



Worldwide Software Configuration Management Tools Forecast and Analysis, 2002-2006

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IDC Bulletin #27290 - Jun 2002

IDC Opinion

What happened in the software configuration management (SCM) market and with the leading vendors in 2001, and what is the outlook through 2006?

The SCM market was negatively impacted, not only by the economic and geopolitical events of 2001 but also by a number of mergers and acquisitions, reorganizations, and changes in accounting practices that, combined, resulted in a year that saw a decline in worldwide revenue of 3.7% from 2000.

Nevertheless, IDC believes that the SCM market will experience a significant rebound in 2002 following the very difficult year of 2001. Vendors that focus on integrated solutions for managing the artifacts of IT projects and the linkage between business and IT segments of organizations will be best positioned for market leadership in the future.

In This Bulletin

Synopsis

This IDC bulletin examines the software configuration management (SCM) tools market and leading vendor performance for 2001. It also provides vendor profiles and market coverage, identifying the characteristics that vendors will need to be successful in the future, as well as a market forecast through 2006.

The vendor shares and competitive analysis contained here update those found in *Software Configuration Management Tools Forecast and Analysis, 2001-2005* (24811, June 2001). The forecasts presented here update those published in *Worldwide Software Configuration Management Tools Forecast, 2002-2006* (24811, February 2002).

This bulletin discusses the factors that made 2001 a very challenging year for SCM vendors and describes market drivers and inhibitors for the SCM market. Successful vendors in the future will be those that can best react to anticipated demand for increasingly powerful SCM tools to support the IT and business requirements of their customers in areas such as Web services.

Methodology

IDC's industry analysts have been measuring and forecasting IT markets for more than 30 years. IDC's software industry analysts have been delivering analysis and prognostications for packaged software markets for more than 25 years.

The actual strategy incorporates information from four different but interrelated sources, as follows:

- **IDC's Software Census interviews.** IDC interviews all significant market participants to determine product revenue, revenue demographics, pricing, and other relevant information.

- **Product briefings, press releases, and other publicly available information.** IDC's software analysts meet with hundreds of software vendors each year. These briefings provide an opportunity to review current and future product strategies, revenue, shipments, customer bases, target markets, and other key product information.
- **Vendor financial statements and related filings.** Although many software vendors are privately held and choose to limit financial disclosures, information from publicly held companies provides a significant benchmark for assessing informal market estimates from private companies. IDC maintains an extensive library of financial and corporate information focused on the IT industry. We further maintain detailed revenue by product area models on more than 1,100 worldwide vendors.
- **IDC demand-side research.** This includes thousands of interviews annually and provides a powerful fourth perspective for assessing competitive performance. IDC's user strategy databases offer a compelling and consistent time-series view of industry trends and developments. Direct conversations with technology buyers provide an invaluable complement to the broader survey-based results.

Ultimately, the data presented herein represents IDC's best estimates based on the above data sources as well as reported and observed activity by vendor and further modeling of data that we believe to be true to fill in any information gaps.

In addition, please note the following:

- The information contained in this bulletin was derived from the IDC Software Market Forecaster database as of May 15, 2002.
- All numbers in this document may not be exact due to rounding.
- For more information on IDC's software definitions, see *IDC's Software Taxonomy, 2002* (26508, February 2002).
- Computer Associates (CA) has a significant presence in the SCM market. Its adoption of a revised method for recognizing revenue had a negative effect on the size of the SCM market in 2001. See the Appendix for a more complete description of how IDC incorporated the CA accounting change into its market sizing and forecasts.

Software Configuration Management Tools Market Definition

SCM tools are used by application development organizations to provide software revision control and versioning capabilities. More sophisticated functions, such as process management, change request tracking, requirements management, and distributed team development support, may also be included.

SCM tools are defined as "development oriented," which means that they are used primarily by and for the application development community. Configuration management tools that are targeted mainly at database administrators and datacenter managers are excluded from the SCM market definition. Defect tracking tools and requirements management tools are included as part of the SCM market revenue; however, defect tracking tools are included in the automated software quality (ASQ) tools market when they are sold primarily as part of a suite of testing tools.

In addition, some integrated computer-aided software engineering tools and frameworks, workbenches, and environments include bundled SCM tool functionality. If the SCM tools are not sold separately, then their revenue is excluded from the SCM market.

