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AUGUST 1984

Project: MARSIK

Project Number: S0602

PROJECT IMPLEMENTATION PLAN1. INTRODUCTION

The investigation of DSD's requirement for enhanced crypt processing facilities was carried out under project LOBSTER. Results of this investigation were published in SM's "Upgrade of Crypt Processing Facilities at DSO - Analysis of Computer Requirements", June 1983. (Ref A). This paper recommended the acquisition of a CRAY computer. Project MARSIK encompasses all aspects of the acquisition, installation, support and operation of enhanced crypt processing facilities.

2. PROJECT SCOPE

- a. Obtain project and expenditure approval,
- b. Select appropriate equipment,
- c. Issue specification and finalise contract,
- d. Arrange hardware maintenance support,
- e. Provide computer room space, power and cooling
- f. Acquire system software,
- g. Arrange system software support,
- h. Arrange training for operators, software support staff and users,
- i. Manage equipment installation and acceptance,
- j. Acquire applications software.

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k. Define security plan.

3. EXECUTION

Project Approval

a. Formal project approval is planned in the August 84 budget timeframe to allow Dept. of Housing and Construction to commit the resources needed to carry out the works required for MARSIK, and to allow the equipment procurement schedule to be met. Delay beyond August 1984 would prevent the achievement of operational capability by the target date (May 87).

Equipment Selection

b. Further information on CRI product planning has come to light since Ref A was written. Technical discussions with company personnel continue. Issues to be resolved include:

- i. Mainframe configuration (processor, memory, channels)
- ii. Solid State Disk (SSD) requirement
- iii. disk capacity
- iv. magnetic tape configuration (dedicated STC, IBM, or shared access to LIBRETTD tapes)

These decisions must be finalised before the contract is let (target date March 85).

v. type of terminals (RAYTHEON non-TEMPEST, RAYTHEON TEMPEST, or other successor?).

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This question should be resolved as soon as possible, so that any consequential issues may be pursued.

c. Specification and Contract

Specifications for CRAY equipment procurement are required by July 84 at the latest. Separate contractual arrangements may be required for:

- i. the CRAY equipments,
- ii. terminals and terminal controllers,
- iii. NSC adaptors,
- iv. equipment to allow shared access to LIBRETTO tapes, if required,
- v. support services.

d. Security Plan

The agreed security plan is as follows:

- a) DSD interest in CRAY, the specification for tender, and details of the proposed CRAY configuration will all for the moment remain restricted.
- b) Knowledge that Project MARSIK involves the acquisition by DSD of a very powerful computer for cryptanalysis - SECRET HVCCO.
- c) Knowledge of cryptanalytic capabilities and target systems
- d) and distribution of information on the computer configuration will be limited to the companies concerned.
- e) Allow CRAY to establish CRAY AUST, preferably soon, so that local interest should have diminished by the time any defence association is announced. Early

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establishment will also allow CRAY to more easily develop a support structure in AUST.

- f) At an appropriate time a press announcement along the following lines may be made:

The government has approved the acquisition of a computer from CRAY Research Incorporated subject to the conclusion of satisfactory contractual arrangements by the Department of Administrative Services and the Defence Department. It will be used by the Department of Defence for tasks connected with intelligence. The governments decision, made after very careful consideration of all the issues involved, was in this case determined by its highly specialised requirements.

e. Hardware Maintenance

The methods by which on-site maintenance operations will be managed and staffed have to be negotiated. Maintenance arrangements must be made for:

- i. CRAY mainframe and peripherals
- ii. MG sets and refrigerant cooling units
- iii. terminals and terminal controllers
- iv. NSC adaptors
- v. equipment, if any, allowing shared access to LIBRETTO tapes.

f. Space, Power and Cooling

Power and cooling requirements for MARSIK have been incorporated by AP in plans for a general upgrade of these services for H Block. Action on these plans awaits formal project approval. Detailed power

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distribution plans have been obtained from CRAY. Plans for alterations to the computer room (1.67) and support areas are with AP.

A requirement has been established for strictly controlled access to all privileged terminals, which may necessitate tighter security and monitoring arrangements in computer operational areas.

The TEMPEST security measures deemed necessary for power and signal cabling into and out of the screened area are under investigation.

