DataCore™ SOFTWARE

The State of Virtualization and the Impact of Storage

Market Survey

Date conducted: March, 2013

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Executive Summary

The *Third Annual State of Virtualization Survey* conducted by DataCore Software suggests that organizations are eager to virtualize their mission critical applications, but that storage-related costs and performance issues remain significant obstacles to achieving those objectives. Higher storage costs and integration difficulties associated with Flash memory and solid state disks (SSDs) also rank high among the factors discouraging organizations from applying these fast technologies to virtualization workloads that are most latency-sensitive.

Characteristics of Survey Respondents

The broad makeup of survey respondents provides insights across a statistically-significant cross-section of modern IT organizations from different size institutions and a wide range of vertical segments.

- **477** IT Professionals from organizations across the globe participated in the survey
  - **56%** of respondents from organizations with **less than 1,000 employees**
  - **23%** of respondents from organizations with **1,000 to 5,000 employees**
  - **21%** of respondents from organizations with **more than 5,000 employees**
- Respondents represented a range of industries, including Financial Services (11%), Healthcare (12%), Government (13%), Manufacturing (15%), Education (13%) and IT services (14%)

Figure 1- Industries Represented

- 234 terabytes (TBs) was the average capacity across respondents
  - 2 to 9 Petabytes (PBs) among larger firms
  - 20 to 60 Terabytes in smaller to midsize organizations

Eagerness to Virtualize Mission-Critical Apps

More than six in 10 respondents (65%) said that 50% or more of their servers are running virtualized mission-critical applications. By the end of 2013, more than half (58%) said they will virtualize 80% or more of their mission-critical applications. Nearly one in five (19%) said that 100% of their mission-critical apps will be virtualized this year.

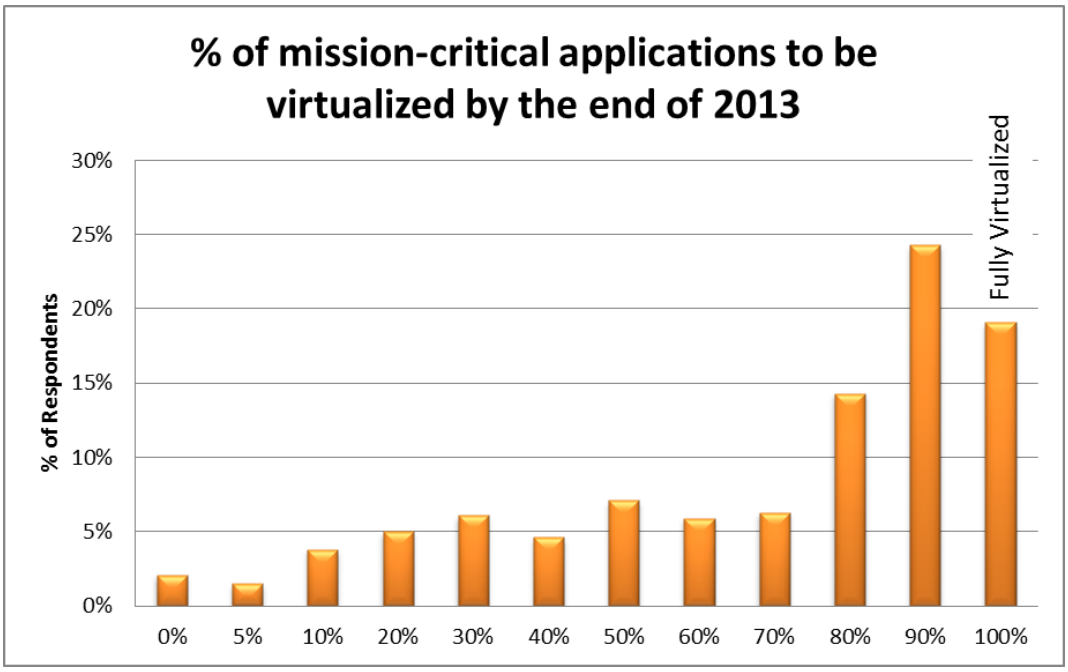

Figure 2- % of mission-critical apps virtualized

More than half of respondents (54%) said that they will virtualize SQL Server in 2013. 36% say they are virtualizing Microsoft Exchange this year, and 28% say they are virtualizing SharePoint.

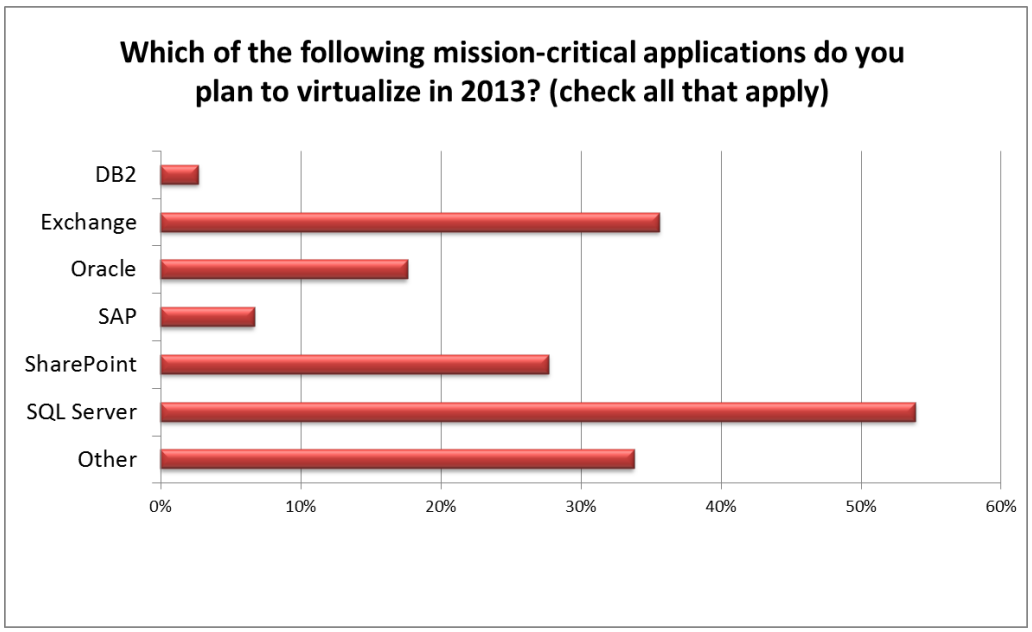

Figure 3- Top mission-critical apps virtualized

In 2013, VMware was again the preferred choice for server virtualization software. More than eight in 10 respondents (82%) said they are likely to use VMware in 2013. In 2012, 69% of respondents said they were deploying VMware already. Nearly 30% are likely to use Microsoft Hyper-V in 2013; a 33% increase from the previous year. The numbers also reveal the likelihood that some of these organizations will use more than one type of server hypervisor to virtualize their servers.