Situation Overview

The Software Configuration Management Tools Market in 2001

2001 proved to be a very challenging year for vendors of SCM tools. The SCM market grew over 25% in 2000, and early signs pointed to a reasonably strong year again in 2001. However, as the economy slowed and budgets tightened, IT management looked for ways to maximize the value of IT investments. The short-term direct benefits of other types of software were more obvious to controllers of IT budgets than were the benefits attributable to SCM tools. Vendors saw sales cycles increase, deal sizes generally decline, and

purchases being deferred. These general economic factors, combined with acquisitions and other significant changes that occurred at a number of the leading vendors, resulted in a worldwide revenue decline of 3.7% in 2001.

Performance of Leading Vendors in 2001

[Table 1](#) displays 1999-2001 worldwide revenue and 2001 growth and market shares for SCM tool vendors. Rational Software continued as the market revenue leader and gained share in 2001. Rational's SCM products - ClearCase, ClearQuest, and RequisitePro - form the foundation of the company's suites, which cover the full extent of the application life cycle and are resonating well in the marketplace.

MERANT held its own in the SCM space in 2001 despite major internal changes. The company divested itself of nearly all of its non-SCM product lines and brought in a new senior management team.

SERENA Software also maintained its market share in 2001 largely due to its focus on, and strong presence in, the mainframe space. However, SERENA continued to roll out and enhance products to extend its reach across the enterprise to distributed platforms and Web content.

CA has a significant presence in the SCM market. Its adoption of a revised method for recognizing revenue had a significant negative effect on its SCM revenue in 2001. In fact, without the impact of the CA accounting change, the total SCM market would have shown small, but positive, growth in 2001. However, CA's new accounting method will serve to boost revenue in 2002 and beyond. (2001 will be the year of largest negative impact.)

Performance by Geographic Region in 2001

[Figure 1](#) shows North America as the clear consumer leader in the SCM tools market. In 2001, North America accounted for 61.1% of the worldwide revenue in this market. However, this figure represents a decline in share of over 2 percentage points from 2000 because the impact of the economic slowdown was most evident first in the United States. All other regions gained share, most significantly the Asia/Pacific region (albeit from a relatively small base).

Table 1 - Worldwide Software Configuration Management Tools Revenue by Vendor, 1999-2001 (\$M)

	1999	2000	2001	2001 Share (%)	2000-2001 Growth (%)
Rational	195	310	321	36.5	3.7
MERANT plc	100	115	114	13.0	-0.3
SERENA Software	68	94	91	10.4	-2.9
Computer Associates International Inc.	107	113	67	7.6	-40.7
Telelogic AB	53	65	57	6.4	-12.7
StarBase	28	44	47	5.3	6.6
Microsoft Corp.	30	31	36	4.0	16.0
MKS	31	28	24	2.8	-14.3
IBM	18	16	16	1.8	0.0
Kintana	6	9	11	1.2	18.5
Wise Solutions	2	2	5	0.6	122.6
Softlab	10	5	5	0.6	-3.8
Quest Software	-	-	3	0.3	NA
McCabe & Associates	1	1	2	0.2	122.2
Princeton Softech Inc.	2	2	1	0.1	-50.0
Subtotal	649	835	800	90.8	-4.2

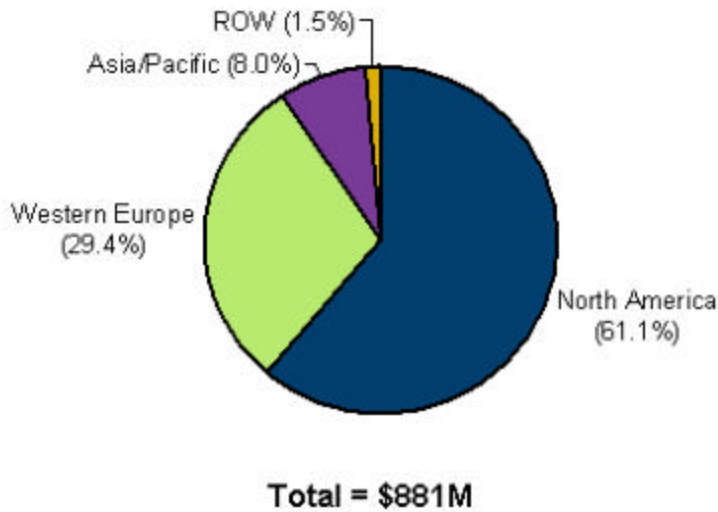
Other	77	80	81	9.2	1.2
Total	727	915	881	100.0	-3.7

Messages in the Data:

- The SCM market experienced decline in revenue in 2001 for the first time since IDC has tracked this market.
- The accounting change by Computer Associates accounts for a significant portion of the reported revenue decline for that vendor.
- The three leading vendors, Rational, MERANT, and SERENA, accounted for nearly 60% of worldwide SCM revenue in 2001.

