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DSD SUPERCOMPUTING STRATEGY 1989/1993

PURPOSE

This minute records, in outline, the current trend of thinking at working level on supercomputing strategy.

BACKGROUND

It is necessary to resolve a broad strategy for Australian high performance cryptanalytic (HYPERCAN) computing facilities to ensure that necessary capacity can be economically provided at the time when it will be needed. There are long lead times in acquisition, development of skills and software and provision of adequate accommodation.

TIMING

A strategy with sufficient detail to permit financial and building works planning is required by June 1989.

PRINCIPLES

The strategy is based on:

- . Maintenance of continuity of production during removal to Canberra;

- . Planning for the ability to cope with expected trends in cryptologic developments and
- . Predicting that no production Special Purpose Devices will be required on the planning timeframe.

STAGES

The proposed strategy involves a five stage program as follows:-

STAGE 1

Action: Replace Raytheon Terminal Systems with the HYPERCAN Community cryptanalytic standard terminal workstations (CASTW).

Purpose: Replace ageing terminals and take advantage of CASTW software developments; also provide for remote (Canberra/Melbourne) operation.

Timing: Install April - August 1990.

Type: Sun 3/60 and 3/280s.

STAGE 2

Action: install an inexpensive supercomputer requiring minimal building works to run the UNICOS operating system and software dependent upon the CRAY Extended Arcitecture. It must also be capable of running the Folklore operating system.

Purpose:

- To enable substantial progress to be made on conversion of systems from Folklore to UNICOS before the removal of DSD to Canberra.
- To provide for the capability to run new cryptanalytic software required by expected introduction of new cryptologics by targets in Australia's area of interest.

Timing:

- Project Approval June 1989
- Order Placed September 1989
- Install May 1990

Type: Cray X-MP EA/SE.

STAGE 3

Action: Install another machine in Canberra to run the UNICOS operating system.

Purpose: Maintain continuity of production during the move to Canberra and meet computing needs from then until anticipated tasking and associated cryptologics demand added capacity.

Timing:

- Decision on type/size January 1991
- Project Approval March 1991
- Install February 1992

Type: No decision on machine size need be made until early 1991. By then we will have a clearer appreciation of our HYPERCAN needs for 1993 and beyond. Also technology changes may offer more economical solutions. We will continue to explore the possible availability of second hand UNICOS machines.

Planning: Building works should provide for the possibility of acquisition of a machine of the size of a YMP8/64, C90 or CRAY 3, should the early 1991 assessment indicate this requirement.

STAGE 4

Action: Move the STAGE 2 machine to Canberra and put into service under Folklore before MARSIK is decommissioned.

Purpose: Provide a capability for production using remaining Folklore software not practical/economic to convert to UNICOS.

Timing: After the Canberra supercomputer is giving reliable service and before MARSIK de-commissioning is required: probably from May to July 1992.

STAGE 5

Action: De-commission and dispose of MARSIK.

Purpose: Release space in DSD Melbourne building and obtain maximum financial benefit on disposal.

Timing: February 1993.

COSTS

The revised FYDP capital equipment bids document circulated by DY under cover of minute 2/6/8 of 1 May 1989 shows the following obligation plan:-

1990/91	\$ 9.5	million
1993/94	<u>\$25.0</u>	million
	<u>\$34.5</u>	million

The revised obligation plan will be:

1989/90	\$ 3.7	million
1991/1992	<u>\$18.8</u>	million
	<u>\$22.5</u>	million

These estimates are based on the above strategy and recent discussions with Cray Research Australia.

Consideration

ADP, PH, CMR, OM and OMC were consulted and concur.

4 May, 1989