

1. **What will be the dominant trends in administrative applications?**
2. **How will administrative application architectures evolve, and how will they fit in an enterprise framework?**
3. What factors should be weighed in a buy vs. build decision for a client/server application?
4. **How should a user's functional and technical requirements be defined and expressed in an application evaluation?**
5. What role should end users play in packaged application selection and support?
6. **Which package vendors will dominate?**
7. How can new, packaged, cross-industry applications coexist with existing legacy applications?
8. How will the definition of an application fundamentally change by the year 2000?
9. What new technologies will impact future application architectures?
10. How will trends in business re-engineering and process redesign impact application selection and viability?
11. How will advancements in middleware technology affect user application architectures?
12. Where are the rocks in the road in the implementation of application packages?
13. How will packaged applications fit in the emerging electronic office?

Packaged applications are often an organization's first step into client/server technology. However, these applications require a commitment to tools and an architecture, dictated by the vendor (which often conflicts with an organization's strategic goals).

A successful package evaluation must expose these conflicts, and examine their tactical and strategic impacts on an organization. Too often, organizations abdicate enterprise architectural choice to the packaged application vendor, only to find that the vendor's architectural design took an application approach rather than an enterprise approach. Even in the best circumstances, an organization must make compromises, introducing inconsistency, the need for interfaces and a transition strategy.



Business model dislocations will continue to force retirement of installed legacy systems. By 1997, client/server purchased, administrative applications systems will account for twice as many new worldwide licenses as their non-client/server counterparts.

Application selection criteria that emphasizes application function over software architecture and infrastructure elements will dominate in enterprise application decision making. This will lead to continued technical architecture fragmentation, users essentially “buying an application and inheriting an architecture.”

The next generation of administrative client/server systems, Gen(+1), will miss the mark in terms of delivering necessary functionality. No vendor, however, has the capability to deliver Gen(+2) systems within the next five years. Vendors that can insulate users from the transition from Gen(+1) to Gen(+2) will be strategic winners.

Vendors will control users through enterprise licensing models and architectural integration with proprietary middleware including “under the cover” program-to-program communications and data navigation through proprietary agents. The SAP/Microsoft combination will be as closed as IBM was in the 1970s. Vendor winners will be those that proprietize middleware and tightly integrate toolsets under the cover of an integrated structure.

After 1997, the shift of the integration layer from intra-application to interapplication will level the playing field between integrated applications vendors and best-of-breed. The strategy of integrated vendors (to cover as many business area as possible and create integration layers) is not able to be sustained, forcing a shift back to interapplication integration.

Two major trends are forcing a re-examination of packaged administrative applications. The first is a significant shift in business models from hierarchical, LOB-oriented activities to more process-driven ones. Combining the influences of business process re-engineering with downsizing and acquisition, a new stage has been set which significantly alters the role of administrative applications. Today’s applications cement in place the administrative application models of the 1960s, and are seen by many business managers as obstacles that prohibit them from moving forward.

The other major trend has been a dynamism in technical models. Client/server technology has made a significant impact at reapportioning work modules among desktop, midtier and enterprise server platforms. For many clients who are struggling to reapportion their modules, vendor initiatives will often force them to select an architecture quickly — perhaps not the one most suitable for the client’s long-term architectural needs.



Business and Technical Model Dislocation

Current Model	New Model	Implications
Line of business	Activity-based	Process-oriented cost
Clean boundaries between companies or entities, and inter- and intracompany	Trading partners, dynamic relationships, supply chain changes	New measures, new users, user independence from old systems infrastructure
Local/regional/national	Global	Protected and regulated becomes competitive and exposed
Highly compartmentalized	Cross-function, peer-based, re-engineered, downsized	Static becomes dynamic, procedural becomes market-driven, transactional becomes informational, predetermined becomes dynamic
Monolithic, high-function, self-contained	Atomistic, modular, workflow-oriented, combinable component applications	Rapidly evolving technologies, no single vendor or consortia in control, fragmented support systems, exponentially more complex
Established static transaction paths, data linking, committed units of work	Intermediate state transactions, work in process, collaborative	Need for new standards to avoid fragmented implementations and point solutions
Enterprise data model, Enterprise MIS	Explosion of agents	Enterprise data cloud abandoned, data administration becomes process control; data owned by agents

Source: Gartner Group

Business model changes are forcing a re-examination of the roles of packaged applications within an organization's infrastructure. In the past, clean boundaries existed between business functions. Now we are finding inter- and intracompany cooperation redefining the notion of business transactions. Trading partners, suppliers, customers are now part of the business transaction chain, and must be accommodated. Unfortunately, old-style applications stifle new business models rather than enable them.

Technical model changes have also forced significant reconfigurations. As "the network" becomes "the system," system ownership changes and moves away from central IT. The demand for "universal data access" has given rise to user demands for flexible, real-time data access — collapsing the value of predetermined data paths and old data models that were optimized toward fairly predictable data access. Data inconsistencies, which could be hidden under "stovepiped" systems, are now being revealed and are becoming stumbling blocks.



