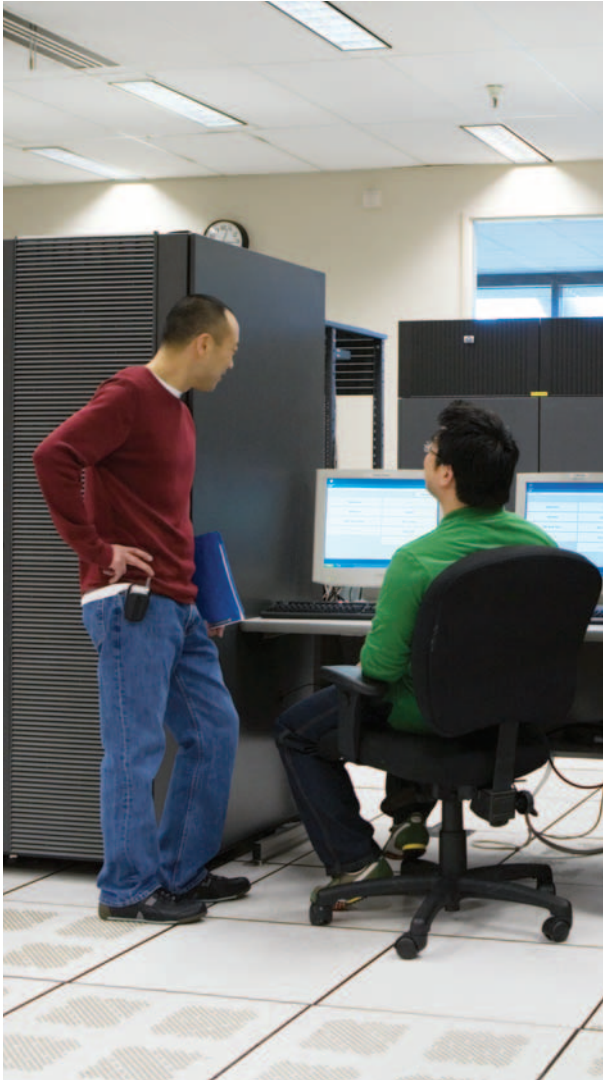


Optimize composite application management

White paper

- Growing complexity with composite applications.....2
- Managing composite applications3
- Monitor composite applications with HP Business Availability Center (BAC) for Composite Application Management6
- Get end-to-end transaction management, problem isolation and root-cause visibility in a single solution7
- Conclusion8



Business and technology leaders alike recognize the need to align IT spending with business goals, and many IT organizations are turning to new technology trends such as service-oriented architectures (SOAs) and composite applications to tie IT efforts directly to business needs. As a result, most business transactions today are executed by composite applications running on multiple systems and multiple middle tiers and are maintained by disparate groups. And traditional reactive, ad hoc problem isolation and resolution techniques are inadequate for these complex composite application environments.

IT organizations need a new lifecycle approach offering flexible modular deployment and problem isolation, end-to-end transaction management and root-cause analysis so that business-critical applications deliver the performance, scalability and availability your business demands.

HP supplies that approach—and the software to support it—with HP Business Availability Center (BAC) software for Composite Application Management, which uses an end-to-end lifecycle approach to seamlessly manage composite applications in heterogeneous environments.

Growing complexity with composite applications

As information technology becomes even more central to business success, companies are struggling to align IT efforts with business goals. The main obstacle to overcome is the cultural divide between line of business (LOB) managers who focus on business results and IT organizations with a legacy of focusing inward on technology and system performance.

Some of the most talked-about IT initiatives today are aimed at bridging that divide. ITIL, ITSM, BSM and SOA transformation are all aimed in part or in whole at achieving closer alignment between IT and the business. And one of the primary technology tactics to aid in this cause is the composite application.

A business application used to be a single, monolithic block of code used by a single business unit. The application ran on a dedicated set of resources maintained by one organization. End users knew whom and where to call if the application wasn't performing. And IT staff didn't have far to look to find the source of the problem.

Today, in any given enterprise, 80 percent of critical business functions are performed by composite applications. Composite applications combine legacy, packaged and new application logic to perform business functions that the designers of the individual parts never intended. These applications run on multiple systems, including J2EE, .NET, middleware and legacy platforms, all of which are maintained by disparate IT groups. And they may be used by more than one end-user group.

