

A large, vertical, decorative graphic on the left side of the page, consisting of a dense grid of small dots that form a shape resembling a stylized sun or a wave, with a gradient from light to dark grey.

# BEST-PRACTICE RECOMMENDATIONS **CAPACITY MANAGEMENT AND FINANCIAL PERFORMANCE**

Sun<sup>SM</sup> Services  
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## Executive summary

Ultimately, the business world is about making money. Investors look for companies that use their investment dollars wisely and efficiently. With IT systems playing such a critical role in modern business, the investment in IT assets and capacity becomes a material line item in many budgets. The investment in and deployment of these assets are ultimately governed by the IT capacity management process. As a result, IT organizations begin to play a critical role in determining how efficiently the capital dollars of a business are used. A strong capacity management program optimizes the total quantity of IT capacity deployed and helps ensure that IT capacity correctly supports the needs of the business.

## What is capacity management?

For purposes of our discussion, capacity management is the process ensuring that cost-efficient IT capacity is always available based on the current and future requirements of the business.<sup>1</sup> In short, capacity management makes sure we have enough processing power, storage capacity, and network bandwidth to make business systems work as they should.

Capacity management programs are not just about building a basic capacity plan. Rather, best-in-class capacity management programs include the following core capabilities:

- **Understanding business requirements** — Capacity management is a forward-looking process, and capacity managers must be able to understand the changing needs of the business to do their job correctly. Without a true understanding of business requirements, it is almost impossible to correctly manage IT capacity.
- **Monitoring capacity against service obligations** — As we will explore in the next section, capacity management plays a role in the level of income an organization can produce. That is why it is critical for capacity management to monitor how deployed IT capacity is meeting service objectives. If service objectives are missed, capacity management processes need to take corrective action to help ensure that business processes run correctly.
- **Managing utilization** — With IT assets composing such a large portion of the balance sheets of some organizations, these assets are simply too expensive to run at low utilization rates. Capacity management programs must be very active in ensuring that IT assets are properly utilized to minimize the number of assets deployed while still providing for service objectives.

### Three simple rules for capacity management

#### *Rule 1 – Surprises are bad*

A surprise, like running out of disk storage, is a really bad thing in the capacity management world. Good capacity management looks to avoid surprises.

#### *Rule 2 – Talk to the rest of the business*

The only way to efficiently and effectively manage IT capacity is to understand the requirements and plans of the whole business. Talking to the rest of the business also helps with Rule 1!

#### *Rule 3 – More capacity is not always the answer*

Think about all of the ways to solve capacity issues. Sometimes a tune or a tweak is all that is needed.

1. Best Practices of Service Delivery. ITIL — Office of Government Commerce, The Stationery Office, London, United Kingdom, 2001, page 122.

## Why is capacity management important?

While there are many reasons that capacity management is important, the best explanation of its importance might come from our friends on the financial side of the house. When executives and investors evaluate how financially efficient or effective an organization is, they look at measures such as return on investment (ROI) or return on assets (ROA). An investor would rather put money into a company that makes \$5 of net income on \$20 of assets than one that makes \$1 of net income on the same \$20 of assets.

Both of these measures compare the income an organization produces to the quantity of capital or resources deployed to produce that income. Specifically, the ROA calculation is based on the following formula:

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

Why are we throwing out financial analysis formulas as part of a discussion on IT capacity management? Well, capacity management actually plays an important role in determining how effectively an organization uses its assets to produce income. Capacity management makes the call on how IT capacity is deployed. If capacity management is lax and there are vast numbers of underutilized hardware and software assets, then the business will have more assets than it needs to support the income level of the business — resulting in a lower ROA.

Conversely, if capacity management runs a very tight ship and IT assets are used very efficiently, the organization will require fewer assets to produce the same level of net income. And this is a good thing, as the business is more efficient in using its assets to produce income.