Technical and functional requirements will continue to outpace vendors' ability to deliver, fueling a continued rapid evolution of packages and architectures through 2000 (0.8 probability).

Three Generations of Administrative Packaged Applications

Vintage	Generation	Characteristics	Limitations
1990	Gen(0)	Monolithic, hierarchical IT vision driven	PC exploitation Lack of client/server
1996	Gen(+1)	Relational, graphical, extendable Compromise IT/user vision driven	Already too late Traditional transactions, data, applications boundaries
2001	Gen(+2)	Atomistic, recombinant combinable component applications Rise of agents Business-vision-driven	

Source: Gartner Group

Key Issue: What will be the dominant trends in administrative applications?

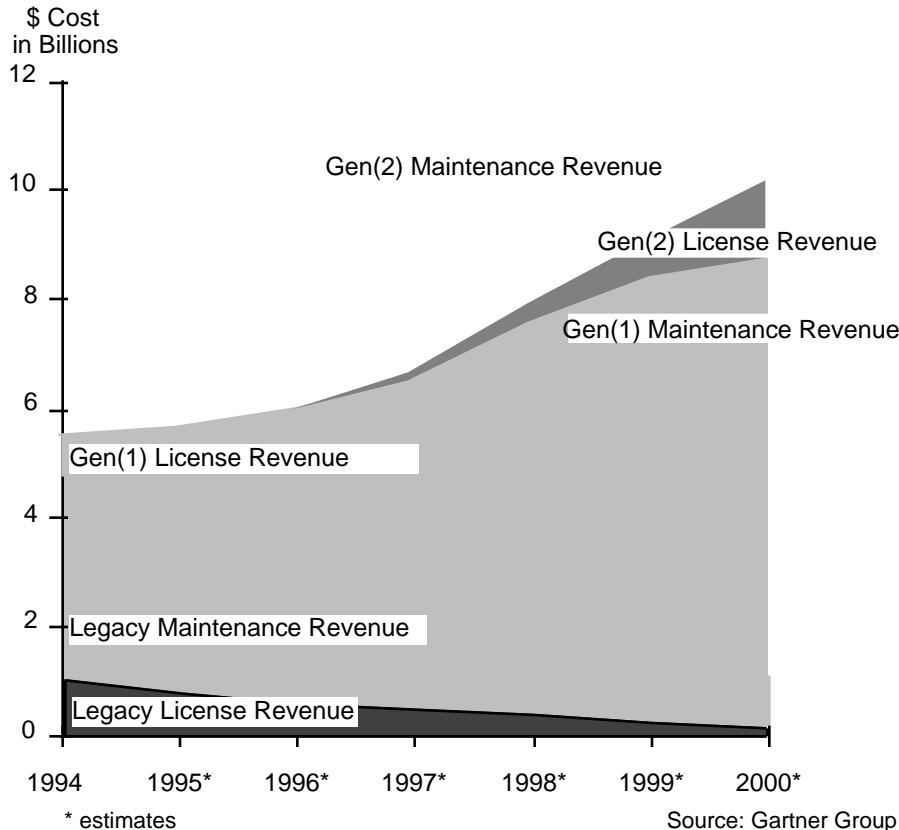
The "Gen(0)" generation is characterized by monolithic hierarchical applications that mirror the organizations they were designed to support when they were built roughly 15 years ago. These applications were designed by IT, supported by IT and are owned by IT.

Gen(+1) applications are now appearing. These exploit graphical front ends more fully, use relational databases and are beginning to balance the workload between processors using client/server program-to-program capabilities. While Gen(+1) applications are news today, they are lacking in the fundamentals to work within the truly redesigned business enterprise. These applications are defined from the standpoint of traditional transactions, data flows and application boundaries.

Gen(+2) applications use recombinant, combinable components and agents, and integrate workflow and mobile technologies to present a view of an application radically different from today's view. We believe Gen(+1) applications will not be upwardly extendable to Gen(+2), thus forcing users and vendors into an extensive repositioning by the end of the decade.



In 1996, we expect the client/server portion of the market to surpass the legacy segment, while, already in 1995, the value of new licences for client/server administrative packages will overtake legacy sales (0.7 probability).



Key Issue: What will be the dominant trends in administrative applications?

While the trend toward purchasing application packages remains unbroken and accelerates, in the next five years we will see a trend toward client/server “architected” packages.

