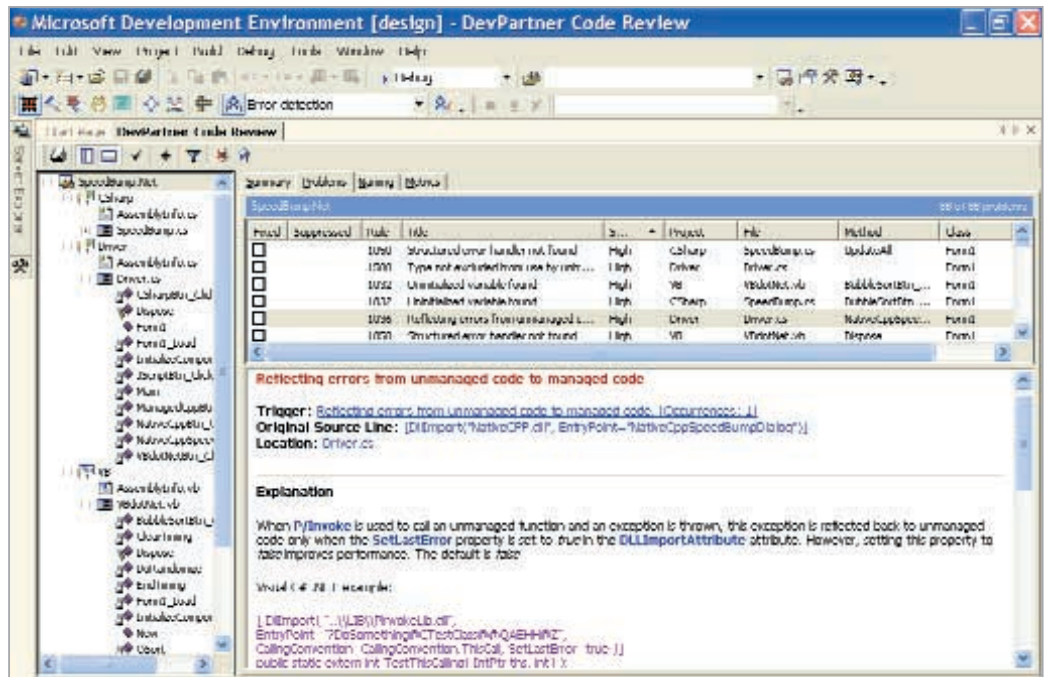


## Build Microsoft applications with confidence

DevPartner Studio Professional Edition integrates with and enhances the capabilities of Visual Studio, providing automated capabilities to ensure that the finished application is as error-free and high-performing as possible.

Windows developers already understand the benefits of Visual Studio, and the additional benefits of transitioning to Microsoft .NET: the ability to create programs that take advantage of Internet connectivity by transcending device boundaries. By using DevPartner Studio, users will be confident in the reliability and performance of their application and have a much higher probability of delivering on schedule, all while they are guided through software improvements that ultimately make them more experienced and valuable developers.

DevPartner Studio Professional Edition provides an award-winning suite of software development features that help developers build reliable, high-performance applications and components for Microsoft .NET as well as native Windows platforms. Building new .NET applications that may integrate with native components and moving existing native applications to .NET are tasks prone to integration and



DevPartner Studio code review automates the process of checking C#, Visual Basic .NET, Visual Basic and ASP.NET source code for errors and enforcing coding standards across a development team. Developers get a list of potential errors and inconsistencies, along with explanations of the problems, potential ways to fix them and places to go for more information.

migration problems, coding errors, and problems with runtime performance and test coverage. DevPartner Studio helps to locate errors early, to tune runtime performance and assure thorough testing of applications written in .NET, native code or a combination of the two.

### Review source code, detect errors

Commonly accepted software development practice includes the concept of peer-reviews of the source code under development. Catching and correcting problems early in the development process leads

to more reliable code earlier, and team members benefit by learning new programming techniques from their teammates. The downside is that manual code reviews tend to be time-consuming if carried out at all, and can lead to conflict if not managed properly.

DevPartner Studio assists development teams by automating the code review process. The code review function quickly examines source code from a variety of languages including Visual Basic, Visual Basic .NET, C# and ASP.NET, checking each source line with a detailed knowledge base of coding standards and practices. Development teams select the predefined code review rules that apply to their process, and optionally define their own standards and practices by creating new rules for use by their teams. Using DevPartner Studio, developers can find and correct problems early and at a lower cost, even before the application is running, and gain experience based on the expert advice from DevPartner Studio.