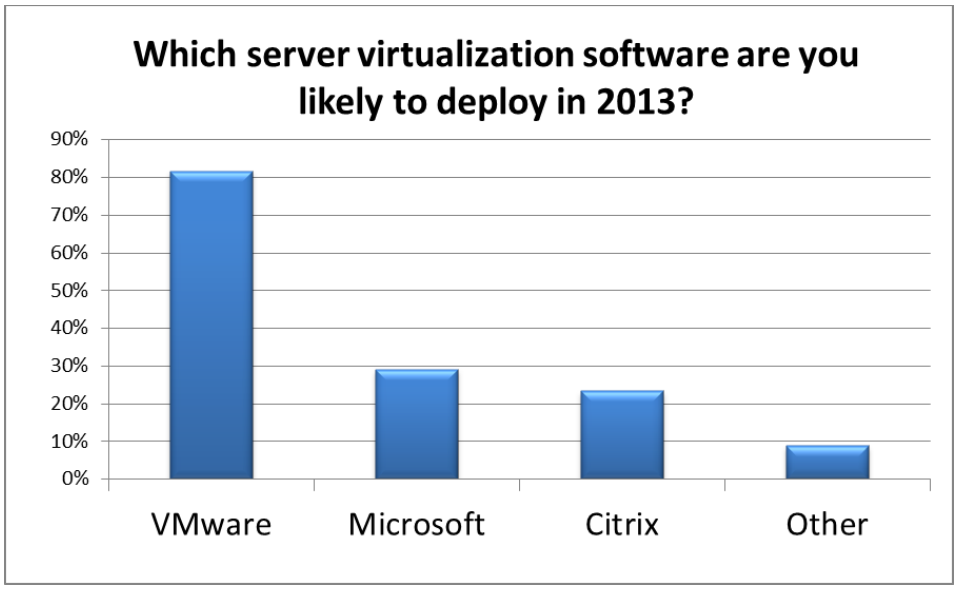

Figure 4- Server virtualization software

Cost Factors Remain a Barrier to Virtualization

IT storage budgets are on a relatively tight leash in 2013 compared to 2012. More than half (51%) of respondents said their storage budget has remained stable, but 20% said their storage budget has been reduced, compared to just 14% in 2012. While 38% said their storage budget grew in 2012, only 30% said the same this year.

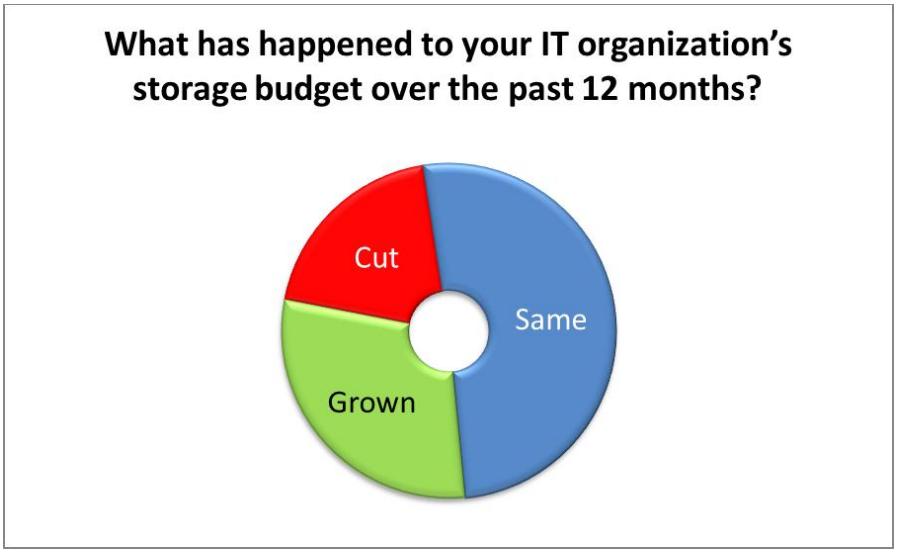

Figure 5- Storage budget trend

The overall cost of storage as well as I/O performance issues appear to be the two most significant storage-related barriers preventing these organizations from virtualizing more of their workloads.

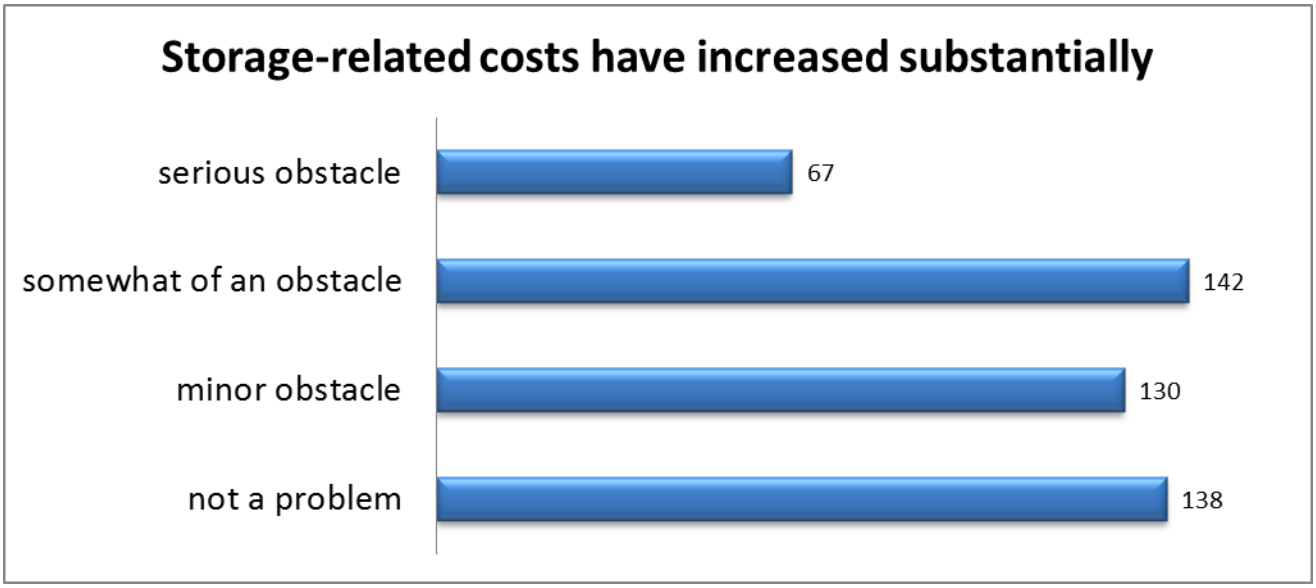

Figure 6- Impact of storage-related costs

44% said the disproportionate storage-related costs were a “serious obstacle” or “somewhat of an obstacle. 42% of respondents said the same about performance degradation or inability to meet performance expectations.

