

Solution Showcase

Dramatic IT Simplification with Seamless Cloud Integration

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Abstract: The rise of public cloud services has fundamentally altered the IT infrastructure landscape. The effects of this shift have disrupted few sectors more than the data storage segment. Faced with ever increasing capacity demands, the status quo of the traditional storage array is no longer sustainable for many organizations. Seeking an alternative, cloud can be an answer, yet organizations still demand the performance of local storage. Hybrid cloud storage offerings are emerging to deliver the best of cloud and of on-premises infrastructure.

Overview

If traditional storage technology had been able to handle the massive data growth that plagues businesses, the industry disruption of cloud services would not have been possible. On-premises technologies, such as larger capacity drives and scale-out storage, have helped to stem data growth challenges, but the impact is still limited. Recently, two separate ESG research studies highlighted the ongoing challenge of data growth. In one study, investigating general storage trends, the rapid rate of data growth was the most commonly identified primary storage challenge.¹ In a separate research investigation into overall IT spending intentions, managing data growth was the third most commonly identified overall IT priority.²

The fact that data is growing is not, however, the headline. The takeaway is that the cumulative impact of years of rapid data growth has led many organizations to find their traditional storage infrastructure unsustainable. Data growth challenges, however, do not stop there. Rapid data growth is the enemy of efficient data center design. As application demands constantly grow and change, IT organizations rarely have time to implement the ideal architecture. The resulting data center infrastructure often becomes an inefficient hodgepodge of new and legacy systems, increasing complexity as a result. This complexity leads to inefficiency, which leads to even higher infrastructure costs, further opening up the opportunity for off-premises cloud resources.

The Rise of Cloud Services

The low cost potential of cloud services and the subsequent growing interest is evident in ESG's industry research. In ESG's research study investigating storage industry trends, mentioned previously, storage administrators were asked which IT initiatives would impact storage spending over the next 12 months. The most commonly identified answer was using cloud storage service as a way to source storage capacity (see Figure 1). The delta between the first and the second most

¹ Source: ESG Research Report, [2015 Data Storage Market Trends](#), October 2015. All ESG research references and charts in this solution showcase have been taken from this report unless otherwise noted.

² Source: ESG Research Report, [2016 IT Spending Intentions Survey](#), February 2016.

commonly identified answers was 12 points. This 12-point delta was a larger difference than the delta between the second most commonly identified answer and the 17th most popular response. In other words, the use of cloud services was not only the most-cited answer, but it was also a dominant top answer. The shift to public cloud was identified in ESG’s research into overall IT spending intentions as well. When IT leaders were asked to identify which initiative their organization was planning to take on over the next 12 months to reduce or contain IT expenditures, the most commonly identified answer was increasing the use of cloud services.³

FIGURE 1. IT Initiatives Expected to Impact Storage Spending

Which of the following IT initiatives do you believe will significantly impact your organization’s storage spending over the next 12-18 months? (Percent of respondents, N=373, three responses accepted)



Source: Enterprise Strategy Group, 2016

³ ibid.

The benefits offered by cloud services stem from a variety of aspects. Designed for efficient scale, cloud services are able to deliver infrastructure as cost-effective price points. Cloud providers are able to achieve higher utilization by spreading service delivery across a wide variety of clientele. On-premises data centers, as a contrast, serve fewer workloads and therefore experience higher variation in application demands. For on-premises infrastructure, workload deployment speed and capital resource utilization directly conflict. An on-premises storage deployment can take months to procure and install. If an organization wished to ensure that on-premises infrastructure was ready and available to immediately serve growing workload demands, then the resource was previously underutilized, increasing the cost of capital infrastructure. Achieving high levels of infrastructure utilization eliminates available room to grow when application demands increase. It is this set of divergent goals that further plagues cost-effective on-premises IT design.

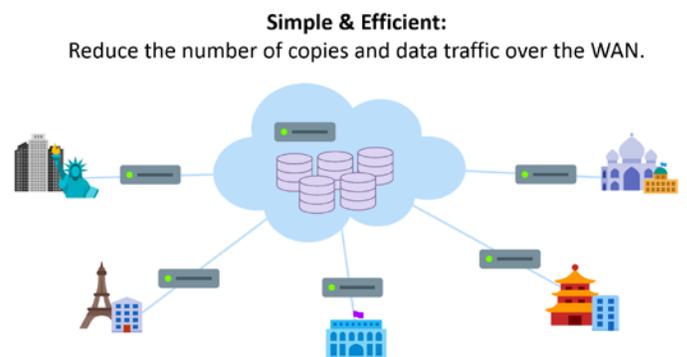
By serving a higher number of workloads and customers, public cloud services can balance resource utilization and availability, ultimately achieving a more efficient architecture. As a result, public cloud can deliver new storage capacity almost immediately at cost-effective prices. As organizations seek to embrace these cloud services, they are, however, faced with tradeoffs. The off-premises nature of cloud infrastructure introduces a natural latency as data must transverse the distance between the two locations. This is often referred to as the “speed of light challenge.” This challenge limits the cloud’s effectiveness for serving low latency local applications while also making off-premises deployment decisions essentially permanent. In other words, once a workload moves to the cloud, it is very difficult to shift it back if demands change. This result of being locked in to a cloud provider has in some cases slowed down cloud adoption and given some businesses pause to leveraging the cloud all together. To better leverage the cloud, businesses need a way to access the efficiency benefits of public cloud services while simultaneously reducing the challenges of traversing the WAN.

