The death of SolidWorks?

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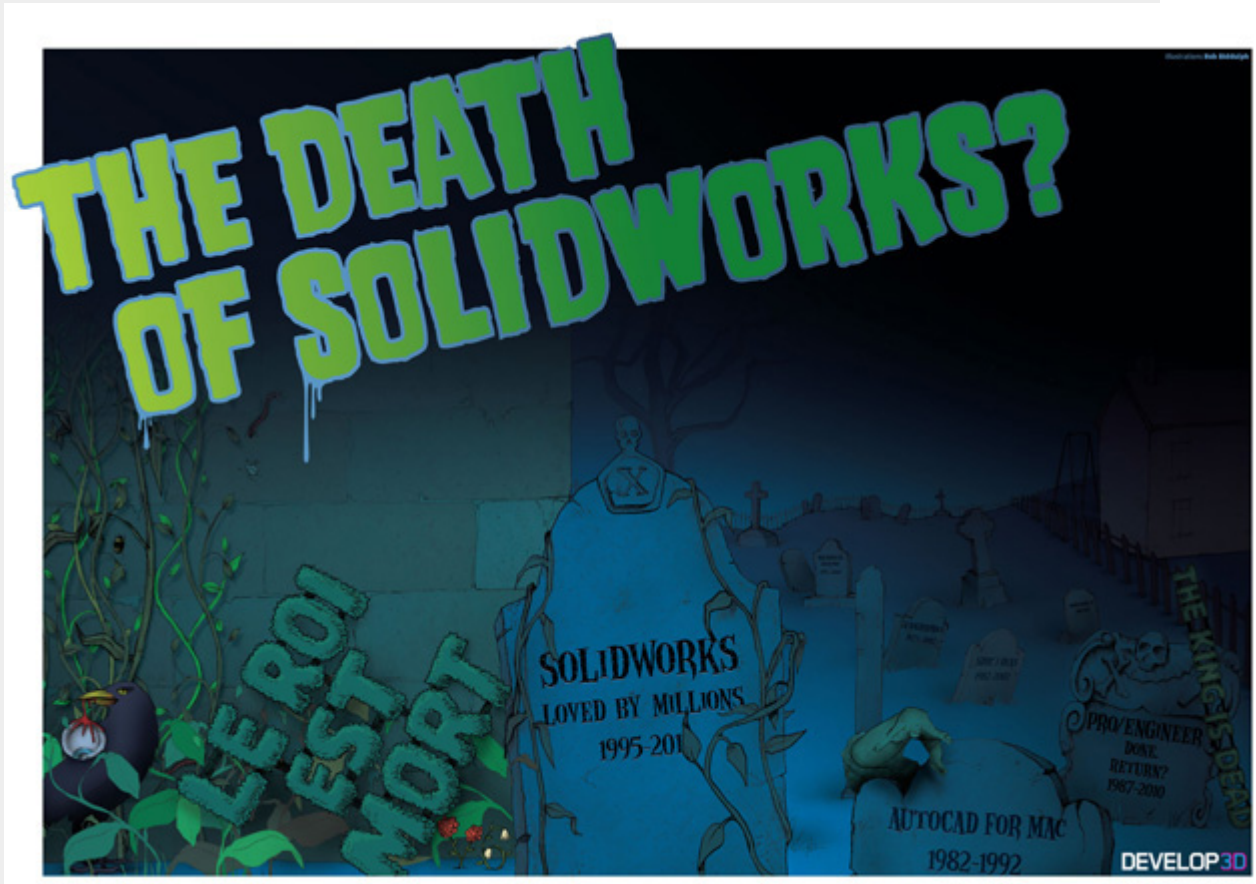
In a recent interview with CAD software blogger Deelip Menezes, SolidWorks CEO Jeff Ray discussed 'killing' SolidWorks with a new product. Martyn Day delves deeper to find out what the future holds for one of the industry's most popular product development systems.

If you had told me at the beginning of 2010 that PTC would dump the Pro/Engineer brand and that the CEO of SolidWorks would openly discuss 'killing' SolidWorks (the product), I would have assumed that you were off your head on smack.

However slim the probability of this occurring I'm here to say, drug free might I add, that this is exactly what's happened and all within a month.



In October PTC announced the rebranding and redevelopment of its flagship product range under the 'Creo' umbrella. Then in November, SolidWorks CEO Jeff Ray openly discussed how the company had started a secret 'let's kill SolidWorks' project to create a new generation modelling tool.

The interview can be read on the blog of Deelip Menezes , where Jeff Ray refers to 'killing' no less than six times. The essential facts that came out of this bombshell were that the company's next generation modeller will be based on Catia's V6 geometry engine (replacing Siemens Parasolid), use Dassault Systèmes' Enovia PDM, include better direct modelling functionality and be, to a larger extent, cloud-based.

