competitive update

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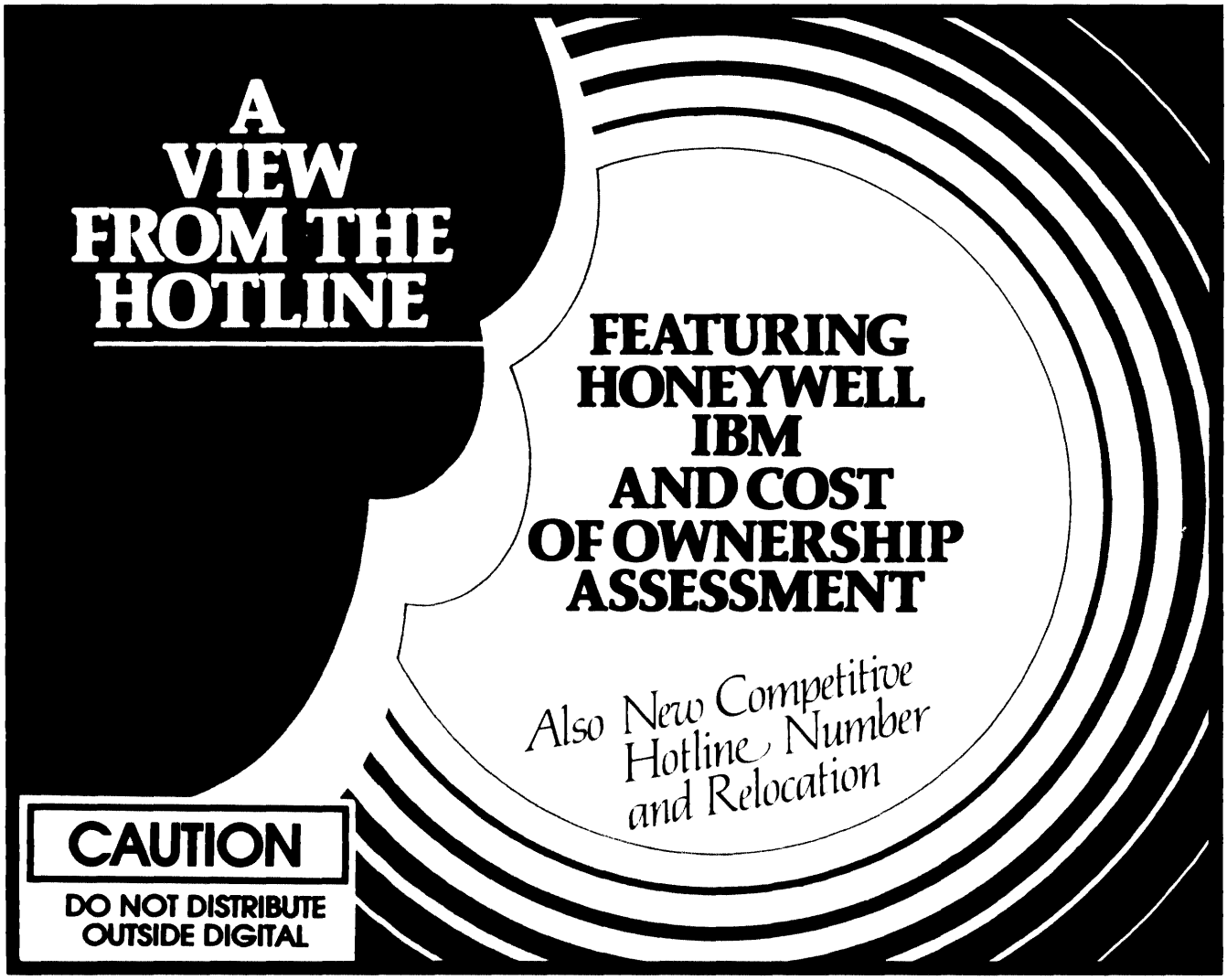

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competitive update

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COMPETITIVE HOTLINE

If you need competitive information, tactical suggestions or strategic assistance, please call DTN 296-4748 or (617)480-4748, the U.S. Competitive Support Hotline.

COMPETITIVE SUPPORT TEAM AND COMPETITIVE HOTLINE MOVE TO NEW LOCATION

Peter VK Parsons
DTN 296-4748
UPO1-4

- New Hotline number is DTN 296-4748 or (617) 480-4748
- New location for Competitive Support Team and Competitive Hotline Group is UPO1-4

The Competitive Support Team (CST) and the Competitive Hotline Group have moved to expanded facilities in Marlborough, Massachusetts.

COMPETITIVE HOTLINE

Our new location is Mt. Royal, UPO1-4 and we can be reached at the following numbers:

COMPETITIVE HOTLINE	DTN 296-4748 or
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The Competitive Support Team is chartered to help equip the field salesperson with timely strategic and tactical competitive information and consulting that will enable the sales representative to increase sales in targeted business accounts.

The benefits of working with the Competitive Support Team are:

- Improved qualification of prospects
- More realistic forecasts
- Shortened sales cycles
- Increased win rates

The Competitive Support Team can be a valuable asset to you in solidifying target opportunities. We can be reached at our new phone numbers: DTN 276-4748, (617) 480-4748 or (800) DEC-4748. In addition, the Competitive Support Team provides the following three reference sales tools to help you with your competitive account activities:

1) The Digital Competitive Handbook may contain many of the answers to your competitive questions. Before using the new Hotline number, consult Competitive Update because it contains all the written material generated by the Competitive Support Team.

2) Use the on-line competitive services. CIS is available via the ACCESS menu and provides the latest news on major competitors.

3) Finally, help is just a phone call away. Consult with the Competitive Support Team at our new phone numbers DTN 296-4748, (617) 480-4748 or (800) DEC-4748.

   The team is available from 9:00 A.M. to 5:00 P.M. EST. To increase your opportunity in targeted accounts, put the 260 years of competitive experience to work for you. CST guarantees a 24-hour response on all your IBM questions and a 48-hour response on all other major vendors.

GOOD SELLING!

HONEYWELL BULL SYSTEMS -- A COMPETITIVE POSITIONING

Alan Bertman
DTN 296-4748
UP01-4

- Honeywell, Bull and NEC attempt to position a unified product line
- Large, medium and small-scale systems positioning

Honeywell's recent ad campaign always advised customers that "together we will find the answers." Honeywell took its own advice and joined with two other companies.

After a few months of negotiations, Minneapolis-based Honeywell Inc. recently announced that its Information Systems business -- comprised of two groups based in Massachusetts and Arizona -- will become a separate company owned by three partners.

France's Compagnie des Machines Bull became the controlling partner of the new company. "Groupe Bull" and Honeywell will each own 42.5% of the new company and Japan's NEC will own 15%. Honeywell has the option to reduce its share in the new company to 19.9% by selling an additional 22.6% share to Groupe Bull in 1988.

The Billerica, Massachusetts-based Computer and Office Systems (SCOS) Group and the Phoenix, Arizona-based Large Computer Products (LCP) Division will be divided into Product Operations, Marketing and Planning Operations, and Sales and Service Units.

According to Jerome J. Meyer, Honeywell Bull president and chief executive officer, "Honeywell will be able to develop more departmental and network-based systems business by organizing along functional lines."

Honeywell also announced it will be closing down many of its Massachusetts offices. 2,500 of Honeywell's 6,000 Massachusetts-based employees will be affected by these moves. Honeywell is also in the process of combining manufacturing, engineering and marketing departments.

Honeywell officials hope the takeover by Groupe Bull and NEC will not just put an end to the questions about the future of Honeywell's computer business which, according to some industry analysts quoted in the Wall Street Journal, is lagging behind some of its competitors. The new company, which will be headquartered in Minneapolis, will attempt to draw upon the R&D strengths and worldwide marketing arms of Bull, NEC and Honeywell.

As a result of this major change, Honeywell will become a computer company rather than a division of a corporation that is also devoted to the controls, aerospace and defense industries. Longer term, this may or may not mean changes to Honeywell's product lines. Currently, Honeywell, Bull and NEC already market each other's products, which run on similar versions of the same operating system.

To help you position the VAX product set against Honeywell's product lines, this article should serve as a quick positioning tool, providing basic information about Honeywell's mainframes and minicomputers, and their performance.

HONEYWELL BULL PRODUCT FAMILY AT A GLANCE

LARGE-SCALE SYSTEMS

There are five models of DPS 8 which can be configured with up to six central processors.

DPS 8	MIPS	Memory (MB)	CPU Price	Monthly Maint.
DPS 8/47	.73-1.2	8-32	$153,000	$ 500
DPS 8/49	1.1-4.5	8-32	235,000	662
DPS 8/52	1.1-4.9	8-64	450,000	1,425
DPS 8/62	1.2-5.9	8-64	695,000	2,654
DPS 8/70	1.8-7.2	8-64	750,000	3,720

There are six models of DPS 88 which include single and dual processors.

DPS 88	MIPS	Memory (MB)	CPU Price	Monthly Maint.
DPS 88/861	5.4	32-64	$1,740,000	$3,600
DPS 88/862	9.72	32-128	2,775,000	4,320
DPS 88/862T*	9.72	64-128	3,475,000	5,760
DPS 88/891	14.6	32-64	2,675,000	5,355
DPS 88/892	26.3	32-128	3,810,000	6,345
DPS 88/892T*	26.3	64-128	4,510,000	7,785

*Indicates fully redundant systems suited for large, highly interactive environments where down time of the shortest duration can be extremely costly.

DPS 8 users who have outgrown the capabilities of this medium to large-scale processor line can upgrade directly to the DPS 88 or DPS 90 line without making major changes to applications software. The choice of which large-scale processor line to upgrade to depends on capacity planning needs. An upgrade from a DPS 8/70, the most powerful processor within the DPS 8 line, to the DPS 88 or 90 lines would involve a processor swap.

Generally, in apples-to-apples performance comparisons with IBM, Honeywell MIPS ratings tend to be smaller. Honeywell has been backing away from MIPS and cycle-time comparisons, contending that such comparisions are not a 'real' indicator of processor performance since application mix and processor architectures can vary so much. Honeywell strengths have focused around transaction processing while IBM focuses on batch processing performance. Honeywell maintains that its DPS 88 systems have performance levels in the interactive processing work loads that are competitive with the IBM 3090 models.

DPS 90	MIPS	Memory (MB)	CPU Price	Monthly Maint.
DPS 90/91	10.8	32-128	$3,959,000	$ 6,250
DPS 90/92	19.4	32-128	5,000,000	7,500
DPS 90/92T*	19.4	64-256	6,250,000	9,250
DPS 90/93	28	64-256	7,300,000	10,500
DPS 90/94	36.7	64-256	8,350,000	11,750

*Indicates fully redundant system

The DPS 90 is the most powerful processor series in the Honeywell line-up. It was developed through a joint agreement between Honeywell and NEC Corporation of Japan, and is largely based on NEC's S-1000 processor technology.

To make it possible to run the GCOS operationg system and GCOS-based applications, Honeywell had to modify the NEC S-1000-based processor, which the DPS 90 is based on, to make it compatible with other Honeywell peripherals and its communications systems. Honeywell systems operating under GCOS 8 can migrate to the DPS 90. These processors operate under an enhanced version of GCOS 8 and are software compatible with the DPS 8.

In addition to the DPS 90 Series, Honeywell Bull will continue its commitment to large-scale mainframes with the planned introduction of a DPS 90 follow-on line sometime in 1989-90. The new processors will be based on NEC S-2000 processors and are expected to be 3 to 3.5 times more powerful than the current DPS 90 line.

NEW DPS 8 FOLLOW-ON PRODUCTS

In the midst of a corporate reorganization, Honeywell Bull recently extended its DPS 8 product line by announcing the beginning of a small mainframe line. Originally publicized as a successor (now the company is saying it is

only a follow-on product) to its DPS 8 small mainframe family, the DPS 8000 has, according to the Gartner Group, created "considerable confusion."

