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# The Forrester Wave™: Process-Centric Software Configuration Management, Q4 2005

by Carey Schwaber

TECH CHOICES

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## The Forrester Wave™: Process-Centric Software Configuration Management, Q4 2005

Evaluation Of Top Process-Centric SCM Vendors Across 121 Criteria

by **Carey Schwaber**

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### EXECUTIVE SUMMARY

Process-centric SCM solutions unite software configuration management (SCM) and software change management, thereby enabling task orientation, traceability, and process automation throughout the development life cycle. To assess the state of the process-centric SCM market, Forrester evaluated the strengths and weaknesses of top process-centric SCM solutions across 121 criteria. The result: IBM's solution is both the strongest overall solution as well as the most widely used. The primary area in which IBM is weak — process customization — is a notable strength for the other vendors we evaluated. Microsoft's much anticipated market entry won't create much churn in installed bases, but it will grow the overall market — by providing smaller Microsoft shops that haven't previously used process-centric SCM with an affordable, tightly integrated alternative.

### TABLE OF CONTENTS

- 2 **Process-Centric SCM: The Cornerstone Of Life-Cycle Management**
- 3 **Process-Centric Software Configuration Management Evaluation Overview**
- 5 **Vendor Approaches**
- 6 **Characteristics Of A Leading Solution**
- 7 **Vendor Profiles**
- 12 **Microsoft Will Gain Customers Without Significantly Disturbing Installed Bases**
- RECOMMENDATIONS
- 13 **When Picking A Solution, Consider Tomorrow's Requirements As Well As Today's**
- WHAT IT MEANS
- 14 **The Microsoft Threat Will Continue To Loom Large**
- 14 **Next Up: Change Management Across Development And Operations**
- 15 **Supplemental Material**

### NOTES & RESOURCES

Forrester interviewed 29 vendor and user companies, including: Borland Software, BT, Computer Associates International, Fortis, IBM, Microsoft, MKS, Serena Software, Telelogic, and Verizon Wireless.

#### Related Research Documents

- ["Integrate Requirements Management With SCM To Enable More Informed Project Management"](#)  
September 21, 2005, Quick Take
- ["Don't Rely On Just One Method For Distributed Access To Development Assets"](#)  
September 2, 2005, Quick Take
- ["The Expanding Purview Of Software Configuration Management"](#)  
July 22, 2005, Trends
- ["Software Configuration Management Tools Ease The Burden Of Compliance"](#)  
July 19, 2005, Quick Take

## PROCESS-CENTRIC SCM: THE CORNERSTONE OF LIFE-CYCLE MANAGEMENT

Every software development organization must manage the changes it makes to development artifacts like source code, models, test scripts, and build scripts. Development shops use different kinds of tools to manage these changes. For example, version control tools manage changes to individual files, and SCM tools build on this to manage changes to groups of files, or configurations.<sup>1</sup> Process-centric SCM solutions include the capabilities of SCM tools, but they also manage the process by which changes are made — and thus help manage the development life cycle.

Enterprises adopt process-centric SCM solutions for assistance with development process definition, implementation, enforcement, and verification of compliance.<sup>2</sup> This kind of assistance is increasingly needed to meet internal and external compliance requirements and to accommodate geographically, organizationally, and culturally distributed development and both cross-platform and service-oriented architectures. In the past year, more than 3,500 customers have purchased the solutions included in this evaluation; these new customers represent approximately one-third of the cumulative installed base for these products.

### What Makes An SCM Solution “Process-Centric”?

Forrester defines process-centric SCM as:

*The automation of software development life-cycle management processes through unified software configuration management and software change management.*

With this unified change and configuration management come the following benefits:

- **Task orientation keeps developers focused on functionality, not files.** While base SCM solutions are artifact-oriented, process-centric SCM solutions are task-oriented. Requirements and defects are defined as change requests; these change requests are broken down into tasks and assigned to developers for implementation. User activities are then managed in terms of these tasks rather than in terms of changes to artifacts.<sup>3</sup>
- **Traceability provides the business with better visibility into IT.** In addition to defining changes in terms of tasks, process-centric SCM solutions also enable shops to link these tasks with other development assets like requirements, defects, and test cases. This enables shops to determine why changes were implemented and to verify that a particular release includes specific changes.<sup>4</sup>
- **Processes can be defined in terms of recognizable events.** Process-centric SCM solutions make it significantly easier for shops to define processes in terms of events like “assign task,” “request peer code review,” or “approve release for production” — recognizable as human tasks and meaningful at the business level. These solutions include graphical process modeling tools

that either decrease or altogether eliminate the need to write triggers or scripts. Integrating change and configuration management also enables change management processes to be overlaid upon more granular development practices.

## PROCESS-CENTRIC SOFTWARE CONFIGURATION MANAGEMENT EVALUATION OVERVIEW

Forrester evaluated the strengths and weaknesses of top process-centric SCM solutions.

### Evaluation Criteria

Forrester evaluated vendors against 121 criteria, which we grouped into three high-level categories and 19 subcategories (see Figure 1):

- **Current offering.** To assess product strength, we evaluated each offering against eight groups of current offerings criteria: platform support, security, scalability, administration, geographical distribution, versioning and configuration management, process management, collaboration, reporting and analytics, and life-cycle integration.
- **Strategy.** We compared the product development and go-to-market strategies of each company with Forrester's forward-looking vision of the process-centric SCM market to assess how well each vendor is positioned for future success.
- **Market presence.** We combined information about each vendor's installed base, financial strength, employees, services and support offerings, and partnerships to determine current market presence.

