



**Company**  
AutoTrader.com

**Industry**  
Online Automotive Marketplace

**Location**  
Global

**Challenge**  
Improve performance in their applications by rapidly diagnosing problems throughout the lifecycle, especially in production

**Application Environment**  
JBoss/Solaris/Oracle DB/ LoadRunner  
Test Suite

**Requirements**  
Manage application performance in their production environment to:

- Provide real-time transaction performance analysis 24x7 with code-level visibility at low overhead
- Proactively spot performance issues early before they become expensive problems
- Easily share data among lifecycle teams (development, test, and production)

**Solution**  
**dynaTrace Production, Test & Development Editions** enables AutoTrader to quickly identify, diagnose, and resolve performance issues throughout the lifecycle by:

- Isolating performance issues earlier in the production lifecycle where resolution cost isn't prohibitive
- Reducing root-cause isolation in code issues and inefficiencies from weeks to minutes
- Providing deep code visibility – even in frameworks like Hibernate
- Switch diagnostic profiles on-the-fly to drill deeper into application diagnostics without restart

***“We chose to extend dynaTrace into 24x7 production use because it gave us the greatest detail at the lowest overhead. In some cases, other vendors didn't even provide capabilities that dynaTrace provides, so it was superior in many ways.”***



[AutoTrader.com](http://AutoTrader.com) is the Internet's leading auto classifieds marketplace and consumer information website. AutoTrader.com aggregates some 3 million vehicle listings from thousands of dealers and private sellers in a single location, attracting over 15 million unique visitors each month.

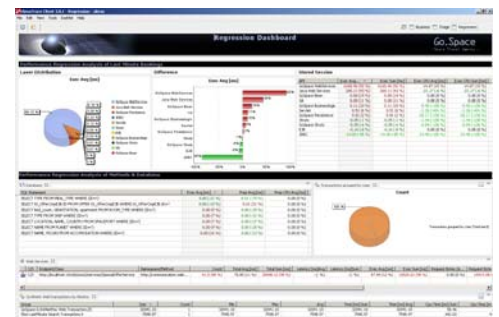
**Challenge:** AutoTrader aggregates an inventory of 3 million vehicles in an online marketplace – inventory that is constantly changing. At peak traffic, it's main consumer site – AutoTrader.com – serves more than 20,000 pages per minute and attracts over 800,000 unique visitors daily. Needless to say, the challenge of scaling their applications and delivering optimal performance is not insignificant.

The problem AutoTrader faced is that while they were able to generate load tests using LoadRunner that approximated the types of stress their applications face on a daily basis, they had little visibility into the underlying causes of performance problems surfacing under load. Such visibility is vital to the type of proactive application performance management that a highly-trafficked marketplace like AutoTrader.com needs to keep its customers – consumers and auto dealers – happy.

AutoTrader is well-known for its two flagship portals: consumer-facing AutoTrader.com, and “Autotrader.com for Dealers” that manages inventory and promotions, as well as reporting to its 40,000 dealers on site traffic and other key metrics. Their Java-based sites are powered by JBoss running on Solaris, with Oracle on the database. LoadRunner is used for load testing. AutoTrader recently launched “AutoTrader Classics”, designed for classic-car collectors and enthusiasts with an AJAX-based rich-user experience creating additional performance challenges.

**Solution:** AutoTrader's Performance Testing group realized that performance-related bottlenecks could be solved with deep diagnostics on a transaction-by-transaction basis under load, and sought out solutions from various vendors before choosing dynaTrace. “We depend on the reliability of our applications, and maintaining quality is key,” said Cliff Goolsby, AutoTrader's Sr. Director for IT Operations and Services. “The best way we've found to do this is through consistent visibility into the app, all through the delivery lifecycle and into production. That way we can resolve issues before cost becomes prohibitive and ensure the online experience our customers expect.”

After proactively identifying and resolving issues with dynaTrace in their performance lab, AutoTrader decided they needed a continuous APM system across the application lifecycle including 24x7 in production. Brian Gill, AutoTrader's Manager for Operations Technology, conducted an extensive Proof-of-Concept between [dynaTrace](http://dynaTrace), CA Wily Introscope and Compuware Vantage Analyzer.