When Honeywell Bull recently announced its DPS 8000, it claimed the "new hardware and software were major building blocks" in the evolution of a new 'master' plan to integrate computing resources at all levels of the organization.

First (according to the Gartner Group), the master plan is not complete and has not been presented to the Honeywell taskforce; second, the new DPS 8000 family includes only two models to replace the six-model DPS 8 family and raises the entry cost from $153,000 (DPS 8/47) to 675,000. The final issue is Honeywell Bull's uncertainty when (or if) the DPS 8 system would be withdrawn from sales.

DPS 8000	MIPS	Memory (MB)	CPU Price	Monthly Maint.
DPS 8000-81	3	16-128	$ 675,000	$ 850
DPS 8000-82	5.4	32-256	1,300,000	1,600

MEDIUM-SCALE SYSTEMS

The DPS 7 series, medium-size systems, were designed primarily to serve as either host processors or remote processors in a distributed environment. All DPS 7s operate the GCOS operating system. Since August 1987, Honeywell Bull has decided that new DPS 7s will no longer be actively marketed; but DPS 7 add-on products and upgrades will be available. The DPS 7000 now replaces the DPS 7 product family.

DPS 7	MIPS	Memory (MB)	CPU Price	Monthly Maint.
DPS 7/40E	.66	2-6	$ 89,000	$210
DPS 7/55E	.9	2-8	120,000	364
DPS 7/65	1.36	2-8	160,000	562

The DPS 7 used to fill the gap between Honeywell Bull's DPS 6 family and its large-scale processors.

DPS 7000

This recent product announcement by Honeywell Bull focuses on replacing the firm's six-year old DPS 7 family with systems aimed at IBM's 9370 departmental processors.

The DPS 7000 is intended to expand the use of the DPS 7's GCOS 7 operating system. And like the DPS 7, the five DPS 7000 models were built at the French plants of Honeywell Bull's controlling partner -- Compagnie des Machines Bull. It is important to note that the new release of the GCOS 7 operating system was designed for the DPS 7000 but runs on the DPS 7, and programs and peripherals used with the DPS 7 can be moved to the new systems.

Honeywell Bull also claims a price/performance edge over the IBM 9370, particularly in transaction processing. Transaction rates reportedly range from 9,000 to 52,000 transactions per hour on the TP/1 benchmark.

DPS 7000	MIPS	Memory (MB)	CPU Price*	Transactions per hour
Model 10	.65	4-16	$ 127,000	9,000
Model 20	.86	8-16	183,000	12,000
Model 30	1.6	8-16	324,000	22,000
Model 40	2.8	8-16	398,000	30,000
Model 50	3.8	16	551,000	52,000

*Price includes CPU, disk storage, tape drives, printers and front-end processor.

SMALL-SCALE SYSTEMS

DPS 6

Based on 16 and 32-bit architectures running the GCOS 6 Mod 400 operating system, this family of mini and superminicomputers is marketed as stand-alone or distributed processors in commercial and scientific data processing, office automation, information management (report writing and file inquiry), and transaction processing.

CPU	MIPS	Memory	CPU Price	Monthly Maint.
DPS 6/10	.16	128 KB-512 KB	$ 6,995	$ 800
DPS 6/22	.32	512 KB-1.7 MB	17,000	1,450
DPS 6/40	.4	512 KB-1 MB	27,000	1,700
DPS 6/42 and	.4	1-2 MB	19,300	1,425
6/42-1	.4	2-4 MB	24,300	1,625
DPS 6/45 and	.4	512 K-1 MB	20,000	1,200
6/45-1	.4	2-4 MB	27,500	1,650
DPS 6/70 and	.56	2 MB	30,500	2,100
6/70-1	.56	8 MB	30,500	2,100
DPS 6/75 and	.56	1-2 MB	35,000	3,500
6/75-1	.56	2-8 MB	36,000	2,800
DPS 6/78-1	.56	4-8 MB	52,000	3,800
DPS 6/85	1.2	2-4 MB	57,000	1,000
6/85-1	1.2	4-8 MB	62,000	4,850

CPU	MIPS	Memory	CPU Price	Monthly Maint.
DPS 6/95	1.8	2-4 MB	$ 80,000	$6,200
6/95-1	1.8	4-16 MB	86,000	5,700
6/95-2*	1.8	4-16 MB	126,000	7,120
DPS 6/98-1	1.8	4-16 MB	98,000	6,050
6/98-2*	1.8	4-14 MB	138,000	7,470

*Indicates dual-processor system

The 32-bit DPS 6 minicomputer series includes the DPS 6/85 through the DPS 6/98; the previously listed DPS 6 systems are 16-bit.

DPS 6 PLUS

Originally positioned by Honeywell product management as the systems to replace the DPS 6 (Computer Systems News, June 6, 1986), these new systems are not currently considered by Honeywell management as an effective replacement system for the DPS 6 series.

According to Chief Executive Officer Jerome Meyer, the DPS 6 "one of the mainstays of the Honeywell Bull line...will receive major enhancements next year." (Computerworld, September 21, 1987.) The widely installed DPS 6 series will receive a new high-end machine called the HRX, designed to run at an estimated 8 MIPS.

In effect, the two DPS 6 Plus models that Honeywell introduced can be considered replacements for the DPS 6 mid-range (6/42 through 6/78). These systems are designed to help protect Honeywell's 40,000 users' investments. Although the DPS 6 Plus systems run a different operating system (HVS 6 Plus) than their predecessors, the systems are designed to be software compatible with the DPS 6 Series at the application level. Because of the differences in architecture, the DPS 6 systems cannot be upgraded to the DPS 6 Plus systems.

CPU	MIPS	Memory (MB)	CPU Price	Monthly Maint.
Model 410	1-4	4-16	$57,000	$4,200
Model 420	1-4	8-64	93,000	5,100

Honeywell has positioned the DPS 6 Plus as a departmental system between the end user and the host mainframe. This system is their platform for office automation.

XPS-100

Normally producing systems with proprietary operating systems, Honeywell recently introduced a new family of UNIX System V-based computers that uses a 32-bit architecture. The XPS-100 series is targeted primarily for Honeywell's indirect sales channels, federal government customers and selected commercial markets. The series is comprised of the following three models:

CPU	MIPS	Memory (MB)	CPU Price	Monthly Maint.
X-10	.41-.56	.5-6.5	$ 7,475	$ 850
X-20	1.7-2.1	2-10	16,580	1,395
X-40	3.7	4-20	41,630	2,325

OPERATING SYSTEMS

Honeywell Bull currently markets six operating systems:

- GCOS 6 Mod 400
- HVS 6 Plus
- GCOS 7
- GCOS 8
- CP-6
- UNIX System V

They are charted below with their respective products.

CPU	Operating System
DPS 6	GCOS 6 Mod 400
DPS 6 Plus	HVS 6 Plus
DPS 7	GCOS 7
DPS 7000	GCOS 7
DPS 8	GCOS 8, CP-6
DPS 8000	GCOS 8
DPS 88	GCOS 8
DPS 90	GCOS 8
XPS-100	UNIX

Honeywell has always supported multiple operating systems and architectures. However, supporting multiple, incompatible operating systems can present potential problems for users who want to migrate to larger Honeywell Bull systems. Similarly, IBM has supported multiple operating systems and architectures.

Originally IBM charted this course in order to address the specific needs and operating requirements of users with different levels of experience and data processing needs. The IBM S/3X line, for example, is sold to small and medium-size businesses that are not large enough to take on the expense and complexity associated with IBM's System/370 architecture. By the same

instance, many of IBM's larger customers who maintain both System/3X and System/370 environments want the convenience of compatible operating environments to share files and applications. To address these needs, IBM announced a new architecture (Systems Application Architecture) that may eventully let users develop a consistent software interface, as well as portability of application software across IBM PCs, S/3X, 9370s and S/370 mainframes.

Unfortunately, Honeywell Bull does not have a similar plan in place to effectively unify the company's diverse architectures. A Honeywell Bull spokesperson has stated that "most of its medium-scale users have not needed to migrate to the larger operating environment (i.e., DPS 8, 88, 90)." Although, according to feedback on the Hotline, there have been sites that rapidly outgrew Honeywell Bull's medium-scale machines and needed to move up to a larger Honeywell Bull system.

DPS 7 and 7000 users cannot migrate applications to the larger GCOS 8 systems without substantial code rewriting and recompilation. The DPS 7 and 7000 are 32-bit EBCDIC architecture; the DPS 8, 8000, 88 and 90 are ASCII based. (One of the main reasons Honeywell designed the 7000 was to protect their installed mid-range customer base.)

Growing from one Honeywell family to another means an entirely new system; this translates into a considerable loss of investment for the customer. This does not take into account the additional costs in re-educating the MIS staff on a new operating system.

CP-6 OPERATING SYSTEM; HONEYWELL VULNERABILITY

Honeywell Bull recently announced that the next version of the CP-6 operating system (on the DPS 8) would be the last. In other words, the CP-6 operating system would no longer be enhanced or improved. Plans are already in place to close Honeywell's Los Angeles CP-6 development center. CP-6 users are the last of the remaining Xerox customer base that Honeywell 'picked-up' in early 1976. (CP-6 is a re-written version of the Xerox CP-5 operating system.)

Their real vulnerability lies in the fact that the Honeywell installed customer base is highly unlikely to migrate to the GCOS 8 operating system because of its poor performance in a time-sharing environment. Honeywell currently has 90 customers using the CP-6 operating system; that translates to approximately $100 million in installed DPS 8 equipment.

An important point to note is that CP-6 is similar in functionality to VMS. Therefore, the VAX/VMS platform would provide a much better solution than a DPS 8/GCOS 8 alternative because the customer can continue to work and grow within the same operating system and hardware architecture.

ALL-IN-1 VERSUS IBM'S SolutionPac, OFFICE SERIES/VM

Jane Wright
DTN 296-4748
UPO1-4

- ALL-IN-1 is the correct product to position against SolutionPac, Office Series/VM
- Winning strategies and application comparisons featured

Functionally, IBM's SolutionPac, Office Series/VM, competes with Digital's ALL-IN-1. IBM's PROFS does not compete with ALL-IN-1. PROFS is just a subset of the SolutionPac, Office Series/VM. However, in the competition for the office, IBM often bids PROFS against ALL-IN-1. This article will show you how to counter IBM's strategy of bidding PROFS against ALL-IN-1, and how to turn the situation around and win with ALL-IN-1 against SolutionPac, Office Series/VM.

We will begin by discussing PROFS and its position as part of the SolutionPac, Office Series/VM (hereafter referred to simply as "SolutionPac"). Next, the SolutionPac will be described. Examples will be given showing IBM bids for PROFS alone compared with IBM bids for SolutionPac. Then SolutionPac will be compared with ALL-IN-1 and the advantages of ALL-IN-1 will be discussed. The appendix will detail IBM pricing for SolutionPac.

PROFS DOES NOT COMPETE WITH ALL-IN-1

Do not discuss ALL-IN-1 versus PROFS with your customer as if the products were comparable and competitive with each other. If you do, you will probably find yourself in an unfortunate predicament (one I have seen happen many times in my experience on the Competitive Hotline). For example, imagine that your customer needs to support 100 active end users, and the customer may believe that PROFS and ALL-IN-1 are comparable. The IBM sales rep would turn to IBM's PROFS (not SolutionPac) performance guidelines and propose a 9370-90 CPU. The Digital sales rep would turn to the "Updated ALL-IN-1 System Positioning Table" (refer to Sales Update Vol. 19 No. 2 dated July 13, 1987) and propose a VAX 8550 system. Now, a VAX 8550 is a MUCH more powerful system than a 9370-90; therefore, a VAX 8550 configuration will usually cost more than a 9370-90 configuration. The customer would look at the IBM bid and the Digital bid and perceive that the hardware to support ALL-IN-1 is going to cost more than the hardware to support PROFS. It looks like an easy win for PROFS.

