Cyon Research

EDS and PTC: Is there any substance to their interoperability agreement?

A Cyon Research Interoperability Report
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Among the top-tier CAD vendors, competitive advantage has, for many years, been almost a mantra. During the mid-1970s, Patrick Hanratty (arguably the father of modern CAD), arranged an interoperability demonstration in the Pentagon that involved all the major players of the day. That may have been the last time that CAD vendors really cooperated openly

EDS PLM Solutions has roots reaching back to the 1970s, through their Unigraphics, I-DEAS, and Solid Edge product lines. Over the years, the companies that produced these products were aggressive competitors. Together, as EDS PLM Solutions, they are even more so.

PTC, since its rise to popularity in the early-1990s, has always taken an aggressive approach to the market. With a "take-no-prisoners" attitude, the company often took deals out from under the noses of their competitors. PTC similarly gave no quarter to competitors when it came time to share information about products. They simply refused to license their CAD software to any competitor. In fact, the Pro/E license agreements were explicitly structured to prevent competitors from getting their hands on the software.

That PTC became known for its aggressive tactics was more a result of their success than any exclusivity on the behavior. In fact, EDS (then Unigraphics) and Dassault had similar or even more restrictive policies designed to thwart competition. The only time they actually worked together was on neutral file interoperability projects, such as IGES and STEP.

The new reality

In the last several years, the CAD market has matured. Most major customers have made their decisions about which CAD system they are going to use, making wholesale migrations rare. It's a zero-sum game: EDS, PTC, and Dassault are each as likely to lose a seat of CAD software to a competitor as they are to gain one.

Today, all the top-tier CAD vendors are taking a more enterprise-wide view of product development than they have in the past. Each has a wide variety of software—beyond CAD—and gains significant revenue from the services surrounding that software. The game is now about interoperability—sewing disparate software solutions into a complete system. The goal is to help their customers achieve a true product lifecycle management (PLM) capability – where the product design information created in the CAD software is used throughout the entire lifecycle of the product. Leading vendors have recognized that such interoperability and openness will help grow the PLM market.

The components of a PLM solution are always provided by a number of different vendors—simply because no single vendor has all the pieces of the puzzle. And while companies such as IBM, PTC, and EDS can supply many pieces, customers have a tendency to choose the solutions that are best for them—even if it means buying CAD from one vendor, PDM from another vendor, and collaborative tools from yet another vendor.

The truly heterogeneous nature of a PLM solution presents a serious interoperability problem. The National Institute of Standards estimates the losses due to interoperability in the automotive supply chain alone at $1 billion per year. Losses in the aerospace, industrial, and consumer products sectors are similarly large. But beyond the financial impact to users, interoperability problems have hamstrung CAD/PLM vendors' ability to deliver solutions that fully meet their customers' needs.

In short, the protectionist competitive stance that top-tier CAD vendors have taken in the past is proving to be an expensive anachronism. The only way to grow the market is to promote interoperability—and that means cooperating, even with arch-competitors.

Changes at PTC and EDS

PTC's significant change in course regarding interoperability started over a year ago when the company announced its Granite One modeling kernel. At the time, the company promised that they would be willing to license it to any competitor – provided the competitor was willing to also provide access to their own data via Granite One.

At the time, we thought this might be a red herring, as Granite One contained feature content and supported associativity, and neither EDS nor Dassault had anything similar. (Parasolid and ACIS have much more limited functionality than Granite One. And while Unigraphics and CATIA V5 have robust APIs, they are not standalone modeling kernels, as is Granite One.) Yet, despite our initial misgivings, experience in the industry showed that PTC was indeed willing to play fair with Granite One.

One of the first companies to license Granite One was Ashlar, a developer of surface-modeling software most commonly used for industrial design. Though PTC provides its own surface-modeling software, it nevertheless worked with Ashlar in an aboveboard fashion.

EDS similarly showed an initial move towards interoperability in February 2001 with an agreement to exchange information on Parasolid and ACIS with Spatial Technology, a Dassault company. More recently, they've entered into a similar agreement to exchange information on Parasolid and Shape Manager with Autodesk.

Although the moves by EDS, PTC, Dassault, and Autodesk gave us hope, we were concerned that none of the companies were completely committed. None of the major companies had actually come together and agreed to no-holds-barred interoperability.

