Reader Notes

1. **How should users best select server technology during the next five years?**

2. **Which styles of server deployment will be most successful and cost-effective?**

3. **How should the struggle between centralized and decentralized server deployment be resolved?**

4. **What server acquisition strategies will succeed as vendors reinvent their business models?**

The difficulties of finding the real differentiators between vendors and of overcoming the myriad roadblocks to successful server deployment can result in the failure of even the best server strategies. In this presentation we examine the methods and styles of server selection and deployment that are likely to be most successful.

How should users best select server technology during the next five years?

Server Acquisition and Deployment Trends

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Market share upheaval

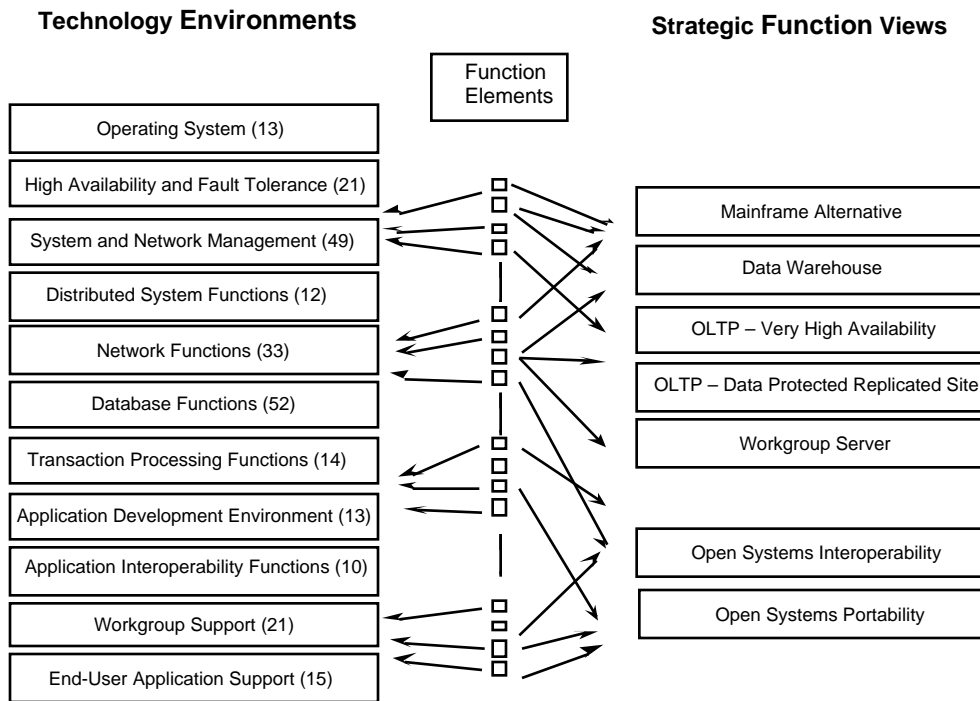**Five-year price war**

Technological Discontinuity
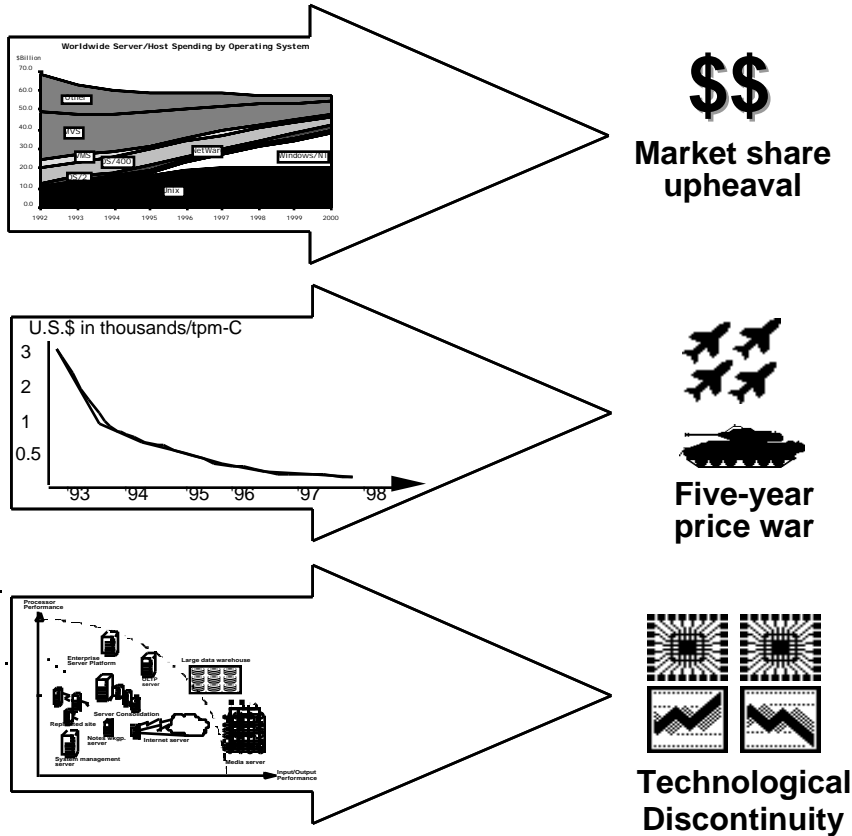
Source: Gartner Group

