

Through My Eyes a DEC Experience

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My intent is to give an eyewitness view of DEC during the 70s when I work there. It was a long time ago so I may have wrongly remembered on some of the details but my main objective is to give a feel to the culture of the company from my perspective. Also this is already too long and I have many more stories I could tell. Those I related are really the top of an iceberg.

Through my eyes a DEC Experience I- Joining DEC

The Help Wanted Ad

In 1968 when I was 26 and I was working at Boeing on the SST project. I had been there for three and a half years as a programmer and I had come to hate it. In retrospect, that experience was a very fortunate thing but I was 26 and thought I knew better. So I started looking.

There were a number of opportunities and an ad in the newspaper caught my attention. It was from Digital Equipment. So I called. When I told the person at the Seattle branch that I was responding to the ad, she reply that damn Peter Koch put the ad in the paper without letting us know. We are too busy to take care of you but here his number. Little did I know that was not untypical in the DEC culture I was to join.

The Interview

I contacted Peter and sent a resume. He called back and suggested I fly to San Francisco where the National Computer Conference was being held for an interview. That struck me as expensive for the company compared to a local interview but accepted.

There he and Bill Segal interviewed me. One of the questions was had I gone to the Conference. I didn't know what the conference was let alone attend it. Anyway, the interview was pleasant and I walked away with some literature.

When I returned I got a call from Peter offering a job and the next day I accepted and gave my two-week notice to Boeing. The day I was to leave Boeing I called DEC and they said they had not received my references. What references? No one told me I was to have my references send a letter. They told to have my referneces use western union telegrams and it was just a formality. Fortunately, my friends immediately sent off telegrams and DEC confirmed I had a job. Another DEC culture surprise.

The Training

It was the end of 1968 and we had to move and drive from Seattle to Maynard at the beginning of January. The weather was awful. We didn't have dry pavement until we crossed the Mississippi. Upon arrival, I went to my new boss's, Bill Segal, office and announced I had arrived for my four months of training as a software support person. Bill informed me that DEC only hired people who could train themselves.

Keep in mind there was no job description for a field software specialist let alone formal training. In fairness, this was a brand new position as DEC hired EEs as sales folks and few knew anything about software. It took some time, about six months, to figure out the purpose of my new job. And, DEC was still small. It had done only \$60 million the year before. There wasn't much formal planning or processes then.

I shared a cubical with a Dutchman, Kees Bruin. We became fast friends and together we set about training ourselves on products. Kees had an advantage in that he had programmed the PDP 8. I didn't even know who DEC was until the ad. But I had programmed the IBM 360 in assembly language. Also, DEC had developed a significant pulp book "Introduction to Programming" I my opinion it was a major reason that the PDP 8 became the dominate minicomputer of the late 60s and early 70s. So with the book, I was able to figure how to program it.

DEC gave the book away and was outstanding for introducing programming a PDP 8. There was nothing like it from the competitors. Sometimes things like that book aren't credited for their impact.

This is before operating systems at least on the PDP 8. In fact, my only experience with an operating system was with the first version of IBM OS 360 and that was disabling it to get at the raw tape drives. Up until then one loaded an application, in the case of the PDP 8, by loading through the front panel, a paper tape load program in its binary representation and then putting the application paper tape in reader and running the load program using a front the front panel. Once loaded the starting memory of the application program location was selected through the panel switches, usually location zero, and again using the run switch execute the program. Simple.

There was a development of an operating system on the PDP-9 at that time.

Probably the most useful program was FOCAL which was an interpreter similar to BASIC except different syntax. It was brilliant in that it fit into a 4k machine 12-bit machine. The syntax was different in that it only used the first letter of a command so programs were very small. Rich Merrill was the genius, one of many.

I didn't know where I was to be deployed because I had worked for Boeing, a major customer, so stealing employees was frowned on.

Kees and I took customer courses as long as there was an opening. Jim Davis appreciated our support of customers so our attendance was looked as positive. One class was the PDP 8 hardware class. Bill didn't think that was a good idea, but it turned out to be the most useful for me. Understanding how a computer works at that level helped a lot.

