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Strategic Partnerships: The Impact of Vendor Partnerships on Customer Value

A Cyon Research White Paper
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Cyon Research Corporation
8220 Stone Trail Drive
Bethesda, MD 20817-4556 USA

phone: 301-365-9085
fax: 301-365-4586
Web: www.cyonresearch.com

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Executive Summary

Relationships have changed between computer makers and independent software vendors (ISVs) because of the advent of personal computers powerful enough to be workstations. The complexity of workstation-class software justifies strategic partnerships, but many computer companies shortchange this aspect of their business model, assuming most customers only want commodity performance and pricing. This may be true for home users and customers doing straightforward business tasks. It does not hold true for users involved in complex engineering design and analysis, where the tight integration of computers, graphics cards, operating systems, and application software is critical to achieving a reliable high level of performance.

There are a few notable strategic relationships today. Hewlett-Packard works closely with many developers of technical software, including digital content creation vendors Avid, Discreet, and Alias, and engineering software vendors UGS, PTC, Autodesk, MSC.Software, Landmark, ANSYS, and Dassault Systèmes. IBM also has had a long relationship with Dassault Systèmes as the sales and marketing organization for CATIA and other Dassault software products.

Strategic partnerships offer significant benefits to their customers:

- Strategic partners focus on resolving problems as quickly and effectively as possible. When a problem occurs, the computer maker and software vendor work together.
- Strategic partners manage driver issues as a team. When components (such as software drivers for graphics cards) are updated, the partners take it upon themselves to test, validate, and inform their customers as to appropriate actions.
- Strategic partners use their unique knowledge and experience to provide guidance to operating-system and microprocessor developers.
- Strategic partners capitalize on the knowledge and experience gained from their relationship to develop and deploy tools to help tune systems for specific hardware/software combinations. This type of optimization has proven to provide a 20 percent performance improvement (and more) when compared to otherwise identical, un-optimized systems.

These benefits only increase in value and importance as the systems age—the longer the system is in place, the greater the benefit.

Although computer systems are generally reliable, few users get away without an occasional problem. When trouble does occur it is often difficult for users to determine whether the problem has its origin in hardware or software. When selecting a computer vendor, customers should take into consideration the relationship between that vendor and the customer's primary software providers. For mission-critical applications, it is important to know in advance how problems will be resolved before they occur.

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Every engineering and information technology manager will tell you: If a problem is going to occur, it will probably happen on a Friday afternoon. That is exactly what happened recently to a Midwest automobile manufacturer. The problem was serious enough to cause significant, costly delays on a major project if not corrected quickly.

It was impossible for the user to tell whether it was a hardware or software problem. The hardware vendor, Hewlett-Packard, quickly realized the seriousness of the situation and began marshalling worldwide resources.

The software involved was NX design software from UGS (formerly EDS PLM Solutions). Hewlett-Packard and UGS have long had more than just a good working relationship—they have a strategic partnership. HP has applications engineers permanently on-site at UGS facilities (one of many Application Competency Centers maintained by HP). One of these engineers recognized the problem as similar to one he had seen nearly a decade earlier—deep inside the NX code.

Once the problem was identified, HP and UGS personnel quickly prepared a patch. By Monday morning the customer was back in operation as if nothing had happened.

Such quick turnaround could not have occurred had it not been for the long-term strategic relationship between HP and UGS. Out of customer sight, a team of dedicated engineers and technicians spent long hours isolating the problem. This team was responsible for the integrity of the computer hardware and software *as an integrated system*. Team members worked together on a solution instead of casting blame on the other vendor—an all-too-common nightmare for customers whose software and hardware vendors are not strategic partners.

This is the nature of a strategic partnership between a hardware vendor and a software provider: It comprises a well-defined set of commitments, whose goal is to present the user—the buyer of hardware with that particular software—with a seamless solution. The complexity of today's systems makes this very desirable for the user. For vendors, such relationships are far more than a simple handshake or casual agreement. Each devotes considerable resources to learning the other's products, and the ways in which they interact—and sometimes, misbehave—with their own. Indeed, this knowledge sometimes affects the very design of their products, to ensure the best possible combined performance and maintainability. It's a serious investment in customer service for all concerned.

