

History of Nexsys Consulting Inc.

1986-1995

TRACE

I guess the story starts with the Toronto Regional AutoCAD Exchange (TRACE 1985 – 2004). I was browsing through Cadalyst – the paper magazine, not the [online site](#) it is now – when I saw a notice about a meet-up of AutoCAD enthusiasts in the Toronto area. As part of my job at Electromechanical Systems Technology (EMST) in Oakville, I had read the hardcover AutoCAD Users Guide, cover to cover (back then I had the stamina and concentration to do stuff like that), and was quite keen on the program, so I decided to attend.

The group was in the formative stages, and like most user groups, it gathered people from far and wide with a broad cross-section of interests. I met a number of people there that I would form lasting friendships with. I think I met John Phipps, Andy Baird and Clay Moorehead at that meeting or, if not, the next. As with most volunteer organizations, you can easily find yourself deeply involved just by *not* saying no, so I wound up being the secretary/newsletter-editor. I think John was the first President and Andy was the treasurer. I later handed over the membership database maintenance task to my wife Jacqueline, where she learned Dbase II, or was it Dbase III? ... an experience that soured her on computers for the rest of her life.

The modus operandi was to take notes at the meetings and gather text contributions on floppy disks and via dial-up modem from bulletin boards (BBS), and then format the newsletter as pages in AutoCAD. I would then plot the pages using the tiny letter-sized HP pen plotter we had at the office. Initially I was using the Simplex font, but I then switched to the serif Romans font which took easily twice as long to plot. At the time, formatting text in AutoCAD was fairly difficult, so I wrote some AutoLISP routines (AutoLISP is the built-in macro language for AutoCAD) to help; one of which poured text into columns with wrapping and justification. I mention this, because it was the beginning of the first Nexsys product: TexTools. Using the office photocopier, I would then reprint the newsletters. The newsletter was always blue because my boss used blue toner to identify copies made from his machine. Using mail-merge between Wordstar and Dbase to make labels was next, followed by stuffing newsletters in envelopes and posting – remember, this is before email was a thing.

In 1986, EMST folded, and I was casting about wondering what to do next with my life, and trying to figure out how I was going to plot the newsletter. I phoned a colleague who was in the same boat, a rocket scientist from UTIAS in fact, and he said he was “sitting on his coffee table in his underwear.” Not wanting to go that route, I believe it was John (who had recently started his own company after leaving Hugen-Sweda) who suggested starting my own company, and also offered to plot and copy the newsletter pages.

The PC

Jacqueline and I were living in Bronte, south of Oakville near Burlington, at the time. I had an amber monochrome luggable Hyperion computer (which I still have somewhere) and was operating AutoCAD from two floppy disks. So, the first order of business was to buy a new PC. At the time, John’s company, JRP Systems, was purchasing PCs from a guy named Nirmal, and would outfit them to be CAD stations with more memory and high resolution graphics cards and resell them with

AutoCAD. He provided me a system at cost, which was an immense help, but it was still expensive. A huge chunk of that – of the same order of magnitude as the PC itself - was the official AutoCAD license.

If I recall correctly it was a 386 with a whopping four megabytes of RAM, a 80387 co-processor, 18x12" Summagraphics tablet, ViewSonic monitor, fancy graphics card at 640x480 pixels and a colour JDL dot matrix printer. It was state of the art and I loved it.

The Work

My life back then was editing AutoLISP files with Wordstar, loading the program into AutoCAD, running the code and debugging the graphic and textual results. A lot of it was geometry and knowing the exact sequence of AutoCAD prompts to use. Mostly I was writing programs for John's customers to automate their repetitive CAD operations. Programs I wrote did such things as: layout the seats for an entire stadium with a few selections and prompts (Hussey Seating); layout an entire conveyor belt (Holderbank Consulting); layout a meat curing line (I forget the company name); and many more for Oetiker in Alliston, W. Strok and Associates in Port Credit, Harry Eewes Architects in Toronto, and others. Some things were beyond my skills at the time, like calculating the total volume of adjacent cones of piled aggregate or sand given the heights, repose angle and distance between peaks. Maybe I could do it now, but I doubt it.

