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APPLICATION MANAGEMENT: THE NEXT FRONTIER IN CLIENT/SERVER MANAGEMENT

A Close Look at BMC Software's PATROL

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Application Management - The Next Frontier in Client/Server Management

Over the last year, system management has emerged as an area of intense focus as users and vendors grapple with the problems of managing distributed networked systems. Beyond the problem of managing the systems looms the next barrier — managing the running applications and data that represent the users' strategic assets. Vendors such as BMC Software are helping define both the technology and application management strategy.

The Gap Between Application Management and System Management

Client/server applications are complex, with multiple dependencies between multiple underlying layers of technology. As users gained experience with early phase client/server development, they realized that in many cases, an inability to manage the many disparate technology components of an enterprise client/server system was a critical shortcoming. Over the last two years, vendors have responded with the first generation of robust system management solutions to provide network management, physical storage management, remote monitoring and control of systems, inventory management, and software distribution (a surprisingly expensive and difficult chore in large organizations).

Does the availability of robust system management solutions cover the critical set of client/server management solutions? Unfortunately there still remains a significant gap, involving the difference between managing the infrastructure supporting an enterprise application, and capturing and interpreting information about the dynamic behavior of the application itself. In short, this is the difference between system management and application management.

All of these first generation tools focus on management of the underlying technology infrastructure that supports the enterprise client/server application. Management of these component entities is critical; without information on the status of servers and clients, network operation, and storage management, users cannot even begin to approach management of distributed and heterogeneous systems. But, with no further information on the actual operation of the target application, which represents the end purpose and true value of the information system to its owner, the scope of today's system management solutions falls short of addressing the critical requirements of enterprise users.

The need for application management can be seen in the simple case of a suddenly unresponsive client system. None of the system management tools today can intelligently diagnose the cause of an unresponsive client if the problem is other than a visible network

failure. This is a particularly difficult management problem for unattended kiosk-based applications, or applications with large numbers of unskilled operators.

What is needed to carry management tools to the next level of usefulness is ***application management*** — the intelligent collection and interpretation of data about, and interaction with, actual applications in the course of their execution.

Requirements for an Application Management Environment

A useful application management environment must function in a real-time manner (in relation to the tasks being monitored) and provide online and either automatic or manual interactive operation. Ideally, it must span heterogeneous environments and accommodate open systems standards as well as entrenched proprietary standards.

An application management environment must be able to work not only with applications that have been written with a set of application management services in mind, "aware" applications, but also must provide some level of services to applications that are not designed with any application management services in mind, "unaware" applications. Management of "unaware" applications can be acceptably less powerful, but must be able to accommodate at least a subset of the major functional requirements detailed on the following pages.

As application management matures, both as a technology and a management discipline, users will differentiate among products based on their support of available application management infrastructures, and ISVs will begin to incorporate management APIs into their application for competitive differentiation. HCG expects that the industry will eventually gravitate toward a limited set of standard APIs for application management but that early innovators will have considerable freedom to develop service definitions and APIs in conjunction with early adopter customers.

The basic functional taxonomy of an application management system includes the following major functions:

- Application health
- Administration
- Service level and performance

Application health. Verify that existing servers, services and other resources are in place by monitoring both externally visible and internally generated information. Externally visible resources would include items such as OS queues, process states, interrupts, network traffic, etc. These externally visible entities can be monitored for managing unaware applications, and form the core of mechanisms for managing unaware applications. For applications written to be aware of the application management services, more detailed information can be collected via the use of management services APIs.

Administration. Control of applications, including start/stop, user authentication, load balancing, storage optimization, maintenance, and error recovery. In addition to allowing flexible application data collection, the use of an application management API allows finer grained control of an application beyond the simple process/kill and restart available to unaware applications in most operating systems.

Another area where a management aware application can benefit vs. an unaware one is in load balancing. A properly instrumented application can collect detailed data about I/O and processing rates and help the application management system make better decisions about load balancing, an area where most of today's system management products only offer minimal capabilities.

Service level and performance. Monitoring overall levels of service from an application, including performance metrics, trend analysis and predictive reporting, threshold alerts, and a flexible reporting capability.

One reason that application management has been so late coming to the scene is that it depends on the prior existence of a rich and functional infrastructure itself, including a full repertoire of operating system functions and the existence of an intelligent data management functional layer, a facility that has been lacking in both operating system and system management packages until recently.

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