

Autodesk University

Glimpses of a Bright Future



Full disclosure – it’s no use me pretending to be neutral about Autodesk; I’m a fanboy from way back, from back when I first set foot in a survey shop. I could not have been greener, and I was fitted out with a tool belt and a 2-pound sledge, not a desk, but from the moment I saw a rubberbanding line on the screen of a 286 running AutoCAD 10 I was hooked, hooked so hard that I took the hardcover manuals home *and actually read them*, read them clear through while underlining and thus became, in short order, the shop expert in layers and text and macros and blocks and eventually even AutoLisp, a language in which I still occasionally dream. And being the shop AutoCad nerd has its advantages you know, especially when it’s winter and the field work is slowing down.

So computer drafting and surveying success have always been wed for me; my fingers are thick and all my sketches and hand drafting are hack work, but I could always think and draw on screen and I have long had reason to *really appreciate* AutoCad’s elegance and power and for many years I was deeply fascinated by every new feature of every new release.

“The future is here. It’s just not evenly distributed yet.”

—William Gibson

In 1995, in Idaho, I even *sold* AutoCAD when surveying dried up – or, rather, *froze* up. This was near the beginning of the Carol Bartz era and also the year of the Release 13 debacle – I think it is fair to call it a debacle since, ten years later, it is *still* a subject of black humor at Autodesk University. The big issue, as long-time surveyors will no doubt recall, was that Release 12 allowed multiple drawings to be open in one session – which at the time was both revolutionary and extremely useful. But Release 13 inexplicably *removed* that functionality and had other problems besides – a fact which did not go over well with the users I had talked into upgrading. I finally began to explain that Release 12’s multiple window capability was a *bug*, not a feature, but it didn’t seem to comfort anyone.

>> By Angus W. Stocking, LS



As an Autodesk Value Added Reseller – or VAR, as we cliquishly called ourselves – I attended the 1995 Cad Camp, the dealer convention and trade show that eventually turned into what is now known as Autodesk University; attending the two events ten years apart gave me a certain perspective, which was useful in the often heady atmosphere of Orlando.

In 1995, for example, Autodesk was a company on the ropes; the debut of Release 13 had been badly rushed, a million lines of legacy code were proving to be a major burden, and competitors like SolidWorks and ESRI were starting to eat large portions of Autodesk’s lunch.

Memorably, Chief Executive Officer (and, as of May 1, 2006, Autodesk’s first, “Executive Chairman of the Board”) Carol Bartz’s opening address that year included an offer to ‘fall on her sword’.

But all that’s old news; 1995 proved to be just a hiccup and Autodesk remains one of the titans of the computer age – with 2005 revenues at nearly one and a quarter billion, Autodesk is now the world’s fifth largest software firm and has returned to dominance in traditional strengths like drafting, and conquered new fields like 3D animation software; the last ten Academy Awards for visual effects went to firms using Autodesk software. And Bartz never needed her sword – in

fact she is universally recognized as one of the most powerful women in business, one of *Barron’s* 2005 “30 Most Respected CEOs” among numerous other high-profile designations.

Having a little perspective also helped when evaluating two of the major themes of AU 2005; for instance, I couldn’t help but notice that one theme – the increasing hegemony of 3D model-based drafting – was something that was very much in the air in 1995 and even then was said to have ‘finally arrived’. But the 2005 claim carries considerably more conviction, with lots of mature products built around the model-based paradigm and plenty of very solvent companies living the 3D dream ... and this time, it seems that surveyors are being invited along for the ride.

The other major theme of AU 2005 was connectivity, and this really *did* seem new. Rather than reliance on its big stick, the ubiquitous .dwg format, Autodesk continues to work hard at creating a world where drawing and model based information flow freely between team members and beyond. Steps in this direction include collaboration tools like Buzzsaw, the continuing development and promotion of the .dxf file standard and the LandXML data format, and also the surprise announcement that Map Server Enterprise, a basic GIS platform designed to quickly slurp up various file types is now an *open source* project and will now be known as MapGuide Open Source. With the source code available for tinkering, Autodesk hopes to capitalize on the same sort of end-user energy that forced Linux into contention as an operating system and that has so inventively adapted Google Maps.