DevPartner Studio code reviews go beyond programming language support to help ensure that developers call and use other .NET services and technologies properly. DevPartner Studio examines calls to underlying services in order to help developers maintain the integrity of the call and its appropriateness in context of the application. DevPartner Studio builds a model of the entire application, and can examine different code components in combination to analyze the use of .NET features.

**Locate errors automatically and correct problems quickly**

DevPartner Studio can monitor a running application to locate often subtle problems, and provide guidance on correcting those problems. Developers

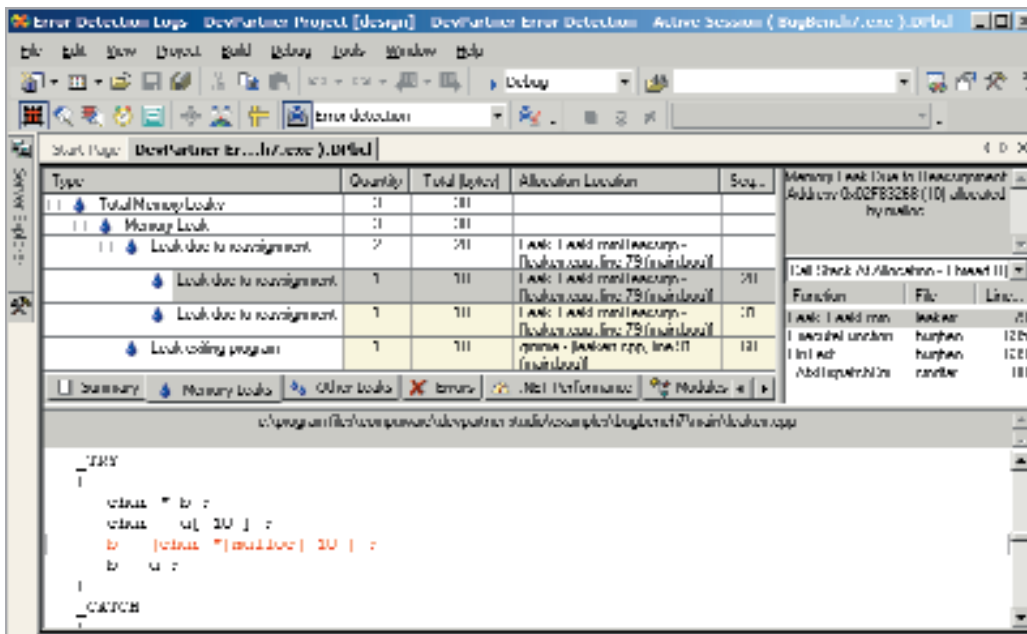
creating native code with Visual C++ or Visual Basic will benefit from the sophisticated capabilities provided by DevPartner Studio error detection using Compuware BoundsChecker technology. Developers can locate a large variety of memory problems such as leaks, pointer problems, uninitialized memory and overruns. These types of errors are often difficult to locate, and may only manifest sporadically, leading to deployment with the errors unresolved. Developers can also validate Windows API and system calls to avoid known problems and help diagnose runtime errors.

.NET developers also benefit from the DevPartner Studio error detection capabilities, from identifying .NET-specific issues such as finalizer problems

to tracking transitions between managed and unmanaged code and evaluating unhandled exceptions thrown across boundaries. Guidance is provided to help determine when it makes sense to migrate native code into the .NET environment to boost performance. DevPartner Studio also gives native code developers a sophisticated capability to detect thread and synchronization object deadlocks.

