Key Issues

Reader Notes

1. **How must PC applications change to deliver client/server and workgroup solutions?**

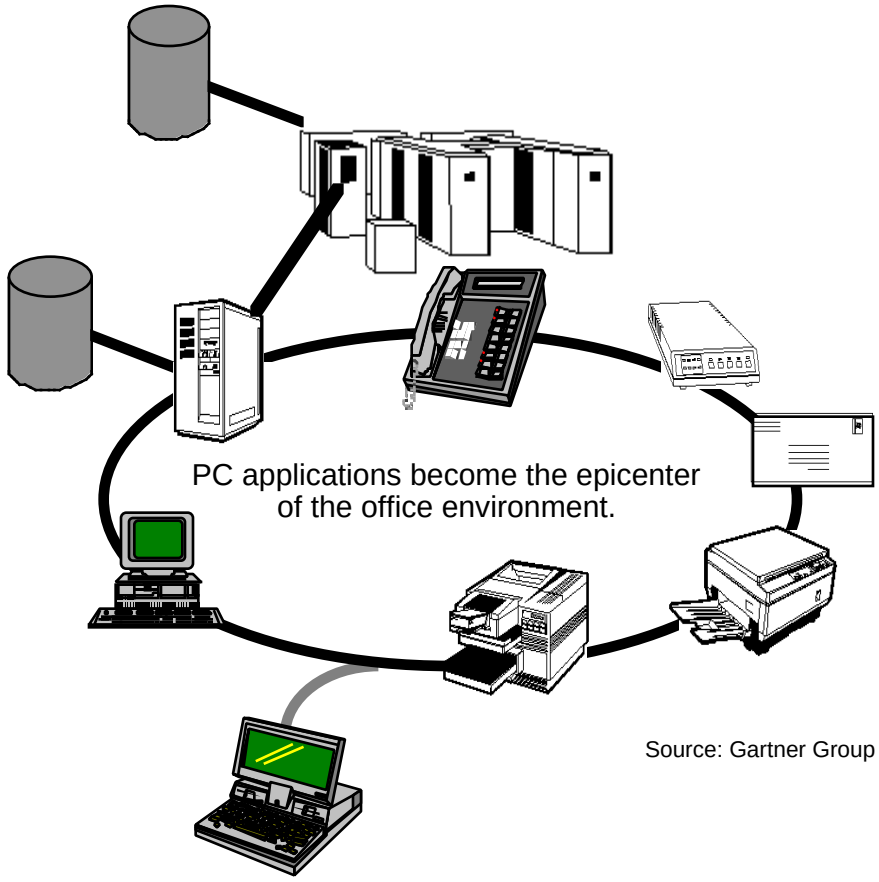
2. **How can ISVs survive in the face of eroding prices, marketplace consolidation, suite domination and objectware migration?**

3. **How will repositioning suites and applications as component libraries and development platforms impact end-user and vendor strategies?**

4. **What new tools and management strategies will emerge to enable widespread end-user-developed applications?**

How must PC applications change to deliver client/server and workgroup solutions?

Reader Notes

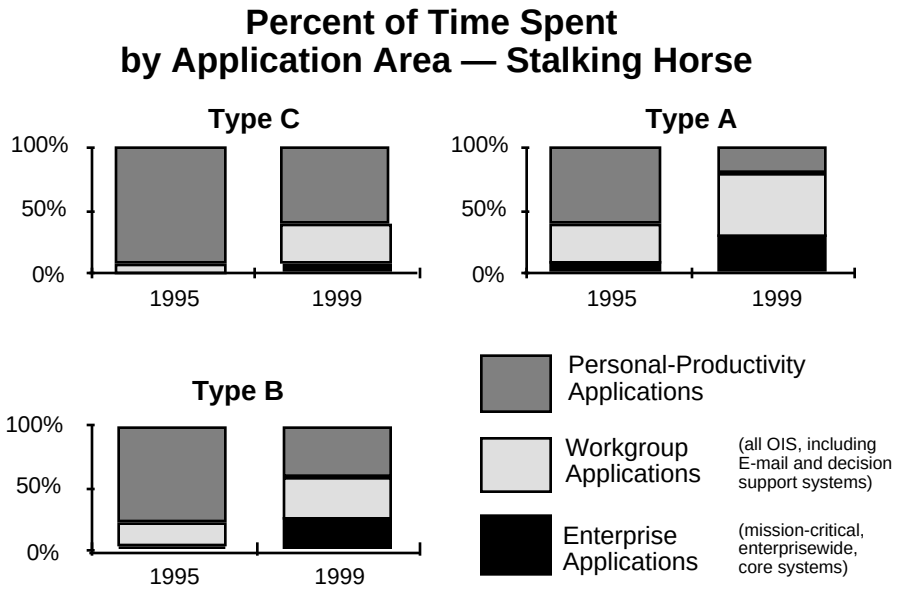


Source: Gartner Group

The PC no longer operates in an isolated stand-alone environment. The “Year of the LAN” may have never officially materialized, but the ever-increasing adoption of networking has resulted in over 70 percent of corporate PCs worldwide being connected to some form of LAN or WAN. This network may have started as a vehicle to allow PC users to share printers and other peripherals, but this is rapidly changing. The PC is becoming established as the standard user entry point for enterprisewide computing. This is characterized not only by the rapid adoption of client/server applications (which often require access to local *and* remote data), but also by the emergence of the PC as a master node on the enterprise’s overall communications infrastructure.

The bottom line of these changes is that PC applications today must go beyond simply sharing the same print resources. They must also integrate with facsimile services, electronic mail and electronic document storage, communicate with external (as well as host) data and documents, and support a full set of multimedia functions.

By 1998, the primary focus of PC applications no longer will be personal productivity.