No telling who (or what) you’d run into on the floor

This, then, is the Autodesk vision: a world where all aspects of design work – from site selection and boundary analysis all the way through to rendered visualizations used as sales tools – are facilitated by a single 3D model built up gradually by many networked teams, all communicating by means of standard data and file formats. That makes it all sound a little dry, but as demonstrated and hyped relentlessly at AU it was exciting indeed and more than one speaker at the keynote was moved to quote science fiction writer William Gibson: “The future is here. It’s just not evenly distributed yet.”

Bigtime Keynote

Attendance at this year’s Autodesk University was 5,500, the most ever. And it was impressive to see that many people fit comfortably into the Swan and Dolphin’s huge hall; even more impressive was the gigantic screen that dominated the stage (see photos). By my reckoning, using onstage humans for scale, it was about 18 feet high and 80 feet wide and it was used to display full-sized animations and real time enlargements of speakers with about the resolution of a plasma TV. I suppose that the industry insiders present were blasé about it, but frankly, I was knocked sockless.

Carol Bartz’s opening address focused on the coming ubiquity of model-based design in a tone that verged on messianic – Autodesk clearly feels they have a handle on the future of work itself. She even took the time to assure listeners that 2D AutoCAD was still an important product, which struck an odd note for me: why did it have to be said?

Bartz drew an extended analogy involving her daughter’s imminent transition from high school senior to college freshman; the transition from competence at one level to incompetence in a larger arena was likened to the expert 2D draftsman struggling with the new challenges of 3D, and she even suggested that the transition to model-based drafting would be more momentous than the transition from “board to computer”.

Time, of course, will tell, but a good case continued to be made when Chief Operating Officer (and, effective May 1, 2006, Chief Executive Officer) Carl Bass took the stage. His presentation was built around the story of a fictional multinational firm, Global Bubble Company, and their efforts to build a new plant. Beginning with site selection



Connecting the dots with creative marketing

aided by MapGuide Open Source and design of a new bubble machine in Autodesk Inventor, the story continued with rapid prototyping and siting of the plant, creation of the full-fledged building model, cascading updates of plans and part lists as revisions were made, and fully rendered models for use as presentations. Onsite use of the models during construction, via wireless enabled laptops, was also demonstrated. And again, this all sounds a little dry, but in fact the ‘gee whiz’ factor was strong as the model flew up in realtime and was edited on the fly.

An Interview with Chris Bradshaw

Chris Bradshaw is Autodesk’s Vice-President of Infrastructure Solutions Division, which has been an exciting post in recent years. The connectivity advances – LandXML, .DWF, MapGuide Open Source – may end up transforming infrastructure work dramatically, and Civil3D, under his watch, is

turning into a truly comprehensive product.

Bradshaw was candid about the importance of surveyors to Autodesk, granting that they haven’t traditionally been the company’s primary focus of interest. But he was eloquent and convincing when he pointed out that much is changing in that regard; LandXML’s ‘open standard’ for base land data primarily benefits land surveyors and has, for example, positively affected daily tasks like data collection. Likewise, .DWF has gone a long way toward solving traditionally difficult issues of vector file sharing.

Says Bradshaw, “I think surveying is the industry undergoing the most change” and adds, “Surveyors are important because they’re first, anybody doing any project starts with surveyors.” Change is creating opportunities, and Bradshaw even sees a “shortage of talent in other fields” that is opening things up for surveyors. Part of this has to do with the model-based approach to large

projects: it only works if the model is accurate from the beginning. Surveyors are the ones who can really nail things down from the start, and can charge for that accuracy. Likewise, precise GIS data, made widely available by something like MapGuide Open Source, facilitates the early phases of design. Ultimately, Bradshaw expects to see, "... convergence of surveying precision with the rest of the design process."