Also knowing Jim would make a huge impact on my career later on. In fact I learn a lot during those months that I use to this day: self-confidence for one.

Through my eyes the DEC Experience II- Field assignment

New Mexico

The four months were up and Bill gave me a choice of locations, Ann Arbor, Salt Lake City, or Albuquerque. I didn't know much about any of those locations except Ann Arbor was close to Detroit and I didn't want to go there. Actually, Ann Arbor turns out to be nice city. I chose Salt Lake as it was closest to our parents. Then another specialist requested Salt Lake because he was LDS, so I ended up with Albuquerque.

I didn't know anything about Albuquerque and wondered who bought computers there. The branch manager, Don Larson, came to Maynard and interviewed me. It was uncomfortable for me because I thought I reported to the west coast software specialist manager, Larry Wade. Anyway, Don was satisfied probably because I was his only choice.

Once again we drove across the country although not as far. Albuquerque was very different than New England or Seattle and we looked forward to the adventure, When checked into the office Don was out of town and his secretary, Barbara White, immediately began to make me as unwelcome as she could. Finally, Don showed up and confronted me about my attitude according to Barbara. I explained the reporting role and he straighten me out. He was the one who would do my performance evaluation, not Larry. I accepted the situation and was relieved because Larry had assigned another specialist as my boss in order to appease that person's desire to be a boss. I had trained with him and consider him subpar.

From then on I had a super relationship with Don. He was a great Boss.

The reason I mention this incident is the matrix system as it is called now could be ambiguous. That organizational advantage was to drive career motivation attention away from hierarchy to a results focus

I still didn't know was I was supposed to do. Don introduced me to current customers and since we

cover Arizona as well the salesman, Bob Sumeral (sp?), there , in turn, introduced me to his customers. One didn't go so well as when I tried to load FOCAL into his machine the key switches were faulty. He thought I just stupid I think. Anyway, I heard that they had the service tech out to fix the switches so maybe he changed his mind,

The sales district was located in Denver and they requested me to demo the PDP12 at a University of Colorado computer show. The PDP 12 was a unique system. It had two assembly languages, the PDP 8 and the Linc 8. The number system was also different in that branch used different binary representations, the PDP was two complement and the Linc ones. If you want to learn more I suggest looking it up, but the bottom line the binary code was incompatible between the two modes. I guess that is a bit in the weeds.

The Linc computer had been a system developed at MIT. It also came with two DECtape drives, a small CRT, analog to digital ports, and a few potentiometers so it could mimic things like an oscilloscope. I worked well into the night to put up a demo that used a fast Fourier transform to display the frequency amplitudes in a vertical bar chart form. The signal was connected to the a to d ports and the height of the strength of the frequencies could be controlled with a pot. Considering what time I had to do this in and how the hours I put in late into the night I was very proud of my work. However, for the professor in charge it wasn't enough. A good lesson for a young man. Find out what is expected before you start and negotiate what you can actually do. The product line should have had canned demos so even a sales rep could do it.

Off the history thread- product lines

Ken Olsen often made his point with a story and when described how decided to explain when and how he created the product line organization. He recounted his split with co-founder Harlan Anderson. According to Ken, Harlan was in charge of the PDP 6 project and it was not going well. The first customer installation was in Perth. Now Ken would say if you drill a hole through the earth from Maynard you do not end up in China, you end up in Perth. Perth was the city furthest from Maynard. It was impossible to support. So when Harlan came into Ken's office and said you have a problem with your PDP 6, Ken reply, paraphrasing, if it's my problem then you don't have a job. The consequence was that each product manager had P and L responsibility. They also had the freedom to make the decisions to make the P & L goals. I don't know what the product lines were then but I guess it was the PDP 6, PDP 7/9, PDP 8, and the module business.