Source: IDC, 2002

Figure 1 - Worldwide Software Configuration Management Tools Revenue by Region, 2001

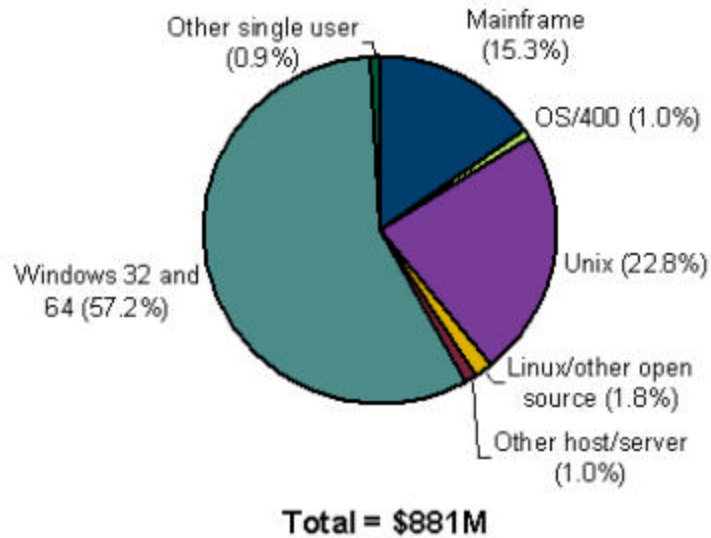


Source: IDC, 2002

Performance by Operating Environment in 2001

The 32-bit Windows platform continued as the revenue share leader in SCM - 57.2% of total worldwide revenue was attributable to that operating environment, up from 43.8% in 2000 (see [Figure 2](#)). Unix continued in second place, followed by the mainframe operating environment (no change in rank from last year). No other operating environment garnered significant revenue share. However, Linux is clearly gaining in popularity and actually moved into fourth place with 1.8% share and growing.

Figure 2 - Worldwide Software Configuration Management Tools Revenue by Operating Environment, 2001



Source: IDC, 2002

Future Outlook

IDC believes that the SCM market will experience a significant rebound in 2002 following the very difficult 2001. SCM tools are the glue that holds together the various components and phases of the application life cycle. These tools organize and control the process and artifacts of application development and deployment. Businesses are becoming more dependent on high-performance, secure, and reliable software applications for their very survival. Virtually all businesses are becoming more reliant on Web-based applications regardless of whether they use the Internet (e.g., ecommerce), intranets (for internal corporate systems), or extranets (for interaction with suppliers, customers, or partners).

Revenue Growth Enhancers

The following factors will enhance growth during the forecast period:

- The promise of Web services cannot reach its full potential without robust management of the 0s that constitute these services. This is the realm of SCM, and demand for new and improved tools and processes will emerge to support the Web services wave.
- There is increasing attention being focused on connecting the business and IT constituencies within enterprises. A focal point of this collaboration is requirements management - the link between the business and technical communities. Requirements management tools are included within the scope of IDC's SCM market definition and are a segment that will grow in size and importance over the forecast period.
- IDC research has shown that significant return on investment (ROI) can be achieved through the adoption of SCM solutions. IT organizations faced with growing budget pressures will look to SCM to improve efficiency and the quality of releases.
- Integrated SCM solutions encompassing the full range of the modern application environments, artifacts, and development and deployment methodologies will fuel increased acceptance of SCM products.

Revenue Growth Inhibitors

The following factors will inhibit growth during the forecast period:

- A prolonged recession, additional serious terrorists attacks that undermine consumer confidence, and delays in a rebound in IT spending will negatively impact the SCM market as companies defer expenditures and delay projects.
- Confusion on the definition of Web services and subsequent postponement of expenditures will result in reduced or delayed purchases of SCM tools to support Web services projects.
- Traditional SCM vendors are not universally perceived by potential customers as best positioned to meet their needs for Web applications. SCM tools are seen as code or developer centric, with the implication that they are difficult to use, particularly for nonprogrammer members of Web-development teams.

Vendor Profiles

Rational Software

Rational Software is the revenue leader in the SCM market with its ClearCase, ClearQuest, and RequisitePro products. However, Rational's strength in the marketplace extends beyond its individual product offerings. Rational provides an integrated life-cycle management solution, encompassing best practices, tools, and services. Life-cycle activities supported include requirements and analysis, software development, content management, system testing, process/project management, and software configuration management. All of these activities are integrated and coordinated via the Rational Suite Team Unifying Platform.

