

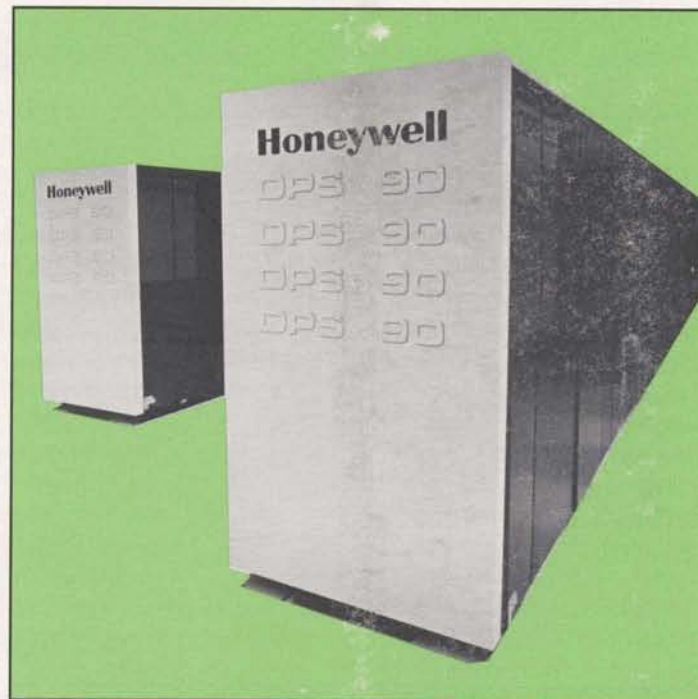
JULY 1986

SPECTRUM

FOR THE EMPLOYEES OF GE INFORMATION SERVICES COMPANY

cover story

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SPECTRUM is published by Employee Communication, General Electric Information Services Company, 401 N. Washington St. 01B, Rockville, Maryland 20850, USA for employees. For distribution changes QUIK-COMM; OLOS. For additional copies QUIK-COMM: OLOS, publication number 0308.16.

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INFORMATION
SERVICES

General Electric Information Services Company, U.S.A.

cover story

MARK III[®] REVITALIZED: FOCUS ON CLIENTS & TECHNOLOGY

MESSAGE FROM BOB HENCH

Over the past year, the MARK III product area has undergone significant change, enhancing technological capabilities and improving responsiveness to clients.

Virtually all the equipment in both Amsterdam and Brook Park has been replaced or upgraded--a remarkable achievement. Each component--Engineering, Deployment Planning, and Operations--has made major contributions and worked together to execute the largest product and system change in our history.

Concurrently, we have increased the reliability and quality of MARK III Service to new levels of stability. We created a new group, Client Systems, to provide direct support for key MARK III clients and opportunities, and already the field Sales organization is giving Client Systems very positive recognition for its participation in client applications.

The following article reflects much of the past year's work. I am very proud of our MARK III team's record, and I think you will be, too.

Bob

MARK III OVERVIEW

If you visit the third floor of Maryland Center in Rockville, you may do a double take at the building's only Roman numeral floor sign--III. It's just an indicator of the pride and good humor that the MARK III team brings to the business these days.

Moreover, the team does have a lot to brag about lately. MARK III Service technology and performance have been upgraded at the Supercenters by the addition of eleven Honeywell DPS 90 processors in four clusters and 130 IBM 3380 disk storage devices. Many technical capabilities are in development or have been added to the MARK III Service, and the Client Systems group has raised the level of technical support by implementing a three-pronged agenda to intensify and focus client support.

Apparently these new measures are largely effective. The MARK III 1986 revenue is almost on track, albeit lower than last year's revenues because of factors such as the expected erosion of small clients (as they turn to PCs and the like) and the price erosion necessary to retain clients--particularly large clients--who know that computer services' costs are declining and consequently think they should be getting the same or expanded services for lower rates (the price-performance trade-off issue).

Roger Dyer, Manager of MARK III Client Systems, reports, "Finding the right kind of MARK III business is increasingly challenging, because our new business is different from our old business. Traditional MARK III clients started small and grew with us. Their needs tended to be incremental--more users, bigger programs, more features, faster response.

"Now I see a different set of opportunities. Current client requirements are communication-intensive, linking existing systems and providing intelligent device support, 'switch' applications, local area network (LAN) interfaces, dial-out capabilities, and



Equipment upgrades at the Brook Park Supercenter took place without disrupting operations.

voice transmission. Essentially, we're now offering network processing rather than host processing."

The rejuvenation of MARK III rests heavily on technical upgrades, enhanced capabilities, and technical client support. Each of these improvements is described briefly below.

