

# Magic Quadrant for Integrated Software Quality Suites

Gartner RAS Core Research Note G00208975, Thomas E. Murphy, 31 January 2011

Quality organizations are under pressure to reduce costs and improve quality, while being hit with new technologies and practices. Agile practices, rich-client technology and cloud platforms are creating disruption in the testing tools market.

## WHAT YOU NEED TO KNOW

The traditional focus in the application quality management market has been for specific testing activities (for example, load/stress and functional/regression). Economic conditions and pressure to improve time to market are placing increased emphasis on productivity. Agile development continues to make inroads into quality assurance (QA) and testing teams, and this is reflected by growing support of test planning tools for agile processes, such as scrum. Rich-client technologies, Web-connected devices and private cloud architectures are placing stress on the testing organization to adequately test software. The shift toward packages, service-oriented architecture (SOA) and business process management (BPM) also drives greater business analyst involvement in overall quality efforts, along with a shift in focus from finding defects in validation to ensuring that business objectives are met. Testing software can be an expensive process, but poor software quality leads to user dissatisfaction, as well as increased development and maintenance. Therefore, having a well-defined set of tools and practices to drive software quality will positively affect the overall business bottom line.

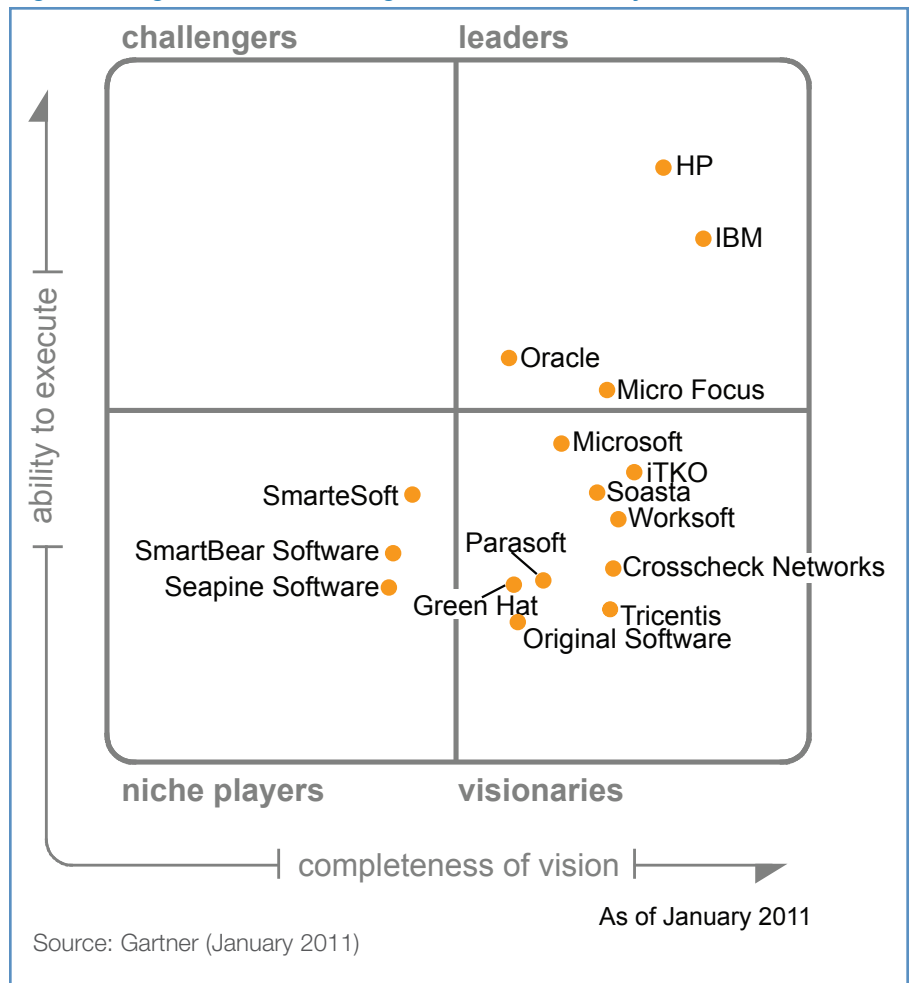
## MAGIC QUADRANT

### Market Overview

The market is being driven by time-to-market issues, while seeing an increased need for governance and regulatory compliance. We see investments in tools in cases where companies don't have tools, need new technical abilities or are searching for improved productivity. These factors create pressure around driving automation, improved workflow and traceability, and reporting and metrics capabilities. Although many companies begin with searching for tools, most are in need of improved practices and guidance. Issues such as how long should testing take, where should we focus, or how can automation be effective are at the root, and often drive buying behavior. Another decision factor is based on service partner relationships (outsourcing, system integrators [SIs], consultants). This, in turn, means that vendors with good partner programs have an advantage, and also emphasizes the need for the improvements provided by the tools to guide decisions and practices. Many of the newer players are winning because they can provide hands-on support, improved ease of use or targeted solutions.

The market leaders all have broad portfolios covering all aspects of software quality, and match this with a global presence and significant shares. They are generally not the most innovative products in the space, having time to wait for markets to mature or adding needed components via partnerships and acquisitions. Visionary companies generally have a focus on a particular part of the software quality process (e.g., cloud, load/stress, functional automation), but we often find that many of these companies and products are purchased as additions to market leader tools. There is also strong innovation in the niche space at this time, but these vendors either have limited geographic appeal or approach the market from a new direction. There is a lot of change going on in the market, as an increasing number of development groups adopt agile practices. Note that, while application testing as a whole is a mature market, the continued entry of new technologies means that there has been continued entry of new providers. We believe that, during the next five years, the market will go through another consolidation cycle, with the potential for two or three more companies to move into the Leaders

Figure 1. Magic Quadrant for Integrated Software Quality Suites



quadrant, driven by the shift to composite and cloud applications, and there will also be acquisitions to accelerate growth and shore up aging toolsets.