In this complex environment, where applications cross physical, logical and organizational boundaries, there's more to break, it's harder to find out what broke and who owns it, and the business consequences are more severe. That makes effective transaction management, root-cause identification and problem resolution critically important.

Managing composite applications

Managing composite applications is much more difficult than managing standalone, monolithic applications. The only true, effective performance measurement for the long-running transactions spread across messaging middleware and mainframe back ends that are typical of composite applications is the end-user experience.

Managing composite applications is similar to running a package delivery service that guarantees overnight delivery. The service guarantee is based on the ability to track packages in detail from their point of origin to their destination—from the shipper's dock to the truck to the plane to another truck and finally to the doorstep where the package is to be delivered—and to know the value of each package at every point. With detailed tracking capabilities, the package delivery service can prevent packages from going astray, locate them quickly if they do and give special attention to high-value packages. This lets the delivery service achieve its true measure of success—whether customers get their packages on time.

Like a package delivery service, a composite application delivers value to an end customer, and the delivery involves movement from point to point via several transport mechanisms. And like the managers of the delivery service, your IT staff needs to be able to track the transaction at every point along the way. To deliver the value your customers expect, IT needs to have insight into every balance transfer; managers need to have insight into every step of the journey.

When performance problems arise in IT environments that don't offer this kind of insight, end users are the first to notice. Generally end users—and often IT—are unaware of the complex mix of systems and organizations that underlie an application. When end users report a problem, IT often spends a lot of time and effort isolating the problem and bringing in the right teams to resolve it.

Figure 1. High-performing transactions

Composite application management supports high-performance business transactions.

| | |
|-----------------------------------|---|
| Problem isolation | <ul style="list-style-type: none">• Isolate performance problems in a heterogenous environment• Involve the right stakeholders—such as database, mainframe, and J2EE portal administrators—at the right time |
| End-to-end transaction management | <ul style="list-style-type: none">• Manage end-user transactions to deliver superior service levels• Track transactions end-to-end for complete visibility |
| Root-cause analysis | <ul style="list-style-type: none">• Identify performance bottlenecks in end-user transactions• Diagnose complex issues and reduce Mean Time to Resolution (MTTR) |

Problem isolation becomes a redundant process of contacting multiple IT groups and asking each to check its system status. When the problem is finally isolated to a single system, the process of root-cause analysis begins as the staff responsible for the problem system drills down to find and eliminate the underlying cause of the problem.

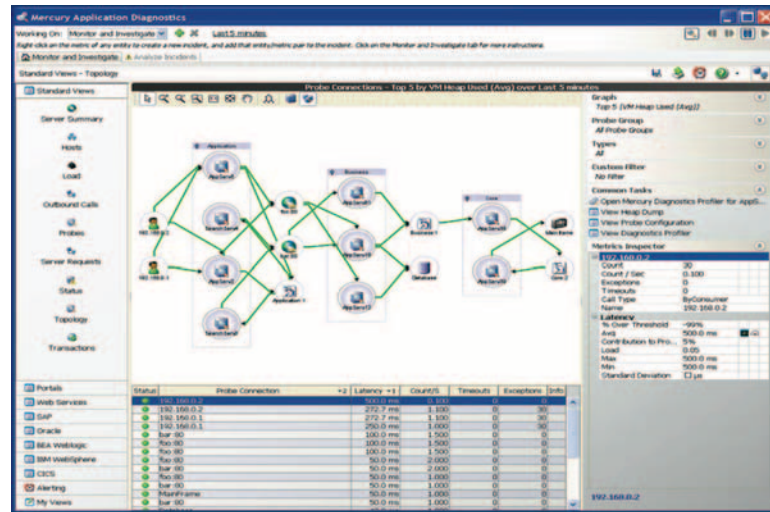
Given the importance of applications to business outcomes, all of this results in unacceptably long resolution times for organizations still trying to use traditional application management tools and techniques. It also increases the cost of finding and solving problems.

Fortunately, forward-looking IT organizations are beginning to realize that composite applications demand composite application management (CAM) that addresses the unique requirements of the environment and lets IT staff proactively detect and prevent performance problems that jeopardize business outcomes.

