THE PULSE OF STORAGE AND COMPUTE CONSUMPTION IN 2020

Five insights on hybrid consumption models that are helping enterprises create business agility through consumption flexibility for storage and compute resources.

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# TABLE OF CONTENTS

3  OVERVIEW: About This Report

4  ONE: Flexible, pay-per-use consumption models for storage and compute are still emerging

5  TWO: Critical applications continue to drive storage growth

6  THREE: A majority of enterprises are still forced to over-provision assets in advance of needs

7  FOUR: Despite over-provisioning, enterprises run out of storage and compute resources

9  FIVE: Insufficient resources have real-dollar costs

12  FUTURUM PERSPECTIVE
OVERVIEW: About This Report

In mid 2019, Futurum Research and HPE partnered on a research project to better understand how enterprises were leveraging consumption-based, on-premises services to meet their current and anticipated storage and cloud computing requirements. The results of this effort were highlighted in *The Power of Consumption-based On-premises Services in Meeting Dynamic Storage Demands*, published in July 2019. It was our belief then, as it is now, that consumption-based services, offered in a pay-per-use model offer considerable advantages in terms of business agility, capital allocation, and ultimately meeting the needs of an organization’s employees, partners, and customers. A year later, amid the ongoing and unprecedented disruption of consumer and business markets, we see an even greater requirement for enterprises to rapidly become more agile and efficient through the use of consumption-based IT and business service for storage and compute resources.

Surveying the Market

To capture the pulse of the market today, we have again partnered with HPE and surveyed 262 business and technology leaders and influencers from across North America (52%) and Europe (48%). All panelists were required to have a high level of involvement and influence in the planning, evaluation, procurement, and/or management of storage and compute resources – roughly two-thirds were qualified at very high levels as primary decision makers.

- Industries: Banking & Finance (16%), Healthcare & Pharmaceuticals (16%); Media & Technology (33%); Retail & Manufacturing (22%); and Public Sector and Public Works (12%, including energy & utilities).
- Organizational Size (global employees): 1,000 – 4,999 (50%); 5,000 – 49,999 (34%); 50,000 or more (16%).

Within this paper we refer to two primary purchasing (acquisition) models for storage and compute resources.

- **Upfront Capital Purchase (UCP)**, defined as a payment paid at the time an asset is acquired (and when becomes a fixed, depreciable asset). UCP is treated as a capital expense (CAPEX).
- **Pay-per-Use (PPU) consumption**, defined as a flexible, as-needed payment in exchange for a service, where the payment is based on the level of service consumption and treated as an operational expense (OPEX).

Here are five insights, or observations, based on our research, plus a set of recommendations to help enterprises optimize their selection and consumption of storage and compute services.
ONE Flexible, pay-per-use consumption models for storage and compute are still emerging

Despite the buzz about rapid adoption rates for cloud, as-a-Service, and pay-per-use models, the vast majority of enterprises continue to use traditional technology acquisition models based on an upfront capital purchase where the purchaser “owns” the asset (with asset value depreciated or written off over time). Even as consumption-based models have proven their value and are increasingly common, over half of enterprises surveyed rely solely on legacy purchase and acquisition models for storage (55 percent) and compute (50 percent) technology.

The close tracking between storage and compute purchasing models reinforces the connection between these two offerings in the digital economy, a relationship that is increasingly driven by trends such as edge computing, where compute and data are ideally collocated together at the edge to drive faster data collection, analysis, and actionable (real-time) insights.

Pay-per-use is a Hybrid Cloud Opportunity

Pay-per-use storage and compute offerings are fairly well-distributed between public/private and on/off-premises models. At present, when enterprises select consumption-based services, the public cloud has a slight adoption edge over private or on-premises options, although the high percentage of enterprises using on-premises pay-per-use services is encouraging.

![Graph showing distribution of pay-per-use consumption models](image-url)
TWO Critical applications continue to drive storage growth

Storage requirements are growing at a rapid, but predictable rate, tracking in-line with enterprise estimates from our previous research completed in 2019.

What’s driving this projected growth?

Data storage (and compute) requirements continue to increase as businesses adapt to the digital economy and implement digital transformation initiatives. Technologies such as artificial intelligence (AI), machine learning (ML), and the Internet of Things (IoT) are increasing the need — and value — for storage and compute resources. Based on our ongoing market observations, we believe the actual growth for data storage and compute services may accelerate at a faster rate as enterprises are forced to either adapt or accelerate their digital (and business) plans in response to current and future global conditions.

Can enterprises accurately predict growth?

The ability to accurately predict future requirements is critical when forced to over-provision during the acquisition process, and enterprises say they’re up to the task.

- 70 percent are very or extremely confident in their ability to accurately predict their organization’s storage needs over the coming 3 years
- Only 14 percent say they are unsure about their storage growth or that their storage growth is not predictable
THREE  A majority of enterprises are still forced to over-provision assets in advance of needs

Pay-per-use consumption models are designed to allow enterprises to easily adjust to unexpected, or even expected, changes in customer requirements. As needs increase or decrease, services levels adjust up or down dynamically, with billing adjusted accordingly. But for the more than 50 percent of enterprises who rely solely on inelastic upfront capital purchases for storage and compute capabilities, meeting future storage demand requires purchasing excess capacity in advance of anticipated need.