Back on the history thread

The sales folks in the Albuquerque office kept turning over with periods that had no one except me and Don. I became more and more involved in the presales side and really didn't have much call for post-sales support. Further, if I got into the presales I had even fewer post-sales issues.

Probably the most useful post-sales activity was showing how FOCAL could be modified to connect to various devices such as A to D converters. When the PDP 11 arrived I did the same with BASIC.

Cecil Kimberly joined the office as the only sales rep but he was assigned to the module line. There wasn't really any market for the modules in New Mexico and so he got more involved with the computer lines and I helped him in his sales. Later I would describe the situation where a customer would see Sales Engineers equivalent to lairs and Software Specialists as trustworthy nerds. I can't take credit for that as I first heard it in the only good sales course I took.

Once Don brought me into his office and said I was going to be a sales rep. My account was Los Alamos National Labs. This was not good news to me. My experience with sales had been bad. I hated pushing candy on neighbors for scouts or teams. I love being a paperboy but not recruiting new customers. To me, it was begging. Also what would I tell my Dad? It would be like a girl stating she going to be a streetwalker. No, I was not happy. It turned out to be one of the most important and fortunate events in my life.

Reflecting, I was already selling but didn't think of it that way. Also, I still had software support responsibilities in addition. And, when I left the branch to go to corporate, I could do so only if I found my replacement for both the sales and the software positions. Fortunately, It was allowed to find two people. It was just part of the DEC culture.

DEC had some physics PhDs in the PDP 15 product line. When you have a corporate sales force interacting with a decentralized product line who provide the funding for the staff it gets a bit complicated. Ideally, each branch would have a dedicated sales representative. But small offices couldn't have that big a staff and startup product lines like in the case of the PDP 11 didn't have the money to staff sales. Product lines like the modules had a lot of money but the market was shrinking as integrated circuits changed how electronics were designed. As I stated, it was complicated.

One of the physics guys made me aware of a major procurement of mini-computers that was going to happen at the lab. It was at the new meson accelerator facility. But, that would have a major impact on the entire physics market because it would standardize on the manufacturer for the entire physics research community.

There wasn't any way that the Los Alamos committee would buy a PDP 15 because of its cost and old architecture. It was an ungraded PDP 1. The market had gone over to 16-bit machines and DEC had just introduced the PDP 11. As an ex-programmer, I loved the PDP 11 and consumed any information available on it. For an assembly language programmer, it was a dream machine.

However, the decision-makers were EE s and not programmers and so that it was great to program, carried little weight with the lab engineers The same was true in Maynard. Further, the PDP 11 didn't

provide much sales funding. So to get the physics guys to come out could be an issue except it was DEC. Do the right thing and figure out how to get it done. They came but to no avail. They did meet with the committee out of courtesy but without me. I knew they were not interested in DEC. They had decided on Data General.

Then the whole thing got worse. I got a note from DECUS the user group that one of the Los Alamos Committee members wanted to drop out of Decus as a member because he wasn't going to be using DEC computers. The contest was rigid and just a required exercise.

I walked into Cecil Kimberly office and showed him the note. He felt bad for me. Then I asked Cecil what if I call the chair of the committee and apologize to him for failing to provide the information he needs in the selection process. I knew if I waited for the selection and protested that I would only burn bridges and probably not end up with the sale. If we did prevail we would have some very unhappy customer with influence in the industry. I really had nothing to lose.

So I called and he said that a decision had not been made. Access to the committee and the necessary arguments of why we're the best happened. We were chosen. It was good for the labs because they bought into a software-compatible family that lasted for generations unlike DG who's simple architecture became obsolete. When I told Don he didn't seem to understand the implications of that sale. Our Physics supporters like John Mucci did and I thanked them.

Did the DEC culture help. I think so. It was a make-it-happen culture and supported risk-taker. There is much more to this and other field experiences but my purpose is to portray the DEC culture and what made it work. After a couple of years, I had become a different person. For one I loved sales and going over to the dark side.