The total market for test management and functional and load/stress automation declined by 6.6% in 2009, to just under \$1.3 billion. Part of this was the disruption in the market from Micro Focus's acquisition of Borland and Compuware's software quality assets. Although the market declined, several of the smaller vendors in this Magic Quadrant had significant growth, with many doubling in revenue. In general, the traditional (client/server and Web testing) market is very stable, with a clearly defined pecking

order established. We expect to see continued acquisition activity, as vendors acquire to address new application architectures and fill out overall application life cycle management (ALM) positions. There is room for market growth in the number of people using these tools, and we expect that most enterprises will have products from multiple vendors in this Magic Quadrant. We also expect that the market will see an overall return to growth during 2011, although lower-cost offerings may offset this. This comes from a lack of standardization of tools and practices in IT organizations, as well as the need to support legacy and emerging composite application technologies.

### Market Definition/Description

The automated software quality (ASQ) assurance market is a subsegment of the overall ALM market. It is composed of three traditional areas:

- Test management – tools to manage and plan testing activities and their results
- Automated stress and load testing – tools that simulate the load of multiple users against a server-based application to understand and tune performance
- Automated functional and regression testing – tests that mimic a single user to find defects in the application

Software quality encompasses a much broader number of activities than these, and thought leaders are driving broader toolsets and creating better integration across the life cycle. Other areas include test data selection and management, unit testing, security and compliance, cross-browser testing, and usability. The market is also evolving to better support package applications, as well as new technologies that are at the foundation of cloud and composite applications. Cloud technologies are having an impact on the market from several directions, with tools designed to aid with the testing of cloud applications, tools delivered utilizing cloud infrastructure (e.g., dynamic load create) and lab management facilities.

Recent years have seen an improvement in the integration of ASQ tools with the rest of the ALM platform (which also includes requirements management, and software change and configuration management) to help automate the overall execution of software projects. This includes integration between requirements and test cases, integration into the build process for automated execution of test suites, and integrated reporting to better understand the current status of a project from a quality and completeness perspective. We believe that this form of automation is more important than automation of individual testing activities, because it impacts the velocity of the entire team and enables intelligent decision making. Organizations selecting tools should ensure that RFPs and proof of concepts (POCs) consider this integration.

As the market continues forward, we believe the majority of Visionaries will either settle, over time, into niche roles or be acquired, because it will be hard to compete against the established Leaders, which represent 90% of the total revenue currently spent on distributed application testing.

In general, most companies are happy with their selected tools, although a high number of companies have tools from more than one vendor, and the majority of companies actively evaluate alternative products on a regular basis. The highest level of dissatisfaction centers around license cost and training. We have seen a strong push in client inquiries regarding reducing software license costs, and many vendors are experimenting with software-as-a-service (SaaS)-style offerings and other alternative pricing schemes. However, the cost of software can be high, and the push from cloud-delivered solutions and open-source tools will cause continued disruptions in the market. Companies also tend to desire better support for emerging technologies, and increased or improved partnering.

The key trends in the ASQ market are:

- **Drive for productivity:** Organizations are struggling to keep up with the rapid changes in technology with new client capabilities and the re-emerging need to test on multiple platforms (a variety of browsers and devices). The shift to agile methods also creates a need to be able to test faster, automate as much as possible and deal with constant change. We note that a lack of time is the primary obstacle limiting amount of automation. However, there are often challenges induced by lack of reuse or understanding of the proper role and use of different testing techniques and tools. Lab automation including test data is emerging as a key element in overall responsiveness. Tools have improved ease of use, with 88% of surveyed users responding that time to productivity is six months or less, and 55% stating it is three months or less.
- **Changing technology:** Support for emerging technology continues to be an area of concern for users of test automation products. Generally, the larger, more-established vendors tend to move more slowly as they wait for the market to settle, and have to support a larger installed base. This is one of the drivers for companies to add tools. Current hot spots are: devices and mobile computing platforms, the growing number of browsers and validation that applications work across multiple browsers and devices, a lack of support for Apple desktops and devices, and support for the growing variety of rich Internet application (RIA) formats. In general technology is running much faster than testing companies making it difficult at best to test many cutting edge technologies.
- **Cloud:** Cloud is the hype term of the moment, and it plays into the market a few ways when discussing software quality and testing. One is the ability to leverage cloud platforms, such as Amazon EC2, to create on-demand load testing. There are also a number of SaaS offerings and complete on-demand platforms delivering portions of the tools, as well as the ability to dynamically create test labs utilizing cloud technologies. These test solutions can also help with functional testing, especially in the case where applications need to be tested for multiple client configurations (browsers, devices, etc.). Combined with the shift to SOA and composite applications, these represent strong potential for market disruption. The three companies focused on composite applications – Crosscheck Networks, Green Hat and iTKO – all had very strong revenue growth during 2010.