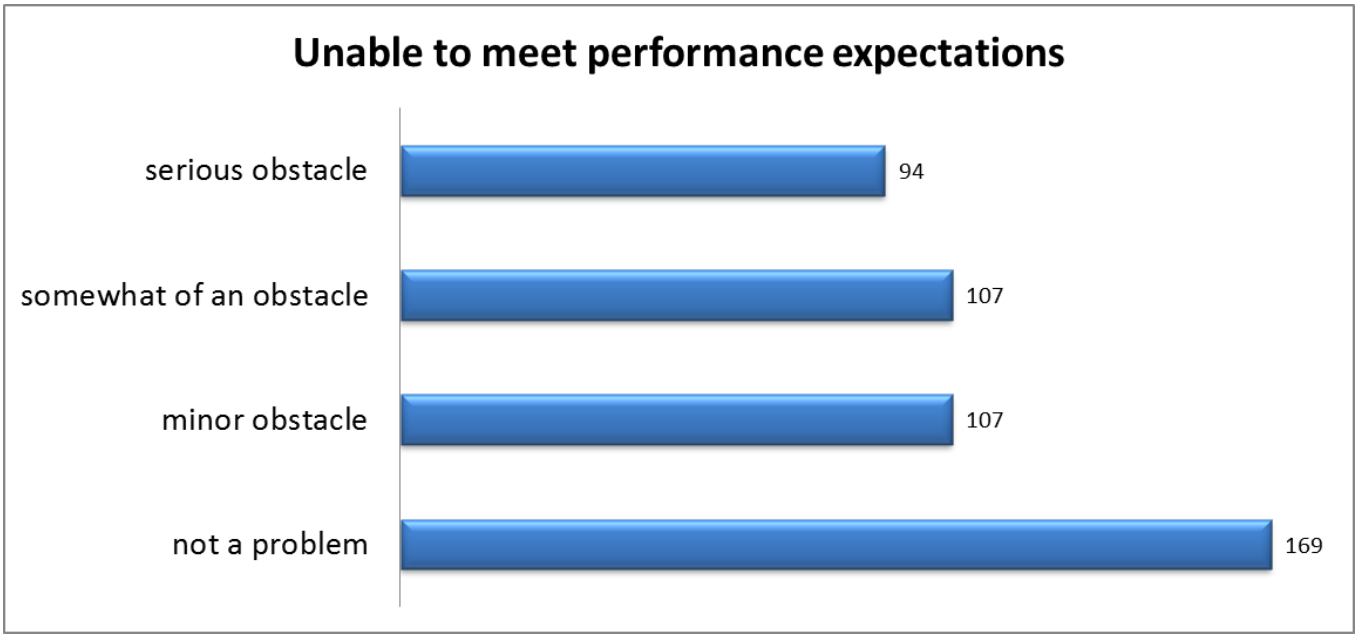

Figure 7- Performance considerations

Popularity of Flash Memory and Solid State Disks

Cost considerations have initially dissuaded many organizations from adopting flash memory and SSDs in their virtualization roll-outs this year. More than half of respondents (50%) said they are not planning to use flash/SSD for their virtualization projects. When asked about what classes of storage they are using across their environments, nearly six in 10 respondents (60%) said they aren't using Flash/SSD at all, and another two in 10 (21%) said they rely on flash/SSD for just 5% of their total storage capacity. This is surprising given the incredible attention the industry is placing on solid state technologies.

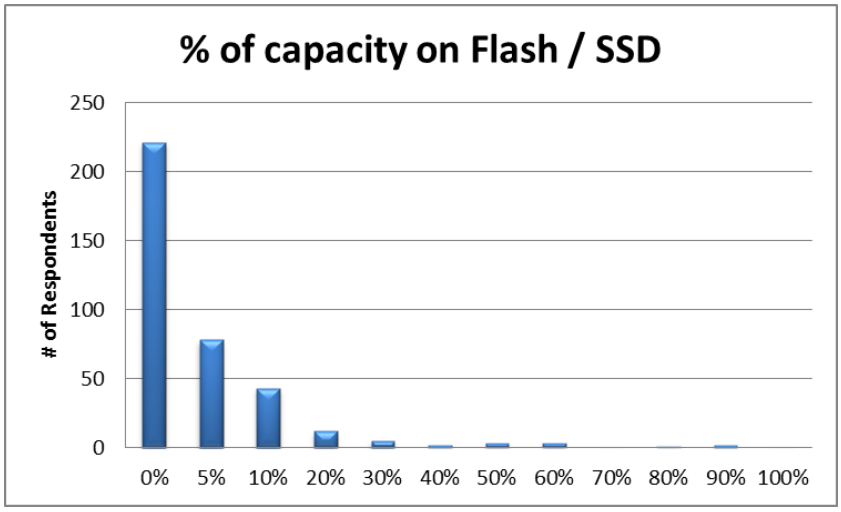

Figure 8- Flash / SSD percentage

Nevertheless, there were numerous use cases cited for the superfast devices.

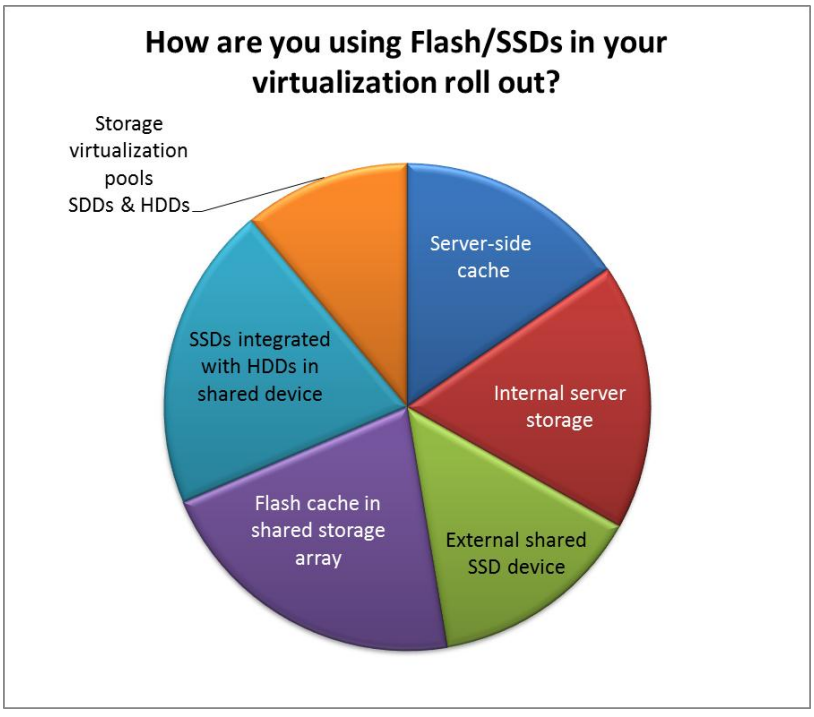

Figure 9- Flash / SSD use cases

Rise in device diversity drives Storage Virtualization software

You can see from the above findings and the results charted in the Appendix that IT is increasingly relying on a mix of purpose-built storage devices to better balance business objectives against budget constraints. Their storage capacity is distributed across Flash memory, Solid State Disks, high-end arrays, midrange arrays, and low-end arrays. In order to pool these diverse classes of storage, 34% of the respondents have introduced storage virtualization software.