**Figure 1: Test/Regression view**

*“dynaTrace gives us really deep coverage, hundreds of methods, for well below 5% of overhead – so low, in fact, we hardly notice it. But what’s really nice is we can go much deeper on the fly to investigate tougher issues, without any restart. It’s vital to be able to view outlier transactions at that kind of depth to quickly determine root cause.”*

*“dynaTrace’s PurePath is really powerful technology, it gets us to root cause much faster than anything else we’ve seen. With dynaTrace, we found the most inefficient SQL queries as well as code redundancy in our application in minutes versus what used to take days or weeks.”*

*“The full visibility dynaTrace gave us into our use of Hibernate... correlating method calls in specific business transactions, helped one of our developers spot the problem and fix it in a day, improving performance by over 100%.”*

*“With other products we considered, you’d have to jump between different applications to see everything we see in dynaTrace. Having these different views in one dynamic interface was really attractive. I can isolate issues any way I need – by web requests, database, memory, remoting – with any depth of detail required. It’s a total solution.”*

*“dynaTrace’s dashboards help us monitor memory usage and easily pinpoint response time issues caused by JVM garbage collection activations and timings.”*

*“dynaTrace is a necessity for a complex environment like ours.”*

*“ dynaTrace is like an MRI – a full-body, high res scan for mission-critical applications.”*

“We chose to extend dynaTrace into 24x7 production use because it gave us the greatest detail at the lowest overhead,” said Gill. “In some cases, other vendors didn’t even provide capabilities that dynaTrace provides, so it was superior in many ways.” Employing ultra-lightweight [dynaTrace agents](#) throughout its [production](#), [test center](#) and [development](#) environments, AutoTrader uses dynaTrace’s PurePath Technology to proactively spot performance issues in production before they become larger problems, as well as find them earlier in the lifecycle – minimizing costs and ensuring the highest level of performance in AutoTrader’s various sites.

**Results:** “dynaTrace gives us really deep coverage, hundreds of methods, at well below 5% of overhead – so low, in fact, we hardly notice it.” said Gill. “But what’s really nice is we can go much deeper on the fly to investigate tougher issues without any restart. It’s vital to be able to view outlier transactions at that kind of depth to quickly determine root cause.”

“Figuring out the root cause is always the most time-consuming part of the process,” said Gill. [dynaTrace’s PurePath](#) is really powerful technology, it gets to root cause much faster than anything else we’ve seen. With dynaTrace, we found the most inefficient [SQL queries](#) and code redundancy in our application [in minutes](#) versus what used to take days or weeks. We can take guesswork out of the lifecycle and use dynaTrace as an analytical way of discovering inefficiencies before they become issues.”

“Before dynaTrace,” said Gill, “all the bugs rolled into production, and we had no way to find them. Within a few days of dynaTrace running in production 24x7 we saw things that might have taken weeks or months to figure out.” One of the biggest issues they discovered involved [Hibernate](#). “We had thousands of calls to something adding overhead to every transaction, but we couldn’t see what was causing it – that’s the problem with frameworks like Hibernate. The full visibility dynaTrace gave us into our use of Hibernate, however, correlating method calls in specific [business transactions](#), helped one of our developers spot the problem and fix it in a day, improving performance by over 100%.”

Gill further uses dynaTrace to alert on metrics like total web requests or response time. “It helps us weed out and isolate issues, something we couldn’t do before,” said Gill. “Now we can consider [thread locking issues](#) differently from memory issues, rather than being forced to treat them together.”

Another benefit AutoTrader appreciates is dynaTrace’s flexibility. “It provides deep visibility, as well as high-level views of the data,” Gill said. “With dynaTrace you can go from 10,000-feet to very granular – down to code level – in a rapid, dynamic way via a single interface. With other products we considered, you’d have to jump between different applications to see everything we see in dynaTrace. Having these different views in one dynamic interface was really attractive. I can isolate issues any way I need – by web requests, database, memory, remoting – with any depth of detail required. It’s a total solution.”

This total solution helps Gill work with the rest of AutoTrader’s engineers and easily share PurePath data to proactively spot tough issues earlier in the lifecycle. “One application made a service call to Google maps, which would throw exceptions when it got too many requests,” Gill said. “Test spotted these exceptions in pre-prod with dynaTrace and we were able to resolve the issue quickly before it reached production.”

PurePath data visualized in role-specific dashboards gives AutoTrader’s technicians what they need to do their jobs better and more quickly. “dynaTrace’s dashboards help us monitor memory usage and easily pinpoint response time issues caused by JVM garbage collection activations and timings,” Gill said.

dynaTrace’s ability to trace individual transactions across all logical and physical tiers was exactly what AutoTrader needed to manage performance across the lifecycle, particularly in their production environment. “With multi-tier complexity growing in J2EE applications and architectures, such a solution is a must-have,” said Gill. “dynaTrace is a necessity for a complex environment like ours.”

“When you go to a doctor, you may have no idea where a symptom’s coming from or why, and without something like an MRI, they often can’t find the cause,” Gill concluded. “dynaTrace is like an MRI – a full-body, high-res scan for mission-critical applications.”



**Fig. 2: dynaTrace Dashboard**