What went wrong here? The problem is that PROFS versus ALL-IN-1 are not really comparable products. PROFS provides electronic mail and calendaring functions only. ALL-IN-1 is much more than mail and calendars. ALL-IN-1

is an integrator. When other products, such as DECalc, DECgraph, etc., are chosen by an ALL-IN-1 customer, ALL-IN-1 integrates their variety of functions into a rich, seamless environment. ALL-IN-1 also provides a front-end menu to allow users to easily navigate between functions. PROFS, on the other hand, does not integrate other software products together and does not provide a front-end menu to other functions.

A strategy IBM might use with your customer would be to concentrate ONLY on the customer's mail requirements at first and just sell PROFS alone -- a relatively inexpensive sale. Later, after PROFS is installed, IBM will begin to sell SoluitionPac with its layered products to satisfy the customer's inevitable additional requirements for a variety of other functions for the end users. Now the IBM solution is no longer inexpensive, but it is probably too late for the customer to take another look at ALL-IN-1.

How can you avoid this predicament? Get your customer to look beyond their rudimentary mail requirements. Talk about ALL of their office and business application requirements in detail. Most customers would not be satisfied for long with just a mail and calendaring tool (PROFS alone), but instead would want a robust office environment onto which they can layer a variety of end-user functions, such as text processing, reporting, graphics, statistics, spreadsheet, etc., all closely integrated. This robust environment is precisely what ALL-IN-1 provides.

So do not let IBM propose PROFS alone when you are selling ALL-IN-1. Suggest to your customer that IBM elevate their proposal from PROFS to SolutionPac IMMEDIATELY! Functionally, SolutionPac versus ALL-IN-1 is an apples-to-apples comparison and, as the remainder of this article will show, ALL-IN-1 has many advantages over SolutionPac.

OVERVIEW OF SolutionPac, OFFICE SERIES/VM

SolutionPac is a set of four IBM products packaged together: PROFS, DW/370, AS and SQL/DS. Each of these products runs under IBM's VM operating system.

- PROFS (Professional Office System) provides electronic mail and calendaring. Functionally, it competes with DECmail and the Time Management module of ALL-IN-1.

- DW/370 (Displaywrite/370) is a word processing tool. With an added feature, it also has an image and graphics facility. Functionally, it competes with WPS-PLUS.

- AS (Application System) is a decision-support system. Eight modules of function are included in the AS product. The modules are not sold separately; if a customer buys AS, they must buy the entire product. The functions are:

  - Database
  - Query
  - Reporting
  - Graphics
  - Statistics
  - Spreadsheet
  - Text Processing
  - Project Control

In addition to these modules of function, AS also provides a fourth-generation language. This means that users can write their own applications, including menus and forms, with AS. Functionally, AS competes with products such as DECgraph, DECalc, TEAMDATA and RALLY.

- SQL/DS (Structured Query Language/Data System) is a relational database management system. QMF (Query Management Facility) is a tool often used for making queries against the SQL/DS database. Since the database that comes with AS is rather limited (flat sequential files of no more than 64 MB each), some customers choose to use the more powerful SQL/DS database (relational files approaching 32 GB each) instead of the AS database. AS commands and applications can be executed against the SQL/DS database. Functionally, SQL/DS competes with Rdb or other third-party relational database management systems that run on a VAX system.

These four products -- PROFS, DW/370, AS and SQL/DS -- can be purchased separately, or they can be purchased as parts of the SolutionPac. When a customer orders the SolutionPac base, they get the VM/IS operating system (which is the VM operating system plus associated utilities), PROFS and DW/370. They can optionally specify if they want AS and/or SQL/DS in their SolutionPac. There is no cost advantage to purchasing SolutionPac rather than purchasing the component products separately.

The reason a customer might purchase SolutionPac, rather than purchasing the component products separately, is that SolutionPac is shipped to the customer as a pre-configured system and, for a fee, IBM will perform the complete installation and initial system tailoring for the customer (a departure from usual IBM practices). This means the customer does not need to use their own system programmer skills to install and tailor SolutionPac.

Another reason for purchasing SolutionPac rather than purchasing the component products separately is that the functions will be integrated behind a front-end menu. For example, the user could create a report in the AS product, return to the menu and mail the report to other users via the PROFS product. If the customer had purchased the products separately, they would have to write and maintain their own code to integrate the component products.

SAMPLE IBM CONFIGURATIONS FOR PROFS AND SolutionPac

The following examples show the significant difference in the prices of an IBM configuration for a stated number of users doing mail and calendaring (PROFS) only, versus an IBM configuration for the same number of users doing a likely variety of office and business functions (with SolutionPac). The examples include items directly associated with the applications -- CPU, disk, terminals, system software and application software -- and represent standard list prices without discounting.

You will see that the full-function SolutionPac configurations are approximately three times more expensive than the configurations for PROFS alone. Keep in mind that the simple PROFS configuration might be the one that IBM is proposing to your customer to compete against your ALL-IN-1 configuration. As you can see by the following examples, if you can elevate the IBM proposal to SolutionPac, you can raise IBM's price by about 300%!

Example 1A: 50 Active Users, 150 Subscribers, Doing Mail and Calendaring Only

Item	Purchase Price		Monthly Maintenance*
9370-40 (.6 MIP) CPU, with 8 MB memory	$ 65,000		$ 280
3) 9332 disks (368 MB each)	42,000		81
DASD controller	3,000		0
150) 3191 monochrome terminals	194,250		6,000
5) Workstation controllers	12,500		0
Rack	3,000		0
VM/SP	7,740		0
>>>PROFS<<<	12,800		0
	$348,790	+	$6,361/mo.

Example 1B: 50 Active Users, 150 Subscribers, Doing a Variety of Office and Business Applications

Item	Purchase Price		Monthly Maintenance*
9370-90 (2.5 MIPS) with 16 MB memory	$210,000		$ 550
4) 9335-B disks (824 MB each)	85,000		200
9335-A disk controller	8,500		18
DASD controller	3,000		0
150) 3192 color graphics terminals	419,250		9,000
5) Workstation controllers	12,500		0
Rack	3,000		0
>>>SolutionPac, Office Series/VM V1<<< with PROFS, DW/370 and AS	$141,475		$ 0
Installation Assistance (required)	13,800		0
System Support and End-User Customization Assistance (optional)	18,000		0
	$914,525	+	$9,768/mo

Example 2A: 300 Active Users, 900 Subscribers, Doing Mail and Calendaring Only

Item	Purchase Price		Monthly Maintenance*
4381-24 (7.8 MIPS) CPU with 16 MB memory	$ 890,000		$ 810
1) 3380-AJ4 disk (2 GB formatted)	82,000		225
2) 3380-BJ4 disks (2 GB formatted each)	118,000		330
3880 disk controller	51,000		176
900) 3191 monochrome terminals	1,165,500		36,000
29) 3174 terminal controllers	375,550		7,656
VM/SP	19,345		0
>>>PROFS<<<	32,000		0
	$2,733,395	+	$45,197/mo.

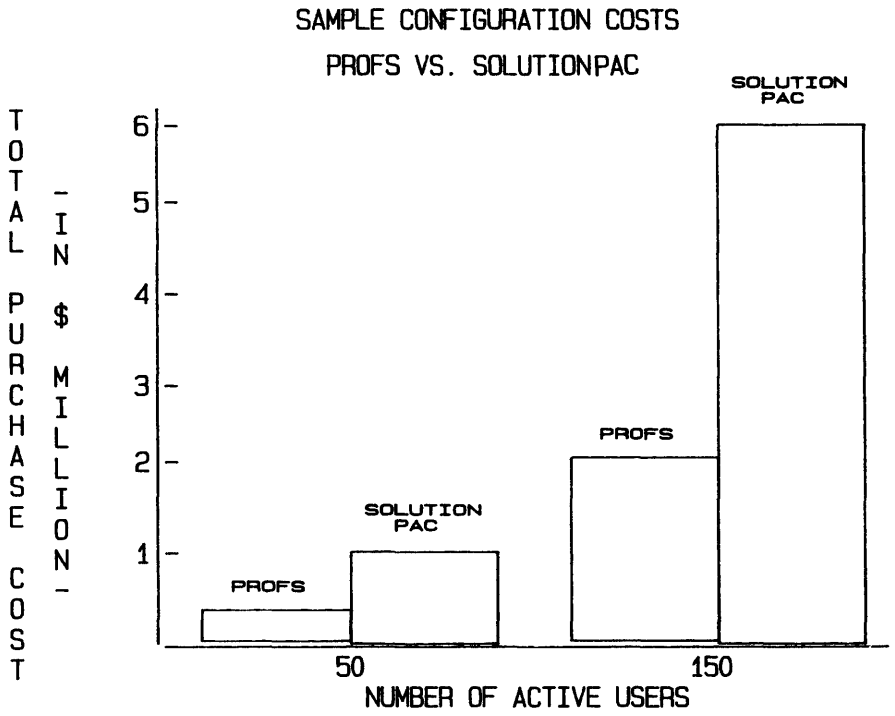
*Maintenance charges begin after a one-year warranty.

Example 2B: 300 Active Users, 900 Subscribers, Doing a Variety of Office and Business Applications

Item	Purchase Price		Monthly Maintenance*
3090-180E (15 MIPS) CPU with 32 MB memory	$2,565,000		$ 4,885
1) 3380-AE4 disk (4 GB formatted)	122,480		295
2) 3380-BE4 disks (4 GB formatted each)	196,280		430
3880 disk controller	51,000		176
900) 3192 color graphics terminals	2,515,500		54,000
29) 3174 terminal controllers	375,550		7,656
>>>SolutionPac, Office Series/VM V1<<< with PROFS, DW/370 and AS	197,020		0
Installation Assistance (required)	13,800		0
System Support and End-User Customization Assistance (optional)	18,000		0
	$6,054,630	+	$67,442/mo.

*Maintenance charges begin after a one-year warranty.

Note: Example 1A is based on IBM's own statements regarding numbers of PROFS users supported on a 9370 CPU. IBM does not publish similar user statistics for the 4381 or 3090 family of CPUs, nor does IBM publish similar user statistics for VM application software other than PROFS. Therefore, the remaining examples were based on observations from the Competitive Hotline of proposals that IBM has actually made to customers. These examples are intended to be used as estimates only. IBM's proposal to your customer may vary.



DETAILED FUNCTIONAL COMPARISON TABLE

The following table positions the components of ALL-IN-1 against the components of SolutionPac, Office Series/VM. Functionally, the two offerings are quite similar.