- Emerging vendors:** Although the traditional software testing market has seen consolidation, a growing number of vendors continues to enter the market. This includes new script-free and model-driven testing environments, tools for testing “in the cloud,” tools for managing test labs and utilizing the cloud as a test lab, testing for complex SOA application testing tools, and the ability to virtualize services for use in testing. There are also an increasing number of players in the ALM space with tools for managing test plans, test cases and software defects. Because of the dominant share of HP, these companies generally must find a coexistence strategy, and a growing number of users utilize multiple test tool providers to cover the broad spectrum of testing and QA needs.
- Distributed development:** Enterprise software development projects tend to be complex, and are carried out in a very distributed fashion, whether it is completely internally sourced or done in partnership with an SI or offshore outsourcing provider. The goal of this is increased productivity and more-flexible resources, but that means strong requirements practices and tools to enable collaboration and governance. This increases the need for ALM support to provide the required collaboration, traceability and reporting.
- Agile techniques:** Many organizations have begun to use agile development techniques. These practices put a premium value on collaboration, and alter the development cycle, because requirements are changing and are completed incrementally as the project is under way. Agile methods also focus on the drive to push quality upstream through techniques such as unit testing and code reviews. Agile practices are encouraging vendors in the tool market to build tools that recognize these process changes, and address the shift from isolated specialist tools to coordinated suites that share information, and manage and update each other in a complementary fashion. For example, leading tool support integration between software requirements and test plans, and as requirements grow or change, will force a vendor to update its test plan. This collaborative capability is especially important for globally dispersed organizations to keep information loss among groups to a minimum. Linked to this is the continued emergence of requirements elicitation tools that are designed to get the right requirements in the first place. With these tools, we have seen the ability to build functional automation against wireframes ahead of the user interface (UI) implementation, and then remap as the real UI comes online. In addition, being able to virtualize services enables testing efforts to begin much earlier in the life cycle.
- Regulatory environment:** Regulations surrounding data privacy and auditable change management procedures drive the need for better tools for test data management and workflow-driven solutions that manage and track changes.
- Package application upgrades:** Package applications place additional constraints and different needs on testing organizations than custom development, including lack
  - of access to source and data models, and a high degree of complexity. These products are undergoing a major transformation as they increasingly shift to support SOA and SaaS models, and as vendors continue to consolidate. Packages tax organizations with frequent updates and a great deal of integration, forcing the need for effective test automation solutions for regression testing. Many organizations, however, have been challenged to achieve acceptable productivity with automation.
- SOA:** Testing for services introduces a great deal of complexity, and requires organizations to increase minimum standards just to operate as well as they do currently. Services are supposed to provide business-level agility, yet companies have traditionally struggled with reuse. If services are to provide a dynamically adjustable business operating environment, then they must have a high degree of quality and automation for quality assessment and change impact analysis. This will be a major catalyst for additional acquisitions, and could create a shift in market share positions, because standard testing tool frameworks don't readily support more than simple Web services, and they need to have a closed loop around change requests, quality, operation change management and impact assessment.
- Flexible delivery:** Testing tools and quality management applications can be expensive, just as many pieces of the development tool market have been. We expect that certain segments of the quality and test market will face increased pricing pressure from open source, new smaller organizations and Microsoft's entry into the software testing market. The number of open-source testing tools and newer, lower-cost products for managing quality efforts (for example, Atlassian Jira, Axosoft's OnTime, PassMark TestLog and ApTest Manager) has increased. We expect that pricing pressure will also motivate vendors to look for alternative deployment vehicles, such as SaaS. During the next three to five years, SaaS offerings for load/stress testing likely will become standard for enterprise players.
- Open source:** Open-source testing tools continue to make progress, although their impact on the overall market is still relatively small. The majority of tools are limited in their technology coverage, and lack an integrated approach to quality management. Thus, the tools fit well for organizations that are working on smaller projects with a more limited technology scope, and where the number of test cases can be managed in a more basic tool, such as Excel. In addition, these tools have less documentation and little support, so they are best-suited for a technically experienced testing team. The most widely used tools include Selenium, Sahi, Watir, Bugzilla and JMeter. We also note that commercial offerings are being built on top of open-source engines. There are many other open-source tools used to drive quality early in the development process, including Hudson, JUnit, Maven, CruiseControl, TestLink and FindBugs.

- **ALM:** This Magic Quadrant looks at software quality from a suite perspective, including quality management and test execution tools. Leading vendors have broader solutions encompassing requirements and change management, and, in general, provide ALM solutions. Fundamentally, the drive for improved productivity demands solutions that automate workflow and enable collaboration among team members. Expect vendors not only to build partnerships, but also to expand product offerings through development and acquisition to compete in this market. ALM integration is especially important for teams moving to agile, as these help break down the traditional silos between developers and testers. This is also creating an opening for several new tools to enter the market, and will force a decision between a fully integrated experience that may deliver high productivity, but not support all technologies (thus requiring different toolsets for different platforms), or a less integrated generic set of tools or products that integrate with a variety of ALM hubs.

### Inclusion and Exclusion Criteria

Vendors in this Magic Quadrant must provide the ability to create, manage and execute functional test automation. Their tools must support the creation of software tests on the Windows platform to test Web applications (additional platform test execution support is desirable, and the most complete vendors cover a wide set of technologies). The vendors in this market must have a basic global presence, which means that they are actively selling their products in multiple geographies, and have at least \$10 million in annual revenue. (Note: This market includes a set of mainstream or traditional players that cover the testing of desktop and Web applications, plus a set of companies from emerging or niche areas, such as SOA/external service bus [ESB], cloud and code-free solutions.) This Magic Quadrant looks at the entire market (traditional and new niches) as a complete market, although this is not to say that the vendors in the Leaders quadrant are the only solutions that should be explored, or that looking at the market through more-specific lenses would not change the shape of the market.