The next five years will witness an ongoing price war reflecting a period of rapid technological advance, amplified by ongoing revisions of vendor business models and bringing a reduction in the cost of sales and distribution as drastic as the improvements in platform price/performance.

1994/95 MCS System and Server Evaluation Model:
Functional Analysis

Technology Environments

Strategic Function Views

Function
Elements

| Operating System (13) |
| High Availability and Fault Tolerance (21) |
| System and Network Management (49) |
| Distributed System Functions (12) |
| Network Functions (33) |
| Database Functions (52) |
| Transaction Processing Functions (14) |
| Application Development Environment (13) |
| Application Interoperability Functions (10) |
| Workgroup Support (21) |
| End-User Application Support (15) |

| Mainframe Alternative |
| Data Warehouse |
| OLTP – Very High Availability |
| OLTP – Data Protected Replicated Site |
| Workgroup Server |

| Open Systems Interoperability |
| Open Systems Portability |

Source: Gartner Group

Key Issue: How should users best select server technology during the next five years?

In the above model, we define the functional roles and specific technical capabilities that we believe systems must provide. In 1994, we defined 253 functional elements that are grouped into 11 "technology environments." These functional elements are then mapped into "strategic function views" that correspond to the cost of ownership configurations. In addition, two strategic function views were established to specifically highlight the open systems requirements of interoperability and portability.

1994/95 MCS System and Server Evaluation Model: Configuration Cost of Ownership Analysis

	Mainframe Alternative	Data Warehouse	OLTP Very High Availability	OLTP Data-Protected Replicated Site	Workgroup Server
Number of Active Users (tps)					
Config. #1	500 (500)	100 (300)	100 (50)	50 (25)	25 (12)
Config. #2	1,000 (1,000)		250 (125)	100 (50)	150 (75)
Config. #3					300 (150)
Functional Requirements	RDBMS TP monitor Network mgmt. Job scheduling Capacity planning Report distribution Logical volume mgmt. Tape volume mgmt.	RDBMS Data warehouse s/w Network mgmt. Tape volume mgmt. System mgmt.	RDBMS TP monitor Network mgmt. Logical volume mgmt. Tape volume mgmt. Cluster support s/w RAID support s/w	RDBMS Network mgmt. System mgmt. Backup software RAID support s/w Wide-area networking	RDBMS Workgroup s/w Network mgmt. Software distribution Software license mgmt. PC census PC backup

Notes: tps = transactions per second; RDBMS = relational database management system; TP = transaction processing; RAID = redundant array of independent disks

Source: Gartner Group

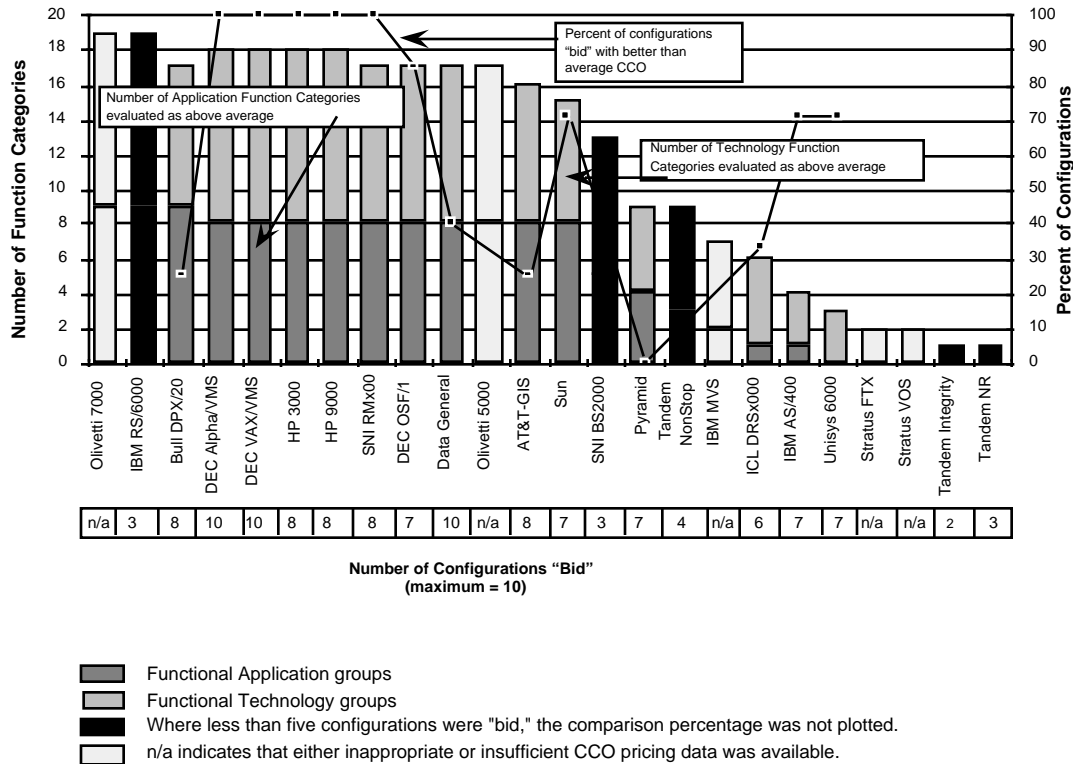### Key Issue: How should users best select server technology during the next five years?