	Digital	IBM
TEXT PROCESSING:		
Create, edit, print documents	WPS-PLUS	DW/370
Retrieve documents	WPS-PLUS	DW/370
Format page	WPS-PLUS	DW/370
Move, delete, copy block	WPS-PLUS	DW/370
Search, search and replace	WPS-PLUS	DW/370
Use headers and footers	WPS-PLUS	DW/370
Produce form letters	WPS-PLUS	DW/370
Include diagrams and matrices	WPS-PLUS	DW/370
Create diagram in document	WPS-PLUS	No
Sort fields	WPS-PLUS	No
Use technical and scientific characters	WPS-PLUS	No
Check spelling against dictionary	WPS-PLUS	DW/370
Add words to personal dictionary	WPS-PLUS	DW/370
Use foreign language dictionaries	No	DW/370
Use medical and legal dictionaries	No	DW/370
Use Thesaurus	WPS-PLUS	DW/370
Analyze grade level	No	DW/370
+, -, x, / in document	WPS-PLUS	No
Use 7 colors	No	DW/370
Split screen	No	DW/370
Change fonts	WPS-PLUS	DW/370
Use menus	WPS-PLUS	DW/370
Bypass menus	WPS-PLUS	DW/370
Execute user-defined process	WPS-PLUS	DW/370
Get help	WPS-PLUS	DW/370
Get help in national languages	WPS-PLUS	DW/370
QUERY:		
Command driven	DATATRIEVE	AS or SQL/DS
Menu driven	TEAMDATA	SQL/DS with QMF
Access from multiple files	DATATRIEVE or TEAMDATA	AS or SQL/DS
REPORTING:		
Control breaks	Rally	AS
Totals, subtotals	Rally	AS
Access data from multiple sources	Rally	AS
Change data directly on report	Rally	No
Roll up reports into summary report	Rally	AS
GRAPHICS:		
Line plot	DECgraph or TEAMDATA	AS
Bar chart	DECgraph or TEAMDATA	AS
Clustered bar chart	DECgraph or TEAMDATA	AS
Stacked bar chart	DECgraph or TEAMDATA	AS
3-dimensional charts	DECgraph	AS
Scatter diagram	DECgraph or TEAMDATA	AS
Pie chart	DECgraph or TEAMDATA	AS
Radar (polar) chart	No	AS
Grids	DECgraph, DECslide or TEAMDATA	AS

	Digital	IBM
Outside border	DECgraph or TEAMDATA	No
Objects	DECslide	AS
Fill patterns	DECgraph or DECslide	AS
Color objects	DECgraph or DECslide	AS
Color background	DECgraph or DECslide	AS
Titles, legends	DECgraph, DECslide or TEAMDATA	AS
Text with objects	DECslide	AS
Assemble graphs in order	DECslide	AS
STATISTICS:		
Average, minimum, maximum	DECalc-PLUS	AS
Regression	DECalc-PLUS	AS
Standard deviation	DECalc-PLUS	AS
Depreciation	DECalc-PLUS	AS
Correlation	DECalc-PLUS	AS
Linear equations	DECalc-PLUS	No
Differential equations	DECalc-PLUS	No
Curve fitting	DECalc-PLUS	AS
Sine, cosine, tangent	DECalc-PLUS	No
Logarithms	DECalc-PLUS	No
Parametric and non-parametric tests	DECalc-PLUS	AS
SPREADSHEET:		
Create, manipulate spreadsheets	DECalc-PLUS	AS
Modeling	DECalc-PLUS	AS
Host based	DECalc-PLUS	AS
Menu driven	DECalc-PLUS	No
PROJECT CONTROL:	Project Manager	AS
APPLICATION DEVELOPMENT:		
Fourth-generation language (4GL)	RALLY	AS
Call 3GL routines	RALLY	AS
Forms creation	RALLY	AS
Field validation	RALLY	AS
Menu creation	RALLY	AS
DATABASE:		
Create, update databases	RALLY or TEAMDATA with Rdb	AS or SQL/DS
Shared updating of files	RALLY or TEAMDATA with Rdb	SQL/DS
Security to file level	RALLY or TEAMDATA with Rdb	AS or SQL/DS
Security to field level	RALLY or TEAMDATA with Rdb	SQL/DS

Note: There are many more issues, far beyond the scope of this article, in the comparison of Digital's Rdb vs. IBM's SQL/DS.

ELECTRONIC MAIL:

Please refer to the Special Issue of Competitive Update dated February 16, 1987, p. 41-54, for a comparison of the electronic mail functions in ALL-IN-1 Mail vs. PROFS.

CALENDARING:

Please refer to the Special Issue of Competitive Update dated February 16, 1987, p. 41-54, for a comparison of the calendaring functions in ALL-IN-1 Time Management vs. PROFS.

OPERATING SYSTEM:

Please refer to the Special Issue of Competitive Update dated February 16, 1987, p. 55-60, for a comparison of VMS vs. VM.

ALL-IN-1 ADVANTAGES OVER SolutionPac

ALL-IN-1 provides many benefits which SolutionPac cannot match. These include:

- Modularity -- The layered software offerings of ALL-IN-1 allow the customer to select precisely the functions they need. SolutionPac, however, often puts the customer in the position of purchasing more software functions than they might actually need. This is because the functions of the AS (Application System) component product cannot be purchased separately.

  For example, imagine that your customer requires a statistical tool, but not a project control tool. With the Digital solution, your customer could purchase DECalc. With the IBM solution, the customer would purchase AS to get the statistical function, but would also end up paying for the other functions that come with AS, such as project control. Also, AS comes with a text-processing function, which is redundant since DW/370 (a text processing tool) is a required component of SolutionPac. The AS component costs $29,000-$117,000, depending on the customer's CPU size. This can be expensive if the customer does not need all of the AS functions.

- Compatibility -- ALL-IN-1 can be used on any VAX VMS processor, from the smallest MicroVAX system to the largest cluster.

  SolutionPac, Office Series/VM runs only on IBM S/370 CPUs (9370s, 4300s, 30XXs) and only under the VM operating system. IBM does not have a SolutionPac, Office Series offering for DOS/VSE, MVS or MVS/XA customers. So if an IBM customer already had an investment in DOS/VSE, for example, that customer would not be able to install SolutionPac without first installing a second operating system, which would be a major undertaking requiring substantial resources.

- Vertical Offerings -- SolutionPac is only available as a generic set of software. IBM has not customized it for particular industry segments.

  ALL-IN-1 has been customized to meet the requirements for office and business applications in particular industry segments. ALL-IN-1 offerings for industries include:

  - System for Sales and Marketing
  - System for Employment Management
  - System for Telecommunications Management
  - System for Business Operations

  This means that if a customer needs office and business applications for their sales, marketing, personnel, telecommunications, financial or manufacturing users, an ALL-IN-1 solution would require less customization effort by the customer than IBM's SolutionPac.

- Longevity -- Digital is committed to continued support and enhancement of ALL-IN-1 as a strategic offering. However, it appears from the following Gartner Group report that SolutionPac is only a tactical product.

  Gartner Group, in their report entitled "IBM's New Office Systems," dated September 30, 1987 (OIS, S-940-451) states, "We expect IBM to announce beginning in mid-1988 a new generation of office system products to replace PROFS, DISOSS, Personal Services and the Displaywrite family... IBM will have no strategic product to offer prospective customers until new products are available. IBM's transition strategy is to sell its SolutionPac series, which are currently only tactical products with new packaging that take users no closer to the new generation of office systems....We expect IBM to announce its new product line 12 to 18 months in advance of availability...While benefiting new users, implementation of (the future) Office Services could disrupt current users (of PROFS, DW/370, etc.) since many shops have compensated for various shortfalls in IBM office products by adding 'home-grown' extensions or functional enhancements...The new products will force many users to provide their own conversion programs, written to interfaces that IBM will publish."

CONCLUSION

Although some people tend to position PROFS against ALL-IN-1, PROFS actually provides only a subset of the functions found in ALL-IN-1. Functionally, IBM's SolutionPac, Office Series/VM competes against ALL-IN-1 in the office automation and business application space. SolutionPac is significantly more expensive than PROFS.

ALL-IN-1 is a more flexible offering than SolutionPac because it allows the customer to select the exact function they need, to run on any size VAX system, and to use customized versions in certain industry segments. ALL-IN-1 can best meet your customer's requirements, both now and in the future.

APPENDIX: PRICE INFORMATION

********** CURRENT PRICES **********

Version 1 of SolutionPac, Office Series/VM is available now. The customer pays a one-time charge to IBM for their license, media and one set of documentation.

The charge is based on the size of the CPU on which SolutionPac is installed. There are four size categories. Size 10 includes the 9370-20 and 9370-40 (about 0.5 and 0.6 MIPS). Size 20 includes the 9370-60, 9370-90, 4381-11 and 4381-21 (about 1.5-2.5 MIPS). Size 30 includes the other models of 4381 and the 3090-120 (about 2.5-8.0 MIPS). Size 40 includes the other models of 3090 (about 9.0-75.0 MIPS).

CPU size:	10	20	30	40
Base: VM/IS plus utilities, plus PROFS and DW/370	$51,690	$ 90,025	$123,520	$157,095
+ AS (optional)	29,400	51,450	73,500	117,600
+ SQL/DS with QMF (optional)	20,565	35,990	51,420	82,270
	$101,655	$177,465	$248,440	$356,965

The current service charges for SolutionPac, Version 1, are all one-time charges and do not vary with the size of the CPU on which it is installed.

Installation Assistance (required) (IBM installs SolutionPac for customer)	$13,800
Systems Support (optional) (IBM helps customer set up their own help desk, support organization and administration procedures)	7,900
End-User Customization (optional) (IBM will put 20 user ids on the system, develop 20 user profiles, training customers to do it themselves for the rest of the user ids)	10,100
On-Site End-User Education (optional) (IBM will provide training for an "initial set of users" on the "most frequently used functions." Specific number of students is not stated.)	10,800

********** FUTURE PRICES **********

IBM recently announced Version 2 of SolutionPac, Office Series/VM, which will be available in June 1988. With Version 2, the price of the SolutionPac base will go up by about 16%.

With Version 2, the customer has the choice of paying a one-time charge or an on-going monthly charge for their licenses, media and one set of documentation.

The monthly charge option:
(which does not vary with the size of the CPU on which SolutionPac is installed)

Base: VM/IS plus utilities, plus PROFS and DW/370:	$5,488
+ AS (optional)	2,450
+ SQL/DS with QMF (optional)	1,975
	$9,913/month

For the one-time charge option, there are four size categories, depending on the size of the CPU on which SolutionPac is installed. Size 10 includes the 9370-20 and 9370-40 (about 0.5 and 0.6 MIPS). Size 20 includes the 9370-60, 9370-90, 4381-11 and 4381-21 (about 1.5-2.5 MIPS). Size 30 includes the other models of 4381 and the 3090-120 (about 2.5-8.0 MIPS). Size 40 includes the other models of 3090 (about 9.0-75.0 MIPS).

The one-time charge option:

CPU size:	10	20	30	40
Base: VM/IS plus utilities, plus PROFS and DW/370	$ 60,120	$105,150	$146,670	$182,945
+ AS (optional)	29,400	51,450	73,500	117,600
+ SQL/DS with QMF (optional)	23,700	41,475	59,250	94,800
	$113,220	$190,075	$279,420	$395,345

The future service charges for SolutionPac are all one-time charges and they do not vary with the size of the CPU on which it is installed. The service charges apply whether the customer has purchased the software on a monthly basis or a one-time charge basis.

Installation Assistance, Level 1: (Customer installs SolutionPac with help from IBM)	$ 1,900
Installation Assistance, Level 2: (IBM installs SolutionPac for customer)	13,800

Note: The customer is required to purchase one of the Installation Assistance offerings.

Systems Support (optional): (IBM helps customer set up their own help desk, support organization and administration procedures)	7,900

Customization (optional): (IBM will put 20 user ids on the system, develop 20 user profiles, train customer to do it themselves for the rest of the user ids)	$10,100
On-Site User Education: (IBM will provide training for an "initial set of users" on the "most frequently used functions." Specific number of students is not stated.)	10,800

SOURCES

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* Special thanks to: Gary Hoppe, Ted Kennedy and Josh Reynolds for *
* their input to this article. *
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Hardware prices were obtained from 1987 reports by DataPro Research Corp.
Software prices were obtained from IBM programming announcements.