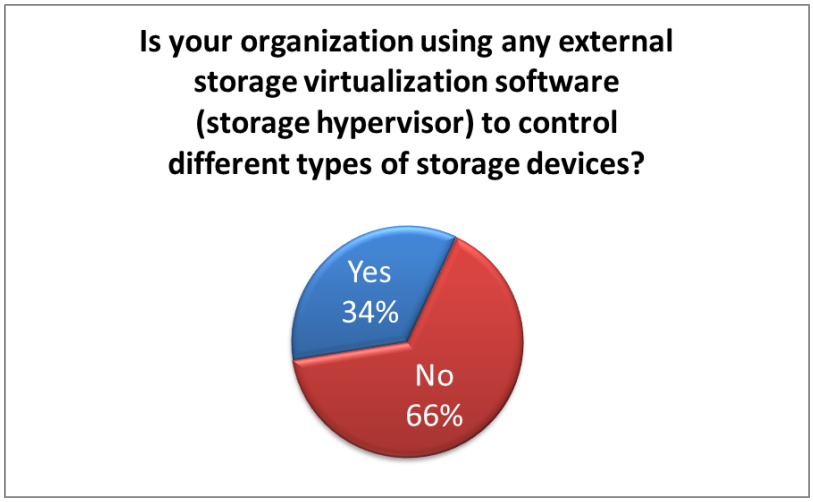

Figure 10- Storage virtualization software (Yes/No)

The relative percentage of each storage tier was quite variable among the survey group. For example, some organizations balanced their capacity by placing 5% on Flash/SSD, 20% on high-end arrays, 70% on low-end storage with the remainder hosted on a public cloud. Others preferred 60% on high-end systems, 30% on midrange and the rest on low-end arrays. In contrast, those who did not use storage virtualization were precluded from entertaining other models or manufacturers of storage devices due to several factors, charted below.

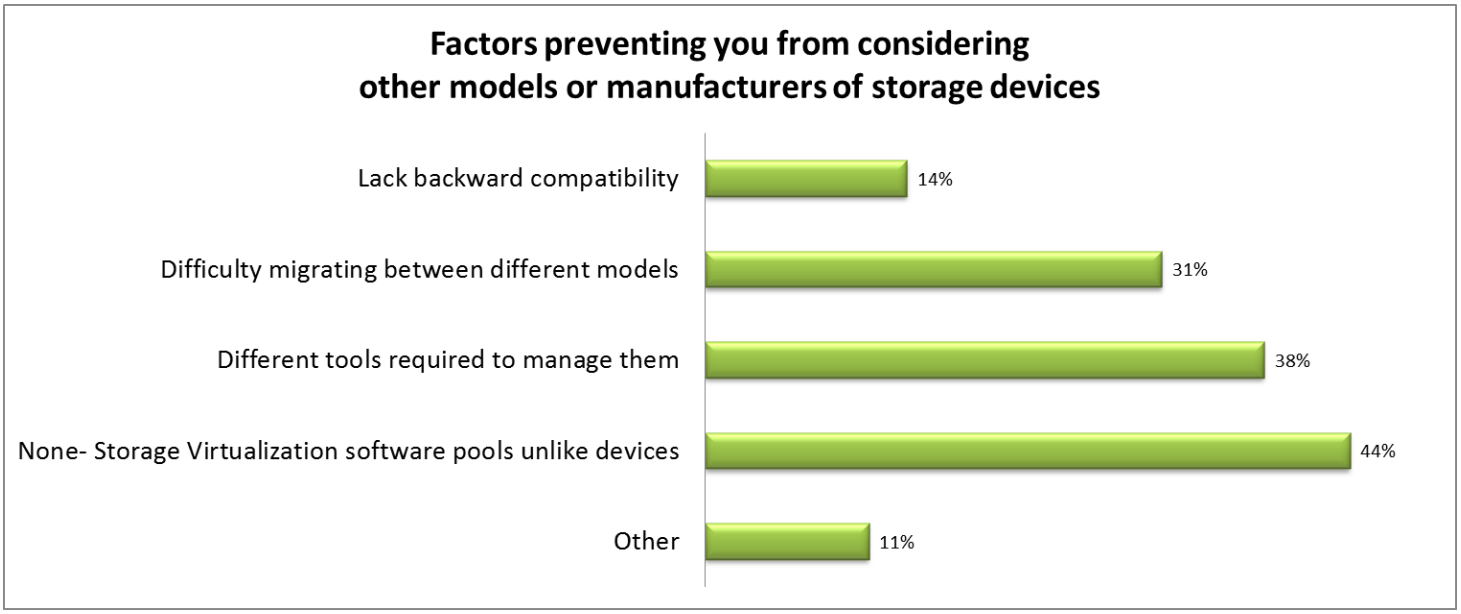

Figure 11- Barriers to choosing other models/manufacturers

We asked respondents to rank from 1 (most important) to 6 (least important) their reasons for using storage virtualization software throughout their IT infrastructure. There was nearly a tie between making provisioning easier/faster and using automated storage tiering to dynamically select the best storage device for competing workloads.