SolidWorks' competitors have naturally jumped on this open statement of intent. Indeed, for a considerable number of years competitors have mused on how the owner of SolidWorks, Dassault Systèmes (DS), was going to eventually rationalise its offerings of Catia and SolidWorks which use different technologies and file formats.

Up to this point, DS has segregated its products into PLM (Product Lifecycle Management) and CAD. i.e. The high-end with Catia and workgroup-based mid-priced market segment with SolidWorks. Although denied by DS, to a certain extent, the two products do compete and the competition claims that SolidWorks had 'glass ceiling' limitations imposed on its capabilities by DS management in Paris - again vigourously denied by SW management.

The move to go public on this 'new' SolidWorks product, based on DS technology, coincides with increasing 'Dassaultification' of SolidWorks culture, channel and messaging. In this delicate process, SolidWorks' competitors are hoping that DS will accidentally kill the goose that laid the golden egg.

Platform shift

In October I wrote a comment on how all the CAD vendors, bar PTC, think that there is a looming platform shift from Windows to the cloud, liberating applications from expensive desktop workstations to server farms on the web. The article explained how historically, when platform shifts occur, leaders can quickly become losers if they have the wrong strategy and fail to adapt.

Jeff Ray's comments and company strategy are exactly based on this premise. At SolidWorks World 2010 the company demonstrated a cloud-based CAD application to highlight new possibilities.

The sharp eyed among the audience identified it was called V6, which just so happens to be the same version number of the latest release of DS Catia. At that point you could say the 'Catia was let out of the bag'.

After the event, the company was uncharacteristically very unresponsive as to the exact origins of the technology that had been demonstrated. The interview on Deelip's blog was the first expansion on the company's future plans since SolidWorks World and that plan was to develop a product that would have the potential to 'kill SolidWorks'.

To follow on from this I set up an interview with Jeff Ray to get better clarity on some of the issues that had been raised and questioned the wisdom of the potentially suicidal idea of 'killing SolidWorks'. Ray explained, "I think people are just reading way too much into this. The only point I'm trying to make is that there's an opportunity for a platform shift, and we

haven't had that chance in the last 15 years since we started shipping the Windows-based product. The goal was never to run CAD on Windows for the next 200 years."

But what is so wrong with a Windows-based future?

"It denies customers the chance to have more than one platform from which to run their project," replied Ray. "It denies them choice of devices. It denies them the ability to either pay-up or pay-down, based on what they need and not have to buy excess capacity in hardware or software that just sits idle. This is because the architecture forces that on them. We just accept it and we tolerate it."

The SolidWorks killer

For the next generation of SolidWorks, the management team set up a small development group four years ago with the directive to create a product that would do to SolidWorks what SolidWorks did to the likes of PTC's Pro/Engineer when it was first launched. Ray explained, "We can't be so in love with our technology that we become deaf and blind to new platforms that are emerging.

"They [the development group] had total freedom to look at other kinds of technology and they were like a start up. What they came up with was essentially what we showed on stage earlier this year at SolidWorks World, in what became the genesis of the V6 technology."

In the CAD industry, history has taught us that the problem with 'no limits' technology is that it creates legacy data formats and pain for the installed-base. So will compatibility with 'old SolidWorks' be an issue? Ray was quick to reply, "We're not going to abandon our customers. What we've got to do is make this easy for them to make the move. And so that's when adult supervision kicks in, and we had to back off on some of the crazier things that were out there, because while intriguing, it just wasn't practical.

“I can’t go out and visit the whole two to three hundred thousand or of our customers and say: ‘Oh by the way, all your design data’s dead.’ We’re not going to do that, as much as our competitors would like us to do that, we’re not going to do that.”

Expanding on the subject of data compatibility, moving to Catia’s V6 kernel opens up the possibility of SW finally being able to directly share files with Catia. Was this also a driving factor in development? “Yes it was, absolutely, says Ray. “Because I’ve been in those calls with key customers saying: ‘Look we love your technology, we love other DS technology. Why can’t you guys play well together?’ And, you know, after about the 10,000th customer call, I said: maybe I should pay attention to this.

“The second I broached the topic with Bernard [Bernard Charlès, CEO of Dassault Systèmes], he jumped up and said ‘Yes’. And if anything, he’s pushed us harder and faster than we were pushing ourselves. I’ve never had anything but 120% support from Bernard on this... the point is they (the customers) just don’t have to worry about this stuff anymore.”