A DIGITAL ASSESSMENT OF SIERRA GROUP'S REPORT ON "COST OF OWNERSHIP 1987"

Bradford W. Day
DTN 296-4045
UPO1-4

- Highlights of some of the missing elements in the industry's approach to assessing the cost of ownership of vendor's offerings
- Offers a comprehensive approach to assessing cost of ownership

PURPOSE OF SIERRA'S COST OF OWNERSHIP 1987 ASSESSMENT

Sierra Group (Tempe, Arizona), an independent market research and consulting firm specializing in office automation has written a report entitled "Cost of Ownership 1987." In this report, Sierra has compared the office automation offerings of four major vendors: Digital, IBM, Wang and Data General. Cost comparisons against six major user configuration sizes were reviewed: 4-user, 8-user, 16-user, 32-user, 50-user and 100-user systems.

To allow for vendor input, Sierra decided not to do their own performance positioning of systems. Instead, Sierra established guidelines on what minimum system requirements each vendor must respond to in each of the six configuration categories. These minimum system requirements included elements that Sierra created and believed were representative of true integrated office applications installed today.

These same requirements were submitted to each vendor, who in turn responded to Sierra with information on "the system that they would recommend to support the required user population and applications which Sierra had constructed." The requirements created by Sierra were as follows:

CONFIGURATION GUIDELINES

- One printer for every three users.
- 20 MB of disk storage for every user. (Disk storage required for system overhead was considered separately.)
- The ability to support an ACTIVE user environment for applications with a minimum of average response time of 2-5 seconds.
- The ability to support a pre-determined mix of PCs and terminals in an office environment.

- Required applications included word processing, calendar, directory, calculator, messaging services, electronic mail, spreadsheets, graphics and query.

Beyond the detailed configuration data provided above, each vendor was asked to provide detailed configuration, pricing and warranty data on the systems they would recommend.

STRENGTHS OF THIS COST-OF-OWNERSHIP REPORT

The strengths of this report are in several areas. First, Sierra allowed each vendor to provide their own assessment on what configurations they would recommend, based on a set of guidelines created by Sierra. Second, most of the critical office automation functions used today were included in this study.

Third, unlike many industry consultants, Sierra focused on costs inclusive of both hardware and software services, and graphically represented these areas as a separate percentage of total cost in their comparative conclusions. And last, some technology assessments as it relates to historical product line changes and architectural improvements were also reviewed.

LIMITATIONS IN THIS COST-OF-OWNERSHIP REPORT

The limitations in this report are that it does not quantify a comprehensive assessment of cost over time, or note the functional or performance benefits of the solutions assessed. Instead, the elements reviewed focus on initial acquisition elements, such as hardware, hardware maintenance, software and software maintenance. These are static elements, and a small percentage of the real cost to a customer over time as a customer's business needs expand and systems grow.

Many other factors, such as differences between the service offerings (value for cost), personnel requirements, performance assessment and application benefits, must be further assessed to make a more informed cost-of-ownership evaluation against the real value the buyer has actually received. Consequently, Sierra's conclusion should be reviewed as a part of the system acquisition cost, not a comprehensive cost-of-ownership review.

The remainder of this report will review what critical cost factors are missing in Sierra's assessment. Customers and prospects may be forming buying decisions based on the conclusions in this analysis by Sierra Group, so it is critical that you, the Digital sales representative, understand how to point out what is missing in Sierra's cost-of-ownership approach.

If the report is not challenged, it may move from affecting customer perception to solidifying customer judgement. In short, remind the customer that Sierra's conclusion is based on static-bounded system acquisition costs and does not represent all the costs which will be incurred as the customer installs, operates and expands their computing environment.

MAKE NO MISTAKE...IBM IS DISTRIBUTING THIS REPORT WHEN DISCUSSING COST OF OWNERSHIP WITH THEIR CLIENTS.

PERFORMANCE -- ARE THE COMPARISONS VALID?

IBM's configurations submitted to Sierra Group were minimally configured, while Digital's solutions were configured to provide a safe margin in meeting and, in some cases, exceeding the performance required to support Sierra's guidelines. In short, a more exacting comparison of systems must first be normalized through using equivalent performing machines.

For any cost-of-ownership calculations, proper positioning of systems should be the primary starting point. Ideally, the positioning should be formed with a mix of vendor recommendations, as well as from the critique of actual end-user installations. Unless system positioning is perceived as accurate, all other elements in the resulting performance cost-of-ownership calculations should be suspect.

As an example of minimal performance positioning, IBM's configurations for the 16-user System/36 "Configuration Summary," stated that an IBM 5362 System/36 could support 16 concurrent users with 2 to 5 second response times. Moreover, acceptable performance meant maintaining an active workload mix inclusive of the following products: Displaywrite/36, PS/36, Query/36, Busgraphics/36 and PC Support/36.

A former MIS business consultant at John Hancock, Inc., comments on the fallacy of this performance sizing:

> "At Hancock, we defined simultaneous use of our System/36 pilot as a mixture of four concurrent functions, E-mail, calendaring, text creation, text editing. Simultaneous use was never defined as 'heads-down word processing.'
>
> With this environment in mind, we found that the 5362 hit the performance wall at a maximum of 9 users. Our configuration system specifications were identical to Sierra's recent report, with the exception of 1 MB vs. Sierra's 2 MB configuration. IBM had made the claim to us that with an additional 1 megabyte of main memory, our performance issues would be solved.
>
> In reality, our evaluations showed, however, a performance improvement of approximately 20%. Even with this improvement, our previous 45 second average response time would only drop to an unacceptable 36 seconds. Consequently, I'm not sure how IBM managed to offer Sierra a 16-user configuration with this application mix with a 2-5 second response time."

Performance positioning, as proved out by the discrepancies between the IBM claims vs. John Hancock experiences above, needs to be substantiated. Unfortunately, accurately substantiated details on performance -- both as a function of number of users, as well as acceptable response time -- may have been exaggerated by IBM and, subsequently, inevitably questions the validity of the Sierra's cost-of-ownership results.

In the large systems, specifically where IBM's 9377/90 configuration results are lined up against a VAXcluster 8550 configuration, performance positioning remains questionable. The "ALL-IN-1 Performance Guide," which sets configuration guidelines based on internal ALL-IN-1 benchmark results, clearly substantiates some differences in the way Digital benchmarks the ALL-IN-1 product and the way IBM tests PROFS.

To test the true multi-faceted functionality of ALL-IN-1, four major categories are typically reviewed: electronic mail, word processing, time management and desk management. Moreover, within these functional areas, eight to ten actual tasks are benchmarked, since all of these elements would make up a true integrated office automation installation over time. The IBM PROFS benchmark only tests a small piece of the superior integrated functionality offered by the ALL-IN-1 performance guidelines. As related by Ted Kennedy, BOIS Group (Competitive Update Vol 7 No. 3 dated September 7, 1987, p. 13): "IBM's benchmark is tuned for performance, optimized to PROFS' limited strengths, and neglects many common office functions."

The VAX 8500 (approximately 1/2 the performance of a single VAX 8550), will support up to 80 active users (refer to the "ALL-IN-1 Performance Guide," p. 114), while a single VAX 8550 will support up to 108 active users, using the benchmark described previously.

IBM's 9377/90 configuration, on the other hand, was extremely underconfigured. IBM, in their own performance brochure, would configure a Model 90 with a maximum of 100 PROFS users doing mainly electronic mail and calendaring functions, not demand word processing. This is proved out in IBM's own brochure, "The IBM 9370 Information Systems: Performance By Design," where five functions were benchmarked using "transactions completed per hour" as the response-time guideline.

Consequently, note that a 9377's performance would be maximized just with a PROFS application, let alone the addition of query (IBM QMF), word processing (Displaywrite/370), and graphics (GDDM/PGF).

Digital's configurations were maximally configured to easily support Sierra's workload, while IBM's configuration could only support selected parts of the whole applications workload, not all of the functions necessary in a true integrated OA environment. In short, IBM minimized their systems configurations to enable a lowest possible cost result.

With a new product perspective, supplying the new MicroVax 3600, either against a 9375-60 or 9377-90 in the 8 to 50-user configurations, would result in a greater system cost advantage for Digital than IBM.

PRICING/CONFIGURATION ISSUES

Accordingly, configuration equivalency is not the same between IBM and Digital. The addition of PASF, for instance, IBM's "PROFS Application Support Feature," which is a common menu interface between PROFS and Displaywrite was not included in Sierra's assessment. This is an integrated capability already offered in the ALL-IN-1 common menu approach.

In addition, both speller and calculator offering is missing from the cost-assessment comparisons.

In short, Digital and IBM did not configure equal systems. Digital not only supplied more functionality in its packaged approach than IBM, but these configuration differences were not noted in Sierra's line-item by line-item comparisons.

Accordingly, it is clear that the IBM strategy in response to Sierra's configuration request was to present the lowest-cost minimum configuration.

This was done while sacrificing a solution capable of Sierra's insistence on "2-5 second concurrent use response times."

Digital, on the other hand, always presents a very conservative performance position (lower number of users to VAX system ratio) in order to provide the best response to the user.

Again, Digital configured to meet the need comfortably, while IBM underconfigured to minimize price.

SERVICE COMPARISONS

A description of service offerings from IBM and Digital should also have been explained, compared and contrasted, especially where there was such a discrepancy in cost between the two vendors. In Sierra's report, service fees are stated as either "software or hardware maintenance." The study does not specify what types of services were quoted, the details of their offerings, and their general terms and conditions. DECservice, for instance, provides guaranteed response times and no charge for "workthrough/ continuous" efforts. The IBM Maintenance Agreement does not.

The software services quoted by IBM are not comparable to DECsupport. The services quoted by IBM in this report are those services included in the cost of one-time software licenses. Specifically, this service consists of monthly "bug fix" patch tapes, remedial (problem fixing) telephone support and on-site remedial assistance, if required. The customer's (highly skilled) system programming staff must isolate the problem prior to calling IBM. Consequently, this assumes a high degree of customer software self maintenance.

In contrast, when you buy DECsupport, there is a substantial value difference in comparison to IBM's software service offered here. In DECsupport, patch tapes include the latest revision of software enhancements, "how to use and operate" telephone support and access to a problem/solution database for preventive software maintenance (i.e., DSIN).

DECsupport is designed to support an end-user "system administrator"; system programmers are less required.

A more comparable offering to DECsupport would have been IBM's VM/RSP (Remote Systems Programming skills service for the VM/IS environment), which is a service requiring an additional charge of $550 per month. However, that same service still does not include new software versions (a significant extra charge is levied for each new version of software, often released once a year), and access to a problem/solution database (which is another significant additional charge. Finally, the IBM systems did not include the cost of installation.

For additional service comparisons to IBM's offering, refer to the October 5, 1987, "BLUE MONDAY" videotape.

Clearly, a brief functional description of service offerings between IBM and Digital should have been reviewed and included as part of the total cost of ownership. As it stands in this report, Digital is providing a much higher level of service and support than IBM has provided, thus the higher price tag.

VALUE/COST ASSESSMENT

Value differentiation as an element of cost is often difficult in that function/benefit analysis is a subjective exercise. Nevertheless, in the assessment of application value, the absence of critical functions should be noted by any industry consultant who draws cross-vendor evaluations comparing the OA offerings of IBM vs. Digital.

ALL-IN-1, for instance, is not just calendaring, electronic mail and word processing; it is a collection of functions which Digital, over time, has added to the ALL-IN-1 product because users have asked for it. Consequently, ALL-IN-1 currently represents an answer to the real demands of an integrated OA environment. The functional deficiency in IBM's PROFS is extreme enough to warrant some review.