The Rational Unified Process (RUP) is a collection of best practices to be applied throughout the application life cycle. Supported by Rational's products, RUP provides the process focus that will be necessary to meet the challenges of productivity and quality the market will increasingly demand in the future.

In addition to its revenue leadership, Rational enjoys a strong mindshare position in the marketplace. Its broad range of integrated products, suites marketing strategy, and process focus all bode well for future growth. The challenges facing Rational relate more to the marketplace as a whole than to this specific vendor. Namely, wide acceptance of process and discipline in IT is still lacking, and the integrated code and Web content market is still very immature.

MERANT

2001 was a tumultuous year for MERANT to say the least. The company admitted that the merger of Intersolv and Micro Focus to form MERANT just a few years ago was a failure. The development tools business was spun off as Micro Focus once again, and middleware products were divested to a separate company (DataDirect). This leaves the reconstituted MERANT with its very popular PCVS brand of SCM tools plus content management tools obtained via the acquisition of the Enterprise Division of NetObjects.

A new senior management team is charged with defining and implementing MERANT's strategy for growth. MERANT's core strength comes from its PVCS family of products: PVCS Professional and PVCS Dimensions (for process-centric SCM). The PVCS brand has strong name recognition and market presence.

Nevertheless, there are significant challenges facing MERANT. The abortive merger was very costly. Customers and prospects became nervous about the viability of the company, strategy was inconsistent and in flux, and (IDC suspects) there were defections of key technical talent, the lifeblood of a software vendor. Also, at present, the implementation of an integrated code and content strategy remains a work in progress.

The key to MERANT's future success will be how quickly and consistently the new management can formulate, articulate, and deliver on its new SCM strategy. If it can execute this expeditiously, MERANT is well positioned for future growth. However, if the failures of the merger are repeated, MERANT is in for difficult times ahead.

SERENA Software

SERENA Software is in the interesting position of having greater name recognition and mindshare for its products than for the company itself. ChangeMan is a long-recognized leading product in the mainframe SCM arena. SERENA is playing to that strength by labeling all of its SCM products under the ChangeMan brand. Although primarily known for its mainframe product - and the majority of SERENA's revenue is still derived from that platform - SERENA has rolled out a full line of SCM tools, including those for distributed environments and Web content.

SERENA's approach is to move outward from the mainframe with an integrated SCM strategy. This is in contrast to some of its competitors such as Rational and MERANT, whose historical strength is focused more heavily on distributed platforms (although providing access to the mainframe). The mainframe will remain an important platform for enterprise applications for the foreseeable future. However, the mainframe will only be one component of complex distributed and Web-based systems. SERENA's mainframe-based approach should resonate with its mainframe customer base, enabling customers to easily expand into new areas without leaving a trusted vendor. Conversely, the challenge facing SERENA is to gain recognition and share with prospects not coming from a mainframe-centric environment.

Computer Associates

As previously noted, the decline in CA's SCM revenue in 2001 is deceiving and not truly indicative of its place in the market. The accounting change accounts for a significant fraction of the company's over 40% year-over-year revenue decline.

CA is a major player in the mainframe SCM space with its Endeavor product - the only other major competitor is SERENA ChangeMan. With the purchase of Platinum Technology a number of years ago, CA acquired the CCC/Harvest SCM tools for distributed environments. CA had not until recently articulated an integrated overall SCM strategy for the Endeavor and Harvest tools. However, the recently announced AllFusion Change Management Suite does indeed bring these products together under a unified branding as part of a full life-cycle support strategy. Time will tell what impact AllFusion will have on the marketplace and whether CA will take share from vendors such as Rational and SERENA. Nevertheless, IDC believes that an integrated strategy is overdue from CA, and the AllFusion announcement is a definite step in the right direction.

Telelogic

Telelogic, a Swedish company, is noted for its modeling tools focused on embedded and other high-tech development markets. However with the acquisitions of Continuus and QSS, Telelogic became a significant participant in the SCM space. The product positioning and target markets for the combined companies are highly complementary. Continuus' Synergy (now Telelogic Synergy) is a process-centric SCM tool targeted at complex high-tech development. Similarly, QSS' DOORS (now Telelogic DOORS) is a requirements management tool that has strong acceptance in that space.

Telelogic is now positioned as a full life-cycle SCM vendor similar to Rational but targeting the high-tech segment. Telelogic is known as a technical innovator and has recently announced ActiveCM to provide "transparent" SCM functionality by automating a large percentage of SCM tasks.

