensive enabling ecosystem, the outcome of hybrid IT remains questionable — much of it depends on the individual businesses, their application portfolio, and the way they choose to integrate this portfolio with their hybrid IT deployment. Even

with next-generation apps, which tend to be custom developed, businesses rely on common development frameworks and tools, which are often commercially supported. Similarly, transitioning current-generation business apps to a hybrid IT platform requires that the relevant ISVs certify that stack. And finally, there must be a selection of cloud service providers — each with its unique capabilities — that seamlessly integrate their offerings with the hybrid IT stack.

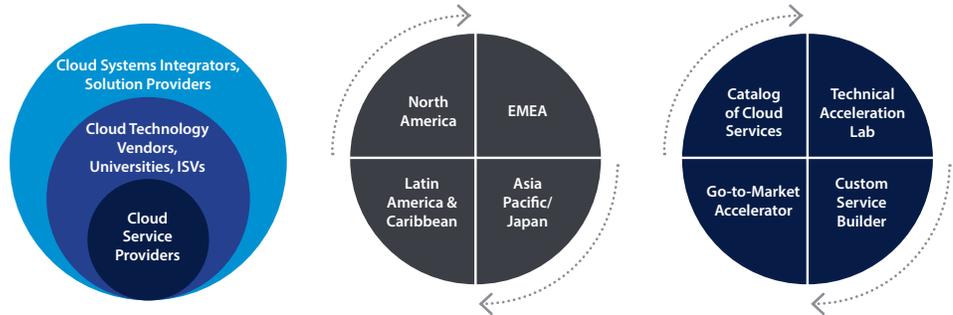
Advice for IT Infrastructure Suppliers

Hybrid IT is a crucial vehicle for businesses to transform themselves digitally. This shifts the burden on IT infrastructure suppliers to offer solutions that enable businesses to not just embrace hybrid IT but, in the process, also stay relevant to their customers. As one interviewee puts it, “If IT infrastructure suppliers are going to keep themselves relevant, they need to embrace hybrid IT today. Our current IT suppliers will become irrelevant for us if they don’t come up with innovative hybrid IT solutions as we shift our infrastructure to the public cloud.”

IDC believes that the opportunity for IT infrastructure suppliers is now. IT suppliers ought to build hybrid IT stacks and combine them with partner ecosystems to meet the urgent needs of enterprises struggling to reap the benefits of a “real” hybrid IT. This is where suppliers like HPE will rise to the occasion. HPE’s strategy is to provide a platform for enabling digital transformation by making it possible to develop and deploy workloads where they best fit based on business needs. In other words, HPE is seeking to make hybrid IT simple to manage and control across on-premise and off-premise estates. IDC believes that this approach will empower IT operations staff to deliver hybrid IT as a service to meet application performance, protection, and resiliency SLAs while acting in accordance with sovereignty, security, and compliance mandates. For line-of-business executives, hybrid IT will offer hybrid cloud control and business insight, providing visibility to optimize spending for applications across private and public clouds. Developers will also get a seamless development and operational experience and be provided access to a marketplace of services delivered by the open source community and partners, including Cloud28+, a global open partner ecosystem of cloud service providers. The Cloud28+ ecosystem is a compelling initiative from HPE for enabling hybrid IT in enterprises (see Figure 6).

FIGURE 6

HPE's Cloud28+ Ecosystem



Source: HPE, 2017

Conclusion

We live in an era where change is the only constant. Buyers and their respective industries, as well as suppliers and their respective markets, are being disrupted. The winners will be the businesses that can embrace challenges head-on and transform themselves for the market forces that beckon them. Today, it's digital transformation — and one of the approaches to tackling DX is via a robust hybrid IT strategy.

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