Technology Profile	Application Level	1995	1999
A Leading-edge companies	Productivity Workgroup Enterprise	60% 30% 10%	15% 55% 30%
B Mainstream companies	Productivity Workgroup Enterprise	75% 20% 5%	40% 35% 25%
C Lagging-edge companies	Productivity Workgroup Enterprise	88% 10% 2%	65% 25% 10%

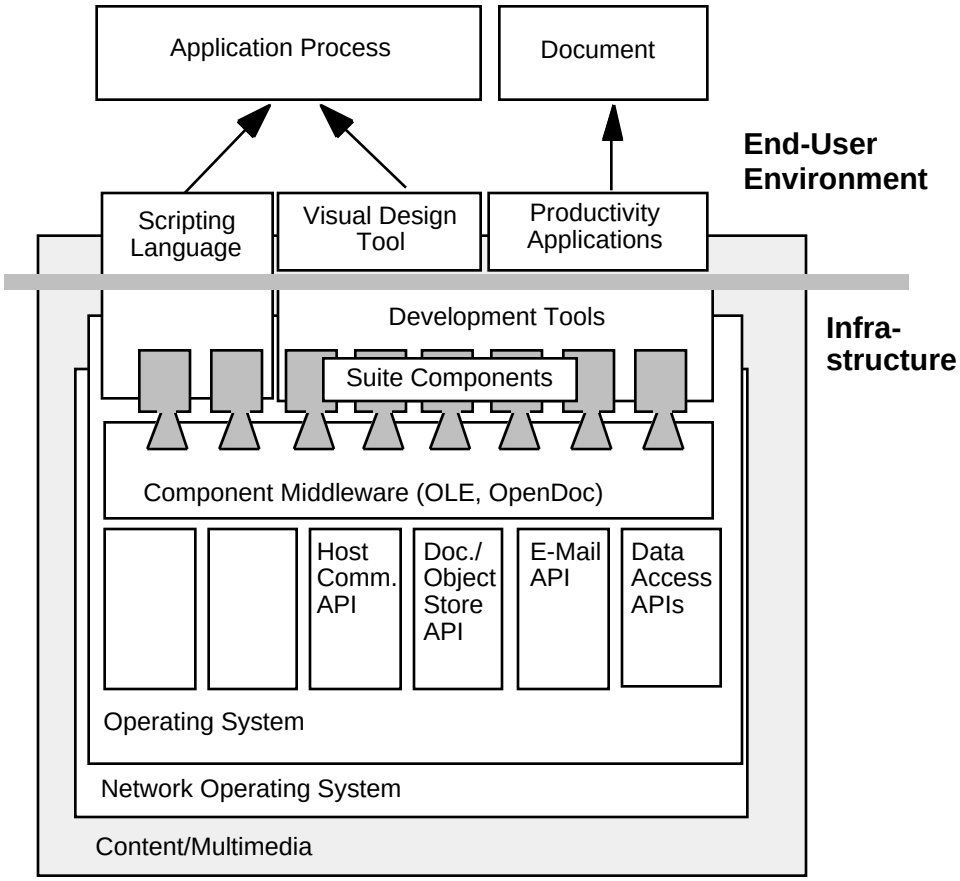
Source: Gartner Group

Key Issue: How must PC applications change to deliver client/server and workgroup solutions?

The shift from desktop productivity tool to enterprise client has been driven by two sets of technologies: 1) the increasing use of E-mail as a tool enabling group productivity, and 2) the increasing shift toward client/server development. The latter has been characterized on the desktop by a mixture of downsized host applications and minicomputer applications to workgroup servers, upsized PC database applications, and the use of "screen scraper" software to allow a PC front end to be used on an a host-based application. As the prevalence of client/server increases with the maturing of the technology, we expect the degree to which the PC is used as a pure personal-productivity tool to diminish rapidly. Tools will be recast as groupware-enabled products that offer similar functionality based on a shared-document model. The "componentization" of suites and other application software will expand further the use of application products outside of the pure personal-productivity category into workgroup and enterprise-level applications.

The IS department should clearly differentiate between strategic infrastructure and the end-user software based on that infrastructure.

Reader Notes



Source: Gartner Group

Key Issue: How must PC applications change to deliver client/server and workgroup solutions?

As the desktop is recast as an enterprise client, the basis on which software is evaluated and selected must be reviewed. In the stand-alone environment, the user is king — software decisions can be made purely on functional fit. In the enterprise network, this focus on the user cannot be lost (without the risk of also losing the user's cooperation), but the focus must also be balanced with the needs of the organization as a whole.

The ongoing componentization of the operating system and application software products provides the solution. The IS department should determine the basis of the infrastructure being used throughout the organization (e.g., the standard APIs, communications layers, relational database, object / document repository) while allowing the decision on front-end tools to be made on functional suitability. Meanwhile, content is emerging as an element of the infrastructure and the front end. It will be an increasingly important part of the environment, and methods for creating and managing it must be determined now.

Best-of-breed will cease to be relevant when selecting applications, but should be a factor when selecting elements in the new layered infrastructure.

Reader Notes

	Microsoft	*IBM/Lotus*	*Novell*	*Apple*
Visual Programming	**Visual Basic**	BART	Visual App. Builder	tba
Scripting Language	**Visual Basic**	Lotus Script	PerfectScript	Apple Script
Component Library	**Office**	**SmartSuite**	**PerfectOffice**	ClarisWorks
Compound Document Architecture	**OLE**	OpenDoc/ OLE	OpenDoc/ OLE	**OpenDoc**
Mail API	**MAPI**	VIM	MHS	PowerTalk
Document/Object Store	**Exchge./ Cairo**	**Notes/ Bento**	OpenDoc/ Bento	OpenDoc/ Bento
Network Transport	**NT**	**LAN Server**	**NetWare**	**Open Transport**
Database Access	ODBC	ODBC/DRDA	ODBC	DAL/ODBC

Differentiated positions in **boldface**

Source: Gartner Group

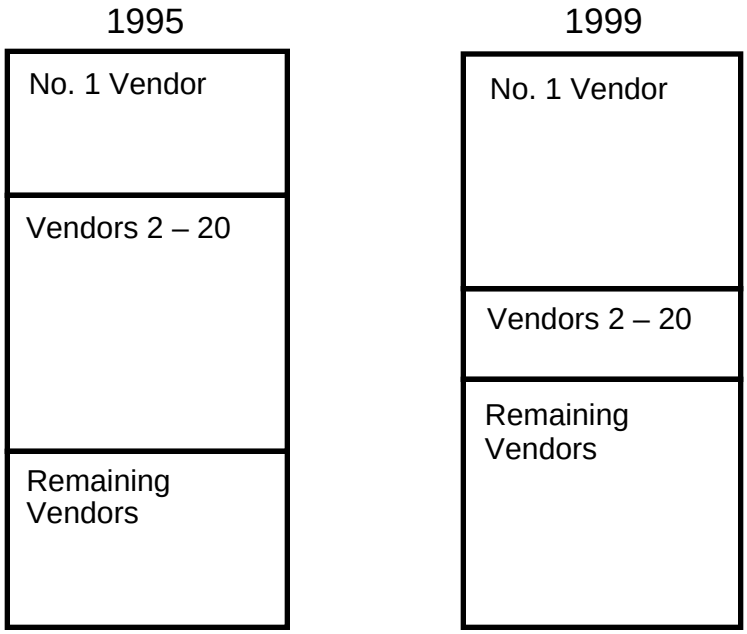
Key Issue: How must PC applications change to deliver client/server and workgroup solutions?