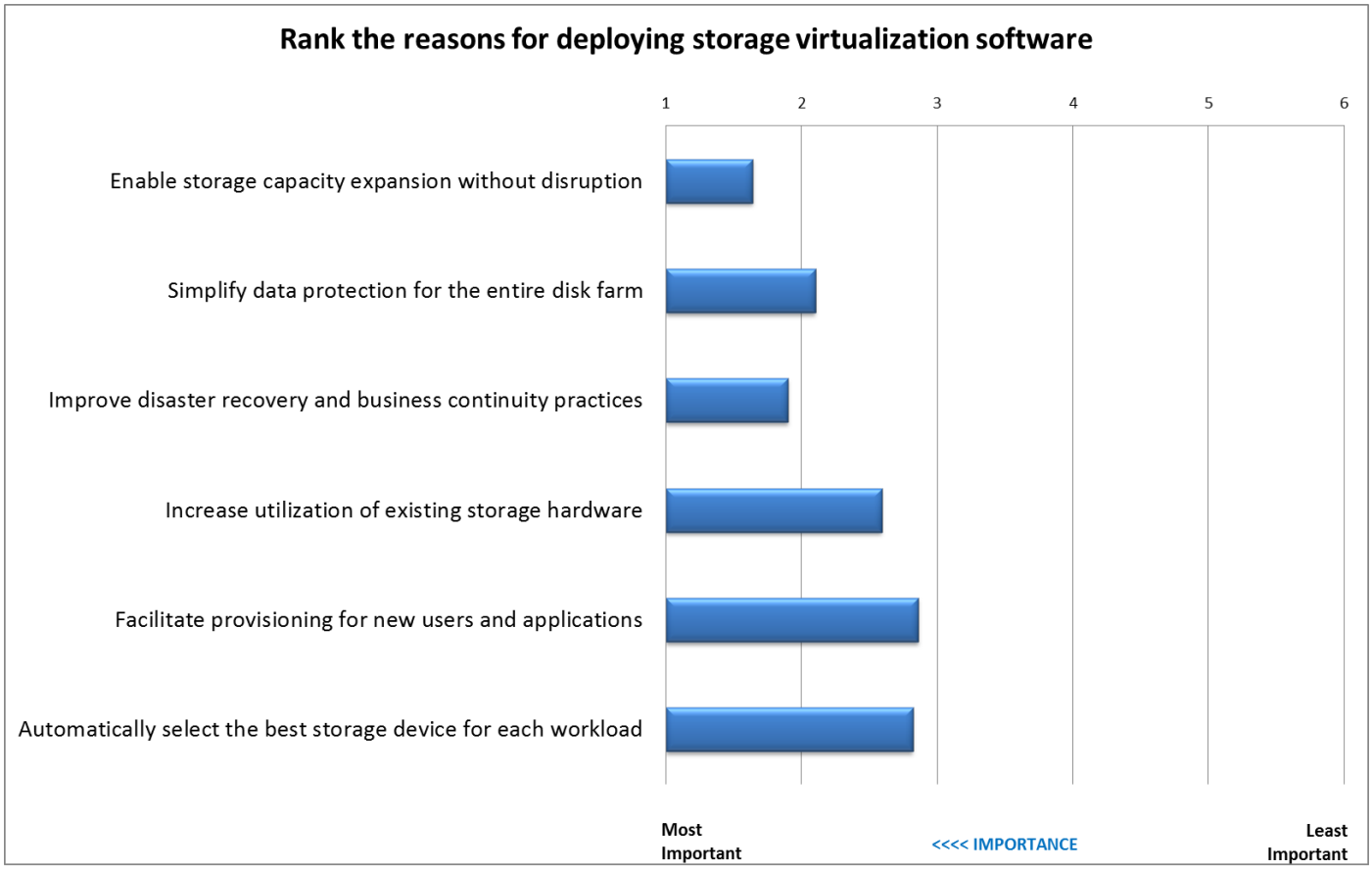

Figure 12- Why virtualize storage

Desktop Virtualization (VDI)

The majority (55%) of organizations surveyed had not undertaken a desktop virtualization project at this time. 34% indicated that less than 25% of their desktops had been virtualized, while roughly 11% had made more significant inroads with more than 25% of their desktops running virtual.

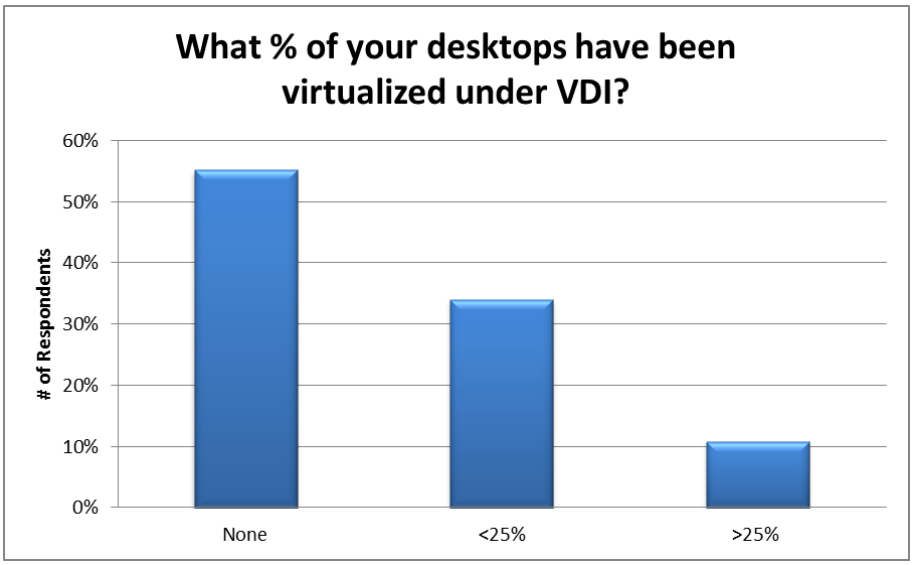

Figure 13- % of desktops virtualized

Among respondents involved in VDI projects, VMware was favored in 41% of the cases, with Citrix second at 26%. 15% chose Microsoft.

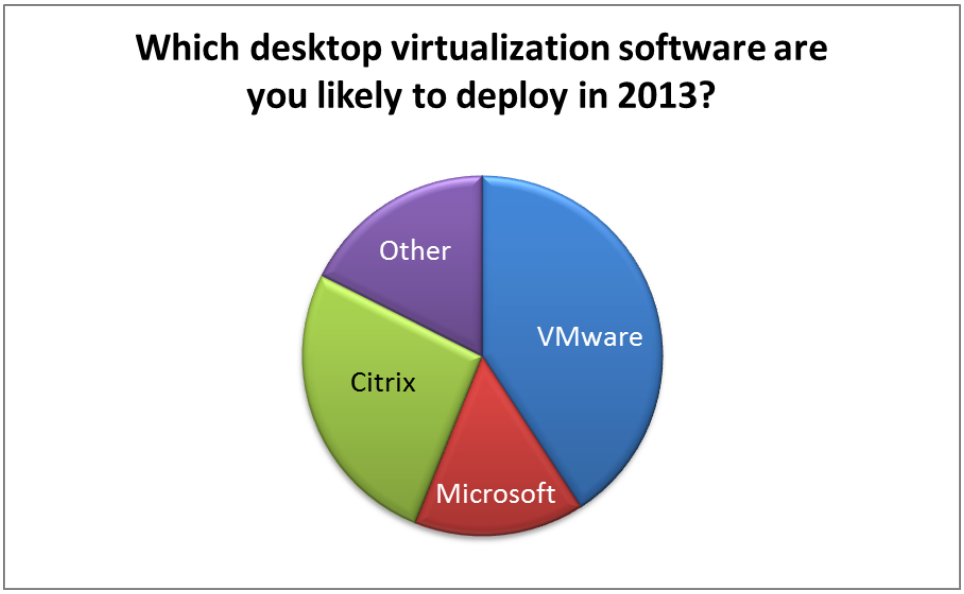

Figure 14- VDI software supplier

Clouds

No survey would be complete without some questions on clouds. First we inquired whether their virtualized IT infrastructure was considered to be part of a "private cloud." This was a dead heat with the respondents evenly split between yes and no.