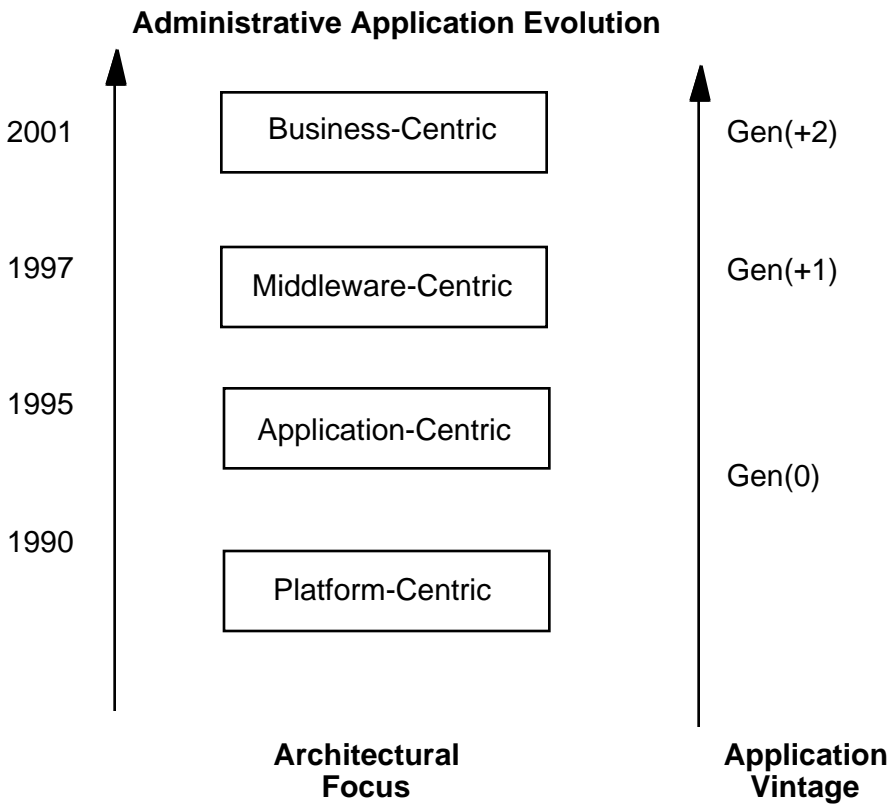
The shift to client/server will impact the business mix of application vendors. Higher complexity will double the demand for services. Client/server vendors will seek to leverage the increasing functionality of commonplace desktop products. Business graphics, report writing, check printing and decision support are among the most likely functions to be performed on the desktop, and many of the future application functions will be carried out by using work-flow packages. Without this shift, the market for administrative applications would be about \$12 billion by 2000.

In the past, vendors were aiming at providing “soup-to-nuts” enterprise solutions if their portfolio permitted; today the market will increasingly call for integration of components from competitors, complementary application providers, and bespoke applications. Users and system integrators will not have learned to master this additional complexity on a broad base before 1998 (0.6 probability) and vendors will have to take control of this movement.



How will administrative application architectures evolve, and how will they fit in an enterprise framework?

Reader Notes



Source: Gartner Group

A packaged application architecture must provide the foundation for development and extension. Furthermore, a strong architecture is a source of stability in business and technology interfaces. As administrative applications continue to evolve from IT-centric to combinations of user-involved, user-owned, distributed and enterprise-connected business information and processes, architectures are stretched well beyond their original charter to a breaking point.

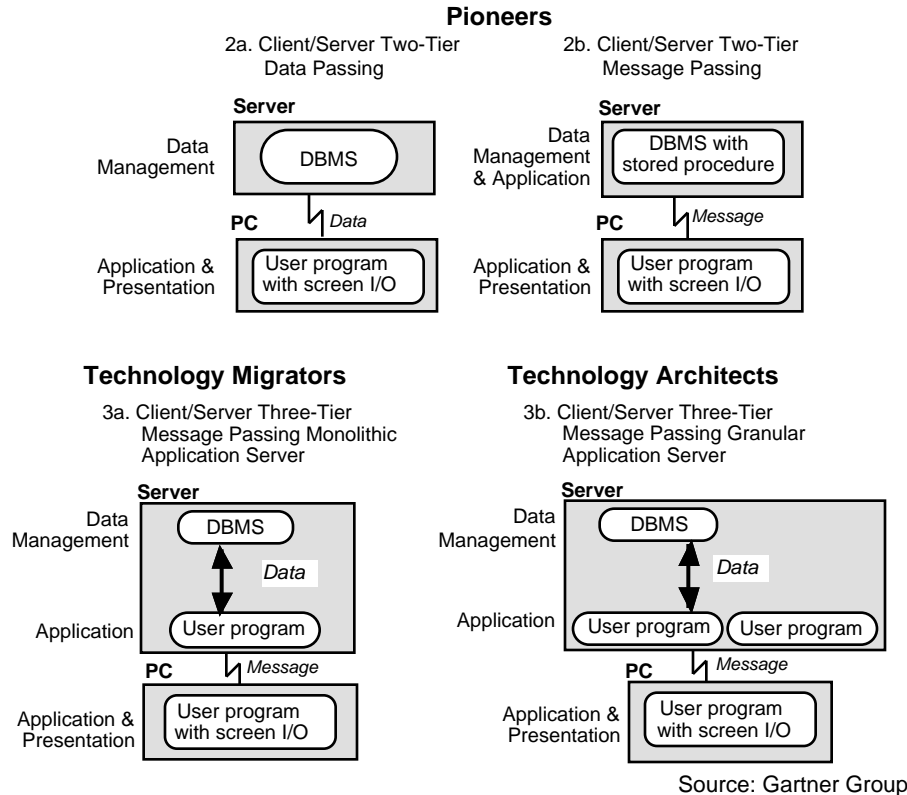
The result is a transition to a new vision of what defines an architecture and what makes up an application. Because today's architectures are the foundation of today's Gen(+1) applications, this transition will be disruptive to the applications and open the door for newly "architected" Gen(+2) applications and vendors. How disruptive this change will be depends on the architectural plans vendors are making today.