The component software revolution will not affect just the desktop applications and custom applications development segments of the PC industry (although its effects will be most pervasive in these segments). It also will have profound effects on the success of object models and on the upcoming war for the architectural control of unstructured storage. As the PC application industry moves toward component software, vendors will be forced to compete in new and different categories. Some vendors (e.g., Novell and Microsoft) will differentiate themselves via the synergybetween their component suite and their visual programming tools. Other vendors will have to decide whether they wish to compete with Novell and Microsoft on the basis of having a broad and comprehensive component library. We believe only a few vendors (i.e., Novell, Microsoft and maybe one more) will be able to compete on the basis of having the most comprehensive component library. Other vendors will have to compete either on the basis of having the best set of components in a given class, or on their ability to add value to the available suites through components not offered by the suite vendors.

How can ISVs survive in the face of eroding prices, marketplace consolidation, suite domination and objectware migration?

Reader Notes

Percent of Application Software Market by Vendor

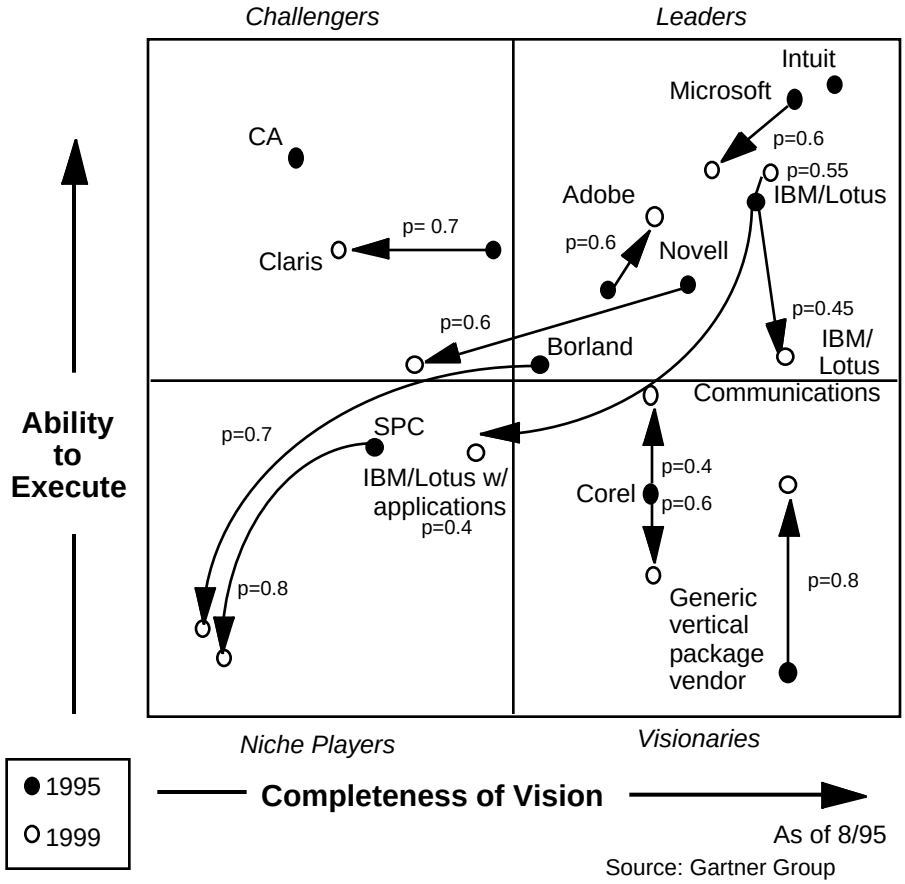


Source: Gartner Group

The PC software market has reached a major turning point for vendors. Microsoft's dominance in operating systems and application suites has placed intense pressure on many other vendors. Vendors competing in the core segments of word processing, spreadsheets, presentation graphics or databases are finding the market has shifted from a high-margin business to a high-volume/low-margin model. The result has been devastating for companies unable to embrace this new model with a sufficiently differentiated set of products. During the past two years, two giants (Borland International and SPC) have each lost more than 50 percent of their annual revenues. The market is rapidly polarizing (in the productivity segment) into two or three companies that will be able to maintain annual revenues of $1 billion or more. The remaining majority will garner annual revenues of less than $150 million. Few, if any, companies will make the transition during the next three to five years. The sole exceptions will be companies with a focus that is either purely complementary or purely separate from the main productivity segments.

Reader Notes

By 1999, the vendor landscape will fundamentally be altered by the introduction of components, the leveraged strength of Microsoft as the leading vendor, and the influence of new platforms.



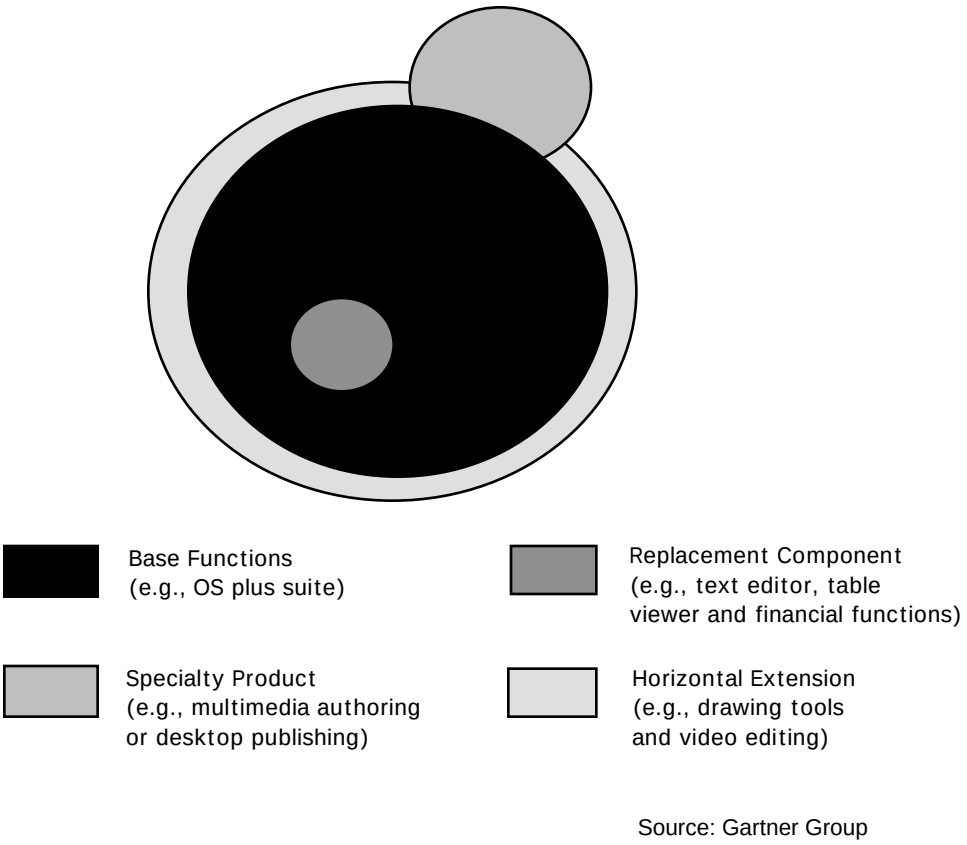
Source: Gartner Group

Key Issue: How can ISVs survive in the face of eroding prices, marketplace consolidation, suite domination and objectware migration?

