

TOTAL CAPACITY MANAGEMENT



In IT terms today, capacity management can mean several different things depending on what your area of focus is. Total Capacity Management centralizes the capacity management project on the three most underutilized areas of the data center which are storage virtualization and backup. It approaches the project from a holistic view.

Broadly the goal of Total Capacity Management is to ensure that all the resources in the data center are utilized at an effective but safe level. Too little resource utilization and tight budget dollars are wasted. Too much utilization puts an organization's digital assets at risk, which may lead to lost revenue as well as lost customers.

Tools that enable resource utilization in the server environment are virtualization products available from companies like VMware, Microsoft and Citrix. Tools that enable improved resource utilization in storage and backup are either new storage systems that can provide thin provisioning and tiered data movement or data optimization products that can perform compression, deduplication or archiving.

It is important to note that all of these tools simply provide the ability to improve resource utilization. And while those are critical capabilities, they must also be complimented by a set of capacity planning tools that can ensure a proper balance of the right level of utilization.

Capacity planning tools like those offered by SolarWinds will allow for a complete single view of the storage, server virtualization and

backup platforms. These three platforms are so very tightly interrelated that their management from a single console is critical.

The most common use of capacity planning either for storage and backup or for a virtualized server environment, requires the ability to actively monitor, manage and trend processor and storage requirements in real time so that all resources can be used to their most effective level. This allows for an accurate prediction of when an organization will become resource constrained so that the appropriate additional computing power or storage capacity can be added to the environment.

The timing of this trending information is critical to the success of any IT cost cutting measure. Having the ability to delay purchases as long as possible is particularly important in servers and storage. We all know that every quarter you can get more capacity and better performance at a less expensive price point is a good quarter.

Most of the storage, server virtualization and backup technologies today will allow for real time movement of workloads to a more performance appropriate server host or storage tier.

By providing a global view Total Management Planning tools allow the IT staff to identify underutilized storage and virtualization host capacity and reallocate workloads so that a new workload or the increasing impact of a particular workload can be better balanced and not require an additional purchase.

For example, with a Total Capacity Planning Tool an IT administrator could analyze the organizations use of snapshots. The standard might be to hold snapshots for seven days, but this may consume a significant amount of disk space in the snapshot reserve area. Reducing the time that you keep snapshots can significantly reduce the amount of disk capacity used. While this would not provide as extensive of an ability to roll back in time, at least now the organization can make a business decision based on quality information, allowing them to balance production vs. non-production storage.

It is also not uncommon for these tools to identify disk capacity consumed by over protection. The DBA may be making extra copies of a database on primary storage while the virtualization host may perform a snapshot and the storage hardware may make still another snapshot. It is unlikely that it is necessary to maintain all of these extra copies of data and eliminating some of them or at least moving them to secondary storage can free up a significant amount of primary storage.

In dealing with the backup platform, companies are concerned about the continual cost of tape media and the cost to store those tapes. In addition, since the advent of disk backup administrators have another storage area with which to be concerned. Finally there is the monitoring of the backup jobs to be able to verify that they protect the environment and in

particular are protecting the virtualized server environment. The ability to effectively manage all of these backup capacity challenges and see how they affect the storage and virtualization platforms is a critical deliverable of Total Capacity Management.

Without these tools the default reaction is to purchase more of the constrained resource. Doing so has the obvious effect of requiring the purchase of additional hardware; which in many cases consists of both server and storage, but it also impacts the IT staff because they have to plan for potential downtime to implement the new solution and migrate resources to it.

Beyond running out of resources, a capacity planning tool should also allow for the balance of the available storage or process capabilities. This is particularly challenging when planning storage capacity. While so much time is spent on the first aspect, running out of disk space, an equal amount of time should be spent on maximizing storage performance capacity, making sure that the workload can justify the performance characteristics of the technology on which it is located. This allows for the downgrading of some storage volumes to higher capacity lower performance systems and even the upgrading of some volumes to higher performance systems.

The same issue holds true for processor resource utilization. With all of these server

workloads being monitored in real time, the data is being collected that can allow the IT administrator to identify a particular application that could benefit by being moved to a faster or less resource constrained virtual host.

Even the backup process has a performance capacity need. Using a Total Capacity Management Tool provides insight into whether backup jobs should be rebalanced to different disk backup targets or to different tape target options. Additionally it will allow forecasting of when additional disk or tape backup targets are needed from a performance perspective.

Lastly a Total Capacity Management Tool will allow for broadening of the storage, server and backup consolidation efforts. Some of these tools can capture real time data about servers and storage that have not been consolidated. These servers can then be ranked and rated as to their viability for virtualization and even perform a simulation on what the impact of that workload will be on the target host. All of this can be done prior to actual migration thus minimizing impact.

Total Capacity Management should be the first step in undertaking any effort to optimize your server, storage and backup resources. You can't optimize the environment without optimizing the IT staff; a Total Capacity Management Tool does just that.

About Storage Switzerland

Storage Switzerland, is an analyst firm focused on the virtualization and storage marketplaces. Storage Switzerland provides strategic consulting and analysis to storage users, suppliers and integrators.