Telelogic's technical strength and product breadth should enable the company to continue to prosper in the high-tech sector. The challenges facing the company are gaining presence and mindshare in the large U.S. market (the company is better known in Europe) and convincing more conventional IT organizations that its products are appropriate for non-high tech environments.

Other Vendors

It is worth noting some other SCM vendors in this bulletin:

- StarBase has been in the SCM space for many years, and the StarTeam product has been noted for ease of use and support for collaborative development. StarBase acquired Technology Builders

Inc. (TBI) in 2001. TBI's Caliber RM is a leading requirements management tool competing with Rational RequisitePro and Telelogic DOORS. StarBase encountered some financial difficulties in 2001 but appears to have weathered the storm and is poised to move forward under new management.

- Microsoft's Visual SourceSafe is a ubiquitous SCM tool delivered as a component of the Visual Studio development suite. The wide popularity of Microsoft development tools means that a huge number of developers have access to Visual SourceSafe. Although Visual SourceSafe is not generally considered a full-function SCM tool, it nevertheless serves as the introduction to SCM for many programmers and, as such, its role as a market driver should not be underestimated.
- MKS Inc. (formerly Mortice Kern Systems) is another vendor that is returning to its core businesses - SCM and code analysis (through the acquisition of UpSpring). An ill-fated venture into the e-business management arena (as Vertical Sky) caused the company to lose focus and traction in SCM. However, MKS has now returned to its roots, installed new management, and is laudably concentrating once again on SCM as its core competency.

Market Characteristics in the Future

Integration will be the watchword of SCM in the future, both in terms of the types of IT projects to be supported and the SCM tools themselves. Integration projects, through Web services and more conventional approaches, demand SCM tools that can manage a broad range of artifacts, from requirements to code to content, in a consistent manner. Integrated management of not only life-cycle artifacts but also life-cycle processes (e.g., workflow and collaborative development) will become increasingly demanded of SCM tools.

Forecast and Assumptions

The market drivers and inhibitors along with the strategies and performance of the leading vendors described above form the basis of IDC's five-year SCM market forecast.

Worldwide

[Table 2](#) represents an updated forecast from that published in *Worldwide Software Configuration Management Tools Forecast, 2002-2006* (26576, February 2002). Additional data collected from vendors regarding 2001 performance and initial 1Q02 financial reports led us to slightly downgrade our projections from those published in February. Nevertheless, IDC continues to forecast a recovery of the SCM market beginning in 2002 and a return to double-digit growth in 2003 and beyond. The market is forecast to grow 7.8% this year, achieving worldwide revenue of \$950 million. Table 2 shows a compound annual growth rate (CAGR) of 11.8% from 2001 through 2006. The annual rate of growth will peak in 2004 at 13.8% and only decline slightly in the later years covered by the forecast as the market matures. Overall, by 2006, the SCM market will exceed \$1.54 billion worldwide.

By Geographic Region

The revenue forecast for the SCM tools market segmented by geographic region is displayed in Table 2; revenue for 2001 and 2006 is shown graphically in [Figure 3](#). North America leads the market rebound and will continue to be the number 1 consumer of SCM tools, increasing its share from 61.1% to 62.6% by 2006. This share gain comes at the expense of all other regions. Western Europe will lose slight market share, declining from 29.4% to 29.1%, over the same period. However, Western Europe will still experience revenue growth from \$259 million in 2001 to \$449 million in 2006. Asia/Pacific and the rest of the world (ROW) each will undergo slight share losses from 2001 through 2006 of 1.0 and 0.1 percentage point, respectively.

Table 2 - Worldwide Software Configuration Management Tools Revenue by Region and Operating Environment, 2000-2006 (\$M)

	2000	2001	2002	2003	2004	2005	2006	2001 Share (%)	2001-2006 CAGR (%)	2006 Share (%)
Geographic region										
North America	578	539	583	657	753	856	965	61.1	12.4	62.6
Western Europe	274	259	281	313	356	402	449	29.4	11.6	29.1
Asia/Pacific	50	70	73	77	84	94	108	8.0	8.9	7.0
ROW	13	13	14	15	16	18	21	1.5	9.4	1.4
Total	915	881	950	1,062	1,209	1,370	1,543	100.0	11.8	100.0
Operating environment										
Mainframe	194	135	123	115	118	123	128	15.3	-1.0	8.3
OS/400	13	9	9	9	10	11	12	1.0	6.3	0.8
Unix	283	201	193	196	206	215	224	22.8	2.2	14.5
Linux/other open source	2	16	42	72	96	124	158	1.8	58.5	10.2
Other host/server	12	9	9	8	8	8	8	1.0	-2.1	0.5
Windows 32 and 64	401	504	571	660	768	887	1,011	57.2	14.9	65.5
JVM/platform independent	-	-	-	-	-	-	-	-	NA	-
Mobile and embedded	-	-	-	-	-	-	-	-	NA	-
Other single user	11	8	3	2	2	2	2	0.9	-22.7	0.1
Total	915	881	950	1,062	1,209	1,370	1,543	100.0	11.8	100.0
Growth (%)	NA	-3.7	7.8	11.9	13.8	13.3	12.6			