### Evaluation Methodology

Forrester used a combination of three data sources to assess the strengths and weaknesses of each solution:

- **Vendor surveys.** We surveyed vendors on their capabilities as they relate to the evaluation criteria. Once we analyzed the completed vendor surveys, we conducted vendor interviews to delve into particular areas in more depth.
- **Product demos.** We asked vendors to conduct demonstrations of their product's functionality. We used findings from these product demos to confirm our understanding of product capabilities.
- **Customer reference calls.** To validate product and vendor qualifications, Forrester also conducted reference calls with between two and four of each vendor's current retail customers.

**Figure 1** Evaluation Criteria

CURRENT OFFERING	
Platform support	What platforms does the product run on?
Security	What support does the product offer for encryption, authentication, authorization, and auditing?
Scalability	What size deployments can the product support?
Administration	How easy is the product to implement and administer?
Geographical distribution	How does the product support geographically distributed development?
Versioning and configuration management	How well does the product manage changes to development artifacts?
Process management	How does the product support development process definition, implementation, and enforcement?
Collaboration	What support does the product provide for collaboration?
Reporting and analytics	What reporting and analytics capabilities does the product include?
Life-cycle integration	How well does the product support various application life-cycle activities, both before and after deployment?
STRATEGY	
Product strategy	How strong is the vendor's product strategy?
Corporate strategy	How strong is the vendor's corporate strategy?
Price	What is the price of this product?
R&D	What R&D resources has the vendor committed to this product line?
MARKET PRESENCE	
Installed base	How large is the vendor's installed base?
Financial strength	How financially healthy is the vendor?
Employees	How many employees does the vendor have?
Services and support	How strong are the vendor's implementation, training, and support services?
Partners	Who are the vendor's go-to-market partners for this product?

Source: Forrester Research, Inc.

## Evaluated Vendors

Forrester included seven vendors in the assessment: Borland Software, Computer Associates International (CA), IBM, Microsoft, MKS, Serena Software, and Telelogic. Our evaluation included the following products: Borland StarTeam Enterprise Advantage, Computer Associates AllFusion Harvest Change Manager, IBM Rational ClearCase Change Management Solution, Microsoft Visual Studio 2005 Team Foundation Server, MKS Integrity Suite, Serena ChangeMan Dimensions, and Telelogic SYNERGY/CM and SYNERGY/Change.<sup>5</sup> These vendors are all market leaders; each of these vendors has:

- **A truly process-centric SCM solution.** Many SCM solutions are labeled “process-centric” but lack truly integrated change and configuration management. This evaluation includes only solutions that meet Forrester’s standards for a process-centric SCM solution.
- **A solution for distributed development platforms.** Vendors included in this evaluation provide process-centric SCM solutions for distributed platforms like Windows, Unix, and Linux. However, this evaluation also considers the level of support each vendor offers for cross-platform development — the development of applications with components running on different mainframe, midrange, and distributed platforms.
- **A minimum of \$25 million in total annual revenues.** Because it’s not easy to switch process-centric SCM solutions, enterprises should pay attention to vendor viability when selecting an SCM solution. For this reason, we evaluated only vendors with at least \$25 million in total annual revenues.

Our evaluation methodology depends in part on input from the vendors, including vendor responses to questionnaires and vendor customer references.

## VENDOR APPROACHES

Forrester’s evaluation of process-centric SCM solutions revealed a market that includes:

- **Vendors with development life-cycle suites.** Borland, IBM, Microsoft, and Telelogic offer process-centric SCM solutions that are part of integrated suites including tools for nearly every stage of the development life cycle. IT shops sometimes adopt these vendors’ SCM solutions on the basis of their role within the suite rather than on their own merits.<sup>6</sup>
- **A few pure-play change management vendors.** MKS and Serena are the only vendors Forrester evaluated that play exclusively in the software change management space. Integration with life-cycle tools in other categories is more challenging for these pure-play vendors than it is for vendors that sell comprehensive life-cycle suites.

- **A single management software vendor.** Of the vendors included in this evaluation, CA places the least emphasis on the development life cycle, focusing instead on the management of production systems. As a result, CA has made less progress than other vendors on the integration of its process-centric SCM solution with other development life-cycle tools but more progress on the integration of change management across both development and operations.

This evaluation of the process-centric SCM market is intended to be a starting point only. Forrester encourages readers to view detailed product evaluations and adapt the criteria weightings to fit their individual needs through the Forrester Wave Excel-based vendor comparison tool.