### Added

- Tricentis
- Crosscheck Networks
- AutomatedQA (relaunched as SmartBear Software)
- Microsoft

### Dropped

- Borland, which was acquired by Micro Focus

## Evaluation Criteria

### Ability to Execute

Because of the general maturity of the market, the ability to execute in a consistent fashion is critical and has been the defining attribute of the Leaders. This will continue, with those that gain in the market providing a clean combination of technology with a very clear market positioning. It is not enough just to have “better technology” than the incumbents. Better technology is still important, but generally opens short-term windows, until the incumbents acquire or catch up. However, the great breadth of application projects and the continued growth of agile and BPM are broadening the market, and most users will have tools from more than a single vendor. The economic conditions of the past two years have also created market openings through innovation in pricing, as well as a need to better demonstrate ROI for various tools and practices. Because of the growing importance of integration across the life cycle, it is key to build and deliver on partnerships. Market pressure to reduce costs will continue to create openings for new tools and open-source solutions, and will force vendors to deliver clear ROI, but this will result mainly in market expansion, rather than replacement. At the enterprise level, company stability is also critical (see Table 1).

**Table 1. Ability to Execute Evaluation Criteria**

Evaluation Criteria	Weighting
Product/Service	high
Overall Viability (Business Unit, Financial, Strategy, Organization)	high
Sales Execution/Pricing	high
Market Responsiveness and Track Record	low
Marketing Execution	standard
Customer Experience	standard
Operations	low
Source: Gartner (January 2011)	

### Completeness of Vision

Direct marketing capability is becoming less important than community feedback and competitive pricing. However, we are seeing a need for vendors to either target specific markets or problems, or lose out against the established market Leaders. Thus, the business model and innovation are critical, as they define the way vendors are shifting in or entering the market. Because application technology is evolving so rapidly, we continue to see that specific functionality is the key buying criterion. The market had settled in with Web applications, but SOA, cloud and RIA have dramatically affected the market. We expect this to continue and expand, as smartphones, tablets and other devices, and an expansion of browsers and rich-client technology, are utilized by developers. Applications are also shifting from client/server or basic Web applications to SOA/composition-centric architectures

that will combine internally developed functions with cloud-provided services. Vendors that support leading technologies and architectures with a clear vision of the shift this introduces to applications, and the complexity of testing those applications, are key here. In addition, vendors with a complete vision either provide a robust view of the product life cycle or have solid partnerships to help fill in areas of the life cycle in which they are involved. Overall, vendors have gaps in their product lines, with most vendors still focused on the core of automation of functional/regression and load/stress testing, as well as elements of quality management. Common gaps are in unit testing, integration to other areas of the life cycle, test data management and lab management facilities. Many of these are filled through partnerships, but the Leaders are also increasingly filling these gaps.

We expect that the Leaders will continue to build more-complete platforms that not only encompass traditional testing tools, such as functional and performance automation, and test management, but also that enable the shift from a test in quality mentality to drive quality throughout the development process. Thus, while the Visionaries and Niche Players will scramble to grab market share, the Leaders and more-established players will consolidate through acquisitions as markets mature. These players are generally positioning to become Leaders not only in software QA (SQA), but also in the overall ALM market, or they are strongly partnered to do so (see Table 2).

**Table 2. Completeness of Vision Evaluation Criteria**

Evaluation Criteria	Weighting
Market Understanding	standard
Marketing Strategy	low
Sales Strategy	standard
Offering (Product) Strategy	high
Business Model	standard
Vertical/Industry Strategy	standard
Innovation	high
Geographic Strategy	low
Source: Gartner (January 2011)	

## Leaders

- HP
- IBM
- Micro Focus
- Oracle

## Challengers

Not applicable

## Visionaries

- Crosscheck Networks
- Green Hat
- iTKO
- Microsoft
- Original Software
- Soasta
- Parasoft
- Tricentis
- Worksoft

## Niche Players

- Seapine Software
- SmartBear Software
- SmarteSoft

## Vendor Strengths and Cautions

### Crosscheck Networks

Crosscheck Networks is rated as a Visionary in the market, and is focused on SOA applications and cloud platforms. The vendor also plays into the network appliance market, with security and identity management solutions. The company has had solid growth, and, like others in this space, has been pushing into the cloud migration area, although its focus is a bit different – looking at public cloud emulation and prediction. In addition to its SOAPSonar testing platform, the company has products for service and ESB simulation, security, governance, and identity management, thus providing a comprehensive set of tools for ensuring reliable and secure delivery and operation of services. Crosscheck Networks was recently awarded patents for its technology for finding security and compliance vulnerabilities, and has HP-certified Enterprise Management Alliance Program (EMAP) integration. The company offers its core SOAPSonar SOA testing tool in four editions, providing access to a wide variety of users. Crosscheck Networks provides good overall functional testing support and an extensible

set of protocol support. The company is expanding its global presence, with good coverage in North America and Europe. It has a solid customer base, and has successfully executed on the acquisition of Forum Systems, to extend secure system development and management. Crosscheck Networks' strong position in security gives it a defensible position that has a broad appeal beyond traditional application test groups.

### Strengths

- Very high customer satisfaction
- Excellent time to productivity

### Cautions

- Not appropriate for UI functional automation
- Lack of partnerships

### Green Hat

Green Hat is in the Visionaries quadrant because of its positive progress during 2010 in expanding the functionality of its product and building new partnerships, and its solid business growth. Green Hat is a U.K.-based company that has been steadily growing its global presence, and now has offices in six countries. Its product has strong support for testing complex SOA applications, virtualization of services for early testing and good ease of use covering functional and performance testing, and runtime monitoring, with its Tracker and Viewer products. The company also supports several industry protocols, such as HL7/Health Insurance Portability and Accountability Act (HIPAA) and Society for Worldwide Interbank Financial Telecommunication (SWIFT). The company is seeing strong growth globally, driven by virtualization and cloud, as well as the drive around efficiency in the development process. During 2010, the company spent time adding integration to continuous integration environments, and focusing on enabling agile development teams. The company still has a limited, but growing, presence in the U.S., and customers note good overall support. In addition to integrations with other UI testing tool providers, Green Hat has licensed a solution that is fully integrated into its product, to provide an end-to-end, UI-driven testing solution for many platforms, including SAP.