During the planning period, Microsoft's dominance in the suite marketplace either will drive the key competitors (i.e., IBM/Lotus and Novell) out of this segment, or it will cause them to combine their products into a single suite (0.7 probability for the latter event). The remaining mainstream productivity software vendors (e.g., Borland and SPC) not involved in the suite market have been forced into a small market niche. The diversity of platforms and the increased pressure from component vendors will take a similar toll on Microsoft, which will remain the leading vendor but lose some momentum in the overall applications arena. We believe Corel, with its new suite strategy, will diverge from its previously focused approach, and, as a result, we believe it is likely to reduce rather than increase its market share by trying to compete in this segment. With several vendors losing significant business, the "product collectors" (e.g., CA) will continue to find market opportunities, and the overall componentization shift will create a much stronger market for vertically focused vendors that offer user-customized solutions.

Application suites will be repositioned as the base library of components that every desktop needs by 1997 (0.8 probability).

Reader Notes



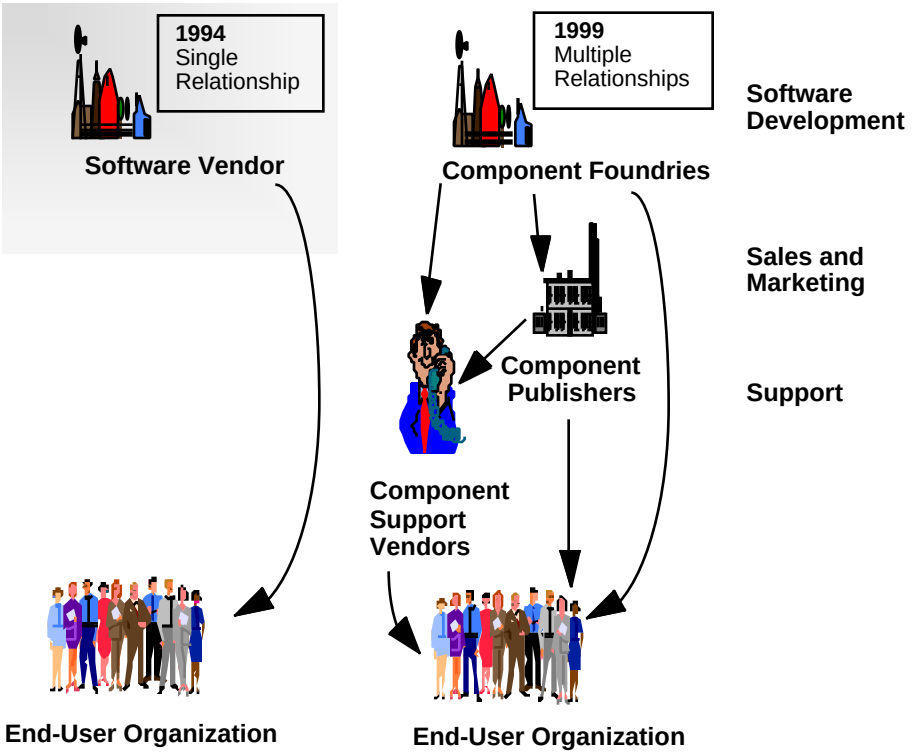
Source: Gartner Group

Key Issue: How can ISVs survive in the face of eroding prices, marketplace consolidation, suite domination and objectware migration?

The base level of functionality that ISVs can assume users have on their desktop has grown consistently as the PC market has matured. In the move to a component-based desktop, the next level of assumed functionality will be defined not only by the operating system, but also by the base functions associated with the standard productivity suite applications (0.8 probability). While the suite vendor is concentrating on the core set of functions users require, other ISVs must start to develop a strategy that uses these functions. Apart from the base suite, we believe three distinct categories will emerge: 1) replacement components — targeted at giving the user extended facilities in particular areas, like power charting; 2) horizontal extensions — additional core functionality not provided in the base suite, covering areas such as advanced drawing capabilities, video editing and fax creation; 3) speciality products — today's applications, such as multimedia authoring, targeted at a niche community that requires extensive features in a specialist area.

The application software market will be fragmented by function. No vendor will be able to continue to act in all categories.

Reader Notes



Source: Gartner Group

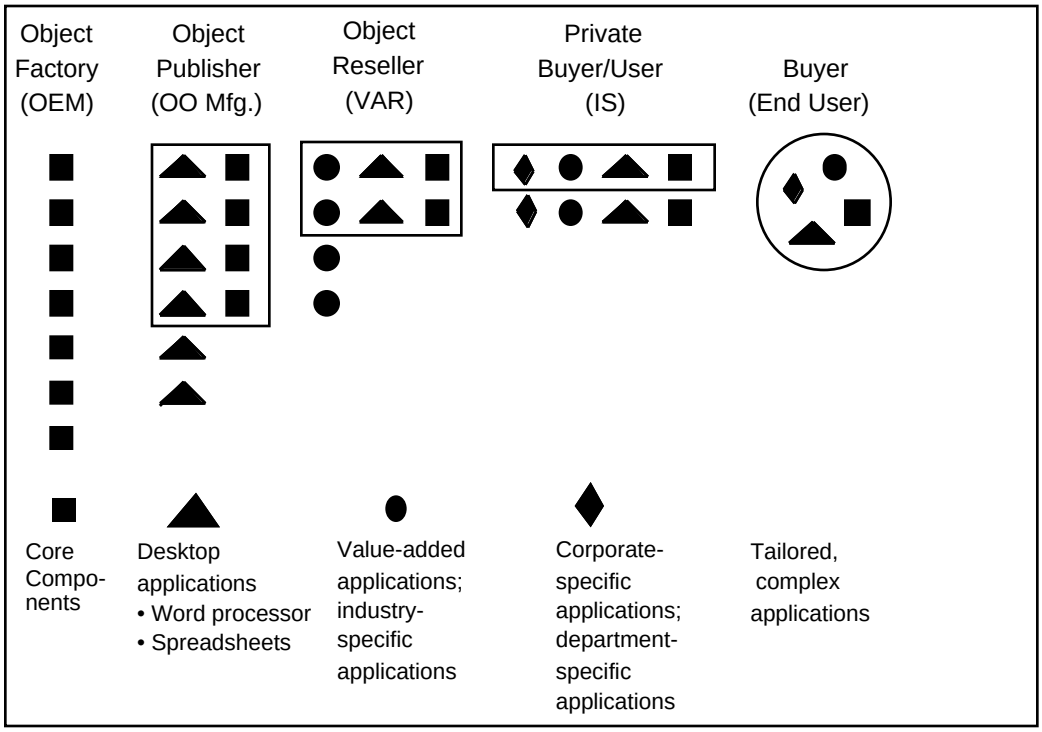
Key Issue: How can ISVs survive in the face of eroding prices, marketplace consolidation, suite domination and objectware migration?