By 1999, remote presentation architectures will be dominated by formalized, more granular, three-tier architectures (0.7 probability).

Reader Notes

Vendor Architecture Strategies



Key Issue: How will administrative application architectures evolve, and how will they fit in an enterprise framework?

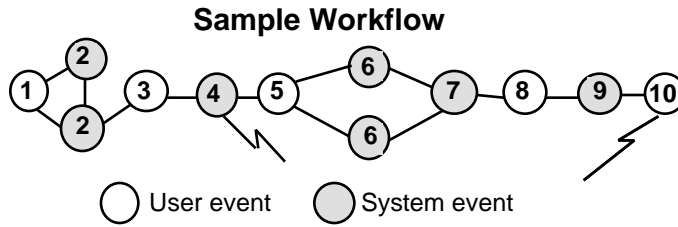
Leading package providers continue to make architectural choices based on their development circumstances and the markets they wish to pursue. Vendor descriptions of their technology often obscure, sometimes intentionally, the underlying architectural elements and the suitability of the application for a particular enterprise setting. Equally important to consider is each vendor's ability to evolve its architecture through future generations.

We see three alternative strategies with which vendors have aligned. Pioneers consist of first-generation approaches by vendors that either started early or seek development and time-to-market simplicity. Technology migrators retain many legacy artifacts, not all of which are bad, and incrementally evolve to a client/server architecture. Technology architects have either accepted the additional design complexity of three-tier approaches upfront or have progressed through several evolutionary steps.



Lack of standards will inhibit the availability of stable workflow technology through 1998 (0.8 probability).

Reader Notes



- | | |
|---|---|
| <p>1. User enters new purchasing order into database.</p> <p>2. System validates entry and alerts supervisor.</p> <p>3. Supervisor approves and sends to purchasing department.</p> <p>4. System creates the corresponding form and routes it to vendor.</p> <p>5. Warehouse receives goods, reviews them and updates database.</p> | <p>6. System alerts user and accounts payable for invoice matching.</p> <p>7. System alerts supervisor to approve invoice.</p> <p>8. Supervisor approves invoice.</p> <p>9. System posts invoice to payables.</p> <p>10. Accounts payable receives invoice and approves invoice to pay.</p> |
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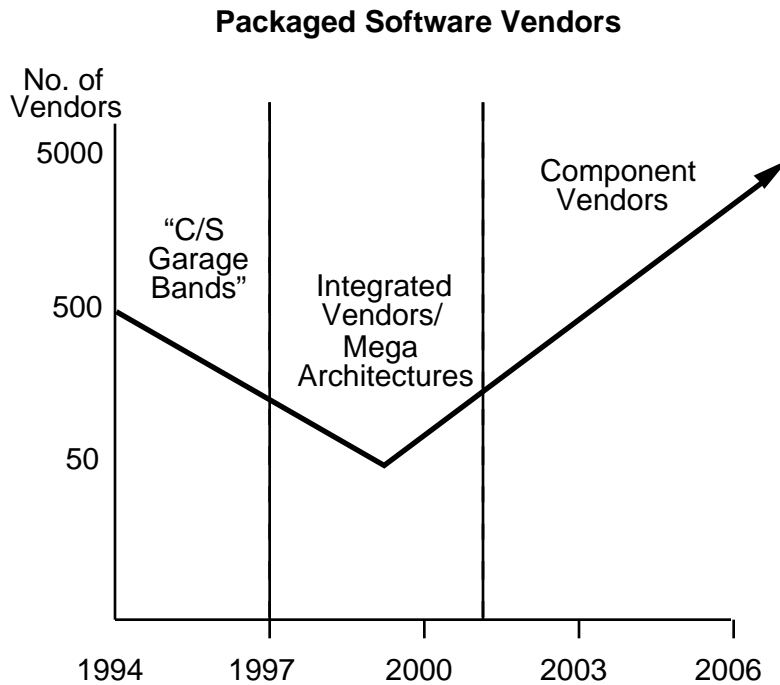
Source: Gartner Group