### Strengths

- Complete, end-to-end SOA testing platform, with strong support for key ESBs
- Ability to drive early testing
- Usability for nontesters, to help establish and drive SOA policies
- Flexibility and support, owing to its consulting roots, which includes its approach to licensing

- Responds quickly to fix product issues

### Cautions

- Needs to grow its presence in the U.S. market, and its overall size
- Needs improved marketing
- Lacks strong test data management

### HP

HP continues to be the dominant player in the market, with a presence in virtually every large enterprise. Recently, it has faced challenges from smaller more-nimble competition, and has seen an increase in pricing pressure. HP has made solid improvements in service, but ranked below the mean value for customer satisfaction and likelihood to recommend in our user studies. We believe that some lingering bad memories of a period of poor customer support, and the emergence of new competitors with lower pricing and faster time to innovation, are the cause. Its position requires all other players to position around HP's tools, and is strong enough that several competitors also have integration to HP products. Virtually all SIs, outsourcing providers and testing consultancies support the HP product line, making it easy for organizations to find experienced testers. SAP now resells HP testing tools as part of its overall quality solution. However, outside of the introduction of support for requirements management in Quality Center, the product line has been a bit stagnant at times, relying on market position to flatten out the advantages others may have in technical innovation.

HP has grown its breadth in the quality space through acquisition, adding strong offerings for security analysis. New product releases in 2010, and planned for 2011, show that HP has retrenched in technical innovation to extend the breadth of its quality solutions (adding test data management and manual testing) and participate in a wider portion of the ALM market. The ability to wait out the market has allowed HP to observe competitive efforts and, in some cases, one-up the competition. As the company builds out a more complete ALM story, it will also have to develop a broader set of messages to appeal across the entire development team. We believe this will create a leadership position in bridging together project portfolio management, quality and operations to support IT service management (ITSM), but product evolution will be slower than in many smaller companies, simply because of the breadth of the product line and HP's installed client base. The Software group is still somewhat lost within the overall company structure, and, unlike IBM (Rational) or Microsoft (MSDN), there isn't a clear place to go for HP's application delivery vision, without navigating through a lot of printers, laptops and other hardware. Because the company services a broad technology and customer base, we believe it will struggle to meet the specific advantages of more-targeted tools. The company has a broad set of tools for software quality, including: Functional Testing (including QTP) – for functional automation; Performance Center and LoadRunner – for load/stress,

and performance testing; Quality Center (formerly TestDirector) – a consolidated quality management solution; Business Process Testing (BPT) – a component-based testing framework for manual and functional testing; Service Test – for testing applications using Web services; integrated to HP SOA Systinet; and Application Security Center (including QAInspect) – a toolset for locating potential exploitable security issues.

### Strengths

- Market position; dominant market share provides network effect benefits
- Breadth of technology, both supported technologies and testing tools
- Global presence and support
- Ecosystem; market share creates network effect, resulting in broad, integrated life cycle support

### Cautions

- Complete product line, with many options, can create invoice complexity
- Complex licensing model – premium pricing
- Lags in cutting-edge technologies and use cases
- Limited tools for developer-oriented quality tasks

### iTKO

We rate iTKO as a Visionary for its ability to build a market-leading SOA testing platform that supports codeless SOA, and database and RIA testing, and its strong support of teams moving to cloud computing. The vendor provides rich support for ESBs, and is well-positioned for the growing BPM market. In 2010, its revenue approximately tripled, which was the strongest growth in the segment. The company has expanded its message from test automation to a more complete solution, including its virtualization technology. This will enable iTKO to adapt well as the market shifts and matures, and to continue to successfully deliver its vision to the market. We expect continued strong growth as the vendor continues to leverage reseller agreements and broader adoption in its customer base. The expanded message around DevTest Cloud fits well with trends toward the use of private cloud technology for DevTest labs. While the company has strong innovation for software quality, it is an incomplete platform for driving all aspects of application quality, and will generally be used as an augmentation platform.

### Strengths

- Vision for cloud enablement
- Ability to drive testing across every tier of the application, and early in the project
- Virtualization technology simplifies testing of complex environments

### Cautions

- Complexity of tool and learning curve
- Lacks strong test data management
- Cost; it needs a focused ROI model

### IBM

We rate IBM as a Leader because of its overall market strength and broad support for quality through the life cycle. Like HP, IBM has a strong global presence and an even broader set of testing products. This includes strong tools for code quality, unit testing, and test data extraction and masking. For many years, IBM has been a strong advocate for the idea that quality does not begin with testing, and it continues to invest around the life cycle to support application quality. IBM has a strong partner ecosystem and is making a strong push into cloud lab management. A key strength is the complete set of ALM offerings provided by IBM, and the market strength it has across this life cycle because of its success with the Eclipse project (now maintained by the Eclipse Foundation). As IBM builds on that open-source project with the Jazz collaborative platform, it is able to weave together a relatively complete development life cycle.

IBM initially had quick execution on Jazz-based tools, including Rational Quality Manager and Rational Requirements Composer products, but has had to do a bit of a reset to synchronize the release platforms to address overlapping functionality. Although designed to address a wide market, it isn't always clear which products should be employed in which cases. IBM is championing the Open Services Lifecycle Collaboration as an open XML/representational state transfer (REST)-based approach to integration. However, although IBM has been good at driving the integrated ALM story, it has played from behind the curve and lags the market in test automation functionality. Although it offers broad support for testing, it has a complex set of offerings. IBM's overall strength is its ability to drive a quality-oriented approach across roles and throughout the project, from requirements through development practices, such as unit testing, code review and static analysis, and managed change and build processes.