Component software will lead to dramatic changes in how vendors market and support software, and how users buy and integrate it. Users will need to focus on procuring the correct sets of components to give their end users the appropriatedegree of flexibility for developing and customizing applications. Component software will challenge and possibly invalidate the concept of a “standard” desktop, since each end user may require slightly different sets of components to achieve maximum productivity. Given that component-level heterogeneity will occur in the end-user community, user organizations will need to ensure that the cost of end-user computing — and especially the cost of end-user operations — does not skyrocket as “casual” application development becomes another form of “tinkering with the computer.” Vendors will see traditional methods of packaging software become invalid, and a revolution in software distribution.

Vendors continuing to develop applications that offer a complete set of independent functionality — rather than recombining and adding value to existing components — will be obsolete by 1999 (0.7 probability).

Reader Notes

Component Software Building Chain



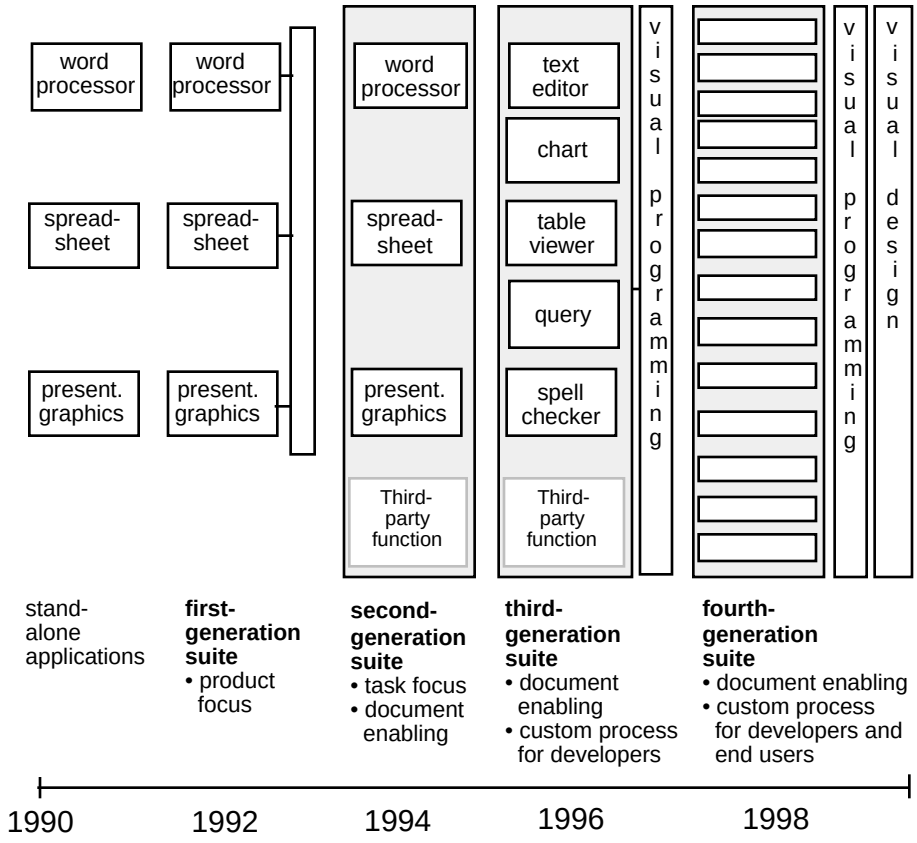
Source: Gartner Group

Key Issue: How can ISVs survive in the face of eroding prices, marketplace consolidation, suite domination and objectware migration?

We believe the smaller vendors increasingly will offer best-of-breed components to avoid being driven out of business by the large desktop software vendors. These components may supplement suite or product function, or they may be used as building blocks for customized solutions. They will need to be licensed and paid for, driving the requirement for some kind of metering to track the equivalent of thousands of tiny products. In addition, as desktop software becomes an increasingly critical part of large networks, users frequently will have limited usage requirements (i.e., the need to use the software on only a small part of a large network). Users will need an easy way to measure and track use, and to pay for the software based on this information. Even desktop software will not be priced low enough to justify paying for large numbers of unused licenses.

How will repositioning suites and applications as component libraries and development platforms impact end-user and vendor strategies?

Reader Notes



Source: Gartner Group

From a humble beginning as marketing bundles, suites are quickly maturing into a core set of services available on every desktop. As suites evolve toward being the base library for component software environments, the role of software will expand from a pure personal-productivity tool to a core resource for an assembly line of end-user-created documents and applications. This transition recasts these products as the key elements for both document and process creation. The suite will emerge in stages to fulfill each of these roles. The first stage is seen today in the current (second) generation of suite products, each of which allows the user to focus on specific tasks without first selecting a product environment in which to address the task. However, this is more of a cosmetic change than a fundamental change to the products' componentry. The third-generation suites will shift significantly toward a more authentic component architecture. The products' atomization will signal the start of the second role for suites — components for an end-user process assembly line. The recombining of components will be restricted initially to using a scripting language. With the fourth-generation suites (1998), it also will be possible to use visual design tools.

Reader Notes

Strategic (e.g., fit to organizational infrastructure) and management (e.g., vendor viability, support and licensing) criteria should drive suite selection.