Work on 1.67 requires the removal of the CDC 3400. This is required by Dec 84. A firm decommissioning date, of 1 Nov 84 has been established and COMSEC conversion is on schedule. Eventual disposition of the 3400 needs to be addressed. The 160-A's must also be decommissioned and disposed of (to a CDA museum?).

g. System Software Acquisition

It is understood that a copy of the FOLKLORE operating system will be made freely available to OSD.

efforts should be made to establish a firm baseline and to set up a mechanism whereby subsequent changes are regularly and formally notified. It will be the responsibility of the system software support team to manage the acquisition and subsequent support of all system software, identifying local requirements and coordinating changes with local users and applications. In addition to FOLKLORE, the following software will be needed:

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IMSL to be obtained by separate contract with the Supplier
IMSL, inc. of Houston, Texas.

A file transfer utility (TRANSF) to/from the CYBER 175 will need
to be written in-house.

h. System Software Support

As discussed in paras 16-19 of Ref A, the current CYBER Support
establishment will not be sufficient for the provision of adequate
systems support and specialist advice to users, while maintaining
concurrent operation of the CYBER. Further, additional, support will
be required during the initial two-year period of system installation
and conversion. Actions required are:

- i. Review the structure and mode of operation of the system software
support team.
- ii. Establish and fill two CSO positions at the appropriate level for
CRAY/FOLKLORE support.
- iii. Adjust CHR staffing to provide appropriate applications support
programming capability.
- iv. Short term TDY's to assist in FOLKLORE installation should be
sought from NSA.
- v. Negotiate the provision of software support by the contractor
for at least 2 years after installation.

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i. Training

As outlined in paras 23, 24 of Ref A, training of DSD specialist software staff in FOLKLORE support will require attachments to NSA. TDY's have been programmed. Attachments for CH staff have been included in DSD's travel program. Plans for the training of operators, and for the local training of support staff and users, need to be developed. Actions required include:

- i. Establish dates and duration of software support staff TDY's. Prepare trip submissions. Arrange necessary clearances.
- ii. Similarly for CH staff.
- iii. Plan operator training program. Decide whether it is possible or desirable to train any operators prior to installation. In this connection, a decision is required as to whether to establish a pool of MARSIK operators or to add MARSIK skills to those already held by all senior operating staff. One additional SC01 position needs to be established and filled.
- iv. Plan support staff training, for those not detached to NSA, and for new recruits. Decide what level of training is possible or desirable prior to installation. IMP training will presumably be an on-going requirement.
- v. Seek help in the provision of training from the contractor

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j. Installation and Acceptance

An installation plan should be developed in consultation with the contractor, AP and Building Operations staff. SMO will manage the installation as DSD representative. Acceptance tests need to be devised and agreed on with the contractor.

k. Applications Software

The initiative for the acquisition and writing of applications software will be primarily with the user, CH.

For acquisition, knowledge of what is available will be needed. Access to this knowledge may be provided both through liaison channels and by DSD representation

The process of acquisition involves technical and procedural issues relating to both the method of supply and the installation at DSD. The applications to be acquired will need to be reviewed to determine their compatibility with the DSD operating environment and the suitability of any machine model dependant optimisation which may be present. Local machinery will need to be implemented to ensure appropriate participation of CH, CA, and SMT staff in the acquisition and installation process.

l. Conversion

Conversion of CYBER software to MARSIK will need to be planned with due consideration of a number of issues:

1. The need to rapidly convert those high priority applications which require the increased power of the CRAY.

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- ii. The requirement to transfer all processing off the CYBER as soon as practicable to allow it to be decommissioned at a saving of at least \$530M p.a.
- iii. The dependency of cryptanalytic applications on support facilities such as , the yet to be implemented or other support facilities to be developed on MARSIK.

A conversion strategy will need to be developed between CH, CA, SMT and SMP.

4. RELATIONSHIP TO OTHER PROJECTS

Project MARSIK is not specifically dependent on other projects, with the following exceptions:

- a. Provision of power and cooling depends on the upgrade of these services to H block in general.
- b. Provision of space depends on the removal of the CDC 3400, and hence on the conversion of all COMSEC processes .

