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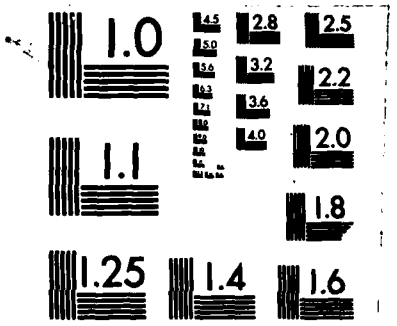

MILITARY MESSAGE EXPERIMENT

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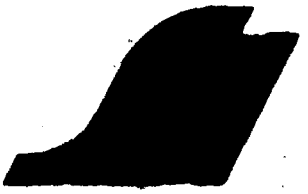

SCIENCE APPLICATIONS, INC.

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MILITARY MESSAGE EXPERIMENT

ACTIVITIES FISCAL YEAR 1978

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SAI-79-820-WA

by

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FORWARD

As the Military Message Experiment (MME), a jointly sponsored program of the Defense Advanced Research Projects Agency (DARPA), the Naval Telecommunications Command (NAVTELCOM), the Commander-in-Chief-Pacific (CINCPAC), and the Naval Electronics Systems Command (NAVELEX), entered the actual operational phase in FY78, the Information Processing Techniques Office of DARPA began a process of continuous monitoring of the progress of the MME in order to provide guidance and direction to the program as necessary.

The test plan for the Military Message Experiment, prepared by CTEC, Inc., on 2 November 1977, listed these eight items as the basic elements of the program:

1. Members of the Operations Directorate (J3) at CINCPAC Headquarters, Camp Smith, Hawaii, will be provided with approximately 24 display terminals and 7 printers.

2. A PDP-10 computer with the TENEX operating system will be installed in a Top Secret facility and dedicated to running message-handling software for the evaluation program.

3. The system will be connected to the Local Digital Message Exchange (LDMX) which serves as the AUTODIN terminal at Camp Smith.

4. DARPA contractors will develop and install a message service system in the PDP-10, the terminal support processor, and CRT terminals. Bolt, Beranek, and Newman, Inc. (BBN), the Information Sciences Institute (ISI) of the University of Southern California, and the Massachusetts Institute of Technology (MIT) have all designed and implemented messages services. The ISI SIGMA service has been selected for installation at CINCPAC. All three systems will be examined in a series of structured tests which are tentatively scheduled to be conducted at the Naval Ocean Systems Center (NOSC).

5. NARDAC will develop, install, and test an LDMX interface to the PDP-10.

6. Personnel at CINCPAC will use the terminals and computer system for generating, transmitting, receiving, and filing messages over a period of two years while the evaluation is being conducted.

7. Selected Navy personnel will use all the message systems for short Structured Tests in a non-operational setting. These tests will be used to compare design features of all the message systems, and to evaluate proposed changes to SIGMA before installing new versions of SIGMA at CINCPAC.

8. The results of both operational and structured tests will be used to influence the specification and design of production hardware and software for future message handling. (DISTAN)

In order that technical expertise would be available to the program directors on site at CINCPAC, the DARPA IPTO tasked Dr. Franklin F. Kuo of the University of Hawaii to respond to problems on an ad hoc basis throughout the Fiscal Year 1978. Dr. Kuo reported problems, suggested short and long range changes and improvements, and interfaced directly with the principals in Hawaii and with the IPTO program manager. Dr. Kuo provided monthly written reports directly to DARPA IPTO as well as personal calls and visits in order to advance the MME project as the experiment progressed. The following report represents a summary prepared by Dr. Kuo of the activities conducted under this task in FY78.

SECTION 1
ACCOMPLISHMENTS

1.1 INTRODUCTION

The MME (Military Message Experiment) is a joint DARPA/Navy/CINCPAC experiment whose objectives are the following;

1) To demonstrate that an interactive message service is useful in a military environment (the CINCPAC Command Center),
2) To assess the operational and administrative changes on the user community (the J3 users), and
3) To define the cost/performance tradeoffs of a secure, interactive military message service.

During the past twelve months the author was ~~I have been~~ involved on a 1.0-1.5 days per month basis as a management and technical consultant to the IPT Office of DARPA on MME matters. This document ~~The following~~ represents a summary of his ~~my~~ principal activities on MME.