Strategic Criteria

- Compound document model
- Middleware — database access (not SQL-strategic)
- Middleware — E-mail API
- Middleware — document/object storage
- Middleware — host communications
- Middleware — strategic SQL DBMS
- Network operating system
- Existing DOS/Windows product standards
- Likely platform mix during the planning period
- Degree of componentization (percent of shared code)
- Component accessibility from standard development languages/tools
- Interapplication scripting standard
- Availability of third-party components

Tactical Criteria

- UI consistency
- Seamless applications integration
- Task-oriented functionality vs. product-oriented
- Customizability of base products
- Cross-application macro functionality
- OS UI standards conformance
- Quality of constituent product
- Functionality of constituent product
- Compatibility with existing standards
- User appeal/satisfaction
- Reliability
- Help quality and ease of navigation
- Availability/quality of integral JITT
- Availability/quality of third-party JITT
- Breadth of available training
- Documentation
- Electronic support quality
- System requirements
- Performance on target hardware
- Resource utilization

Management Criteria

- Profitability of suite business to vendor
- Vendor strategic directions
- Availability from preferred channel
- Flexibility and appropriateness of support
- Breadth of available support — support options
- Breadth of available support — No. of third parties
- Availability of support data
- General availability of technical information
- Flexibility and appropriateness of licensing options
- Ease of license management
- Ease of upgrade management

Source: Gartner Group

Key Issue: How will repositioning suites and applications as component libraries and development platforms impact end-user and vendor strategies?

When selecting suites, organizations must balance strategic, management and tactical criteria. When heterogeneous platform support is required (as a key decision factor), it should be evaluated first against the vendors' relative strategies (IBM/Lotus — Windows, OS/2, Notes; Microsoft — Windows, Macintosh; Novell — Windows). Beyond this, the first step is to determine the organization's standards in the strategic criteria section (e.g., Windows 95, OLE 2.0, Groupwise). Each factor then should be weighted according to its relative importance; the criteria groups should be split approximately in percentage terms: 1) Type A (leading-edge) companies — 70 percent strategic, 20 percent management and 10 percent tactical; 2) Type B (mainstream) companies — 50 percent strategic, 30 percent management and 20 percent tactical; and 3) Type C (lagging-edge) companies — 30 percent strategic, 40 percent management and 30 percent tactical. Each product element must be expanded for each product category and weighted based on investment in skills/documents and the relative importance of that category.

Reader Notes

The incremental cost of supporting an additional application suite more than justifies a degree of enterprisewide standardization.

Incremental Cost of an Additional Application Suite

Task	Job Title	Labor Rate	Hours Needed Best Case	Hours Needed Worse Case	Total Cost Best Case	Total Cost Worst Case	Section Subtotal Best	Section Subtotal Worse
Planning and Coordination								
Planning	IS managers	$42	16	40	$672	$1,680		
Product review and introduction	IS specialist	$36	40	80	$1,440	$2,880		
Vendor liaison	IS specialist	$36	20	40	$720	$1,440		
Coordination of installations	IS specialist	$36	25	50	$900	$1,800	$3,732	$7,800
Acquisition								
Forgone licensing discounts (5% to 15%)					$49,375	$148,125		
IS purchasing function labor	IS specialist	$36	24	80	$864	$2,880		
Purchasing department labor	Purchasing	$28	10	30	$280	$840		
Legal review	Legal counsel	$150	5	10	$750	$1,500	$51,269	$153,345
IS Preparation (22 support staffers)								
Formal/casual learning-support staff	IS support staff	$36	368	560	$13,248	$20,160		
Update help desk knowledge bases	IS specialist	$36	40	80	$1,440	$2,880		
Purchased knowledge bases	Third party				$12,000	$30,000	$26,688	$53,040
Installation								
Technician travel time	IS specialist	$36	50	100	$1,800	$3,600	$1,800	$3,600
Template Building								
Ten templates	IS specialist	$36	80	160	$2,880	$5,760	$2,880	$5,760
Training the End User								
Build/buy JITT materials	IS trainer	$36	60	100	$2,160	$3,600		
Build/buy classroom material	IS trainer	$36	40	80	$1,440	$2,880		
Deliver classroom training	IS trainer	$36	384	576	$13,824	$20,736	$17,424	$27,216
Additional Technical Support Burden								
Help desk calls (0 additional calls)	IS specialist	$36	0	0	$0	$0		
Tier 2 support calls (1 or 2; 20 mins.)	IS specialist	$42	495	990	$20,790	$41,580		
Peer support calls (2 to 4; 6 mins.)	End user	$28	300	600	$8,400	$16,800		
End-user disruption	End user	$28	500	1,000	$14,000	$28,000	$43,190	$86,380
Administrative Tasks								
Maintaining inventory system	IS clerical	$28	16	40	$448	$1,120	$448	$1,120
Total			**2,473**	**4,616**	**$147,431**	**$338,261**		

