How to Avoid the War Room: Best Practices for Capacity Management
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EXECUTIVE SUMMARY

Capacity planners and capacity planning teams are facing increased pressures and challenges: the need to work around staffers’ lack of deep background in performance metrics; the need to select and analyze the right performance data, from an avalanche of data; and the need to integrate performance data stored in technology silos.

Best practices can meet these challenges efficiently and effectively. Applying best practices, capacity planners can more accurately predict the effect changes to IT infrastructure will have on business applications and on the business in general. It means better informed decisions will be made that will deliver performance that will support business applications. This minimizes the risk of an outage to the business, a more optimized IT infrastructure and more prudent spending.

And, avoid appearing in the War Room. With better planning, you can reduce the frequency of War Rooms and reduce their duration. Both moves would help your career.

BMC solutions can help.
THE CHALLENGES
» The workforce is graying; the skilled resources are either retiring or moving to new jobs. Often capacity planners are replaced by individuals or teams who have little or no background in capacity management and who have primary responsibilities elsewhere. The challenge is to find ways to work around this insufficiency of experience, perspective, and time.
» Ironically, most IT staffs collect and store too much performance data. The key is to collect the right data, and to analyze that data correctly. Tool vendors typically offer little help in this area – they usually leave it up to customers to figure out what data they should be looking at.
» Data is often collected in technology silos and thus has a silo point of view: IMS data, CICS data, DB2 data, z/OS data, and so on. What is required is a holistic view of the entire IT infrastructure. The challenge is to make this happen using data that comes from silos.
» And an opportunity: Like a primary-care physician, you are the generalist who helps the specialists. You are the IT staffer with the integrated, systemwide data that identifies the IT specialist(s) who can solve a problem. In other words, you can reduce the frequency and duration of War Rooms.

BEST PRACTICES
Take a holistic approach to capacity management. Look at the performance metrics that matter most. For example, CICS performance metrics can be looked at from an overall and a more detailed perspective (see sidebar for an example). Forecast potential capacity exceptions and when they may occur. Make predictive models showing how metrics such as CICS response times will be affected by planned changes to the application or IT infrastructure.

» Bridge the technology silos. Determine how the various technology silos interrelate: how a change in one affects the others; how they share resources and work together. Otherwise you really are just looking at one piece of the puzzle at a time, and will not be able to deliver the best performance throughout the IT infrastructure. Consider the simple case of CICS-based applications accessing a DB2 subsystem running in the same LPAR or in the same sysplex. If the CPU utilization of CICS increases what is the impact on DB2 performance? What is the impact, if any, on the I/O subsystem? What is the impact on the other applications or batch workloads running on the sysplex? A holistic approach ensures that you consider the system inter-relationships when you analyze performance and capacity trends.

» Take an application view. Look at capacity management from an application view. Learn how the performance of various IT components supports critical business applications such as payroll or mobile banking. IT staffs and capacity management software vendors attempt to do this in some fashion; what matters is how well they execute – how well they enable proactive planning with an application perspective.

For example, if the transaction topology of a business application or service includes multiple executions of WebSphere MQ, CICS, and DB2 then the best approach to analyze the performance of the business service is to automatically collect and correlate performance metrics from each subsystem. The amount of system resources used by the business service can then be determined and mapped to the response times experienced by the end users. When this is done on a regular basis, capacity planners can properly benchmark performance and accurately predict future performance and resource requirements. BMC Software is the only software vendor that correlates performance metrics from the major mainframe subsystems (i.e. CICS, DB2, IMS, WebSphere MQ, WebSphere Application Server) to provide our customers with the application perspective that they need.

CICS Performance Data Requirements
Track overall statistics: The average CICS CPU and elapsed times per transaction, total seconds used by transaction, total number of transactions per interval, and the minimum and maximum CPU second values for each transaction.

Track detailed statistics: Details of such transaction components as Task ID, start and stop times, abend code, syncpoint counts, elapsed time, details of CPU seconds used, CICS and other subsystem times, like DB2, IMS, VSAM, and MQ.
Determine how IT capacity affects the business. How does IT performance impact a company’s key performance indicators (KPIs) such as objects produced per hour, customers served per day, or number of business transactions executed during a regular business cycle? Matching a business KPI (e.g. ATM withdrawals per hour) with a standard IT performance metric (e.g. CICS transactions executed per hour) will help provide IT with a better understanding of how a change to a key subsystem like CICS can impact the business. Any decision or change that IT makes has the ability to directly affect the business. If IT is making decisions and implementing changes that don’t directly strengthen the business in its ability to generate revenue or secure new customers, then those decisions and changes are only adding to the expense line. When preparing your performance and capacity plans, be sure to incorporate business KPIs to illustrate the potential benefit to the business and help quantify IT’s contribution to the success of the company.

CAPACITY MANAGEMENT “NIRVANA”

BMC Software foresees a Nirvana – a future in which capacity management best practices and technology evolve to the point where capacity planners will be able to plan precisely and accurately, operate efficiently and effectively, eliminate most manual work from the planning process, and stay out of the War Room – except to enter the War Room as the one employee who can quickly isolate the problem and point to the solution.

BMC Software has already delivered a significant portion of the technology and best practices that will make those goals attainable today. Here, by way of illustration, are a few customer stories.

- **GAVI**, a leading German IT services provider, moved from an assortment of different capacity management solutions and standardized on the BMC Software solutions. Besides providing GAVI with a boost in productivity and a reduction in total cost of ownership, the BMC solution allows GAVI to monitor performance and do predictive planning based on business applications instead of by technology silo. GAVI is now able to do performance analysis more consistently, efficiently, and proactively across platforms, mainframe and distributed systems, from a single integrated toolset. The net effect is that GAVI is able to respond more effectively to its customers.