Problem isolation

In composite application environments, manually isolating problems is costly and time consuming. More effective problem isolation uses an automated methodology for understanding which composite tier is causing the overall business system to degrade. Supporting tools must provide multiple views (topology and aggregate views versus instance-level performance data, graphs and reports) through a single pane of glass to authoritatively isolate a problem to a single domain in a composite environment.

Figure 2. Identify application problems before end users notice
 HP composite application management software lets you monitor, trace and perform root-cause analysis of composite applications in production before they affect end users.



To optimize the performance of business-critical applications, IT organizations need a solution that helps them quickly and accurately pinpoint problems to the appropriate tier and component and to promptly contact the IT administrator responsible for the database, SAP NetWeaver, SAP R3, mainframe, J2EE, portal, .NET, MQ or other affected domain.

End-to-end business transaction management
 In earlier monolithic applications, you could collect statistics from systems that the applications ran on and accurately gauge the performance of the application based on these statistics.

Composite applications move transactions from machine to machine, subsystem to subsystem, middle tier to middle tier and across application servers, often without a user interface to aid in monitoring. Even when you can collect system statistics, the data from any given component of a composite application can't accurately reflect the performance of the overall application. Nor is it possible to collect statistics from all the systems the application leverages and put them together in any meaningful way.

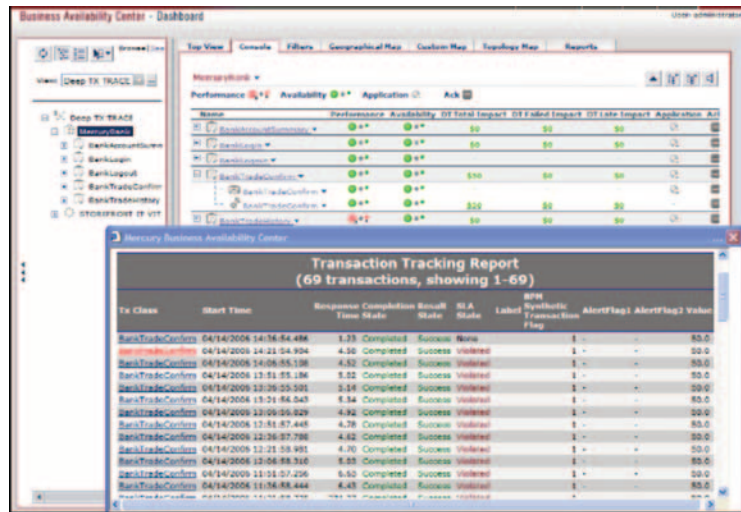
An effective alternative is to track and visualize the flow of individual transactions—from the end user all the way to the back-end systems—rather than the performance of individual systems. A solution that automatically discovers and monitors complete transaction flows—providing complete visibility and end-user performance—can help IT staff detect potential problems before they affect end users and quickly resolve them when problems do occur.

However, because transactions performed by composite applications are not contiguous like those performed by monolithic applications, the technologist's point of view of a transaction as a series of actions within a single application is not useful. Tracking has to be done from the business manager's point of view of a transaction as a unique business interaction, such as a stock trade or an online purchase. And that means that tracking is most efficiently done at the middleware API layer, where distributed transactions taking place in multiple systems can be reconstructed based on the execution details passing through the middleware.

Figure 3. See business data

in context

HP BAC for Composite Application Management integrates with HP TransactionVision to provide visibility into your data from the end user to the back end and for all points in between.



Root-cause analysis

In the interconnected world of composite applications, component failure can have a domino effect: a fault in one system can cause the failure of the next and the next and so on. Identifying a failed component may only be the first step in resolving a problem. The key to reducing mean time to resolution (MTTR) and keeping end-user performance high is the ability to diagnose the underlying cause of component failure.

This requires a solution for monitoring, triaging and diagnosing application problems in heterogeneous environments. It should collect application data across the transaction lifecycle in a comprehensive manner without high overhead. It should also let your IT staff start with the end user's problem and quickly drill down to analyze memory, exceptions, threads and related components in detail. Furthermore, it should provide role-based access to data for IT operations teams and subject-matter experts alike. Unlike point tools that require additional modules for each type of problem, you need a root-cause analysis solution that provides broad monitoring and deep diagnostics capabilities, 24x7, for your production applications.