To analyze and compare cost of ownership, we first defined five application views: Mainframe Alternative, Data Warehouse, OLTP — Very High Availability, OLTP — Data Protected Replicated Site, and Workgroup Server. We then varied configurations by establishing specific numbers of active users that each configuration would support. Configuration prices include the extensive software functionality required to fulfill these application roles. We established hardware configurations based on the system performance required for the designated number of active users in the particular application role. Using these configuration guidelines, we compiled "competitive bids" for 10 configurations, calculating a five-year configuration cost of ownership (CCO) by including warranty period uplift charges and vendor maintenance prices.

Organizations don't always get what they pay for: High functionality and high cost are not directly correlated.

Reader Notes

1994/95 Vendor Functionality and CCO Analysis

**Number of Configurations "Bid"
(maximum = 10)**

| | n/a | 3 | 8 | 10 | 10 | 8 | 8 | 8 | 7 | 10 | n/a | 8 | 7 | 3 | 7 | 4 | n/a | 6 | 7 | 7 | n/a | n/a | 2 | 3 |

Legend:
- Functional Application groups
- Functional Technology groups
- Where less than five configurations were "bid," the comparison percentage was not plotted.
- n/a indicates that either inappropriate or insufficient CCO pricing data was available.

Source: Gartner Group

Key Issue: How should users best select server technology during the next five years?

The chart was created by considering above-average vs. below-average results from the functional evaluations and the CCO evaluations. The columns in the graphic show the number of application categories evaluated for each vendor/system as above average (lower part of the column) with the stacked upper part of the column showing the number of technology categories evaluated as above average. The left vertical axis scales up to 20 and shows the total number of application (nine) and technical categories (11). For those systems that had a sufficient number of priced configurations for useful comparison (at least five of the 10), the line graph shows the percentage of the systems that had a cost per user that was better than the average of the respective configuration. The line graph scale is the right axis, which is a percentage value. The columns in the graphic (functional evaluation results) are shaded differently to reflect the reasons why some systems do not have CCO evaluation results. From left to right the columns and line graph points are sorted in order of the number of application categories, the number of technical categories and then the percent of configurations whose cost is better than average.

1995/96 System and Server Evaluation Model Categories

1. High Availability and Fault Tolerance

2. Service and Support

3. Network and Systems Management

4. ISV Support

5. Performance and Scalability

6. Price/performance

7. Advanced Software

8. PC Affinity

9. Platform Architectural Longevity

10. Third party Hardware Support

Key Issue: How should users best select server technology during the next five years?

For the 1995 ⁄ 96 System and Server Evaluation Model, we have completely revamped both the functionality categories and the methodology for evaluating vendors' platforms. The primary focus will be on those factors which will differentiate the platforms in the near term, rather than an exhaustive assessment of the platforms' capabilities.