- **Postbank Systems AG** uses BMC Capacity Management for Mainframes to process SMF and RMF data every six hours. In the morning, this provides Postbank with a quick and immediate overview of the performance of their critical batch processing, which includes all the booking, reporting, and printing for their customers. In the evening the information provided by BMC Capacity Management for Mainframes gives Postbank a complete picture of their prime shift online transaction workloads. Combined, this allows Postbank’s planning department and IT management to control the batch and online workloads and to be prepared for and ensure the successful execution of month-end business.

- **A Texas government agency** is able to avoid costly unplanned upgrades and disruptive unplanned outages. The agency uses BMC Software capacity management technology and best practices to accurately forecast capacity needs – especially the needs of the agency’s main application, which tracks people through the county’s criminal justice system. The tracking system is available online, 24 hours per day, 365 days per year. Technology performance outages have been avoided.

CURRENT BMC SOLUTIONS

- **BMC Capacity Management for Mainframes** takes advantage of the classic queuing model and delivers accurate predictions of future performance while reducing the time and effort required to get results, so planning can keep in step with the demands of business applications. It reduces IT hardware and software total cost of ownership through the optimization of current hardware utilization. It validates investments in new mainframe technology through predictive modeling. It predicts the impact of change on resources to prevent performance problems. It tests solutions without expense or disruption to your environment. It ensures that new applications have the resources necessary to meet service level objectives. It also provides business application performance metrics.

- **BMC Capacity Trending Advisor** is an easy-to-use, enterprisewide tool that enables capacity planners to stop using manual collection and spreadsheets to forecast capacity utilization trends. The solution automates the entire process – from collecting information to manipulating data to analyzing preliminary results to producing reports. You can:
  - Select metrics including user-added performance-related business KPIs from different BMC Capacity Management Databases or different platforms for the same period of time.
  - Define business events that can affect capacity forecasts.
  - Define capacity thresholds, and automatically calculate incremental capacity costs.
Automatically calculate correlation coefficients and create expressions using metrics selected from the BMC Capacity Management Database.

Easily identify and select best-fit trend lines and customize graphs that will be included in a product-generated capacity report.

BMC Performance Reporting for Mainframes delivers automated performance reporting with an application-centric business view. It automatically collects, analyzes, and stores data for performance reports and automatically creates and publishes these reports. It reports application response times, transaction counts, and subsystem metrics. It increases productivity by effectively managing more systems using automated analysis and reporting. It helps IT staff rapidly solve performance-related problems via easy-to-use heat charts and other intuitive graphics designed for performance analysis – from which the staff can drill down into deeper detail. It also provides a self-contained historical database – the BMC Capacity Management Database.

SOME KEY TECHNICAL CAPABILITIES OF BMC SOLUTIONS

» Predictive modeling without expense or disruption: Model what-if scenarios, to gauge the impact of change before it occurs. Do detailed analyses of potential performance problems before they occur, looking at potential hot spots and modeling how you can address those hot spots before you actually implement the change in production. For example, change the run times of a batch workload, or increase the growth of an online shopping application and foresee how it will affect the underlying infrastructure. Quantify the benefits (or lack of benefits). And do it all in a well-informed and structured way.

» Trend any and all performance metrics: Foresee how various performance metrics are trending and when they will exceed available capacity. Identify potential hot spots; then use predictive modeling to do more-detailed analyses and “what if” scenarios involving those particular metrics.

» Rapidly locate problems and immediately know how to proceed: Use intuitive graphics such as hierarchy graphs or heat charts to display performance across multiple applications and IT components. Quickly see all potential hot spots. Then, click on a hot spot and drill down into more detailed information. This function cannot be effectively performed manually and is a major way to avoid the War Room.

THE FUTURE

The workforce will keep “graying.” People who, with or without the title, perform the work of a capacity planner will have less and less background in the discipline. So, IT staffs will need tools that can help new people capture the prerequisite knowledge. IT staffs will need powerful-but-accessible tools.

BMC is moving its capacity management solutions in that direction. The company is also building more advisory functions into its solutions – not just delivering performance numbers and analysis but also advising IT staffs on probable causes of problems (or potential problems) and the most fruitful ways to proceed. Help you make the right decisions and plan performance more effectively – and by doing that, avoid the War Room.

CONCLUSION

BMC solutions can help you:

» Manage capacity from a business point of view and as a result make better-informed decisions.

» More accurately predict the effect of IT infrastructure changes on business applications and on the business in general and deliver the performance that will support business applications.

» Bring more stability to applications and therefore less risk of outage to the business and show other IT groups how to rapidly locate and solve business-hampering problems.

» Better optimize the IT infrastructure; spend capital more prudently – thus preventing the outages that would require your presence in the War Room. Attend War Rooms only as a welcome guest who knows how to get everyone out of the War Room sooner.
Business runs on IT. IT runs on BMC Software.

Business thrives when IT runs smarter, faster, and stronger. That’s why the most demanding IT organizations in the world rely on BMC Software across both distributed and mainframe environments. Recognized as the leader in Business Service Management, BMC provides a comprehensive and unified platform that helps IT organizations cut cost, reduce risk, and drive business profit. For the four fiscal quarters ended December 31, 2009, BMC revenue was approximately $1.90 billion. Visit www.bmc.com for more information.