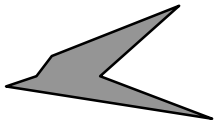
RESEARCHING THE MASS STORAGE MARKETS, TECHNOLOGIES AND SYSTEMS

Software Asset Management

An Infotech SA Inc. White Paper



SOFTWARE ASSET MANAGEMENT

The Increasing Cost of Computer Software

In the early 1980s, the move to networked, distributed computing represented a paradigm shift in the computer world. It introduced the Personal Computer. As a result, 'off the shelf' software was introduced on relatively inexpensive computing platforms. Personal productivity tools such as WordPerfect were purchased for a few hundred dollars and installed on a user's personal computer. The software was licensed to the end-user and it's copyright notice on the package. If a hundred users needed software, the company bought and installed a hundred copies.

A second paradigm shift is still occurring now and consists of an extension of networked, distributed computing to a Storage Area Network or "SAN". The essential feature of a SAN is that data storage, rather than servers, become the central elements in the new network. Just as networked computing made compute power available to the desktop, the SAN will make large amounts of data available rapidly to the servers. The resulting new networks will be able to handle far greater workloads and at much greater efficiency and speeds.

Each of these two paradigm shifts, while greatly increasing the speed and capabilities of computers, has required the development of more complex systems and communications software. It has also enabled new and more powerful applications to be developed. The extra capabilities and speed have, not surprisingly, increased software costs.

Increase in software costs

The shift to the desktop, the impact of client/server, the emergence of UNIX and NT, relational DBMSs, the World Wide Web, intranets and Workflow have changed fundamental business assumptions several times in the last ten years. A major result is that departmental and enterprise-wide networks now enable users to access server based applications on a concurrent usage basis. The use of a typical software application has grown from hundreds of users to thousands of users. In addition to this, the capabilities and features offered by software have also been increasing – users are enabled to do more work and in different ways and also on larger scales. These facts amount to an increased level of service that is expected from computer systems.

Consider, for example, three application areas – communications software, database software and storage management software. In each of these areas, the software now available is far more functionally superior to the software available, say five years ago. With databases, for example, parallel server technology has now become commonplace on Unix systems. A $10M site license for a database would have been prohibitive about 10 years ago, but today, it is a necessity for some organizations.

In the storage management area, the decreasing costs of disk devices has caused the introduction of fast file systems, volume and media managers and sophisticated backup software. Likewise, a $5M site license would have been unthinkable several years ago (the Federal Government's first large file server procurement amounted to about $3.6M for both the hardware and the software), but today many organizations need this kind of site license for backup functions.

In the area of communications, new Web-related and communications software is being deployed and improved each year leading to costs that increase annually.

In each of these three cases, It is clear by looking at the market that the capabilities and ease of use of software is growing with every release. It is not surprising, therefore, that the software costs are also growing in a corresponding manner.

Reasons for cost increases

There are actually several reasons why software costs are growing annually:

(a) Networking enabled hundreds of users to concurrently access applications stored on a server. Market pressures have eventually caused software vendors to introduce software licensing based on concurrent use or licensing based on site usage. Typically, in the first case, a software vendor will introduce a meter to measure the number of concurrent users of the application. In the second example, no meter is used, and the vendor relies on the customers to supply copies of the software that are actually in use. Some vendors, while promoting site licenses, will nevertheless, require license keys for each server or client computer system on which the software is installed.

(b) Networking has also introduced a new computing paradigm – distributed vs centralized computing. Much of the systems software that was developed on mainframe systems had to be developed again for distributed systems. While some of the mainframe concepts map well from a centralized to a distributed computing world, there are others that do not map well. For example the concept of System Managed Storage is exceedingly difficult to implement in a distributed open system and in fact, is a process that will continue for some years yet.

(c) With growing trends such as downsizing, cost management has created a whole new market for systems management, network management, and IT infrastructure monitoring software (load balancing and tuning products and services). A crisis is brewing in the area of systems management. According to the Gartner group, over half of the distributed computing application projects fail, and 90% of those because the right systems management infrastructure was not put in place.

(d) The capabilities and features offered by software packages are getting more and more sophisticated with each new release of products. This is, of course, attributable at least in part, to the large increases of CPU power, memory capacity and disk storage at relatively low costs. To give a simple example, the use of graphics with documents has only become practical because of increases in affordable, fast, storage space and in processing power.