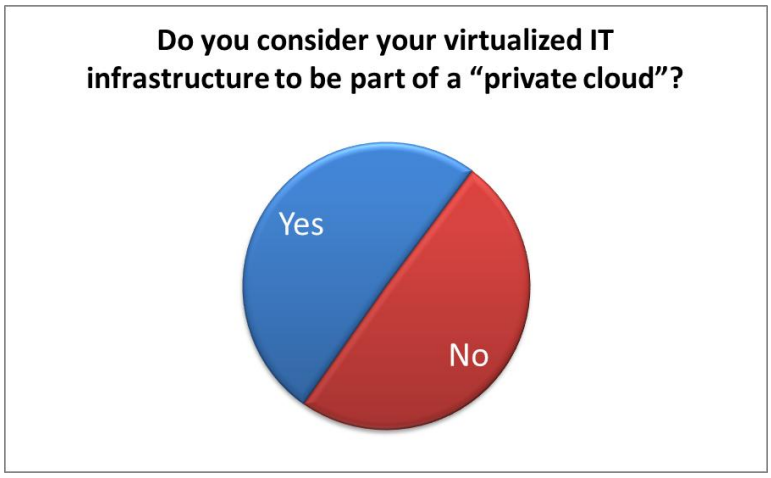

Figure 15- Private cloud (Yes/No)

The most desirable aspect of a private cloud was access to more disk space on demand (66%). But as you can see below, 4 other considerations came in closely behind.

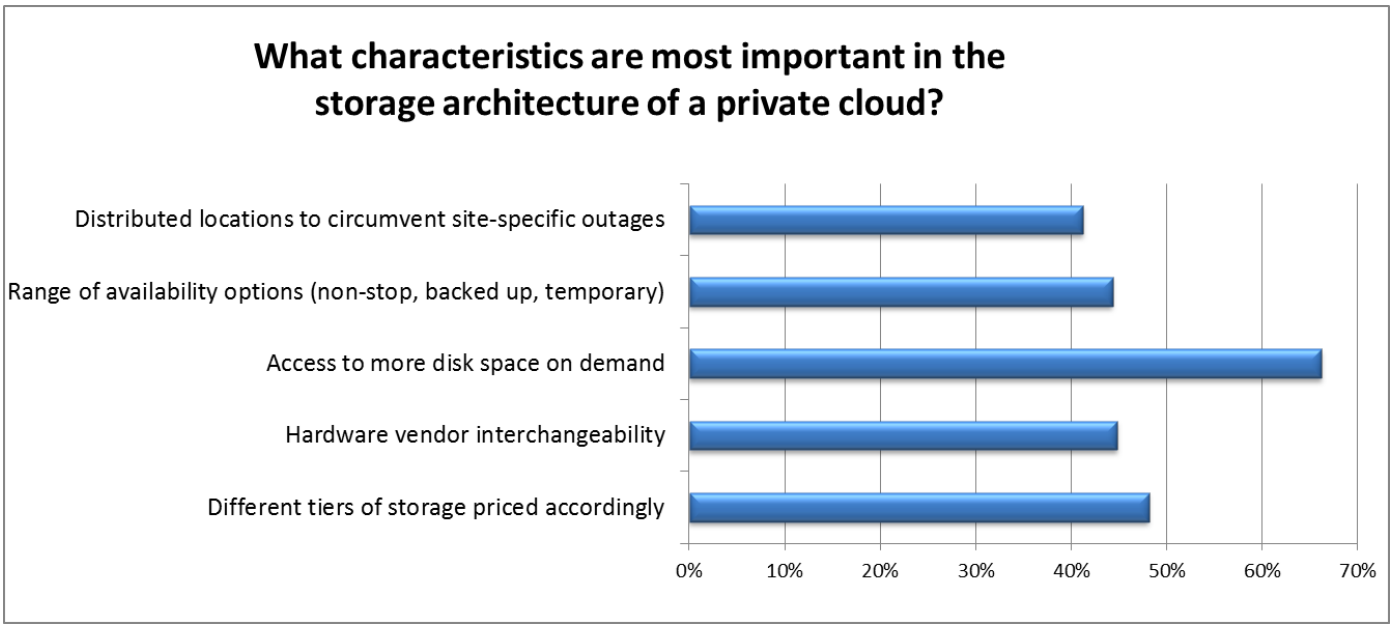

Figure 16- Storage benefits from Private cloud

Few Organizations Using Public Cloud Storage

Organizations are not flocking to public cloud storage in droves for their storage needs. Nearly eight in 10 (80%) said they are not using public cloud storage at all. Again, we would have expected to see these numbers much higher with all the talk of public cloud options.

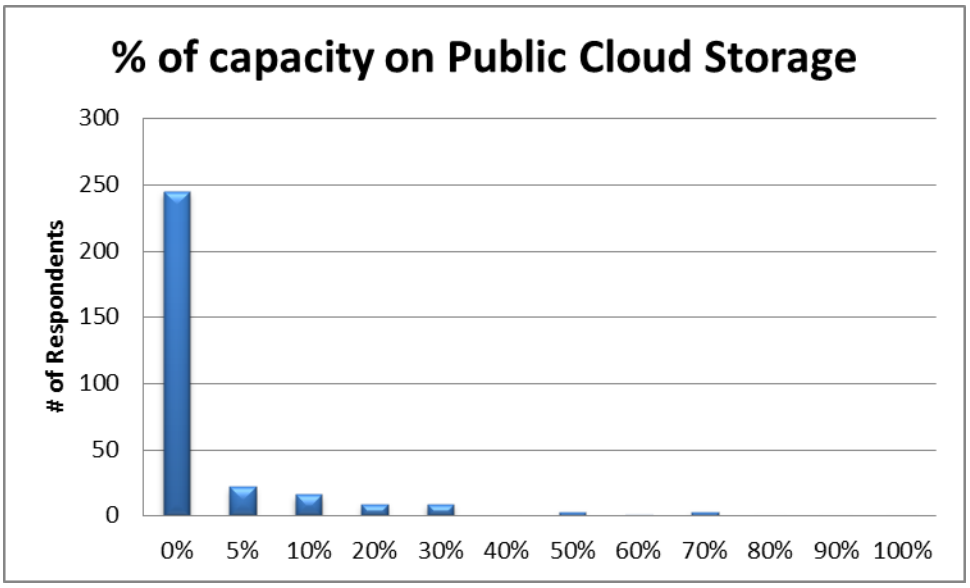

Figure 17- Public cloud storage percentage

Conclusions

Storage continues to be the biggest chunk of the investment in virtualization projects. These include both server and desktop initiatives. 52% of those surveyed said storage accounted for more than 25% of their virtualization budget.