As a side note, I left for Maynard shortly after that. Cecil got the credit but I probably wouldn't have anyway as I wasn't an official sales rep in the eyes of the company and the office had to sort out my quotes which were blessed by the PDP 11 product line but didn't match up with the official order process. I bundled everything in the quote. They never asked of help. Later I officially created bundled order numbers.

Through my eyes the DEC Experience III- Corporate days

While in Albuquerque and during the Los Alamos situation I was talking to Jim Davis who had moved over to PDP 11 marketing. One day he asked if I would like if would like to join PDP 11 product line. My response was instant, yes. He then apparently turned his head and I heard him say "Anundson is coming".

I recruited my replacements who were Mark Roberts as the software guy and Dale (?), who was from a competitor. as the sales rep. Mark worked his way up the corporate ladder later. I told Mark who had

programmed our machines that when he went for training, meet as many support folks as you can. You will need them.

My new boss was Don Alussic and we couldn't be more different in approaching an issue. I was assigned to the planning and product marketing side as opposed to sales support which I was more suited I thought. Don never had enough data to make a decision where I might be too fast on making those same decisions. Since then I would say indecision is a decision just a bad one, or by the time you have all the data it's too late.

Anyway, he indicated he was not happy with me and I understand why. Somehow however I didn't interface with him much but more with his boss Julius Marcus. I'm not sure how many we had in my group or who belongs to which group. There was Nat T but he was tied up in coding RSTS that was one of the most successful systems in those days and he did it by himself while at odds with the programming department. It was an amazing achievement. Another was Peter who I guess was in sales support and Demetric a copywriter who did handbooks.

My first job was to get a brochure created for the new operating system, DOS. By now you must know I had not done this before but that was DEC. I went to the advertising department and got assigned a copywriter and graphics artist. I pretty much knew what I want it to contain and so it went pretty smooth. The graphic artist had a new idea of using some colored paper, pineapple yellow and green text that he thought would be great. Now I had zero marketing experience or education. I was a technical nerd and didn't care one way or the other. Brochures up to that point had an ordinary picture of the product on the cover but this was software so there was no picture that could fit. I don't remember getting approval for either the text or the graphics. So we printed 5,000 copies at a buck a copy. This was early 1979s dollars.

When the copies arrived I proudly present one to Marc, Marcus nickname. His eyes pop and his face when ashen. He looked at my and said if Andy Knowles sees this you will be fired. I guess pineapple yellow wasn't his favorite colored. I immediately went back to the ad department and demand a new brochure that was traditional. They hurriedly produced it and spent another \$5,000. The extra \$ 5,000 never came up.

That weekend I went to the place where they stored things like brochures. The yellow ones were in a fenced area using chicken wire and that fence was about 7' high. I climbed over the fence and threw all the yellow copies over. I then put them in a dumpster except one which I still have. See how the culture worked.

Then another event worth describing is forecasting a new platter disk drive called the RKO5 which was replacing an OEM or purchased product the RKO3. We sold only about 20 RKO3 a month because they were expensive. The RKO5 build cost was significantly cheaper. As I recall, Ken wanted to price

the controller and disk drive for \$6,500 which was way below competitors. But Andy Knowles was the product manager and we priced it over \$10k. He was responsible for P&L and had the final say.

Marc asked to work up a forecast. I went back to my cubical and thought. I hadn't the slight idea on how to forecast anything. He was the experienced marketing guy. Why shouldn't I ask for help. So I did. Marc looked at me and said, "if you can't forecast I will find someone who can.". Oops.

So I thought about what makes sense and researched other products' history and current forecast. I didn't forecast using some of the industry studies because I didn't know about them. Armed with data I went back to Marc forecasting 60 units a month. Without looking at the data or even caring about he thought 75 was more reasonable. Boy, were we wrong. In six months we were doing 750 units a month.

What happened? Well, history didn't have the operating systems of DOS, RT 11, RSX, and RSTS. Minicomputers in general were growing fast. The DEC tapes the disks replaced were also expensive. History data can't predict those impacts and the forecast from the other products were probably using the same data as I did.