Vendors that fail to focus in an era of constrained profit margins will weaken their ability to execute (0.8 probability).
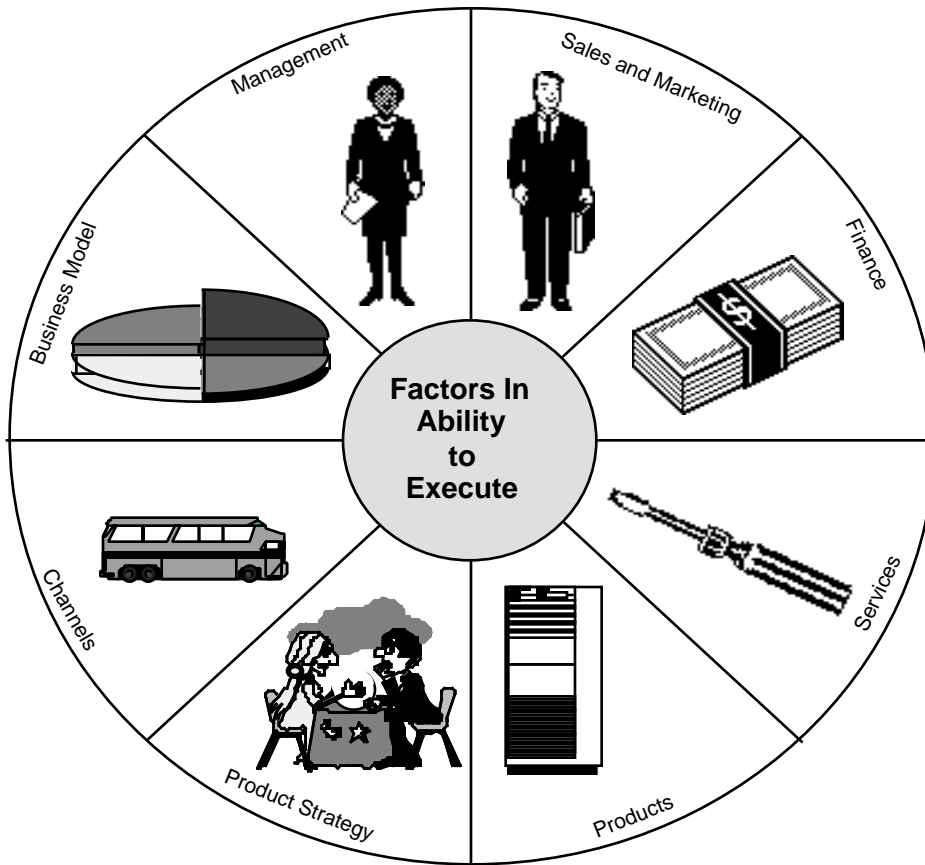
Source: Gartner Group

Key Issue: How should users best select server technology during the next five years?

The lavish, "cost-is-no-object" approach to delivering products, which was usual for systems vendors in the 1960s and 1970s, is now impossible. In evaluating a vendor's ability to survive in the new world, monitoring successful change in the business model and in channels is at least as important as monitoring product capability. We anticipate that successful server vendors will do the following:

1) Increasingly turn to creative alliances to deliver whole products globally and to broaden their solution range,

2) Decrease the size of their direct sales forces, focusing on the largest accounts,

3) Offer a broad range of multivendor services, and

4) Maintain a tight focus on "products we do better than anyone else."

Which styles of server deployment will be most successful and cost-effective?

**Three-tier Client/Server Environment**
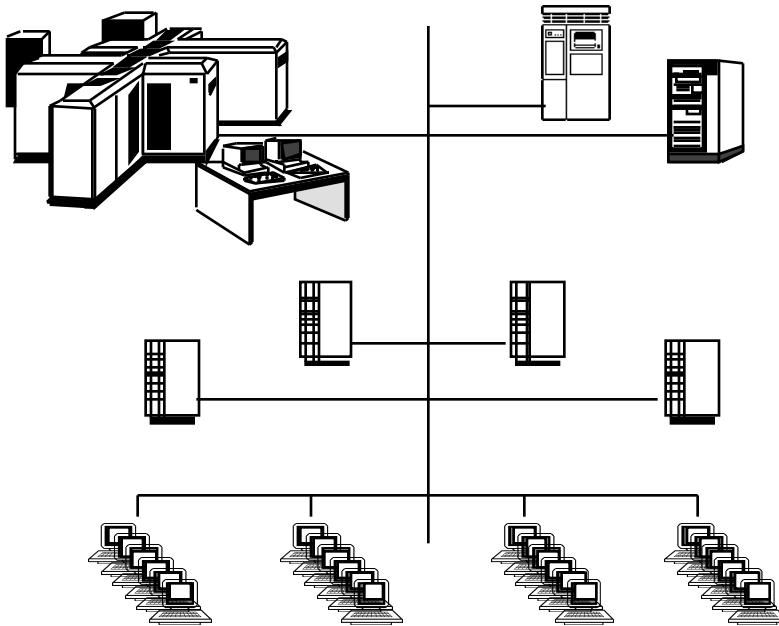
Source: Gartner Group

The average enterprise deploys servers based on point requirements, legacy systems/vendors and demands from business management for "quick-decision" acquisitions. Consequently, the enterprise is falling short of acceptable levels of server and storage manageability, reliability, functionality and performance. IT management must consider tactical realities as well as future trends in function, business application needs, performance scaling and price/performance. They need to map these factors against the requirements of their evolving client/server and traditional processing objectives. Choices are growing in number and complexity as middleware and business application ISVs port their products to a growing number of platforms. Yet there are "dead-end" architectures and operating systems that should be avoided or retired. Price/performance may be improving dramatically but total spending is increasing and the opportunity to make mistakes is enormous.