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Work management is in the middle of a transition from being a solution confined within application and/or platform boundaries to an enterprisewide solution interconnected with the business re-engineering efforts of organizations. We expect to see an increasing number of “next generation” workflow systems. Workflow will still be application-dependent for at least two years, and consolidation of high-level open APIs to workflow engines will not stabilize before 1997 (0.8 probability). The concept of an enterprisewide work management solution that assumes there are different tools, and that they can interoperate providing users with a common and consistent “work list,” will not be possible for at least two more years. Workflow systems will continue to contain lock-ins. Operating systems vendors are lured by the opportunity of incorporating the pervasive and successful middleware components into the operating system layer. This will create an unstable environment for users and vendors until at least YE97 (0.8 probability).



Through 2000, packaged software vendors will remain split on the issue of proprietary vs. commercially available tools, with the momentum swinging decidedly toward those delivering functionality as objects, components or templates, using widely available frameworks and/or development tools (0.8 probability).



Source: Gartner Group

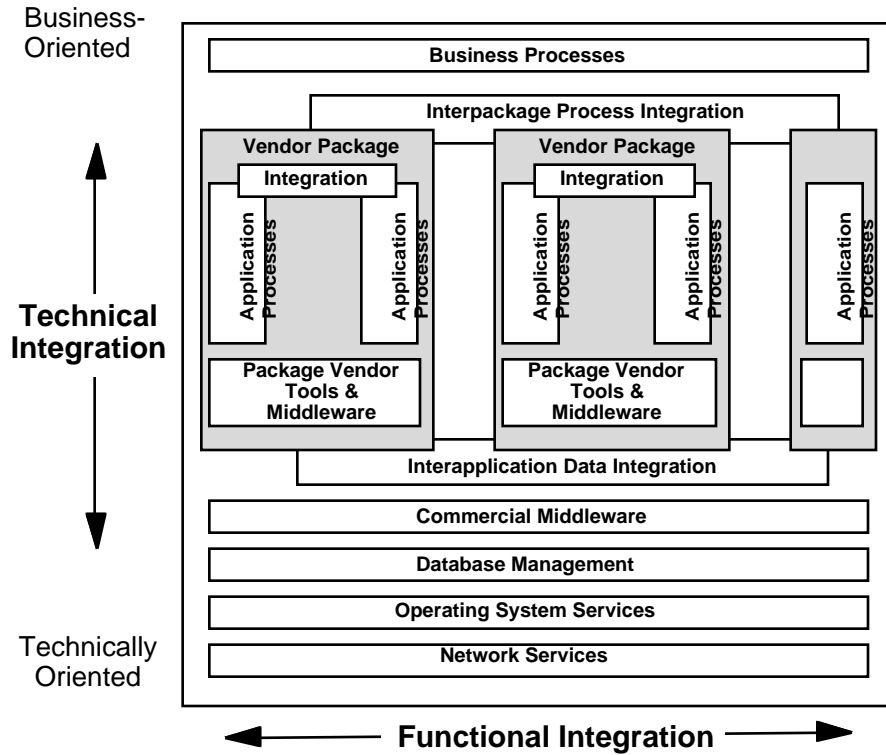
Key Issue: How will administrative application architectures evolve, and how will they fit in an enterprise framework?

The delivery of object-oriented technology and a few frameworks for business applications will create an explosion in the number of vendors delivering administrative business applications. The nature of the software business will be different and the segments will be even more fragmented in the near future than they are today. Vendors must decide during the next five years if they want to sell frameworks, objects or assembly services for different industries. Probable new competitors such as Microsoft (in at least two of these segments) will change the industry dynamics even more. Those companies that are not leveraged to prosper in the expanding world of partnerships will find it difficult to maintain their current levels of success. Obviously, in the next five to seven years, SAP will be the most exposed company in this area.



How should a user's functional and technical requirements be defined and expressed in an application evaluation?

Package/Enterprise Coexistence



Source: Gartner Group

Any business application, whether packaged or built, will exist within the business and technology landscape of an organization. The strength of an application is measured not only by its functional depth and technical elegance, but also by its ability to coexist with other applications and other business areas.

The dominant vendor strategies for addressing functional range are “best of breed” and integrated. Best-of-breed applications focus on functional depth in a narrow business area and rely on their ability to be integrated with multiple other applications. The integrated vendor addresses a wide range of business areas and, therefore, limits the number of business areas that must be externally integrated. Integrated vendors and integrated vendor evaluators often focus on internal integration at the expense of external integration. Best-of-breed vendors must demonstrate that the cost of integration can be inexpensive enough that the benefits of best-of-breed functionality are not overshadowed by the advantages of a single integrated vendor.



Successful technical evaluations move beyond a simple notion of “client/server purity” and explicitly balance the multiple dimensions of package technology.