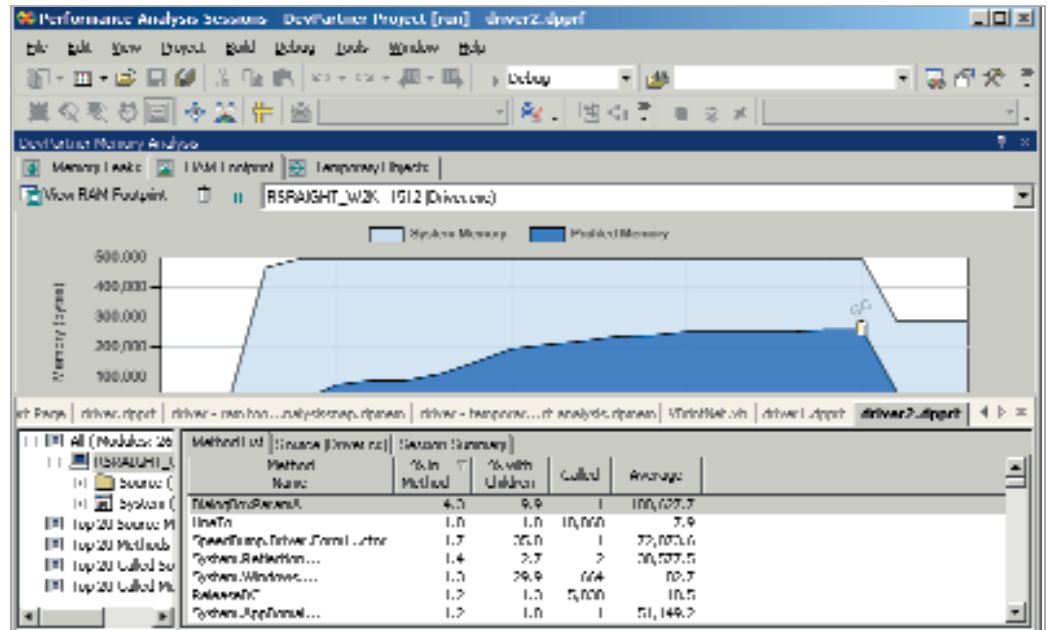
**Optimize runtime performance and resource utilization with memory analysis**

DevPartner Studio provides memory analysis by graphically displaying the amount of memory used at runtime and identifying the line of code that is allocating memory, allowing developers to quickly locate inefficient code.



DevPartner Studio error detection capabilities enable developers to automatically locate and diagnose errors in running code. Developers can view the code's call stack and be taken instantly to the line of code generating the error.

DevPartner Studio memory analysis provides a live, interactive view of how .NET applications use memory, enabling developers to identify excessive object use and memory leaks. They can also rapidly test different implementations to determine which approach offers the best memory usage characteristics.



With an accurate profile of memory usage, improvements in runtime performance and resource utilization can be made, saving time by eliminating the need for manual processes.

When examining source code problem areas, DevPartner Studio memory analysis provides developers with detailed information to help determine where there are memory usage issues. Real-time graphs provide a live, dynamic view of the application's use of memory while it runs, what objects are allocated to the code and how much memory is used by each, and an overall look at how memory is managed during program execution. This data can be used to analyze memory problems in depth, allowing developers to identify the lines of code responsible for the most memory use.

### Locate performance problems

Using DevPartner Studio performance analysis, developers can quickly isolate performance bottlenecks in single and multi-tiered applications. Patented Compuware technology delivers unmatched top-to-bottom performance analysis at the machine, process, component or source line levels. Combined with an intuitive user interface, DevPartner Studio performance analysis enables developers to trace application operations and differentiate between application and operating system calls for rapid identification of performance issues. DevPartner Studio provides a dynamic call graph with associated detailed performance data to quickly navigate through the components of the application. Developers can compare the data collected from individual

performance runs, providing a fast and easy way to determine if code changes have resulted in improved performance.

### Analyze distributed web apps—in an instant

Using DevPartner Studio for analysis of native and .NET distributed web applications provides a quick yet comprehensive understanding of the transactions that occur within and across those applications. Without the added time and hassle of recompiling, instrumenting code or starting/stopping processes, DevPartner Studio attaches itself to existing server processes, images or applications and produces an immediate analysis of critical integration and performance problems. DevPartner Studio collects and analyzes runtime data dynamically and displays an informative “map” of all events and transactions that occur across multiple tiers and technologies of a distributed application. This end-to-end view allows development teams to prioritize and focus their resources on specific areas in the application that may need further attention, dramatically improving their ability to identify and correct problems early in the development process and ultimately achieve quicker application deployment with increased reliability.

### Deploy thoroughly tested applications

How much of the code has been tested? Which lines of code have not been tested? How stable is the code base? Without the right tools, developers trying to determine how well their application has been tested are faced with relying on subjective information.

Insufficient answers to these questions lead to uncertainty at milestones such as code check-in, unit testing or integration testing, and final release.

DevPartner Studio coverage analysis automatically pinpoints untested code by capturing and combining testing sessions for applications, components and web pages—across users, languages and application tiers in both .NET and native code. By identifying which portions of the code are being tested redundantly and which portions are not being tested enough (or at all), DevPartner Studio helps testing teams focus their activities where they are most needed—significantly improving their efficiency.