### CHARACTERISTICS OF A LEADING SOLUTION

What are the most important characteristics of a process-centric SCM solution? For a solution to be appropriate for enterprise adoption, it must be strong in all of the following areas:

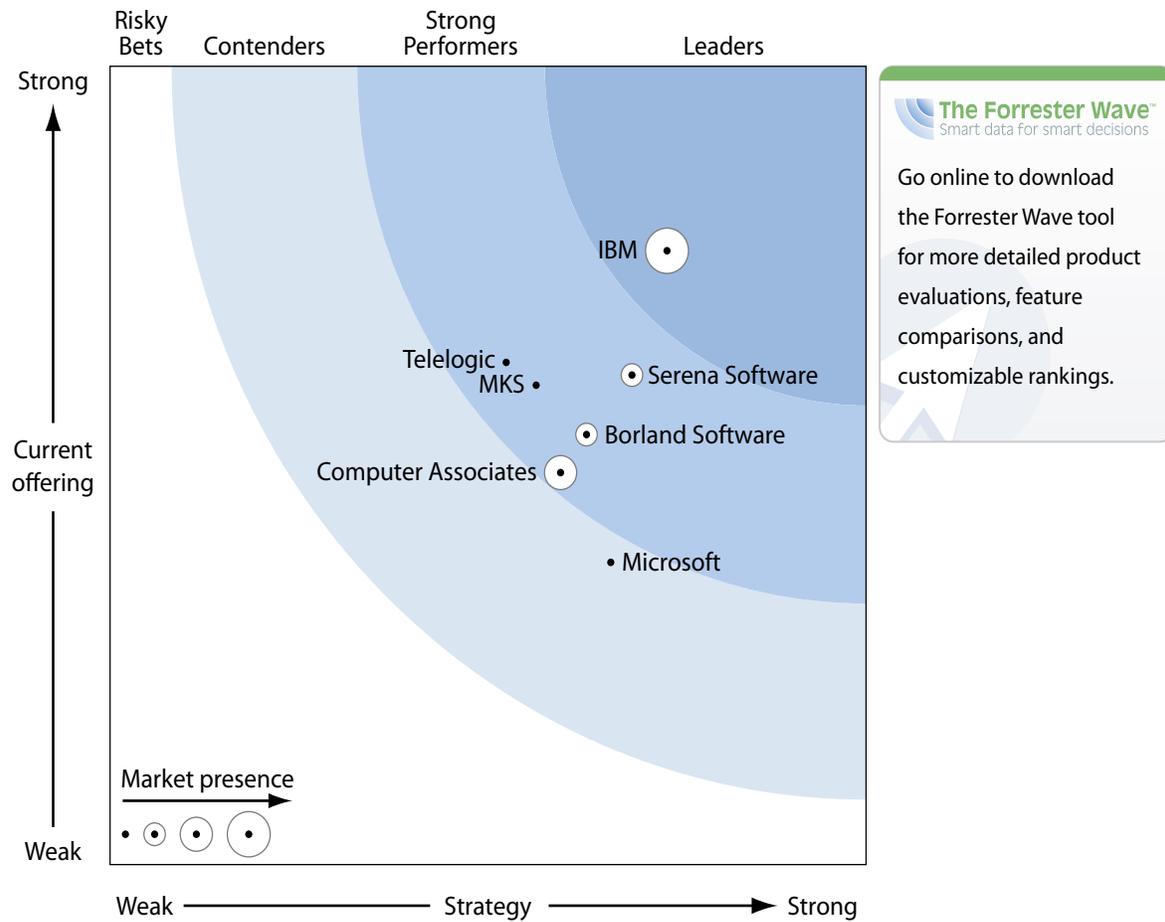
- **Process management *and* versioning and configuration management capabilities.** Process-centric SCM has two spheres of concern: software configuration management and software change management. A solution that lacks pure change management capabilities is a base SCM tool and does not enable task orientation, traceability, or process automation. A solution that lacks core versioning and configuration management capabilities is just a workflow engine; end users often resist such solutions because they lack the productivity-enhancing features of base SCM solutions. No process-centric SCM solution that lacks in either area can be considered a leading solution.
- **Support for multiple platforms *and* support for development across these platforms.** Standardizing on a single solution enables asset reuse, service-oriented architecture, and cross-platform development. It is also significantly easier for development organizations that use a single solution to standardize their development processes, collect consistent metrics, and gain real visibility into the relative health of various projects. Solutions that support fewer platforms will necessarily be of less value to shops developing on heterogeneous platforms.
- **Scalability in terms of users, locations, and total size of assets managed.** The benefits of standardizing on a single process-centric SCM solution are significant, and the costs of switching solutions are high, with initial implementation times ranging from a few months to a few years. Customers can't afford to adopt process-centric SCM solutions only to outgrow them within a few years. Leading process-centric SCM solutions have proven scalability in terms of total number of users, number of development sites, and total size of assets managed.

Because these attributes are so crucial to the strength of a process-centric SCM solution, we weighted the corresponding criteria more heavily than other criteria in our evaluation: Process management, versioning and configuration management, platform support, and scalability each represent 15% of each vendor's current offering score. These four attributes are the primary decision drivers for the adoption of process-centric SCM solutions.

### VENDOR PROFILES

Forrester's evaluation revealed a Leader, five Strong Performers, and one Contender (see Figure 2).

**Figure 2** Forrester Wave™: Process-Centric Software Configuration Management, Q4 '05



Source: Forrester Research, Inc.