Our skepticism largely abated on March 18th, when EDS PLM Solutions and PTC announced a technology exchange agreement that went far beyond their earlier initiatives. The agreement provides for an exchange of toolkit technologies and end-user products, allowing each company to develop interoperability tools that will work directly with the other's products. (The exchange was specifically for CAD products. No toolkits or information for Windchill, Metaphase, or iMAN were exchanged as part of this agreement.)

On its face, the agreement between EDS and PTC seemed substantial. But we felt it important to explore with both companies the depth of their commitment to interoperability. Through a series of teleconferences and interviews, we came to understand that this interoperability initiative truly represents a sea change.

PTC's stated position is that they are willing to do nearly anything short of releasing their products as open-source to promote interoperability. And this policy extends to their entire product line. All they ask is that their competitors reciprocate—which is exactly what EDS PLM has done. EDS has similarly has stated that they are willing to enter into the same sort of arrangement with any other competitor. Neither company has a blacklist.

Beyond cooperating between themselves, both EDS and PTC have been supportive of the efforts of third-party companies such as Proficiency and Translation Technologies to provide feature-based model translation. EDS provides Parasolid as a de-facto industry standard. PTC has been willing to provide affordable licensing options for Granite One to companies that produce multi-format viewing software.

Ultimately, we believe that the arrangement between EDS and PTC is as substantial as it seems. Both companies are aware of the benefits that it may bring, both to them and to their customers. And both are aware that, by fully sharing information about their CAD products, they will potentially open themselves to more competition.

Although neither EDS nor PTC has announced similar agreements with Dassault, it is our belief that conversations are in the works among all three companies. Our experience is that Dassault's executive managers are well aware of the benefits of better interoperability, but to date they have maintained an aggressively protectionist stance in their relationships with other software developers. Although contradictory by nature, this is not fundamentally different from the stances EDS and PTC have taken in the past. Cyon Research will be issuing an interoperability report in the near future covering this issue in more detail.

The agreement between EDS and PTC relates to APIs and technical information. It does not extend to physical file formats. We believe that, in an ideal world, physical file formats should be openly published, but we recognize that there are good reasons not to do so. In the case of PTC, they chose to encrypt the Pro/E file format to avoid problems with schools and universities using educational software for commercial purposes. (This seems to be a substantial problem in Europe and the Far East.) PTC, through Granite

One, is the only major CAD vendor that provides a standalone API (application programming interface) that accesses its data. Our experience, and that of the developers we have talked to, is that this form of access is robust, capable, and works with all versions of Pro/ENGINEER files as well as all other major CAD formats. EDS does publish the Parasolid file format, however the only way to gain full access to Unigraphics model data is through the UG/Open API.

Are EDS and PTC for real?

Corporate policies are often subject to change over time, but we believe that PTC and EDS are committed to supporting an open interoperability policy for the long term. While we are concerned that neither EDS nor PTC are willing to commit to a truly transparent process of working with third-party developers, what we've seen so far encourages us that they want to be good partners, both to other developers and to their own customers.

Both PTC and EDS have told us, in separate conversations, that they want to compete on the merits of their technology and solutions. PTC has strategic relationships with a number of leading systems integrators whose business models demand interoperable solutions. These systems integrators would prefer to spend their time on strategic consulting rather than low-level technology integration. EDS similarly understands that consulting is an important income area, and that, to be a credible consulting partner, they must have a strong interoperability story. Despite any self-serving reasons for promoting interoperability, we are convinced that both PTC and EDS have come to this strategy first and foremost because their customers need it.

We believe that improved interoperability it will ultimately pay significant dividends throughout industry, benefiting not only the companies' direct customers, but also many companies in the value chain that don't even own any EDS or PTC software. By lowering the barriers to interoperability, both companies are making it easier to deploy PLM solutions in general, which should help manufacturers accelerate the delivery of more innovative products while simultaneously growing the PLM (including CAD) market. This is nothing but good news.

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About Cyon Research...

Cyon Research Corporation was formed by CAD industry consultants Brad Holtz, Joel Orr, and Evan Yares to foster clarity and provide vision to users and vendors of CAD and PLM tools. Current products include: CADwire.net, a leading provider of online news and analysis; COFES: The Congress on the Future of Engineering Software; Engineering Automation Report, and The CAD Rating Guide™. More information can be found at: www.cyonresearch.com, 301-365-9085

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

Telephone: 301-365-9085
FAX: 301-365-4586
Web: www.cyonresearch.com