### Additional support for distributed applications

To assist in improving the reliability and performance of distributed applications, DevPartner Studio is able to analyze memory, performance, coverage and distributed application data across multiple components, providing developers with a single correlated view of the data collected. Regardless of which programming language each component is written in, and whether or not it was developed in Visual Studio .NET or Visual Studio 6, developers can easily generate and analyze data from all components running on a single machine. In addition, by adding an optional DevPartner

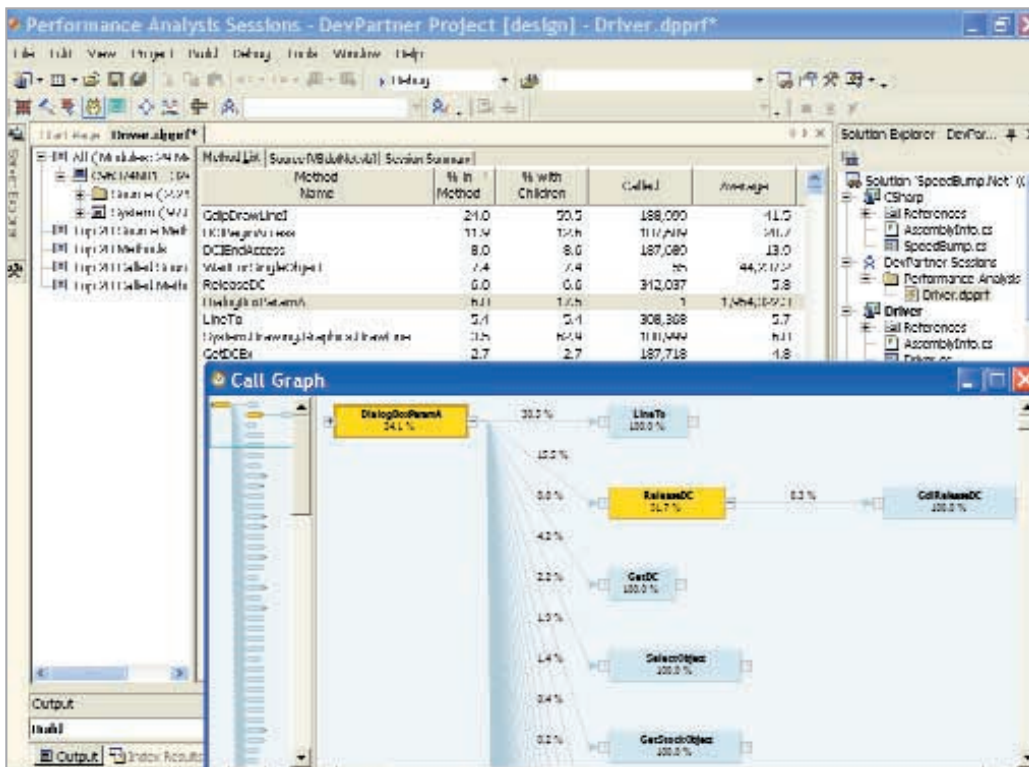
Studio server license to a remote machine, developers can collect and analyze the same data from components running remotely, more accurately simulating a typical production environment during the development testing process.

The end-to-end view provided for distributed application analysis, even when the components of the application reside on remote machines, is unprecedented in the developer tools market, and is a “must have” when assembling the pieces of a distributed application and testing it as a whole across multiple systems. Development teams can quickly identify issues, prioritizing and focusing their resources on

specific areas in the application that need further attention. Distributed analysis dramatically improves a team’s ability to identify and correct cross-component integration issues quickly, leading to faster application deployment with dramatically increased reliability.