The Potential of Hybrid Cloud Storage

In response to these challenges, the IT landscape has witnessed the emergence of hybrid cloud storage solutions designed to ease the adoption of public cloud services. The simplicity offered by these hybrid cloud storage solutions also helps ensure that management costs remain under control as the number of off-premises resources scale. One powerful hybrid cloud model from a leader in the hybrid cloud space, Panzura, is the hot edge and the cold core model. Hybrid cloud paradigms can often start with an antiquated notion that the corporate data center is the center of the global IT ecosystem. These models view the cloud as yet another ancillary remote site, adding another copy of data that must be managed and controlled. The resulting architecture can be grossly inefficient as data sets common among sites are duplicated multiple times. If each site views itself as the center of the data ecosystem with the cloud as a secondary site, the number of incremental copies generated for availability, disaster recovery, and backup can scale the cost of storage dramatically.

Panzura’s concept of a hot edge and a cold core, on the other hand, breaks the traditional IT paradigm and presents an alternate, potentially more efficient approach. In this model, the public cloud serves as the central data repository, with a high-performance edge-caching device serving as local storage at each global site. Local applications are provided high-performance local storage that serves to cache active, or “hot,” data, delivering local performance while reducing on-premises infrastructure costs. The less frequently accessed, or “cold,” data remains in the central data repository on public cloud storage infrastructure.

Access to active data, however, is not only required at the local site. Cloud-based applications demand high performance data access within the public cloud environment. For this, Panzura offers a virtual caching device in the cloud. Applications



can be deployed directly in the cloud, accessing the same data as on-premises applications. Since the data already resides on off-premises infrastructure, the requirement for local capital expenditure is reduced. For customers that want to remove on-premises file systems completely, Panzura also offers a NAS mount that can run in the cloud for users and applications residing less than 10 ms away from a cloud data center.

Leveraging the cloud as the central data storage site allows each site to work from a consolidated data set where the incremental copies are created for data protection rather than out of inefficiency. In addition to reducing the number of copies, consolidating data within the cloud also reduces the amount of data that must traverse the WAN, since only active or changed data sets need to be communicated back and forth. Additionally, new workloads can be stood up on-premises or in the cloud, based on business need rather than being restricted to where the data is located, as the same consistent data is available everywhere. Some potential use cases and benefits of these hybrid cloud solutions include:

- **Data Center Consolidation in the Cloud:** Deploy a single, efficient data store leveraging public cloud services. The resulting architecture greatly simplifies the management of unstructured data and significantly reduces on-premises capital expenditures. Active data is cached locally at each specific site to deliver local performance to onsite applications. The resulting architecture can serve both low-latency, high-performance applications and lower performing, higher capacity-based workloads. The intelligent caching at the edge automatically determines the right data to house on the local site. Additionally, new applications can be spun up in the cloud without having to migrate the data, since the data set already resides in the cloud, further accelerating the deployment of cloud-based applications.
- **Global Software Distribution:** Software, game, and hardware developers with global development and test locations experience software build and artifact distribution times of 8 to 24 hours. This reduces the number of test cycles that can be performed on that software per unit of time, resulting in longer time to market and time to revenue. A hybrid cloud hub and spoke distribution model and global deduplication technology can reduce the time to globally distribute software builds and artifacts to minutes while significantly reducing the total unstructured data footprint. By eliminating unnecessary data movement across the WAN, the number of global test cycles increase, which in turn dramatically accelerates application development.
- **Cross-site collaboration:** With technical applications, such as certain computer-aided drafting (CAD) applications, opening a file can generate thousands of individual file operations. For these applications, the WAN latency introduced with public cloud services creates a tremendous burden as each individual operation is impacted, creating a significant delay in opening or synchronizing files. Panzura's technology uses global file locking, which eliminates the effect of latency on the thousands of file operations. This allows organizations to globally collaborate across locations while minimizing the data movement across the WAN and the number of data copies that can result from these activities. Enabling these applications to leverage the public cloud, while providing an experience as if the data resided locally, accelerates operations while enabling the benefits of the cloud.

Detractors of a centralized cloud data repository may consider data residing off-premises to be riskier than data housed onsite. While both implementations have their own share of risks and rewards, the cost and complexity of onsite infrastructure continues to increase. Meanwhile, more businesses continue to increase their use of the public cloud. Some may point to the emergence of new and lower cost on-premises storage that reduces the cost delta. While it is a valid point that the capital costs of on-premises storage solutions are decreasing, possibly in response to the cloud, these new architectures often do not provide the simplicity of cloud, nor do they provide the nimbleness to stand up new resources quickly. Additionally, the architectural design inefficiencies can still present themselves with these new technologies. Leveraging the public cloud as the central repository for a global IT infrastructure can present a paradigm shift. Yet, for global organizations mired in the cost of on-premises complexity, hybrid cloud solutions, such as those from Panzura, offer

a reprieve. The ability to deliver local performance combined with the cost-effectiveness of cloud can dramatically simplify the management and reduce the cost of deploying a global data center.

The Bigger Truth

For an IT leader, the cumulative impact of years of increasing application demands and rising data capacities, along with a slew of new technology innovations, can quickly result in an inefficient, constantly churning mass of complexity. Public cloud services offer an opportunity to offload that burden to an organization with the scale and technology to manage it. Yet, by itself the cloud cannot do everything. Local applications and users still need performance. It is time-consuming and costly to transmit data over the WAN. In response, there are two options. One option is to slowly move to the cloud, one workload at a time, potentially increasingly the complexity in the process. The other is to work with an innovator in the hybrid cloud space, such as Panzura, that can deliver the performance of local data, while enabling the agility and cost-effectiveness of cloud. For many IT organizations, the status quo is unsustainable, and the remedy may not be to simply shift a few workloads to the cloud—the solution may require embracing a full hybrid cloud ecosystem.

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