Knowing AutoLISP so well, it was a natural extension to be able to teach about it. JRP would organize AutoLISP courses, and I would lead people through the process. Quite a few CAD operators got their start in AutoLISP from me – which may be a bad thing. JRP also offered MS-DOS courses, where I would show people how directories work, and how to use the utilities that came out-of-the-box. It ain't much, but it's honest work.

Later, Walter Kappelmann - a true gentle soul with a sharp intellect - took over the course design and instruction. After JRP, he went on to Softdesk in the same role, then to Autodesk when they bought Softdesk. He ended up heading the courseware development group for AEC products at Autodesk. Sadly, he died in Black Mountain (Ashville), North Carolina back in 2013.

There was also Novell network setup to do. At that time, Novell came on 21 floppy disks, and installation involved selecting the correct drivers for the installed hardware and protocols, and then it would link the operating system (make a monolithic executable) that would be the server. Each workstation then had to have the correct driver for its local hardware installed from floppy disk and loaded at boot time by editing the config.sys file – both of these steps was a black art best left to professionals.

Hardware installation and troubleshooting was also on the menu. Often this was memory board related upgrades (the extended or expanded memory debate was raging hot at the time), or a new digitizer or plotter installation. The latter usually involved setting serial port dip switches (8 data bits, 1 stop bit, no parity) on both the PC and the device so they agreed on how to communicate, in sometimes a trial and error process if you didn't have documentation in hand for both sides of the hardware – remember this is pre-Google. Quite a few HP plotters were configured by me. One of the side effects of this, is that I am intimately familiar with the HP plot codes – the ASCII text sent to the plotter to describe where to move, when to lower the pen, etc. There were also a lot of non-standard devices to connect. One interesting anecdote is about a tiny desktop robot plotter, that would move on wheels across a piece of paper placed on a table. It would advance with its little wheels and lower the pen at the correct time, trundle forward, lift the pen, turn and continue with the next line. The advantage was, the drawing size was limited only by the ribbon cable connecting the robot to the base station. Having no table that was E sized (roughly ISO A0), we placed the

paper and the robot on the floor of our apartment, started it off and went to bed. When we awoke, we found it had gone askew and drawn exquisite CAD symbols all over our hardwood floor.

Back in the day, one needed business cards, real paper letterhead and envelopes to be a legitimate company – how else would you send out invoices for payment by mail? For that, one needs a logo. The recommendation was to get Jon Gillette of Gillette+Associates in Bognor, Ontario to create one. I had a pretty specific requirement though; it had to be able to be drawn with AutoCAD polylines so it could be placed in the title-block of drawings. This 3D looking X shape with serif-less lettering is the result:



First Office

Perhaps all the cartons and traffic for JRP was too much for John's wife, Robin Bellisle, so John moved out of his townhouse and set up shop at [2001 Argentia Road](#). It was originally a show room and sales office for the Meadowvale North Business Park. Opposite this was the Nova hotel (which is now the Hilton Mississauga). For some reason, he generously offered me space to set Nexsys up there, so I took him up on it.

Darlene Wadien (employee number one) was already there when Nexsys moved in, soon after joined by Janice Adamthwaite and Don Pecora and later Allan Williams and Walter Kappelmann. I've probably forgotten some people.