Noting the application's VALUE DIFFERENTIATION as an element of cost would provide a more accurate comparison. As referenced by Barbara Stallings, in Digital's "Big Blue Book - The 9370," the following ALL-IN-1 mail features are missing in IBM's PROFS product:

General Function	Feature Missing in PROFS
Base Capabilities	Computer-based Instruction
User Message Handling	Delivery Receipt Auto Forwarding to another user Multiple Mail Priorities
Messages Based On Memos/Notes/Doc.	Inclusion of documents in messages
Message Filing/File Cabinet Access	Wastebasket
Access By Other Office Applications	Calendar Management
	User-Defined/Created Applications Spreadsheets Information Management
User Interface	User-defined Function Keys Scratch Pad Interface to: Query Lang., Graphics, Calculator Computer-based Instruction
File Cabinet	Wastebasket
Calendar Management	Multi-node Capabilities Confidential Appointments View two calendars - side by side
Desk Management	Phone Directory Desk Calculator Audio Tickler (beeping)

The mail advantages of ALL-IN-1 vs. PROFS are significant, and yet feature/function value assessment is not reviewed in Sierra's cost conclusions.

There exist other examples of value differentiation that are missing in this report. Sierra mentions them as critical factors in an end-user's assessment, but no values are assessed. IBM's incompatible command languages and user interfaces between Personal Services, Displaywrite/36 and PROFS were not discussed. Cost of system growth and personnel requirements over time, and its reduction through using VAXclusters, distributed networking and a common applications environment are missing in Sierra's assessment. These elements were outlined, but not financially quantified.

SYSTEM STAFFING COSTS -- THE LARGEST COST FACTOR

Two studies which Digital Equipment has contracted through industry consultants prove out the fact that the system staff required to maintain a large system installation is the largest component of a comprehensive cost-of-ownership review. The first study, completed by the Digital's Mid-Range Systems Business Unit, showed a signficant system staffing cost advantage for Digital (vs. IBM) in small, medium and large sites.

Entitled "The Digital Productivity Advantage," the cost of system staffing salaries in small sites (System/38, 4361 and 9370) was approximately $63,000 more expensive each year than an equivalent Digital site; on the average, 2-1/2 times the number of system personnel was required to support an IBM vs. a Digital system site.

In the medium system (IBM 4381) sites, the staffing cost increased even further. Approximately $508,000 more had to be spent annually to support system staffing requirements in the IBM site than the Digital site. Actual manpower differences for the IBM site required 18 more system personnel to support the IBM site than the Digital site.

In the large site comparison (IBM 3083, 3081, 3090), the cost of system staffing personnel rose dramatically. In large IBM sites, an additional expense of $1,305,000 per year was needed to support the IBM staffing requirements; on the average, the actual manpower difference required 50 more system persons to maintain the IBM sites than an equivalent Digital system installation.

The second study, completed by Digital's Network and Communications group and Index Systems, Inc., focused solely on the network costs in large network environments.

Entitled "The Costs of Network Ownership," costs from five key cost elements were reviewed in both IBM and Digital network environments. These cost categories included equipment, software, personnel, communications carriers and facilities. Results of the study showed a substantially higher cost in maintaining IBM networks vs. Digital networks over a five-year period of operation. Moreover, the highest Digital productivity advantage focused on the network system staffing requirements.

Digital was consistently lower than IBM in the personnel costs to "operate and change the network" over a five-year installation period. In fact, the IBM network requires a staffing cost 50% to 500% greater than Digital.

Your District Network Specialist can provide you with any further details on the Index System study, "The Costs of Network Ownership."

IN REVIEW -- THE BIGGER PICTURE -- COMPREHENSIVE COST OF OWNERSHIP

Sierra's report attempts to make some critical assessment in relating some of the significant cost elements MIS organizations should include as they evaluate their office automation strategies. The report statically points out some areas often ignored, i.e., the cost of service, both hardware and software. Moreover, value advantages of certain functions as an element cost is recognized by Sierra as a critical factor in end-user evaluation: "If the solution is low priced but less robust, it will have less value as a productive solution for the organization."

And yet, some value assessment of function, architectural approach, incremental changes in staffing requirements as the system and users grow -- these benefits to an organization employing enterprise-wide office automation should also have been articulated. Consequently, the results presented in Sierra's cost-of-ownership assessment inevitably focused on the cost of componentry and the service of those components, not the value cost of what it takes to solve real integrated office automation problems.

IBM IS DISTRIBUTING THIS REPORT...

Unfortunately, we have learned through feedback on the U.S. Sales Support/ Competitive Hotline that IBM is distributing this report in situations where IBM and Digital are competing. The above review may serve in helping you, the Digital sales representative, to re-orient the customer, potentially influenced by Sierra's conclusions, to consider the broader approach to assessing price against value. IBM will attempt to make system cost the primary element in computer purchasing decisions to deter evaluation of the more comprehensive elements of real cost of ownership.

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SPECIAL NOTE OF THANKS TO:

Mike Bahlo, Richard Case, Art Curry, Gil Dillon, Gary Hoppe, David Hubbard, Peter Lowber, Peter Warren, and Jane Wright for the written and verbal comment provided in the preparation of this report.

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IBM 9370/60 PERFORMANCE IN SCIENTIFIC COMPUTATION ENVIRONMENTS

Dileep Bhandarkar
DTN 293-5350
BXB1-1/E11

Marty Schmidt
DTN 297-6626
MRO3-1/M18

- Across a wide range of floating-point intensive benchmarks, the MicroVAX 3600 is 1 to 1.3 times faster than IBM 9370/60
- In memory-intensive, multi-user applications the MicroVAX 3500 can support twice as many users as the IBM 9370/60 with the same memory (16 MB)
- With 32 MB, the MicroVAX 3600 supports 3 times as many users as the IBM 9370/60 in memory-intensive applications
- The MicroVAX 3500 and 3600 provide significantly better price performance than the IBM 9370/60

INTRODUCTION

Earlier this year, IBM published its brochure on 9370 performance. Scientific performance was characterized by the double-precision version of the LINPACK benchmark from Argonne National Laboratories. Figure 1 shows the performance of various 9370 and VAX processors on single and double-precision LINPACK, and the Dhrystone benchmark. Note that performance can vary significantly from benchmark to benchmark. This illustrates the shortcomings of using any single benchmark.

NATIONAL LABS BENCHMARKS

We do not believe that any single benchmark can adequately represent the performance of a computer system. At Digital, we have always used a large collection of benchmarks for our performance comparisons. For comparing various models of the VAX family we use over 100 benchmarks. The geometric mean or median of the performance relative to the VAX-11/780 is used as the indicator of CPU performance.

We have run a collection of over 20 (mostly floating-point intensive) benchmarks on the IBM 9370 to compare its performance to our VAX processors. These benchmarks were obtained from various national laboratories such as Argonne, Los Alamos, Livermore, NASA Ames Research Center and Naval Research Labs. Figure 2 shows the performance of the IBM 9370/60 compared to our newly announced MicroVAX 3600. Figure 1 shows LINPACK performance, where the MicroVAX 3600 is 13% faster than the IBM 9370/60 in double precision; 23% faster in single precision. Averaged across 23 benchmarks shown in Figure 2, the MicroVAX 3600 is about 20% faster than the IBM 9370/60. If

one discards the top and bottom quarters of the distribution shown in Figure 2, the MicroVAX 3600 is between 0.96 times and 1.34 times the speed of the IBM 9370/60.

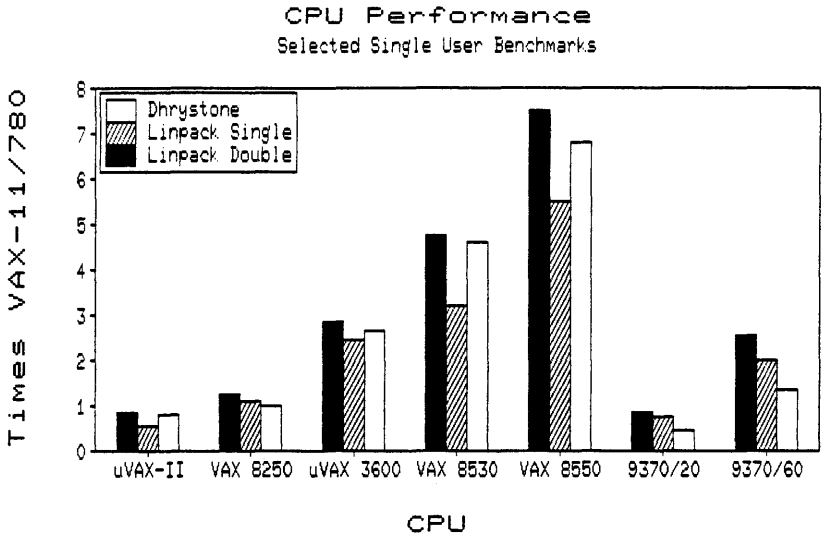

Figure 1 -- LINPACK and Dhrystone Performance

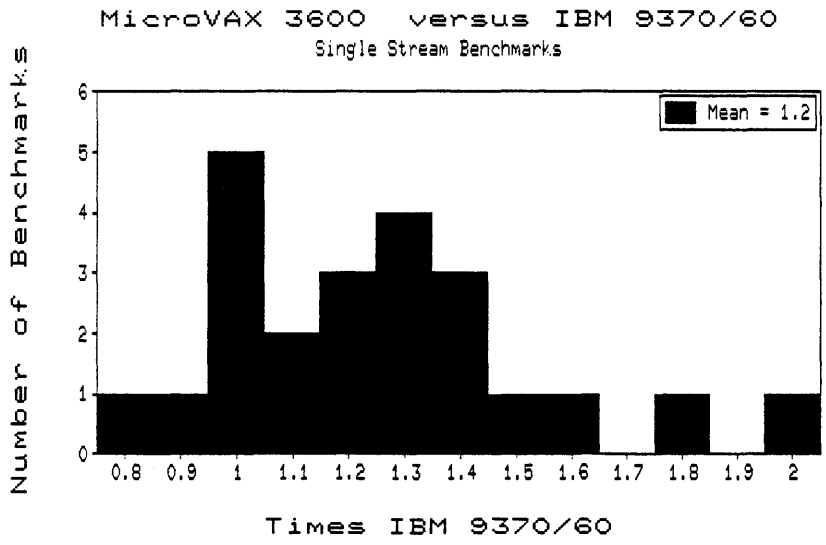

Figure 2 -- Performance of MicroVAX 3600 relative to 9370/60

MULTISTREAM SYSTEM PERFORMANCE

Single-stream benchmarks are often used to measure CPU performance. However, SYSTEM performance of real application workloads is determined not only by raw CPU speed, but also by memory capacity and disk performance. Single-stream benchmarks used in the previous section are valid indicators of SYSTEM performance ONLY IF memory capacity and disk performance are not bottlenecks.

Multistream workloads can be created by running multiple copies of a single program simultaneously in the tested system. This approach is designed to provide a repeatable measure of multi-user system performance. This approach is equivalent to multiple interactive users running similar programs simultaneously. Since multiple programs must share the available memory, these workloads test the impact of memory capacity on system performance. If there is not sufficient memory available to hold all programs, the system must page parts of each program between disk and from memory. Such paging tests the impact of disk performance on system performance. Thus multistream workloads are a much better indicator of SYSTEM performance than single-stream benchmarks.

Most departmental computers are used in timesharing mode where multiple users access the system simultaneously. To model such a multi-user environment, we ran multiple copies of the LINPACK 1000D benchmark and observed the throughput in terms of the number of jobs completed per hour.

The LINPACK benchmark is a compute-intensive solution of large systems of simultaneous linear equations in double-precision, floating-point arithmetic. It is a well known CPU performance standard among users who are interested in technical and scientific computing. The 1000D version of LINPACK is large enough (it requires about 8 Megabytes of virtual memory) and complex enough (calling for solutions of 1,000 equations) to serve as a "stand in" for real medium and large-scale engineering and scientific problems.

Each N-width stream was submitted as N batch jobs in a stand-alone, dedicated computer system. The batch queue was set up to allow all N jobs to run simultaneously. Typical installations restrict their batch queues to a small number of jobs. However, allowing all batch jobs simultaneously models a typical multi-user environment with N interactive users. Each stream width was run 10 times for each computer system.