IBM Global Services is also becoming an asset in the development of technology, drawing on its experience in working on many projects to gain insight into effective planning and practices, and



turning this knowledge into tools. A key area of innovation is in planning and metrics, where the Services group can bring a combined set of tools and practices layered on top of the Rational software group's Jazz foundation.

IBM's testing tools include Rational Quality Manager, Rational Functional Tester, Rational Performance Tester, Rational Service Tester, Rational AppScan, Rational Policy Tester and Rational Software Analyzer.

### Strengths

- Quality throughout the application life cycle
- Ability to reuse assets and move beyond project-centric tooling
- Global presence and strength of the Global Services organization
- Ability to test a wide variety of technologies

### Cautions

- Lagging automation tools
- Slow evolution in product line
- Tools have been complex to implement

### Micro Focus

The position of Micro Focus as a Leader in this Magic Quadrant comes from solid execution after the acquisition of Borland and Compuware's ASQ business. The company has a solid product line that it has reinvigorated, it has provided a clear direction for customers (which neither of the previous owners did), and this solid product execution has been matched by solid sales execution, putting Micro Focus in a solid third position in revenue, challenging for No. 2. The company has well-structured agile development teams, enabling a good pace of product development. Micro Focus has also executed well on partnerships, including the delivery of an integrated performance analytic solution that combines SilkPerformer with technology from dynaTrace. The SilkPerformer CloudBurst product provides license cost flexibility and unlimited scalability. With tools for requirements and change management, Micro Focus can deliver an integrated set of tools, and has gone further than other market leaders to integrate all these products with competitors. The company must remain focused on its quality story, and continue to improve a solution focus around legacy renovation and an end-to-end focus on quality, from requirements to delivery. Micro Focus must also continue to show that it can transition its current customer base forward, while attracting new customers, and must also show more innovation leadership.

The company's QA assets now include SilkPerformer, SilkPerformer CloudBurst, SilkPerformer Diagnostics, SilkTest, SilkCentral Test Manager, DevPartner and Data Express.

### Strengths

- Risk-based planning tools
- Technology coverage for traditional testing tasks
- Solid testing maturity model
- Broad-quality life cycle, including test data extraction and management and code quality

### Cautions

- Former Compuware customers should expect to migrate to Silk products
- Lack of support for SOA/Composite applications
- Must reinvigorate partner ecosystem

### Microsoft

Microsoft has had elements of testing for several years, but the release of Visual Studio 2010 is its first concerted effort to reach out to test engineers and developers, and to deliver a more complete solution. A key element in Microsoft's approach is strong integration between developers and testers, to enable more-efficient delivery cycles. This includes test impact analysis to identify which test cases should be run, based on analysis of code changes, and strong tools to manage test environments and the manual testing process. Microsoft provides tools for unit testing, static analysis, manual and automated functional testing, profiling, and load/stress testing, as well as tools to manage defects, test cases and reporting. The Microsoft toolset is aimed at users of Visual Studio and Team Foundation Server. This creates great productivity for users of Microsoft tools and platforms, but won't be appropriate for users focused on other platforms. The company has a number of strong projects, such as PEX (a white-box test generation system; see [www.research.microsoft.com/en-us/projects/pex/](http://www.research.microsoft.com/en-us/projects/pex/)) that are continuing to push quality upstream, as well as delivering market-shifting functionality. We currently rate Microsoft as a Visionary for this combination of innovative tools and global reach. Microsoft tools fit well for small to midsize teams that are utilizing agile methods and have a developer-centric approach, and its current tools now also extend to business users involved in user acceptance testing, via market-leading manual testing support.

### Strengths

- Integration to Team Foundation Server, including workflow support
- Ease of use
- Test lab management, including physical and virtual environments

- Manual testing data collection and integration to defect management
- Price

#### Cautions

- Best-suited for users focused on Microsoft technologies
- Script-focused test automation

#### Oracle

Oracle is rated as a Leader, with a solid basic product line matched to a strong sales organization. Unlike the majority of companies in this market, which are focusing on developer/tester integration, Oracle has focused on the interplay between the test organization and operations, and places its quality products in the enterprise management side. The linkage between operations and the performance testing and tuning team is key, but for functional testing and the overall management of quality, strong ALM integration is required. Oracle has strong tools for gathering information from production to create accurate load test scripts and data, as well as strong analytics. Overall, Oracle has a solid story that plays on the company's strengths as a platform provider and its background in applications and databases. Oracle has a strong test data management solution, with the ability to extract and mask data from test systems. It also has a strong set of capabilities for conducting various performance and load-testing activities, with the ability to pull information from production systems to help drive accurate loads. Oracle also provides a set of acceleration templates to support its application suite. The products need work on support for a broader set of client technologies, with the current focus on Web clients, Oracle databases and Oracle applications. The vendor provides integration for the creation of test scripts in Eclipse, and supports multiple client technologies and databases. SAP certification was recently achieved. On the management front, support for Sogeti's Test Management Approach (TMap) has been added. Oracle's channel strength and strong connection to its system management and package software products will drive market growth, but the company needs to develop more-complete ALM integration to its development tools, to provide traceability and drive quality upstream.