The place was relatively cavernous, with high ceilings and a glass facade. In the back was a store-room that was also relatively large – eventually becoming the Novell server room of Nexsys as well as JRP. John Phipps, dressed in a suit – or at least a vest – at his desk in the back corner, was mostly on the phone, smoking constantly (most of us did) making little rockets on his desk of the spent cigarette stubs for lack of an ash tray. Darlene was stationed closer to the front door, also mostly on the phone, to TechData or Merisel, and not always interacting with them in a pleasant manner. Don was always out at potential customers selling Advanced Logic Research (ALR) tower systems and AutoCAD, but would come back to the office late in the day, also dressed in a suit looking exhausted like Willy Loman. Allan was often elbows deep in some ALR system he was building for a customer, either along the side wall of the main room or in the back store-room hunting down a part.

Nexsys had the other back corner, and for most of its history at 2001 Argentia was just me, except for a brief period, where one additional employee, John I-forget-his-last-name, was porting a Fortran program to the PC so that Holderbank could ditch their mainframe and save a lot of money. I would also be out some days doing service calls for JRP or attending meeting with customers, and it is one of my fondest memories to come into the office exhausted after a trip to Alliston, St.

Catherines, or the other side of Toronto and see everybody busy and happy doing their respective jobs.

John managed to get a software development contract with IBM which he subcontracted to Nexsys. Neil Byer, another former Sweda-ite, had lived with John and Robin for a couple of months, and while there he taught himself AutoCAD and started promoting himself as an AutoCAD consultant. For some reason, he decided to move to Vancouver to offer his services there. When he got there, he dropped into the Cadalyst office to see if they could provide any leads, but what he got instead was a job offer to become managing editor of the magazine – eventually taking it from a black and white newsletter to a glossy colour magazine. When the gents at IBM called Cadalyst looking for someone to do their two projects, Neil sent them to JRP.

My usual kit was a Sidekick three ring binder with two plastic pouch pages of 5¼” floppy disks containing stuff like MS-DOS, Wordstar, and AutoCAD utilities; and a Data-Tech Institute toolkit which John had given to me after I complained that I was going out to service his customers with just a rolled up newspaper and a stick of gum. It was later augmented by a little red toolbox, that to this day, bears an Oetiker logo sticker.

Jacqueline and I moved to Mississauga from Oakville, living in the house behind my parents on Belfast Crescent where my boyhood friend Glyn Jones used to live. This made the commute as simple as driving up and down Erin Mills Parkway.

A typical day might include downloading the newest Corel optical storage driver from TuCows – the BBS, not the [on-line site](#) it is now – head out to a customer site, install the driver, see if it worked, answer all the other saved-up technical questions the customer had, come back for lunch time and work on Nexsys products for the afternoon.

This period was also my first exposure to Windows, version 2.0, which was shit because there were no drivers for graphics cards, digitizing devices (other than mice), printers or plotters. It was really, really, rough in terms of user interface, even if you got things working, and there were no native applications for it either. So it was mostly a toy.

Products

The idea with products was to be able to scale Nexsys beyond simple hourly wages by leveraging common code for common problems. Unfortunately, we never hit the big lucre, but we did have several products that made *some* money.

TexTools

This was kind of a grab bag of stuff, besides the flagship EDI text editor mentioned above. There was a function key definition utility using **ansi.sys** and matching AutoLISP routines that provided extended AutoCAD snap options – like MIDP that asked for two points rather than a line to snap in the middle of – which was quite a time saver for heavy users.

Clip

This grew out of a project that isolated a piece of a larger map by trimming all lines outside a polygonal border. It avoided all the trim-trim-erase-trim... manual labour from such a cookie cutter operation on arbitrary boundary shapes.

Rasterworks

This was a product that came later, but I include it here for completeness. **Rasterworks** was a heads-up raster file underlay display within the AutoCAD graphics window that competed with a more costly and harder to configure CADOverlay product. It did vectorization and raster editing beside permitting heads-up digitizing. This was for larger black & white raster files – C, D and E sized scans in .RLC or .TIF format. There was also a standalone **See** program that would display a raster file when invoked from the DOS prompt. The Rasterworks product was one of the main reasons that Tern Solutions Group purchased Nexsys in 1995.