**Figure 2** Forrester Wave™: Process-Centric Software Configuration Management, Q4 '05 (Cont.)

	Forrester's Weighting	Borland Software	Computer Associates	IBM	Microsoft	MKS	Serena Software	Telelogic
<b>CURRENT OFFERING</b>	50%	2.69	2.46	3.85	1.89	3.00	3.07	3.15
Platform support	15%	1.72	3.20	3.75	0.20	2.78	3.88	1.86
Security	5%	2.14	1.72	3.49	2.27	4.37	4.36	3.78
Scalability	15%	1.90	3.60	5.00	1.00	2.30	2.20	2.80
Administration	5%	3.50	3.50	1.50	2.00	4.00	3.00	2.00
Geographical distribution	10%	3.20	1.45	3.80	1.90	1.90	3.70	3.20
Versioning and configuration management	15%	2.17	1.63	4.55	2.60	2.29	2.65	3.90
Process management	15%	3.95	1.96	3.33	2.50	4.35	3.38	4.03
Collaboration	5%	5.00	3.20	3.90	2.60	2.90	2.30	4.10
Reporting and analytics	5%	2.53	2.65	3.15	4.11	3.75	2.29	3.68
Life-cycle integration	10%	2.46	2.05	3.70	2.03	3.05	2.90	2.63
<b>STRATEGY</b>	50%	3.15	2.98	3.68	3.31	2.82	3.45	2.61
Product strategy	35%	3.00	3.00	3.73	4.15	2.85	4.00	2.85
Corporate strategy	15%	2.60	2.60	2.20	1.60	4.40	4.00	2.70
Price	15%	3.00	3.00	2.00	4.00	1.00	5.00	5.00
R&D	35%	3.60	3.10	5.00	2.90	2.90	2.00	1.30
<b>MARKET PRESENCE</b>	0%	2.54	3.16	4.45	1.95	1.69	2.74	1.85
Installed base	40%	3.85	2.55	4.70	0.00	1.60	2.85	1.30
Financial strength	30%	1.60	3.60	4.20	4.40	1.80	2.60	2.00
Employees	10%	2.00	3.00	5.00	4.00	1.00	1.00	1.00
Services and support	10%	1.85	4.19	4.64	2.32	2.76	3.63	3.50
Partners	10%	1.40	3.40	3.50	0.00	1.30	3.60	2.80

All scores are based on a scale of 0 (weak) to 5 (strong).

Source: Forrester Research, Inc.

## Leaders

At present there is only one Leader in the process-centric SCM market:

- IBM is the strongest across the board.** IBM is the Leader in the process-centric SCM market because of the breadth and depth of its solution; it earns high marks on the most important criteria in our evaluation, but it also scores high across the board. The IBM Rational ClearCase Change Management Solution comprises IBM Rational ClearCase, IBM Rational ClearQuest, and IBM Rational Unified Change Management (UCM). IBM's solution is notable for its versioning and configuration management capabilities, its out-of-the-box implementation of IBM Rational UCM processes, and its impressive scalability across multiple dimensions. IBM's primary weakness: the amount of programming required to implement processes other than UCM.<sup>7</sup>

**IBM is most appropriate for:** IBM's solution is best for shops that have significant SCM requirements today and shops that are concerned they might eventually have such requirements. IBM's solution is also appropriate for shops that want to use IBM Rational UCM processes.

### Strong Performers

Five of the vendors that Forrester evaluated — Borland, CA, MKS, Serena, and Telelogic — are Strong Performers. These vendors all make the implementation of custom processes easier than IBM does, and customers often choose to adopt these vendors' solutions for this reason alone. But they have other specialties, too. For example, CA and Serena offer better support for cross-platform development than any other vendors; for development shops with significant legacy code bases, this is a must-have.

The Strong Performers category included two development life-cycle suite vendors:

- **Borland makes StarTeam the center of its application life-cycle management (ALM) universe.** StarTeam is a relatively strong solution across the board, but it does not lead in any of the most important areas of functionality. Borland acquired StarTeam, along with CaliberRM, from StarBase in 2000; as Borland has moved from a vendor of developer productivity tools to one of team productivity solutions, StarTeam has come to make up a larger proportion of Borland's revenues. As a result, Borland is committed to improving StarTeam; its planned enhancement for both StarTeam and the underlying Borland Software Delivery Platform are sound. StarTeam's strengths are its support for geographically distributed development and collaboration; its weaknesses are platform support, security, and proven scalability. Looking forward, the primary challenge for StarTeam will be maintaining equivalent SCM support for both Java and .NET development without playing second fiddle to IBM and Microsoft in each.<sup>8</sup>

**Borland is most appropriate for:** Borland StarTeam is especially appropriate for Java shops — although it's also appropriate for Microsoft shops — and for shops using the rest of the Borland Software Development Platform. StarTeam is also a good choice for shops that need a cost-effective way to manage change across geographically distributed development sites.

- **Telelogic's solution is better for product companies than corporate IT shops.** Telelogic has the second highest current offering score of any vendor in the evaluation. But Telelogic isn't investing much in SYNERGY, and its product strategy focuses on the needs of product companies rather than corporate IT shops. SYNERGY, which Telelogic acquired along with Continuous Software in 2000, has always been strongest among telecommunications, automotive, and aerospace and defense companies building products with embedded software. SYNERGY's appeal is even more limited as part of the Telelogic suite, as Telelogic's other tools have even narrower appeal. SYNERGY's strengths as a standalone product include versioning and configuration management, process management, and reporting and analytics. Its primary weaknesses are platform support and poor integrations with third-party tools.<sup>9</sup>

**Telelogic is most appropriate for:** SYNERGY is appropriate for some corporate IT shops with very defined processes — especially those that use other products within the Telelogic suite, such as DOORS. But SYNERGY is more appropriate for product companies developing embedded systems.