The DS connection

With the ‘new SolidWorks’ benefiting from core Catia technology, one could suggest that SolidWorks will become ‘Catia Light’, a proposal from Deelip that Jeff Ray immediately dismissed. I raised it again and suffered the interviewer’s equivalent of a denial of service attack. “It is not Catia Light. It will not be Catia Light, There is no market for Catia Light. The market is not looking for Catia Light!” exclaimed Ray.

While starting a new product from scratch to better an existing one is not unheard of in the industry, the problem is that so much development has gone into SolidWorks that any new product will have a disadvantage in terms of feature set. I asked Ray if this new product would be as feature-rich as the existing modelling product.

> We can’t be so in love with our technology that we become deaf and blind to new platforms that are emerging - Jeff Ray, SolidWorks CEO

“Yes, if we were trying to go it alone, that would really be a daunting task,” Ray replied. “But we’re not trying to go it alone. We really are working with the team in Vélizy (Dassault’s Paris-based HQ).

“Work is getting passed out, people who are experts in different aspects are getting the chance to apply their expertise across the board. So it’s a much larger design team than what we had just at SolidWorks alone. There is no way that we could bring out a product with this level of both functionality and ease of use, and continue enhancing the V1 product, if we were just trying to do it ourselves.

“On Day One there will be some people that will look at the product and say ‘this is exactly what I needed all along, I’m jumping right here and right now’. And we think that’s going to be a pretty sizeable group of people. And then we’ll just continue to build on that and enhance it and add more and more functionality and serve more needs, and that will bring more and more people into it.”

The inclusion of the Catia development team in this next release from SolidWorks is extremely significant.

Many in the industry, even competitors, have described the Catia solution as being the 'Ferrari' of the industry and with such a huge range of technologies, spanning the elite design industries, Dassault Systèmes could create a very potent new product. However, there will always be a concern that the company would not want its two modellers to compete for the same customers. 100% file compatibility between SolidWorks and Catia would certainly muddy the waters - we will have to wait to hear if, for instance, Catia to Solidworks file transfer omits any critical data structres.

Cloud and User Interface

One of the fundamental technologies and concepts is that this new modeller will rely heavily on the Internet or 'Cloud', either for everything or for data management. It was very hard to draw Ray on specifics here, but on the issue that the product runs when there isn't a connection present, Ray calmed some fears, saying. "Yeah, there has to be some amount of offline (capability). But you know as we keep working on that, the slope of the curve keeps growing, improving on reliability and speed on the internet."

It's not just the underlying architecture that will be updated; the user interface is set for some attention too. Ray explained, "This gives us the chance to take a clean sheet approach on the UI and to apply a lot of things that we've learned over the years, that we just didn't know 15 years ago. And I said: 'Let's do it in a fresh way."

The aim, it seems, will be to make the interface easier to use and more interactive, more push and pull. I asked if the Catia interface was going to be the same as the new SolidWorks UI and Ray explained that Catia was getting easier to use but the interfaces were not going to be the same.

SolidWorks is already showing tech preview of the new product to customers and dealers - obviously under a non-disclosure agreement. "I think they're going to be thrilled. They already are!" said Ray.

"As we go through the design challenges they have and what this will do, they get excited, and they trust us. They know that we're not going to steer them down the wrong path. This isn't an industry that's rich with companies that have said 'trust me' and they deliver on it. So, we've gotta buck that trend, but we will, we will."

Why?

With some mighty big promises and probably putting the fear into the customer base Jeff Ray has drawn a line and made it known that the successor to SolidWorks is well into its development and will utilise Cloud computing as an integral foundation technology - all this at a time when nobody is asking for cloud-based CAD or has any real experience of such a web-based system. I asked Jeff Ray a simple question.

Why?
"What I lose sleep over, is if somebody is coming up with this, a bunch of guys like Jon Hirschtick [SolidWorks founder], working in someone's living room and they are not constrained by anything. That scares the heck out of me! That keeps me awake at night."

In previous conversations, Jeff Ray has expressed the same fears as we move from a Windows environment to a more open distributed computing scenario. When the market moved from DOS to Windows, many of the big DOS software companies fell at the transition.

It was an extinction level event. Second guessing the future is not easy but many CAD firms are preparing for a cloud and web future and learning from the past, the plan is to be prepared and cover all bases.

Jeff Ray explained further: “We’re not going to rename SolidWorks, it’s still going to be called SolidWorks. We’re not going to make it a one-hit wonder product. We’re going to keep it fresh and make sure that it takes advantage of whatever platforms are out there. And at some point there will be something better than an online platform and it’ll adapt to that too.

“And when I said kill SolidWorks, I meant the SolidWorks as we see it today, working in a Windows environment, will be replaced by SolidWorks working in an online environment. But it’s still going to be called SolidWorks. We’ll somehow give it a moniker to differentiate it from the other, just to minimise the confusion when we’re talking about it. I mean we had to, inside R&D, that’s why we’ve just been calling them V1 and V6.”

