

There is a selection phenomena - you can't do this today, so nobody is used to it. The general analogy to DEC and VAX is good for this - as people start using Win 32 for more and more things and things like this will happen.

Of course, accounts don't have to switch their servers today. They can wait. The good thing is that Microsoft is saying that it will all come together, and hey, those Tandem and SGI and KSR guys seem to be signing up and... Part of the issue here is offering them the vision for the long run - they can take advantage of it as they want to.

5. when will our win32 for the server be mature? in the sense of providing all the connectivity and other services req'd for the enterprise wide computing platform. true we will ship within a couple of years but I bet its 3-5 years before the additional gateways/routers/bridges etc. get done to make this a really good story.

so, it probably isn't true that one os will meet all your needs. it may be true conceptually but I wouldn't overpromise.

There are several issues:

- When is the Win 32 world up and running by itself? This means when can I create a whole Win 32 based solution. I think that this is pretty close. Part of the whole idea is that Win 32 - to Win 32 connections are easy.
- Then will you be able to connect to everything else? This takes longer, but it is not that bad because we will inherit stuff from Dos, Win and OS/2.
- Remember that connectivity to Win 32 is not a new problem - it is the same as connecting to Windows at all. We and others have to solve that problem no matter what. The good news is that solving it will handle more than just desktops.

The real issue is that this is the ONLY approach which has ANY HOPE of offering the customer a scalable solution across the whole line. None of the others could possibly do this. I think that properly done, customers will be able to appreciate this as a concept now, and that every little bit we do to bolster it (OEM deals, release of NT, Win-N etc) will make it more and more credible.

Nathan

From nathanm Wed May 15 13:59:27 1991
To: robg
Cc: aarong alanawo billyg karenh
Record-folder: C:\NATHANM\FOLDERS\WSENT.FLD
Subject: Fluent Machines
Date: Mon Mar 16 11:22:37 PDT 1992

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Mon Mar 16 11:18:50 1992Page: 37

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Comes V. Microsoft

organizational structure!

We should talk about this. What did you think of the memo on the research group?

If you want to do this separately, that is fine with me, or we would be happy to have you.

Nathan

From nathanm Fri May 17 19:50:56 1991
To: billg
Cc: aarong karenh
Record-folder: C:\NATHANM\FOLDERS\WSENT.FLD
Subject: ATBD & "PCs beyond the desktop"
Date: Mon Mar 16 11:25:12 PDT 1992

I was very interested in your recent memo on PCs that aren't PCs. I will send some technical feedback on the memo to a wider group, but I also wanted to discuss the issue of what group takes the lead here - in particular, I think that it makes a lot of sense to lead this from ATBD.

First, some background...

(note that the strategy and thinking on this is joint work with Karen)

We have recently focussed on Research, and I am very excited about this. Gordon Bell will be here monday and tuesday to meet with Karen and I to get a detailed plan going on finding a director of research and then getting some more key researchers.

Nevertheless, this is NOT all that is going on in the group - it just happens to be the first one we have tackled. If you recall, our headcount plan is roughly:

30 for Research.
15 for Efax.
20 for Technology projects.

Research you know about.

We will discuss Efax in an upcoming meeting. You should have a couple of thick memos on the document strategy, architecture and compression methods. In addition Karen is working on a plan for what it will take to carry out the work in the next year to make the project a reality. This will include how we want to spend those heads.

Technology projects is the area that has had least attention in terms of communicating a plan to you, and in the normal course of things we would have

done this after Efax. (actually, the "90 Directions" memo we did last year mentioned this quite a bit, but recently we have not.).

Our group has had a long history of doing things which required a lot of business and strategic content in addition to technology - RISC, chip architecture, fonts, color, 3D graphics etc. This has often required development activities- we ran simulations, contributed instructions to the 486 and N10, evaluated lots of code etc.

A principle goal of technology projects is to build on that and do advanced development work, strategy and business deals & partnerships. (note that we would also do some other things within that headcount - university funding programs etc.) A couple of the areas that we have specifically targetted are HDTV, Embedded PCs and "special purpose personal computers" which include the "keyboardless/diskless" PCs you mentioned in your memo.