Both of the SCM pure plays included in this evaluation ranked as Strong Performers:

- **MKS is strongest on process management.** With superior process management capabilities but middle-of-the-road capabilities in other important areas, MKS finishes as a Strong Performer. Exclusively an interoperability toolkit vendor from 1984 to 2001, MKS recognized that its current market was waning and switched operating segments. MKS Integrity Suite includes Source Integrity for versioning and configuration and Integrity Manager for change management. Integrity Suite offers superior process design and implementation capabilities and is notable for its strong support for auditing, authentication, authorization, and encryption. Integrity Suite's weaknesses are platform support, proven scalability, and core versioning and configuration management capabilities.<sup>10</sup>

**MKS is most appropriate for:** MKS's solution is best for shops that are heavily focused on process enforcement, especially in the face of compliance requirements. Because MKS also offers a separate SCM solution for IBM iSeries — MKS Implementer — MKS is the best choice for shops developing across midrange and distributed platforms.

- **Serena makes platform and vendor neutrality a reality.** Serena's process-centric SCM solution is strong across the board, but leads in just a few areas. The second-largest vendor in the SCM market since its acquisition of Merant, Serena currently has two process-centric SCM solutions — ChangeMan DS and ChangeMan Dimensions — but will be combining the capabilities of the two in its next major release, code-named "Brighton."<sup>11</sup> Customers concerned about Serena's lack of a full life-cycle suite should note Serena's extensive integrations with third-party tools, as well as the rapid progress of the Eclipse Application Life-Cycle Framework project, which Serena leads.<sup>12</sup> Serena has the strongest combined solution for process-centric SCM across distributed and mainframe platforms, as well as support for both Java and .NET development environments. Serena's only notable weaknesses are its reporting capabilities, its collaboration functionality, and the size of its largest deployments.<sup>13</sup>

**Serena is most appropriate for:** Serena offers the strongest solution for shops with development on both mainframe and distributed platforms. And Serena's strong support for process enforcement, security, and selective replication of repositories make it especially appropriate for geographically and organizationally distributed development efforts.

The Strong Performers category also includes the single management software vendor in this evaluation:

- **CA emphasizes integrations with other CA products over standalone capabilities.** The strengths of CA's solution are not its standalone capabilities, but rather its integrations with other CA products, which support cross-platform development and change management across development and operations. Harvest, CA's process-centric SCM solution for distributed platforms, is part of CA's Business Service Optimization (BSO) business unit. Many shops that use Harvest also use CA's mainframe SCM product, Endeavor; the transition from one to the other is relatively painless, and CA's Enterprise Workbench integrates the two products. But Harvest is not strong on process management, its basic versioning and configuration management capabilities are in need of enhancement, and it lags behind the competition in critical security areas like encryption and e-signatures.<sup>14</sup>

**CA is most appropriate for:** CA's solution is best for shops looking to move from development on the mainframe to development on distributed platforms *or* for shops looking to coordinate changes to software assets for both kinds of platforms. Harvest is also appropriate for shops that use CA solutions for systems management and want to integrate these with their development organization's life-cycle tools.

## Contenders

Our evaluation identified one Contender, a development life-cycle suite vendor:

- **Microsoft's solution is handicapped by platform support and scalability.** Microsoft's Visual Studio 2005 Team Foundation Server — still in Beta 2 during this evaluation, but available in Beta 3 with a Go-Live license at the time of publication — isn't fully ready for enterprise adoption.<sup>15</sup> Team Foundation Server is the repository underlying Visual Studio Team System, which includes clients for testers, developers, and architects that extend Visual Studio 2005 Professional. Team Foundation Server boasts the deepest development environment integrations available today, impressive reporting capabilities, and a compelling price point. But Team Foundation Server also has significant scalability limitations — Microsoft recommends no more than 500 users per Team Foundation Server instance — and Team Foundation Server runs only on Windows and integrates only with Visual Studio development tools. Many Microsoft shops that don't already have an SCM solution in place will adopt Team Foundation Server, but other vendors' installed bases are safe for now.<sup>16</sup>

**Microsoft is most appropriate for:** Microsoft's solution is best for .NET-only development organizations with fewer than 500 end users.

## Risky Bets

Our evaluation revealed no Risky Bets in the process-centric SCM market. Weaker SCM offerings than those we evaluated certainly exist, but most did not meet Forrester's standards for process-centric SCM solutions or our minimum revenue cutoff.

## MICROSOFT WILL GAIN CUSTOMERS WITHOUT SIGNIFICANTLY DISTURBING INSTALLED BASES

Process-centric SCM vendors have braced for the arrival of Microsoft Visual Studio 2005 Team Foundation Server for more than a year. With the official launch of Team Foundation Server, Microsoft shops that don't already have a process-centric SCM solution will consider adopting one, and Microsoft shops that already have solutions in place will consider replacing them. And there is no shortage of Microsoft shops: Thirty-eight percent of companies consider Microsoft the primary source of their development tools.<sup>17</sup>