Strategic partnerships between hardware vendors and independent software vendors are valuable to both the engineering managers who use this technology and the IT managers who must support them. Since many of the support issues surrounding technical applications demand special expertise, the coordinated assistance afforded by strategic relationships can resolve problems at an early stage, before they cause significant project delays. Not only is engineering's productivity thereby maintained thereby, so is the relationship between engineering management and IT.

Relationships are Changing among Computer Manufacturers, Software Vendors, and Users

The computer industry is much different than it was just a few years ago: there are fewer players, unit prices have plummeted, and performance has risen dramatically. At one time, nearly every engineering-workstation manufacturer had an industry-marketing group whose function was to understand the requirements of specific industry segments and to work closely with software application vendors. Now workstation manufacturers have cut back on the resources allocated to this function and have lost touch with the specific needs of their most technical users. Hewlett-Packard stands out as it has maintained deep relationships with many software companies in the industries it serves. IBM has a similar relationship with one primary partner: Dassault Systemes.

The Hewlett-Packard situation is particularly interesting, in that HP today encompasses two former rivals with a strong history of ISV relationships: Digital Equipment Corporation and Compaq Computer Corporation. Many of HP's close relationships with ISVs trace back to marketing and support arrangements set in place by DEC and Compaq. For the most part, HP has seamlessly continued the user-group and conference support begun by the acquired companies.

A close working relationship between a computer manufacturer, key software developers, and their users is important for a number of reasons. For users, simply knowing that the hardware and software vendors are working together provides a sense of security that is missing when vendors operate independently. This relationship between computer manufacturer and software vendor helps provide optimal system performance. Equally important to users is the knowledge that when a problem occurs, valuable time will not be lost arguing over responsibility. Both parties will work together to resolve the issue.

The Value of Strategic Partnerships

Behind the scenes there is another issue benefiting the user in the long run. By working closely with a variety of software developers, the computer manufacturer is better positioned to provide quality input to the manufacturers of system components, including microprocessors, disk drives, and graphics cards. Likewise, they can provide useful feedback to the developers and suppliers of operating system software, including Microsoft and Linux developers, as well as the UNIX and proprietary-software development groups within their own organizations. Except for the very largest firms, most users and software developers have neither the time nor the credibility to develop such information themselves. Computer manufacturers with significant industry-marketing organizations can take advantage of their strategic partnerships to consolidate these requirements and present them in a meaningful way.

Strategic partnerships can impact not only the current generation of mission-critical software, but future updates as well. Hardware vendors involved in strategic partnerships routinely test the upcoming release, the current release, and the previous release of a software product to make sure all are compatible with the targeted hardware.

Engineering design and analysis software puts enormous demands on computer systems. Many tasks require the fastest processors available, as well as optimized graphics subsystems. Users

who were once willing to wait several minutes while a design was loaded or a shaded image generated now expect model data to be available immediately and usable in real time. Making this happen requires that hardware and software vendors work closely together.

Close relationships between computer manufacturers and technical software vendors can also affect the development of new hardware. Understanding where and how an application puts stress on a computer system takes more than simply watching the software execute on that system. It requires knowledge of the software's program structure and an understanding of where changes in hardware architecture would benefit the performance of the application.

Achieving the best possible performance from a computer system requires the careful balance of all its components. A computer is somewhat analogous to a processing plant, with data flowing through a complex series of pipes and valves that control flow. If the pipes and valves are sized incorrectly or mismatched, performance suffers. The CPU, memory, disk drives, graphics card, software drivers, operating system and various chip sets and interfaces that connect these components are the computer equivalent of pipes and valves. All must be balanced to achieve optimum, dependable, performance.

The best balance of these components varies from application to application. The challenge for the computer manufacturer is to weigh the requirements of each application type and design a system that meets the needs of each without adversely affecting any other applications. This requires the computer manufacturer to have an industry-marketing group capable of dealing with a wide variety of ISVs. Otherwise, systems will end up being optimized for a narrow range of applications and fail to perform adequately for other products. Manufacturers of budget systems simply optimize design to reduce cost, without considering performance. Manufacturers that work closely with ISVs can deliver reasonably priced system that deliver optimum performance.

Avoiding Conflict Between Hardware Vendors, ISVs and Users

Perhaps the most frustrating aspect of computer usage today is determining who can correct a problem when it occurs. Until the mid-1980s, most CAD seats were sold as part of turnkey systems: computers, operating systems, basic graphics software, and specialized applications all came from one vendor. If there was a problem, there was one telephone number to call and one company responsible for resolving the problem.