Of those that over-provision:

- 48 percent in North America do so by 25 percent or more compared to only 41 percent in Europe.
- 21 percent of enterprises with 50,000 or more employees over-provision by 75 percent or more, compared to just 4 percent with 5,000 – 49,999 employees and just 7 percent with fewer than 5,000 employees.
Despite over-provisioning, enterprises run out of storage and compute resources

Even as enterprises overwhelmingly say they can accurately predict future requirements in storage and compute capacity, they continue to suffer from a lack of storage and/or compute resources, potentially impacting core business applications and systems.

- 47 percent of enterprises say they’ve been impacted by running out of storage capacity.
- 41 percent of enterprises say they’ve been impacted as a result of insufficient compute resources

In a fast-paced market or during periods of disruption the lack of sufficient storage or compute resources can rapidly degrade business operations and the ability of an organization to meet the needs of its customers. Where’s the pain felt the most? Our survey panel cite applications and business functions such as decision support, employee collaboration, resource management, and customer management as at risk.

For those that leverage the agility of pay-per-use consumption models, the delivery of adequate resources can be swift and potentially transparent to enterprise users. But for those that rely on upfront capital purchasing models, increasing capacity requires the acquisition of additional assets, which is often a slow process.

We asked our survey panel to estimate how long it takes their organization to procure more storage and/or compute resources when needed, and the responses indicate trouble may lie ahead for more than a few organizations that lack the ability to dynamically flex to meet increased demands.
Which organizations may face the greatest challenge in overcoming capacity issues?

- 15 percent of enterprises with over 50,000 employees say it takes them 9 or more months to procure additional storage and/or compute capacity when needed.
- 27 percent of enterprises in the Healthcare & Pharmaceutical sector say it takes them at least 6 months to procure additional storage and/or compute capacity when needed.
FIVE Insufficient resources have real-dollar costs

As shown in our research data, curing a lack of storage or compute resources can often take a significant amount of time and impact core business systems and applications. We asked our survey panel to help us quantify the level of financial impact felt as a result of insufficient resources from two different perspectives: unplanned acquisition costs and the cost of business disruption.

The cost of adding more

One of the challenges with adding additional, unplanned capacity for either storage or compute is found in operating outside the normal budget or procurement cycle. When the acquisition of required assets can be planned in advance, more acceptable pricing and implementation costs can be negotiated.

But when assets are required rapidly, budget issues may slow the process and best-available pricing is often not available, a point we see in our research data for both storage and compute.

As expected, the size of an organization matters when evaluating costs, and we do see smaller enterprises trending a bit lower than larger enterprises. But we don’t see a significant gap at the high end.

Percent of enterprises citing acquisition costs above $100,000 for additional storage:

- 1,000 - 4,999 employees: 35 percent (13 percent above $250,000)
- 5,000 - 49,999 employees: 48 percent (19 percent above $250,000)
- 50,000 or more employees: 50 percent (20 percent above $250,000)
Evaluating the cost of lost business

Lack of resources can degrade, slow, or even stop business activities in a number of areas, impacting employee productivity, customer satisfaction, the wasting of resources and lost sales or revenue opportunities. These “soft” costs can be significant both from a financial perspective and from a long-term image or reputation perspective.

Percent of enterprises citing lost business costs above $100,000 (for storage only):

- 1,000 - 4,999 employees: 43 percent (11 percent above $250,000)
- 5,000 - 49,999 employees: 42 percent (19 percent above $250,000)
- 50,000 or more employees: 45 percent (30 percent above $250,000)

As with acquisition costs, lost business costs do vary by size but less significantly, perhaps owning to larger enterprises’ ability to absorb costs. But the net takeaway remains clear — enterprises need to avoid shortages or loss of storage and compute resources as aggressively as possible.
The market disruptions of 2020 have reinforced the requirement that businesses be agile and able to rapidly adapt to changing market, consumer, and regulatory conditions. A strategy of over-provisioning and over-purchasing storage and compute resources in advance of actual requirements may help provide a buffer against future growth, but only at the expense of upfront capital expenditures and lost flexibility down the road.

We see the value of a flexible pay-per-use model in many areas, including:

1. Reduction of unnecessary purchases in advance of needs, and the resulting opportunity to reallocate assets to other, more time-sensitive areas.
2. Increased business agility and adaptability through expanding — or contracting — storage and compute resources in a more fluid and cost-effective basis.
3. Decreased risk of purchased technology becoming obsolete and the increased opportunity to more rapidly adopt technologies that drive business value.

The key is to select the appropriate acquisition model to the task and to de-emphasize the practice of using growth projections to drive increased upfront purchases in favor of leveraging growth projections as the basis for increasing business and consumption agility. For many enterprises, this process will involve a hybrid of purchase and deployment models as there are areas where one consumption model may have value over another, or where a hybrid strategy may be ideal to satisfy both legacy concerns and emerging business requirements.