- **Multiplatform shops will ignore Microsoft.** But while Microsoft shops do have a reputation for “toeing the Microsoft line,” the majority of .NET shops are not single-platform shops.<sup>18</sup> Most enterprises use multiple platforms for mission-critical application development: At least a fifth of enterprises have dual Java and .NET commitments, and many still develop on IBM mainframes and platforms like Hewlett-Packard's NonStop and VMS and IBM's iSeries-AS/400.<sup>19</sup> Shops developing on multiple platforms require process-centric SCM solutions that support these platforms.
- **Shops looking for an enterprisewide SCM solution will avoid Microsoft.** Shops also require process-centric SCM solutions that can ultimately be adopted on an enterprisewide basis — not just by a single department, as the 500 user limit would require — because the value of these solutions increases with the extent of their adoption.
- **Small .NET-only shops will use Microsoft's solution.** Team Foundation Server should be the natural choice for shops using Visual Studio 2005 or Visual Studio Team System role-based clients. But to adopt Team Foundation Server, enterprises will have to use isolated instances of the product for every several hundred users *and* use different SCM solutions altogether for development on different platforms. Few shops will go this far out of their way. As a result, Team Foundation Server will be adopted primarily by smaller .NET shops without significant development on other platforms — in other words, the low end of the market. This market segment, which has previously been unable to afford process-centric SCM solutions, will warmly embrace Team Foundation Server.<sup>20</sup>
- **Pure Java shops will continue to use IBM and, to a lesser extent, Borland.** IBM's grip on the SCM market for Java shops is three-pronged: Not only does the ClearCase Change Management Solution integrate tightly with IBM WebSphere and IBM Rational development tools, but it also features market-leading integration with Eclipse. Borland will be IBM's strongest competition in Java shops, where Borland wins points for its Java modeling and development tools and the powerful Java APIs in its SDK. Other vendors' solutions are also appropriate for Java shops even though they may not have as much specialized support.

- **Competition will heat up over shops using both Java and .NET.** As Microsoft's solution gains footing among .NET-only shops, the importance of shops performing Java and .NET development will increase. This market is especially important for Borland and Telelogic, which don't support development on mainframe or midrange platforms. To better target this market, Borland, CA, IBM, MKS, Serena, and Telelogic are all building Visual Studio Industry Partner-enabled Visual Studio 2005 plug-ins to complement their plug-ins for Java development environments. Borland and IBM will have an edge in this market, too, as their suites include other products that support .NET development.<sup>21</sup>
- **Serena and CA will maintain their hold on the market for cross-platform SCM.** Shops that want to integrate the SCM solutions they use on distributed platforms, mainframe, and midrange platforms have limited options. Of the vendors included in this evaluation, only Serena, CA, and IBM have SCM solutions for the mainframe; IBM's SCLM Suite is significantly weaker than Serena ChangeMan ZMF and ChangeMan Dimensions for z/OS or CA Endevor. MKS is the only vendor included in this evaluation that has an SCM solution for the iSeries; Integrity Suite integrates with MKS's Implementer for iSeries.

## RECOMMENDATIONS

### WHEN PICKING A SOLUTION, CONSIDER TOMORROW'S REQUIREMENTS AS WELL AS TODAY'S

To determine what process-centric SCM solution to adopt — as well as whether to adopt one — development shops should consider not only their current requirements but also how their requirements are likely to change in the coming years. Shops should consider:

- **Whether the end goal is project-level, department-level, or enterprisewide SCM.**  
The number of required features will invariably be higher for deployments across more development efforts. While it doesn't make sense to deploy a new enterprisewide SCM solution in one fell swoop, it makes even less sense to purchase a solution on the basis of one team's needs and then try to sell the solution to other teams. Process-centric SCM implementations are dramatically easier when representatives of all user groups are involved in the purchasing decision, and they're best implemented by a centralized group that tackles one development team at a time.
- **The extent of platform heterogeneity and the likelihood of cross-platform development.**  
Development on distributed, midrange, and mainframe platforms might be siloed today, but firms should consider how likely this is to be the case tomorrow. Shops that opt to wrapper their mainframe assets — rather than ripping and replacing them — find that they require process-centric SCM solutions with strong cross-platform support to coordinate development efforts that span platforms like Linux and z/OS.

- **Where developers are located today and where they'll likely be located tomorrow.**

Today's SCM solutions support a variety of approaches to distributed access: direct remote access to a centralized repository, broker-mediated remote access to a centralized repository, and repository replication. These approaches are best for different kinds of geographically distributed development organizations, so firms should consider the nature of their current geographical distribution as well as their potential future distribution.<sup>22</sup>

## WHAT IT MEANS

### THE MICROSOFT THREAT WILL CONTINUE TO LOOM LARGE

The current limitations of Microsoft Visual Studio 2005 Team Foundation Server give other process-centric SCM vendors a reprieve — not a full pardon. Microsoft and its partners are gearing up to address Team Foundation Server's shortcomings. Microsoft is prioritizing improvements to the performance and scalability of Team Foundation Server — not only for commercial reasons, but also so its own development teams can use the product. And while Microsoft has disavowed any intention to build clients for platforms other than Windows, SourceGear, a Microsoft partner, is already building clients for Unix and Mac and plug-ins for Eclipse. These planned enhancements resolve the primary obstacles to enterprise adoption of Team Foundation Server. If Microsoft and its partners are able to execute on these plans, competing vendors' installed bases will be imperiled after all.

### NEXT UP: CHANGE MANAGEMENT ACROSS DEVELOPMENT AND OPERATIONS

The next battleground for process-centric SCM vendors will be the management of change across development and operations.<sup>23</sup> Three of the vendors Forrester evaluated have solutions for both development and operations: CA has many products, including but not limited to those in its BSO business unit; IBM has its Tivoli products; and Microsoft has System Center. Thus far, only CA has made any progress on this integration. However, it is only a matter of time before IBM and Microsoft catch up. These vendors will introduce tomorrow's bleeding-edge functionality.