Technical Requirement Categories

Environment

What is the fit between the technology of the application and that chosen by the client’s organization?

Architecture

Does the split of business processing between clients and servers promote scalability, configurability and manageability?

User Interface and Useability

Does the GUI improve productivity and support cross-application integration?

Development Environment

Will the tools facilitate the continuing translation of business requirements to production applications?

Extensible Application Model

Is there a working blueprint to allow extension and integration of applications across business areas?

Application Management Tools

Can configuration, application changes and performance be managed consistently across application elements?

Source: Gartner Group

Key Issue: How should a user’s functional and technical requirements be defined and expressed in an application evaluation?

Technical requirements measure the construction, cost of ownership and compatibility of an application within a specific information infrastructure. Vendor client/server hype pushes clients toward evaluation of vagaries such as “true client/server” and “native implementation.”

A more methodical approach is needed to expose the capabilities of an application. Above, we suggest six dimensions for technical evaluation. Client-specific requirements should be developed within each category as part of an overall evaluation model.

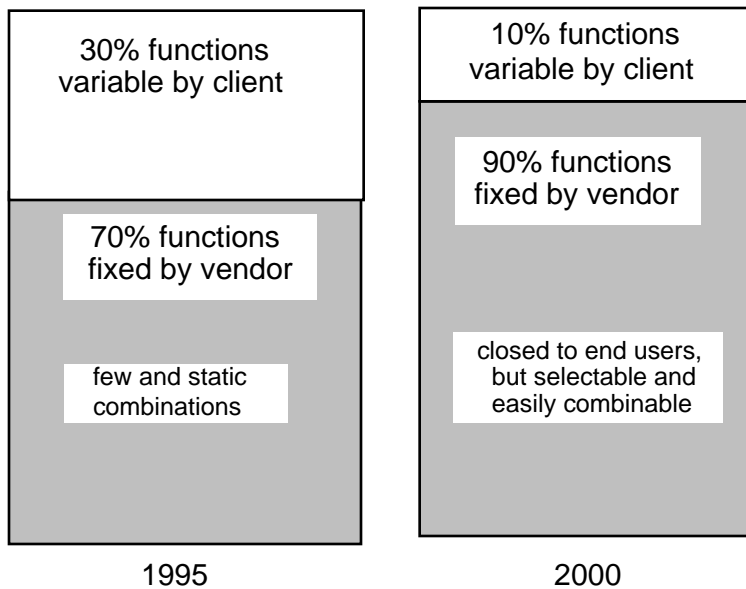
Importantly, clients should avoid evaluating today’s application against current requirements. They should recognize how requirements and product capabilities will evolve, and balance these more strategic factors with tactical realities.



As the competitive value of defining unique administrative processes will nearly evaporate for users, focus on the truly business-enabling process differentiations will intensify (0.7 probability).

Reader Notes

Concentration on Competitive Advantage



Source: Gartner Group

Key Issue: How should a user's functional and technical requirements be defined and expressed in an application evaluation?

Users will start to understand that there is no intrinsic value in creating their own variations of processes that are already commonly adopted and nonessential to gain competitive advantages. However, the added resources that such variations consume are unnecessary overhead. Hence, demand for organization-specific processes will diminish over time as organizations focus specific application energies on more strategic business-enabling applications. Technically, this trend will be supported by the appearance of functionality, which is more granular, more variable and more easily combined.

The variable portion of applications will shrink and also become far more important in gaining competitive advantages. Since this relatively small portion will have a governing influence, there is a definitive need for structure and modelling. We view these modelling tools and their integration into application setup, customization and integration as a rapidly emerging key differentiator among vendor offerings. The concept of model portability across several vendors' platforms will become feasible by 2000 (0.8 probability).



Key Application Trends

- Most client/server vendors are ignoring the mainframe
- Unix is the server of choice for mid-sized and large organizations
- Microsoft Windows has dominated the desktop agenda
- Oracle, Sybase and Informix Software (in that order) have dominated independent software vendors' development agendas
- Vendors remain split on the use of proprietary vs. commercially available tools

Key Vendor Challenges

- Scale client/server systems to enterprise performance levels
- Contain cost-of-ownership increases as users migrate through releases
- Support business application integration of workflow, desktop object linking and cross-application universal data access

Source: Gartner Group

The client/server application marketplace continues to be characterized by rapid growth and a plethora of vendors. As the market matures, we see the emergence of leading players. This increases the urgent need for second-tier vendors to define their competitive positions and advantages.

Users are turning to more substantial vendors with integrated packages — a signal that they are more willing to compromise function in favor of doing business with a smaller number of viable vendors. For many, the evaluation criterion is the ability to select a package with adequate function over a wide range of business areas from a substantial vendor on the “politically correct” technology.

However, even leading vendors face key challenges, which, if not met by leaders, offer an opportunity to competitors.