1.2 MANAGEMENT ACTIVITIES

One of my primary tasks in this area was to try to protect the often counter-productive political

controversies that arose between the three principal sponsors of the MME: DARPA, the Navy, and CINCPAC. During the year, I had numerous discussions with the CINCPAC/J6, BGen McCarthy, the Director of the DARPA Regional Office, Pacific, Mr. Scott, and various representatives of the Navy on MME management issues. During the early days of my involvement, I sensed that the management of MME was diffuse, and was managed by a large disorganized committee that met only periodically, and was controlled from Washington. After many discussions with various principals, I recommended the creation of a single SPO-like management office for MME to be located in Hawaii. Although this specific recommendation was not taken, the problem was recognized by all three principals and corrective actions were taken which culminated in a new Memorandum of Agreement signed by the principals in September 1978.

I felt my actions were particularly useful when I interceded with RAdms Nagler and Shick of the Navy in behalf of the MME during a time (April - June 1978) when a sharp disagreement arose between DARPA and the various Navy participants on the mangement and technical objectives of the experiment. I believe I was able to turn RAdm. Shick around from what was perceived to be an intransigent position. I also had a number of discussions with the Information

Systems Office of the Office of the Secretary of Defense, ODUSDR&E(C3I), to shore up support for MME during this period. With these actions I contributed to the restoration of stability from a period of political turmoil.

1.3 TECHNICAL ACTIVITIES

1.3.1 MME Phasing Study

During the months of October and November 1977 I participated in a working group to study the issue of improving the response time of MME by developing the system in phases. This led to a CINCPAC internal report, of which I was a co-author which was entitled "Alternatives for Low-Level Initial Phases of the Military Message Experiment." The principal author of this study was Jonathan Mitchell of Mitre, and the other co-authors were Frank Graves and Gene McHugh of the CINCPAC Staff and Linn Klitzkie of CTEC, the MME On-Site Test Director.

1.3.2 SIGMA vs. HERMES

During November and December 1977, I participated in discussions among various groups at CINCPAC on whether the BBN message processing system, HERMES, should be

substituted for the existing message system, SIGMA, which was developed by USC/ISI. These discussions took place at a time when the response time of SIGMA was unacceptably slow and its reliability was poor. My position was to stick with SIGMA since a change to HERMES would have delayed further progress by six months to a year. The final decision to stick with SIGMA was made by Col. Russell, the Director of DARPA/IPTO during a visit to CINCPAC at the end of 1977. In retrospect, this was a good decision since SIGMA response time has gotten much better and it is reliable enough for the requirements of daily operational use.

1.3.3 SIGMA Response Time

I kept close track of SIGMA response time during the period January - May 1978, and particiapted in a number of 8 and 12-user tests on the performance of SIGMA. I submitted monthly reports to Steve Walker and Duane Adams of DARPA on this matter.

1.3.4 System Problem Reporting

I worked with Linn Klitzkie and Frank Graves during the period April - May 1978 in developing a daily

system problem reporting procedure which resulted in the daily situation report on system availability that is being used at present. I also worked with Klitzkie in interpreting and evaluating the MME acceptance criteria prepared by the Naval Research Laboratory.

SECTION 2
THE PRESENT STATUS OF MME

The MME is now in very good shape from both management and technical standpoints. With Release 2.0, SIGMA is now quite stable and reliable, and with the anticipated delivery and installation of the KL10 machine in October 1978, I believe significant improvements in system response time will result. From a management standpoint, Duane Adams of DARPA has improved the technical management of MME significantly and has effectively become the single focus for technical management that I recommended. Linn Klitzkie has demonstrated increasing confidence in his role as On-Site Test Director. The MME has gained strong acceptance from many parts of the J3 user community, and the number of users is over 30 at present. We can anticipate considerable user support over the next twelve months when the system will be used on a daily basis for J3 operational activities.

SECTION 3
THE FUTURE

Although the present status of the MME is favorable, the future of the MME after September 1979 is uncertain. On that date, Navy RDT&E support for MME will end. The MME will then metamorphose into the "Military Message Testbed" and will continue its existence if DARPA and CINCPAC O&M support can be obtained. I strongly urge that MME be maintained for operational testing and use until the 1981 - 1983 time frame when the new standard AMH (Automated Message Handling) systems (based upon the NMICC-SS system of the Intelligence Community) might be available. After three years of development effort and many millions of dollars spent on MME it would be unthinkable to throw all that progress of MME down the drain by pulling the plug in 1979.

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