## SUPPLEMENTAL MATERIAL

### Online Resource

The online version of Figure 2 is an Excel-based vendor comparison tool that provides detailed product evaluations and customizable rankings.

### Forrester Wave Methodology

We conduct primary research to develop a list of vendors that meet our criteria to be evaluated in this market. From that initial pool of vendors, we narrow our final list to those presented here. We choose these vendors based on: 1) product fit; 2) customer success; and 3) Forrester client demand. We eliminate vendors that have limited customer references and products that don't fit the scope of our evaluation.

After examining past research, user need assessments, and vendor and expert interviews, we develop the initial evaluation criteria. To evaluate the vendors and their products against our set of criteria, we gather details of product qualifications through a combination of questionnaires, demos, and/or discussions with client references. We send evaluations to the vendors for their review, and we adjust the evaluations to provide the most accurate view of vendor offerings and strategies.

We set default weightings to reflect our analysis of the needs of large user companies — and/or other scenarios as outlined in this document — and then score the vendors based on a clearly defined scale. These default weightings are intended only as a starting point, and readers are encouraged to adapt the weightings to fit their individual needs through the Excel-based tool. The final scores generate the graphical depiction of the market based on current offering, strategy, and market presence. Forrester intends to update vendor evaluations regularly as product capabilities and vendor strategies evolve.

### Companies Interviewed For This Document

American Century Investments	Fortis
Applied Signal Technology	IBM
Borland Software	MetaSolv Software
BT	Microsoft
Burlington Northern Santa Fe Railway	MKS
Cognizant Technology Solutions	NATO
Comprehensive Software Systems	Serena Software
Computer Associates International	Telelogic
Convergys	TEVA Pharmaceuticals
EPL	Verizon Wireless
Fluor Hanford	World Savings

## ENDNOTES

- <sup>1</sup> At the most fundamental level, the difference between version control tools and SCM tools is that version control manages changes to individual files while SCM tools manage changes to groups of files, or configurations. Examples of version-control tools include CVS, Microsoft Visual SourceSafe, and Subversion. Examples of SCM tools include MKS Source Integrity and Serena ChangeMan Professional. See the July 22, 2005, Trends “[The Expanding Purview Of Software Configuration Management](#).”
- <sup>2</sup> The more formal the process, the more benefit there is in using tools with support for process automation. After evaluating the importance of process adherence, shops should weigh the risks of nonadherence with the costs of enforcement. If process enforcement really is vital, then they should compare the respective costs of manual and automated enforcement. See the July 22, 2005, Trends “[The Expanding Purview Of Software Configuration Management](#).”
- <sup>3</sup> Reporting on tasks puts development work in terms that project managers can understand. And by linking the work that developers do back to requirements, SCM solutions automatically track the status of the tasks associated with these requirements. See the September 21, 2005, Quick Take “[Integrate Requirements Management With SCM To Enable More Informed Project Management](#).”
- <sup>4</sup> Traceability has long been recommended, but new regulations have made it a requirement for many shops. Traceability also enables development-specific data to be expressed in terms that matter to the business and thus provides better insight into development efforts. See the July 19, 2005, Quick Take “[Software Configuration Management Solutions Ease The Burden Of Compliance](#)” and see the September 21, 2005, Quick Take “[Integrate Requirements Management With SCM To Enable More Informed Project Management](#).”
- <sup>5</sup> Forrester evaluated these solutions in Q3 2005. Our evaluation began in July 2005; vendors reviewed our findings and confirmed their factual accuracy in late September 2005.
- <sup>6</sup> As part of ALM suites, SCM tools integrate tightly with modeling, development, and testing and test management suite modules, enabling frictionless traceability, process automation, and reporting across these life-cycle activities. Many process-centric SCM tools integrate with tools in other life-cycle categories, but the strength of the integration does not approach that found in ALM suites. See the July 22, 2005, Trends “[The Expanding Purview Of Software Configuration Management](#).”
- <sup>7</sup> View the scorecard summary for more detailed analysis on how IBM fared in this evaluation. See the November 14, 2005, Tech Choices “[Process-Centric Software Configuration Management Scorecard Summary: IBM](#).”
- <sup>8</sup> View the scorecard summary for more detailed analysis on how Borland fared in this evaluation. See the November 14, 2005, Tech Choices “[Process-Centric Software Configuration Management Scorecard Summary: Borland Software](#).”
- <sup>9</sup> View the scorecard summary for more detailed analysis on how Telelogic fared in this evaluation. See the November 14, 2005, Tech Choices “[Process-Centric Software Configuration Management Scorecard Summary: Telelogic](#).”