Key Assumptions:

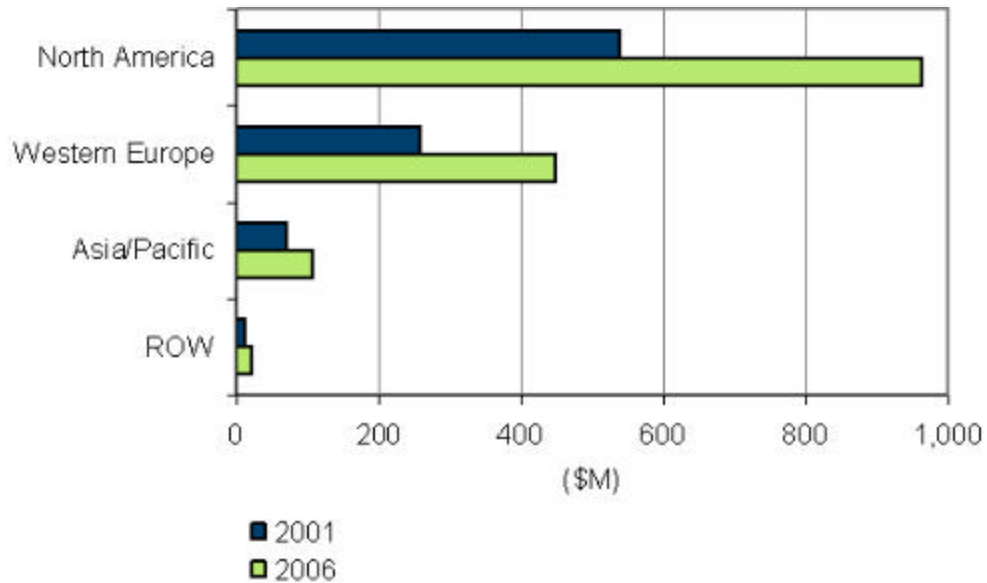
- Economic conditions will stabilize in 2002, and the recovery of the SCM market will begin.
- Complex IT initiatives, such as integration projects and Web services, will fuel demand for SCM tools throughout the forecast period.
- Requirements management tools and cross-platform enterprise SCM will increase in importance.

Messages in the Data:

- The rebound in the SCM market in 2002 will result in worldwide revenue exceeding that of 2000.
- Double-digit annual growth will return in 2003 and continue throughout the remainder of the forecast period.
- North America will continue to be the leading adopter of SCM tools, increasing share at the expense of all other regions.
- Linux will experience the highest growth over the forecast period, but Windows will increase its overall share lead.

Source: IDC, 2002

Figure 3 - Worldwide Software Configuration Management Tools Revenue by Region, 2001 and 2006