Scan

This program would get full speed scanning out of a Fujitsu hopper-fed B-sized scanner when connected to a Dunnord board from Quebec. Batch scanning was also something we did as a company. While in Ayr, we scanned and proof-printed about 25,000 approximately A5 index cards of the water connections for the city of Kitchener. Most of the work was keeping the printer in paper and toner, since the printing was much slower than the scanning.

Second Office

When JRP outgrew Argentia, they moved to 6700 Century Avenue, and Nexsys followed because – hey, our free rent ran out.

This was as close to a critical mass of innovation as I've ever been a part of. In one hallway there was David Brand and his CAD operator and scanning company with Luke Kieft; Richard Hannaby with his mechanical engineering consultancy using Catia or Ideas if I remember correctly; Alex von Svoboda with his Softdesk (AEC software company); John Phipps with JRP Systems and myself with Nexsys. These were the heady days when PCs actually became powerful enough to do real work productively.

A bit of explanation on a phrase I always use now... "half-a-day". All the self employed people mentioned above, worked crazy hours till late at night back then. On one occasion, Richard Hannaby packed up at the unusually early time of 6:00pm, to go home and take care of his son I assume. Dave Brand sees him and says "Only half a day today Richard?" in the ironic humour fashion that Canadians have. Since then he's been known as Richard "half-a-day" Hannaby. Sadly, he passed away June 14, 2013, so that will be his nickname forever.

For most of this period I employed Diane Hutchinson as office manager while Jackie was busy with the new baby. She originally worked for Alex, and when I had to let her go, she went back to work for Alex – and he said "I spoiled her" by paying her too much.

Jacqueline and I moved again when Samantha was born, to a house in Ayr, about 80 kilometers down the 401 to avoid the Toronto housing-price effect – you know the bell-curve that shows price vs. distance from the center of Toronto. To do this commute economically, I converted the Ford Tempo we owned to use natural gas, which I could fill up at home from a compressor outside my garage. One position of the under-dash switch and it was using natural gas from a huge tank in the trunk, and in the other position was a normal gasoline car.

Before the world wide web, advertising consisted of placing ads in magazines, and a large part of Nexsys overhead was monthly placements in Cadalyst magazine. That and rent for prime real estate in Mississauga – albeit only 400 square feet – was another serious overhead item. Eventually, not pulling in enough revenue to justify this nut when JRP ran into difficulty, we had to bite the bullet

and downsize, moving the office to our basement in Ayr during the mini-recession of the early nineties.

Third Office

We had an unfinished basement in Ayr, with office furniture suitable for premium office space, and a number of high end PCs, with a Fujitsu scanner and HP laser printer. The phone service for long distance was still really expensive from Bell (kids these days don't realize what a tax on communications the phone lines were), so we added a box that, with a suitable prefix-number on long distance calls, would give substantially reduced rates for long distance calls.

Some contracts sustained the dream a bit, but after a while, I had to admit that Nexsys was not ever going to be the windfall company I wished for, and I sold the company to our biggest customer – Tern Solutions Group – and moved to Ottawa. Jacqueline, Samantha and Alexandra followed some months later when the house in Ayr finally sold and we bought a house in Queensview Terrace.

Tern was a large format scanning and printing house, as well as doing AutoCAD sales and support plus custom software development for the [Canadian Security Intelligence Service](#) (CSIS). After joining, I was supposed to also work on the CSIS contract, but that required a security clearance – which I failed to obtain because I truthfully answered questions about marijuana. Since then Canada has decriminalized its use, and I believe that's in part because they couldn't find anybody to work on their secret codes who hasn't used marijuana.

The two partners in Tern, Al Douglas and Glyn Storey, fell out while I was there, causing a quick death spiral, and I soon moved on to developing GIS systems with Vision@, which was a division of SHL Systemhouse Inc. My only regret is that the source code for the Nexsys products was lost forever when the Tern Solutions Group servers were turned off.