June 15, 2007

The Capacity Planning Software Market

Sustaining Application Performances

This is the eighth document in the "IT Management Software Market" series.

by Evelyn Hubbert and Jean-Pierre Garbani
with Thomas Mendel, Ph.D.

EXECUTIVE SUMMARY

For a long time, capacity planning has been directly linked to the scarcity and cost of resources. In the mainframe era, it was considered a necessity. In the distributed system world, it faded when hardware resources became seemingly abundant and cheap. The market is now evolving from a scarcity-cost equation toward a quality-cost equation: Capacity planning is a solution to maintaining business service quality and avoiding the consequences of downtime and brownouts — and no longer a way to maintain a minimum level of service at the lowest possible cost. As data centers struggle with server consolidation and server virtualization, capacity planning becomes the key to maintaining or improving service quality while containing costs.

MARKET DESCRIPTION AND SEGMENTATION

Capacity planning is composed of many trending, modeling, and simulation solutions that mostly address three segments of the infrastructure market: mainframes, servers, and networks. While certainly as important to overall application performance as any of the other infrastructure components, storage and database capacity plays only a very small part in this market and is usually included in the storage and database management software market.

Different types of solutions are used in capacity planning:

- **Statistical trending is much in use on mainframes.** Because of the available tools and the flexibility in allocating resources, a good part of the mainframe market has been based on data collectors — which are also sometimes used for chargeback — coupled with statistical packages.

- **Modeling is used on network and servers.** Mathematical models, often based on the queuing theory, have been in use for any type of resource where the workload distribution and typical service times for processing can be known or estimated. There are limits to mathematical models, especially when looking at workload spikes that exceed service times.

- **Discrete event simulation is a more global solution.** Discrete event simulation combines the modeling of processing components with an event-driven simulation of system behavior: For example, the arrival of a transaction in a queue is an event; the time spent in the queue is based on a service time that is based on a model. Running a discrete event simulation provides a performance estimate for a given set of workloads and infrastructure hypotheses.

The market has been mostly oriented toward IT operations and production. However, recent years have seen an increased use of capacity planning tools in performance testing: The goal is to ensure that the expected performance level will be reached in production by extrapolating the results found in testing.

MARKET SIZE AND COMPOSITION

The capacity planning market is fairly small. However, it has seen and will see a steady growth, up 12% from $195 million in 2006 to $218 million in 2007. This growth mostly comes from distributed systems, as the mainframe market is, as usual, relatively steady — license renewal and maintenance dominate, rather than new growth. The network management market is also relatively steady: Many specialized vendors in this market are now tuning their products to provide performance management and performance degradation identification rather than traditional capacity planning.

- **The mainframe segment of the market is relatively stable.** In the typical mainframe data center, capacity planning has a long history of forecasting processing and storage needs, based on very traditional statistical analyses of actual trends. The players in this market have been in place for quite some time.

- **The distributed server segment has no strong capacity planning history.** This is a segment where "throwing hardware at the problem to make it go away" is a prominent school of thought. This may evolve very quickly as virtualization takes hold in the data center and service-level management requires serious performance and capacity management skills. Capacity planning is increasingly evolving into a dynamic capability. Although the dream of Organic IT and dynamic resource allocation has not yet materialized, capacity planning is rapidly evolving from a static assessment of IT server capacity to the dynamic evaluation of what is required to maintain the performance level of an IT service at the best possible cost.

- **The network capacity planning market is less visible than before.** Founded on performance management products and using temporary probes or continuous data collection, this aspect of capacity planning seemed to have declined in importance — and again, throwing bandwidth at the problem has been an equally important school of thought. However, this is more a question of perception than reality: Network capacity planning continues to be an important activity in many enterprises.

MARKET LEADERS

Acquisitions and partnerships are one of the key indicators of a healthy market. In the case of capacity planning, very few changes have occurred in the past year; the exceptions are IBM's acquisition of CIMS Labs and CA's partnership with OPNET Technologies. Following its acquisition

of BEST/1, BMC Software had been the only large vendor interested in this market, and the fact that IBM and CA are now looking in this direction — even though CIMS Labs is a data collector and not a capacity planning product per se — indicates a renewed interest in the space (see Figure 1).

- **The mainframe segment is in the hands of several specialized vendors.** One common approach is to use a combination of Merill Consultant MXG, IBM CIMS Labs, and CA MICS with statistical analysis from SAS. Perfman and BMC Software Preditor are also widely used.

- **Several small vendors serve the distributed segment.** With the exception of BMC Software and the CA-OPNET Technologies partnership, the most prominent vendors are HyPerformix, PerfMan, and TeamQuest. These products tend to cover server consolidation and performance testing extrapolation.

- **The network capacity planning is still well represented.** OPNET Technologies is one of the companies that extensively cover the performance and capacity planning network segment. Traditional vendors such as NetScout, Network General, and Network Instruments are also capable of providing data feeds to network capacity planning, as are network performance management solutions such as CA (Concord Communications), IBM (Micromuse-Quallaby), and InfoVista.

Figure 1 Capacity Planning Software Trends And Vendors

Trends	Leading vendors	Wild cards
Capacity management		
Service-oriented capacity management	**Tier 1** BMC Software, HyPerformix, OPNET, TeamQuest **Tier 2** CA, Compuware, IBM	None

42540 Source: Forrester Research, Inc.

MARKET EVOLUTION AND TRENDS

There are three key factors in the evolution of this market:

- **Server virtualization and performance management is or will be a growth area.** Capacity planning is no longer a way to save on hardware costs, but a way to align service performance with business expectations. The key argument is predictability. Consolidating servers, for example, requires more work than simply slapping virtual servers together and expecting that the physical server has enough resources to cope with the workload.

- **Performance testing is a potential growth area.** While many IT organizations concentrate on production infrastructure improvement and IT operation processes, very few fully understand that correcting capacity and performance issues costs a lot less before deployment than after. Using capacity planning tools alongside load testing tools to understand the behavior of an application before it is put in production should yield great benefits. Again, the predictability of results is a fundamental aspect of service-level management and cost control.

- **Service orientation must reach into capacity planning.** Many organizations still see capacity planning as a component-oriented discipline — and so do many capacity planning software vendors. As BSM and the idea of service-oriented management develops, capacity planning will become holistic and should be aligned with IT services: The real question is what service-supporting component must evolve to maintain service levels.

RECOMMENDATIONS

CAPACITY PLANNING MUST JOIN BSM

Capacity planning software vendors must now see their products as predictive solutions for performance management, rather than as a way to save money on hardware.

- **The predictability of results is the key message.** Unused capacity is no longer an issue if servers are consolidated, but lack of capacity in a server virtualization exercise may very quickly become a critical business issue. This is an argument that counts for a lot in today's market.
- **Extend predictability to support a performance testing sale.** Here, the cost of solving problems after the fact compared with avoiding the issue is the major argument. Support it with a "how-to" demonstration.
- **Alignment with BSM is the key to the future.** Products must evolve toward IT service alignment and include a two-stage approach: 1) identify future bottlenecks, and 2) analyze the bottlenecks to remove them.