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I N T E R O F F I C E   M E M O R A N D U M

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Subject: ARCHITECTURE AND SYSTEMS ENGINEERING

For most of history, Digital has been the best in CPU
architecture and software operating system architecture. This
has been one of the primary strengths of the Company. Because it
is so important, and because of our success, we have often
concentrated on them so intensively, we have been weak in
Corporate architecture and systems engineering as seen from the
customer and sales persons point of view.

It takes many things to make a complete product, and the CPU and
software system and their architectures are just part of the
complete architecture of the product the customer sees.

The grand concepts, designs and art that one reads about in
magazines on the architecture of buildings is the most exciting
and attracts most of the attention. More important, and perhaps
more time consuming and expensive, is the architecture to make
sure there are doors and hallways, stairs, plumbing, heating,
lighting, telephones, networking cables, food preparation,
rubbish removal, and on, and on, and on. When changes are made,
not only do the details have to be reworked, but the budget needs
to be recast to see if it is still profitable.

We had hoped the New Management System would teach engineering
managers to take responsibility for many of the architectural
details they have often overlooked.

We are now giving budgeting responsibility for all products, and,

in fact, all the details of all products to four marketing
groups. Being responsible for the overall architecture, from the
point of view of the customer and sales person, they are

responsible for making sure we have the right products, all the products we need, no more products than we need, and all the details, whether mundane or exciting that are necessary to deliver a complete operating solution to the sales person and the customer.

These marketing groups are in, one sense, the corporate architects. They do not optimize the CPU with its organization of memory, cache and buses, but they do make sure we have a complete, simple, inexpensive, easy to sell, easy to manage, easy to operate and easy to learn system from the customers point of view. They also make sure we always have products.

The four groups with corporate architecture responsibility are: Bill Johnson for the many industry marketing groups, Charlie Christ for the departmental and smaller business customers, Frank McCabe for Global Information Systems which includes mainframe computing, and Don Zereski for the telephone and catalogue ordering marketing groups. Don Zereski will not only be responsible for catalogue selling in the U.S., but will also be responsible for integrating the needs for catalogue sales throughout the world.

We say these groups are responsible for the Corporate architecture and for systems engineering. Corporate architecture means they not only have all the pieces available, but they are responsible to make sure every piece is available, every cost is planned, the pricing and delivery of systems is complete, and the sales person and the customer have complete literature. This involves much more than the operating system and the CPU because it also involves the physical packaging of the devices and how they fit together for easy integration at the customer site. It means they are modular so it takes fewer products to do the long list of jobs, and it means if Engineering proposes a change in chip or software, they are evaluated, and if approved, the whole Corporate plan is changed accordingly.

Corporate architecture also means the packaging and delivery of software which tends to be fragmented among engineering groups today.

Corporate architecture also means an organized, simplified, integrated approached to marketing all of our products rather than competing with each other.

When the Corporate architects see the cost of separate box design for every product, they will force the use of a small number of boxes for all products.

These marketing architecture groups also have responsibility for systems engineering. Systems engineering of a product means it is easy to put together. From a Corporate point of view, it means all the products use the same connectors, the same cables and are Field integrable without the need for special cables,

special devices and odds and ends. It means they fit together, and for every allowable range of products, the software is designed to plug in and work.

Systems engineering means we have all the pieces necessary for system integration in the networking area. It means we have all the hardware devices, the multi-protocol repeaters, routers and bridges. It also means if we commit to doing TCP/IP, we budget and schedule it, and get it done on time.

The software area, where the architecture is done by the software group, systems engineering means the Corporate architects have the responsibility to make sure all the pieces and all the software that is committed in the Corporate plan gets done. They own the budget, they do the reviews and there is no such thing as Engineering dropping something because a better idea comes along without the Corporate architect approving it and changing all of the plans to the Corporate level.

The catalogue selling group will define the PCs and workstations products they need. They will write the literature, do the marketing and selling, and develop the pricing model. They will contract with engineering and manufacturing to do what they need.

Of course, there will be interchange and cooperation in laying out the specifications, but only those products needed and paid for by the catalogue group will be built by the Corporation.

There will, of course, be some exceptions for specialized workstations. The Engineering Industry Group may want special units, Education may want different units designed specially for students and the Publishing group will undoubtedly want special workstations for their product line. In each case, they will have the budget, they will pay for it, and they have to justify the investment and return.

This also means commitments to Microsoft, NT, Apple, and NeXT have to be approved as part of the Corporate architecture as presented by the group responsible for them.

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