

Capacity Planning: Critical for Business and IT Success

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The focus of IT infrastructure management has never been static for long. Early on, for expensive mainframe systems, the focus was exclusively on job management and control to ensure high utilization rates. The IT staff focused on keeping the infrastructure busy, but as available as possible to serve business needs. This remains true today as Business Service Management (BSM)—the ability of IT to understand and adapt its operations to support business operations — gains attention.

One significant element of BSM is capacity planning and forecasting. Years ago, the cost of technicians, operations managers, Job Control Language (JCL) specialists, etc., in the “glass house” was considered relatively cheap compared to the investment in hardware. Market and business changes caused the amount of effort and interest in this management discipline to rise and fall. Market, technology, and business forces have combined again to encourage both IT and business management to acknowledge and act on the importance of capacity planning. Read on to learn why and how this is happening.

Priorities Shift

Computing styles have changed. The cost of processor time dropped as available capacities grew exponentially—to the extent that, often, applications were designed to run on their own individual servers. Keeping abreast of shifting cost equations, the focus of resource management attention migrated from hardware to software to applications performance.

Server utilization in the 10 to 15 percent range was considered acceptable. It was common practice to over-provision infrastructure rather than risk running out of capacity, which would drive down response times when it really mattered (i.e., during intense revenue generation activities). Not surprisingly, capacity management, planning, and forecasting moved way down the scale of management interest.

Times changed. Rising prices, the result of an escalating demand for power and energy combined with global competition, have worked together to apply enormous downward pressure on computing costs. Suddenly, sensitivity to costs soared, accompanied by new demands for efficiency. Mainframes, long the benchmark for operational efficiency and utilization, gained attention as management focused on server and processor utilization levels. Capacity management and forecasting resource utilization moved to the forefront of operations management concerns.

Technology Ups the Ante

New and evolving technologies, such as the capability to virtualize every aspect of the IT infrastructure from platforms to services, have promised dramatic improvements in resource utilization. These approaches have gained acceptance in companies of all sizes. Unfortunately, they've aggravated capacity management and forecasting challenges. The dynamic capabilities, combined with implementation complexity, resulted in an operations infrastructure that poses a capacity management nightmare. Existing planning and forecasting methodologies and tools

designed for much less complex, static operations proved inadequate to cope with these new challenges. Was there a shortcut to simplify the problem?

The not-so-new cloud computing concept has emerged to address problems of dynamic capacity creation and allocation in the face of variable demand levels. Clouds can deliver transparent, scalable access to processing power and application management in ways akin to early centralized mainframe-based services. Cloud implementations can be created using multiple different architectures. The core computing platform base can consist of server farms, processor grids, mainframes, or a combination of these.

A cloud may be created as a centralized enterprise service (run and staffed by the enterprise), outsourced to an external cloud provider, or in some combination. The underlying idea of clouds is that running these as centralized service providers would raise utilization levels, increase efficiency, and lower costs. For many, the promise of increased efficiency and benefits of outsourced, specialized IT services were worth exploring and did pay off. However, clouds have, unfortunately, added new and complex issues to capacity management and forecasting efforts.

Clouds Require Capacity Planning and Forecasting

For clouds as centralized enterprise operations, capacity management and demand forecasting remain critical issues. The operating environment had to be more dynamic, adaptable, and reliable. Offering IT services from a cloud didn't relieve the need to know and understand the oversight issues, including coping with potential growth in services demand. It simply raised the level of expectations and increased the ire (and cost) when unexpected or poorly planned demand surges caused service delays and disruptions.

For clouds as outsourced services, cloud services providers find their business success closely tied to their ability to forecast and maintain adequate resources to meet customer demands. They must balance the cost of keeping adequate resources available and their ability to scale services with the price they charge for services. Customer savings depends on ensuring that business and operational needs are specified in sufficient detail and at levels that assure acceptable service levels. Too much protective capacity or response time buffer raises the service costs; under forecasting demand and capacity meant dissatisfied customers or lost revenue as services were disrupted or failed altogether.

New Tools and Solutions

New capacity management and forecasting solutions are needed that are easier to install, deploy, and use. They must be automated to transparently scale and handle the complexity of dynamic operating environments that can expand exponentially. They must be flexible to respond and adapt to the infrastructure changes needed to support evolving business needs. They must be able to handle virtual and physical infrastructure together, as well as both mainframe and distributed platforms.

Really powerful tools will include the capability to integrate input and learned data to sufficiently forecast potential capacity problems in advance to take action to avoid the problem. They will allow "what-if" modeling and evaluation of alternative scenarios to find the best way to resolve or avoid a

problem. The solution won't require capacity management specialists to provide useful information, but will have the flexibility to allow specialists to perform more accurate, precise analysis.

This list only scratches the surface of some of the characteristics required for capacity management and identifying the potential savings that can result from linking it to other enterprise management functions. BSM is intended to assure that IT technologies are applied in ways that help management achieve business goals. Capacity planning and forecasting provide common ground and a shared vocabulary for IT and business staff members to work together. In today's enterprise, BSM is a critical, facilitating function that opens and promotes lines of communication between IT and the business staff.

Planning, forecasting, and management directly link to business needs and success and when properly done, generate lower costs, improved margins, better as well as more effective utilization of assets, resources, and capital. Both IT and business managers will find it beneficial to invest in this important management function.

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