A short batch control program submitted the N batch jobs at the beginning of each run. This control program also read the system clock and recorded the start and finish time of each program copy in the stream. Clock time data was rounded to the nearest whole second.

Multitasking operating systems such as VM/IS (IBM) and VMS (Digital) tested here do not, in fact, run multiple jobs "simultaneously." Instead, the CPU rapidly attends to one program after another for short periods of time, an activity called "timesharing." Thus, the N streams all start at slightly different times (within seconds) and, depending on the operating system's scheduling algorithms, finish at more or less the same time. The TOTAL JOB TIME (typically several minutes) we report here is the elapsed time between (a) start of the first-starting program copy and (b) completion of the last-finishing copy. Total job time, in turn, was divided by the number of

program copies in the stream (n) to create the THROUGHPUT measures graphed here (number of jobs per hour).

Total job times for multistream runs of this kind can vary from run to run, even when identical jobs are run on identical machines (both IBM and Digital). Thus, each stream width was repeated 10 times, as indicated, and our analyses and graphs are based on 10-run means for each system and stream width.

The results of multistream experiments are shown in Figure 3. As the number of jobs increases, the system throughput goes down due to increased paging overhead. Both the IBM 9370/60 and MicroVAX 3500 systems displayed a significant degradation when only 16 Megabytes of physical memory was installed. For a given number of users, the MicroVAX 3500 achieves higher throughput than the IBM 9370/60. With 4 users, the IBM 9370/60 delivers only 38% of its single-user performance; the MicroVAX 3500 delivers 75% of its single-user performance. We measure system capacity (number of users serviced) as the number of users served at a throughput level equal to 75% of single-stream throughput. The IBM 9370/60 supports only 2 users. The MicroVAX 3500 supports twice as many users as the IBM 9370/60 with the same memory (16 MB). With 32 MB, a MicroVAX 3600 supports more than 3 times as many users as the IBM 9370/60. The IBM 9370 is limited by the 370 architecture to only 16 Megabytes of physical memory. The VAX architecture allows up to 512 Megabytes of physical memory. With today's memory technology, the MicroVAX 3600 supports up to 32 Megabytes of main memory.

The MicroVAX 3600 will greatly outperform the IBM 9370/60 in multi-user scientific environments where users tend to solve fairly large problems.

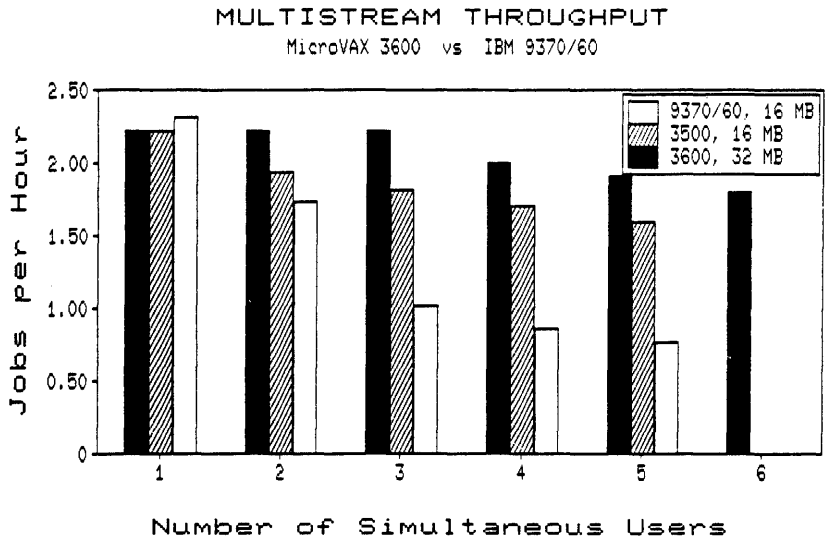

Figure 3 -- Multistream Performance

VIRTUAL MEMORY LIMITATIONS

The IBM 9370 family has another major limitation. With the 24-bit addressing of the 370 architecture, the IBM 9370 cannot handle problems that require more than 16 Megabytes of virtual memory. We selected two problems and changed the size of the data being manipulated to determine the limitations of the IBM 9370. The first problem consists of solving a dense set of linear equations using the standard LINPACK routines. The second problem takes two matrices and multiplies them to produce a product matrix. In both cases, the performance is measured in terms of the number of floating-point operations performed per second.

Figure 4 shows the results of the LINPACK benchmark with matrices of different sizes. Both the IBM 9370/60 and the MicroVAX 3600 achieve similar performance up to a system of 1,000 equations. The megaflop rating for both systems is independent of problem size. However, the IBM 9370 cannot solve a set of 1,500 linear equations because it cannot hold a 1,500 by 1,500 array in its 16 MB virtual address space.

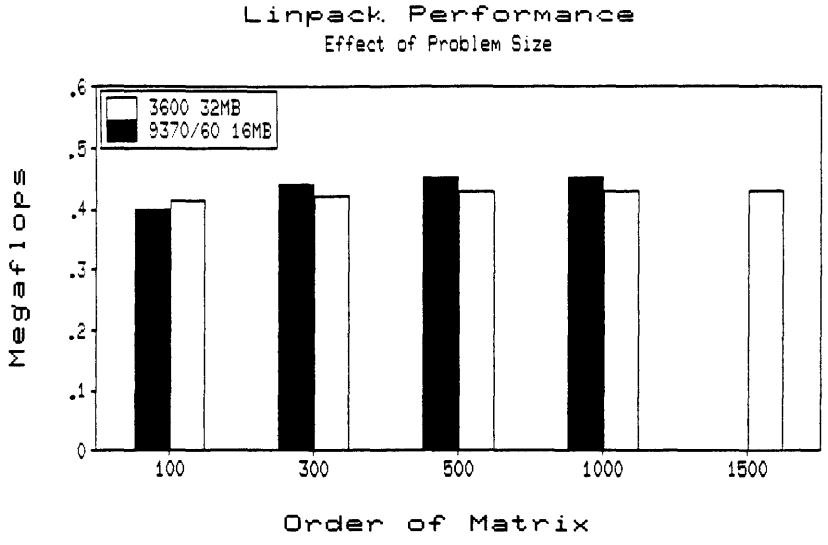

Figure 4 -- LINPACK Performance

Figure 5 shows that the IBM 9370/60 performance declines as the array size is increased. Furthermore, it cannot multiply two matrices and produce a result matrix if the matrix size exceeds 800 by 800, again because its 16 MB virtual address space is not large enough to hold 3 arrays of size 800 by 800.

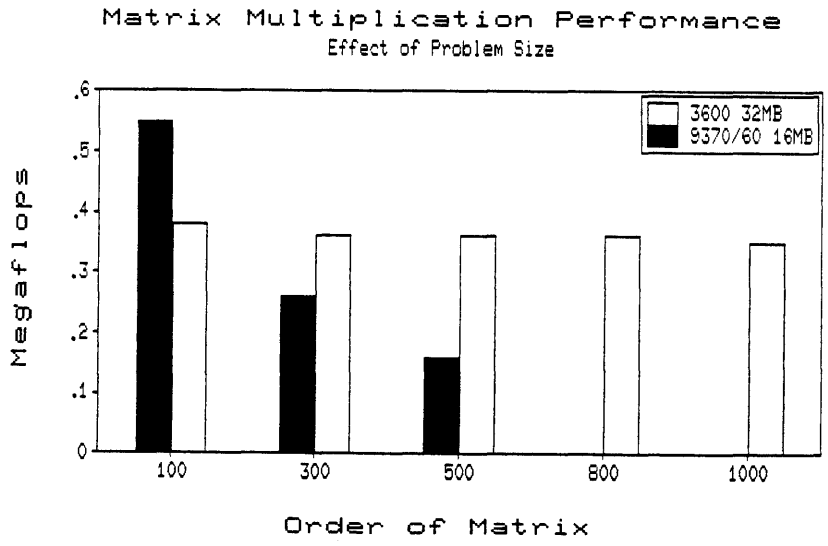

Figure 5 -- Matrix Multiplication Performance

Thus, the IBM 9370 architecture is incapable of solving scientific problems that deal with large amounts of data.

COST OF OWNERSHIP

TABLE 1 -- 5-YEAR SYSTEM COST

	MicroVAX 3500		MicroVAX 3600		IBM 9375-60	
PU Package	With 16 MB	$74,800	With 32 MB	$99,800	With 8 MB	$93,000
Additional Memory		Inc.		Inc.	8 MB Mem.	20,000
Disk/Tape Controller		Inc.		Inc.	Feature 6010	3,000
Tape	296 MB	Inc.	296 MB	Inc.	9347-40 MB	7,900
Disk (Optional 5-1/4)	280 MB	Inc.	622 MB 280 MB	Inc. 9,000	9335-856 MB	21,250
Disk Controller		Inc.		Inc.	9335-A01	8,500
Networking	Ethernet	Inc.	Ethernet	Inc.	Token Ring Feature 6030	1,950 2,400
Cabinet Enclosure		Inc.		Inc.	9309 rack enclosure	3,000
Total H/W		$74,800		$108,800		$161,000
Oper. Sys.	VMS 20 Users	Inc.	VMS 20 Users	Inc.	VM/IS	46,985
Networking	DECnet	Inc.	DECnet	Inc.	SNA ACF/VTAM	19,700
FORTRAN and LIB		3,255		3,255		$5,665
Total Cost (HW and SW)		$78,055		$112,055		$233,350
Total 5-Yr. Service Cost (HW and SW)		35,280		38,640		58,500
Total 5-Yr. Sum of Costs		$113,335		$150,695		$291,850

The above configurations were taken from Competitive Update Vol. 7 No. 3 dated September 7, 1987, with the addition of FORTRAN to each system.

The costs over five years were summed for hardware and software license purchase, field service and software services charges as detailed in the Competitive Update Vol. 7 No. 3 dated September 7, 1987. Total 5-year costs were used rather than cost of ownership, since cost of ownership depends on customer assumptions.

The IBM 9370 model 60 in the chart on p. 37 is underconfigured. IBM requires at least two more disk drives to have a workable configuration with any user disk space. Also, IBM would require additional hardware for SNA communications. These pieces were left out to make the comparison with the MicroVAX 3xxx as conservative as possible. Also, IBM requires customers to pay additional software license fees when major software packages and operating systems are upgraded (every 18 months or so). These IBM costs were also not included previously. Real customer solutions will require these hardware and software charges.

Taking the performance information shown in Figure 3, and the sample configurations and pricing shown in Table 1, we can compute relative cost of ownership between the MicroVAX 3500, 3600 and the IBM 9370 Model 60. Figure 6 shows the cost of ownership per unit of performance.

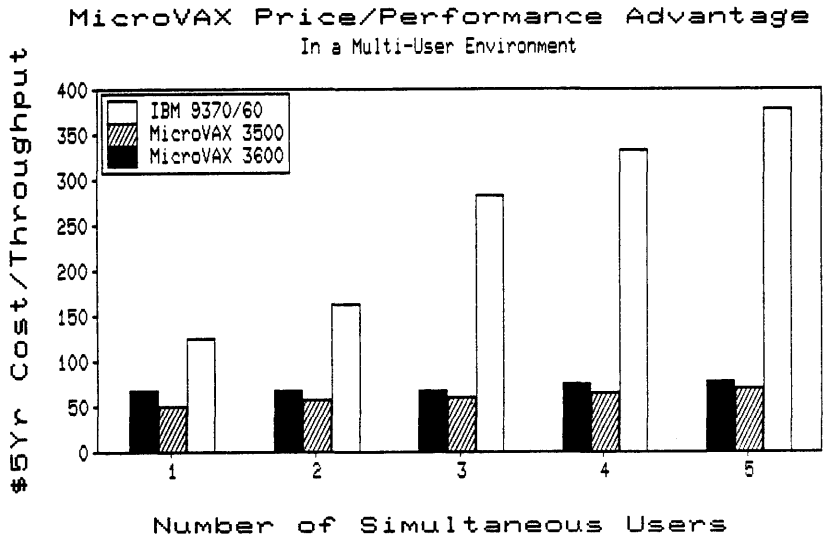

Figure 6 -- Cost of Ownership per Unit of Performance

As more simultaneous LINPACK users are added, the IBM system throughput declines while the cost of the configuration remains the same. Thus, in a price/performance calculation, the IBM system cost for performance increases as the throughput (the denominator) decreases.