Again a lesson. Sometimes nobody knows how to forecast very well. Marc's attitude toward me reflected the culture at least in the PDP 11 product line. You are given a job, figure it out. That attitude comes from at least Andy Knowles level if not Ken.

Another departure from the history thread

I want to write about the physical environment. We were in an old woolen mill where they even brought in sheep to shear them. In some areas the floorboards were soaked with lanolin. If there was a floor below the ceiling paint didn't stick and would flake off and fall on the desktops below. In the summertime it was hot and DEC used window air conditioners not a centralized system. Floors were not level and passing from one building to another required going up or downstairs.

We were in building 5 and I think floor 3 or maybe 2. Since the building had a hill right next to it there was a loading dock on a floor above and the forklifts would drive over us bending the boards. In other words, the working conditions were awful by most peoples standards. Some of the finest products were designed under that loading dock.

Nobody cared much though because they loved what they were doing and who they were working for.

In retrospect anyone who cared about fancy building and stuff like that would never join DEC. It only attracted those who love the work. When new buildings were built no one wanted to move in. Product lines were forced into the new buildings. Of course, no one except Bob Lane wore expensive suits and the dress code was set by Ken, rumpled with black socks half pulled up.

Back to the history thread

I worked long hours then. Not because I had a lot to do but because Marc wanted me to stay in case he had something for me to do. This put a strain on my marriage because we had a new son and Gail wanted to have adult interaction. But she only got a worn-out husband that wanted to recover quietly. But we got through it.

One day Peter dropped by and asked how would I like to go to Europe. Sure I said. He couldn't go so I would take his place. He had one favor to ask. He was obligated to give a lesson on some communication software at Trondheim University in Norway. He would supply me with all the material I would need.

So I lugged a bunch of manual around trying to learn then teach this class. The trip was grueling flying from city to city at night and working with sales either updating them on products or helping make calls. The last place was Trondheim. By then I had determine that I could not figure out the software product and over the weekend before the class I called the lead engineer to get help. The first thing he said was the manuals were wrong. We spent hours long distance getting something together for the class. Even with that, the class was a disaster but the attendees and sales rep were nice. They were Norwegians. I was very upset at what happened.

Yes DEC did have some duds and that software product was one of them. It soon disappeared.

Not long after someone asked if I would like to go to Europe and I said no. They were surprised and I said if I can fly during the day instead of night I would do it. They agree and that was less grueling but was no way of visiting Europe. It was hard work.

During this time we were upgrading the PDP-11/20 to newer technology and it started out as the 11/25. But the 5 usually meant it was an OEM product, not an end user product. Despite large discounts, the OEM business was much more profitable than the end-user market. A lower-cost model had been developed and it was called the 11/05 and the end-user product of the same product was called an 11/10 with a high list price. The difference was the bezel.

A high-end product, the 11/45, had also been developed using bipolar technology and was fast but expensive,. It had a hardware floating point option. It was a hit as was the 05.

Our product was to be in the middle of both performances using CMOS instead of BIPOLAR but faster and more expandable than the 05.

Calling the new computer an 11/30 was not an option as IBM already used that model number on their small computer. So I chose to call it 11/40.

The lead engineer, Jim(?) O'Laughland (sp?) had a problem. The normal box housing and power supply were costly. The 11/45 came in a standard NEMA rack and used cheap angle iron to attach the back-plane, front panels and power supplies. Since vast majority of customers used the racks, I decided to use 11/45 system but with one power supply instead of three. It allowed much more aggressive pricing and better margins.

Then another issue came up. HP announced a hardware floating-point processor for \$2500. Jim said a CMOS version of the 11/45 floating point option would cost about \$2500 to build. However, if we used firmware it would cost \$250. But to use a firmware version it would be incompatible with the 11/45. However if we designed it to work from a software perspective like the non hardware version used by FORTRAN and BASIC, it would result in cutting the loading of registers and unloading to near zero. But, that meant the our software language programmers would have to have two versions, an 11/40 version and an 11/45 version to support.