When

So when will the next generation of SolidWorks be delivered?

“We’re still a couple of years away,” said Ray. “I don’t want to put pressure on the R&D team. The pressure for them is to get it right, rather than get it out fast. And like I said, we’ve got at least 10 years’ worth of stuff left to do on V1 that we know of, and every year more stuff gets added. You know, every day customers call us and they’ve got new ideas. I mean, we’ve got a long list of stuff to do. We’ve already nailed it on what SolidWorks 2012 will be, and the team’s excited about that.”

How much?

In several keynotes and interviews Jeff Ray has said that cloud-based CAD apps will be cheaper than the desktop ones we buy today. In a Yes/No round of questions, he explained that SolidWorks V6 will be cheaper to purchase than desktop CAD is today. It will absolutely have a lower cost of ownership and will run on significantly less expensive hardware but not as low-powered as an iPad.

Analysis

To paraphrase Mark Twain, the news of the death of SolidWorks is greatly exaggerated.

Although, to be honest, it was deeply odd that the source of that news was the head of SolidWorks itself. All of SolidWorks competitors couldn't help but rub their hands with glee at this apparent own-goal messaging. A number rushed the news to their dealers to go and alarm the SolidWorks installed base.

There are two takes on this: Either Jeff Ray has caused a serious self-inflicted wound, or there is a bigger message to be seen here, such as that Dassault Systèmes is further along in its development plans than we are being told. I've heard that Catia online trials are starting soon, evidence that this could well be the case.

The CEO of Dassault Systèmes, Bernard Charlès told me several years ago that being first to the web with online product would be a significant benefit to any CAD player. I suspect that DS is almost ready to go public on this. Jeff Ray thinks it will be two plus years for the new SolidWorks, but the fact that they are showing it to users and dealers would indicate that a significant amount of the donkey work has been done.

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But it's still going to be called SolidWorks - Jeff Ray, SolidWorks CEO

Everyone knew that at some point Dassault Systèmes would for want of a better word, 'mess' with SolidWorks and that could potentially be a problem for SolidWorks during any transition. This new development goes with all the other rumours that the two companies are significantly harmonising development as well as sales and marketing.

On a technology front this makes sense as SolidWorks contains licensed code from many technology firms, none so apparent as the Parasolid engine from DS' arch rival Siemens PLM Software. The new SolidWorks V6 will remove this reliance and use home grown technologies such as Catia's CGM kernel, together with analysis, simulation and document management engines. This rationalisation of the two companies' products is a perilous task but could provide dividends if successfully managed.

For now the public facts are really only in what Jeff Ray has told the press. SolidWorks as we know it will continue to be developed for 'perhaps the next ten years'. The new product, which will be called SolidWorks 'something or other' (V6 for now) will be available in 2-3 years time, will be based on Dassault Systèmes' Catia technology and will utilise the Cloud very heavily both in terms of delivery and as a distributed computing environment.

Functionally will be at least as good as SolidWorks is currently, with new functionality such as direct modelling and some degree of compatibility with Catia and legacy compatibility with SolidWorks V1. It will be cheaper to buy, cheaper to subscribe to and lower-cost in terms of hardware requirements than any CAD system is today. Not having seen it, we only have Jeff Ray's view on the product but his confidence is really absolute.

If the product is two-to-three years away my gut feeling is that Jeff Ray has probably jumped the gun by bringing this up now, but this is based on the fact that there are no cloud-based CAD tools available today to compare.

If the product is still years off, customers probably didn't need to hear the seemingly insane theoretical message that their CAD system was going to be killed. However, I have a nagging suspicion that Dassault Systèmes is actually secretly ahead of the game and next year Ray's comments may well not appear to be so vaguely prophetic.

While Ray 'doth protest too much' about SolidWorks V6 not being Catia Light, Siemens, Autodesk and PTC may find that their products are competing against a formidable Catia-driven mid-range modeller which is available everywhere, on-demand.

Over the next couple of years, this industry is shaping up for an almighty clash of the Titans, with very capable modelling products accessing unparalleled computing power. At stake here, in the next great platform migration, is the possible extinction for some of these very large CAD software firms. I am not kidding when I say this probably the most exciting point in time in the last 30 years to be a user of 3D design tools.

Looking at the wider picture, in the mid-nineties 3D modelling moved to Microsoft Windows where it became the operating system of choice. 15 years later it looks like the CAD vendors are preparing to transition to the next platform, the cloud.

As journalists we all like sensational headlines, and would never pass over an opportunity for a zombie B-movie inspired illustration, but while the 'killing of SolidWorks' is now a clarified overstatement, what we are predicting here is the death of Microsoft Windows.

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