The rise of personal computers marked the end of the turnkey era. Since then, users have been forced to take on the role of resolving issues between software and hardware vendors, too often with maddening results. We have all experienced the frustration of waiting on hold for what seems like an eternity, only to be told that the problem is the responsibility of another vendor. Days can be lost trying to determine who is really responsible for what might turn out to be a minor issue.

Consider the simple problem of installing a new software release. The new software is loaded and fails to work properly. A call to the software vendor reveals that the vendor forgot to inform

users that its new software also required that users install an updated driver for the user's graphics card. After downloading and installing the new graphics card driver, the new release of the vendor's software runs fine.

But the user soon discovers that another important application that formerly worked properly no longer functions correctly—because it doesn't yet work with the new graphics card driver. After additional phone calls and more time spent on the Internet, the user learns that there is a slightly older version of the graphics card driver that will work correctly with both applications. Meanwhile, several days of engineering design have been lost resolving the problem. This is just one example of the system responsibility issue. Far more complex problems can occur from seemingly innocent software changes.

It is highly unlikely that there will be a return to turnkey systems. Engineering design software and the hardware on which it runs will continue to be purchased separately. This means that the user will remain ultimately responsible for integrating the pieces together. Users should be able to rely on computer vendors, however, to verify that the systems they sell work properly with mission critical applications, and to provide tools and support functions that help mitigate integration problems when they occur.

Verifying that New Systems Work Properly

When a new computer system is being introduced, key software applications play a critical role. First, these applications can be used to stress-test the new systems. Since the application is known to work correctly, if problems do occur they can be traced to specific hardware or operating-system capabilities. In the case of Hewlett-Packard, the company uses UGS NX software to do the heavy testing of new workstation systems. In a similar manner, IBM works closely with Dassault Systèmes to accomplish this objective. This level of testing ensures that all the pieces work together and no critical functions have been overlooked. Given such strong working relationships, if problems are identified, it becomes a relatively easy task to determine cause and solution.

Since HP and IBM employ application engineers experienced in using the software packages developed by the ISVs, it is a straightforward task for each company to certify these applications for new hardware configurations. Other hardware companies, including Dell, pay various software vendors to do this certification. Some see this latter approach a conflict of interest. HP makes the point that, by doing these certifications itself, it ensures the integrity of the process.

In addition to certifying key software applications for new hardware designs and configurations, it is equally important for the computer manufacturer to ensure that this hardware/operating-system/application-software combination *continues* to function properly and at the highest possible level of performance whenever changes are made to any element of the solution. This requires a close working relationship between the parties involved and a willingness to perform ongoing verification tests. Otherwise, the user is left with this responsibility.

Tuning Can Mean Significant Performance Advantages

Today's workstations are extremely complex devices. System interactions are not always obvious to the user, especially one who is not an information-technology specialist. Optimizing the interaction between the operating system, application software, graphics drivers, BIOS code, and memory is very difficult for the uninitiated.

The problem of obtaining the best possible performance from a given system is compounded by the fact that different uses of the same application package can result in different optimum configurations. For example, a design organization that regularly deals with many small projects may require different settings than an organization that works primarily on large, complex assemblies.

There are two steps to obtaining the best possible performance. The first is to ensure that the system has the proper mix of components; the second is to determine the appropriate software settings, based upon the type of work being performed. As a result of its close working relationship with such software vendors as UGS, Dassault Systèmes, PTC, and Autodesk, Hewlett-Packard developed its Performance Tuning Framework (see *Engineering Automation Report*, April 2004). The HP Performance Tuning Framework provides an excellent set of tools, applied in a two-step process, to help users adjust system settings to optimize performance.

HP first introduced the Performance Tuning Framework in October 2003; it is now preloaded on the company's Pentium 4 and Xeon workstations running Windows 2000 and Windows XP. It can also be downloaded free of charge for use with some older HP workstations (http://www.hp.com/go/framework). The Framework supports a specific set of applications, which are listed in the User Guide (and also on the Web site).

Each time the Performance Tuning Framework is run, the software first logs onto HP's web site and obtains the latest information concerning hardware and software components that have an impact on performance, along with any software upgrades that need to be installed. The success of the Performance Tuning Framework requires a continuous on-going relationship between HP and the key ISVs, as well as with the developers of software drivers for approved graphic cards.