MIS will face difficult decisions for server strategies and selection as "bottom-up" buying patterns collide with "top-down" strategies. Most enterprises will evolve to multivendor, multiplatform installations (0.8 probability).

The Enterprise Server Platform

Source: Gartner Group
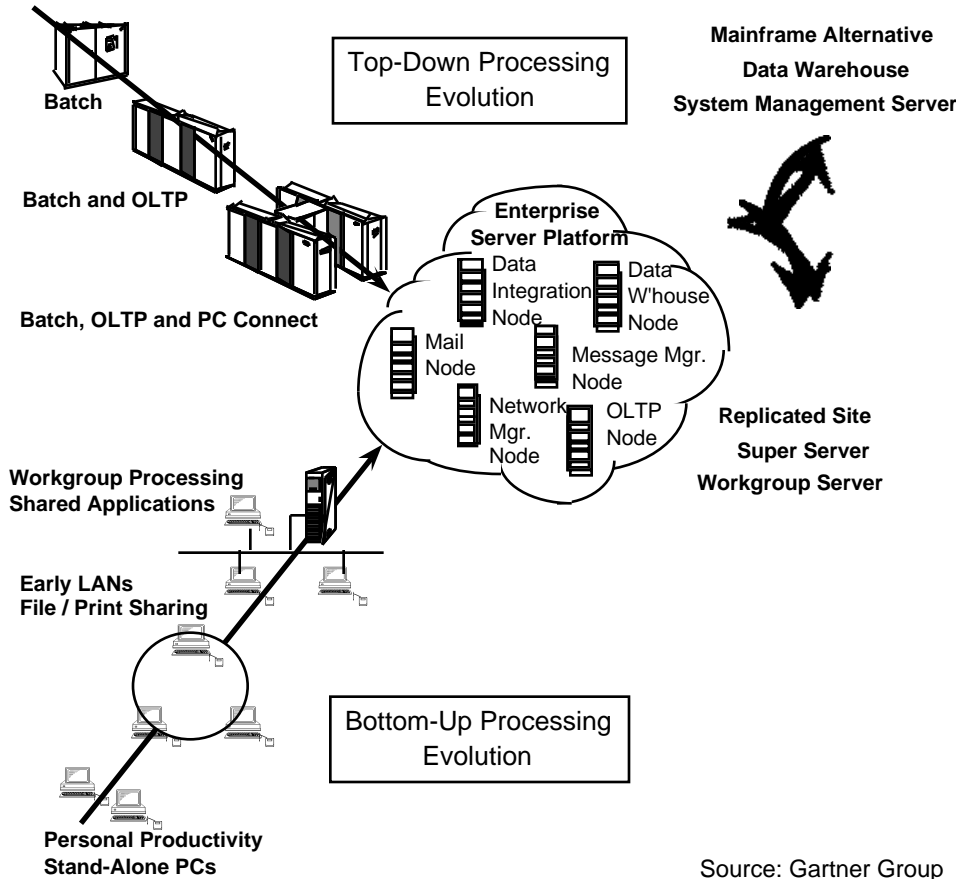
Key Issue: Which styles of server deployment will be most successful and cost-effective?

The information processing industry is being reinvented from the bottom up as end users absorb new personal productivity technology and then demand more robust solutions for the "bottom-up" processing evolution. Vendors of traditional mainframe and midrange systems have finally begun to provide the robustness at commodity prices, and with the ease of use that end users require. We believe the new platforms will be deployed in a technical and architectural framework we call the enterprise server platform (ESP).

The ESP depicted above could be, but is not, envisioned as a centralized "mega server." Rather it is a collection of services that will typically be distributed across a variety of computers for price/performance, high availability and platform specialization advantages. Critical services provided will include mail routing, file and print sharing, OLTP and decision support, network and systems management, resource brokering, software distribution and license management, security enforcement and monitoring, and interenterprise EDI gateways.

Server Deployment Style No. 1: Disposable Server

Characteristics of Commodity SMP Servers

- **Four Processor RISC-Based Systems (and P6-based in 1996)**

- **$30,000 Entry Price (Single CPU)**

- **Top-End Performance of 2400-3000 TPC-C tpm**
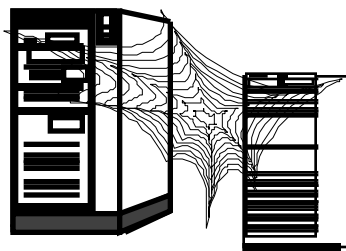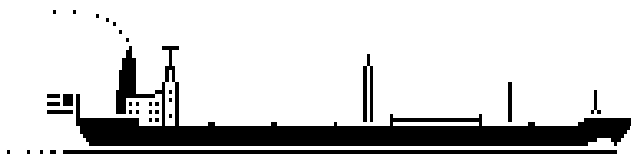
- **Incremental CPU Pricing of $10,000**

Source: Gartner Group

Key Issue: Which styles of server deployment will be most successful and cost-effective?