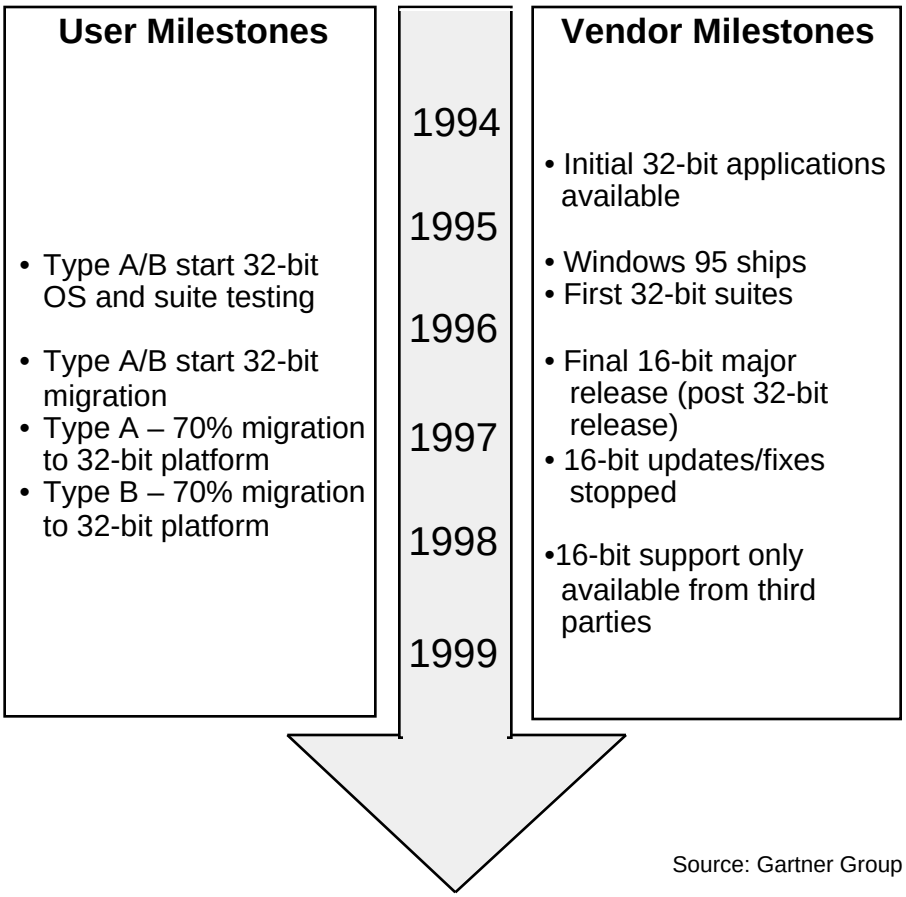
Source: Gartner Group

Key Issue: How will repositioning suites and applications as component libraries and development platforms impact end-user and vendor strategies?

Although we advise IS managers not to focus cost reduction efforts on forcing every department and workgroup to adopt a homogeneous desktop environment, IS managers can easily justify using some degree of standardization when managing the deployment of multiple application suites and desktop platforms. IS managers who have difficulty convincing senior managers and maverick departments that supporting an additional application suite will greatly increase costs can use this model to give credence to their arguments. It shows that supporting an additional application suite can cost more than $338,000 per year for a user base of 2,500. The wages of labor and the amount of labor we have identified will vary greatly from organization to organization (depending on geographic location and skill level), but the cost elements should be fairly consistent.

Vendors will shift from 16-bit to 32-bit applications twice as fast as they shifted from DOS to Windows. They will rapidly scale down 16-bit development work and focus support on 32-bit versions by 1996 (0.6 probability).

Reader Notes



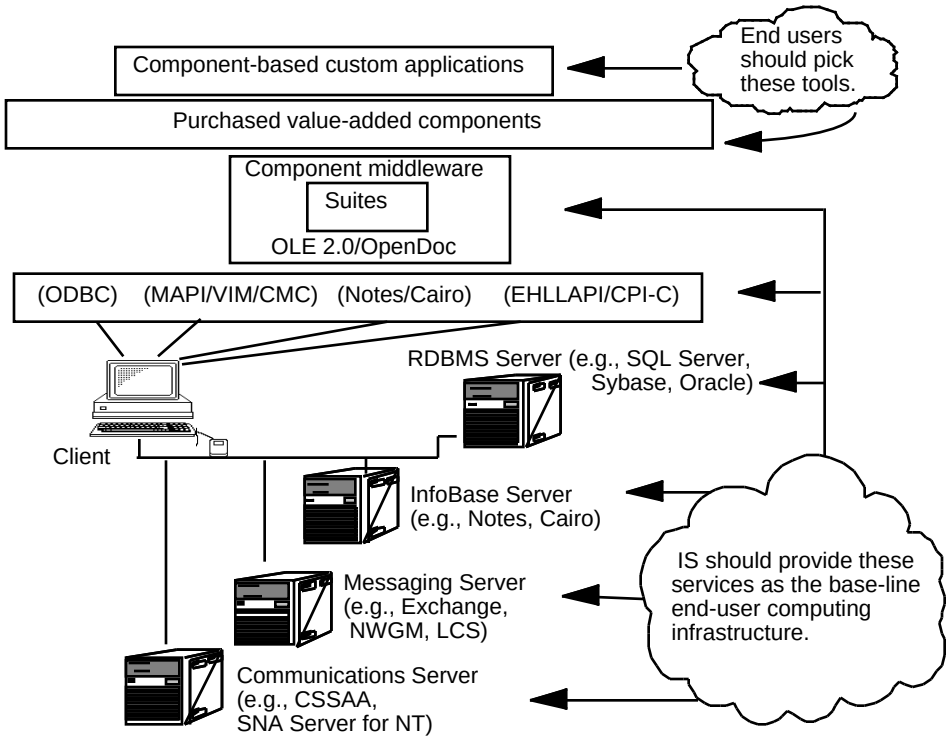
Source: Gartner Group

Key Issue: How will repositioning suites and applications as component libraries and development platforms impact end-user and vendor strategies?

The transition from a character-based environment to a graphical environment has been relatively slow. Although most major vendors now effectively have frozen any development on the DOS platform, updates and fixes still are available and support has continued. This period is coming to a close. *All major ISVs now are focusing their primary development resources on creating 32-bit versions of their products. 16-bit Windows development is taking a "back-seat" role, and DOS development is history.* We expect the overall transition from a 16-bit to a 32-bit environment to be accelerated by the vendors' need to scale down legacy platform development, maintenance and support. All major new features, including componentization, will be focused on the 32-bit platforms, with compatible but less feature-rich versions available on 16-bit platforms for one more product cycle. *During 1996, each of the major vendors will cease development on 16-bit platforms, and 16-bit products will start to command premium prices over 32-bit products (much as happened with DOS) as vendors harvest what remains of the market (0.7 probability).*

What new tools and strategies will emerge to enable widespread end-user-developed applications?

Reader Notes



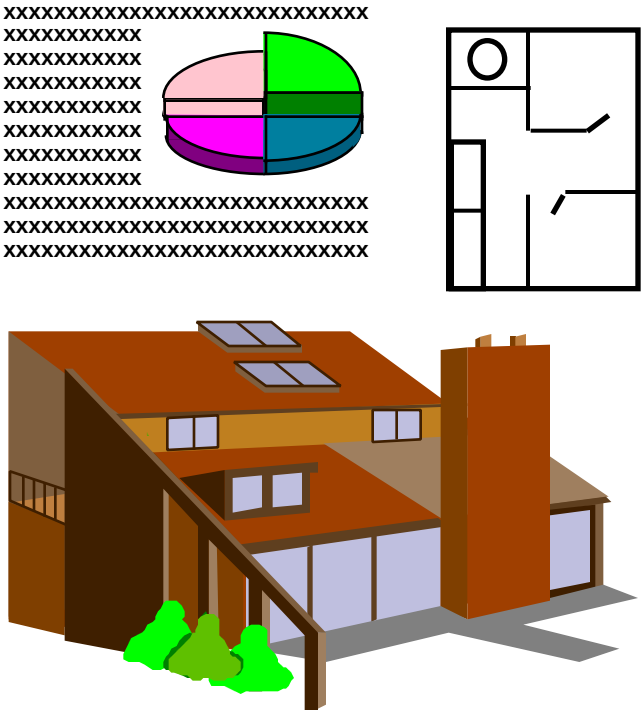
Source: Gartner Group

Key Issue Analysis: End-user application development will be greatly accelerated by components and visual scripting products for component applications. However, the potential to create PC legacy applications rapidly will also accelerate.