After updating itself, the Framework does a basic examination of the system configuration and identifies any inconsistencies. For example, the Framework provides the user with a list of available drivers and identifies which have been certified for specific application programs. The user can readily determine the best driver for a particular release of an application package, which many not be the latest version of that driver. Rather than having to search the Web for the driver, the Framework enables the user to download the proper driver with just a few mouse clicks.

Another key feature of the Framework is its ability to identify whether an application can utilize more than 2 GB of main memory. If extra memory is installed, the Framework can change settings appropriately. This is a complex task, since the additional memory is not always properly recognized by the operating system. Hewlett-Packard has worked with Microsoft to develop a Windows patch that handles this issue, which is available only to users of the

Framework. With it, a single user-initiated selection adjusts both the application and the operating system.

After performing basic hardware and software configuration, the user can further optimize the system using the Hewlett-Packard HyperTune utility, which is integrated into the Performance Tuning Framework. This utility supports a growing list of application packages. HyperTune uses models provided by the user, or in lieu of that stock models provided by HP. HP recommends user models when possible, so as to tune the application for best performance with the user's typical data. Using an iterative methodology, HyperTune determines the optimum application-software settings needed to obtain the best possible overall performance.

HP promotes the fact that that this tuning process can increase system performance by 20 percent or more. This is a conservative figure, and can vary significantly depending on the specific hardware and software configuration. We know of one case where this tuning resulted in a 28 percent improvement (in shading a complex mechanical model) with one graphics card, and a 49 percent improvement with the same system with the substitution of a competing graphics card. To the best of our knowledge, no other hardware vendor provides comparable tuning and evaluation technology.

Our Opinion

Today's engineering workstation marketplace requires user organizations to procure computer hardware and application software from separate sources, and to integrate the pieces. Commodity pricing is a given—CIOs don't have the budget to pay extra. But they need more than just commodity boxes. Hardware vendors that have a strategic relationship with a user's software vendor can provide significant additional value to the user. If the ISVs are operating at "arm's length" with a manufacturer, then the multitude of issues that affect system performance simply will not be adequately addressed.

When buying computer systems, we recommend users work with vendors that have a strong set of ISV relationships. At Hewlett-Packard these deep relationships with many software developers go back two decades or more; IBM has had a similar relationship with its one partner. When problems occur, they are quickly resolved—without the blame-avoidance that is prevalent in more brief or casual relationships. Knowing that these relationships exist enables users to concentrate on the task at hand—designing better products faster and more economically.

Note: Cyon Research had completed, but not yet released, the present white paper, when HP and UGS announced the deepening of their strategic relationship on February 8, 2005. The details of the new announcement reflect precisely the considerations enumerated here. While this is obviously a good move for both UGS and HP, we believe that is also good news for *all* UGS customers. Those who use HP hardware will be able to expect more from HP, and both they and other UGS customers will be able to take advantage of HP services. It also makes a strong case for HP to customer IT departments as HP broadens its commitment to this relationship well beyond workstations and printers

About Cyon Research…

Cyon Research is a consulting firm that provides design, engineering, construction, and manufacturing firms with a strategic outlook on the software tools and processes they rely on to create the world around us. Cyon Research also supports the vendor community with its unbiased insight, vision, and expertise to help them understand the complex nature of their markets and grow, by serving the needs of their customer base.

Cyon Research brings to its clients a unique combination of experience, perspective, and insight, supported by an extensive network of well-established industry relationships. Our close contacts throughout the user, analyst, vendor, and developer communities provide surprising benefits for our clients and add significant value to our services.

Those relationships are enhanced by our publications and events. While consulting is the heart of our activities, our publications and websites—including *CADCAMNet*, *Engineering Automation Report*, *AECNews*, and *CADwire.net*—are our voice. Through them, we connect daily and monthly with the user and vendor communities. And COFES: The Congress on the Future of Engineering Software, our annual, invitation-only event, is our face—the place where we can make the types of connections that just aren't possible through any other means than face-to-face.

The focus of our research within the realm of design, engineering, construction, and manufacturing is technologies and markets that are likely to become real within the next two to six years.

The domain of our research is the tools, processes, and procedures used in the design, engineering, management, and production of the built environment and manufactured goods.

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Cyon Research Corporation
8220 Stone Trail Drive
Bethesda, MD 20817-4556 USA

301-365-9085
fax: 301-365-4586
www.cyonresearch.com