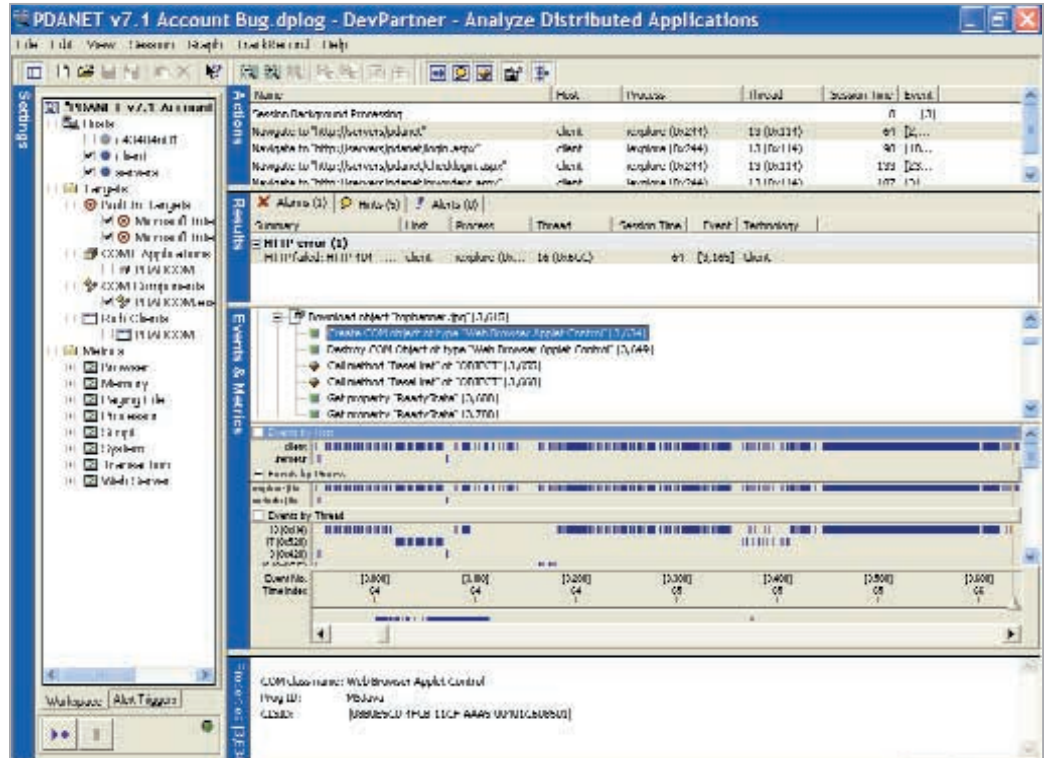
### Migrating legacy code to .NET

In a perfect world, developers could start building new applications in Visual Studio .NET right away with no regard for legacy code. But it simply isn’t practical to throw away otherwise good code in existing applications. Many developers will find that they need to migrate existing code to the .NET environment, or to



DevPartner Studio performance profiling lets developers drill down into their code to identify and analyze—to the individual line of code—slow code and performance bottlenecks. They can also examine runtime call graphs to pinpoint which methods cause performance issues.

DevPartner Studio distributed analysis captures and synchronizes critical program events across multiple systems.



continue working with native components from .NET applications. With either approach, an entirely new class of potential errors may be introduced. These errors are unlike those developers may encounter while working completely within the .NET framework, and are largely undetectable. Yet finding and fixing them are critical.

DevPartner Studio helps developers ease the transition of legacy code to .NET with comprehensive code review capabilities for Visual Basic .NET, ASP.NET and C#. DevPartner Studio finds common .NET programming problems automatically, including problems with:

- program logic
- performance and portability
- use of the Common Language Runtime (CLR)
- structured exception handling
- usability
- COM
- internationalization
- design time properties
- standards
- transitions to native code.

DevPartner Studio also monitors when applications cross the boundary between managed and unmanaged native code, provides valuable information on the frequency of crossed boundaries to help determine when native code should be migrated to .NET code, and provides information on errors that propagate from the native code that could result in difficult-to-diagnose errors in managed code.

### Subscribe to ongoing value

Compuware is dedicated to providing industry-leading products supporting the development of distributed enterprise-level applications. Your investment in DevPartner Studio becomes even more valuable as new capabilities are added to the product over time.

The easiest and most cost-effective way to stay up-to-date is through a subscription program. Subscribers can receive all product upgrades at a fixed cost, regardless of the number of releases made during the year.

### Skilled support and mentoring

Companies lack the time, resources and knowledge to implement a formal development and testing process that will allow them to deliver reliable, well-tuned applications faster. Compuware's Product Solutions Group provides skilled technical experts and a process to mentor users in effective application debugging, tuning and testing, enabling them to be more successful in a shorter period of time.

Implementation Assurance helps companies quickly realize the value of the DevPartner family of application development tools. This service will verify the installation of the tools and transfer basic product knowledge to a core group of users.

To learn more about DevPartner, visit [www.compuware.com/devpartner](http://www.compuware.com/devpartner)

## Compuware products and professional services—delivering quality applications

Compuware is a leading global provider of software products and professional services which IT organizations use to develop, integrate, test and manage the performance of the applications that drive their businesses.

Our software products help optimize every step in the application life cycle—from defining requirements to supporting production service levels—for web, distributed and mainframe platforms.

Our services professionals work at customer sites around the world, sharing their real-world perspective and experience to deliver an integrated, reliable solution.

Please contact us to learn more about how our comprehensive products and services can help your organization improve productivity, create higher quality applications and ensure performance in production.

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