Users in this category operate on the increasingly popular (and credible) premise that the life span of almost any server purchased today is no more than three years due to the rapid pace of server performance improvements and the commoditization of high levels of server performance. This new class of commodity-priced, high-performance SMP systems represents the "sweet spot" of the server market. These systems are likely to be the appropriate system building blocks for all but high-end RDBMS servers (where the concurrent user load or database size still requires a larger server) or low-end replicated-site systems that can be satisfied by today's crop of commodity-priced uniprocessor systems.

Server Deployment Style No. 2: Set and Forget
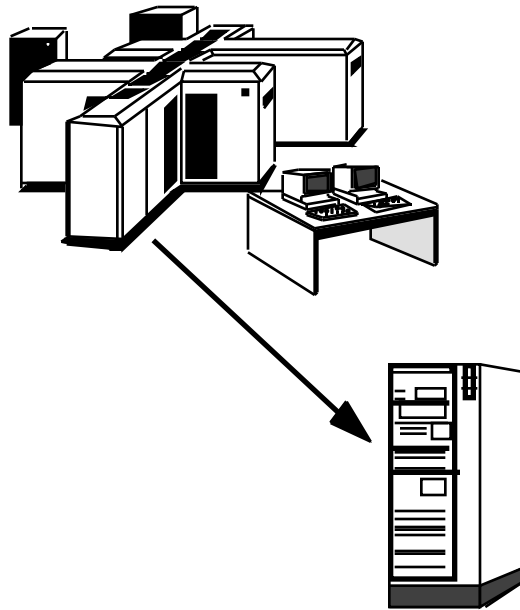
"Forgotten" Systems

Source: Gartner Group

Key Issue: Which styles of server deployment will be most successful and cost-effective?

Typically, these users are involved with the deployment of large numbers of replicated-site systems. The hallmark of these systems is the stability of the software deployed and the lack of change that these systems go through during their lifetimes, which may be 10 years or more. These users typically do not want new versions of software and require that ISVs fix major "bugs" in a timely manner without requiring an immediate upgrade to the latest version of the software. For this category of users, the priority will be to negotiate long-term support contracts for maintenance of a specific release level of the software.

Server Deployment Style No. 3: All Eggs in One Basket

From the Glass House to the Glass Closet

Source: Gartner Group

**Key Issue: Which styles of server deployment will be most successful and cost-effective?**

Users in this category typically choose a single vendor's server platform to satisfy the vast majority of their processing requirements. New versions of existing ISV software, as well as new software products, are important for these users, especially if they are moving an increasing percentage of their application requirements to this platform. This category of users would be adversely affected by a rapid decay of ISV support for the chosen platform.

How should the struggle between centralized and decentralized server deployment be resolved?
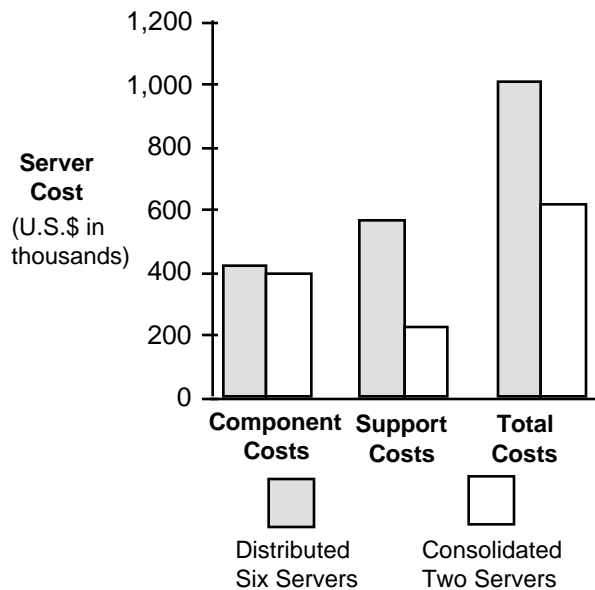
Server Consolidation
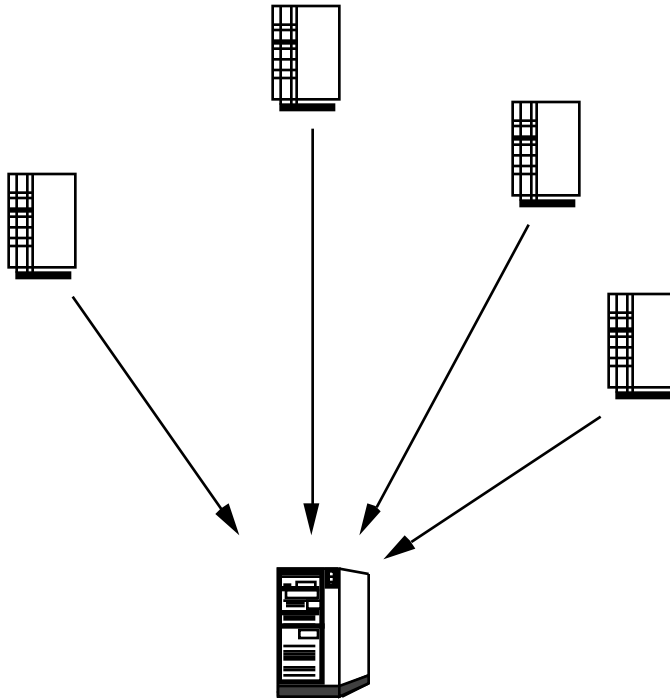
The decision to decentralize or consolidate servers is driven by a variety of factors, including the cost and reliability of telecom links. Decentralization of servers only rarely involves the decentralization of support personnel. Choice of the correct backup and remote monitoring software is key to a successful decentralized deployment.