EQUIPMENT UPGRADES

Since March 1985, the MARK III team has undertaken equipment upgrades that are replacing or moving every piece of equipment in the Brook Park and Amstelveen Supercenters. The two primary equipment upgrades are the replacement of 34 Honeywell DPS 8/70 mainframes with 11 Honeywell DPS 90s (essentially the NEC S 1000, licensed to Honeywell) and the introduction of 130 Honeywell MSU 3380 disk storage devices to replace existing STC 8650s.

Notably, as Bob Hensch observes, "To date, at no time has a client gone off the air because of our equipment upgrade operations." Perhaps most remarkably, Mel Szot (Manager, MARK III Planning and Quality Assurance) and Zigi Quastler (Manager, Ohio Center) agree that such equipment upgrades constitute "business as usual."

"We undertake such upgrades all the time," Quastler explains, "And we execute them basically during working hours, although the actual changeovers must take place on weekends to minimize the chance of affecting clients."

"It's just a matter of careful planning," Szot adds. "Although the logistics of the DPS 90 and 3380 replacements required an extraordinary effort, we had no particular problems."

"Such technical improvements are standard operating procedure for us. In the computer services world, we're constantly challenged by technical advances, and we have to keep pace. It's a cycle, and there's rarely a time when we're not contemplating replacing equipment or in the midst of an equipment upgrade."

DPS 90 Upgrade

The DPS 90 mainframe upgrade took roughly two years from its selection in 1984 (after an extensive one-year benchmark test) to final installation. The last MARK III file systems were successfully migrated to the new processors in February of this year. Each DPS 90 currently runs at 7 million instructions per second (Mips) during normal operation.

"The core issue in such an equipment upgrade is keeping clients up and running while we're changing over," Szot says. The extensive planning necessary to accomplish that objective included:

- o Planning and Deployment's detailed evaluation of MARK III capacity requirements to size the current load and project future growth, which resulted in nine DPS 90s at Brook Park and two at Amstelveen.

- o Facility's consideration of numerous details, such as cluster locations, provision of special air conditioning capacity (including necessary duct work), and electrical connections.

- o The development of several operating system modifications to accommodate the new DPS 90 environment, which required input from Operating System Design, Integration Test, and Software Deployment personnel. Moreover, all the test and diagnostic routines for scratch pad memories, random access memories, front-end communication controllers, and bus adapters had to be rewritten.

- o The development of a detailed deployment plan and schedule that would not affect the client base but would accommodate the DPS 90 installations, the deployment of a heavily modified operating system, and the deinstallation of the idled DPS 8/70s.

- o Overall evaluations of the impact of the change-over on the network and appropriate network reconfigurations.

The actual deployment of DPS 90s began in May 1985 and required detailed logistics planning and extensive testing and physical preparation during the week to accommodate the heavy workload executed on weekends. As Szot recalls, "Our people really had to know exactly what they were going to do on any given weekend."

During the summer of 1985, the file systems were slowly (and with painstaking thoroughness) migrated to DPS 90s, the results were monitored and clusters were formed (an extremely detailed process that produced its first cluster in August). In the fall, the upgrade process was accelerated based on earlier installation successes, and twice the number of DPS 90s were installed and uploaded in half the time.

The DPS 90 change-over was completed in Brook Park in December 1985 (30 days ahead of schedule), and the European schedule was accelerated based on Brook Park's success. Amstelveen's first and second uploads took place in February 1986, about a month ahead of schedule on average.

Thus, the entire MARK III client base was migrated to DPS 90s in less than ten months, on cost and ahead of schedule. In Szot's assessment, "We did exceptionally well after one brief period of adjustment early in the process. We had some software problems--quickly corrected--but that's to be expected when you scale software up for large computers like we did.

The DPS 90s offer several advantages over their predecessors. For example, the DPS 90s can:

- o Handle large programs more efficiently. Thus, within any given cluster, any client can have more users, and the cluster can accommodate clients with larger demands.

- o Produce the efficiencies and economies of scale necessary to remain competitive. Production costs decline with each hardware upgrade.

- o Offer exceptional reliability and back-up capabilities, as each new generation of technology often does. Of note: the DPS 90s survived an impressive trial during early commercial deployment, when one of two DPS 90s in a cluster went down, and the other DPS 90 picked up the load, carrying 600+ users (versus an expected normal capacity of 415 users per DPS 90).

The upgrade required the close coordination of over 20 GE Information Services functional organizations, two Supercenters, and three hardware vendors. To say that almost all MARK III personnel contributed is hardly an overstatement. The people who helped make the DPS 90 upgrade successful include--but are in no way limited to--Bob Stolzenburg (Manager, MARK III Operating System)



Mel Szot (left) and Zigi Quastler were two of the leaders in the DPS 90 changeover.