The difference between tech projects and research is that the former:

- Involves outside companies and partners/customers directly.
- Requires personel and leadership who are familiar with business, strategy, salesmanship and negotiation. We can't do this work with a bunch of professors and techies (but research could). There will be developers of course, but that is only part of it.
- Is usually "advanced development" work utilizing new technology, rather than trying to invent something entirely new. This is a somewhat hazy distinction to make, but I think it is real. Doing an HDTV operating system may stretch our knowledge of OS design to the limit, but I think that it falls into adv dev rather than true research.
- The "deliverables" from research were discussed in the research memo. Tech projects has a different set, including making a product or prototype, creating partnerships, and starting new products or businesses for us.

Basically, research are "introverts" that work on solving hard problems which we think are valuable to our strategy. Tech projects are "extroverts" that work with the outside world and formulate our strategy in new high technology content areas.

The EFAX project is an example of something that started in this manner and which we hope will move on to be a full fledged project which delivers a product.

The reason to do this sort of thing in ATBD is:

- We are good at it.
- There is a set of topics which do not exactly fit elsewhere. It makes sense

to pass something like the SGI code off to NT since they are going to integrate it with the rest of their product, but in the case of a very new business, where should it go?

- There is a huge interplay between technology and strategy. It is very hard to take an embrionic area and shape it into a new business without really understanding the technology.

- There is synergy in having the strategy in one place. We will get the biggest win if we can coordinate the specific projects with a general strategy of how we address related markets.

- Research will be involved at many stages, and a close connection is very useful. We will have research projects exploring hard problems in the "digital world". It is a nice complement to have advanced development and direct connections to industry in the same basic group.

- It is difficult to set the strategy from a distance. In the early stages of getting something like this going, there are a lot of tough issues. It would be difficult for us to drive the strategic thinking and have the project in another group.

Obviously there are problems with having it in ATBD as well. There are two principle ones that concern me:

- Bandwidth. We have always kept busy - sometimes too busy.

- Product and development issues. We have not historically had a lot of product development in the group, and we do not have an existing infrastructure for doing this. Much of the early work does not require this, but we we will need to ramp up to prototype and initial product phase.

On balance I believe that both of these can be solved. We have a good plan for staffing research and getting some senior people from outside. We will also need to get some very strong people for this task, and I think that we can solve both the bandwidth and product infrastructure issues in that manner. It will mean doing some very creative senior recruiting, but I have some ideas for this, and I think we can make it work.

We can discuss this more in another memo.

OK, that covers the general background. Here are some details specific to HDTV and PCs without keyboards (PWK for short).

There is a spectrum of possibilities for addressing this.

If you hadn't written this memo and raised the importance of this as a near term issue, we would have addressed this with the following "Low profile" plan:

- Start one project in HDTV, probably working with a key partner in the US and/or Japan. This would have a program manager and a couple of developers - we have some ideas on how to approach this intially,
- Start one PWK project. Of course Efax is a kind of PWK, but we are interested in one more like what you described in the memo. This would also be fairly low profile.
- I want to start some project with Sony - perhaps one of these, perhaps another one, but it is strategically a very good idea to build a relationship with Dr Yamada (the R&D guy that we met with last Japan trip). I would like to talk to Sony USA and Sony Software as well (I did follow up with JonL on this).
- There probably is a separate project that could be done in creating a real time OS which would be the basic substrate for this.

The "low profile" approach would initially put a program manager on each area and come back with a plan after a few months of investigation. We would also get some technical people and developers once it made some sense to do so. The process will be discussed in another memo.

Then there is the "medium profile" plan:

- Do the things in the low profile plan, but sooner and with higher priority and higher staffing.
- Possibly take a higher external profile on this. As an example, the MIT professor that talked to us about HDTV and networking etc mentioned how Sun had been active in tracking the HDTV politics, attending standards meetings, talking to the broadcast people. I am not proposing that we must necessarily follow suit, but there certainly is an opportunity to do so.
- Hire some senior technical expertise in this technology area.
- Make a point of meeting with key execs at partner companies (Sony, Matsushita, other japanese, people submitting proposals to the FCC).