We simply couldn't afford hardware compatibility so we went with the firmware. Naturally I updated Marc and Andy of my decisions and they didn't have a problem with it. The programming department did but understood. Only customers who would have a problem were when they programmed in assembly language. The option cost \$250 and we priced it at \$2.500. It was fast in FORTRAN and BASIC programs and profitable.

On another trip to Europe I was to go with Marc. But Jim Davis showed up instead. Apparently something had come up and so Jim was the substitute. That something was a major reorganization. The product lines were now based on markets not products. There was no PDP-11 product line. Some of the European party got calls and offers but I did not.

When I got back I was told I'd have to find a position. I interviewed for a position as the software specialist manager in France but that made no sense. I didn't speak French. Marc contacted Roger Cady on my behalf who was in charge of PDP 11 engineering and who had agreed to head up an internal marketing group to create a unified product program across all the new "product" lines. We would create product brochures and booklets for the PDP 11/40 and the peripherals. Things were getting more complicated.

This worked well until Roger got resigned to fix major problems in manufacturing in Springfield and I had to find a new boss. Ed Kramer agreed to be my boss. Unfortunately, my funding didn't follow me and Ed got stuck with an unexpected expense.

The VT50/52

Then Marc came by and said that Tom Stockebrand was starting a new project to create a video terminal and Marc had recommend me as a marketer. Stan Olsen, Ken's brother, was the force behind the project.

I talked to Tom and I agreed to join the team. I found a replacement for my central marketing group and inform Ed Kramer that I wanted to move over to Tom's group and had found my replacement who Ed knew well.

Tom was the most unique person I have ever known. He was brilliant and inventive. His interpersonal style was very different. He was loud, emotional, never angry, kind but put many people off. Often he would come very close to talk to you. He was always questioning and had many interests.

He invented DEC tape which was an amazing design far ahead of its time. Before low cost disk DEC used DEC tapes for loading programs and storing data. You often see it in pictures from the 60s and 70s. But its creation is another story.

Stan Olsen was a curious person. He did not come across as very impressive unlike his brother. But he was responsible for many of the things that helped create DEC. His vision was that video terminals would be important. DEC had one, the VT05 . It didn't sell well and was kind of awkward to use requiring a return and line feed to type. It also didn't have any editor to take advantage of a video versus a teletype. It was expensive, heavy, glass teletype that wouldn't fit on a typewriter stand.

My goal was to replace the teletype that was console terminal with all of our computers. I also thought it had to be priced close to the teletype price but with decent margins. As I remember we paid almost as much as we what we sold the teletypes at. The margins were the worse of all of our products. Teletypes were slow but provided a keyboard, hardcopy and an input/output in the form a paper tape. That hardcopy as was my biggest worry.

Stan just wanted a simple cheap video terminal. A couple of great inventors and my concerns were probably asking for trouble. As we discussed the features and requirements things began to form. For example, it had to sit on a typewriter stand. The VT05 had to be on a desk which I thought it made it uncomfortable to type. Also we should have some kind of low cost hard copy alternative. It didn't have to be special as the teletype hard copy was crude such upper case only making it useless for documents.

At the time transmission rates were slow. The teletype was 10 characters a second. 9,600 baud was fastest the computer port could handle and that was easy to achieve with a video terminal.

Tom was great because he listened, challenged, and respected my input. I was always intimidated by the level of intelligence of my fellow workers. I couldn't believe at times a B minus BS math major was accepted by them. This made me a little hesitant to criticize when things were going south.

Tom said with an injection molded cabinet made space cheap in production but expensive to tool. Tom and I thought the cabinet could be large enough to house a computer with little impact on the terminal only costs. Tom being a EE thought the PDP 8 and I the PDP 11 could become a desktop computer.

Also Tom thought we might be able to eliminate a fan with enough room and use phenolic circuit boards instead of the regular boards used to save space. Since the keyboard would extend the cabinet past the 12-inch monitor why not provide space for a couple of cassettes.