(e) Another problem is that as technologists, we tend to look for product-based solutions to many problems that are too complex to be left to computer software alone. The very proliferation of tools (license management, application tracking or software metering, project monitoring, e-mail filtering etc. etc.) available for almost every conceivable enterprise management situation, can mask the real issues. In reality, what is needed is some of these tools, integrated within a program, incorporating policy definition, executive commitment, management practices, standards, budget and cost allocations, and people resources to implement and monitor the program.

(f) The training, usage and coordination needed to make use of these numerous tools, most of them available to users under site licenses, bring with them other costs that the organization must pay. For example, it is quite possible that the average user never sees the license agreement, and therefore is never presented with its associated rights, privileges and obligations. Even worse, many large organizations have no idea what software licenses they have, where they are being used, how effectively this asset is being managed and whether or not they are in compliance with their software license agreements. (According to Gartner Group, corporations spend up to 7% of their entire software budget on applications they will never use). This can result in:

- users can't always access the tools they need to do their job;
- unnecessary copies of software or upgrades are purchased at great expense;
- training/support costs increasing due to multiple versions and different products;
- copyright violations carrying significant legal risks and costs

Support and administrative costs are much greater over the lifetime of an application on a network. In a survey of 180 large or ganizations, the Business Research Group (Newton, MA) found that companies spend, on average, $778 per user annually on Novell NetWare LANs. A Gartner Group study found that software support accounts for 45 percent of the total cost of ownership of an application and that the handling of administrative tasks accounts for another 13 percent.

Legal issues

The legal issues concerning software licensing are not the subject of this document, but it is interesting to note that as far back as 1992 and 1993, the Software Publisher's Association conducted thousands of investigations and initiated legal action against 1300 companies. Settlements were worth over $7.5M.

Market Trends

As stated earlier, it is difficult to collect accurate historical pricing data from software vendors if only because the software industry is moving at such a rapid rate that all attention is focused on the next quarter sales! However, the following general trends can be observed.

a) Although the cost of an individual software module may have decreased by a few per cent, the overall cost of a solution using that module has typically increased. This is because Unix software vendors are selling "lite" versions (reduced capability) of their products at the lower prices and secondly, they are selling other new products that require the integrated use of their other products to give the most benefit to the user. A common strategy is to secure OEM agreements with major vendors (e.g. Sun, HP etc.) and offer the lite product versions as part of every system sold. The situation is so bad that at many sites, software is at least as large a budget item as hardware, including DASD. A few years ago, software typically accounted for only 10% of a data-center budget while hardware accounted for 40%. Now, they both account for about 20-25%.

b) Hardware prices in the mainframe world are being reduced at over 30% per year. In fact, the average cost-per-MIPS dropped from $23,250 in 1995 to $13,780 in 1996--a 41% decrease (Computerworld). There was no corresponding decrease in software prices. Vendors such as IBM have introduced discounted licensing structures such as Entry Service Offering (ESO), Parallel Sysplex Licensing Charge (PSLC), and usage-based pricing. According to International Data Corp., the average cost-per-MIPS of operating system and systems software slid from $4,500 in 1995 to $3,200 in 1996--a 28% decrease. But average prices for third-party software only dropped from $2,200 to $1,800 per MIPS--an 18% decrease. Note, however, that unlike the mainframe world, this trend is not reflected in the Unix world where the market is experiencing a rapid growth.
c) Traditionally, corporations have willingly spent money on the latest hardware and software because they have seen PCs as essential business equipment. Managers have believed that the returns in user efficiency more than justify the investment. But recent studies of the total cost of ownership show that the real costs of PC ownership are much higher than suspected. Gartner Group estimates that the annual cost of "a networked PC is about $13,200 per node for hardware, software support, administration, and end-user operations."

Summary

This document has attempted to show that software prices are increasing annually and to explain the reasons for this continuing increase. The basis of the continuing increase in software costs is the increase in capabilities and performance that software now provides for a distributed open environment.

Historical data on different software products has not been presented because in most cases, the products available today in the application areas considered, are far superior and more sophisticated than the products available even two or three years ago.