Finally, there is the "high profile" plan which adds the following:

- Have a goal of starting one real advanced development project in each area - PWK and HDTV within the next 6 - 9 months. This might be something that is an actual product (see Bookman discussion below) or it could be to create a prototype. In the HDTV arena it is typical to create prototypes for things like FCC proposals, proof of concept etc. Sun is part of such a deal to make a prototype HDTV workstation.
- In the PWK area we might be able to make an initial product to "get our feet wet". A concrete example is the browser for the Sony Bookman.

- Hire some senior and experienced people to start creating the development infrastructure - for example, this might include getting a a business unit manager for one or more of these areas.

There are obviously a continuum of ideas here and this email is not going to substitute for a real plan. We have thought about this a bit and we can come up with a plan, or a menu of options to discuss with you.

Why not do it in another group? Here are some points:

- Multimedia systems has settled on a strategy which is very focussed and has a very specific and concrete definition (MPC etc). This is not actually very similar to either PWK machines (for the reasons you point out - no color, tiny screen, CD ROM not central) or the HDTV machines (different compression, high end graphics...). I think that MMsys should concentrate on making the MPC standard a success, and neither one of the machines you mention is going to be an MPC.

Also, to be quite frank, I think that the MPC versus CD-I thing and the particular business partners we have for MPC are not particularly conducive for doing this. They are largely computer companies moving toward consumer electronics rather than the other way around. I think that we can more easily co-opt Sony and perhaps even Philips if we approach from a less confrontive angle.

- Pen Windows is also quite different. I love Pen W, but their unique selling proposition is "it's just like the desktop" - a small increment beyond Windows today. This is great for laptops without keyboards. Both the PWK machine and the HDTV are quite different however. We want leverage with Windows and our scalable OS strategy, but we might have to make them quite different from Windows today. It would weaken our near term Pen message to concede that we need Go-like features for the PWK (auto layout, tiny screens, different look & feel).

Also, the Pen OEMs are again largely PC companies moving down. We probably want to explicitly try to appeal to consumer companies (Sony, Sharp...) instead - if we are going to succeed at this we need to build up credibility and relationships with a new constituency rather than selling new stuff to our same old customer base (which is basically what MPC and Pen Windows are all about).

- MMpubs would require a lot more technical leadership to do either of these. Greg Riker is super interested in PWK, and might be a good person to have work in this area, but not in his present situation. Also, CD ROM is not the sine qua non of the new machines.

- The Windows and NT groups are pretty busy with other things, and I do not see a lot of leverage in having them do this.

- I would say the same for apps. Pen Windows started from thinking about doing apps for palmtops, but this opportunity alone should keep them busy for a while. In both the PWK and HDTV markets applications third party apps will be important, but it is hard to think about this until the machines and operating environments themselves are thought through a bit more - the applications s are a "second order vision" at this stage.

- Finally, we could start a new group - hire somebody to lead a new business unit or division - either as a GM or a new VP. This is actually a very interesting idea. If we want to do this I would propose that the best way to implement this would be to hire the person into ATBD initially and work through the strategy here. The reason is that I believe we would have a lot to contribute.

This may sound very arrogant - I don't mean it that way. I think that finding a good manager and leader for the ongoing development is a lot easier than finding somebody who can do BOTH the ongoing management and also create the strategy from scratch (including the technical understanding etc). I don't think that this area is like Consulting - where the field is established and you can go get a guy like Bob McDowell who knows the ropes to set it all up. There is no good existing model, and it is very tricky - blending all of the issues from the consumer electronics market with the computer industry. I think that your memo defines a very good strategy at a high level, but there is a range of problems where we could help.

Finally, I want to say that we are very flexible here. There are advantages to doing this in ATBD, but I also recognize that there are disadvantages, and we may decide to do one or both of these elsewhere. Both Karen and I want to cooperate with whatever form this takes in the company.

Nathan

From nathanm Fri May 17 22:49:55 1991

To: aarong bradsi cameronm charlesf chrissm daveco gregs griker jeffr
jeremybu jimall joachimk jonl karenh lloydfr makon marline mikehal
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Record-folder: C:\NATHANM\FOLDERS\WSENT.FLD

Subject: PCs that aren't PCs

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Bill's recent memo raises a number of very interesting issues. Here are some quick comments (more in a future memo).

First, there is an overall strategic point that is very important - we need to

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