#### Strengths

- Test data management
- Support for high-capacity load testing of database tier
- Support for testing Oracle packages
- Single script can be used for both functional and performance testing

#### Cautions

- Lack of integration to Oracle development tools for a full ALM story
- Limited client support for functional testing

#### Original Software

We rate Original Software as a Visionary for the strength of its code-free testing capabilities, which are enabling users to achieve higher levels of automation earlier in the life cycle, and its approach for moving from manual to automated testing. However, while automation is the goal, customers note that time to proficiency is six months. The company also needs to reinvigorate its innovation as other companies catch up and pass it in areas such as manual testing support, and as the number of script-free test automation approaches increases. This is a challenge for all vendors in the Visionaries quadrant, and Original Software has a good set of objectives for moving forward. The vendor has done a good job of staying on top of the ever-increasing number of presentation technologies, with solid support for Flash, Flex, Silverlight and Ajax. Original Software has also added support for SAP. Although there is a learning curve to the approach, customers are reporting solid gains in the percentage of test automation, and resulting savings in the overall testing process.

The company lacks load/stress testing support, but has a partnership with Green Hat to fill out this area, as well as SOA testing. Original Software has complete tools for test management and reporting, with a solid workflow process and the ability to see and manage progress across multiple projects, as well as integration to Outlook. Another key element of the completeness of the platform is test data management, with tools to subset and cleanse data and manage it through the cycle of testing. The company is building an emerging ALM story with its Qualify product, although Original Software is still primarily positioned as a quality organization and the ALM market is very crowded. The company has been building its U.S. presence (which already accounts for a majority of revenue), but will need to build a stronger story than just being a better form of automation, and to fill in its partner chain.

#### Strengths

- Test data management – extract and mask data, as well as rollback
- Ease of use in code-free approach and process to migrate from manual to automated testing
- Self-healing scripts

#### Cautions

- Overall global presence
- Marketing presence, with renewed push at end of 2010

## Parasoft

We rate Parasoft as a Visionary for its work pushing a strong message around development productivity by driving quality through the entire development process. During 2010, the company moved into the ALM space with Concerto, and also introduced some bundled product offerings. Beyond SOA testing, Parasoft's primary focus is on code quality and early detection of defects. As such, the company doesn't offer a complete set of traditional functional automation tools. However, the addition of Concerto means that the company can tell a more complete story, incorporating requirements, test planning, and support for manual test definition and results. In the case of Web clients attached to SOA back ends, Parasoft has a full functional suite. The strength of SOAtest is the ability to create end-to-end tests that create discrete, but linked, tests and validations at the UI and server layers. Because of its limited scenarios and relatively new entry in the functional test automation space, we generally see Parasoft in an augmentation role, or with agile teams that don't utilize a separate QA function. The company has good global coverage and has steadily executed, but needs to extend beyond its traditional customer base, to drive broader adoption.

### Strengths

- Developer-focused tools designed to drive quality efforts upstream
- Strong metrics and reporting to support Automated Defect Prevention method
- Wide coverage of testing types: unit, functional, performance and static analysis
- Broad set of integrations with other tools across the life cycle
- Midlevel pricing
- High level of customer satisfaction

### Cautions

- Technical solution not well-suited to many business-level testers
- Not suited to companies that want to test non-Web/SOA applications or packaged software

## Seapine Software

Seapine Software is rated as a Niche Player that offers a good integrated solution that encompasses test planning, management and execution. The company has a complete ALM solution that is targeted primarily at servicing midmarket companies. Seapine Software has a limited footprint outside the U.S., and lacks significant partnerships with third parties in technology and

services. While the products are noted for being easy to use and presenting a complete set of tools, this end of the market faces the strongest pricing pressure. This is especially true on the Microsoft .NET platform, as Microsoft continues to fill in its suite. Seapine Software offers test planning and functional automation, and recently added load/stress testing, rounding out its product completeness. The solution is well-placed for organizations seeking a reasonably priced, integrated suite of products, and the company is seeing positive sales growth.

### Strengths

- Cost-effective solution that is part of a complete ALM suite
- Strong support for Windows-based developers
- Short time to productivity

### Cautions

- Lack of partnerships and market exposure
- No developer-quality tools (static analysis, unit testing or test data management)

## SmartBear Software

SmartBear Software is rated as a Niche Player, focused on cost-effective tools that fit well for organizations utilizing agile development techniques for small to midsize teams, and working to drive quality early in the life cycle. During 2010, the company made some significant structural changes, acquiring a tool in the ALM space and relaunching around the end-to-end quality direction. To broaden its reach, the company now offers SaaS versions of the tools, with free, single-project, 10-user editions. SmartBear Software's TestComplete supports a variety of test types, including functional automation, unit and load testing in a single product (load generation has an additional license). The company extended its testing footprint, with the addition of QAComplete for test planning, text case management, defect management and reporting. SmartBear Software also has tools for peer code review, and project planning and management, continuous integration and performance profiling. TestComplete has solid support for new client technologies, such as Microsoft Silverlight 4 and Adobe Air, and gained keyword testing (making the tool usable for a wide audience of testers). The company has a strong commitment to R&D, and a positive cash flow. The tools are a good fit for product-focused organizations that have agile teams with close collaboration between developers and testers, and, overall, the products offer a strong value. The TestComplete functional testing engine is utilized by Worksoft, and SmartBear Software has a global set of reseller partners.