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Information removed for national
security and/or personal sensitivities5. IMPLEMENTATION SCHEDULE

Project and expenditure approval	Aug 84
Specifications for equipment procurement	Jul 84
Release of request for tender	Aug 84
Attachment of SMT staff to NSA	Nov 84
De-commission CDC 3400	1 Nov 84
Remove CDC 3400	Dec 84
Equipment selection approval	Dec 84
Contract Let	Mar 85
Site preparation completed	1 Dec 85
Equipment delivery	Feb 86
Equipment acceptance	31 Mar 86
Operational availability of MARSIK	Apr 86
Phased installation of major	Apr 86 - May 87
Conversion of applications software from CYBER 175	Apr 86 - Jul 89
De-commission CYBER 175	Aug 89

6. MANAGEMENT PLAN

A responsibility matrix is attached.

A project status report will be updated monthly.

Monthly meetings to review project progress will be conducted by SM.

DISTRIBUTION:

ADS, ADD, ADC, ADA, AF, AP,

SM, SMT, SMT2, SMO, SMP, SMR, SE, STE, SP,

CA, CH, CHR, CHP,

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Project: MARSIK

AUGUST 1984
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PROJECT INITIATION DIRECTIVE

1. AIM

To arrange the acquisition, installation and establishment of on-going support of additional crypt processing computer facilities.

Note: This project follows on from project LOBSTER,

which covered the investigation in detail of the requirements for expansion of DSD's crypt processing computer facilities. Reports produced for project LOBSTER include:

- a.
- b.
- c. "Cryptanalysis at DSD. Project LOBSTER - Upgrade of General Purpose Processor" CHR/01/83, 22 Mar 83.
- d. "Upgrade of Crypt Processing Facilities at DSD - Analysis of Computer Requirements" by June 1983.
- e. Major Project Submission (DPI) Project MARSIK 30 Sep 83.

2. BACKGROUND

Approval has been obtained for the purchase of a CRAY computer, to be installed in 1985/86 at a cost of \$11.05M (April 1984 prices, exchange rate \$0.8613 as at 29.6.84). A possible need to upgrade the system in the early 1990's was foreshadowed. \$1.9M has been programmed for associated works. \$0.6M p.a has been programmed for on-going computer services. See ^{para 1} reference (c) above for further background.

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3. REQUIREMENT

The requirement of project MARSIK is to provide DSD cryptanalysts with access to a CRAY computer running the FOLKLORE operating system. Included is the provision of hardware and software support, the acquisition of necessary software, provision of terminals, and identification of an upgrade path for possible further expansion in 1989/90.

4. PROJECT OBJECTIVES

- a. Obtain project approval for the acquisition of a CRAY computer at a cost of \$12.95M including works.
- b. Select the CRAY configuration most likely, within budgetary constraints, to satisfy predicted requirements up to 1990, and to allow a satisfactory upgrade in 1989/90.
- c. Issue specifications, negotiate and establish contracts, in conjunction with DAS.
- d. Establish maintenance arrangements for the mainframe and all ancillary equipments.
- e. Provide physical environment, including power and cooling. Computer room design must provide for strictly controlled access to all local terminals.
- f. Establish procedures for the acquisition and control of software, acquire FOLKLORE operating system, together with all compilers, assemblers and other software packages necessary to run the required applications software.
- g. Identify system software support requirements and develop the resources necessary to fulfil those requirements.

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- h. Arrange training for operators, software support staff and users.
- i. Manage equipment installation and acceptance.
- j. Acquire applications software.

5. RELATED ACTIVITIES

- a. Remove CDC 3400/160A installation, to release space in computer centre.
- b. Convert CYBER crypt processes to run on CRAY
- c. Convert CYBER non-crypt processes to LIBRETTO.

The objective is to decommission CYBER in 1989.

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6. IMPLEMENTATION SCHEDULE

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Contract Let	Mar 85
Equipment delivery	Feb 86
Equipment acceptance	31 Mar 86
Operational availability of FOLKLORE	Apr 86
Phased installation of major NSA software	Apr 86 - May 87
Conversion of applications software	Apr 86 - Jul 89
Decommissioning of CYBER 175	Aug 89

Project Leader

P.R. BRUBERG

DISTRIBUTION:

ADS, ADD, ADC, ADA,

SM, SMT, SMT2, SMD, SMP, SMR,

CH, CHR, CHP,

CA,

AF, AP,

SE,

STE,

SP,

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