Economies of scale can, in general, be achieved through consolidation. However, diminishing returns will typically occur when groups which have limited common interest are consolidated on to a single large machine. For instance, performance problems could easily arise on a consolidated server decision support system, where groups of users from different departments compete for limited system resources. Administrative time spent in meetings to sort out the complaints and accusations could offset a large part of the savings otherwise gained through consolidation.

Consolidation of LAN environments, physically or logically, can reduce overall network expenses by 15 percent.

Server Consolidation Savings

Server Cost
(U.S.$ in thousands)

Distributed
Six Servers

Consolidated
Two Servers

Source: Gartner Group

Key Issue: How should the struggle between centralized and decentralized server deployment be resolved?
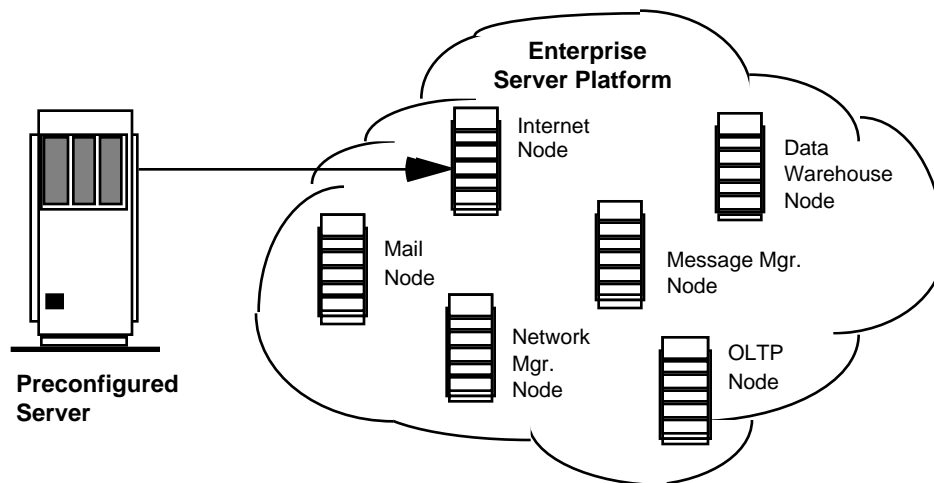
During the past year, we have seen a dramatic increase in interest about the value (if any) of consolidating multiple smaller LAN infrastructure servers into centrally managed large or superservers. The reasons for this rise in interest are twofold. First, the number of servers and network change requests in many environments has become unmanageable, and many companies are looking to reduce this complexity via centralization. Second, as the price of servers and other LAN components escalate, the signature authority has moved away from departmental managers to more-traditional IS areas of responsibility. The chart above represents a consolidation effort of six distributed servers onto two high-end super servers. While this may be an aggressive move in some organizations, more often than not we see small departmental servers that are severely underutilized and are prime targets for consolidation. This decision cannot be decided lightly, as the relocation of server resources may have a profound impact on either the underlying infrastructure or predefined customer service level agreements.

What server acquisition strategies will succeed as vendors reinvent their business models?