Bradshaw also arranged a follow-up interview with Dave Simeone, the Civil3D product manager, who has authorized *The American Surveyor* to make an early announcement that Civil3D's next release will include an integrated survey component, closing a loop that has been open too long. Simeone recognizes Autodesk's "historical survey base" and that there is an absolute need for the functionality.

Putting the survey functionality right into Civil3D should mean better integration with data collectors, increasing automation of line work, and better 'downstream' propagation of error corrections – e.g., correcting a shot should automatically update contours, labels, plans, etc. Plenty of other new features will also be added, like automated parcel layout and compass adjustment. Surveyors should be able to avoid swapping in and out of Land Desktop, and Simeone says frankly, "... our goal is for all tasks to be done in Civil3D" and that Land Desktop is slated to disappear.

Chris
Bradshaw



Is it just me, or does the new Civil3D sound a little like the old Softdesk?

100 Booths on the Floor

A big part of any convention is the booths on the convention floor and Autodesk University was no exception. The big boys – **HP, Dell, Microsoft**, etc. – were showing off their latest toys, but there were also a lot of survey-specific firms there to talk nuts and bolts. Here are a few that caught my eye:

Carlson Software was demoing *SurvCADD 2006*, which adds significant new features like instant update of pad information after editing and real-time drag and update of profiles. Small details have also been attended to, with many new features devoted to crisper drafting, such as contour labels that automatically mask underlying screen entities.

Leica Geosystems HDS had their HDS3000 on hand, which they bill as the first "surveyor friendly" 3D laser scanner. Together with Cyclone and Cloudworx software for capturing and processing point clouds, Leica has a complete system aimed at traditional surveyors. Leica had also just acquired **FieldDesigner** of Canada and I spoke with Steve Holdaway, FieldDesigner's Product Manager. He explained that the company's main product, FieldPro, is a good way to work with a laptop PC in the field, insuring flawless integration of new data acquisition with ongoing design work. He also demonstrated a counterbalanced mounting mechanism that allows a laptop to rotate with the total station and not disturb the tripod alignment.

Cadzation touted their AcroPlot as industrial strength, standalone software for viewing, converting, editing and marking up .dwg, .dxf, .pdf and some other graphics files. Could certainly be useful in large companies where not everyone needs AutoCAD.

Steltman Software continues to find ways to improve and extend

Autodesk products, concentrating on applications for engineers and surveyors. A free 30-day evaluation package can be downloaded at rsteltman.com.

GlobeXplorer impressed me. Their ImageConnect software appears to make an amazing amount of aerial and satellite imagery available to even small shops. They've negotiated a single source interface to dozens of content providers, provided tools that integrate tightly with Autodesk products, and worked out per-transaction pricing that lets little guys get in on the game. Working with aerial data should become more routine, and that's a good thing. A 14-day watermarked trial is available at globexplorer.com.

A Different World

As I traveled from Orlando International (where I arrived on a United Airlines flight not, sadly, the also available Hooters Air) to Disney World's Swan and Dolphin Hotel, I had the sense of traveling more and more deeply into a surreal, bizarre world, where the amped up sights and thrills of hugely popular theme parks are status quo and the mundane pleasures of, say, a grocery store or a car wash are hidden away. The buildings were all Magic Castles or French chateaus and the hotels were like small Cities of Tomorrow where the staff were just putting finishing touches on 40-foot Christmas trees and miniature holiday railways. But the fantastic objects around me, though eye-popping, were at least *tangible* and a complementary backdrop for Autodesk University's equally eye-popping buildings and models which were deeply realistic and detailed but *intangible* ... virtual.

The fact is, Autodesk *is* changing the world; their tools are designing large parts of it and are making the virtual real. And the company is also changing the world of work. Putting a model at the center of the design process *is* different, and facilitating cooperation among far-flung teams is a way of coordinating more human brains to accomplish bigger and more astounding projects. Maybe William Gibson is right, and the future is here now; I certainly felt that I was looking at some of it in Orlando. *A*

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