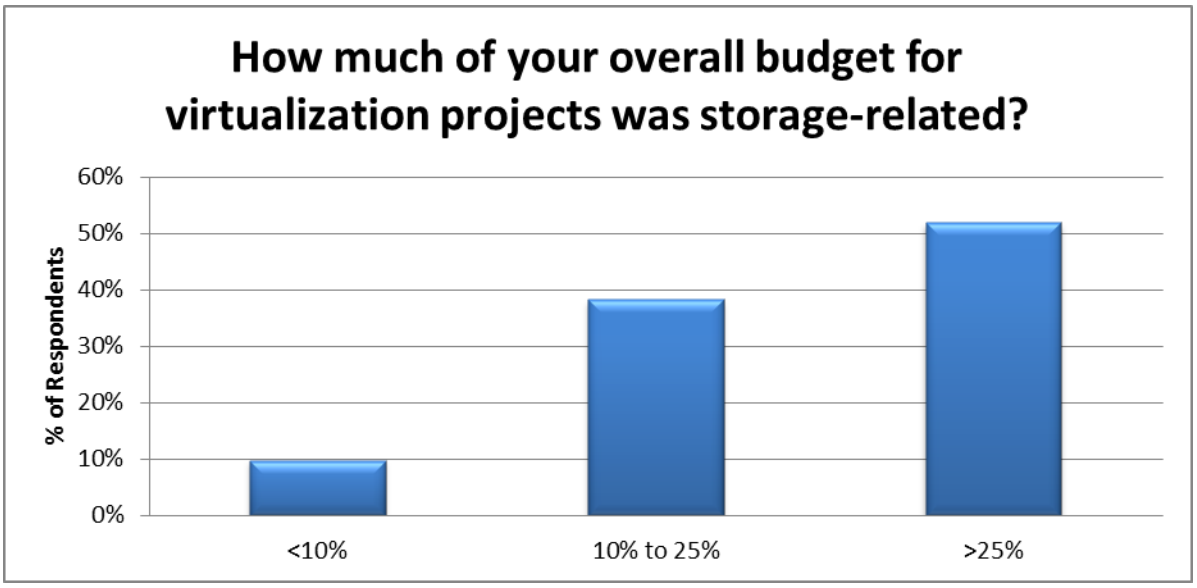

Figure 18- Storage-related costs associated with virtualization projects

When asked how they would characterize their initial estimate of how their private cloud deployment or server/desktop virtualization project would impact storage costs, 29% said they are avoiding virtualization projects altogether because the related storage costs seemed too high, and another 23% said they underestimated the cost of storage.

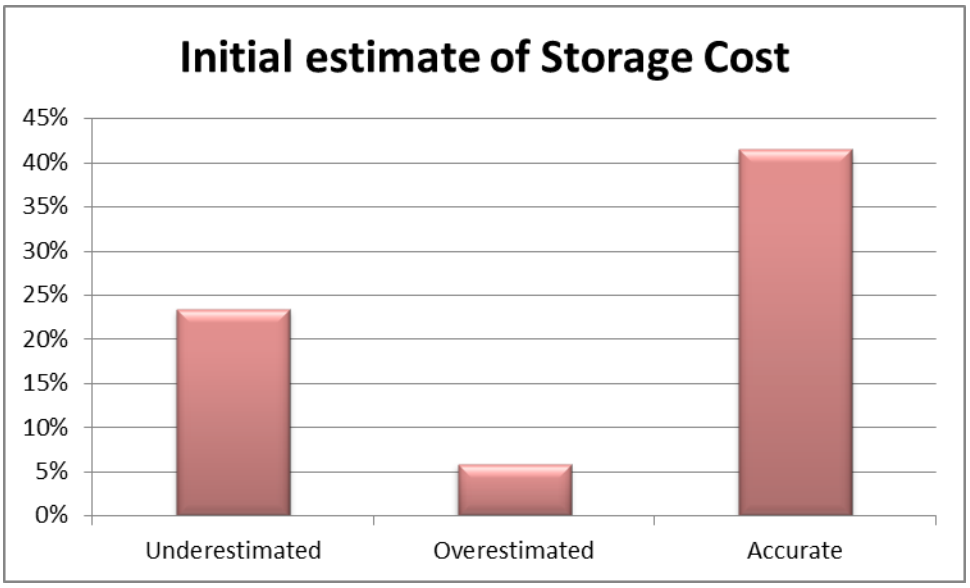

Figure 19- Storage cost estimates

Appendix –Distribution of capacity across traditional storage devices

For those curious about how more traditional storage options are employed by these organizations, we've included the following charts covering internal disk drives, as well as high-end, midrange and low-end arrays. These complement the results tallied for Flash/SSD and Public Cloud storage in earlier sections of this document.