Preconfigured Server Platforms

Enterprise Server Platform

Internet Node

Data Warehouse Node

Mail Node

Message Mgr. Node

Network Mgr. Node

OLTP Node

Preconfigured Server

A server in a modern client/server network is by nature a highly complex system. If a customer's reason to buy a server is to support a material requirement planning system, then the server is not just a generic product (e.g., a commodity Unix system), but the generic product plus "whatever else the customers need to achieve their compelling reason to buy." That "whatever else" could well include a database manager, a report writer, an object broker, an OLTP monitor, systems management software, network software, an application suite, custom application development and business process consulting.
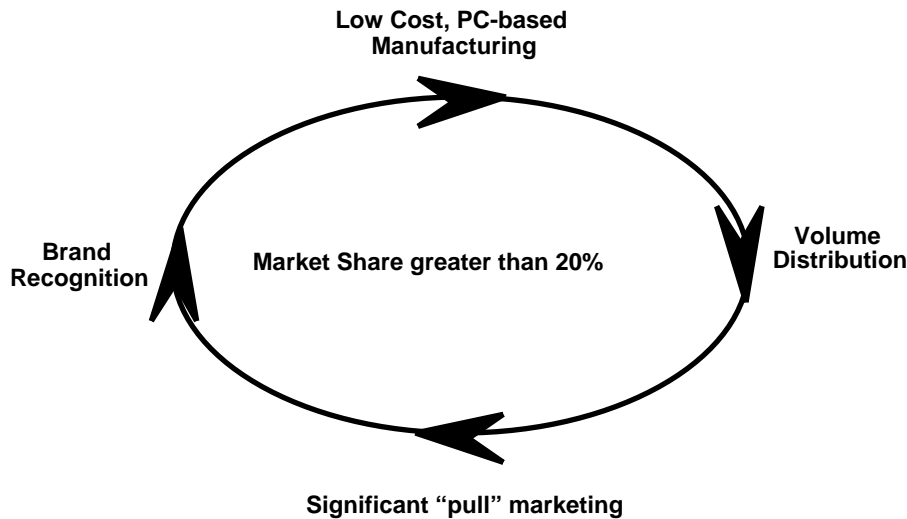
Prepackaging a functioning system such as the figure above obviously removes both installation costs for the user and supports cost for the vendor. It also opens up the possibility of using low-cost indirect channels for distribution. It is easy to visualize an X.400 mail switch as a catalog item, in plug-and-play configurations precertified at various "messages per hour" levels. It is just as easy to see an ISV becoming a value-added reseller of plug-in application boxes (precertified in that ISV's specific "transactions per hour").

At least 70 percent of servers below $50,000 will be delivered via indirect distribution by 1997 (0.8 probability). Vendors unable to gain access to volume distribution for sub-$50,000 will try to develop SI-led vertical market sales strategies (0.8 probability).

Success factors in the sub-$50,000 server market

Low Cost, PC-based Manufacturing

Brand Recognition

Market Share greater than 20%

Volume Distribution

Significant "pull" marketing

Key Issue: What server acquisition strategies will succeed as vendors reinvent their business models?

As the market continues to polarize between those systems designed for the data center and those destined for use in departmental, branch or replicated site roles, vendors will be driven to develop volume manufacturing and distribution strategies similar to those deployed in the PC market. For this reason, vendors with an established PC business that can activate volume distribution channels for their products will be in a strong position to survive in the changed business climate. However, manufacturing and distribution capacity will remain idle if there is not a clear market demand generation program in place. Vendors with confused hardware or operating system strategies will find it difficult to develop the message clarity required to stimulate high-volume user demand for their products. Users should look for clarity and simplicity of strategy accompanied by a sustained market awareness in judging a vendor's ability to survive in these new markets.

Appropriate negotiation tactics can yield 10 to 15 points of increased discount even on single system procurements and even compared to volume discount agreements.

"Take-No-Prisoners" Negotiation

1. Competition

2. Vendor Weaknesses

3. Product Cycles

4. Price/Performance Inflection Points

5. Add-on Pricing

6. Warranty Period and Maintenance Pricing

7. "Soft Dollar" Issues

8. Positioning the Vendor Opportunity

Key Issue: What server acquisition strategies will succeed as vendors reinvent their business models?

Maximizing discounts is a risk investment game. The higher the perceived risk of the purchase, the greater the leverage to negotiate higher discounts. Users should use volume discount schedules only as a reference from which to negotiate higher discounts. Include at least two to three vendors in the evaluation and bidding. Deflect issues of current installations and legacy systems by suggesting that the enterprise is constantly reviewing architectural guidelines and vendors it does business with to assure it remains in strategic alignment with corporate goals.

Be aware of each vendor's weaknesses. The more knowledgeable users are about pressures facing vendors, the more likely concessions can be extracted. Pay particular attention to financial statements, poor quarters, product delays, user satisfaction ratings and quarterly closings. Be attuned to the vendor's product and technology cycle. Know when probable transitions to new systems, technologies and upgrades will occur.

- Vendors that fail to focus in an era of constrained profit margins will weaken their ability to execute (0.8 probability)

- MIS will face difficult decisions for server strategies and selection as "bottom-up" buying patterns collide with "top-down" strategies. Most enterprises will evolve to multivendor, multiplatform installations (0.8 probability).

- Consolidation of LAN environments, physically or logically, can reduce overall network expenses by 15 percent (0.7 probability).

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