Tom had a solution for hardcopy as well. Use the video scan electronics slowed down to print on paper. This hardcopy would be my biggest failure. There were three possible hardcopy paper technologies. One was a coated paper where coating could be burn off, Thermal paper that would change color with heat, and wet paper with a solution that allows the paper to be plated black. The first had a problem with giving off gas that wasn't good for people. Thermal paper faded pretty quickly and not good for archiving although popular as a cheap printer solution then. The last was used in aviation for weather printouts and charts. The wet paper was messy. Keep in mind the teletype quality is what we were aiming at.

I eliminated the coated paper off the bat. Then I made the mistake and chose the wet paper thinking archiving was more important than messy. It was the biggest lifetime mistake in my product feature selection.

Another engineer, Russ Donne, was equal to Tom in inventiveness and solution suggestions . He was also the architect for the terminal. Russ had dropped out of MIT because he wasn't learning anything. In other words, he was super smart like Tom.

I am and have been a cheapskate and was obsessed with competing with Teletype on price. Russ tried his best to keep the cost down but every time I turned around he had a choice on cost versus feature. One of the big items was the keyboards. They were expensive.

At the same time as we doing a video terminal, another group was doing a teletype replacement with dot-matrix technology, the LA36. It could type at 30 second per second. One their engineers had invented a new keyboard technology that could greatly reduce the price. But it was untried and his boss wanted nothing to do with it.

That group had selected a keyboard and we used it. That kind Of blew any chance of getting to the cost I was hoping for. Also, we had to have a fan. At least it was quiet. Phenolic didn't work out either.

So we came to the point that a bare minimum configuration probably would not sell that well but might address the price issue in a sales situation and a path to a properly featured video terminal and competitive to the current video terminals on the market. So we decided on two models, the VT50 with 10 lines of upper case only which made it a glass teletype and the VT52 with 24 lines upper and lower case making it what most would want.

Another issue was that we weren't meeting our schedule. The injection molding was taking time and Tom suggested an interim solution. It was rough-looking but functional. Another mistake because

internal criticism led to problems downstream. I should have waited for the injection molding.

In retrospect the concept was great. A four card back-plane could fit in the bottom allowing plenty of room for a computer. The printer turned out to be cheap but no one want to deal with wet paper. I, again, should have picked thermal. The terminal cost was probably as low as anyone in the industry.

Also, like the RK05 I didn't understand the things that would change for the good that benefited video terminals. Time-sharing was expanding and computers were using standalone printers eliminating the console terminal providing that function. This meant that the whole printer thing wasn't that important.

The software operating systems were a major part of that expansion and so did the video-oriented editor of which Ken Fine did one of the first.

Although internally the VT50 was criticized the two model concept model worked as plan and I used that same concept at Tektronix later on. The VT52 met my forecast with good margins and set a new industry standard until the next model the VT100 expanded that.

That DEC shipped millions of VTs that really started with the VT52 and makes me really happy.

One other culture-related experience was taking a Columbia University week-long course for marketing managers. I had been in marketing now for a couple years and didn't know anything from an academic perspective. When I got there I was probably the lowest level of any of the attendees. One other guy was around my age the rest were minimally in their forties and at high levels in fortune 500 companies such GM and AT&T.

Frankly I didn't get much out it. The instructor talked a lot about formal missions, goals, strategies. In the end, he concluded all of this was vital to success. At the end, I told him I was from DEC and we were one of the fastest-growing companies in the US. We did none of what he taught at least in a formal sense. He smiled and said the right time, the right place, and luck.

But retrospect we didn't need that kind of formality because our situation was so clear to everyone. We were driven by a very competitive market, had knowledge of the changes in the technology and markets, the desire to build great products, and who our customers were. Our opportunities seemed boundless but so was it for our competitors.