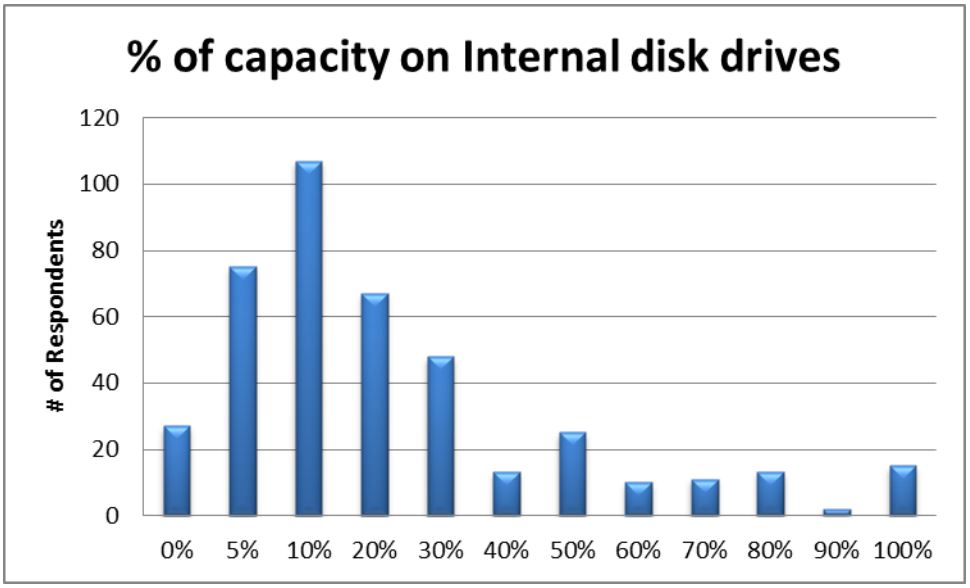

Figure 20- Internal disk drive %

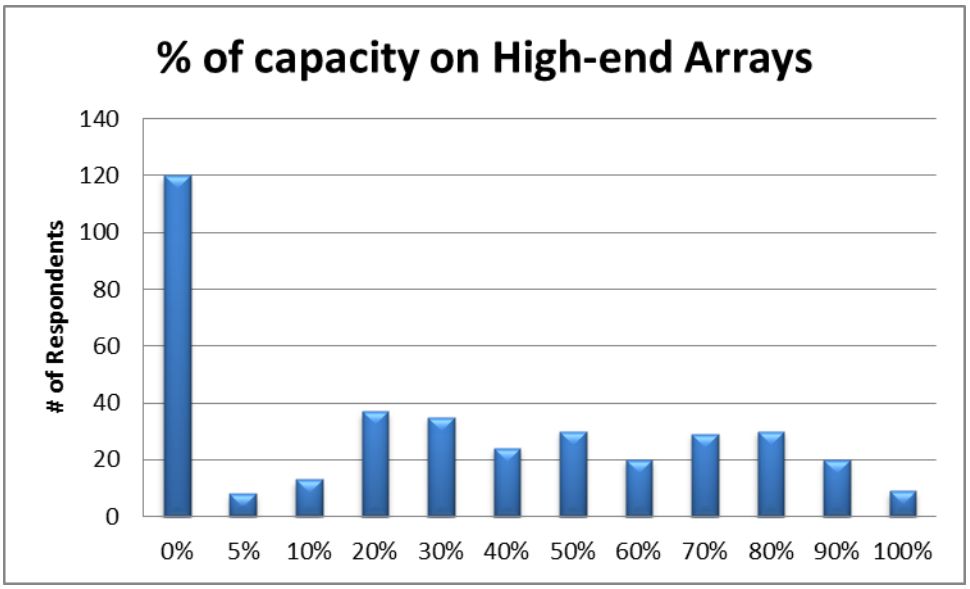

Figure 21- High-end array %

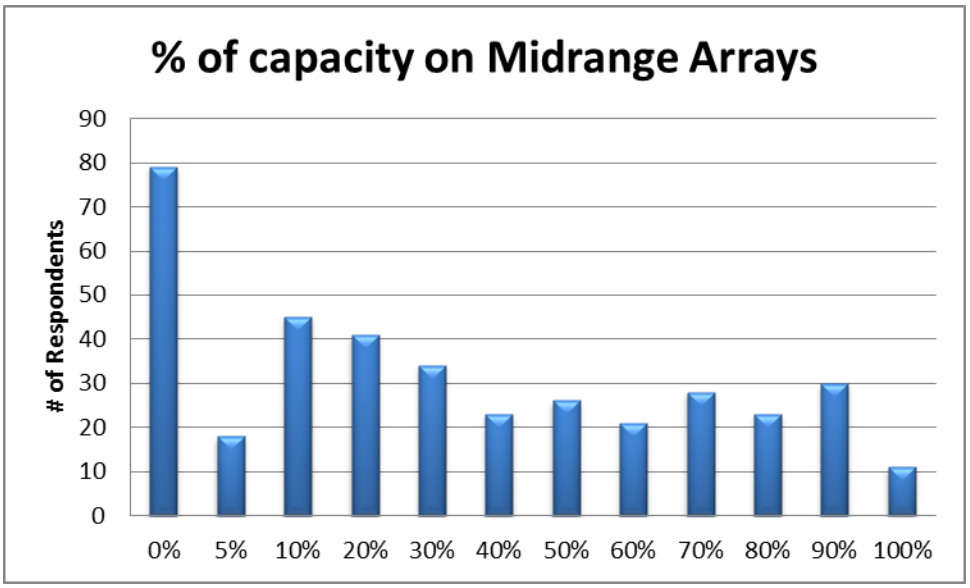

Figure 22- Midrange array %

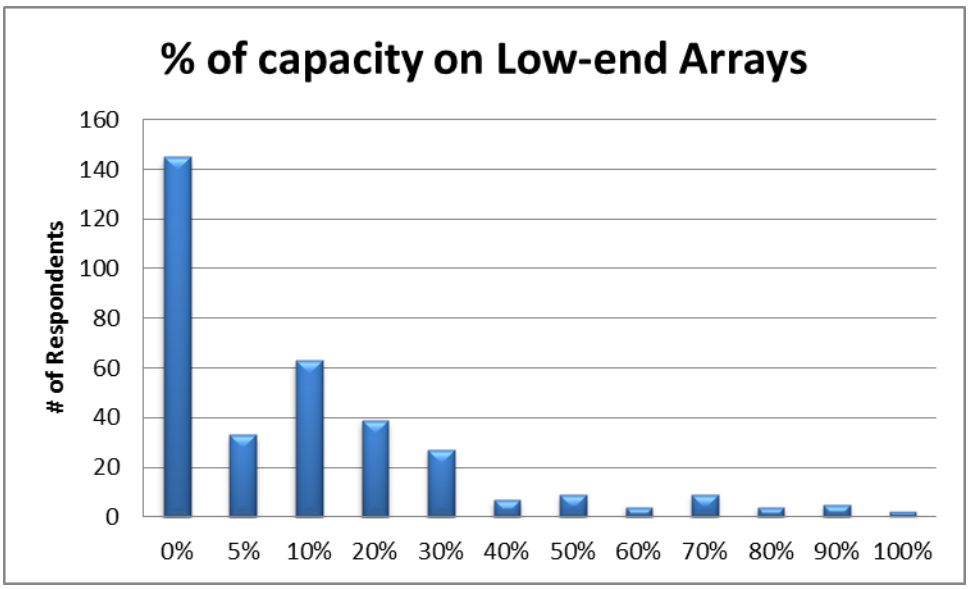

Figure 23- Low-end array %