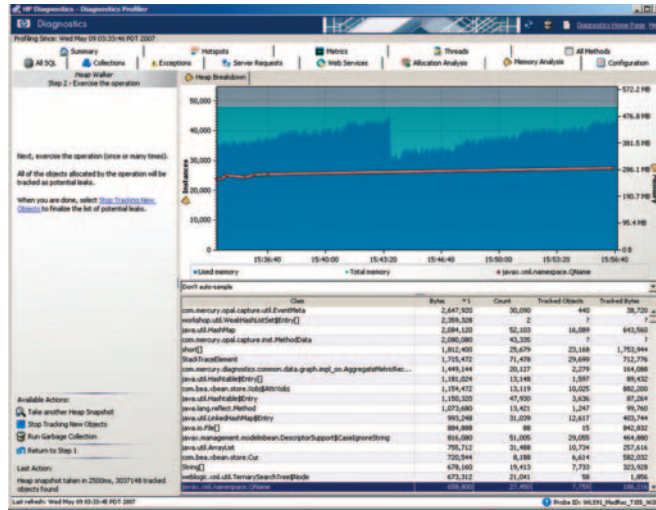
Monitor composite applications with HP Business Availability Center (BAC) software for Composite Application Management

HP Business Availability Center software is top-down, end-to-end lifecycle software for seamlessly monitoring composite applications in heterogeneous environments. This comprehensive lifecycle software gives you end-to-end transaction monitoring from a business perspective as well as end-to-end triaging and diagnostics.

In a web-based collaborative workspace, you can quickly isolate problems and perform root-cause diagnosis. A shared workspace provides consistent tooling and helps teams collaborate more efficiently while working on the same or related problems. HP Business Availability Center empowers teams across business and IT groups to work together to solve problems, get applications back on track and deliver business outcomes.

The software also helps IT organizations assess business impacts, view the entire IT environment from a single location and serve the entire enterprise with a single solution. Additionally, HP Business Availability Center helps IT organizations reduce MTTR, collaborate effectively, reduce duplication of effort and ultimately achieve a higher standard of performance and availability for composite applications. The end result is better business service management, as business managers prioritize issues based on real business impact, and ultimately better service for the business.

Figure 4. Comprehensive, root-cause analysis
 HP BAC for Composite Application Management lets you see deeper data in context, 24x7, without requiring additional modules.



Get end-to-end transaction management, problem isolation and root-cause visibility in a single solution

HP BAC for Composite Application Management consists of the following products: HP Real User Monitor software, HP diagnostics software and HP TransactionVision software. The solution provides an easy, step-by-step way to full composite application management and delivers product integrations for total value. The integrated solution helps provide 24x7 application and service availability by proactively detecting problems before they affect business, rapidly isolating problems to the correct tier and pinpointing root causes to specific application components. It can trace services in a composite application environment and display the step-by-step flow of individual business transactions.

HP Business Availability Center provides a contiguous view for diagnosing problems and speedy problem resolution. The breadth of transaction monitoring combined with deep root-cause analytics allows you to not only isolate slow steps, but also determine root cause.

Comprehensive visibility into composite application environments is critical for maintaining service-level agreements (SLAs). HP diagnostics bridges the gaps among organizational silos so that disperse teams can collaborate. Every team has visibility into application performance across the lifecycle of composite applications. This approach also provides consistent tooling across development, quality assurance (QA), IT operations and architecture groups.

In addition, other HP Business Availability Center software products contribute at different points in the application management lifecycle. HP Universal CMDB software automatically discovers application components and maps transaction paths and dependency maps. HP Service Level Management software, together with the HP Business Availability Center dashboard, provides visibility and reporting.

Conclusion

Today, composite applications can help your business deliver more powerful business applications, deploy them more quickly and get more return on your technology investments. But if you can't be sure that they'll perform as expected, composite applications can disrupt your business processes and damage your relationships with your customers.

With HP Business Availability Center, you get the power and flexibility of composite applications and the agility that comes from rapid application deployment without sacrificing performance, scalability and availability. This HP optimization center software can move your organization beyond reactive, ad hoc, problem-isolation approaches and help your composite applications meet your business goals.

To learn more, visit www.hp.com/go/software

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