IS organizations must engage in two crucial initiatives to avoid being swamped by orders of magnitude more “PC legacy applications”: 1) They must educate users about how to differentiate between tactical applications that lend themselves to componentware approaches and applications that need enterprise methodologies; and 2) they must build the PC LAN infrastructure to enable manageable deployment of component-based applications.

Only Type A companies investing heavily in support will be able to manage direct vendor support in a heterogeneous component environment. All other companies will need to outsource some level of desktop support (0.7 probability).

Reader Notes



Source: Gartner Group

Key Issue: What new tools and strategies will emerge to enable widespread end-user-developed applications?

In the second generation of suite applications, the users' focus shifted from product-centric computing to document-centric computing. The market for complementary components is emerging, with products offering a range of specific added functionality restricted to document creation from a host package (e.g., a word processor or spreadsheet). This market will expand during 1996 and mature during 1997 as more-granular 32-bit suite components become available. One core management issue this creates is how to support the end user in a document-centric environment. For example, where a user is creating a newsletter combining text, charts, images and numeric data, it will be impossible to distinguish between components delivered by different vendors when problems occur. *The cost of disassembling this environment will be excessive for most internal help desks and therefore will require outsourcing some level of support. The key difference here is that the outsourcing will be required to support the whole desktop, regardless of the vendor. For this to be effective, the chosen outsourcer must be involved in any software choices.*

The number of ways software can enter the user organization will increase substantially. Preventing users from bringing in individual components will become impossible (0.8 probability).

Reader Notes

Software Product Sources

	Individual Component	Horizontal Applications	Vertical Applications
CD-ROM	✓	✓	✓
Telesales	✓	✓	✓
Reseller	✓	✓	✓
VAR			✓
Superstore	✓	✓	✓
BBS	✓		
CompuServe	✓		
Internet	✓		
MS Network	✓		
Mail Order	✓	✓	✓
Peers/Sneakernet	✓	✓	✓

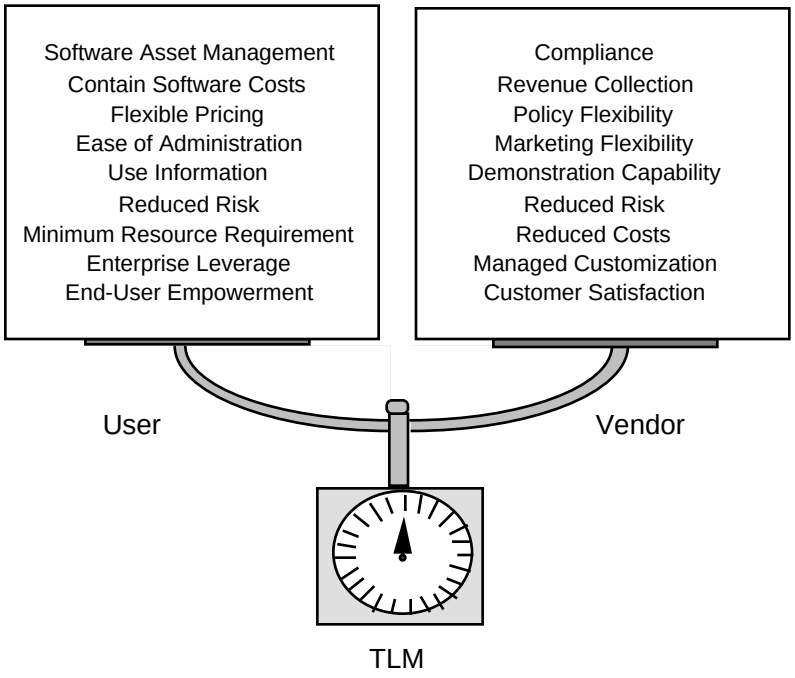
Source: Gartner Group

Key Issue: What new tools and strategies will emerge to enable widespread end-user-developed applications?

Today's software market is characterized by relatively large packages, for vertical and horizontal application use, and a reasonably finite and manageable range of product sources. The market for component software will turn this upside down. The component's small size will enable it to be treated as an impulse buy, like a last-minute purchase at the checkout counter of a food store. Sources for these components will explode in volume. Whereas most users today find it prohibitive to download a complete software package across a BBS or electronic-commerce service, the low cost and size of a component will make these media very effective distribution vehicles for the component foundry. Complementary or replacement components offering specialized functionality that appeal directly to a particular user or group will be available through mail order advertisements in business and trade magazines. Before this explosion occurs, the IS department must have systems in place to measure what software exists in a company and how each product is being used.

While suite licensing using current practices will continue to be possible, the effective licensing and management of individual components only will be possible by using technical license management (0.8 probability).

Reader Notes



Source: Gartner Group

Key Issue: What new tools and strategies will emerge to enable widespread end-user-developed applications?

We believe TLM is one of the engines that will drive the electronic software business framework, and that it is a potential hub for software asset management in its broadest sense. Yet, initial implementations of TLM focus on its role as a contract compliance server, causing considerable concern among enterprise users who fear that TLM will become an onerous, intrusive mechanism for vendors to control software access and use. Some early implementations of automated compliance vehicles (e.g., time bombs and hard-stop license keys) merit such user concern. For TLM to succeed and be accepted by users, it must provide value-added functionality, along with financial and management benefits for users and vendors. *In addition, while intellectual property must be protected, so must user confidentiality*. Users and their suppliers will need to agree in advance on the contents of usage reports when this data is released under user control. With a balanced, quid pro quo approach, TLM will facilitate and enable a new era in software licensing (0.8 probability).

Bottom Line

Reader Notes

- By 1998, the primary focus of PC applications no longer will be personal productivity (0.8 probability).
- The IS department should clearly differentiate between strategic infrastructure and end-user software based on that infrastructure.
- Best-of-breed will cease to be relevant when selecting applications, but should be a factor when selecting elements in the new layered infrastructure.
- When selecting suites, organizations must balance strategic, management and tactical criteria. The overall bias should be toward strategic and management issues.
- Application suites will be repositioned as the base library of components that every desktop needs by 1997 (0.8 probability).
- The number of ways software can enter the user organization will increase substantially. Preventing users from bringing in individual components will become impossible (0.8 probability).
- While suite licensing using current practices will continue to be possible, the effective licensing and management of individual components only will be possible using TLM (0.8 probability).