- <sup>10</sup> View the scorecard summary for more detailed analysis on how MKS fared in this evaluation. See the November 14, 2005, Tech Choices “[Process-Centric Software Configuration Management Scorecard Summary: MKS.](#)”
- <sup>11</sup> Serena Dimensions is a more full-featured solution than Serena DS. Dimensions, not DS, is the product considered for the purposes of this evaluation.
- <sup>12</sup> Serena is tackling this problem head-on by leading the Eclipse Application Life-Cycle Framework (ALF) project, which aims to serve as an open integration framework for life-cycle tools. For more information, see the project Web site ([www.eclipse.org/alf/](http://www.eclipse.org/alf/)).
- <sup>13</sup> View the scorecard summary for more detailed analysis on how Serena fared in this evaluation. See the November 14, 2005, Tech Choices “[Process-Centric Software Configuration Management Scorecard Summary: Serena Software.](#)”
- <sup>14</sup> View the scorecard summary for more detailed analysis on how Computer Associates fared in this evaluation. See the November 14, 2005, Tech Choices “[Process-Centric Software Configuration Management Scorecard Summary: CA.](#)”
- <sup>15</sup> TFS Beta 3 will include a Go-Live license along with technical support for Premier customers. Microsoft will continue supporting TFS Beta 3 with the rest of Visual Studio 2005. All data within TFS Beta 3 will migrate in-place to the final version of TFS. For more information, see Microsoft Corporate VP of the Developer Division Soma Somasegar’s blog (<http://blogs.msdn.com/somasegar/archive/2005/08/22/451026.aspx>).
- <sup>16</sup> View the scorecard summary for more detailed analysis on how Microsoft fared in this evaluation. See the November 14, 2005, Tech Choices “[Process-Centric Software Configuration Management Scorecard Summary: Microsoft.](#)”
- <sup>17</sup> Forrester surveyed 116 IT decision-makers familiar with programming technologies, application software architecture, and application platforms in the fall of 2004. Thirty-eight percent of respondents indicated Microsoft is the primary source of their development tools; 22% of respondents indicated IBM. In May 2005, Forrester surveyed 85 North American and European IT decision-makers regarding Eclipse. Of these respondents, 40% selected Microsoft as the primary source of their development tools; 18% selected IBM; 9% selected Sun Microsystems; and 8% selected the Eclipse Foundation. Forty-four percent of these respondents indicated that Eclipse is in use within their organizations, whether officially sanctioned or not. See the May 24, 2005, Trends “[Computer Associates De-emphasizes Its Life-Cycle Management Tools](#)” and see the July 22, 2005, Trends “[Eclipse Has Won — What’s Next For Eclipse?](#)”
- <sup>18</sup> In a recent Forrester survey of 116 IT decision-makers, 35% of all .NET users indicated that they have a single platform commitment to .NET — nearly 50% more than any other platform. The proportion of enterprises using both Java and .NET for more than 10% of their mission-critical application development increases with company size. See the June 29, 2005, Trends “[Java And .NET Have Yet To Kill All Other Platforms.](#)”

- <sup>19</sup> Past Forrester surveys have shown that 40% or more of firms use both Java and .NET. In a recent survey of 116 IT decision-makers, however, only 22% reported a dual Java-.NET commitment for mission-critical applications, and 26% reported a dual commitment for non-mission-critical applications. Aggregating responses from all sizes of enterprises, for mission-critical applications, .NET and Java have the highest usage: 54% and 46% of respondents, respectively, reported using them for at least 10% of application development activities. But the move toward Java and .NET has not stopped development on other application platforms. Notable levels of mission-critical application development continue with IBM mainframes and with other platforms like HP's NonStop and VMS and IBM's iSeries-AS/400. See the June 29, 2005, Trends "[Java And .NET Have Yet To Kill Off All Other Platforms.](#)"
- <sup>20</sup> Microsoft initially announced that its new SCM solution, Visual Studio 2005 Team Foundation Server, would not be included with an MSDN subscription. The additional server license price that Microsoft quoted — \$2,799 — put the product out of the reach of smaller shops. Smaller shops complained, indicating that they too wanted to take advantage of advanced SCM functionality. Microsoft ultimately relented, announcing that a five-user version of Team Foundation Server would be included with client editions of Team System. A blog on this subject by Rick LaPlante, the general manager for Visual Studio Team System, is available (<http://blogs.msdn.com/rickla/archive/2005/05/12/416994.aspx>).
- <sup>21</sup> Borland will be Microsoft's preferred provider of UML modeling tools within Visual Studio. Borland also offers Borland Developer Studio for Delphi (Windows and .NET), C, C++, and C# development. IBM Rational tools like Functional Tester, ClearCase, and ClearQuest are tightly integrated into the Visual Studio user interface, while IBM Rational tools like PurifyPlus support .NET but are not integrated into the Visual Studio shell. See the October 20, 2005, Quick Take "[Getting Ready For Team System.](#)"
- <sup>22</sup> Providing access to the most recent versions of development assets like source code and test scripts is far more challenging for distributed development organizations. Today's SCM solutions support a variety of approaches to distributed access. The suitability of each approach depends principally on the nature of the development shop's distribution — a main site with a few smaller sites, equal distribution across several sites, many sites with just a few people, or some combination thereof. Heterogeneously distributed shops will require multiple kinds of support for distributed access. And because the distribution of development shops usually becomes more diverse with time, forward-looking shops will adopt SCM tools that solve the problem of distributed access in multiple ways. See the September 2, 2005, Quick Take "[Don't Rely On Just One Method For Distributed Access To Development Assets.](#)"
- <sup>23</sup> A configuration management database (CMDB) — a repository for information about the elements used to provide and manage IT services — could ultimately serve as a single point of integration for all of these changes, but CMDBs are still a young technology. For the time being, the integration of development's SCM solutions with operations systems will take three forms: better deployment capabilities, integration of change and configuration management systems, and integration with service desk applications. See the July 22, 2005, Trends "[The Expanding Purview Of Software Configuration Management.](#)"

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