Source: IDC, 2002

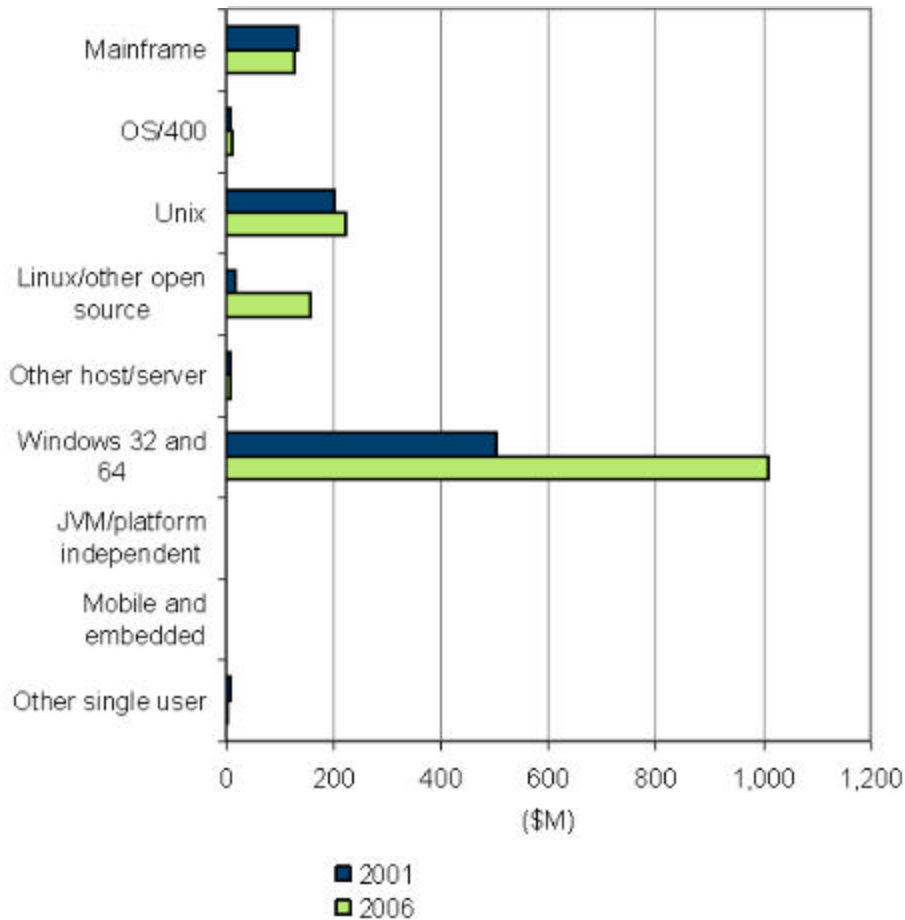
By Operating Environment

The revenue forecast for the SCM tools market, segmented by operating environment, is also displayed in Table 2; revenue for 2001 and 2006 is illustrated in [Figure 4](#). The 32- and 64-bit Windows operating environment will continue as the leading SCM platform as revenue is projected to increase at a CAGR of 14.9% over the period, increasing in share from 57.2% to 65.5%. However, Linux and other open source environments will increase at a CAGR of 58.5% from 2001 through 2006 and achieve 10.2% market share by the end of the forecast period. Most of the Linux gains will come at the expense of Unix, which will decline in share by over 8 percentage points. Mainframes will also lose share because price pressures and the continuing move to Windows and Linux will have a negative impact on mainframe revenue.

Essential Guidance

The demand for improved software quality and increased scrutiny of IT expenditures will drive demand for improved management of IT processes and artifacts. The processes (or best practices) used to develop, deploy, and maintain software are a key to high quality and increased ROI. However, the software community (with some notable exceptions) has been reluctant to adopt the discipline and structure evident in other technical areas. As the criticality of software to a company's business success continues to increase, however, renewed pressure is being exerted on IT organizations to adopt a more process-centric methodology for software development and deployment. IDC believes vendors that can provide a comprehensive, integrated approach to SCM that encompasses process, code, content, and other related development artifacts (e.g., requirements and test scripts) are best positioned for future growth.

Figure 4 - Worldwide Software Configuration Management Tools Revenue by Operating Environment, 2001 and 2006



Source: IDC, 2002

Requirements management (which IDC classifies as part of the overall SCM market) is gaining popularity in IT shops. Managing project requirements (and changes to them) as an integral part of the development process can pay long-term quality and productivity dividends.

A single, modern, enterprise-level application more often than not spans multiple hardware and software platforms. IDC believes that there will be increasing demand for high-end SCM tools that provide a seamless single point of control across these complex application architectures.

Finally, we are seeing a trend toward closer linkages between the business and IT organizations within enterprises. Business processes and IT processes will need better and closer coordination in the future than currently exists in most organizations today. SCM vendors that seize the opportunity to provide products and services to assist in bringing the business and IT communities closer together will reap the rewards.

Related Research

- Worldwide Software Configuration Management Tools Forecast, 2002-2006 (26576, February 2002)
- Choice Hotels Benefits from Integrated Life-Cycle Development Methods and Tools (26576, December 2001)

- How End Users View the Software Configuration Management Tools Market (26576, November 2001)
- Revised Application Life-Cycle Management Forecast and Analysis Summary, 2001-2005 (26576, October 2001)
- MERANT Manages Changes Across the Enterprise (26576, October 2001)
- Bringing Engineering Discipline to Software Development (26576, September 2001)
- Web Content Management Forecast and Analysis, 2001-2005 (26576, August 2001)
- Software Configuration Management Tools Forecast and Analysis, 2001-2005 (26576, June 2001)
- Rational Unifies Code and Content Management for eBusiness (26576, April 2001)

Appendix: The Treatment of Computer Associates' Revenue and Its Effect on Market Data

Change in Accounting Method

Near the end of calendar year 2000, Computer Associates Inc. (NYSE:CA) changed its method of recognizing and reporting software revenue.