## Strengths

- Price
- Single product for unit, functional and load/stress testing
- Deep technical support for Microsoft, Java and Web technologies
- Together with the rest of the portfolio, vendor offers a strong solution for product-focused companies

## Cautions

- Best-suited for small to midsize product teams
- Not applicable for Unix/Linux/Macintosh-based applications
- Limited load/stress testing functionality and browser support

## SmarteSoft

We rate SmarteSoft as a Niche Player because, although it offers a good set of productive tools, it will be challenged to define a clear, sustainable market position (this is not a unique challenge, given the size differential between the Leaders and other companies). Since 2010, the company has continued to grow and define some specific markets to target (energy and healthcare have been strong), and has also developed a concerted effort around extensibility. Extensibility enables technical users to readily adapt to additional protocols and technologies, while still delivering a code-free experience to testers. Users choose the product for its competitive price and ease of use. Our user research found that it has the fastest time to productivity of all the tools examined in this Magic Quadrant, as well as achieving a high degree of automation. The company expanded its line of products, and had strong revenue growth, doubling in size. Global distribution is limited, and, while growing, there is still a limited number of partners. SmarteSoft continues to execute well, and has a good focus on building a complete platform for testing professionals. The tools encompass test management (including requirements management), functional automation, load/stress testing, and unit and cross-browser testing.

## Strengths

- Ease of use
- Ease of maintaining test automation
- License cost

## Cautions

- Ability to drive sustainable differentiation
- Lack of direct support outside the U.S.

## Soasta

We rate Soasta as a Visionary primarily for its pioneering use of cloud-sourced load testing and its pay-as-you-go pricing model. This has created a major disruption in the load/stress testing market, and has driven great growth for the company, especially during a time when many budgets are being cut. Soasta needs to prove that it can continue to innovate, as traditional vendors have added cloud test capabilities and additional players have entered the market. In addition, while the load/stress portion of the product is strong, the company has backed off on innovation around the functional test automation market. The strengths of the product are the model for building tests and its performance analytics.

Soasta also sells an appliance-based version of its test platforms, for those that want a local installation. The company is experiencing good growth and market recognition, but needs to develop additional partnerships to fill out the life cycle.

## Strengths

- Ability to exploit the cloud for test labs
- Test component reuse
- Support for testing parallel execution paths
- Support for leading Web UI technologies
- Price model – a single price for all testing capabilities and SaaS model

## Cautions

- Lack of partnerships across the life cycle
- Not viable for traditional desktop or client/server applications
- Focus on load/stress testing means lack of evolution for functional testing

## Tricentis

Tricentis is a relatively new company that excels in the creation of maintainable test assets. We currently rate it as a Visionary, for its strong direction with business-directed testing that matches well with acceptance-test-driven strategies and a clear connection in activities from requirements to test validation. However, the vendor must expand geographically. It is based in Austria, and began expanding during 2010 through Europe and into the Asia/Pacific region, and is now entering North America. In addition, the company provides no load/stress testing, but has expanding support for SOA testing, and support for SAP and Oracle applications. From a technical standpoint, Tricentis is highly innovative and uses a model-oriented approach to the entire testing process. This enables improved selection of test cases, production of test data and codeless production of tests, and relies on driving tests via its approach to creating test cases. The tool supports manual and automated testing, enabling an incremental approach to automation.

Tricentis is currently limited in a comprehensive view of quality, as it does not produce a load/stress testing tool or integration into ALM tools, and offers no support for security and code quality or unit testing. Tricentis users tend to have centralized testing organizations, with only moderate use of outsourced resources, and most users have 20% to 50% of their functional test cases automated, and over 50% of regression tests automated. The company has established relationships with a number of outsourced testing providers.

### Strengths

- Market-leading automation model and ease-of-automation maintenance
- End-to-end, model-driven approach, driving effective test coverage
- Strong test data facilities

### Cautions

- Limited, but growing, geographic support
- No load/stress testing tool, and limited SOA support
- Needs to establish partnerships in ALM

## Worksoft

We rate Worksoft as a Visionary for its delivery of leading-edge, script-free test automation tools and its leading support for testing SAP applications. The company has continued to strengthen its offering with certified integration for both SAP's NetWeaver and Solution Manager, as well as the IntelliCorp suite. Worksoft also built a global partnership with IBM and strengthened its reporting facilities. We expect support for additional packaged applications. The company added a test data management solution and change impact analysis. Most of Worksoft's customers have more than 50% of their functional tests automated, leading the other vendors in this Magic Quadrant. The products have high customer satisfaction, with very high automation rates and fast time to productivity.

### Strengths

- Support for SAP ecosystem and business process validation
- Resilience of tests to application changes
- Script-free tools enable a higher degree of test automation success

### Cautions

- Lack of a defect management solution

## Vendors Added or Dropped

We review and adjust our inclusion criteria for Magic Quadrants and MarketScopes as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant or MarketScope may change over time. A vendor appearing in a Magic Quadrant or MarketScope one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. This may be a reflection of a change in the market and, therefore, changed evaluation criteria, or a change of focus by a vendor.

## Evaluation Criteria Definitions

### Ability to Execute

**Product/Service:** Core goods and services offered by the vendor that compete in/serve the defined market. This includes current product/service capabilities, quality, feature sets and skills, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

**Overall Viability (Business Unit, Financial, Strategy, Organization):** Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

**Sales Execution/Pricing:** The vendor's capabilities in all pre-sales activities and the structure that supports them. This includes deal management, pricing and negotiation, pre-sales support and the overall effectiveness of the sales channel.

**Market Responsiveness and Track Record:** Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

**Marketing Execution:** The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word-of-mouth and sales activities.

**Customer Experience:** Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

**Operations:** The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

### Completeness of Vision

**Market Understanding:** Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

**Marketing Strategy:** A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

**Sales Strategy:** The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

**Offering (Product) Strategy:** The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

**Business Model:** The soundness and logic of the vendor's underlying business proposition.

**Vertical/Industry Strategy:** The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

**Innovation:** Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

**Geographic Strategy:** The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.