My personal biggest regret, leaving the engineering group

Another reorganization or maybe expansion took place. Someone came up with the idea DEC should come up with a high volume group modeled like a distributor to retail thing. Andy Knowles was to head this up and his Sales Manager was Al Micheals. Al was kind of a tough guy who was the west

coast sales manager when I was in Albuquerque. He came out to New Mexico once and made sure we knew he was important and as consequence obeyed. Andy was out of the same mold. A corporate bully although I respected Andy a lot and used some his of approaches to issues such as being focused on the business and being direct and to the point. One time Andy threaten to fire me.

Few products fit that scenario, the LA36, the VT50/52, and PDP 11 LSI board module. Andy brought in an old RCA friend to help, Bill Charmlers. He had been in WWII so for me he was old. Somehow Bill discovered me and I'd like to think it was from Andy. He approached me to join them but I told him I wasn't interested. On the other hand I was getting nervous with the schedule delays and cost increases and wondering if we had a viable product. So I wanted the product and the group to succeed. I just didn't like Al who was actually a couple of years younger than me but looked 50.

Bill asked me to at least talk to Al and arranged a meeting which included Andy. I basically told them the kind of decision freedom I had in the past at DEC. I wouldn't back off and eventually Al backed off to Bill's amazement. If he had instructions it was through Bill who was easy to work with because he had no experience in our industry so I had an edge.

I told him that I needed to talk this over with Tom and he persuaded me to just to tell Tom this is what I am going to do. This has been one of the greatest regrets in my life. DEC culture? I think part of that. But maybe not because I did the same thing years later.

Apparently Tom took a lot of flack from others about the VT50s series and I wasn't there to help him.

The new group set up shop in an acquired building that once was the RCA computer operation. It was slow but now I recognize that should been expected. I suggested a new group get an 800 number. Bill didn't know what that was.

Then I got the worse call in my life. My dad had lung cancer. Compounding that my mom had been in a mental hospital although she was home at the call. The next day I went to Bill and told him I had to go back to Portland and would love to stay with DEC even as a sales rep. He was great and Al and him got me a sales job there. One condition was that I stay for a couple of months which I did.

Back to carry a bag

I'm not going through those sales years which for the most part great except for a couple of things.

Often we had to communicate with Maynard and since I knew everyone, I knew who to call when I need help from the home office and they knew me, I got great support. That was a great asset. If I called I usually did it from my bed after I woke up. No one in Maynard was expecting a call from the west coast then and I got though immediately.

The customer who didn't want our rack and programmed in assembly language using the 11/40 floating-point turned out to be Tektronix, my customer. One day Pate Mackie, my contact, said he would love to meet the person who decided to require buying DEC racks with the 11/40 because they had deeper racks and ended selling ours, and not making the floating-point compatible with the 11/45. That person got his message but I did tell him it was me not even two years ago when it appears he was on his way out. We were great friends and I worked for him a couple of time.

While I was in Denver as a sales manager I got a call from Gordon Bell. He said he respected me and wanted my opinion on the new VAX 780. He said their sales weren't meeting expectations and had they made a mistake. I had an early customer who was overjoyed with 780. I told him it was not a mistake and in fact a great product. But new products like it took time. Budgets have to made, evaluations are sometimes needed but it going to be a great success. His call will always be cherished by me because he is one of the greats of the industry and a lovely man.

I left DEC in 1980 and went to Tektronix. There were two primary reasons. DEC manufacturing was a mess because the 780 took off way beyond forecast and the order process was a huge mess. Delays were the norm and not by weeks but by months. Customers were very angry and spent a huge amount of time trying to work the problem. I knew how to fix the order process system but found no interest in my willingness to help. I dreaded going to work every day,. disappointing my reports and their customers.

The second was the culture had changed. The suits were taking over and some of the people such as Jack Shields were being in positions they were ill-suited. Leaving felt like a divorce. I was sad, I was angry, and I was now worthless to DEC. I couldn't make a fix happen.

Final thought

I joined DEC after they achieved \$60 million and left after they had revenues in the billions. I met truly wonderful and amazing people. DEC for better or worse molded the rest of my life. It was the luckiest thing outside of marrying my wife that ever happened to me.