Under the old method, the company recorded the total value of the booking of a new or renewed long-term software right-to-use contract by amortizing the part associated with software maintenance over the life of the contract and then recognizing the remainder as immediate revenue. (For one-time sales, such as are typical for many client/server products that were sold through channels of distribution, all revenue was recognized immediately.)

This method not only permitted but required the immediate recognition of some portion of the long-term contract revenue. As the company stated in published explanations of the shift:

Accounting rules such as detailed in AICPA Statement of Position (SOP) 97-2 (as amended by SOP 98-4 and SOP 98-9) define the criteria for recognizing revenue. To the extent that maintenance fees are "bundled" together with license revenue, the maintenance fee must be "unbundled" and recognized over the life of the contract period. Consistent with the aforementioned guidance, one must have vendor specific objective evidence (VSOE) to determine the value of maintenance contained within a bundled license and maintenance contract. This determination is neither arbitrary nor "discretionary." Based upon the VSOE established for maintenance, a fixed percentage of bundled contracts is deferred.

In other words, the treatment depended significantly on the wording of the contract.

Starting late in calendar year 2000, CA introduced its "new business model," which substantially changed the accounting method by which revenue is recognized. Under the new business model approach to revenue recognition, CA accounts for contracted revenue in a prorated manner over the life of the license term, thereby deferring recognition of some revenue. This is in sharp contrast to the previous method of recognizing all of the nonmaintenance software license revenue immediately upon the signing of a contract. In terms of overall revenue impact, deferred revenue accumulates over time as more new business model contracts are signed, though if sales are at a constant rate, the inflow of new deferred revenue eventually matches the outflow of recognized revenue.

It is important to point out that although the new business model has caused CA to change the way the company recognizes revenue, it does not necessarily change the company's overall cash generated from operations.

The Effect of the Change in Accounting Method

Under the new method that started with the last calendar quarter of 2000 (CA's third quarter of FY01), CA has been reporting revenue on what it calls a "ratable basis" while deferring to future quarters the residual value of the committed contractual amounts. Residual value (also called deferred revenue) has thus translated into revenue in future quarters until the end of the contract period. This resulted initially in a considerable reduction in recorded revenue (a drop of well over 50% in the first quarter in which this was done). For example, in April 2001, CA reported that it recognized about \$732 million revenue in its last fiscal quarter of 2001 while at the same time holding more than \$1.3 billion in residual value that was also committed for this quarter but not reported as revenue. Under the old reporting method, this would have been recorded as somewhere in the region of \$1.44 billion of immediate revenue, so the quarter's results were cut in half. However, as CA continues to build this residual value pool, reported revenue will presumably ramp back up. By the time two years have gone by, the effect will be fairly neutral, except that the quarter-by-quarter results will tend to be more predictable and will have far less seasonality (i.e., no end-of-year sales bump).

The Effect on Calendar Year 2000 Results

The effects of the aforementioned changes were felt only in the last quarter of calendar year 2000, in which that quarter's recorded revenue was reduced by about \$500 million. In addition to the effect of CA's difficulties in closing major new contracts (especially in its mainframe business) that CA shared with most other enterprise vendors, this means that CA's recorded revenue was down from calendar year 1999 by about 26%. The new revenue recognition methodology accounted for nearly half of this drop.

The Effect on Calendar Year 2001 Results

For the last quarter of calendar year 2000 and the four quarters of calendar year 2001, the new revenue recognition method continued to create revenue that was substantially below comparable quarters in the previous year when measured the old way. As the net residual value held in reserve increases, the drawdown of this pool will start to add considerable additional revenue each quarter. When that happens, reported revenue will recover.

The Effect on the Market Data

This change in accounting treatment would have the same effect on any software vendor, but because CA is a strong force (and in some cases has been a market leader) in many software markets, the impact of this accounting change has been to reduce the market revenue reported by IDC in calendar year 2001 by an amount that will sometimes be significant. IDC has always tracked vendor revenue in such a way as to match the publicly stated revenue of the software vendors (where available). For this reason, IDC's market figures in some markets show a decline from 1999 to 2001 and a projected decline or reduced growth in many markets that is largely the result of CA's new method of revenue recognition and not truly representative of the market's potential. Conversely, it is quite likely that in the future, CA's recognition of previously deferred revenue will tend to increase growth in some markets and may also positively affect CA's market share and position in some markets.

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