Packaged Applications Vendors' Profiles

	Defined Market	Short-Term Focus	Long-Term Vision
CGI	Europe	Weed out weak performers	Tools-based integrated application set (0.4 probability)
CODA	International financials	Transition to open systems (OAS)	Integration with other vendors (0.4 probability)
DBS	International integrated applications	Account control	Ride the workflow wave (0.4 probability)
Flexi	Small to mid-sized companies	Leverage Microsoft relationship	OO financials (0.6 probability)
Lawson	C/S financials and HR midmarket	Build non-AS/400 market share	International and vertical market expansion (0.6 probability)
Oracle	International integrated applications	Cullinet strategy version 2	Technical control strategy (0.7 probability)
PeopleSoft	International integrated applications	Rapid generation 1 exploitation	Enterprise Gen (+1) C/S (0.6 probability)
SAP	International integrated applications	Park a "tank" in your living room	Move your living room into a "tank" (0.7 probability)
SQL	Financials for small to mid-sized companies	Financials C/S	Broaden product line, C/S focus (0.6 probability)
Walker	Upper 20 percent of Fortune 500	Make it to C/S	Enterprise C/S, cross-platform (0.4 probability)

Source: Gartner Group

Key Issue: Which package vendors will dominate?

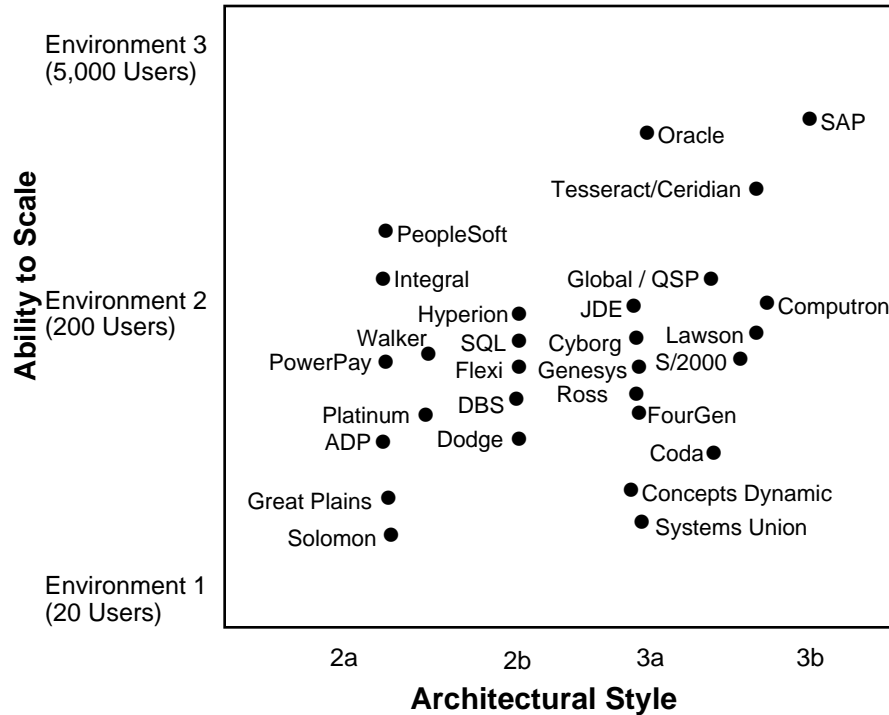
Vendors that have not yet made the full product line transition to at least Gen(+1) of client/server are facing a dramatically shrinking window of opportunity and are battling for client loyalty. Niche vendors with financial or human resources applications products only are seeking expansion of their products into areas like manufacturing and sales/distribution, or are pursuing partnerships with other vendors. At this time, however, the integrated-product approach is more attractive compared to the best-of-breed approach since, to most users, product integration appears expensive and difficult.

This gives the integrated, cross-platform client/server vendors both momentum and speed that will not disappear in the short term. Only Oracle, which is hardware cross-platform, but software proprietary, will successfully be able to leverage its database market leadership into a technical control strategy. Short- to mid-term, the market will belong to the top five players, and the market-share gap with smaller vendors will widen.



Vendors continue to vary widely in their choice of architecture and their suitability for an organization of a given size.