The tricky part: If capacity management is run tightly, with extremely high levels of utilization, does that cause more system downtime because we're pushing things too far? Are systems routinely taken down to add small amounts of capacity, or are business systems running slowly or failing because of lack of capacity? When system availability or performance is compromised and service objectives are missed, the business ultimately loses income. This is why good capacity management is important to businesses. It directly impacts the quantity of resources that the business needs to produce income, which is the denominator in the ROA equation, and the organization's potential to produce income, which is the numerator in the ROA equation.

## What makes capacity management difficult?

We all understand how complex IT environments have become. This increase in complexity makes capacity management difficult, but there are several recent trends that seem to make capacity management even more challenging:

- **Consolidation** — As we move from a world in which each application has its own set of dedicated hardware to one in which consolidated environments share common resources, like SANs or consolidated backup services, capacity management becomes increasingly complicated.
- **Virtualization** — On one hand, virtualization can make capacity management easier — but it can also complicate matters. As multiple workloads are combined into one physical device via virtualization, a new set of problems can develop from a capacity management standpoint.
- **The World Wide Web** — With more applications moving to the Web, it becomes more difficult to accurately forecast capacity requirements. Web applications can have wild swings in usage and adoption that wreak havoc on even the best-laid capacity management plans.

## Getting started with capacity management

While capacity management best practices have been well documented by Information Technology Infrastructure Library (ITIL)<sup>2</sup>, the International Organization for Standardization (ISO)<sup>3</sup>, and Control Objectives for Information and related Technology (COBIT), several key best practices can help you get your capacity management program started:

- **Talk to the rest of the business** — We mentioned earlier that capacity management is a forward-looking process. The single most critical input into this process is data on what the business requirements for capacity will be. The retail industry provides a great example: Some retailers have taken steps to encourage payment via credit cards to avoid theft issues associated with large amounts of cash. Unfortunately, this puts a greater demand on a retailer's network to process a higher number of credit card transactions. A capacity planner must discover these key business initiatives by polling all areas of the business.
- **Basic monitoring** — Implement some form of basic monitoring of IT resources so you can understand the current state of your capacity. Without monitoring, you only find capacity-related issues when an incident happens. At that point, the business is impacted — and that's not a good thing.
- **Build a capacity plan** — Put together a basic capacity inventory, plan, and forecast. This will help guide your budgeting and upgrade paths. Reviewing your capacity plan with key areas of the business will also help ensure that you're considering their requirements.

2. Best Practices of Service Delivery. ITIL — Office of Government Commerce, The Stationery Office, London, United Kingdom, 2001, pages 119–160.

3. Information Technology — Service Management, Parts 1 and 2, ISO/IEC 20000. International Organization for Standardization, Geneva, Switzerland, 2005, pages 14–16.

## Make capacity management proactive

We started this paper with a discussion on why capacity management is important to the business in financial terms — specifically in terms of ROA. But you won't feel the positive financial impact until you're able to proactively manage IT capacity. The following are three key steps you can take to be more proactive:

- **Analysis** — One of the biggest financial impacts capacity management can make is through location of large amounts of unutilized capacity. Capacity managers can then make intelligent decisions on how to deploy this unutilized capacity. This is especially true in the area of storage, where low utilization rates are notorious.
- **Problem detection** — By actively monitoring capacity and performance levels, capacity managers can detect capacity issues before they become incidents. This enables them to take proactive steps to avoid costly downtime or system-related issues.
- **Tuning** — Not all problems are solved by simply adding more capacity. Many times, capacity-related problems can be solved by adjusting the way a system runs or the resources allocated to it. Tuning allows capacity managers to deal with capacity problems, without adding more capacity or increasing the denominator of the ROA equation.

## Conclusion

Capacity management plays a critical role in helping businesses make efficient use of their total assets. As the ROA equation illustrates, capacity management can help optimize the quantity of assets a business uses and help ensure that IT systems correctly support the revenue levels of the business. Basic or reactive capacity management will help control costs and avoid some problems. When capacity management becomes proactive, it's able to impact both elements of the ROA equation and provide the greatest business value.