Even in IBM's best case with a single user, the MicroVAX 3xxx systems have a two-to-one price/performance advantage. At the much more realistic 5-user right side of the chart, Digital enjoys a better than five-to-one price/ performance lead.

SET UP PROCEDURES USED ON IBM AND DIGITAL EQUIPMENT

These systems were set up as an "ordinary" production shop would use them, and as an "ordinary" system manager would prepare them. Set ups as tested require no expertise beyond the minimal level recommended by the manufacturer (IBM or Digital) and were performed by an independent consultant.

- IBM Systems -- VM/IS Release 5.0 was installed as the Standard Product Offering using procedures and SYSGEN software provided by IBM.

- Digital Systems -- MicroVMS Release 4.6A was installed through the AUTOGEN process as provided by Digital. Digital recommends that VMS and MicroVMS system managers select a few non-default system parameter values for multi-user systems such as the MicroVAX 3500/3600. MicroVMS parameters selected here were: Page file size = 200K pages, Working Set Quota = 1,024 Pages, Working Set Extent = 20,000 pages, Working Set Maximum = 20,000 pages.

NaC COMPETITIVE REPORTS AVAILABLE

Jane Shurtleff
DTN 272-7193
CHM1-2/N3

- The following are management summaries of competitive reports on IBM's network management offerings. To receive the complete reports, contact Sunni Misner, NaC Competitive Information Services, DELNI::MISNER, LKG2-1/Y3.

The following are Management Summaries from two reports written by the NaC Terminal Interconnect Marketing Group, entitled:

- Terminal Server Competitive Analysis (Mark Harris)
- A Comparison of Emulex Corp., Able Corp. and Digital DHV/DHQ11-Compatible Products (Jim Colantropo)

These reports are analyses of key competitors' terminal interconnect products for UNIBUS and Q-bus based hosts. Within these reports, comparisons between the competitors' products are made and selling against strategies provided to help the field effectively compete in the terminal interconnect marketplace.

Next month, NaCCIS will be distributing a report which compares our DECserver products against PBX products from Micom Systems, Gandalf Data and Equinox. This report will provide information that will help the field position our LAN-based products against those data-switch solutions.

TERMINAL SERVER COMPETITIVE ANALYSIS

Mark Harris
DTN 272-7224
CHM2-2/N3

MANAGEMENT/EXECUTIVE SUMMARY

This document describes the market for Digital and Digital-compatible/ competitive terminal server products. The actual products are profiled and their associated strengths and weaknesses discussed. Also discussed are selling strategies into the installed base, as well as new systems sales, and the current and incremental revenue/business impact that these competitor's have on Digital's overall revenue/business.

DIGITAL'S SELLING STRATEGIES

Cost vs. Performance

There are two components in providing any networking solution. The first is the total overall cost of implementation, as well as incremental future growth (i.e., the "bottom-line"). Even more important, however, is the performance and functionality gained. After all, getting a product that does not fit the need, regardless of price, is not the proper solution. Many people attempt to determine their acceptable trade-off point between total cost and functionality provided. For most, this often becomes a reiterative process; choosing one set of criteria initially, then retrofitting many times (at additional cost) to get to their final solution.

This procedure is very time consuming and, in most cases, costly. A key point behind the selling strategies presented within this analysis is that if a better understanding of price vs. performance is presented to the customer up front, Digital will be the obvious choice for their terminal interconnection solution and, ultimately, for all of their networking solutions. Digital has product and service offerings in the asynchronous terminal server space that can be equaled by none. As illustrated in this analysis, the clear advantages to a Digital LAN-based terminal interconnect solution are numerous.

Digital's Superior Products

Digital's terminal server products, specifically the DECserver 200 and DECserver 500, provide the most feature-rich connections to Digital processors available at any price from any vendor. The key to the Digital advantage is the Digital terminal servers are integrated into the inner workings of the Digital operating systems. This integration provides the following functionality:

- Comprehensive load balancing enables the maximum benefits available within VAXclusters to be fully realized.

- Multiple sessions and unlimited sessions to a VAX system allow for increased productivity due to increased concurrent information accessibility -- functionality unsurpassed by any other vendor.

When providing a solution to a customer's terminal interconnection needs, the task for the salesperson is not one of explaining technical issues, but of understanding the customer's problems more clearly. More importantly, the salesperson must properly identify the benefits behind providing the above functionality to the customer. If customers understand that they need the benefits available and can get those benefits only with Digital terminal servers, they will buy Digital terminal servers.

Maximizing the Ethernet Solution

Digital's terminal servers use the LAT protocol, which is specifically designed to provide maximum throughput with minimal impact on the overall Ethernet performance. The Ethernet bandwidth is a critical resource for the overall solution and should always be configured in ways that can maximize its usefulness. With the advent of new software functionality (such as Local Area VAXclusters [LAVc] and Distributed System Services [DSS], which can consume larger amounts of the Ethernet than single systems communicating

using DECnet, for instance), it has become apparent that, while the Ethernet LAN technology is more than sufficient for the vast majority of all processing needs, it is only sufficient as long as it is used effectively. Products such as the LAN Bridge 100, with their ability to isolate and segment groupings of users and their primary processor systems, can further assist in making Digital terminal servers part of a truly successful networking solution.

Lower Cost of Implementation

Another key concern when choosing a terminal interconnect solution is overall cost of implementation. Digital offers the most cost-effective solution for terminal interconnection available through the use of the DECserver family of products, while at the same time providing the highest functionality available. With the Digital solution, our customers do not need to trade off functionality for cost. This is primarily due to the fact that the vast majority of all Digital solutions have multiple Digital processors configured and require true host-to-host networking using the DECnet, DECnet Systems Services (DSS) and/or Local Area VAXcluster software.

Digital is the world leader in true distributed processing. When the number of lines required is viewed in the multiple Digital processor environment, Digital's cost-per-line benefit becomes clear. Where other vendors' processors exist, the reverse capabilities of the DECserver products can equal the offerings of our competitors for connection to those processors, while still realizing the high functionality of connections to the Digital systems. The actual cost-per-line realized when using Digital terminal servers can be many times less than our competitors' solutions.

Finally, our competition introduces a term called "Acceptable Contention Ratio" to try to bring their terminal interconnect solutions into range with the Digital solution. This ratio basically calls out the number of user lines for each pathway into the computing environment. More simply, it describes the number of users that NEED access compared to the number of users that CAN HAVE access. With a Digital solution, there is a ONE-TO-ONE correspondence between the lines in the terminal server and the lines into the host -- all users that need access can have it any time. This reduces the need for additional Ethernet controllers on the host to increase the number of available ports, thus reducing the overall cost of implementation.

Digital's Commitment to Service

Digital provides the most comprehensive field service offerings available in the industry across terminal interconnect vendors. Terminal servers involve both hardware and software. Consequently, there exist at least several points of possible failure when providing terminal interconnection. Due to the nature of the product, it becomes very apparent to many individuals when a failure occurs -- their terminal stops. Through Digital service agreements, both Digital on-site and carry-in, hard-failure problems can be rectified in as little as several hours. Extensive spares are stocked and telephone support is always available. The competition can offer their premium service arrangements as well, but due to their size and assets, they cannot possibly guarantee such a rapid turnaround of problems. The service provided and the size of Digital's service organization should never be downplayed when selling the features/benefits of a Digital terminal server solution.

COMPETITIVE ISSUES

IBM 3270 Connection

The Digital product set does not directly address the connection of IBM 3270-class terminals; however, most competitors to be discussed in this analysis do. There are approximately five to ten IBM 3270 Coax Type A terminals to every one Digital VT-class terminal. The IBM 3270 connection is a capability that Digital is not likely to leave unanswered. In fact, the recently announced DECserver 500 has the ability to perform as the basis for a multitude of interconnection needs. It is likely that a set of products that addresses the many aspects of the IBM 3270 connection requirement can and will be built upon the DECserver 500 in the future.

Reverse Connection for Foreign Hosts

Several customers view the reverse connection functionality (connects foreign hosts) available from Digital, as well as from some of our competition, as an inefficient use of resources, since it requires additional hardware to be installed to front end the user connections. Customers prefer to use other protocols, such as XNS or TCP/IP and the associated Ethernet hardware, which can give the appearance of being a much cleaner solution. They do, however, trade off functionality and LAN efficiency for this approach. The efficiency of the LAT protocol over the TCP/IP or XNS should always be highlighted.

TCP/IP and XNS -- Multivendor Protocols

In general, our competitors have technical shortcomings such as blocking, expensive use of backplane space, no VAXBI support and no DECnet support. They do, however, offer a straightforward multivendor protocol product. With TCP/IP gaining an ever-growing list of supported processors and operating systems today, it appears that TCP/IP is the only commonly accepted multivendor protocol. This single fact positions our competition very positively at first glance. It is very important to realize that while the virtues of this multivendor connectivity are being played up to the users, the press and consultants, functionality or performance provided by using TCP/IP for terminal interconnection is rarely highlighted by the competition. Our competition is relying on the fact that terminal interconnection can be described as a connection function alone and does not have to include any specific level of performance or functionality. This performance and functionality can play an important role in the decision process.

VAXcluster Support

The maximum benefits available through the use of VAXclusters can only be realized with Digital terminal servers -- a shortcoming for all competitive products that is absolutely essential to understand. This is due to the way in which the competitive products are connected into the clustered systems. The Digital terminal servers are tightly integrated into the basic VMS architecture, rather than merely connected into the system.

Finally, with many competitors' terminal interconnect solutions, extra hardware, such as network management servers, is required on the LAN to download the terminal server software. This can greatly add to the overall cost of a customer's solution. With an integrated Digital solution, the only hardware you need is the host and the Digital server.

A COMPARISON OF EMULEX CORPORATION, ABLE CORPORATION AND DIGITAL DHV/DHQ11-COMPATIBLE PRODUCTS

Jim Colantropo
DTN 272-7223
CHM1-2/N3

MANAGEMENT SUMMARY

This report examines Digital's DHV11/DHQ11 asynchronous Q-bus communications controller market position, product features, and selling strengths against Emulex's and Able's plug-compatible products.

Emulex and Able design, manufacture, and market communication products compatible with Digital's UNIBUS and Q-bus systems. These firms are Digital's major competitive rivals in the DHQ11 plug-compatible marketplace.

While Digital can offer a comprehensive product line of system options, mass storage and communications controllers that support the Q-bus systems, our competition is clearly gaining in roads into Digital's Q-bus customer base, due in part to its sheer size.

The DHQ11, Digital's enhanced replacement for the DHV11, has the performance to compete functionally against the competition's products, thus leaving price as the major competitive issue.

Digital's premium price, particularly in the aftermarket, clearly creates price sensitivity within a segment of the customer base. However, this price sensitivity can be defused by reinforcing Digital's "added value" over Emulex and Able.

Digital offers the following added value:

- One year on-site product warranty.
- The security of a single vendor that provides "one stop shopping" solutions from the desktop to the computer room -- an integrated approach to software, hardware and systems development.
- Extensive product qualification testing that ensures a reliable, compatible, high-performance product.
- A professional direct salesforce.
- An extensive service support organization that covers a much broader geographical area, has ample quantities of spare parts available, has the most current technology training and is very responsive to customer's critical needs.