Vendor Architecture vs. Scale



Source: Gartner Group

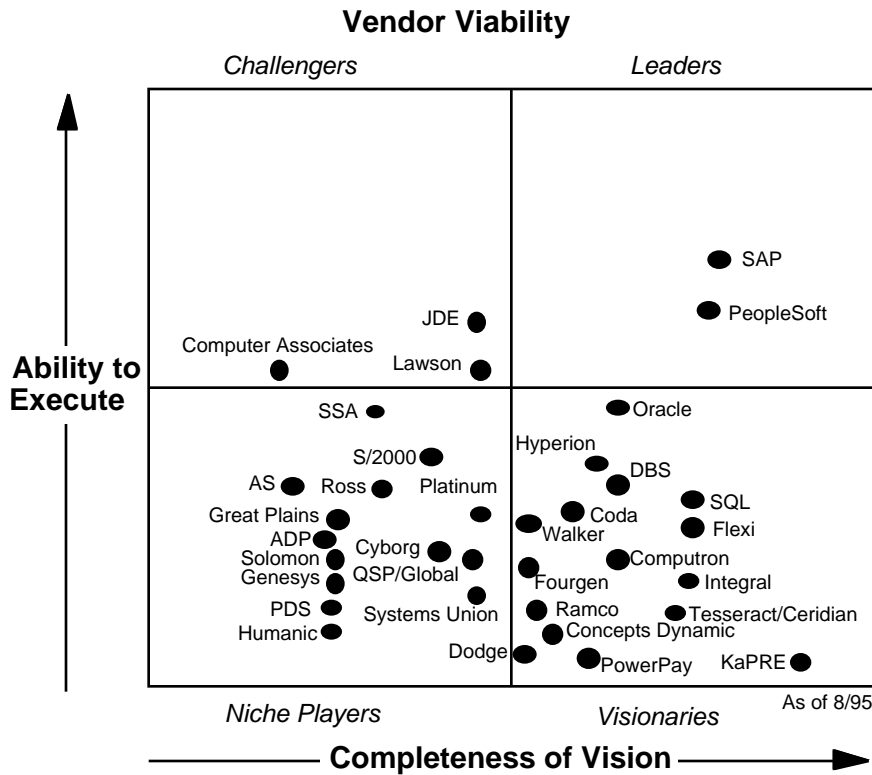
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A picture of a vendor's efficient use of architecture to deliver scale emerges when comparing vendor scale to vendor architecture, as shown in sample computing environments from the Client/Server service's "A Guide for Estimating Client/Server Costs." Clients should target products that match the scale of their environment. It will be as difficult for SAP to scale downward to Environment 1 as it would be for Great Plains to scale upward to Environment 3.

It is important to recognize that scale is but one dimension delivered by an architecture. This chart does not compare other dimensions linked to architecture, such as business flexibility and manageability.



The client/server packaged application market will experience a shakeout through 1998 that will remove one-third of players from the market or from serious contention (0.7 probability).



Source: Gartner Group

Key Issue: Which package vendors will dominate?

Competition in the cross-industry packaged application market has intensified during the last year as existing players rounded out their offerings and new players launched their products. Today, the market is crowded with more players than it can sustain over the long term. We anticipate several years of intense competition, followed by a shakeout by 1998 that will remove one-third of today's players from the market or from serious contention (0.7 probability).

Although significant enterprise requirements remain unfulfilled, Oracle, PeopleSoft and SAP will be viable, key competitors in the packaged client/server market through our planning period (0.7 probability). Upstart vendors are proving to be much more nimble than their legacy competitors, but will continue to struggle to achieve the integration and visibility of the larger client/server players. The high-cost sales model of traditional vendors opens the low- to mid-market to low-end vendors with lighter technology and lower cost structures.



- Technical and functional requirements will continue to outpace vendors' ability to deliver, fueling a continued rapid evolution of packages and architectures through 2000 (0.8 probability).
- Lack of standards will inhibit the erection of stable workflow enterprise infrastructures through 1998. Gen(+1) is an architectural dead end.
- In 1996, we expect the client/server portion of the market to surpass the legacy segment, while, already in 1995, the value of new licenses for client/server administrative packages will overtake legacy sales (0.7 probability).
- By 1998, the limits in scalability and WAN performance of first-generation architectures will drive vendors to second- and third-generation architectures (0.7 probability).
- By 1999, remote presentation architectures will be dominated by formalized, more granular, three-tier architectures (0.7 probability).
- Through 1998, three-tier architectures will require higher vendor research and development expenditures than their two-tier counterparts (0.7 probability).
- By 1996, major client/server packaged applications will incorporate work management functions (0.7 probability).
- Retrofitting workflow into tightly integrated applications will be, at best, only a stopgap solution. Workflow extensions to Gen (+1) applications will not bridge the gap to Gen(+2) (0.8 probability).
- There will be no "winning" vendors in workflow until 1998 (0.8 probability).
- Deliverable component strategies will create a tenfold expansion of vendors during the next 10 to 15 years (0.7 probability).
- Through 2000, packaged software vendors will remain split on the issue of proprietary vs. commercially available tools, with the momentum swinging decidedly toward those delivering functionality as objects, components or templates, using widely available frameworks and/or development tools (0.8 probability).
- As the competitive value of defining unique administrative processes will nearly evaporate for users, focus on the truly business-enabling process differentiations will intensify (0.7 probability).
- The client/server packaged application market will experience a shakeout through 1998 that will remove one-third of players from the market or from serious contention (0.7 probability).

